

## II. ES Part I Appendices

Appendix 1 – Location Plan (National, Regional, Local Context)

Appendix 2 – Redline Plan

Appendix 3 – Means of Access Plan (Updated to include changes to the proposals)

Appendix 4 – Illustrative Masterplan (Updated to include changes to the proposals)

Appendix 5 – Proposed Parameter Plans (Updated to include changes to the proposals)

Appendix 6 – Key Receptor Plans

Appendix 7 – Topographical Survey Plan and Cut and Fill Finished Levels Contour Plan (Updated to include changes to the proposals)

Appendix 8 – Constraints and Opportunities Plans

Appendix 9 - Construction Management Plan Framework

Appendix 10 – Alternative Sites Assessment

Appendix 11 – Cumulative Development Plan

Appendix 12 - Applicant's Scoping Request

Appendix 13 – Council's Screening Opinion

Appendix 14 – Glossary and Abbreviations

Appendix 15 – Statement for Competent Experts

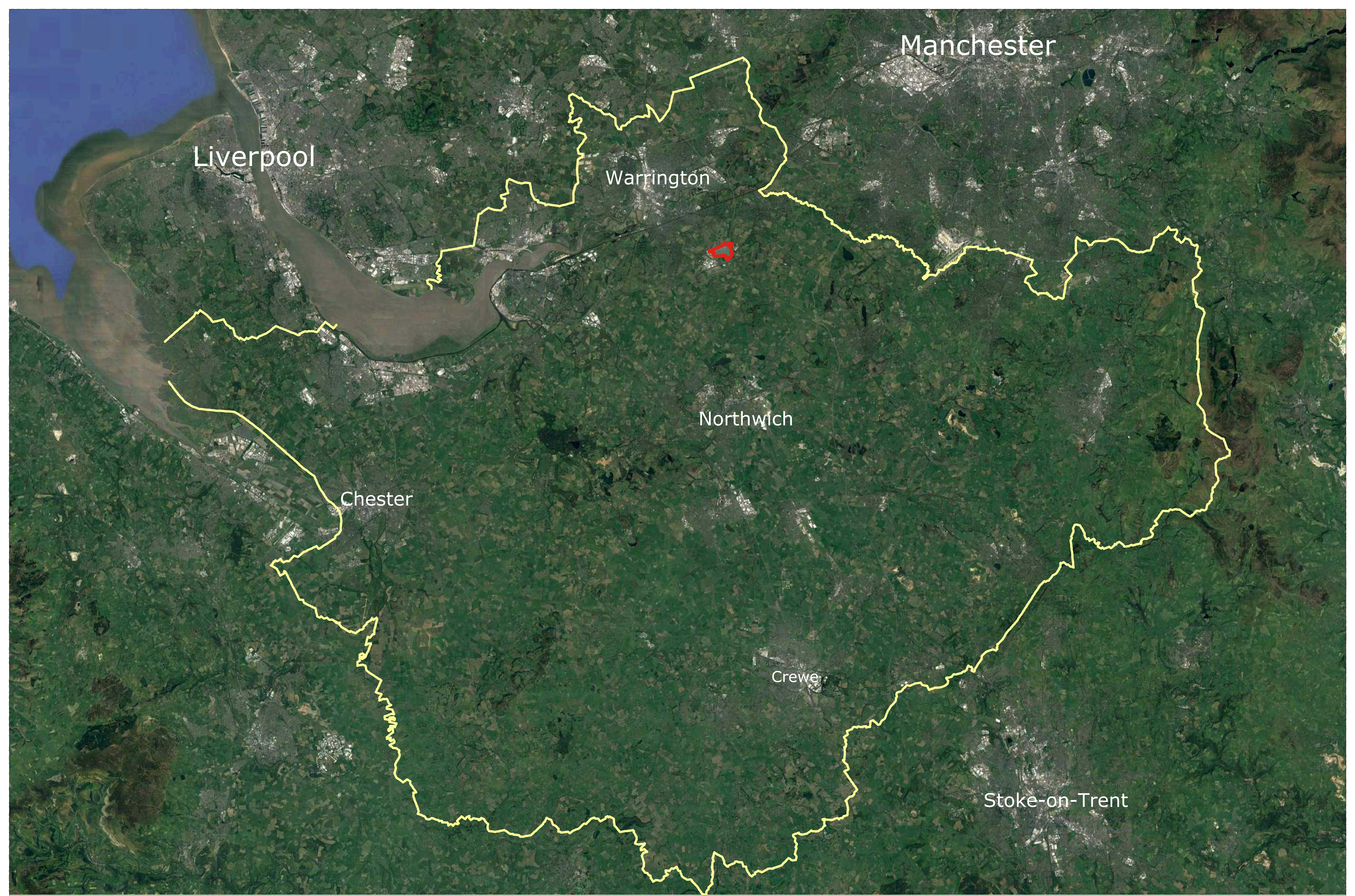
Appendix 16 – Updated Lighting Assessment

Appendix 17 - Correspondence with Warrington Council confirming approach to cumulative impacts associated with Garden Suburb

Appendix 18 – Consultant Letters Confirming No Updates to Technical Papers Required

Appendix 19 - Log of Text Deleted from Original ES Part I and First Addendum and Second Addendum Technical Papers

## **ES Part I Appendix I**



Liverpool

Manchester

Warrington

Northwich

Chester

Crewe

Stoke-on-Trent

Rev: 04/16

— Planning Boundary — Cheshire County

Langtree

PGIM

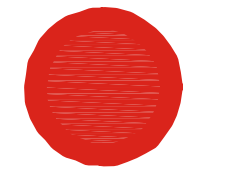
FIRST INDUSTRIAL

Stephen George +Partners LLP Architects + Masterplanners 170 London Road, Leicester LE2 1ND, UK. T: +44 (0)116 247 5557 www.stephengeorge.co.uk

Cliff Lane, Warrington Regional Plan  
Drawing No: 16-184  
Dwg No: K006  
Rev: -



Rev. Date By Description



The Site



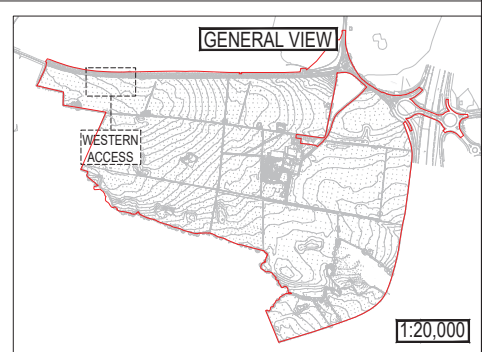
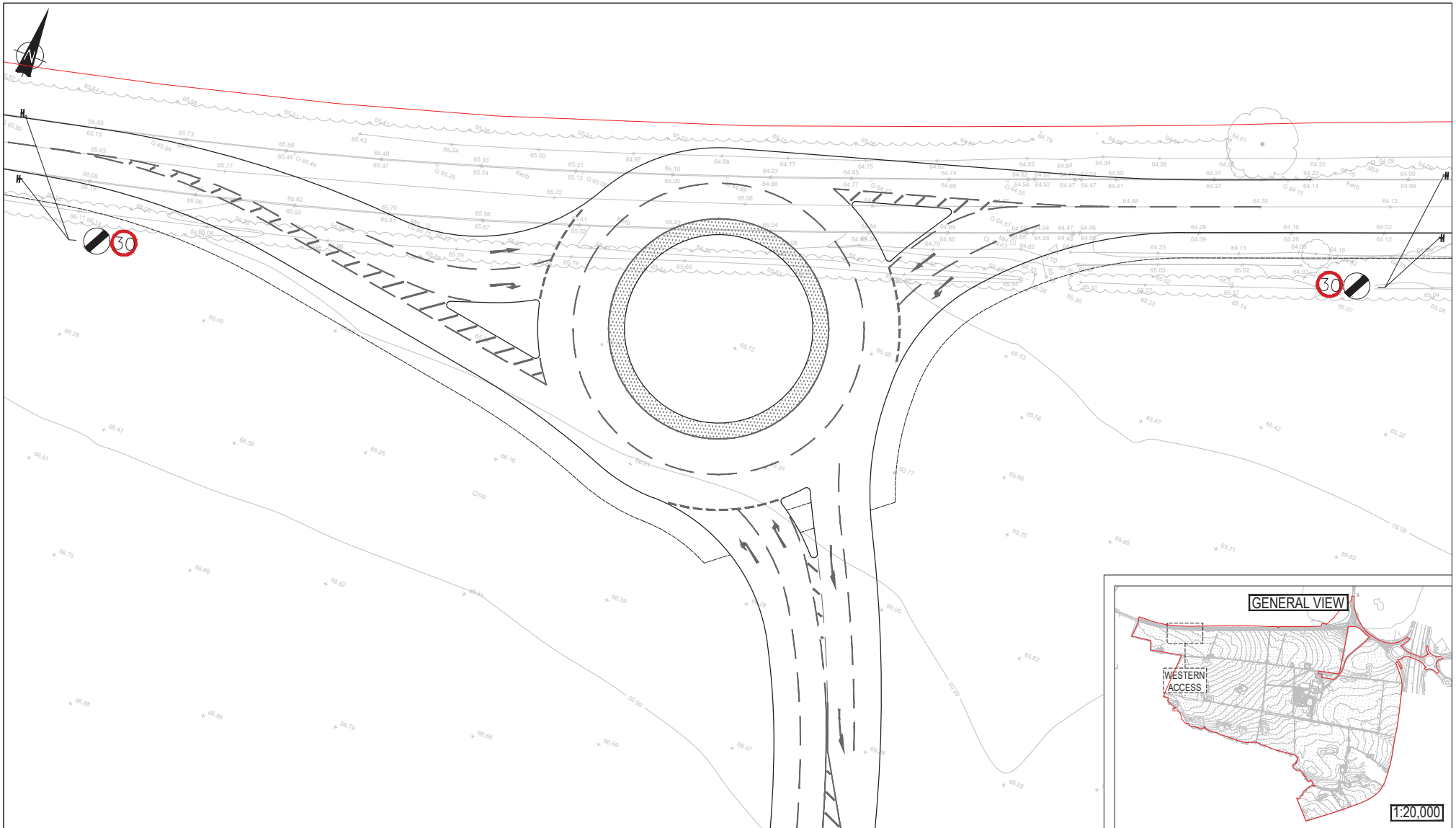
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Architects + Masterplanners  
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Cliff Lane, Warrington  
National Plan  
Drawn: JB Date: 07/05/2018  
Scale: 1:50000 @ A0  
Project No: 16-184  
Dwg No: K007  
Rev: -

## ES Part I Appendix 2



## **ES Part I Appendix 3**



|                |  |                           |
|----------------|--|---------------------------|
| KEY:           |  | INDICATIVE SITE BOUNDARY  |
|                |  | PROPOSED KERB LINE        |
|                |  | PROPOSED FOOTWAY/CYCLEWAY |
|                |  | PROPOSED ROAD MARKINGS    |
|                |  | PROPOSED OVERRUNNING AREA |
| GENERAL NOTES: |  |                           |

|      |                    |          |     |
|------|--------------------|----------|-----|
| P02  | Roundabout updated | 08/01/19 | DD  |
| Rev: | Description:       | Date:    | By: |

  
 Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG  
 0161 236 2394  
 manchester@curtins.com  
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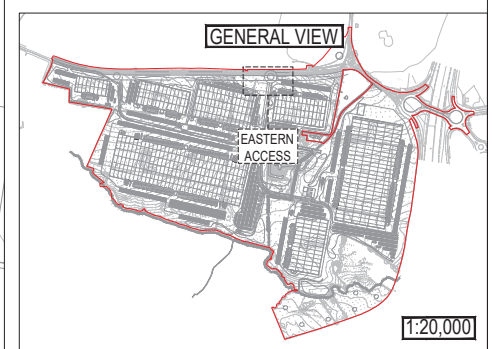
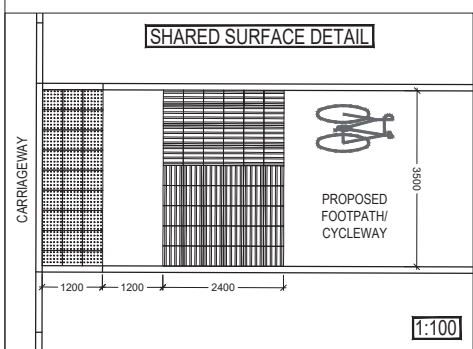
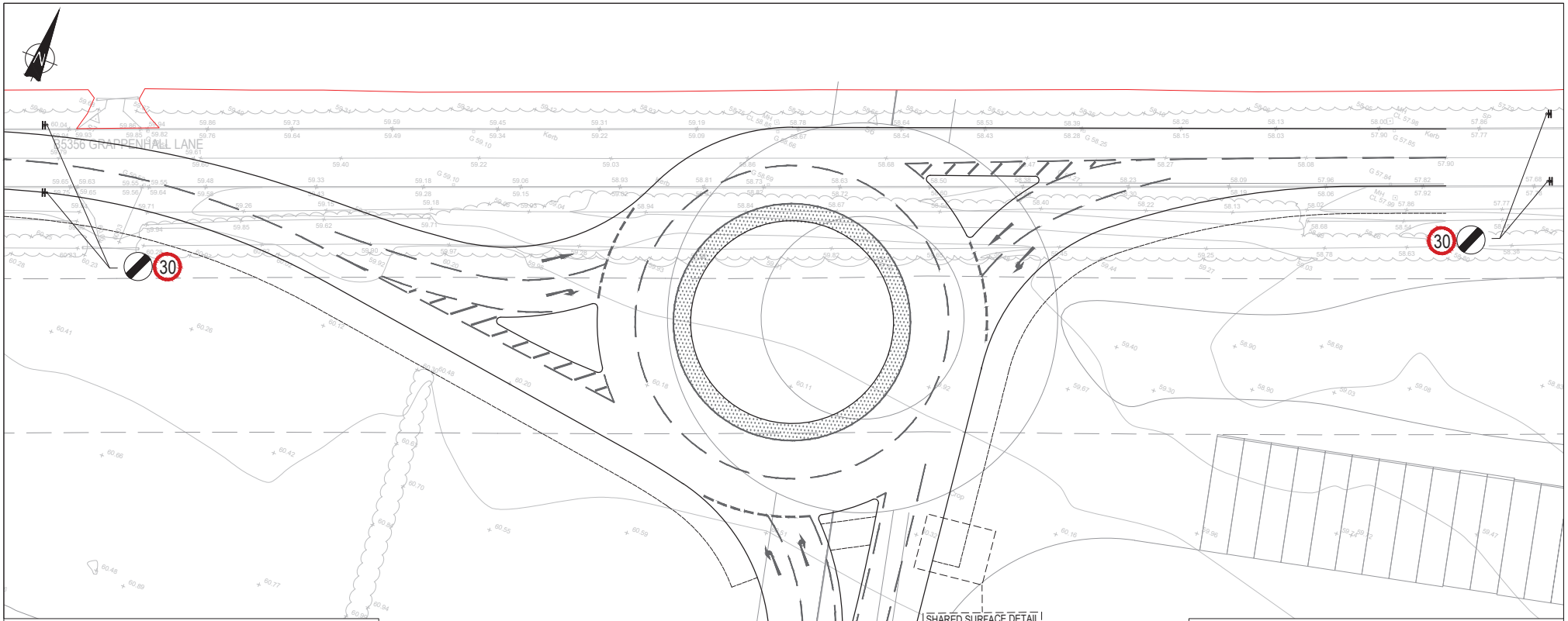
Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer  
 Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

|                                   |             |                                     |        |
|-----------------------------------|-------------|-------------------------------------|--------|
| Project:                          |             | WARRINGTON INTERCHANGE              |        |
| Drg Title:                        |             | POTENTIAL WESTERN ACCESS ROUNDABOUT |        |
| Project No:                       | Originator: | Zone:                               | Level: |
| 64076 - CUR - 00 - XX - DR - TP - |             |                                     |        |

|                     |    |                    |          |
|---------------------|----|--------------------|----------|
| Status:             |    | PRELIMINARY        |          |
| Drawn By:           | DD | Checked By:        | LK       |
| Designed By:        | DD | Date:              | 06/07/18 |
| Scale: AS INDICATED |    |                    |          |
| Discipline:         |    | Category / Number: |          |
| 75002               |    | -P02               |          |

\mats6\2\Projects\064001 - 065000\064076 - Warrington Interchange TPMAE - Drawings\2-2-DWG\G15





KEY:

- INDICATIVE SITE BOUNDARY
- PROPOSED KERB LINE
- - - PROPOSED FOOTWAY/CYCLEWAY
- - - - PROPOSED ROAD MARKINGS
- PROPOSED OVERRUNNING AREA

GENERAL NOTES:

|      |                    |          |     |
|------|--------------------|----------|-----|
| P03  | Location updated   | 04/11/19 | DD  |
| P02  | Roundabout updated | 08/01/19 | DD  |
| Rev: | Description:       | Date:    | By: |



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Project: **WARRINGTON INTERCHANGE**

Drg Title: **POTENTIAL EASTERN ACCESS ROUNDABOUT**

Project No:    Originator:    Zone:    Level:    Type:    Discipline:    Category / Number:    Rev:

**64076 - CUR - 00 - XX - DR - TP - 75001 -P03**

Status: **PRELIMINARY**

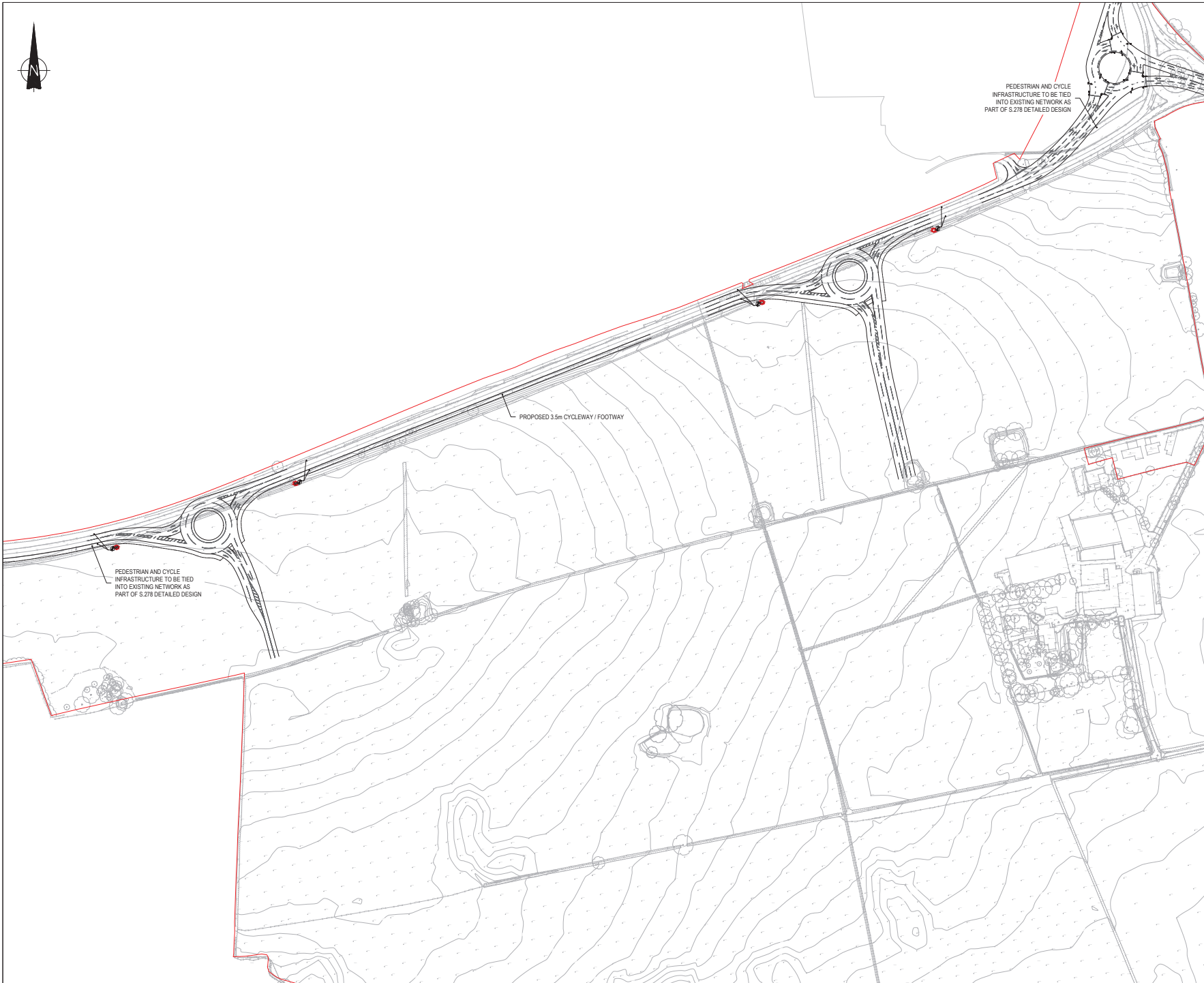
Drawn By: DD    Checked By: LK

Designed By: DD    Date: 06/07/18

Scale: AS INDICATED

I:\mats\2\Projects\064001 - 065000\064076 - Warrington Interchange TPMAE - Drawings\2-Working\2.2-DWG\75





**GENERAL NOTES:**

- KEY: — INDICATIVE RED LINE
- PROPOSED KERB LINE
- - - - - PROPOSED 3.5m CYCLEWAY / FOOTWAY
- PROPOSED ROAD MARKINGS

PEDESTRIAN AND CYCLE INFRASTRUCTURE TO BE TIED INTO EXISTING NETWORK AS PART OF S.278 DETAILED DESIGN

PROPOSED 3.5m CYCLEWAY / FOOTWAY

PEDESTRIAN AND CYCLE INFRASTRUCTURE TO BE TIED INTO EXISTING NETWORK AS PART OF S.278 DETAILED DESIGN

|     |  |          |    |    |
|-----|--|----------|----|----|
| PO2 | Location of eastern roundabout updated | 03/02/20 | LL | AV |
|-----|--|----------|----|----|

| Rev | Description | Date | By | Check |
|-----|-------------|------|----|-------|
|-----|-------------|------|----|-------|



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 Birmingham - Bristol - Cardiff - Glasgow - Dublin - Edinburgh - Glasgow - Harlow - Ipswich - London - London - Manchester - Nottingham

Status: **PRELIMINARY**

Project: **WARRINGTON SIX 56**

Dwg Title: **PEDESTRIAN AND CYCLE IMPROVEMENTS**

| Size | Date     | Drawn By | Designed By | Checked By |
|------|----------|----------|-------------|------------|
| A1   | 08/01/19 | DD       | DD          | AV         |

| Scale   | Project No. | Operator | Volume | Level | Type | Rate | Category/Number | Rev |
|---------|-------------|----------|--------|-------|------|------|-----------------|-----|
| 1:1,500 | 64076       | CUR      | 00     | XX    | DR   | TP   | 75014           | PO2 |

manchester@curtins.com | 0800 0000000 | Warrington Exchange House, Exchange Way, Warrington, Cheshire, WA1 1LW

## ES Part I Appendix 4



Rev. Date By Description

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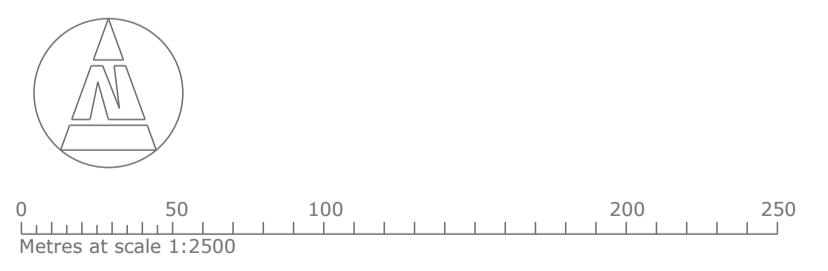
Warrington House  
24 Smith Way  
Crown Point  
Enfield  
London E9 119 5SX  
T: +44 (0)191 247 0587  
www.stephengeorge.co.uk

Six 56 Warrington  
Illustrative Masterplan  
COE Reference

Drawn: mjm  
Team: MMS  
Scale: 1:2,500 @ A1  
Date: 09/2018  
Project No: 16-184-F013 001  
Dwg No: 001  
Rev: AG

Drawing Status: Preliminary  
CAD Reference: 16-184-F013-001  
Date: 09/2018

## **ES Part I Appendix 5**





**OVERALL SUMMARY:**

**Redline Area:**  
98.09 Ha / 242.39 Ac

**Proposed Use:**  
B8 with ancillary B1(a)

**Total Developable Area:**  
62.9 Ha / 155.43 Ac

**Total Floorspace:**  
287,909m<sup>2</sup> (3,099,025 ft<sup>2</sup>) GIA

-  **Planning Boundary**
-  **Development Zone Boundary. Only new buildings will be located within the development zones.**



Six 56, Warrington  
Development Cells Parameters Plan  
CDE Reference

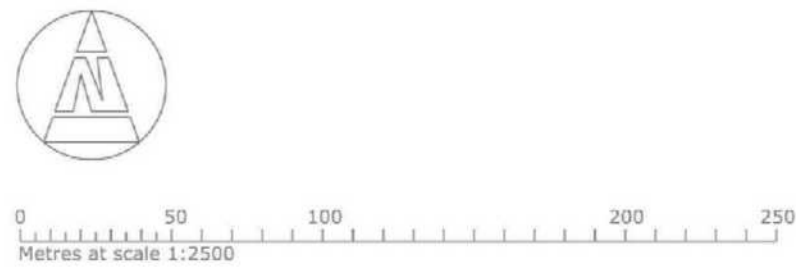
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Team: MMS  
Scale: 1:2500 @ A1  
Project No: 16-184

Drawn Status: Planning  
CAD Reference: 16-184-P110  
Date: 03/20  
Dwg No: P110  
Rev: G

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| Rev | Date       | By  | Description             |
|-----|------------|-----|-------------------------|
| H   | 02/03/2020 | HR  | Indicative Road Revised |
| I   | 05/03/2020 | MMS | Annotation updated      |

Landscaping to proposed road improvements shown indicatively.



- Planning Boundary**
- Strategic Landscaping. No new B8 buildings to be proposed in this area.**
- Existing Trees To be Retained**
- Watercourse**
- South-North Open Green Corridor**
- Watercourse 15m stand off zone**
- Mitigation Area (Details to be agreed)**
- Proposed Indicative Estate Road. (Any estate road traversing the green corridor east to west should be constructed & built into levels to minimise impact on views and setting of the SAM - Details to be agreed)**
- Proposed Infrastructure Trees. (Refer to Layer Landscape Strategy)**

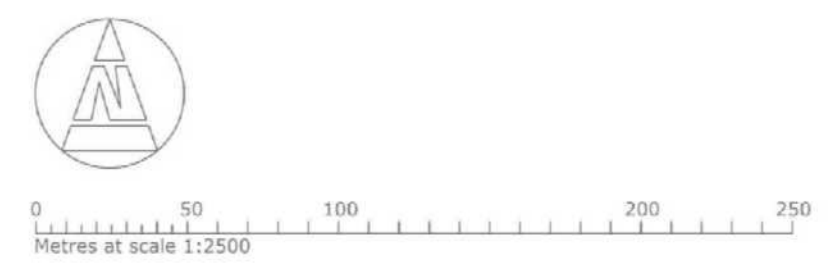
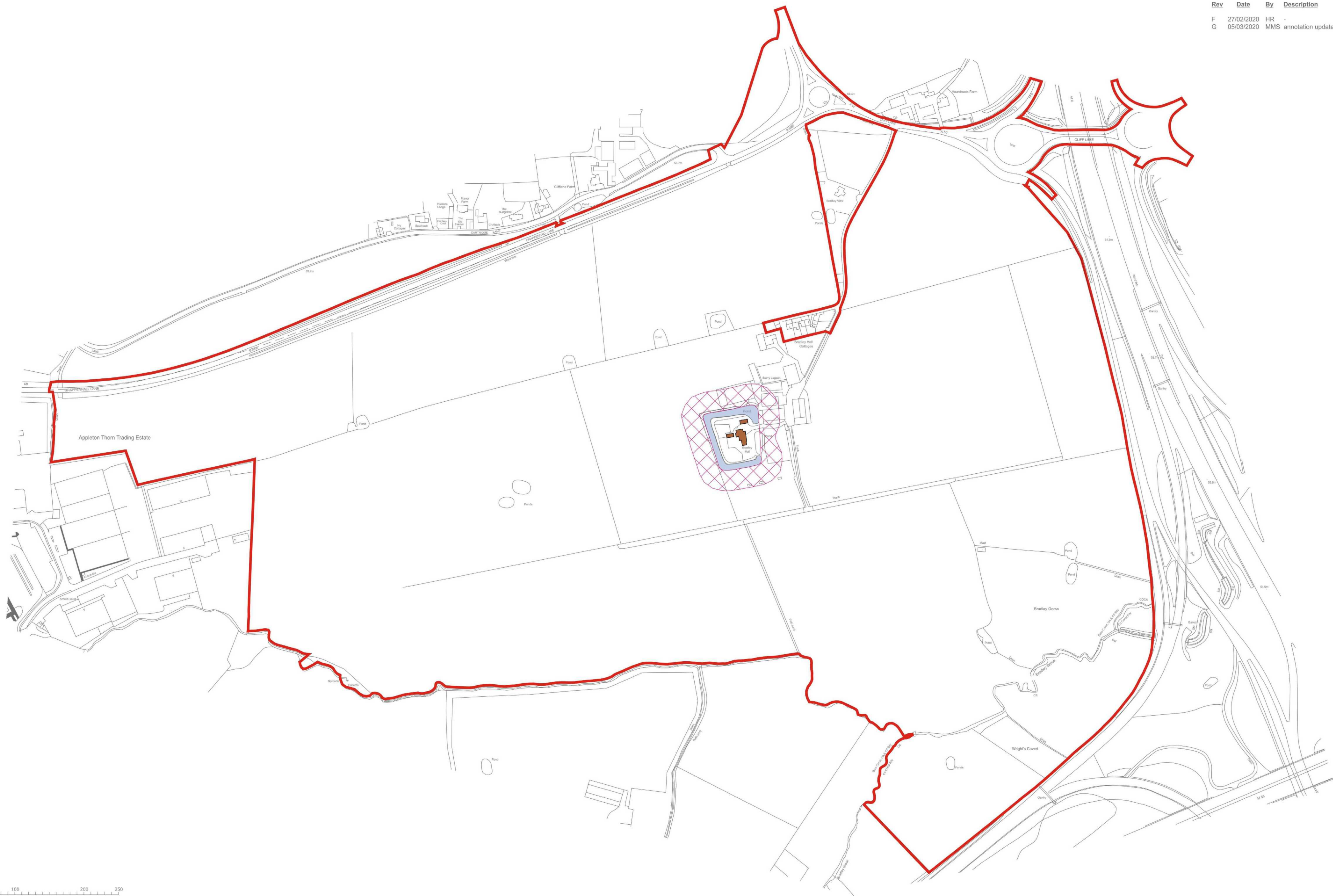
**Langtree**  
PANATTONI

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Six 56, Warrington  
Green Infrastructure Parameters Plan  
CDE Reference:  
Drawn: HR  
Team: HRIS  
Scale: 1:2500 @ A1  
Project No: 16-184  
Date: 02/20  
Drawing Status: Planning  
CAD Reference: 16-184-P111  
Date: 02/20  
Dwg No: P111  
Rev: I

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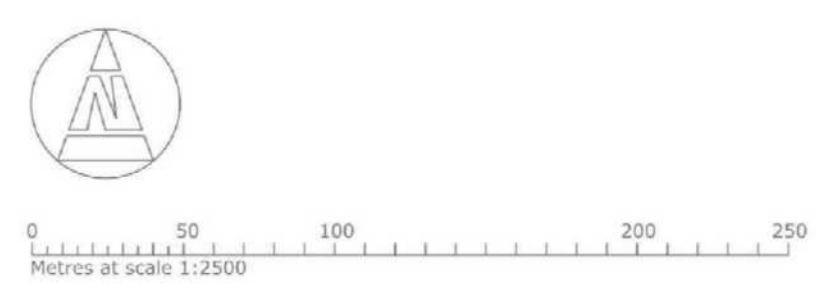
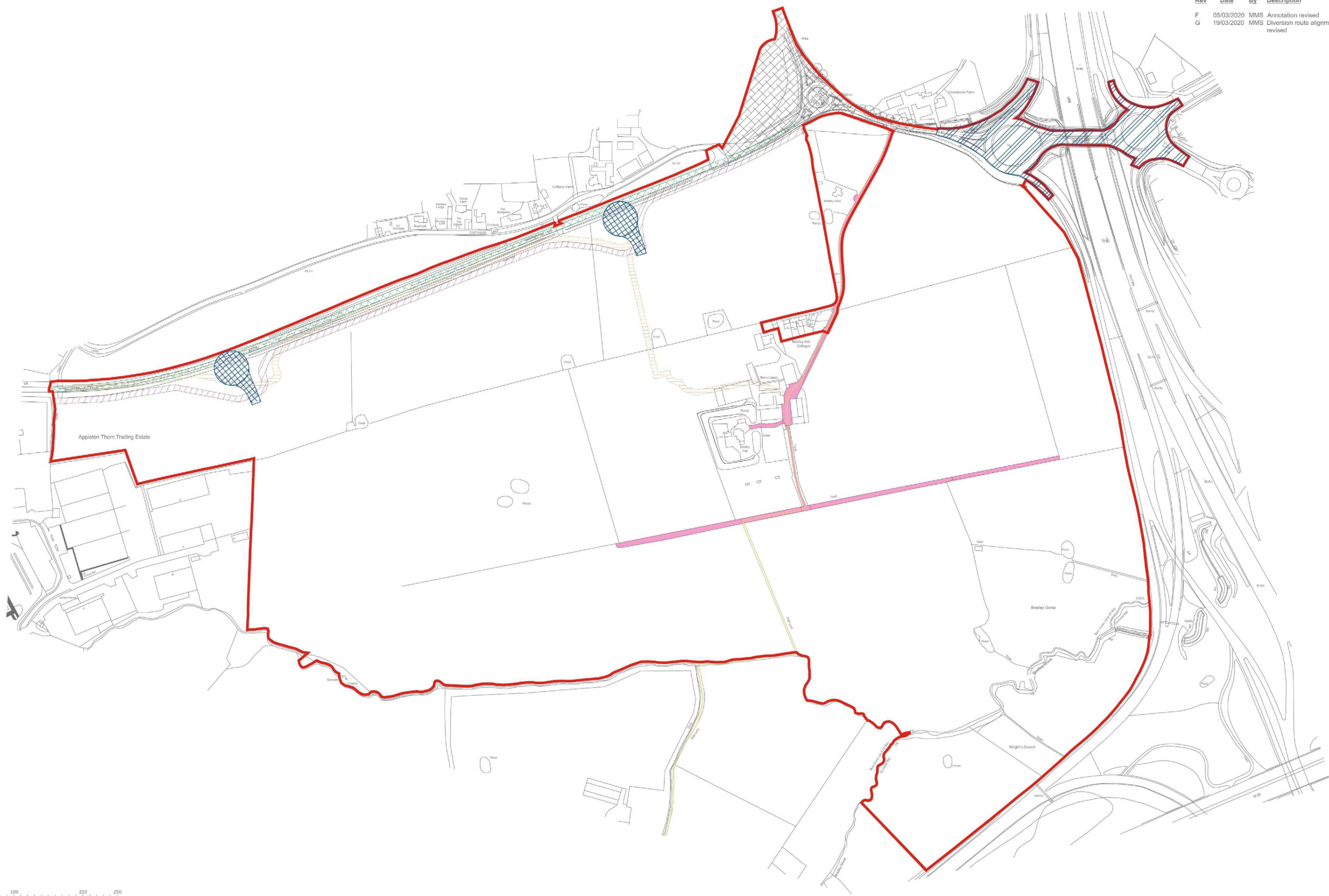
- Planning Boundary**
- SAM 30m Buffer Zone. No new buildings to be built or encroach into this zone.**
- Scheduled Ancient Monument (SAM)**
- Existing building to be retained (subject to separate change of use application)**

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Six 56, Warrington  
 Heritage Parameters Plan  
 CDE Reference:  
 Drawn: HR  
 Team: MMS  
 Scale: 1:2500 @ A1  
 Project No: 16-184  
 Dwg No: P112  
 Rev: G

| Rev | Date       | By  | Description                       |
|-----|------------|-----|-----------------------------------|
| F   | 05/03/2020 | MMS | Annotation revised                |
| G   | 19/03/2020 | MMS | Diversion route alignment revised |



-  **Planning Boundary**
-  **Existing Access road/track**
-  **Diverted PRow**
-  **25m Safeguarded Area (for potential highway improvements / road widening)**
-  **Highways England/ Highway improvements.**
-  **Access to the Site**
-  **Existing PRow**
-  **Proposed Cycle Way (3.5m wide shared footway/cycleway - details to be agreed)**
-  **Highway improvements including realignment of roundabout**

**Langtree**  
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Middlesex LE19 1EX  
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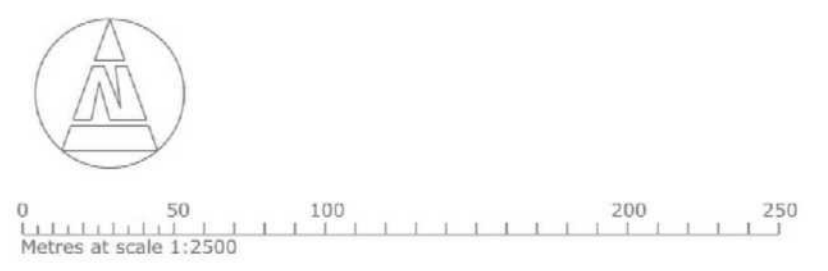
Six 56, Warrington  
Access and Circulation Parameters Plan  
CDE Reference:

Drawn: HR  
Team: MMS  
Scale: 1:2500 @ A1

Drawing Status: Planning  
CAD Reference: 16-184-P113  
Date: 02/20

Project No: 16-184  
Dwg No: P113  
Rev: G

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**OVERALL SUMMARY:**

**Redline Area:** 98.09 Ha / 242.39 Ac  
**Total Developable Area:** 62.9Ha / 155.43 Ac  
**Proposed Use:** B8 with ancillary B1(a)  
**Total Floorspace:** 287,909m<sup>2</sup> (3,099,025 ft<sup>2</sup>) GIA

- Planning Boundary
- Development Zone Boundary

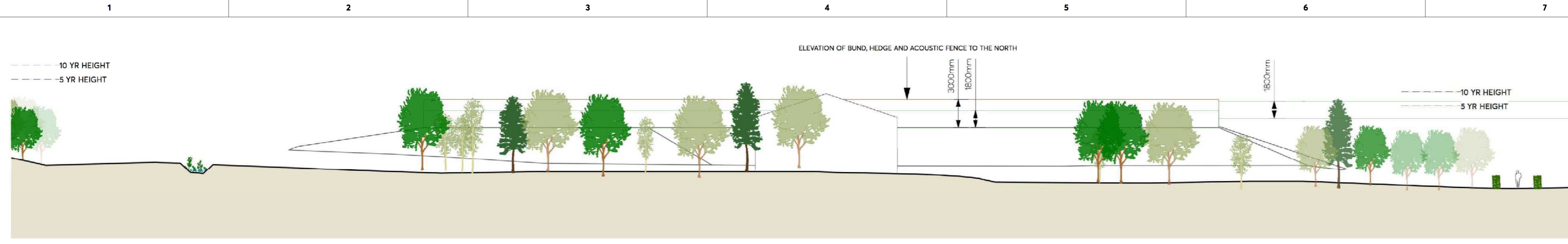
No loading bays shall be orientated towards noise sensitive receptors along the development cell boundary (identified with orange arrows) unless it can be demonstrated that mitigation measures can be put in place to avoid significant adverse effects at noise sensitive receptors (refer to Cundall noise receptor plan for receptor locations)

Note. bund embankments are a 1 in 3 gradient

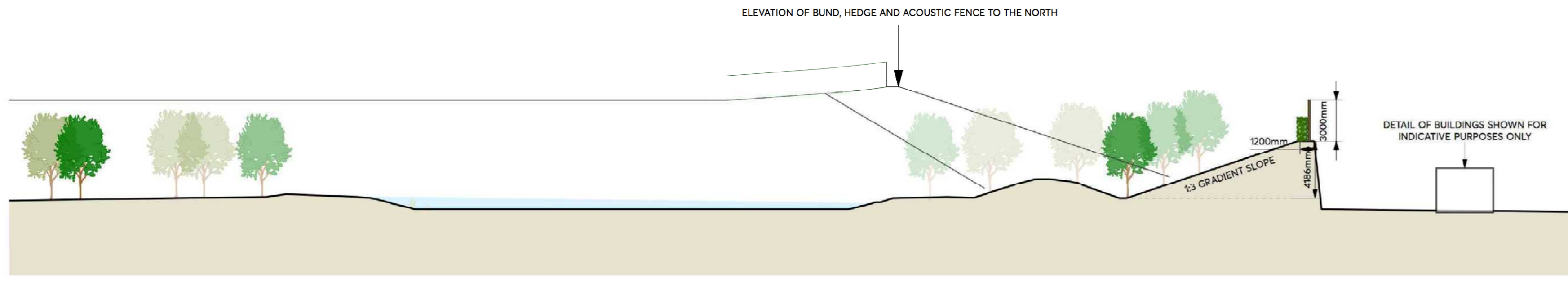


Six 56, Warrington  
 Acoustic Considerations Parameters  
 CDE Reference:  
 Drawn: HR  
 Team: MMS  
 Scale: 1:2500 @ A1  
 Project No: 16-184  
 Dwg No: P114  
 Date: 02/20  
 Drawing Status: Planning  
 CAD Reference: 16-184-P114  
 Rev: L

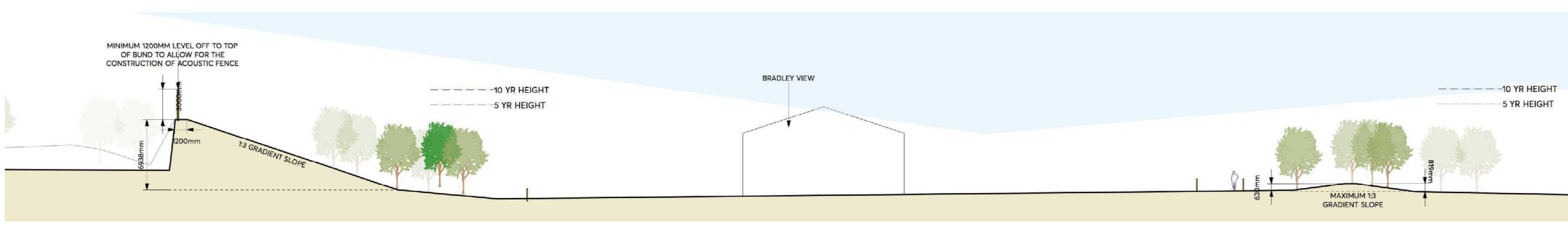
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5002 / SECTION 1  
Scale 1:250 @ A1



5002 / SECTION 1 CONTINUED  
Scale 1:250 @ A1



5002 / SECTION 2  
Scale 1:250 @ A1



5002 / SITE PLAN  
Scale 1:7000 @ A1

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| REVISION HISTORY |     |      |  |     |
|------------------|-----|------|--|-----|
| DATE             | REV | ZONE | DESCRIPTION                                | CHK |
| 14/10/20         | 1   |      | Updated following client comments          | ST  |
| 15/10/20         | 2   |      | Updated following comments from Spawforths | ST  |

**KEY**

--- PROPOSED TREE PLANTING HEIGHTS IN 5 YEARS & 10 YEARS

ORIGINATOR  
**LAYER** LANDSCAPE ARCHITECTURE  
 E hello@layer-ling.com  
 W www.layer-ling.com  
 T +44 (0) 1625 523 157

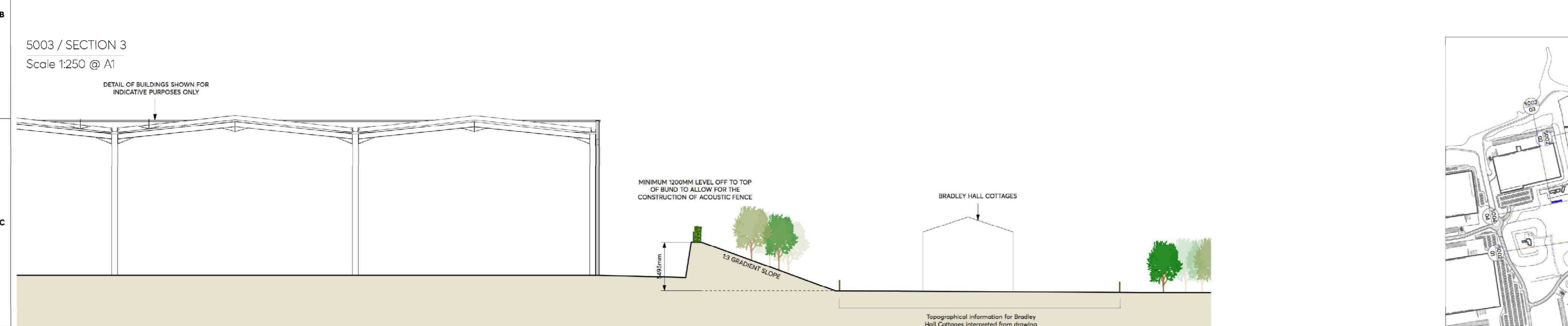
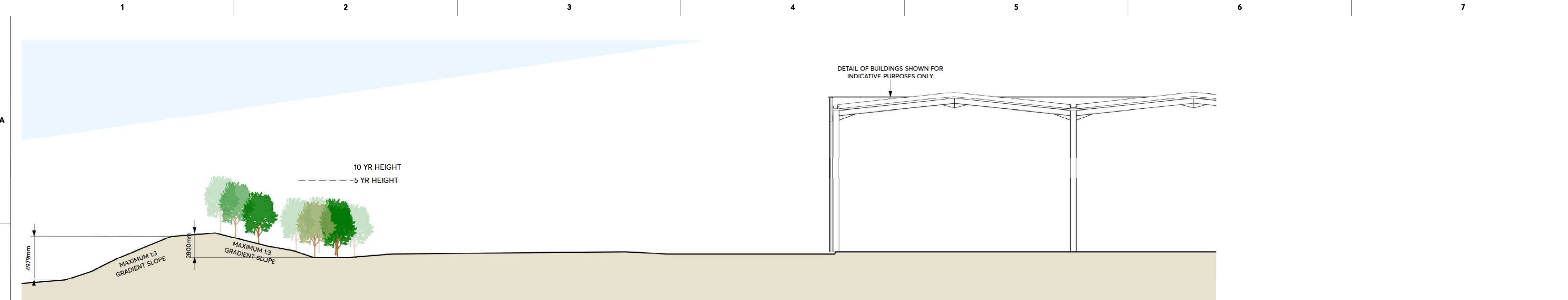
CLIENT  
**LANGTREE PROPERTY PARTNERS**

PROJECT  
**SIX56, WARRINGTON**

DRAWING TITLE  
**BUND SECTIONS TO SHOW NOISE MITIGATION 01**

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|--------------------------|-----|----------|
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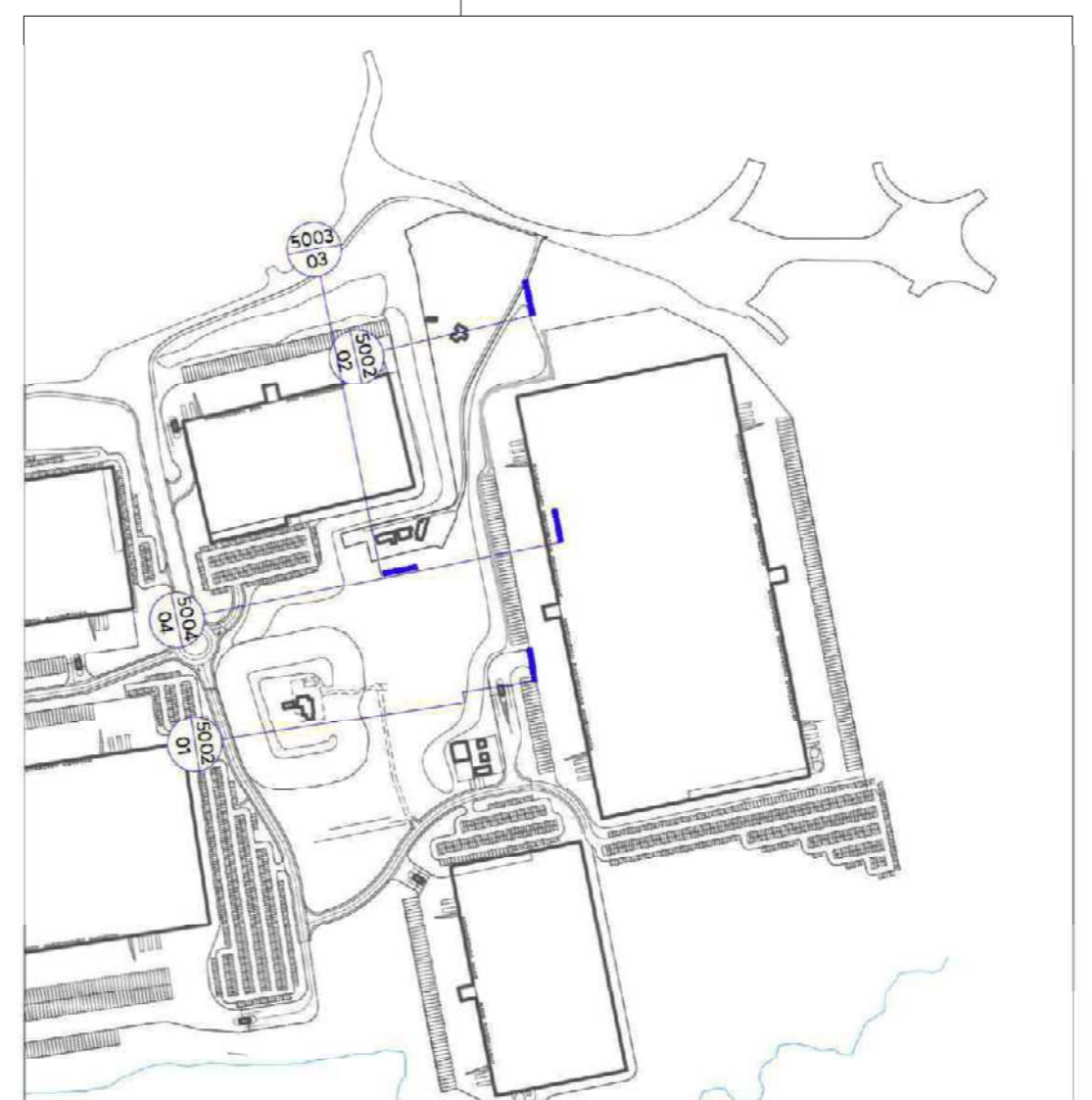
| SCALE   | CREATED BY  | CHECKED BY |
|---------|-------------|------------|
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|------------------|-----|------|--|-----|
| DATE             | REV | ZONE | DESCRIPTION                                | CHK |
| 15/10/20         | 1   |      | Updated following comments from Spowforths | ST  |



5003 / SITE PLAN  
 Scale 1:7000 @ A1

**KEY**

--- PROPOSED TREE PLANTING HEIGHTS IN 5 YEARS & 10 YEARS

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 W www.layer-ing.com  
 T +44 (0) 1625 523 157

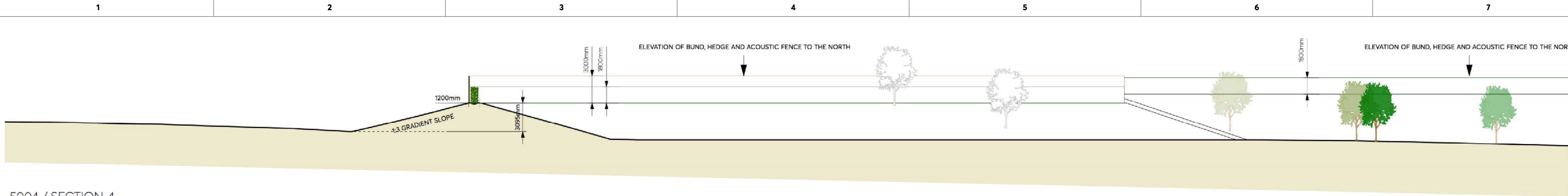
CLIENT  
**LANGTREE PROPERTY PARTNERS**

PROJECT  
**SIX56, WARRINGTON**

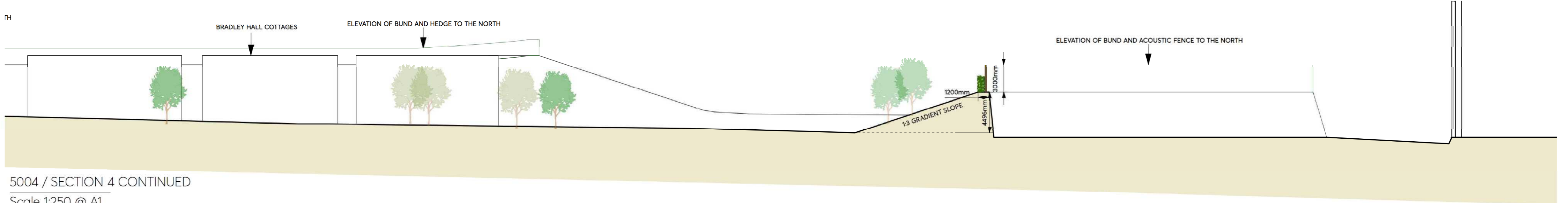
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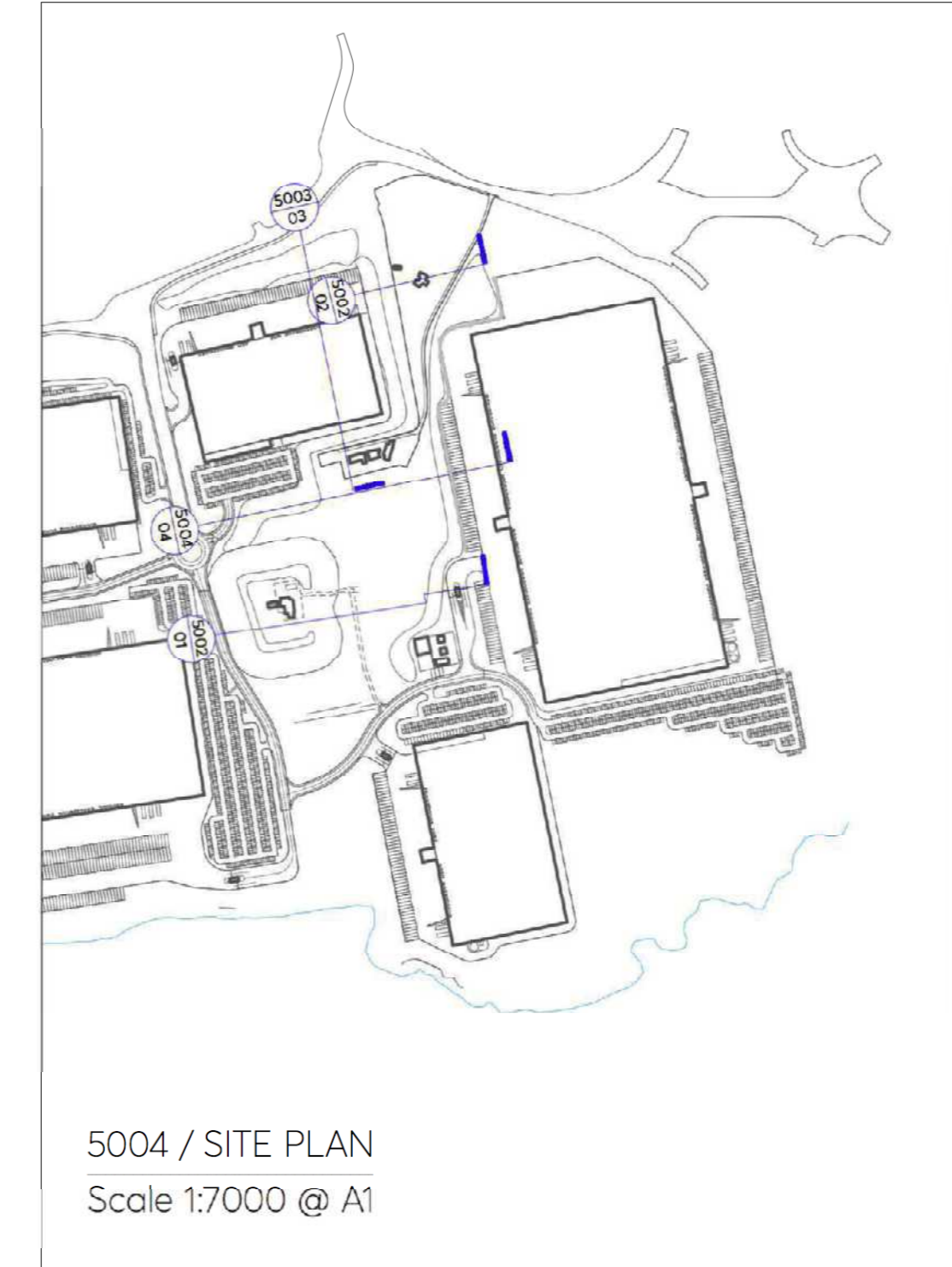
| SCALE   | CREATED BY  | CHECKED BY |
|---------|-------------|------------|
| VARIOUS | O KINGSHOTT | S TUBGY    |



5004 / SECTION 4  
Scale 1:250 @ A1



5004 / SECTION 4 CONTINUED  
Scale 1:250 @ A1



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| REVISION HISTORY |     |      |  |     |
|------------------|-----|------|--|-----|
| DATE             | REV | ZONE | DESCRIPTION                                | CHK |
| 15/10/20         | 1   |      | Updated following comments from Spowforths | ST  |

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--- PROPOSED TREE PLANTING HEIGHTS IN 5 YEARS & 10 YEARS

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CLIENT  
**LANGTREE PROPERTY PARTNERS**

PROJECT  
**SIX56, WARRINGTON**

DRAWING TITLE  
**BUND SECTIONS TO SHOW NOISE MITIGATION 03**

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| SCALE   | CREATED BY  | CHECKED BY |
|---------|-------------|------------|
| VARIOUS | O KINGSHOTT | S TUBGY    |

| Rev | Date       | By  | Description  |
|-----|------------|-----|--|
| F   | 02/03/2020 | HR  | Indicative Road Revised & Zones B1 & C Revised                                 |
| G   | 05/03/2020 | MMS | Annotation revised;  |
| H   | 22/10/2021 | AZ  | Height annotation amended as per email received from Spawforths on 21/10/2021; |



- Planning Boundary**
- Existing building to be retained and re-used for conversion (subject to separate change of use application)**
- Indicative Building Height: 12.5m Clear Internal 16m to ridge**
- Indicative Building Height: 15m Clear Internal 18.5m to ridge**
- Indicative Building Height: 18.5m Clear Internal 22m to ridge**
- Indicative Building Height: 26.5m Clear Internal 30m to ridge**



Six 56, Warrington  
 Heights Parameters Plan  
 CDE Reference  
 Drawn: HR  
 Team: MMS  
 Scale: 1:2500 @ A1  
 Project No: 16-184  
 Dwg No: P115  
 Rev: H

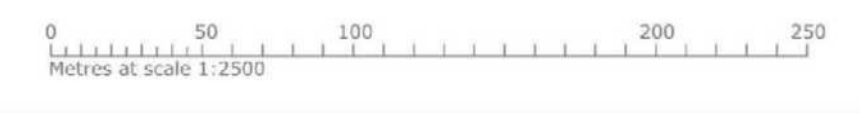
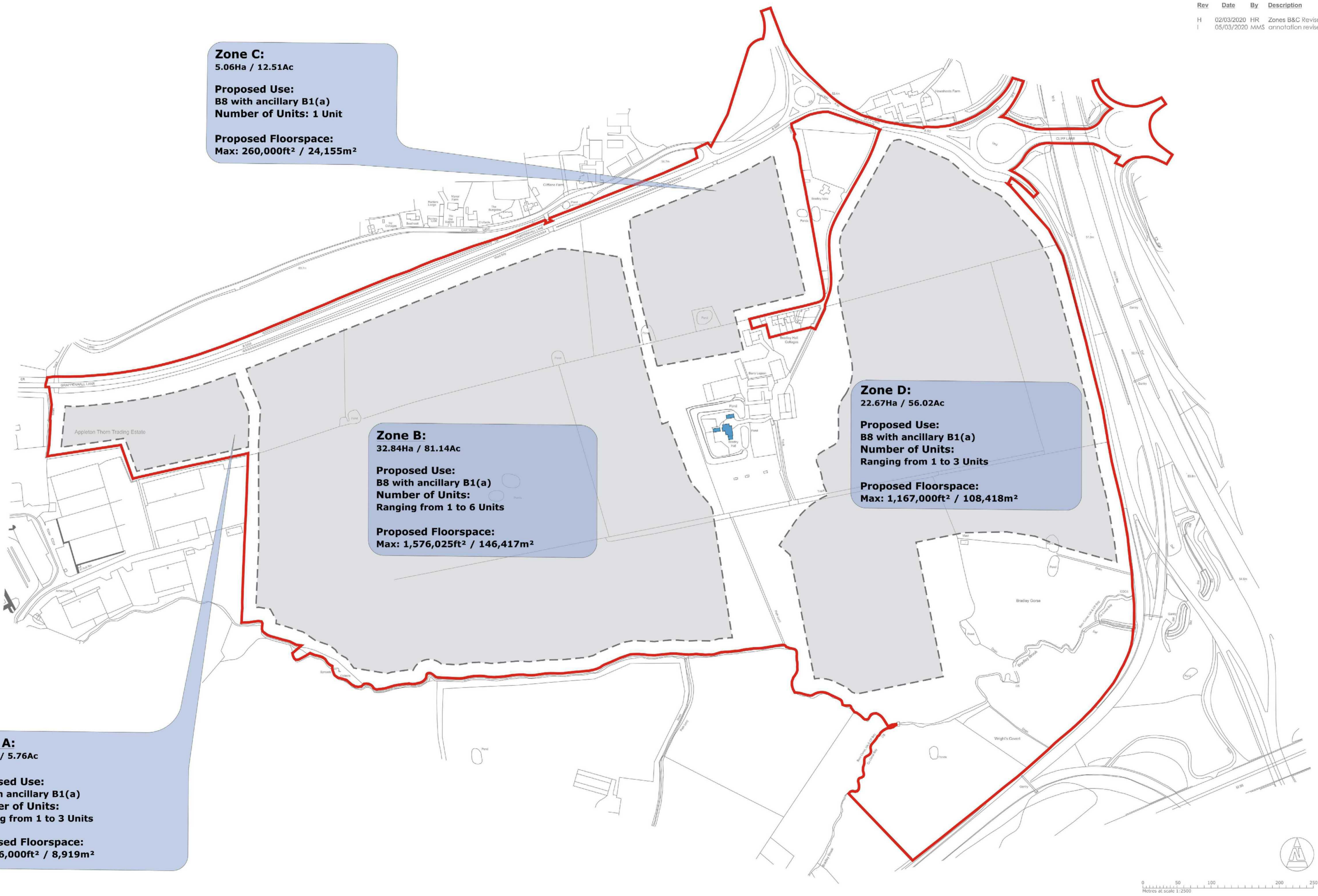
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**Zone C:**  
 5.06Ha / 12.51Ac  
**Proposed Use:**  
 B8 with ancillary B1(a)  
**Number of Units: 1 Unit**  
**Proposed Floorspace:**  
 Max: 260,000ft<sup>2</sup> / 24,155m<sup>2</sup>

**Zone B:**  
 32.84Ha / 81.14Ac  
**Proposed Use:**  
 B8 with ancillary B1(a)  
**Number of Units:**  
 Ranging from 1 to 6 Units  
**Proposed Floorspace:**  
 Max: 1,576,025ft<sup>2</sup> / 146,417m<sup>2</sup>

**Zone D:**  
 22.67Ha / 56.02Ac  
**Proposed Use:**  
 B8 with ancillary B1(a)  
**Number of Units:**  
 Ranging from 1 to 3 Units  
**Proposed Floorspace:**  
 Max: 1,167,000ft<sup>2</sup> / 108,418m<sup>2</sup>

**Zone A:**  
 2.33Ha / 5.76Ac  
**Proposed Use:**  
 B8 with ancillary B1(a)  
**Number of Units:**  
 Ranging from 1 to 3 Units  
**Proposed Floorspace:**  
 Max: 96,000ft<sup>2</sup> / 8,919m<sup>2</sup>



**OVERALL SUMMARY:**

|   |  |  |
|---|--|--|
| <b>Redline Area:</b><br>98.69 Ha / 242.39 Ac          | <b>Proposed Use:</b><br>B8 with ancillary B1(a)                                    | <b>Car Parking Provision:</b><br>Compliant with Council's parking standards for B8 use - 1/120m <sup>2</sup> |
| <b>Total Developable Area:</b><br>62.9 Ha / 155.43 Ac | <b>Total Floorspace:</b><br>287,909m <sup>2</sup> (3,099,025 ft <sup>2</sup> ) G1A | <b>Existing Buildings within SAM:</b><br>352m <sup>2</sup> (3,783ft <sup>2</sup> ) G1A                       |

Planning Boundary  
 Development Zone Boundary. Only new buildings will be located within the development zones.

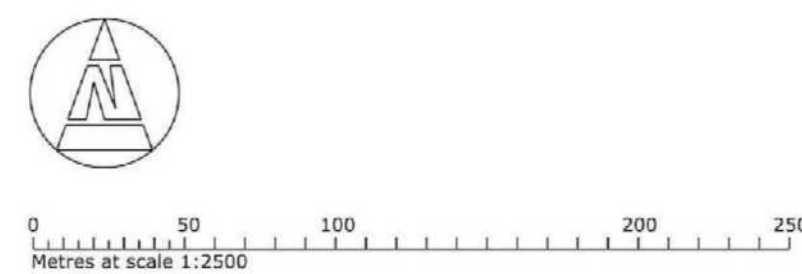
Existing building to be retained. Residential Use will cease prior to occupation of proposed industrial uses on the site. Conversion of these buildings to be subject of separate change of use application






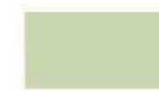




|   |                             |  |
|---|-----------------------------|--|
|   |                             | Six 56, Warrington<br>Disposition Parameters Plan  |
|   | Architects + Masterplanners |  |
| <small>           Drawn: HR<br/>           Team: MMS<br/>           Scale: 1:2500 @ A1<br/>           Project No: 16-184         </small> |                             | <small>           Drawing Status: Planning<br/>           CAD Reference: 16-184-P116<br/>           Date: 02/20<br/>           Dwg No: P116<br/>           Rev: I         </small> |

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| Rev | Date       | By  | Description   |
|-----|------------|-----|---|
| G   | 05/03/2020 | MMS | trees removed from development plots annotation updated |
| H   | 18/03/2020 | MMS | drainage configuration revised adjacent to SAM          |



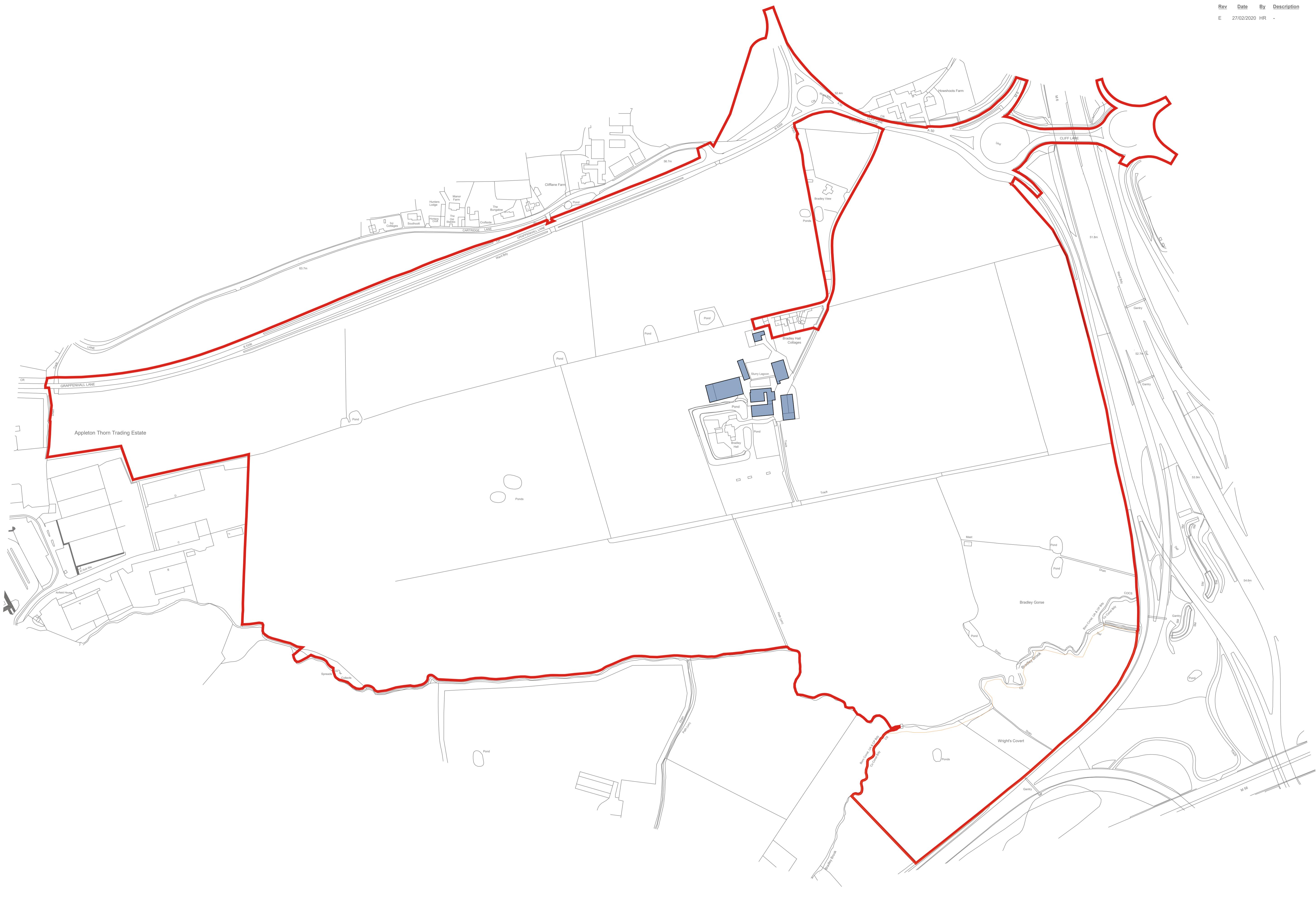
-  Planning Boundary
-  Existing Trees To be Retained
-  South-North Open Green Corridor
-  Mitigation Area (Details to be agreed)
-  Proposed zones for detention basins and outfalls (permanent ponds to provide habitats for variety of wildlife - details to be agreed)
-  Strategic Landscaping
-  Watercourse
-  Watercourse 15m stand off zone
-  Proposed Infrastructure Trees. (Refer to Layer Landscape Strategy)
-  Proposed Indicative Estate Road. (Any estate road traversing the green corridor east to west should be constructed & built into the levels to minimise impact on views and setting of the SAM - Details to be agreed.)


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PANATTONI


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www.stephengeorge.co.uk

Six 56, Warrington  
Drainage Parameters Plan  
CDE Reference:  
Drawn: HR  
Team: HRIS  
Scale: 1:2500 @ A1  
Project No: 16-184  
Drawing Status: Planning  
CAD Reference: 16-184-P117  
Date: 02/20  
Dwg No: P117  
Rev: H

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 **Planning Boundary**

 **Buildings to be demolished as part of the proposed development**

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**Six 56, Warrington**  
**Demolition Parameters Plan**  
 CDE Reference

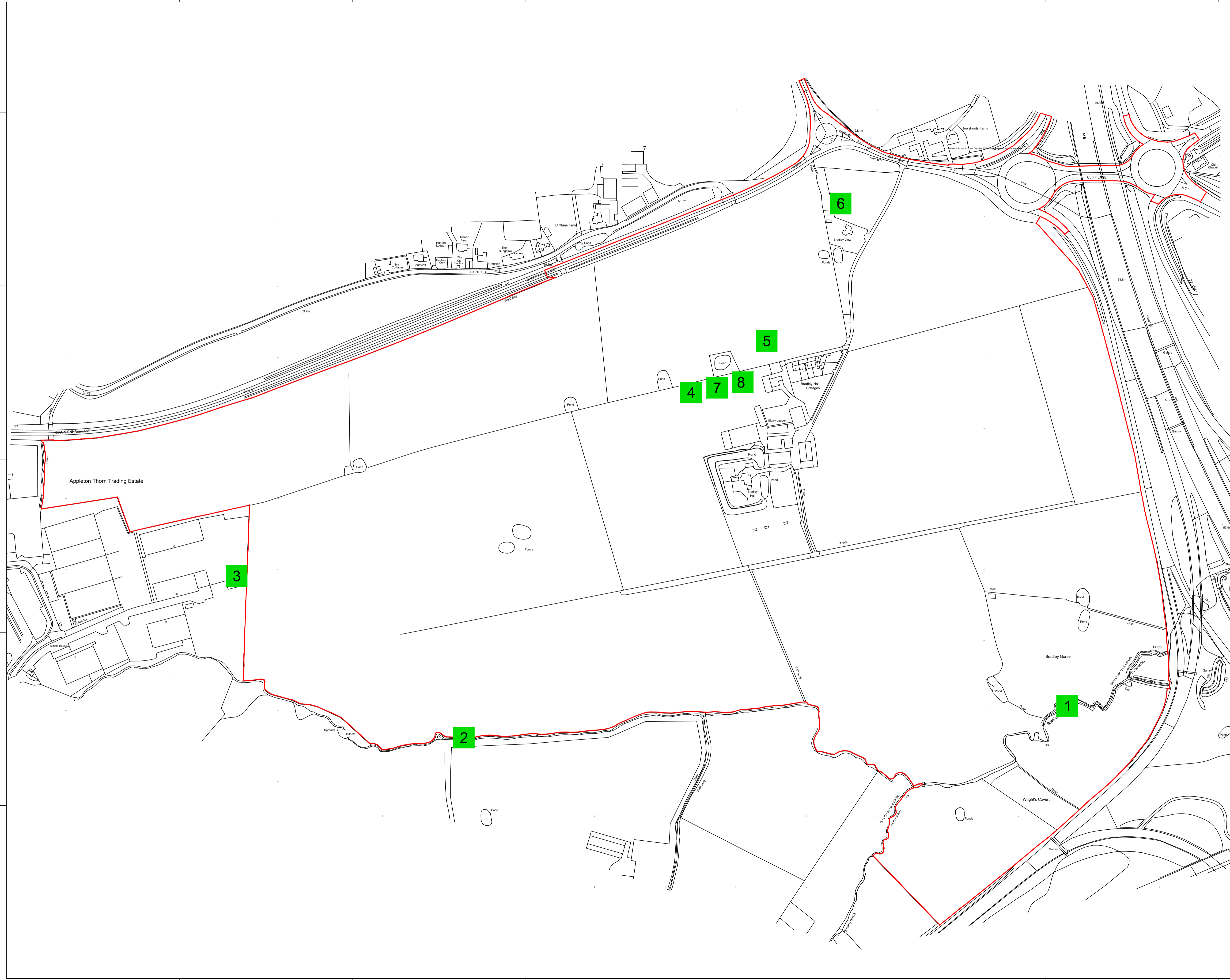
|                    |                            |
|--------------------|----------------------------|
| Drawn: HR          | Drawing Status: Planning   |
| Team: MMS          | CAD Reference: 16-184-P118 |
| Scale: 1:2500 @ A1 | Date: 02/20                |
| Project No: 16-184 | Dwg No: P118               |
|                    | Rev: E                     |

## ES Part I Appendix 6

|                    |     |
|--------------------|-----|
| Based on:          | Rev |
| Architects Drg No. | Rev |
| Structural Drg No. | Rev |
| Survey Drg No.     | Rev |
| Other Drg No.      | Rev |
| Other Drg No.      | Rev |

Notes

| ID | RECEPTOR                |
|----|-------------------------|
| 1  | BRADLEY BROOK           |
| 2  | BRADLEY BROOK TRIBUTARY |
| 3  | ADJACENT SITE           |
| 4  | GROUNDWATER             |
| 5  | BRADLEY HALL COTTAGES   |
| 6  | BRADLEY VIEW            |
| 7  | SITE USERS              |
| 8  | CONSTRUCTION WORKER     |



| Issue | Date     | Description      | By | Chkd | Verfd |
|-------|----------|------------------|----|------|-------|
| -     | 27/11/17 | RED LINE UPDATED | JA | LF   | LF    |

Project  
SIX: 56 WARRINGTON

Client  
LANGTREE / FIRST INDUSTRIAL

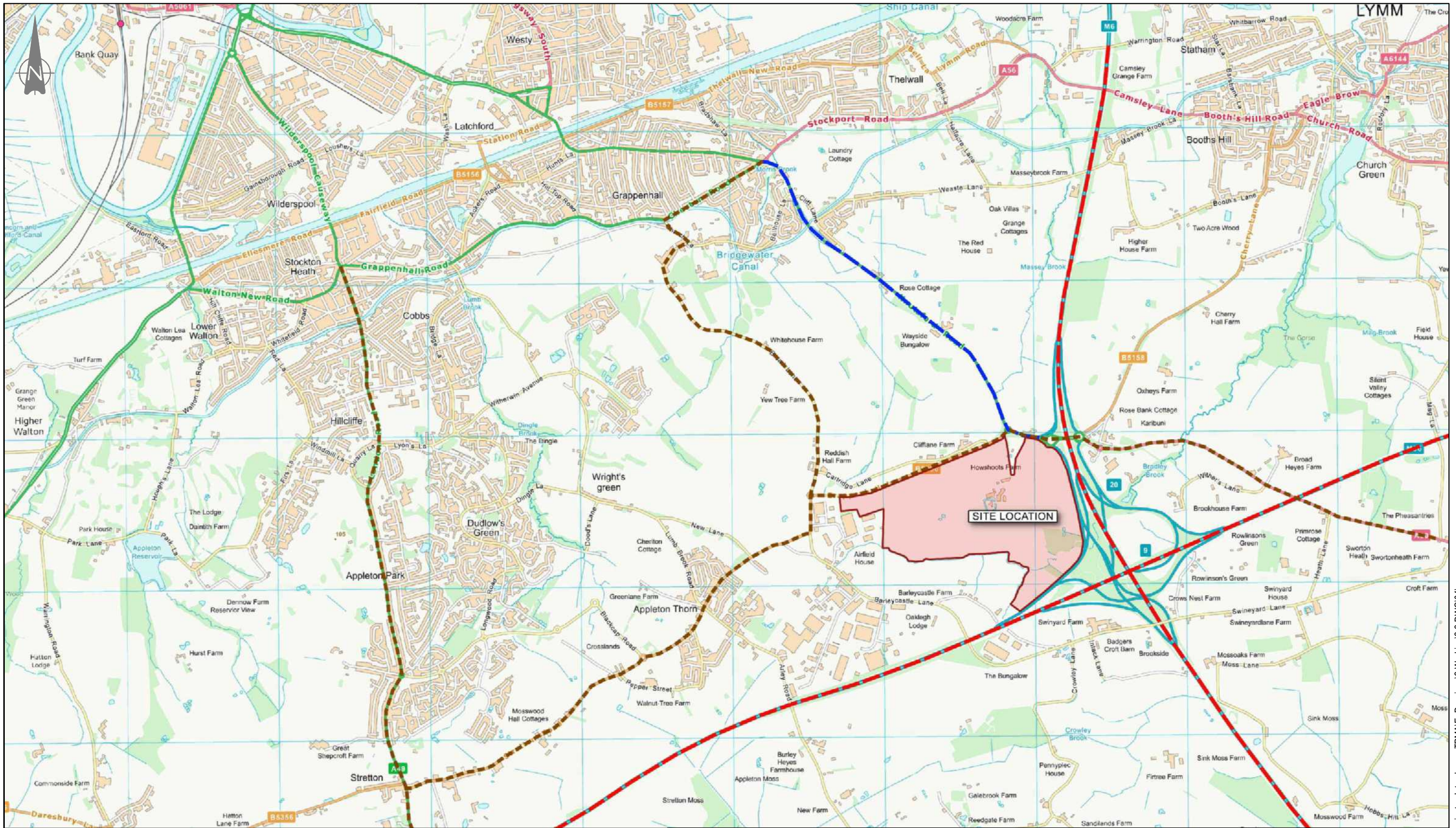
Architect  
STEPHEN GEORGE PARTNERS

Title  
GROUND CONDITIONS  
RECEPTOR PLAN

|             |              |                |             |
|-------------|--------------|----------------|-------------|
| Drawing No. | CLXX(52)0003 | Drawing Status | INFORMATION |
| Job No.     | 1015524      | Scale          | NTS         |

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- KEY:**
- Site
  - County Road
  - National Road
  - Borough / District / Local Neighborhood



Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG  
 0161 236 2394  
 manchester@curtins.com  
 www.curtins.com

|            |                  |              |             |                |
|------------|------------------|--------------|-------------|----------------|
| Project:   | 6 56 WARRINGTON  | Status:      | PRELIMINARY |                |
| Drg Title: | ES RECEPTOR PLAN | Drawn By:    | JM          | Checked By: AV |
|            |                  | Designed By: | JM          | Date: 16/11/17 |
|            |                  | Scale:       | NTS         |                |

|             |             |       |        |       |             |                    |      |
|-------------|-------------|-------|--------|-------|-------------|--------------------|------|
| Project No: | Originator: | Zone: | Level: | Type: | Discipline: | Category / Number: | Rev: |
|-------------|-------------|-------|--------|-------|-------------|--------------------|------|

64076 - CUR - XX - 00 - DR - TP - 04001 -P02

|      |                             |          |     |
|------|-----------------------------|----------|-----|
| P02  | Road classification updated | 16/01/19 | DD  |
| Rev: | Description:                | Date:    | By: |

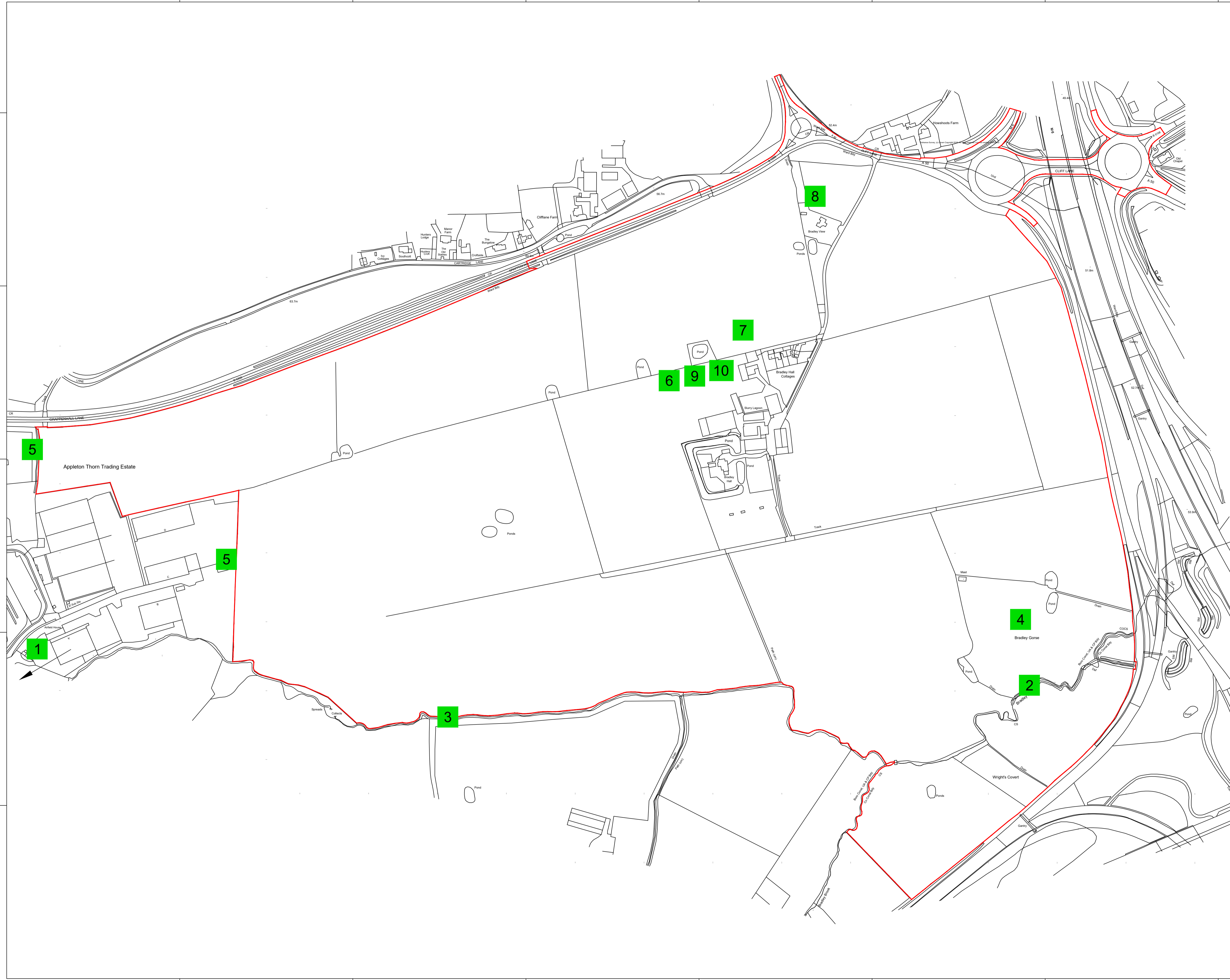
GENERAL NOTES:

Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer  
 Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

|                    |     |
|--------------------|-----|
| Based on:          | Rev |
| Architects Dwg No. | Rev |
| Structural Dwg No. | Rev |
| Survey Dwg No.     | Rev |
| Other Dwg No.      | Rev |
| Other Dwg No.      | Rev |

Notes

| ID | RECEPTOR                |
|----|-------------------------|
| 1  | UNITED UTILITIES SEWERS |
| 2  | BRADLEY BROOK           |
| 3  | BRADLEY BROOK TRIBUTARY |
| 4  | BRADLEY GORSE           |
| 5  | ADJACENT SITE           |
| 6  | GROUNDWATER             |
| 7  | BRADLEY HALL COTTAGES   |
| 8  | BRADLEY VIEW            |
| 9  | SITE USERS              |
| 10 | CONSTRUCTION WORKER     |



|       |          |                  |    |      |       |
|-------|----------|------------------|----|------|-------|
| -     | 27/11/17 | RED LINE UPDATED | JA | LF   | LF    |
| Issue | Date     | Description      | By | Chkd | Verfd |

Project  
SIX:56 WARRINGTON

Client  
LANGTREE / FIRST INDUSTRIAL

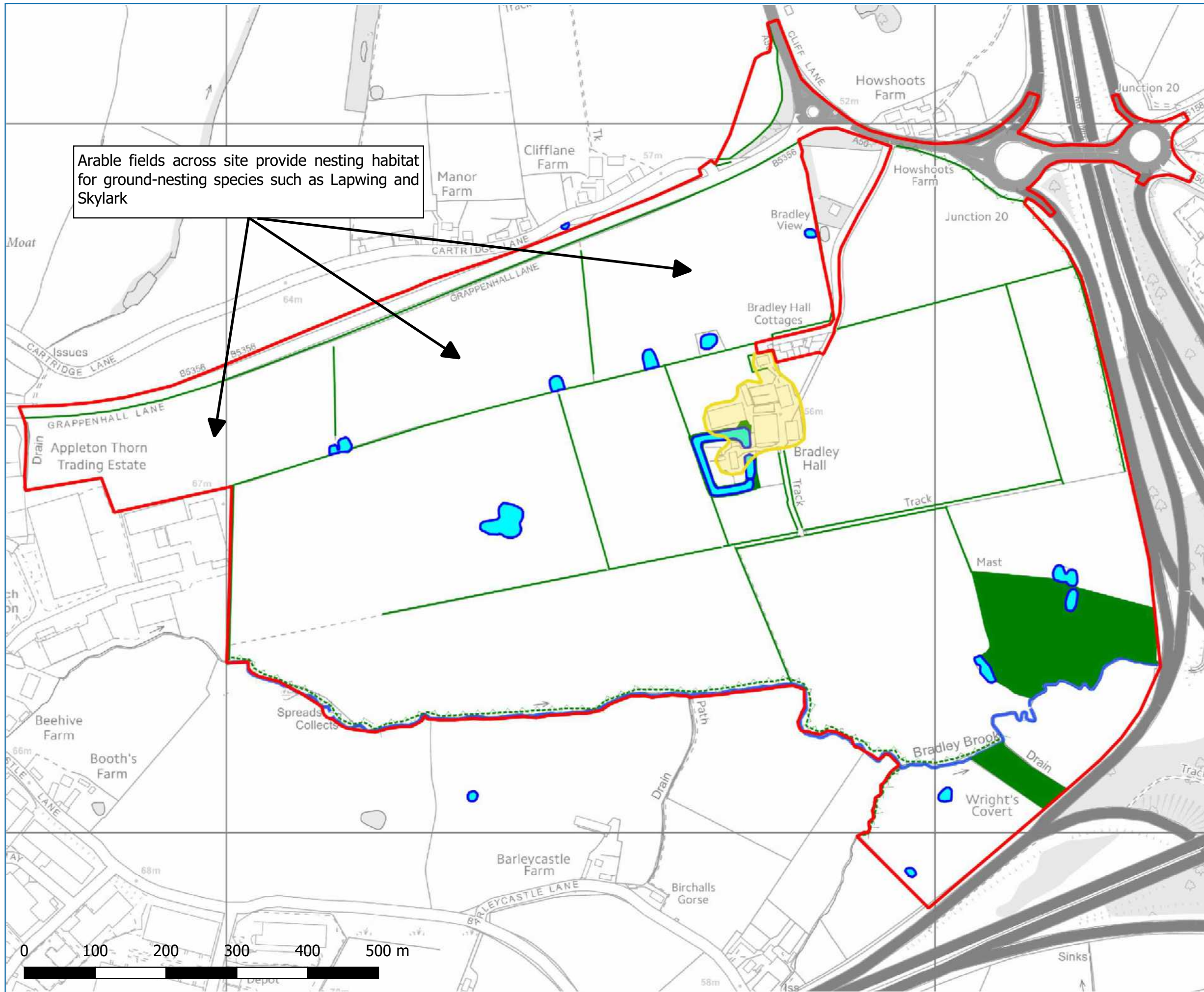
Architect  
STEPHEN GEORGE PARTNERS

Title  
DRAINAGE AND FLOOD RISK RECEPTOR PLAN

|             |              |                |             |
|-------------|--------------|----------------|-------------|
| Drawing No. | CLXX(52)0001 | Drawing Status | INFORMATION |
| Job No.     | 1015524      | Scale          | NTS         |

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Arable fields across site provide nesting habitat for ground-nesting species such as Lapwing and Skylark

- Site Boundary
- Buildings with Bat and Barn Owl Potential
- Habitats of Local Importance**
- Ponds
- Hedgerow species poor intact
- Hedgerow species rich (intact)
- Hedgerow species rich defunct
- Semi-natural broad-leaved woodland
- Flowing water



Project Six56 Warrington

Drawing Title Key Ecological Receptor Plan

Scale As Shown (Approximate)

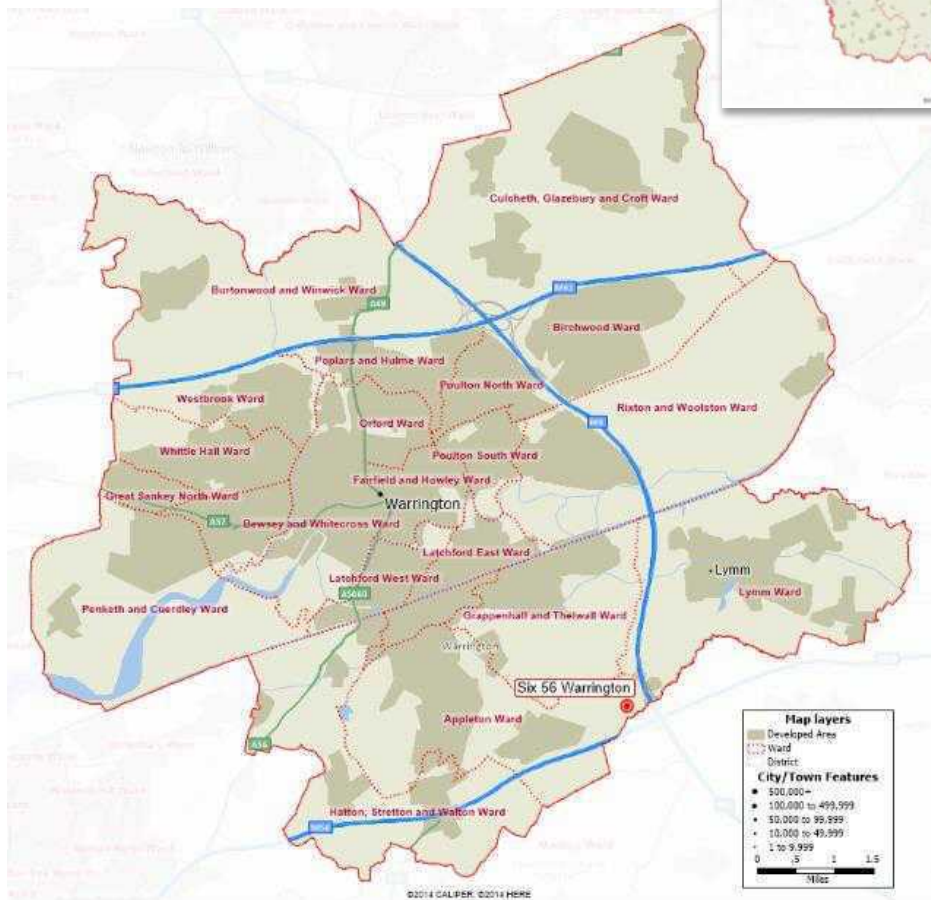
Drawing No. 10682/P12

Date February 2019

Checked JD/LJD



# Socio Economic Receptor Plan





|                    |     |
|--------------------|-----|
| Based on:          | Rev |
| Architects Drg No. | Rev |
| Structural Drg No. | Rev |
| Survey Drg No.     | Rev |
| Other Drg No.      | Rev |

Notes

| ID | RECEPTOR  |
|----|---|
| 1  | GRAPPENHALL LODGE   |
| 2  | DWELLINGS ON CARTRIDGE LANE:<br>-IVY COTTAGES<br>-SOUTHOTT<br>-HUNTERS LODGE AND HUNTERS CROFT<br>-MANOR FARM WITH THE OLD STABLES<br>-CROFTSIDE<br>-THE BUNGALOW<br>-5 CARTRIDGE LANE<br>-7 CARTRIDGE LANE |
| 3  | BRADLEY VIEW COTTAGE  |
| 4  | HOWSHOOTS FARM  |
| 5  | TAN HOUSE FARM  |
| 6  | BARLEYCASTLE FARM   |
| 7  | BRADLEY HALL COTTAGES   |
| 8  | BEEHIVE FARM  |
| 9  | BOOTH'S FARM  |

KEY:

- NEAREST NOISE SENSITIVE RECEPTOR
- NOISE MONITORING POSITIONS

| Issue | Date     | Description                    | By | Chkd | Verfd |
|-------|----------|--------------------------------|----|------|-------|
| -     | 27/11/17 | RECEPTORS AND RED LINE UPDATED | JA | LF   | LF    |

Project  
**SIX: 56 WARRINGTON**

Client  
**LANGTREE / FIRST INDUSTRIAL**

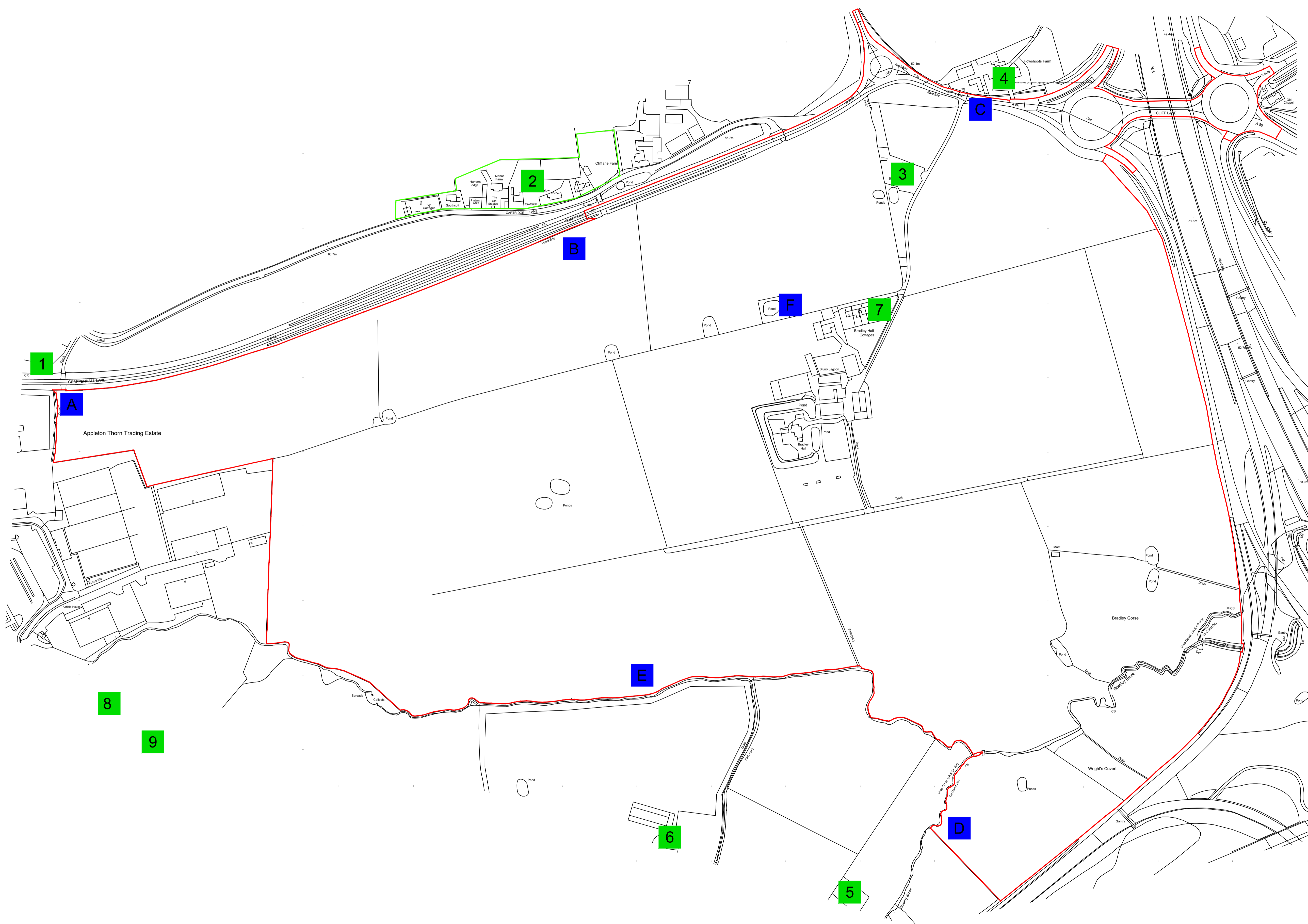
Architect  
**STEPHEN GEORGE PARTNERS**

Title  
**NOISE RECEPTOR PLAN**

|             |              |                |             |
|-------------|--------------|----------------|-------------|
| Drawing No. | CLXX(52)0002 | Drawing Status | INFORMATION |
| Job No.     | 1015524      | Scale          | NTS         |

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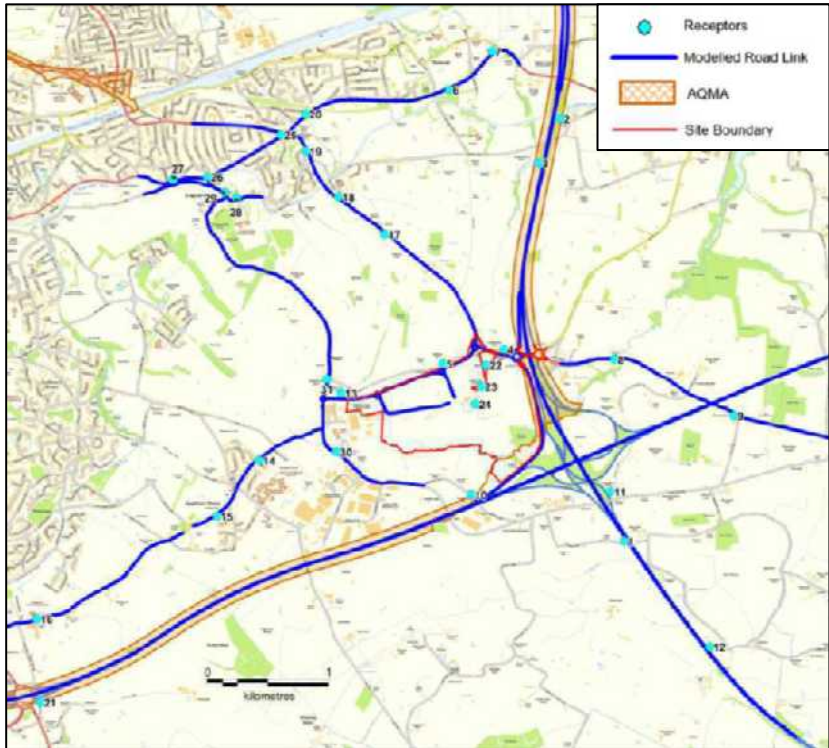
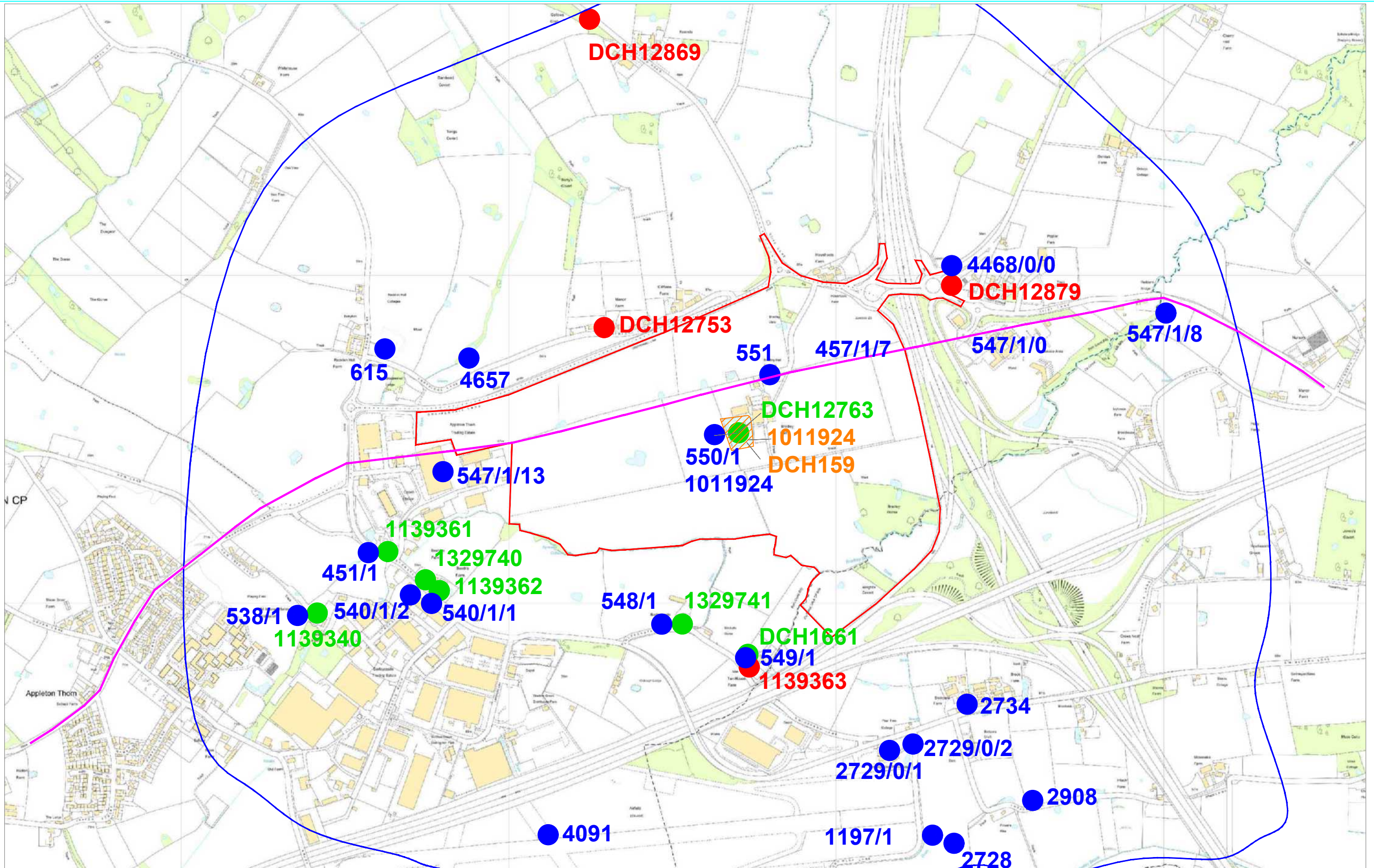


Figure 1 Air Quality - Receptor Plan

| Receptor ID | Receptor Name    | x      | Y      |
|-------------|------------------|--------|--------|
| 1           | Intack Farm      | 367001 | 383414 |
| 2           | Massey Avenue    | 366476 | 386920 |
| 3           | Masseybrook Farm | 366297 | 386553 |
| 4           | Howshoots Farm   | 366009 | 385005 |
| 5           | Cartridge Lane   | 365506 | 384888 |
| 6           | Stockport Road 1 | 365559 | 387158 |
| 7           | Stockport Road 2 | 365913 | 387481 |

| Receptor ID | Receptor Name                   | x      | Y      |
|-------------|---------------------------------|--------|--------|
| 8           | Cliff Lane                      | 366919 | 384923 |
| 9           | Primrose Hill                   | 367908 | 384455 |
| 10          | Tan House Farm                  | 365738 | 383800 |
| 11          | Crows Nest Farm                 | 366888 | 383825 |
| 12          | Mill Farm                       | 367706 | 382537 |
| 13          | Grappenhall Lodge               | 364669 | 384641 |
| 14          | Crofton Close                   | 363994 | 384082 |
| 15          | Hatchery Close                  | 363643 | 383622 |
| 16          | St Matthews CofE Primary School | 362159 | 382770 |
| 17          | Knutsford Road                  | 365028 | 385960 |
| 18          | Cliff Lane                      | 364649 | 386272 |
| 19          | Gilwell Close                   | 364376 | 386650 |
| 20          | Westminster Close               | 364374 | 386957 |
| 21          | Summit Close                    | 362189 | 382078 |
| 22          | Bradley View                    | 365862 | 384877 |
| 23          | Bradley Hall Cottages           | 365824 | 384695 |
| 24          | Bradley Hall                    | 365775 | 384551 |
| 25          | Chester Road 1                  | 364169 | 386786 |
| 26          | Chester Road 2                  | 363563 | 386438 |
| 27          | Chester Road 3                  | 363280 | 386414 |
| 28          | Church Lane 1                   | 363804 | 386262 |
| 29          | Church Lane 2                   | 363710 | 386309 |
| 30          | Barleycastle Lane               | 364627 | 384154 |
| 31          | Broad Lane                      | 364549 | 384759 |

Table 1 Air Quality - Sensitive Receptors



**NOTES**

- DO NOT SCALE THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED/ VERIFIED ON SITE. IF IN DOUBT ASK.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.
- ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

| KEY |                           |
|-----|---------------------------|
|     | Study area                |
|     | Proposed development site |
|     | Roman Roads               |
|     | Listed building           |
|     | Archaeological Monuments  |
|     | Scheduled Monuments       |
|     | Locally listed buildings  |

| ISSUES & REVISIONS |          |                             |     |     |
|--------------------|----------|-----------------------------|-----|-----|
| Rev                | Date     | Details of issue / revision | Drw | Rev |
| P1                 | 15.10.17 | PRELIMINARY ISSUE           | KW  | XX  |
| P1                 | 28.11.17 | FINAL ISSUE                 | KW  |     |

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- Leeds | 0113 233 8000
- London | 020 7234 9122
- Manchester | 0161 233 4260
- Nottingham | 0115 924 1100

www.bwbconsulting.com

|        |                   |          |     |
|--------|-------------------|----------|-----|
| Client | Six56, Warrington |          |     |
| Scale  | 1:11000           | Drawn    | KM  |
| Size   | A3                | Reviewed | JMQ |

|                |                             |
|----------------|-----------------------------|
| Project Title  | Six56, Warrington           |
| Drawing Title  | Location of Heritage Assets |
| Drawing Status | FINAL                       |

|             |             |          |    |
|-------------|-------------|----------|----|
| Drawing No. | ABC/123/100 | Revision | P2 |
|-------------|-------------|----------|----|

The following details those assets recorded on the plan showing the Cultural Heritage Assets.

| HER Reference           | Site Name   | Grid Reference | Significance | Description   |
|-------------------------|---|----------------|--------------|---|
| DCH1638<br>538/1        | Yew Tree Farmhouse Grade II Listed Building I139340   | SJ 6442 8396   | High         | Yew Tree Farmhouse is Grade II listed. It has oak framing cased in brick with a grey slate roof. It was probably built around 1800 and later altered.   |
| DCH1659<br>541/1        | Beehive Farmhouse Grade II Listed Building I139361  | SJ 6463 8415   | High         | Grade II listed farmhouse, probably built in the 17th century and later altered. It is timber framed with brick infill and was formerly thatched.   |
| DCH1660<br>540/1/1      | Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I139362 | SJ 6475 8406   | High         | Grade II listed farmhouse built in the late 17th century. It has a 20th-century rendered brick exterior.  |
| DCH1661<br>549/1        | Tanyard Farm, Farm Building Grade II* Listed Building I139363                               | SJ 6573 8384   | High         | Grade II* listed Threshing Barn. It dates from the late 16th century and is oak framed on a sandstone plinth. It has been altered and partly converted into a Shippon (cow house) there is also an 18th century or early 19th-century cartshed and stable here.   |
| DCH1934                 | Booths Farm Farmhouse Grade II Listed Building I329740                                      | SJ 6477 8404   | High         | Farmhouse, late C17, altered. Brick rendered mid-C20, with gable copings, cyma kneelers and some dressings of sandstone; graded grey slate roof. Interior C17 open-well newel stair with plain flat (replacement) balusters between ground and first floor and original splat balusters to upper flights and top landing.   |
| DCH1935<br>548/1        | Barleycastle Farmhouse Grade II Listed Building I329741                                     | SJ 6553 8393   | High         | Barleycastle Farmhouse is Grade II listed and was built in the 17th century or earlier. It has 19th-century alterations including a pebble-dashed exterior over the original oak framing.   |
| DCH159                  | Bradley Hall Moated Site, Scheduled Monument, I011924                                       | SJ 6570 8452   | High         | The monument comprises a moated site, the island of which is partially occupied by a modernised farmhouse and garden but which was formerly occupied by the manor house of Bradley Hall.<br><br>The site of Bradley Hall, a moated Manor House is a Scheduled Monument. It was built in 1460 though some parts may have been earlier. The moat is water-filled up to a depth of 2.5m and the platform is now partially occupied by a modernised farmhouse and garden. A causeway on the east side replaces the original drawbridge. |
| Locally Listed Building |   |                |              |   |
| DCH12753                | Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building                  | SJ 6529 8484   | Medium       | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |

|          |   |              |        |   |
|----------|---|--------------|--------|---|
| DCH12763 | Bradley Hall and barn, Cliff Lane, Appleton   | SJ 6571 8453 | Medium | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |
| DCH12869 | Milepost at Gallows Croft, Knutsford Road, Lymm   | SJ 6524 8578 | Medium | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |
| DCH12879 | Old Chapel, Old Cherry Lane, Lymm Locally Listed Building   | SJ 6635 8497 | Medium | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |
| DCH13677 | Tan House Farm, Barleycastle Lane, Appleton   | SJ 6573 8381 | Medium | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |
| Events   |   |              |        |   |
| ECH3541  | M6 Motorway Widening Scheme, Junctions 16-20. Archaeological Recording of Test Pits.                | SJ 723 679   | Low    | Geological monitoring of test pits 3m by 1m. No significant below ground, archaeological deposits were identified. However given the location of the test pits was chosen on geological and not archaeological grounds.   |
| ECH3554  | Greater Manchester Western and Northern Relief Road (M56-M6 link): Archaeological Assessment Report | SJ 703 908   | Low    | Archaeological assessment, produced in 1993, of three alternative routes proposed for the Greater Manchester Western & Northern Relief Road (M56-M62 Link).   |
| ECH3566  | M6 Junctions 16-20 Widening: Archaeological Desk-Top Survey   | SJ 755 637   | Low    | A programme of archaeological assessment undertaken between October 1992 and June 1993 to assess implications of the proposed road widening of the M6 motorway between junctions 16 and 20, and to recommend further measures for recording of affected sites   |
| ECH3652  | M6 widening: Junctions 16- 20: Report on Geophysical Survey   | SJ 755 637   | Low    | The results of the geophysical surveys were reported in report SCH4295. Five sites were identified for geophysical survey, of these, two were the location of possible brick kilns, two possibly contained lengths of King Street Roman road and one was potentially the site of salt works. However, the majority of survey areas produced very few anomalies of archaeological interest and most of the data sets were dominated by ferrous responses, predominantly the result of buried pipes and other modern ferrous material. No brick kilns were positively identified. |
| ECH3653  | M6 Widening: Junctions 16- 20. Report on Earthwork Survey   | SJ 755 637   | Low    | A total of 9 sites, totalling an area of 15.67ha, was subject to topographic survey. Most of the sites surveyed were of ridge and furrow earthworks, but they also included a leat relating to Lower Roughwood Mill, and a potential building platform close to Bostock Hall.   |

|           |  |            |     |   |
|-----------|--|------------|-----|---|
| ECH3654   | M6 Widening: Junctions 16- 20, Cheshire. Cultural Heritage, Stage 3 Assessment Report Text   | SJ 755 637 | Low | -   |
| ECH4557   | Report on Northwest Telent Techmac Design and Consultancy Services Framework Provision of Variable Message Signs on the M56 Between Junctions J9 -16 | SJ 520 781 | Low | An appraisal or assessment of cultural heritage along the M56 between junctions J9 and J16. Identified listed buildings and sites from which the proposed signs would be visible. These include a moated site, fishpond and connecting channel at Elton, a heavy anti aircraft gun site 400m west of Sutton Fields Farm and two sections of Roman Road between Appleton and Stretton.   |
| ECH4559   | Bradley Hall Appleton, The Moated Site and Survey and Research Report  | SJ 657 845 | Low | The resistivity survey indicated a damp area, running from the house to the oat edge. This was not thought to be drains by the owner. There were dry areas on the South West of the survey. This could confirm the existence of large greenhouses that stood on the site some years ago. The dry areas suggest the presence of buried foundations. Survey also picked up a possible track to the north of the site, potentially Roman   |
| ECH4566   | An Archaeological Watching Brief at Bradley Hall Moat, Appleton, Warrington. Final Report  | SJ 657 845 | Low | Watching brief carried out during the excavation of foundations for a replacement extension to the farmhouse at Bradley Hall Farm, Appleton, Warrington. The moat is a scheduled ancient monument. The foundations were shallow and built on clay which overlay an uneven spread of cobbles which in turn lay over a buried soil. The latter produced the base of a 14th-15th century jar. Industrial waste was recovered that had apparently been used to make paths and other surfaces. The numbers of finds was relatively small but, the conclusions suggest, this is not unusual for sites such as this. |
| ECH5845   | Stretton Airfield, Design Access Statement   | SJ 652 835 | Low | A design and access statement prepared by Jeffery Bell Architects on behalf of Hensmill Property to support an application for planning permission for a below ground car storage and display facility and an above ground ancillary office.  |
| Monuments |  |            |     |   |
| 1197/1    | Kings Brook Mill Site of Watermill Industrial Site, Mill, Watermill  | SJ 6 8     | Low | Place name evidence for a watermill site at High Legh.  |
| 2728      | Unnamed Site in High Legh Parish Site of 19th century cottage House  | SJ 663 832 | Low | A single cottage and garden in Crawley Lane is shown on High Legh tithe map in 1849. It is now demolished.  |
| 2729/0/1  | Swineyard Lane Site of a 19th century house  | SJ 661 835 | Low | A house with outbuildings, yard and garden in Swineyard Lane shown on the High Legh tithe map in 1848. It has now been demolished.  |

|                 |   |                    |      |   |
|-----------------|---|--------------------|------|---|
| 2729/0/2        | Swineyard Lane Site of 19th Century Building House  | SJ 662 835 (point) | Low  | High Legh tithe map shows a single building and garden now demolished.  |
| 2734            | Swineyard Farm Prehistoric axe Findspot   | SJ 6640 8370       | Low  | Dark, fine grained stone shaft-hole axe, now in Warrington museum.  |
| 2908            | Badger's Croft Farm I Cropmark Enclosure. Ditched Enclosure                               | SJ 66 83           | Low  | Elliptical shaped cropmark, purpose unknown. 40 to 50 metres in diameter lying on the western end of the High Legh Ridge. Cropmarks are visible changes in the growth of vegetation that may indicate a buried feature.   |
| 4091            | RNAS Stretton/HMS Blackcap Airfield WW2 Airfield Military Airfield                        | Centred SJ 652 835 | Low  | World War 2 military airfield opened in 1942 and run as Royal Navy HMS Blackcap from December 1944.   |
| 4468/0/0        | Strict Baptist Chapel, Cherry Lane Strict Baptist Chapel Strict Baptist Chapel            | Centred SJ 663 849 | Low  | Strict Baptist Chapel built in 1819 from brick with round arched windows. A porch was added and the interior was refitted in 1889.  |
| 4657            | Pond, North of Cartridge Lane, Grappenhall. Pond shown on OS 1st Edition Maps of Cheshire | SJ 648 847         | Low  | Pond with sluice at north end shown on the 1st edition Ordnance Survey maps. The 6" 1st edition map was surveyed 1873-6 and was published in 1882. Now a water-filled hollow, with a low bank along the field boundary to the west. Heavily overgrown by trees. Sluice not identified.  |
| 538/1 (DCH1638) | Yew Tree Farmhouse 17th century farmhouse Farm, Farmstead,                                | SJ 644 839         | High | Yew Tree Farmhouse is Grade II listed. It has oak framing cased in brick with a grey slate roof. It was probably built around 1800 and later altered.   |
| 540/1/1 DCH1660 | Booth's Farm Farmhouse Post Medieval farmhouse Farm, Farmstead                            | SJ 647 840         | Low  | Grade II listed farmhouse built in the late 17th century. It has a 20th-century rendered brick exterior.  |
| 540/1/2         | Shippon, Booth's Farm Timber framed barn Cow House, Farm, Farmstead, Barn                 | SJ 647 840         | Low  | Grade II listed timber framed barn. It has an oak frame and a grey slate roof dating to the post-medieval period (17th century).  |
| 541/1 (DCH1659) | Beehive Farmhouse Post Medieval farmhouse Farm, Farmstead, Timber Framed Building,        | SJ 646 841         | High | Grade II listed farmhouse, probably built in the 17th century and later altered. It is timber framed with brick infill and was formerly thatched.   |
| 547/1/0         | North Cheshire Ridge Roman Road   | SJ 66 83           | Low  | Roman Road, The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north. The road surface was observed in excavation (547/1/1). Unusually for Roman roads in Cheshire there were drainage ditches along each side of the road structure, some 2m wide and 0.6m deep. The agger apparently had a rough |



|                  |  |            |        |   |
|------------------|--|------------|--------|---|
|                  |  |            |        | curb on each side to retain the structure. There is good evidence that the road continued as a route in medieval times.   |
| 547/1/13         | North Cheshire Ridge Roman Road – Stretton Airfield Section of Roman Road            | SJ 648 844 | Low    | Section through North Cheshire Ridge Roman road at Stretton Airfield. The road surface here was 13.5 metres wide. Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.   |
| 547/1/7          | The North Cheshire Ridge Roman Road Section of Roman road                            | SJ 658 846 | Low    | Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.   |
| 547/1/8          | The North Cheshire Ridge Roman Road Section of Roman road                            | SJ 67 84   | Low    | Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.   |
| 548/1            | Barley castle Farmhouse Post Medieval farmhouse Farm,                                | SJ 655 839 | High   | Barleycastle Farmhouse is Grade II listed and was built in the 17th century or earlier. It has 19th-century alterations including a pebbledashed exterior over the original oak framing.  |
| 549/1<br>DCH1661 | Tanyard Farm Farm-building 16th century barn Cow House, Farm, Stable                 | SJ 657 838 | High   | Grade II* listed Threshing Barn. It dates from the late 16th century and is oak framed on a sandstone plinth. It has been altered and partly converted into a Shippon (cow house) there is also an 18th century or early 19th-century cartshed and stable here.   |
| 550/1            | Bradley Hall moated site Medieval moated site Manor, Manor House, Moat, Gate Centred | SJ 656 845 | High   | The site of Bradley Hall, a moated Manor House is a Scheduled Monument. It was built in 1460 though some parts may have been earlier. The moat is water-filled up to a depth of 2.5m and the platform is now partially occupied by a modernised farmhouse and garden. A causeway on the east side replaces the original drawbridge. |
| 551              | Bradley Cross Site of medieval cross   | SJ 6 8     | Low    | "Crux de Braddelegh" is mentioned in documents dated 1386. The cross that once marked the point where Grappenhall, Lymm and Appleton met is now lost.   |
| 615              | Reddish Hall Medieval moated site Moat   | SJ 646 847 | Medium | Site of Reddish Hall, a medieval moated hall. The hall is no longer standing and the three sides of the moat are now spread by ploughing.   |

The following details those assets recorded on the plan showing the Cultural Heritage Assets.

| HER Reference                | Site Name  | Grid Reference | Description   |
|------------------------------|--|----------------|---|
| <i>Designated Assets</i>     |  |                |   |
| DCH1638<br>538/1             | Yew Tree Farmhouse Grade II Listed Building I 139340   | SJ 6442 8396   | Yew Tree Farmhouse is Grade II listed. It has oak framing cased in brick with a grey slate roof. It was probably built around 1800 and later altered.   |
| DCH1659<br>541/1             | Beehive Farmhouse Grade II Listed Building I 139361  | SJ 6463 8415   | Grade II listed farmhouse, probably built in the 17th century and later altered. It is timber framed with brick infill and was formerly thatched.   |
| DCH1660<br>540/1/1           | Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I 139362 | SJ 6475 8406   | Grade II listed farmhouse built in the late 17th century. It has a 20th-century rendered brick exterior.  |
| DCH1661<br>549/1             | Tanyard Farm, Farm Building Grade II* Listed Building I 139363                               | SJ 6573 8384   | Grade II* listed Threshing Barn. It dates from the late 16th century and is oak framed on a sandstone plinth. It has been altered and partly converted into a Shippon (cow house) there is also an 18th century or early 19th-century cartshed and stable here.   |
| DCH1934                      | Booths Farm Farmhouse Grade II Listed Building I 329740                                      | SJ 6477 8404   | Farmhouse, late C17, altered. Brick rendered mid-C20, with gable copings, cyma kneelers and some dressings of sandstone; graded grey slate roof. Interior C17 open-well newel stair with plain flat (replacement) balusters between ground and first floor and original splat balusters to upper flights and top landing.   |
| DCH1935<br>548/1             | Barleycastle Farmhouse Grade II Listed Building I 329741                                     | SJ 6553 8393   | Barleycastle Farmhouse is Grade II listed and was built in the 17th century or earlier. It has 19th-century alterations including a pebble-dashed exterior over the original oak framing.   |
| DCH159                       | Bradley Hall Moated Site, Scheduled Monument, I 011924                                       | SJ 6570 8452   | The monument comprises a moated site, the island of which is partially occupied by a modernised farmhouse and garden but which was formerly occupied by the manor house of Bradley Hall.<br><br>The site of Bradley Hall, a moated Manor House is a Scheduled Monument. It was built in 1460 though some parts may have been earlier. The moat is water-filled up to a depth of 2.5m and the platform is now partially occupied by a modernised farmhouse and garden. A causeway on the east side replaces the original drawbridge. |
| <i>Locally Listed Assets</i> |  |                |   |
| DCH12753                     | Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building                   | SJ 6529 8484   | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |
| DCH12763                     | Bradley Hall and barn, Cliff Lane, Appleton  | SJ 6571 8453   | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |

|               |   |              |   |
|---------------|---|--------------|---|
| DCH12869      | Milepost at Gallows Croft, Knutsford Road, Lymm   | SJ 6524 8578 | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |
| DCH12879      | Old Chapel, Old Cherry Lane, Lymm Locally Listed Building   | SJ 6635 8497 | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |
| DCH13677      | Tan House Farm, Barleycastle Lane, Appleton   | SJ 6573 8381 | Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.  |
| <i>Events</i> |   |              |   |
| ECH3541       | M6 Motorway Widening Scheme, Junctions 16-20. Archaeological Recording of Test Pits.                | SJ 723 679   | Geological monitoring of test pits 3m by 1m. No significant below ground, archaeological deposits were identified. However given the location of the test pits was chosen on geological and not archaeological grounds.   |
| ECH3554       | Greater Manchester Western and Northern Relief Road (M56-M6 link): Archaeological Assessment Report | SJ 703 908   | Archaeological assessment, produced in 1993, of three alternative routes proposed for the Greater Manchester Western & Northern Relief Road (M56-M62 Link).   |
| ECH3566       | M6 Junctions 16-20 Widening: Archaeological Desk-Top Survey   | SJ 755 637   | A programme of archaeological assessment undertaken between October 1992 and June 1993 to assess implications of the proposed road widening of the M6 motorway between junctions 16 and 20, and to recommend further measures for recording of affected sites   |
| ECH3652       | M6 widening: Junctions 16- 20: Report on Geophysical Survey   | SJ 755 637   | The results of the geophysical surveys were reported in report SCH4295. Five sites were identified for geophysical survey, of these, two were the location of possible brick kilns, two possibly contained lengths of King Street Roman road and one was potentially the site of salt works. However, the majority of survey areas produced very few anomalies of archaeological interest and most of the data sets were dominated by ferrous responses, predominantly the result of buried pipes and other modern ferrous material. No brick kilns were positively identified. |
| ECH3653       | M6 Widening: Junctions 16- 20. Report on Earthwork Survey   | SJ 755 637   | A total of 9 sites, totalling an area of 15.67ha, was subject to topographic survey. Most of the sites surveyed were of ridge and furrow earthworks, but they also included a leat relating to Lower Roughwood Mill, and a potential building platform close to Bostock Hall.   |
| ECH3654       | M6 Widening: Junctions 16- 20, Cheshire. Cultural Heritage, Stage 3 Assessment Report Text          | SJ 755 637   | -   |
| ECH4557       | Report on Northwest Telent Techmac Design and Consultancy Services Framework Provision of           | SJ 520 781   | An appraisal or assessment of cultural heritage along the M56 between junctions J9 and J16. Identified listed buildings and sites from which the proposed signs would be visible. These include a moated site, fishpond and connecting channel at   |

|                  |   |                    |   |
|------------------|---|--------------------|---|
|                  | Variable Message Signs on the M56 Between Junctions J9 -16                                |                    | Elton, a heavy anti aircraft gun site 400m west of Sutton Fields Farm and two sections of Roman Road between Appleton and Stretton.   |
| ECH4559          | Bradley Hall Appleton, The Moated Site and Survey and Research Report                     | SJ 657 845         | The resistivity survey indicated a damp area, running from the house to the oat edge. This was not thought to be drains by the owner. There were dry areas on the South West of the survey. This could confirm the existence of large greenhouses that stood on the site some years ago. The dry areas suggest the presence of buried foundations. Survey also picked up a possible track to the north of the site, potentially Roman   |
| ECH4566          | An Archaeological Watching Brief at Bradley Hall Moat, Appleton, Warrington. Final Report | SJ 657 845         | Watching brief carried out during the excavation of foundations for a replacement extension to the farmhouse at Bradley Hall Farm, Appleton, Warrington. The moat is a scheduled ancient monument. The foundations were shallow and built on clay which overlay an uneven spread of cobbles which in turn lay over a buried soil. The latter produced the base of a 14th-15th century jar. Industrial waste was recovered that had apparently been used to make paths and other surfaces. The numbers of finds was relatively small but, the conclusions suggest, this is not unusual for sites such as this. |
| ECH5845          | Stretton Airfield, Design Access Statement  | SJ 652 835         | A design and access statement prepared by Jeffery Bell Architects on behalf of Hensmill Property to support an application for planning permission for a below ground car storage and display facility and an above ground ancillary office.  |
| <i>Monuments</i> |   |                    |   |
| 1197/1           | Kings Brook Mill Site of Watermill Industrial Site, Mill, Watermill                       | SJ 6 8             | Place name evidence for a watermill site at High Legh.  |
| 2728             | Unnamed Site in High Legh Parish Site of 19th century cottage House                       | SJ 663 832         | A single cottage and garden in Crawley Lane is shown on High Legh tithe map in 1849. It is now demolished.  |
| 2729/0/1         | Swineyard Lane Site of a 19th century house   | SJ 661 835         | A house with outbuildings, yard and garden in Swineyard Lane shown on the High Legh tithe map in 1848. It has now been demolished.  |
| 2729/0/2         | Swineyard Lane Site of 19th Century Building House  | SJ 662 835 (point) | High Legh tithe map shows a single building and garden now demolished.  |
| 2734             | Swineyard Farm Prehistoric axe Findspot   | SJ 6640 8370       | Dark, fine grained stone shaft-hole axe, now in Warrington museum.  |
| 2908             | Badger's Croft Farm I Cropmark Enclosure. Ditched Enclosure                               | SJ 66 83           | Elliptical shaped cropmark, purpose unknown. 40 to 50 metres in diameter lying on the western end of the High Legh Ridge. Cropmarks are visible changes in the growth of vegetation that may indicate a buried feature.   |
| 4091             | RNAS Stretton/HMS Blackcap Airfield WW2 Airfield Military Airfield                        | Centred SJ 652 835 | World War 2 military airfield opened in 1942 and run as Royal Navy HMS Blackcap from December 1944.   |

|                    |   |                    |   |
|--------------------|---|--------------------|---|
| 4468/0/0           | Strict Baptist Chapel, Cherry Lane<br>Strict Baptist Chapel Strict Baptist Chapel         | Centred SJ 663 849 | Strict Baptist Chapel built in 1819 from brick with round arched windows. A porch was added and the interior was refitted in 1889.  |
| 4657               | Pond, North of Cartridge Lane, Grappenhall. Pond shown on OS 1st Edition Maps of Cheshire | SJ 648 847         | Pond with sluice at north end shown on the 1st edition Ordnance Survey maps. The 6" 1st edition map was surveyed 1873-6 and was published in 1882. Now a water-filled hollow, with a low bank along the field boundary to the west. Heavily overgrown by trees. Sluice not identified.  |
| 538/1<br>(DCH1638) | Yew Tree Farmhouse 17th century farmhouse Farm, Farmstead,                                | SJ 644 839         | Yew Tree Farmhouse is Grade II listed. It has oak framing cased in brick with a grey slate roof. It was probably built around 1800 and later altered.   |
| 540/1/1<br>DCH1660 | Booth's Farm Farmhouse Post Medieval farmhouse Farm, Farmstead                            | SJ 647 840         | Grade II listed farmhouse built in the late 17th century. It has a 20th-century rendered brick exterior.  |
| 540/1/2            | Shippon, Booth's Farm Timber framed barn Cow House, Farm, Farmstead, Barn                 | SJ 647 840         | Grade II listed timber framed barn. It has an oak frame and a grey slate roof dating to the post-medieval period (17th century).  |
| 541/1<br>(DCH1659) | Beehive Farmhouse Post Medieval farmhouse Farm, Farmstead, Timber Framed Building,        | SJ 646 841         | Grade II listed farmhouse, probably built in the 17th century and later altered. It is timber framed with brick infill and was formerly thatched.   |
| 547/1/0            | North Cheshire Ridge Roman Road   | SJ 66 83           | Roman Road, The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north. The road surface was observed in excavation (547/1/1). Unusually for Roman roads in Cheshire there were drainage ditches along each side of the road structure, some 2m wide and 0.6m deep. The agger apparently had a rough curb on each side to retain the structure. There is good evidence that the road continued as a route in medieval times. |
| 547/1/13           | North Cheshire Ridge Roman Road – Stretton Airfield Section of Roman Road                 | SJ 648 844         | Section through North Cheshire Ridge Roman road at Stretton Airfield. The road surface here was 13.5 metres wide. Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.   |
| 547/1/7            | The North Cheshire Ridge Roman Road Section of Roman road                                 | SJ 658 846         | Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.   |
| 547/1/8            | The North Cheshire Ridge Roman Road Section of Roman road                                 | SJ 67 84           | Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.   |
| 548/1              | Barley castle Farmhouse Post Medieval farmhouse Farm,                                     | SJ 655 839         | Barleycastle Farmhouse is Grade II listed and was built in the 17th century or earlier. It has 19th-century alterations including a pebbledashed exterior over the original oak framing.  |

|                  |  |            |   |
|------------------|--|------------|---|
| 549/1<br>DCH1661 | Tanyard Farm Farm-building 16th century barn Cow House, Farm, Stable                 | SJ 657 838 | Grade II* listed Threshing Barn. It dates from the late 16th century and is oak framed on a sandstone plinth. It has been altered and partly converted into a Shippon (cow house) there is also an 18th century or early 19th-century cartshed and stable here.   |
| 550/1            | Bradley Hall moated site Medieval moated site Manor, Manor House, Moat, Gate Centred | SJ 656 845 | The site of Bradley Hall, a moated Manor House is a Scheduled Monument. It was built in 1460 though some parts may have been earlier. The moat is water-filled up to a depth of 2.5m and the platform is now partially occupied by a modernised farmhouse and garden. A causeway on the east side replaces the original drawbridge. |
| 551              | Bradley Cross Site of medieval cross   | SJ 6 8     | "Crux de Braddelegh" is mentioned in documents dated 1386. The cross that once marked the point where Grappenhall, Lymm and Appleton met is now lost.   |
| 615              | Reddish Hall Medieval moated site Moat   | SJ 646 847 | Site of Reddish Hall, a medieval moated hall. The hall is no longer standing and the three sides of the moat are now spread by ploughing.   |



SCALE: Not to scale  
 USER ID: mmattatia  
 DATE: 15/08/2017  
 EXTRACT DATE: 05/06/2017  
 MAP REF: SJ6484  
 CENTRE: 364802, 384242

|           |  |
|-----------|--|
| LP MAINS  |  |
| MP MAINS  |  |
| IP MAINS  |  |
| LHP MAINS |  |
| NIP MAINS |  |

Some examples of Plant Items:

|       |                |        |                 |                 |                         |
|-------|----------------|--------|-----------------|-----------------|-------------------------|
|       |                |        |                 |                 |                         |
| Valve | Depth of Cover | Syphon | Diameter Change | Material Change | Out of Standard Service |

This plan shows those pipes owned by National Grid Gas plc in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by National Grid Gas plc or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue. Further information on all DR4s can be determined by calling the DR4 hotline on 01455 892428 (9am-5pm). A DR4 is where a potential error has been identified within the asset record and a process is currently underway to investigate and resolve the error as appropriate.

MAPS Viewer Version 5.7.0.0

Local Machine

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The position and depths of underground and overhead apparatus as indicated on this plan are approximate and are intended for guidance only. The depths may have changed if the land surface levels have altered. You are also informed that the plan may not show, or may inaccurately show, individual property services and services to street lighting installations. The onus of locating the apparatus precisely before commencing any excavations or other works in the immediate vicinity therefore rests entirely upon the person undertaking or responsible for those works. Before any such works are undertaken the precise location of the apparatus and cables should therefore be ascertained by suitable means. In the event of an emergency or for further assistance please contact 0800-092-9290 (ScottishPower area) or 0800-001-5400 (SP Manweb area).

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SP Manweb plc  
Registered Office: c/o PowerSystems  
3 Prenton Way, Prenton, CH43 3ET  
Registered in England and Wales No 2366937

|                    |            |
|--------------------|------------|
| OVERHEAD LINE      | ---        |
| UNDERGROUND CABLES | ---        |
| In Use             | ---        |
| Out of Use         | ---        |
| Assumed route      | ---        |
| VOLTAGE COLOUR KEY |            |
| EHV                | 132kV BLUE |
| HV                 | 33kV GREEN |
| LV                 | RED BROWN  |

Where cables have been laid SINCE 1 OCTOBER 1988, the following depths in mm apply (to the tops of cables or ducts) UNLESS OTHERWISE SHOWN, but see comments. (TO TOP OF CABLE, ADD 75mm FOR BOTTOM OF TRENCH)

|                | EHV | HV  | LV  |
|----------------|-----|-----|-----|
| IN FOOTPATHS : | 775 | 600 | 450 |
| ACROSS ROADS : | 775 | 700 | 600 |
| ALONG ROADS :  | 775 | 700 | 600 |
| AGRICULTURAL : | 910 | 910 | 910 |

Your attention is drawn to the Health and Safety Executive Booklet HSG47, available from HSE.

DATE: 14/08/2017

SCALE: 1 : 6,546

MAP REFERENCE: 365,512 384,470

0 20 40 80 120 160 Metres

This map image may not be used for planning application use

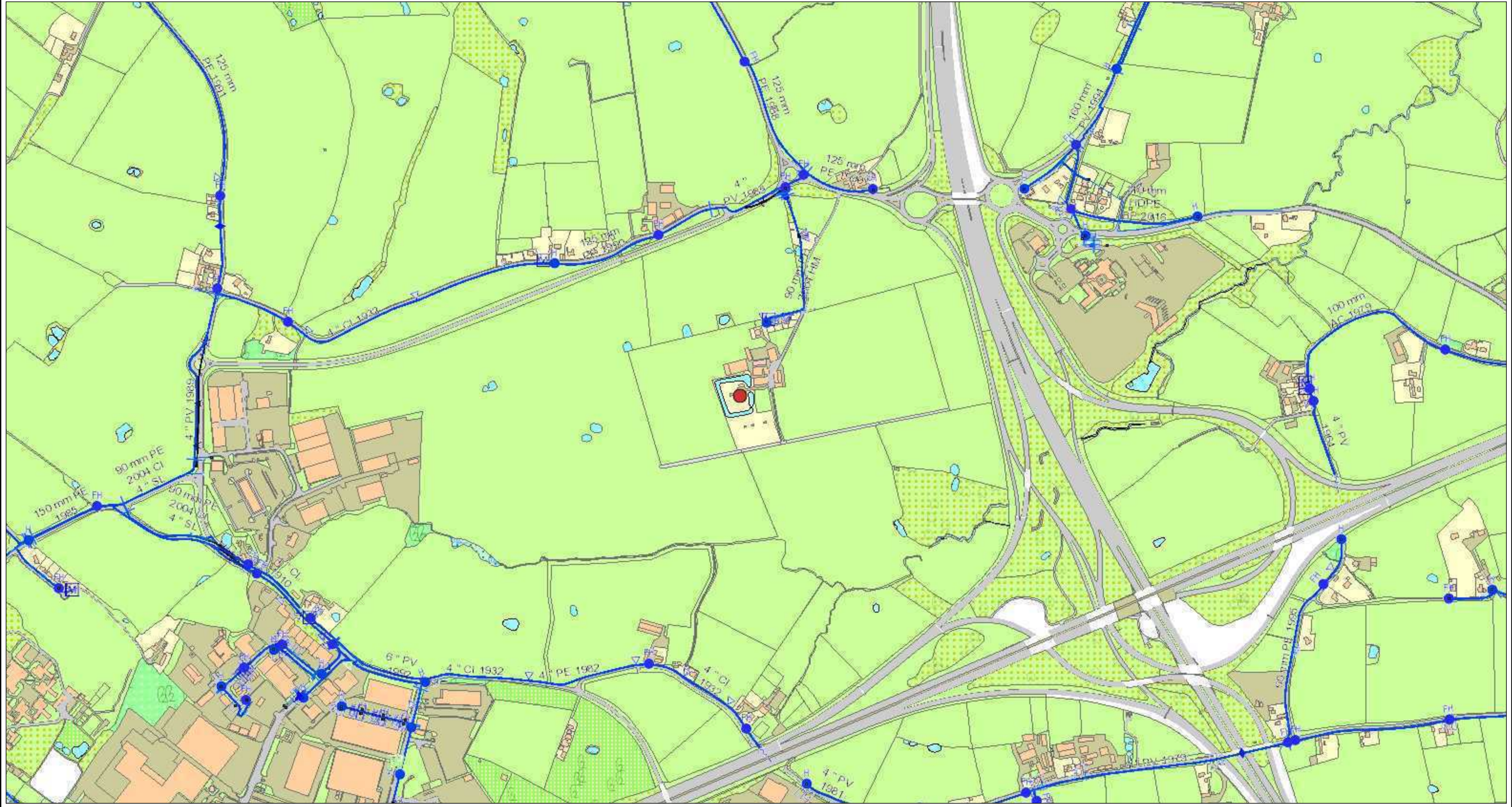


# UU Maps for Safe Dig

Centre : X : 365750 Y : 384510

Date : 16/08/2017 17:19:23

Scale Approx : 8000



### Extract from maps of United Utilities' Underground Assets

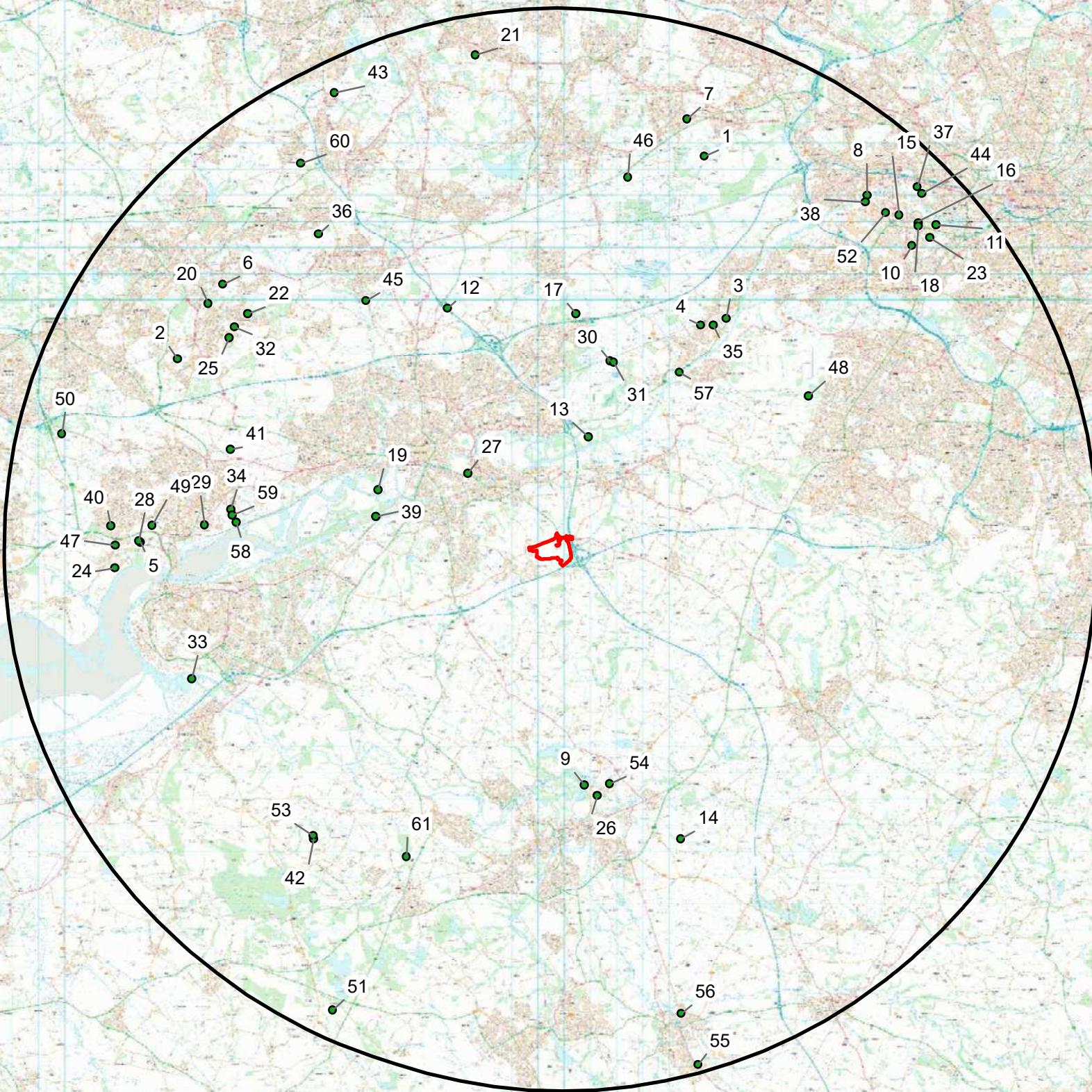
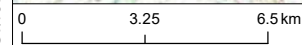
The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private service pipes may be shown by a blue broken line. United Utilities Water will not accept liability for any damage caused by the actual position being different from those shown.

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| ID | Name                                    | Distance (km) |
|----|---|---------------|
| 1  | Whitehead Landfill Site                 | 15.33         |
| 2  | Lord St Helens Quarry Landfill          | 15.20         |
| 3  | Frank O' Gara & Sons Ltd                | 10.16         |
| 4  | Manchester Skips                        | 9.43          |
| 5  | Philip Bannon Haulage Ltd               | 14.79         |
| 6  | St Helens Electrical Recycling Facility | 15.37         |
| 7  | Rubber Recycling Ltd                    | 16.50         |
| 8  | European Metal Recycling Ltd            | 17.18         |
| 9  | A. Vlies Northwich Metals Limited       | 8.40          |
| 10 | Mercury Recovery, Trafford Park         | 17.04         |
| 11 | A & B Containers Ltd                    | 18.26         |
| 12 | Southworth Quarry Landfill P P C        | 9.52          |
| 13 | Woolston Deposit Ground                 | 3.83          |
| 14 | Holford Brinefield Landfill Site        | 11.33         |
| 15 | S Norton & Co Limited                   | 17.48         |
| 16 | M & N Containers Ltd                    | 17.79         |
| 17 | Risley Iv Landfill Site                 | 8.38          |
| 18 | Packaging Reuse & Disposal Services Ltd | 17.72         |
| 19 | Arpley Landfill Site                    | 6.16          |
| 20 | Roydon Granulation Limited              | 15.35         |
| 21 | Rivington View Farm                     | 18.47         |
| 22 | R G & Sons                              | 13.93         |
| 23 | M & N Containers Ltd                    | 17.76         |
| 24 | J Bryan Ltd                             | 15.79         |
| 25 | Abbottsfield Metals Ltd                 | 13.94         |
| 26 | W R Roberts And Sons                    | 8.85          |
| 27 | F X Dunn                                | 3.65          |
| 28 | M & J Burns Ltd                         | 14.86         |
| 29 | Karalius Brothers Waste Limited         | 12.39         |
| 30 | Fir Tree Farm Landfill Site             | 6.83          |
| 31 | Moss Hall Farm Landfill Site            | 6.83          |
| 32 | The Sheppard Group Ltd                  | 14.02         |
| 33 | Frodsham Marsh Lagoon                   | 13.74         |
| 34 | Ecocycle Waste                          | 11.45         |
| 35 | Irlam - Material Resource Centre        | 9.68          |
| 36 | Lyme And Wood Pits Landfill             | 14.38         |
| 37 | T & K Gallagher Ltd                     | 18.72         |
| 38 | Nash Road Bio- Soil Production Facility | 16.95         |
| 39 | Port Warrington Facility                | 5.95          |
| 40 | Centrol Recycling Group Ltd             | 15.94         |
| 41 | Bold Heath Quarry                       | 11.97         |
| 42 | Town Farm Quarry                        | 13.70         |
| 43 | Wigan Depot                             | 18.78         |
| 44 | Waste Recycling Depot                   | 18.66         |
| 45 | Former Vulcan Works Foundary            | 11.27         |
| 46 | Morleys Quarry                          | 13.82         |
| 47 | Land Adj To Millhouse Garage            | 15.76         |
| 48 | Land Off Sinderland Road                | 10.47         |
| 49 | St Michaels Golf Course                 | 14.37         |
| 50 | Cronton Quarry                          | 18.30         |
| 51 | Ottersbank Farm                         | 18.92         |
| 52 | Platinum International Limited          | 17.17         |
| 53 | Town Farm Quarry                        | 13.62         |
| 54 | Aggregates Yard                         | 8.50          |
| 55 | Cledford Lane Environmental Hub         | 19.69         |
| 56 | W P I Group                             | 17.65         |
| 57 | Whitehead Hub Site                      | 7.48          |
| 58 | Johnsons Lane Landfill Site             | 11.20         |
| 59 | Philip Bannon Haulage                   | 11.37         |
| 60 | N M S Civil Engineering Limited         | 17.01         |
| 61 | Nick Brookes Recycling                  | 12.44         |



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 Notes  
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 2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.

**Legend**  
 Site location  
 Waste Sites  
 20km Buffer

| Rev | Description | By | CB | Date |
|-----|-------------|----|----|------|
|     |             |    |    |      |



20 Western Avenue, Milton Park, Abingdon, Oxfordshire, OX14 4SH  
 T: +44(0)1235 821 888 E: rps@rpsgroup.com

Client **Langtree and First Panattoni**

Project **Six 56 Warrington**

Title **Waste Receptor Plan**

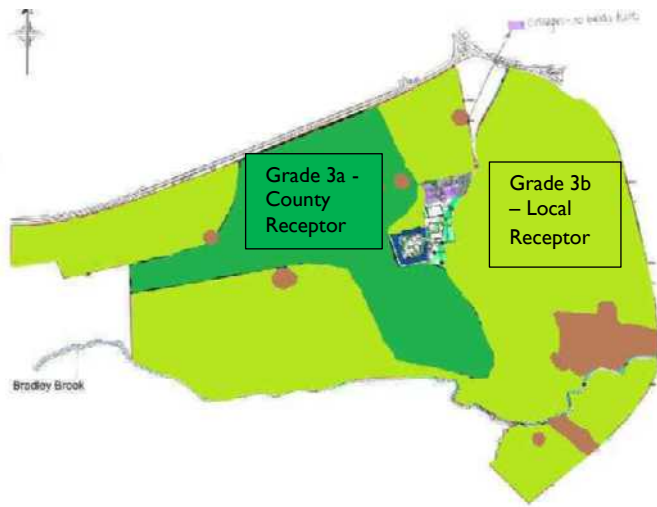
Status **DRAFT** Drawn By **BG** PM/Checked By **CR**

Project Number **OXF10756** Scale @ A3 **1:200,000** Date Created **FEB 2019**

Figure Number **1** Rev **-**

[rpsgroup.com](http://rpsgroup.com)

O:\10765 Warrington Interchange Waste Chapter\Tech\Drawings\10765-0007-03.mxd



Key

|  |                  |                 |
|--|------------------|-----------------|
|  | 3a               | County Receptor |
|  | 3b               | Local Receptor  |
|  | Non Agricultural | None            |

Agricultural Land and Soils Receptor Plan

## **ES Part I Appendix 7**

|                    |     |
|--------------------|-----|
| Based on:          | Rev |
| Architects Dwg No. | Rev |
| Structural Dwg No. | Rev |
| Survey Dwg No.     | Rev |
| Other Dwg No.      | Rev |

DO NOT SCALE FROM THIS DRAWING

- Notes**
- NET FIGURES ASSUMED EXCAVATED MATERIAL IS SUITABLE TO BE REUSED AS FILL MATERIAL. TESTING WILL BE REQUIRED TO CONFIRM THIS.
  - FOR PROPOSED FINISHED LEVEL INFORMATION PLEASE REFER TO DRAWING CLXX(52)4003
  - ALL REDUCED LEVEL INFORMATION IS BASED ON AN ASSUMED CBR VALUE OF 3% (TO BE CONFIRMED).
  - THE ESTIMATION OF C&F VOLUME EXCLUDES ANY ARISING FROM FOUNDATIONS, DRAINAGE AND SUNDRY INSTALLATIONS
  - BULKING FACTORS HAVE NOT BEEN CONSIDERED.

- SITE STRIP**
- TOPSOIL SITE STRIP CUT = 291770m<sup>3</sup> BASED ON 300mm SITE STRIP/TOPSOIL DEPTH.

- FORMATION DEPTHS**
- THE VOLUMETRIC ANALYSIS IS BASED ON THE FORMATION LEVELS FROM THE AREAS AS BELOW:
- 600mm FOR ROADS
  - 600mm FOR PLOTS
  - 500mm FOR CAR PARKS
  - 300mm FOR LANDSCAPE

- OVERALL VOLUMETRIC ANALYSIS**
- SUMMARY OF OVERALL VOLUMETRIC VOLUMES:
- CUT = 493464.077m<sup>3</sup>
  - FILL = 451718.437m<sup>3</sup>
  - NET CUT = 41745.639m<sup>3</sup> (CUT)**

**BUND VOLUMES**

APPROX VOLUME OF 59500 m<sup>3</sup> REQUIRED TO FORM BUNDS (ACOUSTIC BUND NOT DISPLAYED.)

**TOTAL SURPLUS MATERIAL**

APPROX 300MM TOP SOIL STRIP = 291770m<sup>3</sup> (CUT)  
 APPROX TOTAL VOLUME FOR SITE = 41745m<sup>3</sup> (CUT)  
 APPROX TOTAL VOLUME FOR BUND = 59500 m<sup>3</sup> (FILL)  
 APPROX REINSTATED LANDSCAPE = 76255 m<sup>3</sup> (FILL)

**TOTAL VOLUME OF SURPLUS TOP SOIL TO BE EXPORTED FROM SITE = 197760 m<sup>3</sup>**

| P# | Date     | Description         | MH | RT | BW |
|----|----------|---------------------|----|----|----|
| P4 | 09.10.20 | REVISED PLOT 1 BUND |    |    |    |
| P3 | 20.03.20 | REVISED LAYOUT      | AW | RB | MH |
| P2 | 13.03.20 | GABION WALL ADDED   | AW | RB | MH |
| P1 | 25.02.20 | REVISED LAYOUT      | AW | RB | MH |
| -  | -        | FIRST ISSUE         | JS | AF | LF |

Project  
SIX: 56 WARRINGTON

Client  
LANGTREE / FIRST INDUSTRIAL

Architect  
STEPHEN GEORGE PARTNERS

Title  
EARTHWORKS CUT AND FILL ANALYSIS

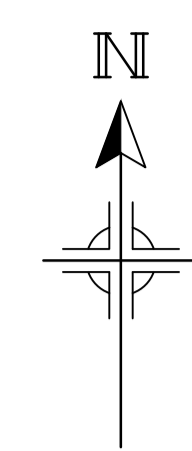
Drawing No. CLXX(52)4001 Drawing Status INFORMATION

Job No. 1015524 Scale 1:2500

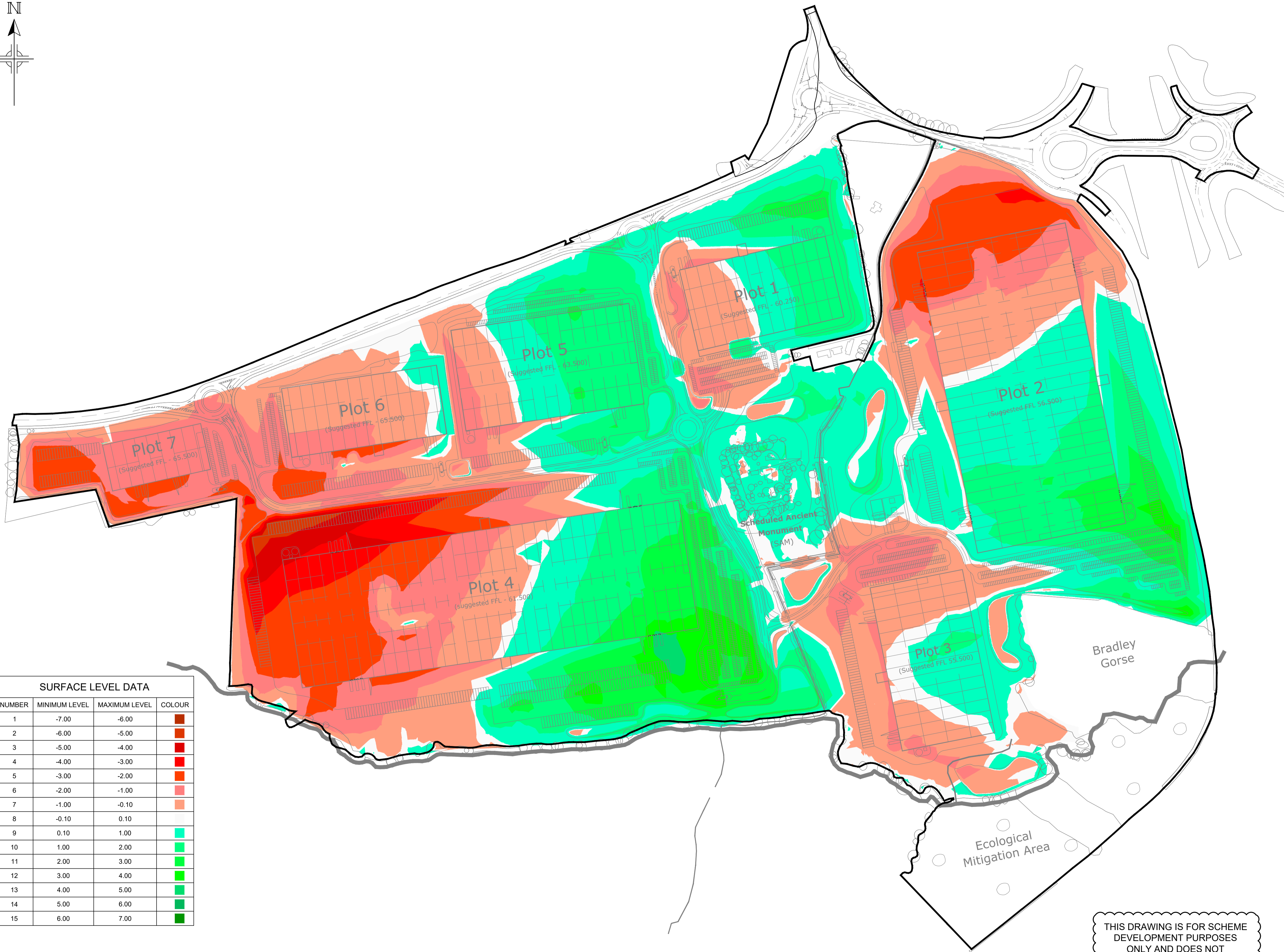
Originator JS Checked AF Verified LF Issue -

**CUNDALL**

4th Floor, Partnership House  
 Regent Farm Road,  
 Gosforth,  
 Newcastle NE3 3AF  
 Telephone: +44 (0)191 213 1515  
 Website: www.cundall.com



| NUMBER | MINIMUM LEVEL | MAXIMUM LEVEL | COLOUR       |
|--------|---------------|---------------|--------------|
| 1      | -7.00         | -6.00         | Dark Red     |
| 2      | -6.00         | -5.00         | Red          |
| 3      | -5.00         | -4.00         | Bright Red   |
| 4      | -4.00         | -3.00         | Red-Orange   |
| 5      | -3.00         | -2.00         | Orange       |
| 6      | -2.00         | -1.00         | Light Orange |
| 7      | -1.00         | -0.10         | Light Red    |
| 8      | -0.10         | 0.10          | White        |
| 9      | 0.10          | 1.00          | Light Green  |
| 10     | 1.00          | 2.00          | Light Green  |
| 11     | 2.00          | 3.00          | Light Green  |
| 12     | 3.00          | 4.00          | Light Green  |
| 13     | 4.00          | 5.00          | Light Green  |
| 14     | 5.00          | 6.00          | Light Green  |
| 15     | 6.00          | 7.00          | Light Green  |



THIS DRAWING IS FOR SCHEME DEVELOPMENT PURPOSES ONLY AND DOES NOT REPRESENT FINISHED DESIGN LEVELS

|                    |     |
|--------------------|-----|
| Based on:          | Rev |
| Architects Dwg No. | Rev |
| Structural Dwg No. | Rev |
| Survey Dwg No.     | Rev |
| Other Dwg No.      | Rev |

DO NOT SCALE FROM THIS DRAWING

Notes

LEGEND:

- MINOR CONTOUR (200mm INTERVAL)
- MAJOR CONTOUR (1m INTERVAL)
- SITE BOUNDARY

NOTE:  
ACOUSTIC BUND INDICATIVELY DISPLAYED WITH 1:3 SLOPE

THIS DRAWING IS FOR SCHEME DEVELOPMENT PURPOSES ONLY AND DOES NOT REPRESENT FINISHED DESIGN LEVELS

| Issue | Date     | Description         | By | Chkd | Verfd |
|-------|----------|---------------------|----|------|-------|
| P4    | 09.10.20 | REVISED PLOT 1 BUND | MH | RT   | BW    |
| P3    | 20.03.20 | REVISED LAYOUT      | AW | RB   | MH    |
| P2    | 13.03.20 | GABION WALL ADDED   | AW | RB   | MH    |
| P1    | 25.02.20 | REVISED LAYOUT      | AW | RB   | MH    |
| -     | -        | FIRST ISSUE         | JS | AF   | LF    |

Project  
SIX: 56 WARRINGTON

Client  
LANGTREE / FIRST INDUSTRIAL  
Architect  
STEPHEN GEORGE PARTNERS

Title  
DETAILED FINISHED LEVELS CONTOURS

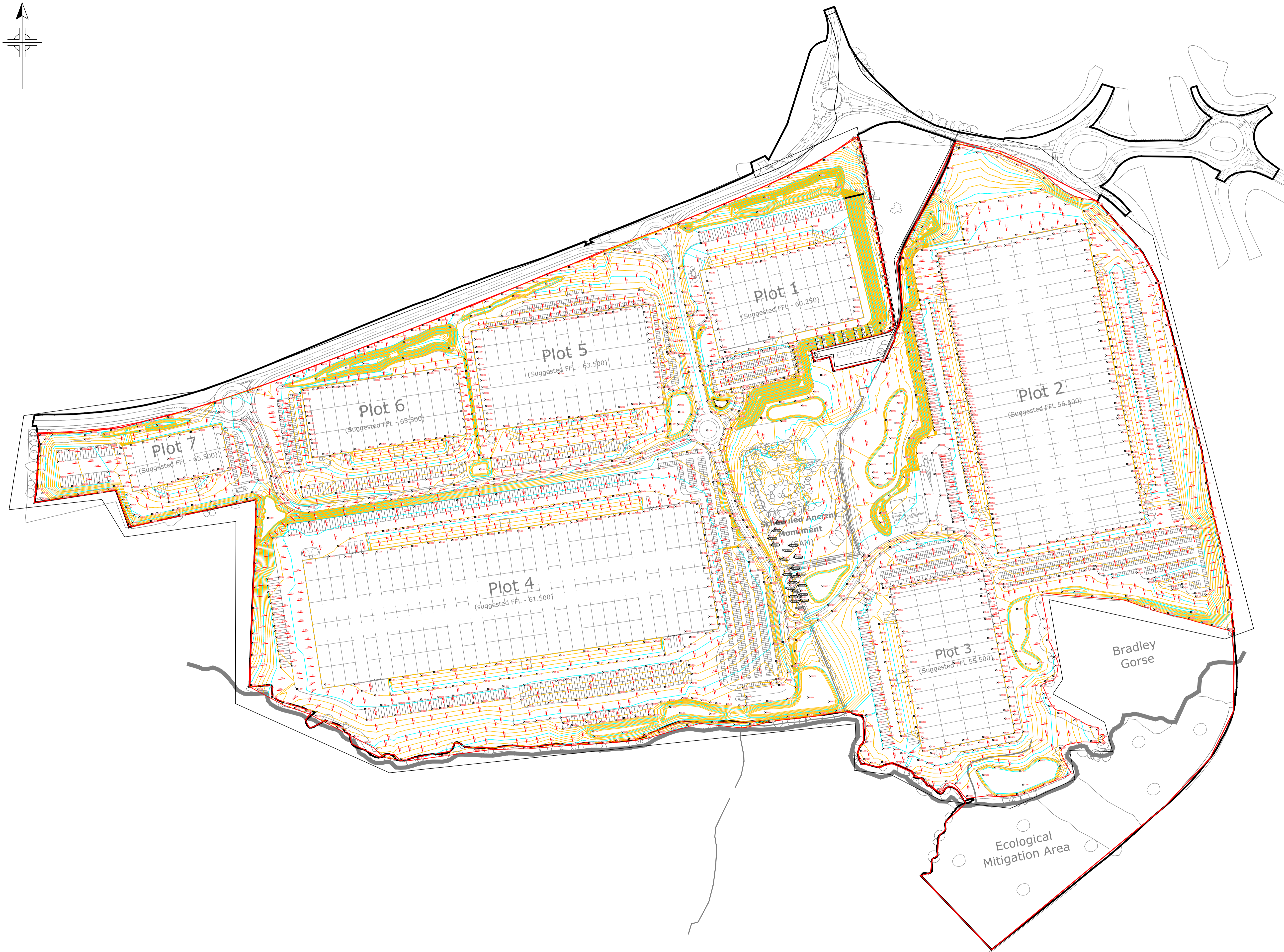
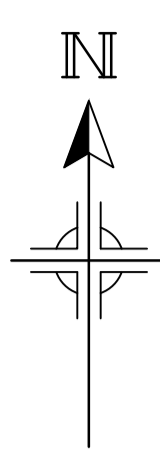
Drawing No. CLXX(52)4003      Drawing Status INFORMATION

Job No. 1015524      Scale 1:2500

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|---------------|------------|-------------|---------|
| Originator JS | Checked AF | Verified LF | Issue - |
|---------------|------------|-------------|---------|



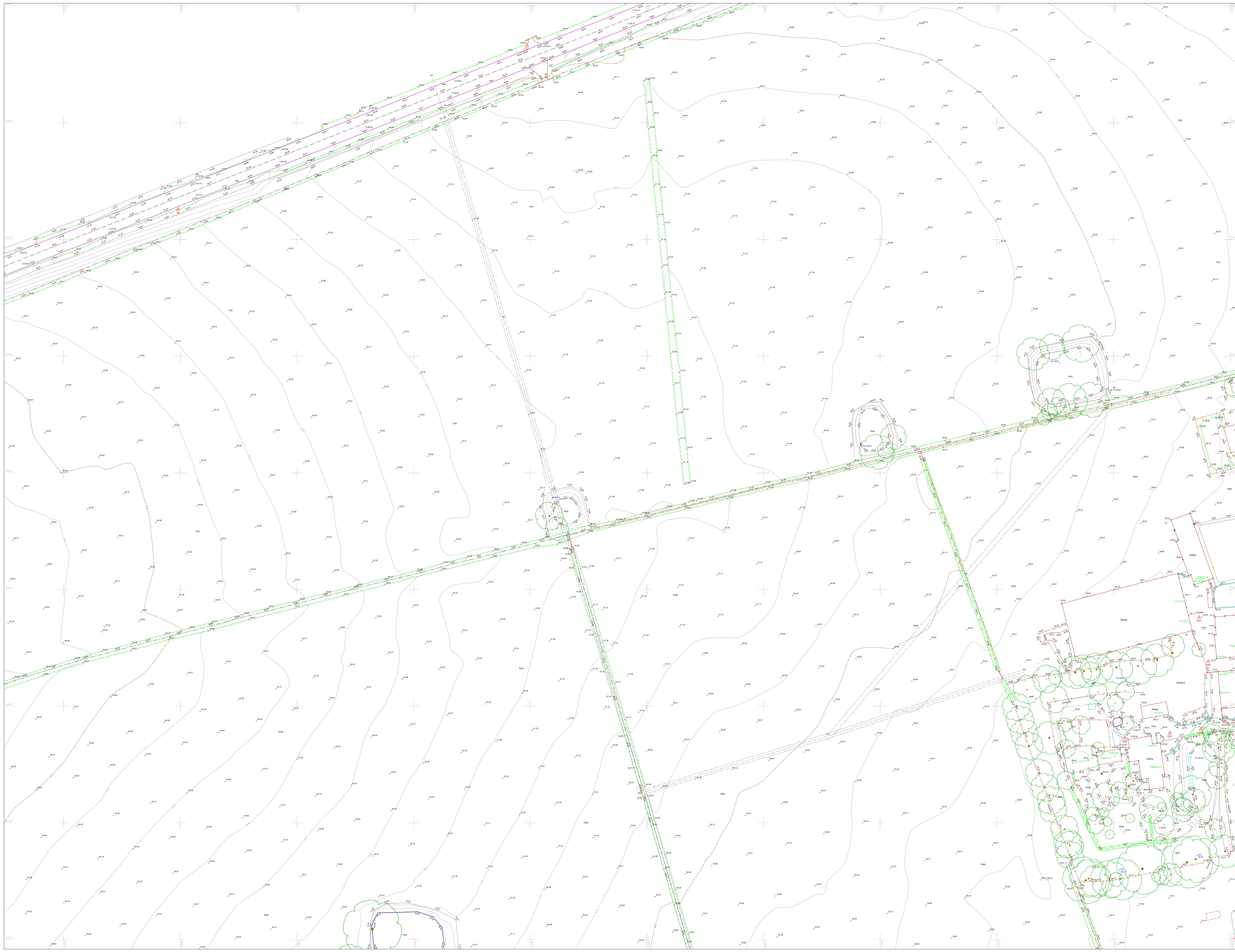
4th Floor, Partnership House  
Regent Farm Road,  
Gosforth,  
Newcastle NE3 3AF  
Telephone: +44 (0)191 213 1515  
Website: www.cundall.com











**Legend**

|           |                             |
|-----------|-----------------------------|
| AV        | Air valve                   |
| BS        | Bench mark                  |
| BOL       | Bolton                      |
| BT        | British Telecom cover       |
| CATV      | Cable television cover      |
| CL        | Clamp                       |
| DPC       | Deep point opening level    |
| EMBED     | Embedding                   |
| ELEC      | Electric cover              |
| EP        | Electric pole               |
| Fence 05  | Iron safety fence           |
| Fence 06  | Chainlink fence             |
| Fence C&P | Concrete post & panel fence |
| Fence F6  | Flint fence                 |
| Fence F7  | Post and wire fence         |
| Fence F8  | Flint and wire fence        |
| Fence F9  | Flint and panel fence       |
| FIS       | Flower bed                  |
| F11       | Free height                 |
| G         | Gully                       |
| GAB       | Gas cover                   |
| K         | Iron post                   |
| LP        | Light pole                  |
| LV        | Level                       |
| LP        | Light pole                  |
| LT        | Light                       |
| MS        | Manhole                     |
| MSM       | Manhole cover               |
| OSM       | Ordnance Survey Bench Mark  |
| PT        | Parking ticket machine      |
| RE        | Recessed sign               |
| R1        | Road sign                   |
| R1 wall   | Road sign wall              |
| SP        | Sign post                   |
| SPP       | Safety playing surface      |
| ST        | Step                        |
| TV        | Temporary valve             |
| TSM       | Temporary Bench Mark        |
| TSP       | Temporary sign              |
| TJ        | Tree jet                    |
| TL        | Tree light                  |
| WL        | Water cover                 |
| WO        | Wash out                    |

**SURVEY STATIONS**

| Name | Easting   | Northing  | Height |
|------|-----------|-----------|--------|
| BA   | 36774.665 | 36461.170 | 57.261 |
| BA1  | 36777.584 | 36463.876 | 56.214 |
| CA   | 36780.875 | 36465.138 | 57.265 |
| CB   | 36782.462 | 36466.550 | 57.264 |
| DA   | 36787.881 | 36468.825 | 57.269 |
| DB   | 36792.483 | 36468.768 | 57.267 |
| DC   | 36796.474 | 36469.531 | 57.268 |
| DD   | 36797.489 | 36471.266 | 57.278 |
| DE   | 36797.649 | 36472.581 | 57.283 |
| DF   | 36794.115 | 36474.485 | 56.175 |
| DF1  | 36794.688 | 36475.502 | 56.173 |
| DF2  | 36795.238 | 36472.710 | 56.234 |
| DF3  | 36795.238 | 36472.710 | 56.234 |
| DF4  | 36795.238 | 36472.710 | 56.234 |
| DF5  | 36795.238 | 36472.710 | 56.234 |
| DF6  | 36795.238 | 36472.710 | 56.234 |
| DF7  | 36795.238 | 36472.710 | 56.234 |
| DF8  | 36795.238 | 36472.710 | 56.234 |
| DF9  | 36795.238 | 36472.710 | 56.234 |
| DF10 | 36795.238 | 36472.710 | 56.234 |
| DF11 | 36795.238 | 36472.710 | 56.234 |
| DF12 | 36795.238 | 36472.710 | 56.234 |
| DF13 | 36795.238 | 36472.710 | 56.234 |
| DF14 | 36795.238 | 36472.710 | 56.234 |
| DF15 | 36795.238 | 36472.710 | 56.234 |
| DF16 | 36795.238 | 36472.710 | 56.234 |
| DF17 | 36795.238 | 36472.710 | 56.234 |
| DF18 | 36795.238 | 36472.710 | 56.234 |
| DF19 | 36795.238 | 36472.710 | 56.234 |
| DF20 | 36795.238 | 36472.710 | 56.234 |
| DF21 | 36795.238 | 36472.710 | 56.234 |
| DF22 | 36795.238 | 36472.710 | 56.234 |
| DF23 | 36795.238 | 36472.710 | 56.234 |
| DF24 | 36795.238 | 36472.710 | 56.234 |
| DF25 | 36795.238 | 36472.710 | 56.234 |
| DF26 | 36795.238 | 36472.710 | 56.234 |
| DF27 | 36795.238 | 36472.710 | 56.234 |
| DF28 | 36795.238 | 36472.710 | 56.234 |
| DF29 | 36795.238 | 36472.710 | 56.234 |
| DF30 | 36795.238 | 36472.710 | 56.234 |

KEY DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORKS

NOTE  
Grid and level related to OS using active GPS network

**Amendments**

| Date | Surveyor | Description of work |
|------|----------|---------------------|
|      |          |                     |
|      |          |                     |
|      |          |                     |
|      |          |                     |
|      |          |                     |



Milestone House  
58/60 Hibald Road, Frodsham, Cheshire WA6 6AG  
Tel: 01928 734471 Fax: 01928 735513  
Email: mail@powersiltman.co.uk  
www.powersiltman.co.uk

**Warrington Interchange**  
**Lymm**  
**Topographical Survey**  
**Client: Ridge & Partners LLP**

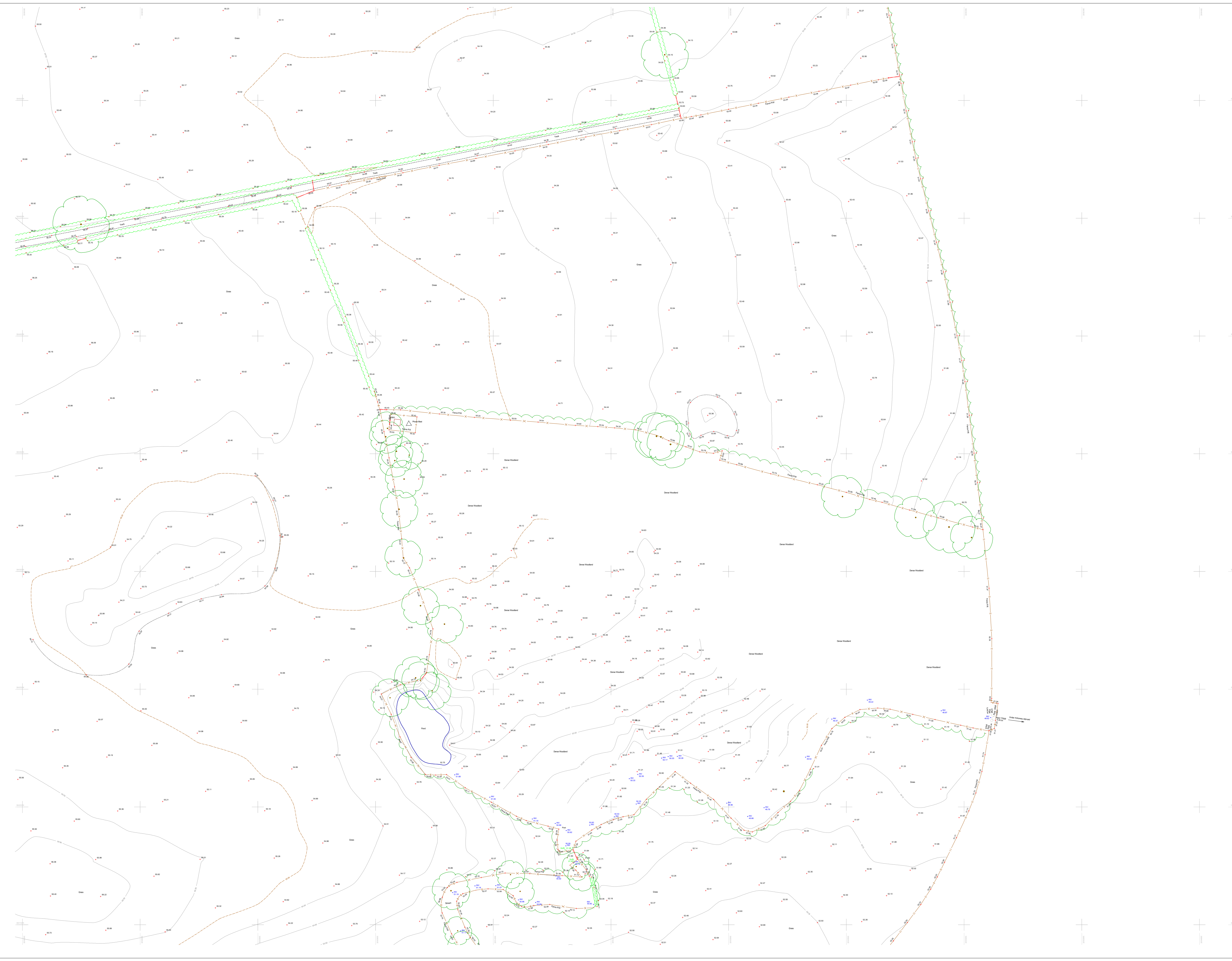
Surveyed By: SHDGPE Date: Aug 2017 A0 @  
Drawn By: SHDGPE Drawing No: 787903 1:500  
Checked By: DGFPD Amendment: Sheet 3 of 9











**Legend**

- AV Air valve
- B/S Benchmark
- BSL Bed level
- BT British Telecom cover
- CATV Cable television cover
- CL Cover lead
- DPC Deep proof opening level
- EMERALD Emergency exit
- ELEC Electric cover
- EP Electric pipe
- Fence FS Iron safety fence
- Fence CS Checkered fence
- Fence CPSP Concrete post & panel fence
- Fence FH Flashed fence
- Fence FW Flint and wire fence
- Fence FB Field and post fence
- Fence FP Framed post and rail fence
- FIS Flower bed
- FI Free flight
- G Gully
- GAB Gabion
- K Kerb
- I Inspection manhole
- LB Lamp post
- LP Lamp post
- LT Light
- M1 Manhole
- MM Manometer
- OSM Ordnance Survey Bench Mark
- P Parking space markings
- RE Road sign
- RS Road sign
- R/W wall
- S Sign post
- S/S Safety playing surface
- ST Step up
- TV Service valve
- TM Temporary Bench Mark
- TP Telegraph pole
- TSP Traffic sign
- VE Valve cover
- WL Water level
- WO Wash out

| Name | Easting   | Northing  | Height |
|------|-----------|-----------|--------|
| BA   | 58775.685 | 58461.570 | 57.651 |
| BA1  | 58777.041 | 58463.278 | 58.574 |
| CA   | 58800.944 | 58463.939 | 57.714 |
| CB   | 58800.875 | 58465.138 | 57.265 |
| CD   | 58800.490 | 58463.937 | 57.441 |
| DA   | 58797.298 | 58466.550 | 57.200 |
| DB   | 58797.837 | 58466.253 | 57.289 |
| DAB  | 58796.983 | 58468.198 | 57.267 |
| DC   | 58796.474 | 58467.537 | 57.368 |
| DCA  | 58797.689 | 58464.286 | 57.678 |
| DCB  | 58797.588 | 58464.684 | 57.633 |
| DCC  | 58794.115 | 58468.465 | 58.175 |
| DCE  | 58794.956 | 58468.289 | 58.613 |
| DE   | 58792.038 | 58462.770 | 58.254 |
| DF   | 58800.928 | 58462.738 | 57.693 |
| DI   | 58806.141 | 58462.512 | 58.881 |
| DJ   | 58808.104 | 58462.539 | 58.981 |
| DK   | 58806.191 | 58462.688 | 58.891 |
| DL   | 58806.245 | 58463.054 | 58.290 |
| DM   | 58800.040 | 58462.867 | 57.676 |
| DN   | 58805.238 | 58468.441 | 53.119 |
| DO   | 58807.582 | 58468.008 | 53.684 |
| DP   | 58805.971 | 58469.772 | 58.696 |
| DQ   | 58804.402 | 58469.396 | 58.643 |
| DR   | 58808.681 | 58472.899 | 59.821 |
| DS   | 58808.076 | 58472.899 | 61.473 |
| DT   | 58816.478 | 58475.677 | 63.071 |

**KEY DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORKS**

**NOTE**  
Grid and level related to OS using active GPS network

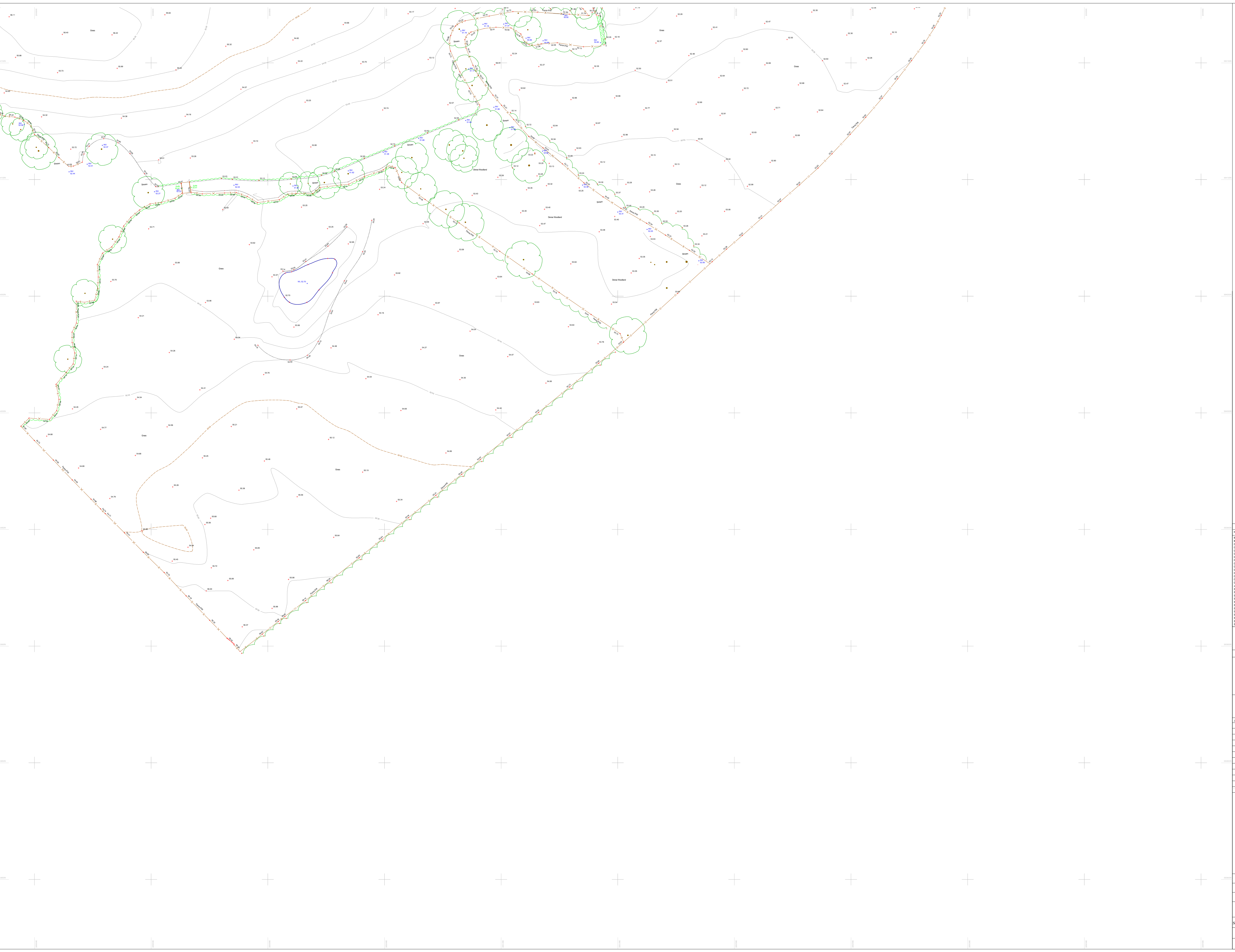
| Amendments | Date | Surveyor | Description of work |
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|            |      |          |                     |
|            |      |          |                     |
|            |      |          |                     |
|            |      |          |                     |
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|            |      |          |                     |
|            |      |          |                     |
|            |      |          |                     |
|            |      |          |                     |
|            |      |          |                     |

**Powers & Tiltman Ltd**  
*Land Surveyors*

Meadow House  
5860 Hibbald Road, Frodsham, Cheshire WA6 6AG  
Tel: 01928 734471 Fax: 01928 735573  
Email: mail@powersiltman.co.uk  
www.powersiltman.co.uk

**Warrington Interchange**  
**Lymm**  
**Topographical Survey**  
**Client : Ridge & Partners LLP**

|                      |                    |              |
|----------------------|--------------------|--------------|
| Surveyed By: SHDG/PE | Date: AUG 2017     | A0 @         |
| Drawn By: SHDG/PE    | Drawing No: 787908 | 1:500        |
| Checked By: DG/PT    | Amendment:         | Sheet 8 of 9 |



#### Legend

- AV Air valve
- BAI Boundary
- BOL Boland
- BT British Telecom cover
- CATV Cable television cover
- CL Closure
- DPC Damp proof opening level
- EMBED Electrical out
- ELEC Electric cover
- EP Electric pipe
- Fence ES Iron safety fence
- Fence CS Chainlink fence
- Fence CPSP Concrete post & panel fence
- Fence FS Fiberglass fence
- Fence FW Post and wire fence
- Fence PS Post and panel fence
- Fence FP Framed post and panel fence
- FIS Flower bed
- FI Free flight
- G Gully
- GAB Gas meter
- K Invert level
- KF Inspection manhole
- LV Level
- LP Lamp post
- LL Light
- MB Manhole
- NBN National broadband cover
- OSM Ordnance Survey Bench Mark
- PTM Parking space machine
- RE Road sign
- RF Road sign
- RF wall Road sign
- SF Sign post
- SFP Sign post
- SPTS Safety playing surface
- ST Step top
- SV Service valve
- TBM Temporary Bench Mark
- TG Telegraph post
- TSP Trip pole
- TV Traffic light
- WL Water cover
- WO Waste out

#### SURVEY STATIONS

| Name | Easting  | Northing | Height |
|------|----------|----------|--------|
| BA1  | 56276488 | 56461270 | 57.601 |
| BA2  | 56277488 | 56461270 | 58.274 |
| CA   | 56268044 | 56461270 | 57.514 |
| CB   | 56268044 | 56465138 | 57.258 |
| CA1  | 56276488 | 56465138 | 57.514 |
| CA2  | 56276488 | 56465138 | 57.258 |
| CA3  | 56276488 | 56465138 | 57.258 |
| CA4  | 56276488 | 56465138 | 57.258 |
| CA5  | 56276488 | 56465138 | 57.258 |
| CA6  | 56276488 | 56465138 | 57.258 |
| CA7  | 56276488 | 56465138 | 57.258 |
| CA8  | 56276488 | 56465138 | 57.258 |
| CA9  | 56276488 | 56465138 | 57.258 |
| CA10 | 56276488 | 56465138 | 57.258 |
| CA11 | 56276488 | 56465138 | 57.258 |
| CA12 | 56276488 | 56465138 | 57.258 |
| CA13 | 56276488 | 56465138 | 57.258 |
| CA14 | 56276488 | 56465138 | 57.258 |
| CA15 | 56276488 | 56465138 | 57.258 |
| CA16 | 56276488 | 56465138 | 57.258 |
| CA17 | 56276488 | 56465138 | 57.258 |
| CA18 | 56276488 | 56465138 | 57.258 |
| CA19 | 56276488 | 56465138 | 57.258 |
| CA20 | 56276488 | 56465138 | 57.258 |
| CA21 | 56276488 | 56465138 | 57.258 |
| CA22 | 56276488 | 56465138 | 57.258 |
| CA23 | 56276488 | 56465138 | 57.258 |
| CA24 | 56276488 | 56465138 | 57.258 |
| CA25 | 56276488 | 56465138 | 57.258 |
| CA26 | 56276488 | 56465138 | 57.258 |
| CA27 | 56276488 | 56465138 | 57.258 |
| CA28 | 56276488 | 56465138 | 57.258 |
| CA29 | 56276488 | 56465138 | 57.258 |
| CA30 | 56276488 | 56465138 | 57.258 |

KEY DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORKS

**NOTE**  
Grid and level related to OS using active GPS network

| Date | Surveyor | Description of work |
|------|----------|---------------------|
|      |          |                     |
|      |          |                     |
|      |          |                     |
|      |          |                     |
|      |          |                     |
|      |          |                     |
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|      |          |                     |

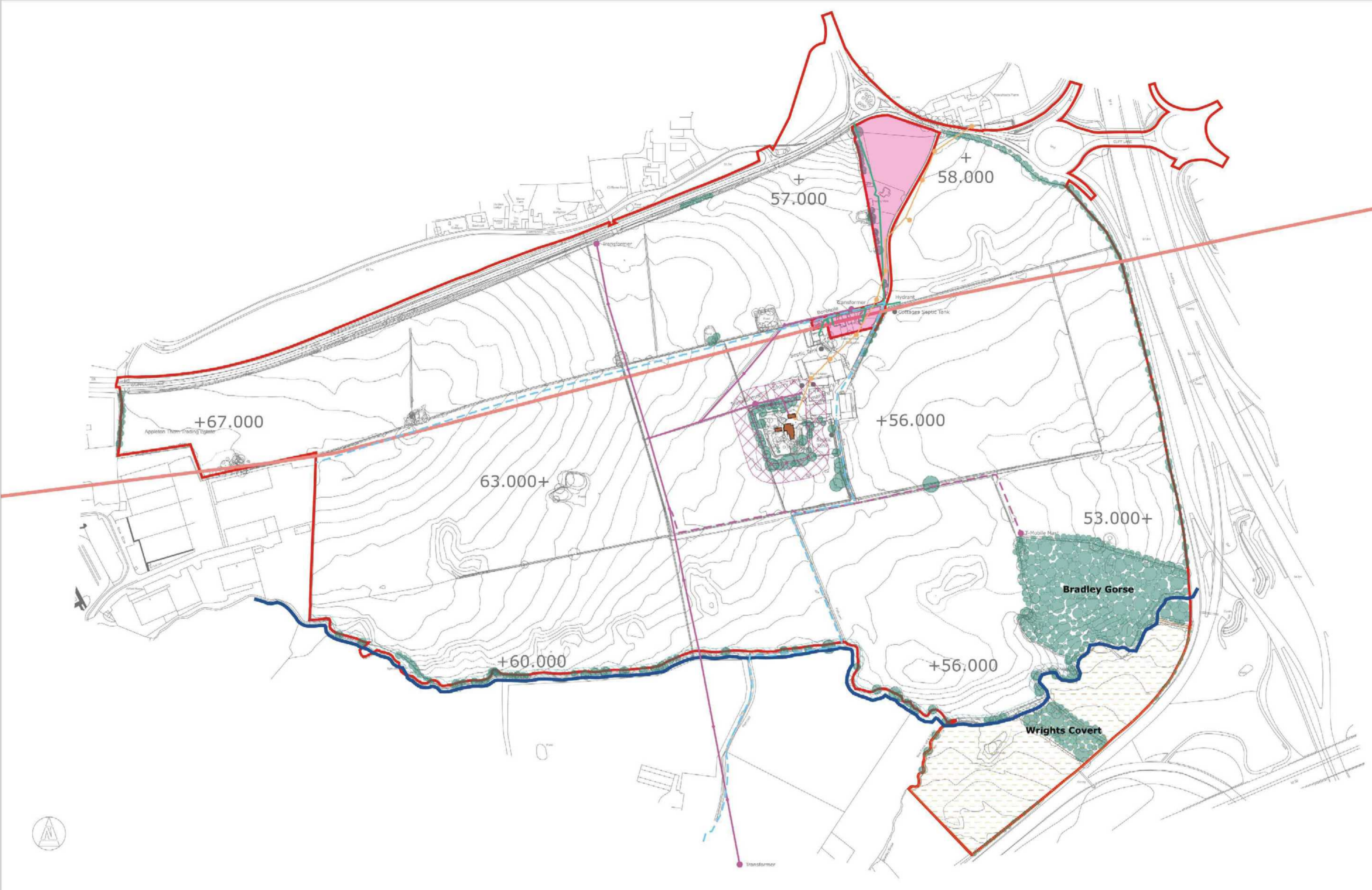


Warrington Interchange  
Lymm  
Topographical Survey  
Client : Ridge & Partners LLP

|                    |                    |              |
|--------------------|--------------------|--------------|
| Surveyed By: SHDGP | Date: Aug 2017     | AO @         |
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| Checked By: DGP    | Amendment:         | Sheet 9 of 9 |

## ES Part I Appendix 8





- |                            |  |                                 |                                   |  |                   |                  |
|----------------------------|--|---------------------------------|-----------------------------------|--|-------------------|------------------|
| Planning Boundary          | Illustrative route of Ancient Roman Road | Existing PRoW                   | Existing Watercourse              | Watercourse 15m Stand Off from the top of the bank | Overhead Power    | Overhead BT Line |
| Ecological Mitigation Area | Existing Trees To be Retained            | Existing Residential Properties | Existing buildings to be retained | SAM 30m Buffer Zone                                | Underground Cable | Water Mains      |



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Six 56, Warrington  
 Constraints Plan  
 CGC Reference

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| Drawn: 19/05       | Checked: 19/05 | Drawn/Checked: 19/05 |
| Scale: 1:2500 @ A1 | Date: 01/2019  | Rev: A               |

Project No: 16-184    Dwg No: P003

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## **ES Part I Appendix 9**



# RIDGE

SIX 56 WARRINGTON

FRAMEWORK CONSTRUCTION  
ENVIROMENTAL MANAGEMENT  
PLAN

LANGTREE PP & PANATTONI  
14th February 2019

# SIX 56 WARRINGTON

Langtree

PANATTONI

## SIX 56 WARRINGTON

## LANGTREE PP & PANATTONI

14<sup>th</sup> February 2019

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# 1. INTRODUCTION

## 1.1. Background

1.1.1. Ridge and Partners LLP have been commissioned by Langtree PP and Panattoni to provide a Framework Construction Environmental Management Plan to support the Outline Planning Application for Six 56 Warrington, bound by the B5356 Grappenhall Lane and the A50 Cliff Lane to the north and motorway slip road to the east (the 'Site') as part of their Project Management commission.

## 1.2. Purpose

1.2.1. This Framework Construction Environmental Management Plan provides a basis for the completion of a full Construction Environmental Management Plan (CEMP).

1.2.2. This framework plan highlights issues and items that will need to be addressed and included in the final CEMP by the Principal Contractor, once selected, to undertake the enabling and construction works.

1.2.3. The framework CEMP is structured to consider the following:

- Discuss the scope and structure of the document
- Provide information relevant to the Development
- Ensure the Development is compliant with relevant stakeholder requirements and environmental legislation
- Discuss the expected impacts and associated mitigation and how it will be implemented
- Provide Environmental Management System Requirements in accordance with ISO 14001
- Ensure communications plans and construction logistics are considered

1.2.4. The final CEMP must be prepared in consultation with Warrington Borough Council and having taken into account previous versions, comments received from stakeholders including Langtree PP, Panattoni and local regulators, and submitted prior to the commencement of enabling or construction works.

1.2.5. The CEMP will be finalised and provided by the selected Principal Contractor to assist in the discharge of planning conditions.

## 1.3. Scope

1.3.1. This framework identifies, in a broad and non-inclusive list given the design stage currently at, the issues that will need to be addressed in detail in the CEMP. Detailed inclusions will be prepared with consideration and adherence to item 1.2.4.

1.3.2. The CEMP forms an agreed plan between the relevant authority and the Principal Contractor to address temporary site management issues relevant during enabling and construction activities and ensure environmental impacts and risks are mitigated in an acceptable and agreed manner.

1.3.3. The construction process can generate a myriad of effects on the local environment and residents. As such the CEMP will include consideration of the impacts, risks, and mitigations (including procedures for monitoring against construction progress) for the following:

- Construction traffic
- Materials and waste
- Landscape and visual impacts
- Lighting

- Noise and Vibration
- Air Quality
- Unexploded Ordnance
- Drainage
- Ecology
- Heritage and Archaeology
- Ground Stability

1.3.4. In addition to the environmental considerations which are to be considered as listed in 1.3.3, the following logistical considerations should be taken into account:

- Contacts and responsibilities
- Programme and phasing
- Operating hours
- Internal communications
- External communications
- Logistics plans

## 1.4. Limitations

1.4.1. This report has been prepared for the exclusive use of Langtree PP and Panattoni and those parties designated by them and subject to the provisions of the agreement between Ridge and Partners LLP and its Client.

1.4.2. Ridge and Partners LLP accept no liability or responsibility whatsoever for or in respect of any use or reliance upon this report by any third party.

1.4.3. Whilst reasonable skill and care have been used by Ridge and Partners LLP in reporting, information provided by third parties has been used in good faith and Ridge and Partners LLP cannot guarantee accuracy or completeness of any information provided by others.

## 2. SITE DETAILS

### 2.1. Site location and Context

2.1.1. The Application Site is located within the North West of England, predominantly within the local authority area of Warrington.

2.1.2. The Site is located to the southeast of the town of Warrington (approximately 6 km (3.5 miles) from the town centre) and between the cities of Liverpool and Manchester (approximately 22km (13 miles) and 31km (19 miles) respectively). It is also located approximately 16km (10 miles) from Manchester Airport.

2.1.3. The M56 Motorway and M6 Motorway interchange (Junction 20 and 20A of the M6 and Junction 9 of the M56 Motorways) is located adjacent to the south east of the Site, with the M56 Motorway running east-west to the south of the Site, providing links to Cheshire and Greater Manchester; and the M6 Motorway running north-south to the east of the Site, provide links to Lancashire, Staffordshire and Greater Manchester, as well as the M62 Motorway at Junction 22A of the M6 Motorway to the north, which provides links east-west to Liverpool, Greater Manchester and Yorkshire.

2.1.4. The site is shown on the national and regional context plans below.



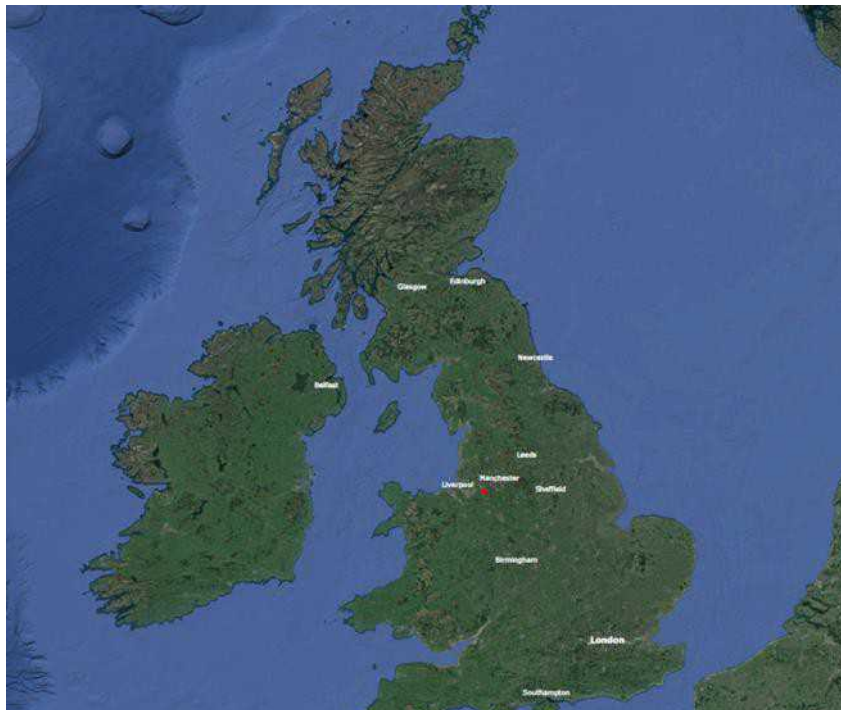


Figure 1: National Context



Figure 2: Regional Context

- 2.1.5. The Site relates to an area of land of approximately 98 hectares (242 acres) in extent and is irregular in shape.
- 2.1.6. The Site is bound by the B5356 Grappenhall Lane and the A50 Cliff Lane to the north and motorway slip road to the east. Appleton Thorn Trading Estate, Barleycastle Trading Estate and Stretton Green Distribution Park are located to the west and Bradley Brook runs east-west to the southern boundary. The Site is predominantly farm land (arable and pastoral for cattle), with a series of hedges and trees to field boundaries. Bradley Hall Farm consists of farm house and a series of farm buildings as well as a further residential property. There are a number of other neighbouring residential properties that are adjacent to, but outside the Application Site, including the Bradley Hall Cottages, which are all retained. The farm buildings adjacent to the Bradley Hall Farmhouse will be demolished as part of the proposals. Bradley Hall moated site is a Scheduled Ancient Monument (SAM) located within the Site boundary, to the eastern part of the site,

adjacent to the farm buildings. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house, which is to be retained. The moated island is partly occupied by the farm house associated with Bradley Hall Farm, which is excluded from the Scheduling, but which will be retained and converted to B1a office use as part of the Proposed Development.

- 2.1.7. Beyond the northern boundary of the Site (within the triangle of land outside of the Application Site to the south of Cliff Lane) is a residential property and associated outbuildings, which is accessed from the A50 Cliff Lane via the same access as Bradley Hall Farm. There is a Grade II\* and a Grade II Listed Building located beyond the south of the Site and to the north of Barleycastle Lane (Tanyard Farm Building and Barleycastle Farm House). There are other listed buildings within the wider area.
- 2.1.8. There are some wooded areas and wooded outcrops within the Site, including Bradley Gorse and Wrights Covert within the south east of the Site. A series of field boundaries consisting of hedgerows and trees and a number of ponds (ten in total) and ditches are located across the Site.
- 2.1.9. The character of the area is generally rural, with farms and agricultural land beyond the boundaries of the Site, predominantly to the north and south. However, this is interrupted with the Strategic Highway Network and further industrial/logistic uses, most notably those beyond the Site boundary to the south, south west and east.
- 2.1.10. The Site in its local context is shown on the plan below.

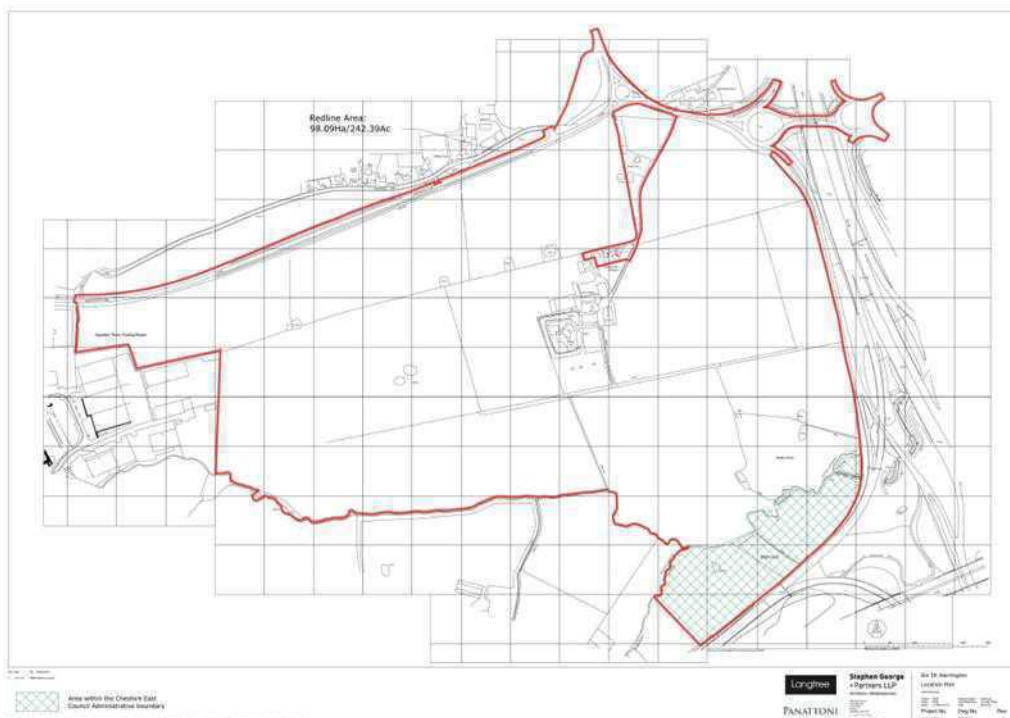


Figure 3: Application Site Boundary

- 2.1.11. Vehicular access to the Site is currently via Bradley Hall Farm from the A50 Cliff Lane, which has direct access to Junction 20 of M6 Motorway, as well as Junction 9 of the M56 Motorway. There are also four field access points available from the Site's 1.15km long frontage to the B5356 Grappenhall Lane.
- 2.1.12. There are three designated Public Rights of Way across the Site, all of which are Footpaths. Footpath No 28 runs between the residential properties adjacent to Bradley Hall Farm in the east and Appleton Thorn Trading Estate in the west, however no actual connection is available on foot into the trading estate at its western

end. Also, Footpath No's 31 and 23 run north-south across the site along the route of the main site access between Howshoots Farm to the north-east and Barleycastle Lane to the south of the Site.

- 2.1.13. The Site's topography is generally level, although it has two distinct areas of topography that are separated by a ridgeline running east to west. The northern plateau is a relatively flat area and the southern plateau becomes more undulating, with occasional ponds and depressions.
- 2.1.14. The Site is currently designated as Green Belt within the adopted Local Plan Core Strategy (July 2014) and Saved Proposals Map. The Site however forms part of a wider area identified for future growth in the form of the Garden Suburb within the emerging new Local Plan (Preferred Options Consultation (July 2017)). The Site is identified for employment development which can be delivered independently of the Garden Suburb.

## 2.2. Project Description

- 2.2.1. The outline application (all matters reserved except for means of access) comprises the construction of up to 287,909m<sup>2</sup> (3,099,025ft<sup>2</sup>) (gross internal) of employment floorspace (Use Class B8 and B1(a) offices) including change of use of Bradley Hall Farmhouse to B1 (a) office use (335m<sup>2</sup> (3,600ft<sup>2</sup>)) and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation, alteration of existing access road into site including works to the M6 J20 dumbbell roundabouts and realignment of the existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.

## 3. ENVIRONMENTAL OBLIGATIONS

### 3.1. Policy and Planning

- 3.1.1. The CEMP is to list all relevant and appropriate legal and regulatory requirements.
- 3.1.2. The various ES Technical Papers within the planning application list various relevant legislation. Whilst some have been listed, it is expected that the CEMP will have a complete comprehensive list included within which has been reviewed and agreed with Warrington Borough Council prior to implementation of the CEMP.
- 3.1.3. Any and all technical reports provided in support of the current and future planning applications and decisions must be adhered to.
- 3.1.4. In addition to 3.1.1, 3.1.2, and 3.1.3, the CEMP must outline the manner and methods in which the requirements, reports, and decisions will be adhered to.
- 3.1.5. All contractors and sub-contractors shall comply with best practice regarding environmental pollution protection, and undertake the works in accordance with the Employers Requirements and project specifications.
- 3.1.6. The contractor is expected to operate within and possess its own Environmental and Sustainability Policies, in addition to the above items.

### 3.2. Consents, Commitments and Permissions

- 3.2.1. The CEMP is to reference any consents, permits, and licenses granted and applicable to the works.

- 3.2.2. In addition to 3.2.1, the CEMP must ensure all terms and conditions associated with various consents, permits, and licenses are adhered to.

## 4. ENVIRONMENTAL CONSIDERATIONS

### 4.1. Construction Traffic

- 4.1.1. All construction traffic related risks are to be considered and included within the environmental risk register discussed in 4.12.1.

- 4.1.2. There will be an increase in traffic movements, noise and air quality in relation to traffic. Noise and air quality are discussed in 4.5 and 4.6 respectively.

- 4.1.3. There will be an increase in car parking associated with employees and sub-contractors, however it is not expected to affect adjacent streets to the site and that all parking related to workers and vehicles will be contained within the site. The CEMP will have to demonstrate and confirm this is the case.

- 4.1.4. While there will be an increase in HGV movements to site, it is considered that these will not be severe as the majority of the construction plant will be stored within the site. In addition, large amounts of material movements to and from site are not anticipated as the cut and fill for the site is anticipated to be contained as much as practical within the site, subject to confirmation of condition of material during excavation.

- 4.1.5. To mitigate against increased traffic movements related to the construction activities, the following should be considered:

- Work to specified hours only to minimize disruptions
- Co-ordinate on-site construction movements via a Site Logistics Plan;
- List the vehicle and plant types used in detail, and assurance they can enter and exit the site with minimal disruptions to the existing highways network
- Manage potential conflicts between construction activities and the local highways networks, including the junctions
- Co-ordinate Pedestrian Routes and manage conflicts between pedestrian/cycle traffic and construction traffic and include the use of designated walkways, crossing points, and barriers
- Trip Generation –identification of anticipated level of vehicular traffic during each phase of construction with an aim of reduction of required movements where possible through a combination of route planning, construction activity phasing, and optimal loadings of delivery and construction vehicles
- Measures which can reduce vehicle use and parking demand such as car sharing, access to public modes of transportation, walking and cycling, etc.
- Parking provisions within the site
- Monitoring of the condition of the local highways to identify if any damage has arisen as a result of the construction activities and ensure remedial work will be carried out
- Implementation and enforcement of safe speed limits within the work site
- Entrance and egress to and from the site should be controlled via a gateman located within a cabin next to the entrance point.
- Maintaining access for emergency services
- Signage Requirements
- Banksman Requirements
- Notification of public and local businesses
- Delivery requirements and procedures
- Prevention of silt and solids being tracked onto Public Highways

- 4.1.6. The movement of construction traffic and is to be managed through careful consideration through the CEMP and creation of a Construction Traffic Management Plan. The Construction Traffic Management Plan is to be agreed with the local authorities and take due consideration of the items set in 4.1.5 as a minimum.

4.1.7. The CEMP will list all construction traffic mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

## 4.2. Materials and Waste

4.2.1. All construction material and waste related risks, including transportation of such to, from, and within the site boundaries are to be considered and included within the environmental risk register discussed in 4.12.1.

4.2.2. The CEMP shall list all hazardous materials expected to be used and stored within site, along with secure safe storage, identification, handling, and first aid measures as per the relevant COSHH regulations.

4.2.3. The CEMP shall include all applicable regulations and methods of how hazardous goods will be transported within, to, and from site and ensure appropriate controls are in place.

4.2.4. All contractors utilizing any hazardous substances shall complete COSHH assessments. Copies of these completed assessments shall be kept on the health and safety file at the site compound.

4.2.5. Fuel storage shall only be permitted in secured areas at the site compound. Quantities are to be kept to a minimum.

4.2.6. Site workers are to use appropriate PPE for the task at hand.

4.2.7. The CEMP should outline the proposed type of fuel storage container(s) to be used which follows applicable standards and regulations, and is to be agreed upon with Warrington Borough Council.

4.2.8. Only authorized personnel trained in refuelling and emergency spill response shall supervise these activities. Refuelling to be undertaken in accordance with PPG7 and subject to a detailed method statement and risk assessment.

4.2.9. The design of Six 56 Warrington is at outline stage and therefore, the design of the proposed buildings has not been finalized. The types of waste that would be generated from the construction of Six 56 Warrington is listed below, however this may be refined during detailed design:

- Soils (soil from levelling of the site, earthworks for buildings, drainage and infrastructure, contaminated soil, imported fill material);
- Glass;
- Concrete/cement;
- Tarmac;
- Bricks;
- Oils (lubricating oil);
- Metals (cables, wires, bars);
- Timber (softwood and board products such as plywood, chipboard);
- Packaging (paint pots, pallets, cardboard, cable drums, wrapping bands, polythene sheets);
- Plastics (pipes, frames, non-packaging);
- Green waste (grass, branches etc);
- Paints;
- Insulation (glass fibre, mineral wool or foamed plastic); and
- Plasterboard.

4.2.10. Given that the design information for the proposed building and infrastructure is still at outline stage, it is not possible to provide a detailed breakdown of waste quantities by type.

4.2.11. Oil to be stored in accordance with the Prevention of Pollution (Oil Storage) (England and Wales) Regulations 2001.

- 4.2.12. The CEMP shall outline the site construction waste management strategy to be utilized. This will discuss disposal routes and frequencies, security measures, storage containers and signage, waste separation strategies, waste reduction strategies, recycling strategies, and implementation methodology.
- 4.2.13. An Outline Site Waste Management Plan (SWMP) has been prepared which sets out a management strategy for construction waste. Measures have been identified for each option within the waste hierarchy (i.e. prevention, re-use, recycle, recover and disposal). These measures include using pre-fabricated materials for on site assembly, just in time deliveries, re-use of spoil on site and the use of recycled content materials. The aim would be to use options from the top of the waste hierarchy to manage each waste stream. The targets set by the revised Waste Framework Directive and BREEAM Very Good would be applied.
- 4.2.14. The Plan is based on outline design information; an updated SWMP would be prepared during the detailed design stage based on the principles set out in the Outline SWMP. The Plan is a working document to be used during the construction process to record movements of waste from the site and to demonstrate that duty of care obligations are being met.
- 4.2.15. For details of the plan see Appendix 11.1. within the Waste Technical Paper 11.
- 4.2.16. The CEMP will list all materials and waste mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

### 4.3. Landscape and Visual Impacts

- 4.3.1. Landscape effects during the Construction Phase will vary depending on the operations taking place and the scale and extent development that has been undertaken or is in progress.
- 4.3.2. All construction related landscape and visual impact related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.3.3. Risks anticipated are in relation to the views from the public and private receptors of the surrounding properties to the construction activities.
- 4.3.4. A CEMP will provide mitigation to adjacent and site retained landscape features.
- 4.3.5. The following shall be considered as a minimum when formalizing the CEMP to ensure landscape and visual impacts are mitigated:
- Public rights of way are to be determined where applicable, and construction works are to either avoid or manage these as necessary and practicable
  - Temporary signage to direct public away from the construction activities where possible
  - Appropriate protection of trees and hedgerows to be retained
  - Earthworks in proximity to neighbours to be phased in such a way to screen future works where practicable
  - The retention of existing perimeter vegetation except for the copse by Cliff Lane
  - The retention of perimeter landscape features where possible and incorporation of landscape and conservation features consistent with local management objectives
  - The retention of boundary vegetation and woodland blocks with perimeter screen planting
  - Protective screening to be incorporated to protect key features within the Site including Bradley Gorse and additional existing vegetation comprising the Ecological Mitigation Area; and the 30m offset areas surrounding the Scheduled Ancient Monument and the PROW's within the Site.
  - Locate the site compound within the site to be visually screened as much as possible. The location of the site compound will be agreed with the Local Authority prior to the commencement of work and whether this site is to be within a static location or moving throughout the Site depending on the phase of construction. The proposed external bunding and planting along with the screening mitigation should screen visibility of Site Compound from view
- 4.3.6. The CEMP will list all landscape and visual impact mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

## 4.4. Lighting

- 4.4.1. All construction related lighting related risks are to be considered and included within the environmental risk register discussed in 4.12.1. A Light pollution study has been completed and results shown in drawing BSXX(63)4001 and report 1015524-RPT-LG-002-Six 56 Warrington Technical Assessment-RevA submitted with the Six 56 Planning Application.
- 4.4.2. Risks include both light pollution, as well as ensuring adequate site lighting exists to ensure safe working and curb potential antisocial behaviour.
- 4.4.3. Localized lighting is to exist as and when specific task items around the site require and anticipate dim lighting conditions.
- 4.4.4. All light sources are to take consideration of the construction risk and atmosphere, and ensure lighting sources are deemed intrinsically safe where required.
- 4.4.5. Lighting to be directed at task level, and into site only/away from residential areas to reduce light pollution.
- 4.4.6. Only the site compound should be illuminated.
- 4.4.7. No lighting should be utilized within the construction site once work ceases each evening.
- 4.4.8. Site lighting should only be in operation during dim conditions (i.e. not running through the day time) when not required for security purposes.
- 4.4.9. The selection of light fittings and illumination levels will be in accordance with standard practise and relevant Health and Safety regulations, as well as the Guidance Notes for the Reduction of Light Pollution (Institution of Lighting Engineers, 2000).
- 4.4.10. The CEMP will list all landscape and visual impact mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.



## 4.5. Noise and Vibration

- 4.5.1. All noise and vibration related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.5.2. It is expected that there will be an increase in current noise levels associated with construction activities. To reduce these impacts on local noise sensitive residents and amenities, an acceptable range of mitigation measures will be considered during the detailed design stage of the development.
- 4.5.3. To assist in mitigating and reducing noise generated from construction related plant and activities, the following measures are to be incorporated:
- Plant to be regularly serviced and maintained in good working order
  - Plant should comply with EU noise emission limits
  - Plant to be operated in a way that noise is minimised (e.g. plant switched off when not in use)
  - Plant to be effectively sound attenuated by use of engineering controls on the plant
  - Ensure working hours are adhered and deliveries be programmed to arrive during those working hours wherever practical. Proposed hours of working are as follows:
    - 08:00 – 18:00 hrs on Monday – Friday;
    - 08:00 – 13:00 hrs on Saturday; and
    - No working on Sunday or bank holidays
  - All vehicle and mechanical plant should be fitted with effective exhaust silencers
  - Strategic locations of temporary stockpiles to shield the environment from noise impacts
  - Plant to be powered by electricity where practicable
  - Plant to be positioned to direct noise away from receptors wherever possible
  - If necessary localised screens and enclosures should be used to reduce noise from particularly noisy, static operations
  - Low noise versions of reversing alarms to be fitted to all mobile plant in favour over the traditional reversing alarms
  - Inherently quiet plant to be selected where appropriate
  - All major compressors shall be sound reduced model fitted with properly lined and sealed acoustic covers.
  - All ancillary pneumatic percussive tools should be fitted with mufflers or silencers
  - Care should be taken when erecting and striking scaffolds to avoid impact noise from banging steel
  - All materials should be handled with care and be placed, not dropped
  - The use of hydraulic attachments or other means of crushing concrete should be used in preference to pneumatic breakers
  - Piling should be avoided wherever possible and low vibration piling techniques should be adopted wherever practical
- 4.5.4. Detailed advice on good construction practise for minimising construction vibration is found in BS5228: Part 2:2009+A1:2014 and should be adopted within item 4.5.5.
- 4.5.5. The CEMP will list all noise and vibration mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

## 4.6. Air Quality

- 4.6.1. All air quality related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.6.2. There is a risk of reduced local air quality due to emissions from increased traffic movements during construction works and plant, as well as reduced local air quality due to dust generation.
- 4.6.3. To reduce the risk of reduced local air quality due to emissions, all plant and vehicles should be regularly

serviced and maintained. In addition, only plant and vehicles which have deemed acceptable emissions should be used.

- 4.6.4. Vehicles should not be left running unnecessarily to reduce emissions.
- 4.6.5. To reduce the risk of reduced local air quality due to dust generation, the following mitigation measures should be employed:
- The site layout should be planned so dust causing activities are located as far as possible from receptors
  - Solid barriers and screens are to be erected around the site boundary
  - Site run off water and mud should be avoided
  - Site fencing, barriers and scaffolding are to be kept clean using wet methods
  - Ensure material is stockpiled and constructed with gentle slopes and covered where possible to prevent wind whipping
  - Cutting, grinding or sawing equipment is only to be used when fitted in conjunction with suitable dust suppression techniques such as water sprays
  - Adequate water supply is to be ensured on the site to enable effective dust mitigation
  - Haulage vehicles are to use designated haul routes which is to be damped with a fine water spray to prevent dust particles from becoming airborne when and where appropriate
  - Vehicles transporting debris from the site are to be sheeted with dust sheets or equivalent to prevent debris spillage and dust particles from becoming airborne
  - Weather conditions are to be considered (example, windy conditions) prior to commencement of activity
  - Avoid double handling of dust yielding material where possible.
  - Use enclosed chutes conveyors and covered skips where practicable
  - Minimize drop heights from construction handling equipment
  - Stockpile away from residential and public receptors
- 4.6.6. A dust management plan (DMP) that is Local Authority approved should be developed and implemented. As a minimum the DMP should include the highly recommended measures in the IAQM dust guidance with the desirable measures included as appropriate for the 'Site'.
- 4.6.7. Regular site inspections to monitor compliance with the DMP are to be carried out, with the frequency of these increased when activities with high potential of producing dust are taking place.
- 4.6.8. Dust monitoring locations are to be agreed with the local authority.
- 4.6.9. A stakeholder communications plan is to be developed and implemented.
- 4.6.10. The names and contact details of persons accountable for the air quality and dust issues are to be displayed on site.
- 4.6.11. A record of all dust and air quality complaints which identifies causes and appropriate measures to reduce emissions is to be kept and made available to the local authority upon request.
- 4.6.12. The CEMP is to include all mitigation for medium risk demolition, construction and trackout as listed in ES Technical paper 8 Air Quality, Odour and Dust.
- 4.6.13. The CEMP should consider the need for wheel washing and vehicle washing facilities due to the likelihood of the potential of mud during the site enabling and landscaping works.
- 4.6.14. No burning of materials are to take place anywhere on site.
- 4.6.15. The CEMP will list all air quality mitigation measures within the Environmental Management Plan discussed

in 4.12.2 and 4.12.3.

## 4.7. Unexploded Ordnance

- 4.7.1. All UXO and bomb related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.7.2. Prior to undertaking and ground disturbance works, a preliminary UXO risk assessment shall be undertaken in accordance with CIRIA Report C681.
- 4.7.3. Any mitigation measures proposed by the preliminary UXO risk assessment must be followed prior to any ground disturbance works.
- 4.7.4. The CEMP will list all UXO mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

## 4.8. Drainage

- 4.8.1. All drainage related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.8.2. All works are to follow the EA's Pollution Prevention Guidelines to mitigate migration of leachable heavy metals and hydrocarbons.
- 4.8.3. Oil spill kits are to be based at the construction compound, as well as carried with all site plant and vehicles, to ensure localized oil or fuel spillage is prevented from seeping into the ground and contaminating the surface and ground water.
- 4.8.4. Silt traps and oil separators are to be implemented to control surface water runoff contamination.
- 4.8.5. Concrete aprons and wheel wash stations are to be located a minimum of 30m from watercourses and surface water drainage sources.
- 4.8.6. Any large and deep excavations should be avoided is possible, if they are required, they should be covered especially in periods of heavy rain. No connection from excavations should be made to the watercourse unless treatment processes are in place.
- 4.8.7. Haul roads or matting should be provided as part of construction works.
- 4.8.8. Any construction activity in close proximity to a watercourse must ensure water control measures (such as cut off ditches, temporary settlement lagoons, using fencing to restrict movement, etc.) are in place during the works.
- 4.8.9. No foul water is to be discharged from sanitary facilities on site.
- 4.8.10. Additional drainage facilities are to be provided for construction vehicle parking areas and excavations below the water table which require de-watering.
- 4.8.11. The CEMP will include considerations for the need for discharge consents from the Environment Agency.
- 4.8.12. The CEMP is to outline how the foul water will be discharged or disposed of, and ensure the relevant licenses are in place.
- 4.8.13. If any waters onsite are known to be polluted, treatments may be necessary before disposal to the surface water receptor. The CEMP should ensure settlement and separation are included in the treatment.
- 4.8.14. The CEMP should ensure potential pollution spills are managed and monitored, this includes providing bunds around at-risk areas particularly handling oils and fuels. These areas should be isolated and away from potential waterways.
- 4.8.15. Works which could affect controlled waters shall be mitigated in measures agreed with stakeholders and regulators.
- 4.8.16. A portion of surface water attenuation should be developed prior to increasing the impermeable area. Water management on site is to be in accordance with PPG5.
- 4.8.17. The CEMP is to ensure a Remediation Strategy is put in place.

- 4.8.18. The CEMP is to ensure a Surface Water Management System is put in place.
- 4.8.19. Drainage validation is to be required prior to the commencement of site works.
- 4.8.20. Any water which comes in contact with contaminated materials shall be disposed of to the satisfaction of the Environment Agency and in accordance with the Water Resources Act (1991). Any temporary dewatering from excavations that is directed to the nearby waterbodies should comply with the EA guidance 'Temporary dewatering from excavations to surface water' published in July 2018.
- 4.8.21. The CEMP will list all Drainage mitigation measures and monitoring within the Environmental Management Plan discussed in 4.12.2 and 4.12.3

## 4.9. Ecology

- 4.9.1. All ecology related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.9.2. The risks expected to be encountered are related to the various ecology receptors such as flora, fauna, habitats, trees, birds, bats, etc. For a comprehensive list of various surveys and results performed to date, please refer to the Ecology and Nature Conservation ES Paper 5 and corresponding Appendices.
- 4.9.3. All retained habitats (including trees as per the Arboricultural Assessment) to be protected during construction activities in accordance with best practice standards.
- 4.9.4. Details of proposed ecology buffer zones and how they are to be protected is to be agreed with the local authority and implemented into the CEMP.
- 4.9.5. Details on invasive species present and how to prevent the spread of these are to be taken into account and included within the CEMP.
- 4.9.6. Legally compliant mitigation to be implemented to ensure no breeding birds are harmed construction and enabling works. Works in these areas should be conducted outside of the bird breeding season (March – August inclusive). If this cannot be achieved, a nesting bird survey should be completed by a competent ecologist and an exclusion zone retained around identified active bird nests until the chicks have fledged.
- 4.9.7. An Invasive Species Method Statement and Management Plan is to be required.
- 4.9.8. Any construction works which have the potential to impact on ecological receptors of any kind must be mitigated against with corresponding relevant management strategies. All risks and corresponding mitigation strategies shall be consulted on with the local authorities and agreed prior to any site works which could impact these receptors.
- 4.9.9. The CEMP should include mitigation for the following habitats:
- Broadleaved woodland
  - Hedgerows
  - Ponds
  - Scattered trees and Shrubs
  - Tall Ruderal
  - Watercourses
- 4.9.10. The CEMP should include all mitigation for the following protected and priority species:
- Badger
  - Bats
  - Birds
  - Brown Hare
  - Great Crested Newt
- 4.9.11. Speed limits should be imposed around site together with suitably located warning signs to reduce the risk of road kill. Access would be restricted to ecologically important areas along brook, woodland and Ecological Mitigation Area to avoid human disturbance of badger setts and adjacent foraging habitat.
- 4.9.12. Where bat roosts are present, they should be protected from incidental disturbance by restricting access to roost features. The lighting design would ensure that any roost locations are not lit at night by street or security lighting.

- 4.9.13. Within the built environment building managers should be made aware of the locations of nest boxes and any other nest sites in buildings of priority species such as house sparrow and hirundine species and measures would be employed to ensure they are not disturbed during the bird breeding season. These would be set out within the EcMP for the site.
- 4.9.14. Management of habitats would also be timed to avoid the bird nesting season.
- 4.9.15. Degradation of habitats both as a result of human activity (changes in management, disturbance, pollution etc.) would be avoided through the adoption of an Ecological Management Plan (EcMP) to cover both retained and new habitats incorporated into the development layout. The EcMP should be implemented for a minimum of 10 years. This could be secured via a planning condition.
- 4.9.16. The EcMP will broadly include:
- Periodic grass cutting (twice yearly) within the Ecological Mitigation Area to ensure a species-rich sward is maintained;
  - Periodic scrub cuts (on a biennial basis) to ensure that the Ecological Mitigation Area maintains grassland habitats;
  - Maintenance of hedgerows; cutting in winter on a rotational basis to allow fruits to set and avoid impacts to nesting birds;
  - Annual maintenance of gully pots to ensure they remain free of debris and remain amphibian friendly;
  - Annual monitoring of invasive species and eradication as necessary; and
  - Prescriptions for maintenance of communal ornamental planting to ensure it is conducted in a manner that is sensitive to wildlife.
- 4.9.17. The CEMP will list all ecology mitigation measures within the EcMP.

## 4.10. Heritage and Archaeology

- 4.10.1. All heritage and archaeology related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.10.2. The Principal Contractor shall confirm all risks from an archaeology and heritage perspective have been captured, and agree the required mitigation strategy with the local authorities prior to the undertaking of any intrusive works.
- 4.10.3. If previously unrecorded archaeological or heritage features are uncovered during construction, works shall immediately cease and Warrington Borough Council is to be notified. Works are not to resume until approved by Warrington Borough Council.
- 4.10.4. The CEMP will list all heritage and archaeology mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

## 4.11. Ground Stability and Excavated Soils

- 4.11.1. All ground stability risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.11.2. Earthworks to be undertaken in accordance with the 'Definition of Waste: Development Industry Code of Practice, March 2011.
- 4.11.3. All large and deep construction excavations should be avoided as far as possible. Where not possible, these should be covered and appropriately signed.
- 4.11.4. A Materials Management Plan (MMP) will be produced with the scheme in accordance with the Definition of Waste Code of Practice (DoWCoP) which will provide a permanent record of how materials have been controlled and re-used on the site in accordance with current guidance, legislation and good practice. The purpose of an MMP is to demonstrate that materials re-used on site are suitable for their intended use, have certainty of use, and are demonstrated to have reached an 'end of waste' scenario. Critically, for materials to be considered suitable for re-use under DoWCoP they must not classify as containing 'Hazardous' properties in accordance with the EA's WM3 guidance. The Materials Management Plan is to be written by the Principal Contractor. This will signed off by a QP prior to its submission to the EA. This must take place prior to works starting on site. The MMP will provide a permanent record of how materials have been controlled and re-used on the site in accordance with current guidance, legislation and good practice.
- 4.11.5. Where appropriate, excavated soils will be reused in accordance with the supporting documents to the Materials Management Plan, which will consist of the Geotechnical Design Reports and Remediation Strategy for material and Verification Report which is deemed not a waste.
- 4.11.6. The CEMP should detail how any deleterious or geotechnically unstable materials shall be removed prior to reuse of made ground soils.
- 4.11.7. All works should follow the ES's Pollution Prevention Guidelines to mitigate migration of leachable heavy metals and hydrocarbons.
- 4.11.8. It is expected that the majority of the material on site is suitable for reuse as part of the cut and fill strategy. This will assist in reducing noise, dust, traffic, and air quality impacts in the vicinity of the site, as well as reduce related haulage traffic.



- 4.11.9. Piling Assessment and design (where applicable) is to be required to minimize any potential disturbance or contamination to the underlying principal acquirer in accordance with the guidance provided in BS5228 and BS7385.
- 4.11.10. Identification of potential risks and associated mitigation to human health in relation to potential contaminated excavated soils shall be included within item 4.11.11.
- 4.11.11. The CEMP will list all ground stability mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

## 4.12. Environmental Risk Register and Environmental Management Plan

- 4.12.1. The final CEMP shall include a fully completed Environmental Risk Register, with all Environmental Risks having been avoided or impacts satisfactorily mitigated, with mitigation measures fully included within the applicable management plans. The ES Technical Papers should be referenced in addition to this document for further mitigation considerations.
- 4.12.2. The Principal Contractor will produce an Environmental Management Plan, which is to be included within the CEMP, and follows ISO 14001 accredited environmental management system and contract requirements.
- 4.12.3. The Environmental Management Plan is to indicate how the requirements, obligations, and practises will be adopted and how they meet the environmental and CEMP requirements. Furthermore, the Environmental Management Plan will detail the responsibilities of the staff involved for achieving these requirements, and list the method in which all staff will be aware of their obligations.

## 5. LOGISTICAL CONSIDERATIONS

### 5.1. Contracts and Responsibilities

- 5.1.1. The CEMP will include identification of the responsible contractor(s) and sub-contractor(s) responsible for the various site operations and the associated site managers and their contact details. In addition, the contact for the Principal Contractor's site manager will be supplied.
- 5.1.2. A list of telephone numbers to be available to the general public, including an after-hours number for 24 hour coverage, is to be included within the CEMP.
- 5.1.3. The responsibilities of the roles are anticipated as follows, but will be updated within the CEMP:
- The Client will nominate a Project Manager for the site.
  - The Project Manager is responsible for the overall environmental management of the site
  - The Principal Contractor takes ownership of the responsibility of undertaking the works in accordance with the CEMP
  - The Construction Manager will oversee the daily management of the site
  - The Waste and Environmental Manager will plan the works
  - Site Staff will perform the works in accordance with the CEMP
  - Designers will design out adverse effects on the environment, and where not possible will design in engineering controls in accordance with legislation and best practices. Furthermore, the designers will advise all staff on environmental hazards that cannot be reasonably anticipated

### 5.2. Programme and Phasing

- 5.2.1. The CEMP will broadly identify the construction programme for the proposed works, and is to align with the programme agreed as part of the Employers Requirements.
- 5.2.2. At the current stage, the phasing of the construction works, are in the process of being determined. Once determined, the proposed diagrammatic phasing plans and phasing programme are to be communicated with Warrington Borough Council and, notwithstanding item 5.2.1, be included within the CEMP.
- 5.2.3. The CEMP is to include an implementation programme as outlined in 5.7.3.

### 5.3. Working Hours

- 5.3.1. The permitted working hours for construction works are to be agreed Warrington Borough Council, and included within the CEMP.
- 5.3.2. Whilst not agreed at this stage, the anticipated working hours are suggested as:
- Monday to Friday – 08:00 to 18:00
  - Saturday – 08:00 to 13:00
  - Sundays and Holidays – No Working
- 5.3.3. If work is required to be undertaken outside of the permitted working hours, the Principal Contractor will request written permission for the works from Warrington Borough Council, and demonstrate what steps are being undertaken to reduce noise impacts on the areas adjacent the site.

## 5.4. Internal Communications

- 5.4.1. Communications internally will follow the agreed structure that forms part of the Employers Requirements and Contractors Proposals and negotiated Main Contract. These will be in place prior to the start of any enabling or construction works.
- 5.4.2. Internal environmental awareness among site personnel shall also be communicated via the site notice boards.

## 5.5. External Communications

- 5.5.1. As listed in 5.1.2, a list of telephone numbers to be available to the general public, including an after-hours number for 24-hour coverage, is to be included within the CEMP.
- 5.5.2. In addition to setting up a contact channel with interested neighbouring stakeholders and members of the public as indicated in 5.5.1, the Principal Contractor will also look to provide the public with quarterly updates of the progress and upcoming headline milestones as part of their community engagement. Included should be updates on any and all works which are likely to cause an impact to neighbours.
- 5.5.3. Should any unexpected environmental concerns or complaints arise during the site works, the Principal Contractor shall report immediately to the site management. All concerns shall be promptly dealt with using appropriate measures consistent with the CEMP, notwithstanding assessed within method statements, risk assessments, and controls to deal with the works.
- 5.5.4. A complaints procedure will be formally established and listed within the CEMP.

## 5.6. Logistics Plan

- 5.6.1. The Principal Contractor is to provide as part of the CEMP, and the Employers Requirements, an agreed 'Site Logistics Plan' which will identify site access and egress routes, site office site(s), sanitary facility locations, equipment laydown and delivery locations, pedestrian/worker circulation routes, emergency muster points and working locations as a minimum.

## 5.7. Implementation and Monitoring

- 5.7.1. The CEMP will be implemented and monitored by the Principal Contractor.
- 5.7.2. The Principal Contractor will appoint a Site Manager to have responsibility for the delivery of the CEMP, as well as be responsible for consulting with the relevant authorities in relation to all items and issues related.
- 5.7.3. A staged programme for the implementation of the CEMP is to be included to assist in ensuring the process of introducing the CEMP is achieved in such a way to ensure the adherence of the CEMP and associated environmental management plans throughout the entirety of the works. The programme will provide clarity in terms of timeline of when and how different aspects of the CEMP are to be implemented and whom will be responsible.
- 5.7.4. The CEMP and Environmental Risk Register is to be updated as necessary. All amendments shall be communicated with Warrington Borough Council prior to implementing revisions to the CEMP.
- 5.7.5. The Principal Contractor shall ensure all site staff and visitors to site will undergo a safety induction, which will include as part of the induction reviewing the obligations of the CEMP to ensure all fully understand and comply with it. In addition, the Principal Contractor will ensure a signed record is kept of all inductees, and

that each inductee also signs a statement that they understand and will abide by the CEMP, induction, and method statements.

- 5.7.6. It is the Principal Contractor's responsibility to ensure all staff on site are fully trained and competent to undertake the work, and to ensure necessary training is given where required.
- 5.7.7. The Principal Contractor is to have a register of all circulated copies of the CEMP and circulate any amendments to copy holders. Only the Principal Contractor is to act as the document controller, and be the sole party who distributes the CEMP to ensure people are working to the latest version at all times.
- 5.7.8. The Principal Contractor is to ensure detailed records of all monitoring activities including time, date, person, instrument and serial number, calibration details, locations, activity, weather conditions, results, comparisons against acceptable criteria are kept for validation purposes.

## 5.8. Construction Compound

- 5.8.1. A site compound will be required for the duration of the construction activities of the project.
- 5.8.2. The location of the compound will be agreed with Warrington Borough Council, Langtree PP and Panattoni and identified on the plans listed in 5.6.1.
- 5.8.3. The compound is to include welfare facilities, storage, office accommodation, site notice boards, meeting rooms, client offices, and designated parking areas as a minimum.
- 5.8.4. The layout of the compound, including the foundation design and construction method, shall be listed and agreed with Warrington Borough Council, and Langtree PP and Panattoni.
- 5.8.5. Site compound should be powered by mains supply as soon as practicable. In the interim, silenced electrical generators stored in a waterproof enclosure which incorporates the environment agency's requirements shall be used.
- 5.8.6. Water shall be supplied to the site compound.
- 5.8.7. Appropriate firefighting equipment shall be located around the site to deal with any small localized fires. The equipment shall be inspected on a regular basis. The proposed inspection schedule and procedure shall be listed within the CEMP.
- 5.8.8. Muster points and evacuation routes are to be in place, as well as designated smoking areas.
- 5.8.9. Safety signage and pedestrian areas will be clearly defined and displayed within the site compound.
- 5.8.10. Upon completion of the project, the compound and all temporary barriers are to be dismantled and the area reinstated.



# RIDGE



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## ES Part I Appendix I0

**Langtree PP & Panattoni**

# **Six 56 Warrington**

Alternative Sites Assessment

Revision B 14 March 2018



## Revision Record

| Revision Reference | Date of Revision | Nature of Revision          | Author | Checked By |
|--------------------|------------------|-----------------------------|--------|------------|
| B                  | 15.03.2019       | Amendments following review | SC     | DR         |
|                    |                  |                             |        |            |

|                      |                                   |
|----------------------|-----------------------------------|
| <b>Report Author</b> | Gavin Winter and Stephen Courcier |
| <b>Report Date</b>   | 15 March 2018                     |
| <b>Project No.</b>   | 4055                              |
| <b>Document Ref.</b> | P0-TP-SPA-RP-P34055-0017          |
| <b>Revision</b>      | B                                 |





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## I. Introduction

I.1. This Alternative Sites Assessment study is produced as part of an outline planning application for a strategic employment development on land adjacent to Junction 20 of the M6 Motorway and Junction 9 of the M56 Motorway (known as Six 56 Warrington), submitted on behalf of Langtree Property Partners and Panattoni.

I.2. The planning application is described as follows:

*The outline application (all matters reserved except for means of access) comprises the construction of up to 287,909m<sup>2</sup> (3,099,025ft<sup>2</sup>) (gross internal) of employment floorspace (Use Class B8 and B1(a) offices) including change of use of Bradley Hall Farmhouse to B1 (a) office use (335m<sup>2</sup> (3,600ft<sup>2</sup>)) and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation, alteration of existing access road into site including works to existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.*

I.3. The application site is 98 ha (239 acres) in area and is located to the southeast of the town of Warrington (approximately 6 km (3.5 miles) from the town centre) and between the cities of Liverpool and Manchester (approximately 22km (13 miles) and 31km (19 miles) respectively).

I.4. The Site is located predominantly within the local authority area of Warrington with a small section to the south of the Brook located in the Cheshire East local authority area. The Adopted Core Strategy Policies Map identifies the Site as Green Belt land, along with the neighbouring fields.

I.5. The Site however forms part of a wider area identified for future growth in the form of the Garden City Suburb within the emerging new Local Plan (Preferred Options Consultation (July 2017) & Proposed Submission Version (March 2019)). The Site is identified for employment development which can be delivered independently of the Garden City Suburb. The Evidence base prepared to inform the Preferred Development Option Regulation 18 Consultation Document, includes The South Warrington Urban Extension Framework Plan Document

(SWUEFP) (June 2017) produced on behalf of Warrington Borough Council, also classifies the Site as suitable for Employment Use.

- 1.6. In line with National Policy and the adopted development plan requirements, development that is identified as being “inappropriate” in Green Belt should not be approved except in “very special circumstances”. The case for “very special circumstances” for development at Six 56 is set out in greater detail within the Planning Statement that accompanies this planning application.
- 1.7. This Alternative Sites Assessment report considers whether there are potential alternative sites that could accommodate the proposed development in whole or in part. This is not in itself a ‘test’ of national Green Belt policy, but where there is a lack of alternatives to accommodate a development, this may form a part of the case for development.
- 1.8. It has been demonstrated in Economic Development Needs Assessment (EDNA) (2016) and EDNA Udate (2019) that there is a significant need for new employment floorspace, particularly of a larger footplate to address the employment needs for warehouse and distribution uses and deficit of suitable sites within Warrington. The EDNA also recognises the positive locational benefits of the Barleycastle Trading Estate/Stretton Green Distribution Park and the surrounding area, which includes the Six 56 site for B8 users and that future B8 land allocations should look to build on these established locations in and around this M56/M6 corridor for logistics use. It has also been demonstrated in evidence that has been submitted as part of the Local Plan that Warrington has a significant proportion of its administrative area designated as Green Belt, which has not been reviewed for a considerable time (since 1979). As a result, the Local Authority has acknowledged through published “needs” studies, including the (EDNA) (2016) and EDNA Udate (2019) and emerging Submission Version Local Plan (March 2019) and supporting evidence base that to meet development needs in Warrington, particularly through larger scale developments, there will be a need to use land that is currently in Green Belt. The EDNA (2019) and emerging Submission Version Local Plan (March 2019) states there is a need to provide 362ha of employment land between 2017 and 2037, with 213ha of this employment land through Green Belt release. The socio-economic report (Technical Report 6) that forms part of the ES Part 2, also demonstrates that the Six 56 Development will have a significant positive economic benefit to Warrington and confirms that logistics operators need large sites. The Six 56 Site has all the locational

requirements of a B8/Logistics operator and lies within one of the UK's most efficient locations for this sector.

- 1.9. This application is made in the context of an emerging Local Plan which also now acknowledges that the application site is a suitable employment site and by the very nature of its size and location, in close proximity to the M6 / M56 Lymm Interchange, it would support logistics type development, therefore it should be removed from Green Belt to serve the needs of the borough. Whilst the Local Plan still needs to go through its full process, the application site has been subject of assessment within a Green Belt Assessment in 2016 and 2017 that forms part of the evidence base for the emerging Local Plan. This Assessment therefore has regard to the approach taken within the emerging Local Plan.
- 1.10. The Planning Statement has considered the emerging Local Plan and its supporting evidence base in the context of paragraph 48 of the Framework and outlines the reasoned justification for the proposals, including its degree of consistency with the Framework and considers that whilst weight may be limited in respect of the emerging Plan itself, which is currently at submission stage, the evidence that has underpinned the emerging Plan and its approach to economic growth, including the EDNA is highly material and significant weight can be ascribed to this evidence base as a material consideration.
- 1.11. Advice has also been sought on market considerations of sites from JLL, who have identified that there is significant demand for employment land within the Borough and that the Six 56 Site is an optimal location for local and regional large scale industrial and logistics projects. This Report is attached to Appendix 3.
- 1.12. It has been agreed with the Council that the list of sites to be considered as part of an Alternative Sites Assessment are those that have been identified within the EDNA (2016) and updated EDNA (2019) and Core Strategy Local Plan or through the Council's Call for Sites which have subsequently been identified as potential employment locations in the Preferred Development Option Regulation 18 Consultation Document and subsequently in the Proposed Submission Version Local Plan (2019) as an employment allocation. The EDNA (2018 and 2019) is being used by the Council to inform the emerging Local Plan as well as in determination of planning applications.
- 1.13. This Alternative Site Assessment will consider a range of sites identified within the EDNA Development Option Regulation 18 Consultation Document and Proposed Submission

Version Local Plan (2019) and will also, for robustness, consider the 'scope for disaggregation' of the application proposals. In this regard, consideration has been given to the potential to deliver each of the components that make up the planning application scheme. This is considered in the next section.

## 2. Methodology

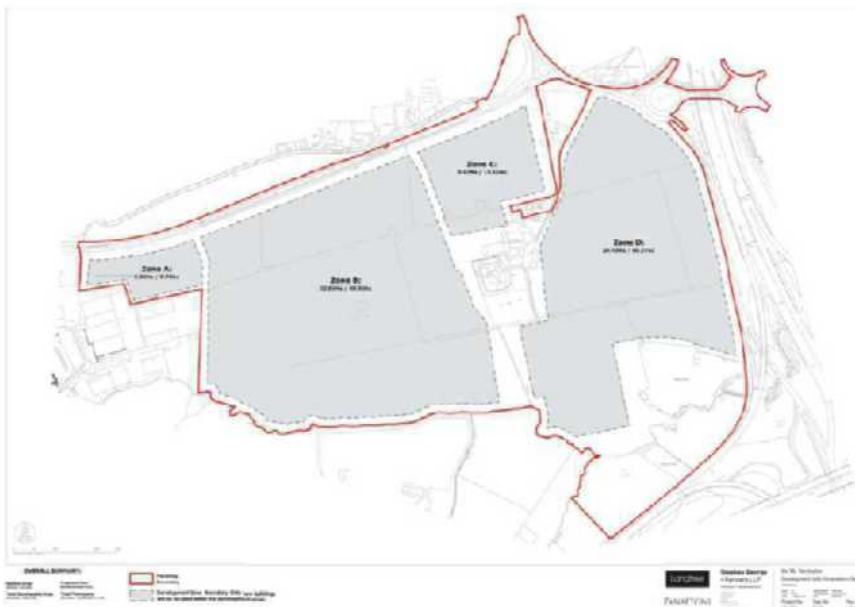
### Approach

- 2.1 This Assessment considers the potential for alternative sites to accommodate a new logistics park at this strategic employment development on land adjacent to Junction 20 of the M6 Motorway and Junction 9 of the M56 Motorway (known as Six56 Warrington).
- 2.2 The development proposals are being submitted in the context of a significant identified need for deliverable employment floorspace in Warrington, alongside a strategic Green Belt Assessment (2016 & 2017) that has determined that to meet the needs of Warrington there is requirement for Green Belt release.
- 2.3 The principle of Green Belt release to meet an employment need particularly to meet the needs of the logistics sector is a key element of the emerging Local Plan.
- 2.4 The scheme proposes a comprehensive development and will provide 287,909m<sup>2</sup> (3,099,025ft<sup>2</sup>) of floor space across the Site. This will be accommodated within 7 to 13 new buildings across the Site, across four development cells but is likely to be characterised by a small number of large units for B8 uses with ancillary BI (a) office use and a change of use of the existing Bradley Hall Farm house ((335m<sup>2</sup>) 3600ft<sup>2</sup>)) to BI (a) office use. Whilst an indicative masterplan layout has been prepared, the application is supported by a series of parameters plans which would form part of any approval within an outline planning permission. These parameters plans will control developable areas across the Site and disposition of uses, number of units, building heights, finished floor levels, floor space and car parking provision, access points and circulation, noise mitigation and drainage strategy, strategic landscaping and buffers around the heritage asset.
- 2.5 The delivery of the proposed development will come forward in phases. This will ultimately be driven by the demand for the employment buildings, however for the purposes of the Environmental Assessment, the following timescales have been assumed, which represent a precautionary approach (and therefore a worst-case scenario) by assuming a single continuous phase of site enabling works.

2.6 The Development stage is expected to take approximately 6.5 years, commencing with an initial enabling works phase. The delivery of the units will be phased across the 6.5 years, alongside the other infrastructure works which are likely to be developed on a plot by plot basis. This will be dependent on market demand.



**Indicative Masterplan, Six 56**



**Development Cells Parameters Plan**



2.7 This assessment therefore considers primarily whether there are sites that are deliverable to meet the scale of needs accommodated within the comprehensive scheme. However, in leading to a conclusion on that matter, for robustness, we have considered the scope for disaggregation, based on the proposed ‘development cells’ at Six 56. The development cells and plot sizes identified in the Illustrative Masterplan were established through a review of market requirements undertaken by JLL and therefore reflect the land area required to develop out market facing logistics buildings. These ‘development cells’ are a key component of the outline planning application and they are therefore established and controlled through the use of “parameters plan”. This approach does not take into account the need (and hence site area) for wider site infrastructure requirements such as primary or secondary roads, utilities (beyond the plot boundary) or strategic landscaping. These are important components of any large scale logistics sites and needs to be factored into consideration of available and suitable plots for logistics buildings.

### The Scope for Disaggregation

2.8 The Site is being promoted as a road-based logistics park which is characterised by larger floorplate employment units to meet the identified employment need. Large scale logistics park need to occupy strategic locations, that are in close proximity to the motorway network. Locating logistics operators in one location, also maximises opportunities for sustainable modes of transport. There are a range of plot sizes proposed, including one development cell (Zone A) which is smaller in scale, however this has been included in the Assessment to make best use of the residual land. Therefore, whilst we identify these smaller cells as being the guide for the threshold for this Assessment, it is material that the smallest cells form a more limited component of a scheme which is more characterised by larger building plots. If therefore, the smaller cells could be accommodated elsewhere (outside of the Green Belt), this would not address the need to deliver the larger building plots which is the main focus of this application proposal.

| Zone | Area Ha | Number of Units / Proposed Floorspace   |
|------|---------|---|
| A    | 2.33    | Max: 13,935m <sup>2</sup> (150,000ft <sup>2</sup> )<br>Ranging from 1-3 units |

|                      |                 |  |
|----------------------|-----------------|--|
| B                    | 32.51           | Max 157,935m <sup>2</sup> (1,700,000ft <sup>2</sup> )<br>Ranging from 1 – 6 units  |
| C                    | 5.47            | Max 29,729m <sup>2</sup> (320,000ft <sup>2</sup> )<br>1 unit                       |
| D                    | 24.43           | Max. 123,561m <sup>2</sup> (1,330,000ft <sup>2</sup> )<br>Ranging from 1 – 3 units |
| <b>Site Boundary</b> | <b>97.18 Ha</b> | <b>Total Developable Area:<br/>64.74ha</b>   |

Figure 1 Schedule of Development Cells and Disposition of Uses

2.9 The smallest development cell is Plot A with an area of 2.33 Ha. The indicative layout identifies a unit of 8,918.70m<sup>2</sup> on this plot. The dimensions of this cell have in part been governed by the constraints of the site in this location. A constraints exercise has also identified a range of other parameters which restrict the developable area. It should be noted that the indicative layout identifies units of c.93,026.10m<sup>2</sup> and 79,339.16m<sup>2</sup> on plots 4 (Zone B) & Plot 2 (Zone D) respectively with a maximum height to underside of haunch of 40m (43.5m to ridge). In assessing potential alternative sites, these “parameters” will be considered. These plots are within the site and well away from boundaries and hence sensitive uses. This potential for separation from sensitive uses is a material factor for consideration.

## Criteria

2.10 The Applicant has identified certain criteria / parameters in establishing an area of search for large scale employment development. These criteria / parameters are based on an approach and methodology agreed with the neighbouring authority, St Helens for an Alternative Sites Assessment undertaken for the planning application at Parkside, Newton Le Willows.

2.11 This included:

- Minimum site size of 5 Ha (this reflects the smallest zone (Zone C) identified on the proposed masterplan (this is also supported by the findings of the Council’s EDNA)
- Drivetime to motorway junction of 10 minutes or less
- HGV access into site possible
- Access to/from the primary and strategic road network
- Public Transport access

- Separation from adjacent sensitive uses

2.12 The application Alternative Sites Assessment will therefore consider sites identified within the EDNA and Development Option Regulation 18 Consultation Document of over 5 Ha. For robustness, it also considers sites of between 2.33 and 5ha or more to identify whether there is any deliverable opportunity to accommodate the smallest component of the application proposal on land outside of the Green Belt.

### Area of Study

2.13 There is a need to define an area of search for potential alternative sites. Given that the proposed development of Six 56 is being promoted in the context of meeting the needs of Warrington, the first parameter is that only sites within Warrington are considered. It is noted that in recent planning applications, for instance at Florida Farm (St Helens), representations were made to suggest that Green Belt sites should be retained as such, and that there was plenty of available space in neighbouring boroughs. We do not support this approach and it has been proven through those applications in St Helens (supported by the Secretary of State decisions) and through the St Helens Council's own evidence base (submitted with these applications), that developing employment sites in other authority areas does not have the same socio-economic benefit as it would do if located within the authority boundary. An obvious example of this, relates to the retention of business rates and provision of employment opportunities close to those areas of the borough in most need, as well as having greater control over providing skills and training opportunities. It is however worth noting that St Helens and the Greater Manchester Authorities are also having to release land from the Green Belt to meet their own employment needs and the recently released Warrington Local Plan "Proposed Submission Version Local Plan" confirms a need for 361.74ha of new employment land of which some 215.14ha is required to come from the Green Belt. This confirms the need for significant Green Belt release for employment uses within the sub area and specifically within the Borough of Warrington.

2.14 Developing outside of the Authority will also affect travel to work patterns and not directly serve those areas of Warrington that are in greatest need. A large proportion of Warrington is Green Belt land which has not been reviewed for nearly 40 years in any strategic terms through the Local Plan process. It has been established in the Proposed Submission Version Local Plan that there is a need to release Green Belt land to meet those development needs.

National guidance is clear that where Green Belt is to be changed, then this must be undertaken with a long-term view of development needs, not a short term 'fix'.

## Consideration of Potential Sites

- 2.15 In reviewing the potential for alternative sites, consideration has been given to any allocated employment sites remaining in the adopted Core Strategy that are over 2.3 ha in area and could accommodate a unit of 8,918.7m<sup>2</sup>.
- 2.16 Sites with permission for employment development and built out with unoccupied units and sites that have been promoted and are identified in the emerging Local Plan are also considered.
- 2.17 A number of existing employment sites identified in both the adopted Core Strategy and referenced as available in the EDNA (2016) have been considered and discounted. The following commentary outlines the reasons these were discarded and discounted.
- 2.18 The EDN Study (2016) states that there is 23,843m<sup>2</sup> available floorspace at Woolston Grange, and half of this available floorspace comprises one single building of 11,427m<sup>2</sup>. Whilst this could potentially accommodate the smallest potential unit on the Six 56 site at Plot 7 (Zone A) which is proposed to be 8,918.70m<sup>2</sup>, it would not be sufficient to accommodate any other unit within the proposed masterplan which ranges from 20,503.69m<sup>2</sup> to 93,026.10m<sup>2</sup>. Furthermore, the EDNA (2016) states that there are no other properties in excess of this (as of 2016), currently available in Warrington. The second largest unit available anywhere in Warrington is 5304m<sup>2</sup> at Melbury Court, Birchwood. This puts in perspective the available space to accommodate the units proposed as part of Six 56.
- 2.19 The EDNA (2016) states that the Forrest Way Business Park, Forrest Way, (EDNA site ref: 309) which is 7.50 ha in size could accommodate a 9,477m<sup>2</sup> B8 warehouse (over 3.75ha). This could therefore accommodate the smallest potential unit on the Six 56 site at Plot 7 (Zone A). However, the EDNA states that it has previously been agreed that no unit on the site would exceed 4,645m<sup>2</sup>, therefore this site has been discounted.
- 2.20 The EDNA (2016) references Gemini 16, Westbrook (Site ref: 36c) as part of an allocated employment site (7.60 ha) (Core Strategy Policy PVI) with consent for B1, B2, B8 uses. However, the western portion of the site which is 5.4 ha in size is now approved for housing,

leaving only 2.2 ha available for employment use. This reduces the available employment land below the 2.3 ha threshold, therefore this site has been discounted.

- 2.21 The EDNA (2016) references Gemini 8, Charon Way, Westbrook (Site ref: 356) as part of an allocated employment site (5.21 ha) (Core Strategy Policy PVI) with consent for B1, B2, B8 C1, A3/A4 uses. This includes space for 3.18 ha of B1, B2, B8 uses. However the EDNA goes onto identify that the remaining land is being marketed for design and build developments of 929-18,581 sqm. Therefore it could accommodate the smallest potential unit on the Six 56 site at Plot 7 (Zone A) which is proposed to be 8,918.70m<sup>2</sup>, but it would be insufficient to accommodate any other unit within the proposed masterplan which ranges from 20,503.69m<sup>2</sup> to 93,026.10m<sup>2</sup>.
- 2.22 The Quadrant (South), Birchwood Park (EDNA site ref: 367) forms part of an allocated employment site (3.64 ha) (Core Strategy Policy PVI) with consent for B1, B2, B8 uses. A number of units are now built out and let, leaving only 1.87 ha undeveloped. This reduces the available employment land below the 2.3 ha threshold, therefore this site has been discounted.
- 2.23 Lingley Mere Phase 3 is referenced in the EDNA (site ref: 15Ac) at 3.62 ha. This forms part of the Omega and Lingley Mere policy allocation (CS8), with outline consent for employment development comprising 13,000m<sup>2</sup> B8 space. The commentary states this could support a 9,290m<sup>2</sup> B8 unit and could accommodate the smallest potential unit on the Six 56 site at Plot 7 (Zone A) which is proposed to be 8,918.70m<sup>2</sup>, it would not be sufficient to accommodate any other unit within the proposed masterplan which ranges from 20,503.69m<sup>2</sup> to 93,026.10m<sup>2</sup>.
- 2.24 Lingley Mere Phase 2 referenced in the EDNA as ref: 15 A(g) comprises a site of 9.37 ha and is allocated for employment use as part of the Omega and Lingley Mere policy allocation (CS8) and has permission for B1 office space. It now has planning permission for 275 dwellings, therefore this site has been discounted.
- 2.25 Omega Phase 3 (remaining plots) (51.36 ha) allocated for employment use under Core Strategy policy allocation (CS8) is now proposed for housing led development and has permission for 1100 dwellings, A1-A5, C1, C2 and D1 uses. On this basis, this site has been discounted.

- 2.26 All other employment sites with available B8 floorspace are smaller than the agreed threshold of 2.3 ha and therefore they have been discounted.
- 2.27 The Assessment takes a series of stages. **Stage 1** is to establish whether the identified sites meet the minimum requirements for logistics development, namely proximity to the motorway network, good access to this via A roads, public transport connectivity and ability to mitigate for sensitive uses where these are present.
- 2.28 **Stage 2** then considers a range of additional factors to establish the suitability of development such as site shape and proximity to workforce.
- 2.29 **Stage 3** then assesses the remaining sites and considers the approach taken by the Local Plan and Green Belt Assessment in 2016 and 2017 and recent planning applications where the Secretary of State has supported the approach.

### Stage 1 Site Assessment

- 2.30 At Stage 1 the sites are assessed based on the minimum site requirements as set out in the criteria in 2.11 and scored using a traffic light system:

| Site Requirement | Reasoning/ Comments   | Indicator  | Score |
|------------------|---|--|-------|
| Motorway Access  | There is a need for Motorway access to be within 2.5km  | Site is within 2.5km and is well connected to M/Way by A roads | √     |
|                  |   | Site is within 2.5km but less well connected to M/Way          | √/X   |
|                  |   | Site is >2.5km from M/Way                                      | X     |
| 'A' Road Access  | There is a need for the site to have good access to 'A' roads with decent linkage to the Motorway Network | Site is located on key A road                                  | √     |
|                  |   | Site is located on secondary A road network                    | √/X   |
|                  |   | Site is located off the A road network                         | X     |
|                  |   | Regular bus route at site entrance                             | √     |

|                             |   |  |     |
|-----------------------------|---|--|-----|
| Public Transport            | There is a need for decent access to the site by public transport   | Regular bus route in easy walking distance from site entrance (<400m) or irregular service | √/X |
|                             |   | Poor Bus route and/ or route >400m distance  | X   |
| Separation (sensitive uses) | There is a need for sufficient space within a site to allow for decent buffering/ mitigation and separation from sensitive uses | No adjacent sensitive uses or space for buffering/ mitigation                              | √   |
|                             |   | Adjacent to sensitive uses but mitigation potential not optimal                            | √/X |
|                             |   | Adjacent to sensitive uses and no prospect of mitigation                                   | X   |

## Stage 2 Site Suitability Assessment

2.31 The second stage of assessment considers the suitability of the remaining sites. It assesses the sites in terms of potential constraints such as shape, proximity to settlement and topography.

| Site Requirement        | Reasoning/ Comments   | Indicator   | Score |
|-------------------------|---|---|-------|
| Shape                   | A regular site shape to fit a regular shaped rectangular logistics building. Shape as a constraint is most relevant to a smaller scale of sites.                            | Regular shaped site   | √     |
|                         |   | Regular shaped site with certain anomalies  | √/X   |
|                         |   | Irregularly shaped site   | X     |
| Proximity to Settlement | There is a need for proximity to a settlement to ensure access for a local workforce  | Site is part of or adjacent to a key settlement   | √     |
|                         |   | Site is located <1 km from a key settlement   | √/X   |
|                         |   | Site is located >1 km from a key settlement   | X     |
| Topography              | There is a need for sufficient space to create development platforms for development. A varied topography is not necessarily a preclusion to development, it is the ability | Site can provide sufficient space for development platforms to accommodate large floorplate units | √     |
|                         |   | Site can accommodate large floorplate units but not ideal   | √/X   |

|            |  |  |     |
|------------|--|--|-----|
|            | to create those platforms that is most important to delivery | Site is unable to create appropriate development platforms due to topography | X   |
| Flood Risk | Sites should avoid areas of flood risk in line with Policy.  | Flood Zone I   | √   |
|            |  | Some parts of the site at risk of flooding                                   | √/X |
|            |  | Site delivery significantly affected by flood risk                           | X   |

### Stage 3 Green Belt Assessment

2.32 The third stage of Assessment considers the sites against the “purposes” of Green Belt. Should any sites that are not in Green Belt be identified at this stage, then clearly, they would effectively meet all of the “purposes”.

| Site Requirement | Reasoning/ Comments  | Indicator   | Score |
|------------------|--|---|-------|
| Purpose 1        | To check unrestricted sprawl of large built up areas.        | Site is well contained  | √     |
|                  |  | Site is well related to the urban area and partially contained  | √/X   |
|                  |  | Site is not contained/ separate from the urban area   | X     |
| Purpose 2        | To prevent neighbouring towns from merging into one another. | Site would not lead to merging of towns (physically/ perceptively)                                    | √     |
|                  |  | Site will not physically merge towns, but perceptively may reduce a strategic gap affecting character | √/X   |
|                  |  | Sites would bring towns close together reducing a strategic gap to significantly affect character     | X     |
| Purpose 3        | To assist in safeguarding the countryside from encroachment. | The development would not mean a spread of development into countryside                               | √     |



|           |  |  |     |
|-----------|--|--|-----|
|           |  | The development would extend the urban area into countryside but there are certain mitigating factors such as surrounding urban areas  | √/X |
|           |  | The development would mean encroachment into the countryside as an extension of the urban area   | X   |
| Purpose 4 | To preserve the setting and special character of historic towns.                               | Warrington is a historic town however, if the site is not within 250m of any of the Town Centre Conservation Areas or does not cross an important viewpoint of the Parish Church, then Purpose 4 does not apply and sites will comply. | √   |
|           |  |  | √/X |
|           |  |  | X   |
| Purpose 5 | To assist in urban regeneration by encouraging the recycling of derelict and other urban land. | Development involves recycling of derelict and other urban land  | √/X |
|           |  | Development involves some recycling of derelict and other urban land   | X   |
|           |  | Development involves no recycling of derelict and other urban land   | X   |

### 3. Assessment

#### Identification of Sites

3.1. In line with the above methodology, a total of 9 sites have been identified. Whilst consideration has been made to the smallest development cell in the indicative layout, only one site has been identified that is less than the minimum site threshold of 5 ha identified in the Council's studies. A plan of these sites can be viewed at Annex A to this study. The sites are:

| Site Ref | Site Address   | Size (Ha)  |
|----------|--|--|
| 1.       | Omega North Extension. Call for Sites Ref: R18/066   | 13.5 ha  |
| 2.       | Burtonwood Brewery & White House Farm Call for Sites Ref: R18/080  | 4.22 ha  |
| 3.       | Port Warrington. Call for Sites Ref: R18/133 & Core Strategy Policy Ref CS11 Strategic Opportunity   | 74.19 ha   |
| 4.       | Land North of Barley Castle Lane, Appleton (Stobart's proposed NDC site)   | 15.3 ha  |
| 5.       | Land at Barley Castle Farm. Call for Sites Ref: R18/148 (8.69 ha)<br>Land at E end of Barleycastle Lane (North Parcel). Call for Sites Ref: R16/150 (6.4 ha)<br>Land at E end of Barleycastle Lane (South Parcel). Call for Sites Ref: R16/151 (4.55 ha)<br>*These sites are considered as one consistent with the emerging Local Plan | 19.64 ha   |
| 6.       | Land South of Barley Castle Lane. Call for Sites Ref: R18/147 (9.47 ha)<br>Land at Barley Castle Lane. Call for Sites Ref: R18/043 (0.5 ha)<br>*These sites are considered as one consistent with the emerging Local Plan  | 9.97 ha  |
| 7.       | Omega South Plot 7E (Mount Park) / Omega South Plot 7F (Mount Park)<br>Comprising:<br>Unit 2 Coming Soon 136,963 ft <sup>2</sup> (completed Dec 2018)<br>Unit 3 Coming Soon 90,771 ft <sup>2</sup> (completed Dec 2018)<br>Unit 4 Coming Soon 183,669 ft <sup>2</sup> (to be completed by Feb 2019)                                    | 18.27 ha<br>136,963 ft <sup>2</sup><br>90,771 ft <sup>2</sup><br>183,669 ft <sup>2</sup> |
| 8.       | Omega South Zone 1B  | 17.99 ha   |
| 9.       | Fiddlers Ferry Power Station<br>*includes main power station, ash lagoons, rail sidings, pump house and agricultural land  | 330 ha   |
| 10.      | Six 56, Warrington (the Application Site)  | 96 ha  |

#### Stage I: Assessment Against Minimum Site Requirements

3.2 The sites have been assessed against the minimum site requirements as set out in the EDNA and scored using a traffic light system. We have removed the HGV Access test as this does not assist the assessment as it is a prerequisite and most sites identified have existing or potential for access. Access to the main roads and motorways is the more important test:

| Site Address                                 | M/Way Access | Trunk Road Access | Public Transport | Separation (Sensitive Uses) | Overall Score |
|--|--------------|-------------------|------------------|-----------------------------|---------------|
| 1 Omega North Extension                      | Yellow       | Yellow            | Green            | Yellow                      | Yellow        |
| 2 Burtonwood Brewery & White House Farm      | Red          | Red               | Green            | Red                         | Red           |
| 3 Port Warrington                            | Red          | Red               | Red              | Green                       | Red           |
| 4 Land North of Barley Castle Lane, Appleton | Yellow       | Yellow            | Red              | Green                       | Yellow        |
| 5 Land South of Barley Castle Farm.          | Red          | Yellow            | Red              | Yellow                      | Yellow        |
| 6 Land South of Barley Castle Lane           | Red          | Yellow            | Red              | Yellow                      | Yellow        |
| 7 Omega South                                | Green        | Green             | Green            | Green                       | Green         |
| 8 Omega South Zone 1B                        | Green        | Green             | Green            | Green                       | Green         |
| 9 Fiddlers Ferry Power Station               | Red          | Green             | Green            | Green                       | Red           |
| 10 Six 56 Warrington                         | Green        | Green             | Red              | Green                       | Yellow        |

3.3 The first stage of assessment has identified a number of sites to be taken to Stage 2. The sites that were filtered out our predominantly ones that have access issues for operators. However, it is considered on balance that there would be a sufficient quantum of development on the larger sites to be able to mitigate any existing shortfalls of public transport provision. Equally, highway improvements can be undertaken to short stretches of connector roads to facilitate vehicle access on to the Strategic Highway Network. However, given that the proposal is for a road-based logistics development, the distance from the motorway cannot be mitigated and therefore those sites that scored very poorly on this criterion have been discounted for the purposes of this assessment. As such Burtonwood and Fiddlers Ferry have been discounted because they are remote from the motorway and accessing them would require heavy good vehicles passing directly through residential neighbourhoods which is not desirable. Finally, any sites where it is considered that suitable mitigation cannot be implemented to reduce the impact on residential amenity have also not been taken forward into assessment 2.

3.4 Fiddlers Ferry has been discounted in the first stage of the assessment because of its remoteness from the motorway network. Furthermore, the Submission Draft Local Plan acknowledges that there is significant uncertainties over the timing of the decommissioning of Fiddlers Ferry Power Station and recognises the requirement for extensive site remediation of the site. For these reasons, it is considered that the power station is not reasonably available to accommodate the Proposed Development to meet the existing acute need for employment land within the Borough.

3.5 The remaining sites are:

| Site | Site Address                      |
|------|-----------------------------------|
| 1    | Omega North                       |
| 4    | Land North of Barley Castle Lane  |
| 5    | Land South of Barley Castle Farm. |
| 6    | Land South of Barley Castle Lane  |
| 7    | Omega South                       |
| 8    | Omega South Zone 1B               |
| 10   | Six 56 Warrington                 |

## Stage 2: Suitability Assessment

3.6 The sites have been considered against the criteria identified in Stage 2 and scored as follows:

|    | Site Address                      | Shape  | Proximity to Settlement | Topography | Flood Risk | Score  |
|----|-----------------------------------|--------|-------------------------|------------|------------|--------|
| 1  | Omega North                       | Yellow | Yellow                  | Green      | Green      | Yellow |
| 4  | Land North of Barley Castle Lane  | Green  | Red                     | Green      | Green      | Yellow |
| 5  | Land South of Barley Castle Farm. | Green  | Red                     | Green      | Green      | Yellow |
| 6  | Land South of Barley Castle Lane  | Green  | Red                     | Green      | Green      | Yellow |
| 7  | Omega South                       | Green  | Yellow                  | Green      | Green      | Green  |
| 8  | Omega South Zone 1B               | Green  | Yellow                  | Green      | Green      | Green  |
| 10 | Six 56 Warrington                 | Green  | Red                     | Green      | Green      | Yellow |

3.7. None of the sites have been excluded. The proximity of the sites to the existing key settlement is not considered to be strong enough as a single issue to exclude a site as public transport improvements can be made to support sustainable transport. This is particularly relevant for Sites 4 and 10 because of the Council’s proposals to deliver 7,400 new homes in the proposed Garden Suburb.

3.8. The remaining sites to progress to Stage 3 of the assessment are:

| Site | Site Address                      |
|------|-----------------------------------|
| 1    | Omega North                       |
| 4    | Land North of Barley Castle Lane  |
| 5    | Land South of Barley Castle Farm. |
| 6    | Land South of Barley Castle Lane  |
| 7    | Omega South                       |
| 8    | Omega South Zone 1B               |
| 10   | Six 56 Warrington                 |

### Stage 3: Assessment Against Green Belt Purposes

3.9. The sites have been considered against the criteria identified in Stage 3 of the methodology and scored as follows:

| Site Address |                                   | Green Belt Purpose |       |        |       |     | Score  |
|--------------|-----------------------------------|--------------------|-------|--------|-------|-----|--------|
|              |                                   | 1                  | 2     | 3      | 4     | 5   |        |
| 1            | Omega North                       | Green              | Green | Yellow | Green | Red | Yellow |
| 4            | Land at Barley Castle Lane        | Yellow             | Green | Yellow | Green | Red | Yellow |
| 5            | Land South of Barley Castle Farm. | Red                | Green | Yellow | Green | Red | Yellow |
| 6            | Land South of Barley Castle Lane  | Green              | Green | Yellow | Green | Red | Yellow |
| 7            | Omega South                       |                    |       |        |       |     | N/A    |
| 8            | Omega South Zone 1B               |                    |       |        |       |     | N/A    |
| 10           | Six 56 Warrington                 | Yellow             | Green | Yellow | Green | Red | Yellow |

- 3.10 The results of Stage 3 indicate that of the seven sites that were taken through to this stage, all of them scored sufficiently to be taken forward to a further level of scrutiny (all scored amber or neutral). It is therefore considered worthwhile considering these sites in more detail against the guidance in national policy and Warrington's EDNA (2016). The Framework states that (planning) decisions should help create the conditions in which businesses can invest, expand and adapt and goes on to say significant weight should be placed on the need to support economic growth and productivity, taking into account of local business needs and wider opportunities for development (para 80). Importantly paragraph 82 is explicit that planning decisions should *"recognise and address the specific locational requirements of different sectors which includes... storage and distribution operations at a variety of scales and in suitably accessible locations."*
- 3.11 The EDNA recognizes that the logistics sector in Warrington is 100% road related and therefore *"immediate motorway access is essential"* for any site looking to replicate the success of Omega and compete with other emerging motorway linked schemes elsewhere in the North West.
- 3.12 Sites 4, 5 and 6 (Barley Castle) do not benefit from immediate access to the motorway and therefore would be considered a secondary location in this respect. However these sites can be accessed from the motorway network without the need for vehicles to pass through any built-up residential areas. Therefore, it is considered that the issue of lack of direct access to the motorway could be mitigated by improving the local highway network, especially as part of the comprehensive Garden Suburb proposal. Nevertheless, Site 4 is currently subject to a planning appeal for the creation of a National Distribution Centre for a specific end user (Eddie Stobart) and therefore it is not considered to be readily available. In addition, none of these sites individually would be able to accommodate the full amount of employment development proposed for the Six 56 site.
- 3.13 The EDNA states that based on the future strategic take up, reflecting recent development at Omega, it is expected that there will be an ongoing requirement for large regional and national production/distribution facilities wanting sites of between 5 and 10 ha in size (or larger) to accommodate single 'big shed' properties. However, it goes on to state that the Asda development at Omega South took up 43 ha of land (gross) which is likely to represent the largest single development strategic site that Warrington will need to accommodate. The assessment stresses that *"individual strategic sites will therefore have to be at least this size, and*

*ideally larger, to ensure they can meet all plausible requirements.*”Site 1 ‘Omega North Extension’ due to its shape and configuration would be unlikely to be able to accommodate a unit of 10 ha or more and therefore would not meet the requirements of the logistics sector in this respect. Equally, none of the Omega sites (Sites 1, 7 and 8) would be able to accommodate the needs of the very largest logistics operators (43 ha plus) and therefore they would not meet all the feasible requirements within the market in accordance with the stipulations of the EDNA.

- 3.14 The EDNA states that *“locations on the M62, which link to the existing critical mass of Omega would be desirable for new strategic sites. However, it is accepted that there is limited capacity for a further site of the scale required in this area, particularly south of the M62”*. However it recognised that *“stakeholders showed strong support for the provision of a new strategic site(s) along the M56 Corridor... the advantages were felt to include a greater body of potentially available land; links to the crucial Manchester-North Wales Corridor; the ability to build on the existing logistics base of Barleycastle Trading Estate/Stretton Green Distribution Park and the ability to provide greater employment opportunities in the south of the Borough”*. Therefore, it is evident that there would be significant benefits in bringing forward the Six 56 Site which would be unrealised by bringing forward the 3 sites at Omega. There is a clear market demand for a logistics site to the south of Warrington to serve the M56 and M6 motorways which is evidenced within the Council’s EDNA and JLL’s Marketing Report. The creation of the Six 56 Development would ensure that there is choice and competition in the employment land market within the Borough.
- 3.15 It is important to note that the Omega sites have already been accounted for in the employment land supply set out the emerging Local Plan. Therefore, their development would not reduce the amount of land that is scheduled to be removed from the Green Belt to meet the employment land requirement and would not lessen the need for the Garden Suburb Employment Area. The study has considered the scope for disaggregation through identifying a smaller range of sites. It has been demonstrated that there are no suitable sites. This is confirmed by the economic evidence base for the emerging Local Plan and in recent planning applications (Eddie Stobart Planning Committee Report). The position is clear that there is a need to go into Green Belt to deliver large employment units to meet the need.
- 3.16 In conclusion, it is considered that there are significant benefits as outlined above in bringing forward the Six 56 site in comparison to other sites considered in this assessment. The Six 56 site is the only one which meet all the requirements of the Council’s EDNA in terms of

direct access on to the motorway network, meeting the demand for a new strategic site along the M58, and being able to accommodate the full range of employment requirements within the borough.

- 3.17 Nevertheless, the Submission Draft Local Plan makes clear it will be necessary to bring forward all the sites considered within the third part of the assessment to meet the employment land requirement within the borough over the plan period.



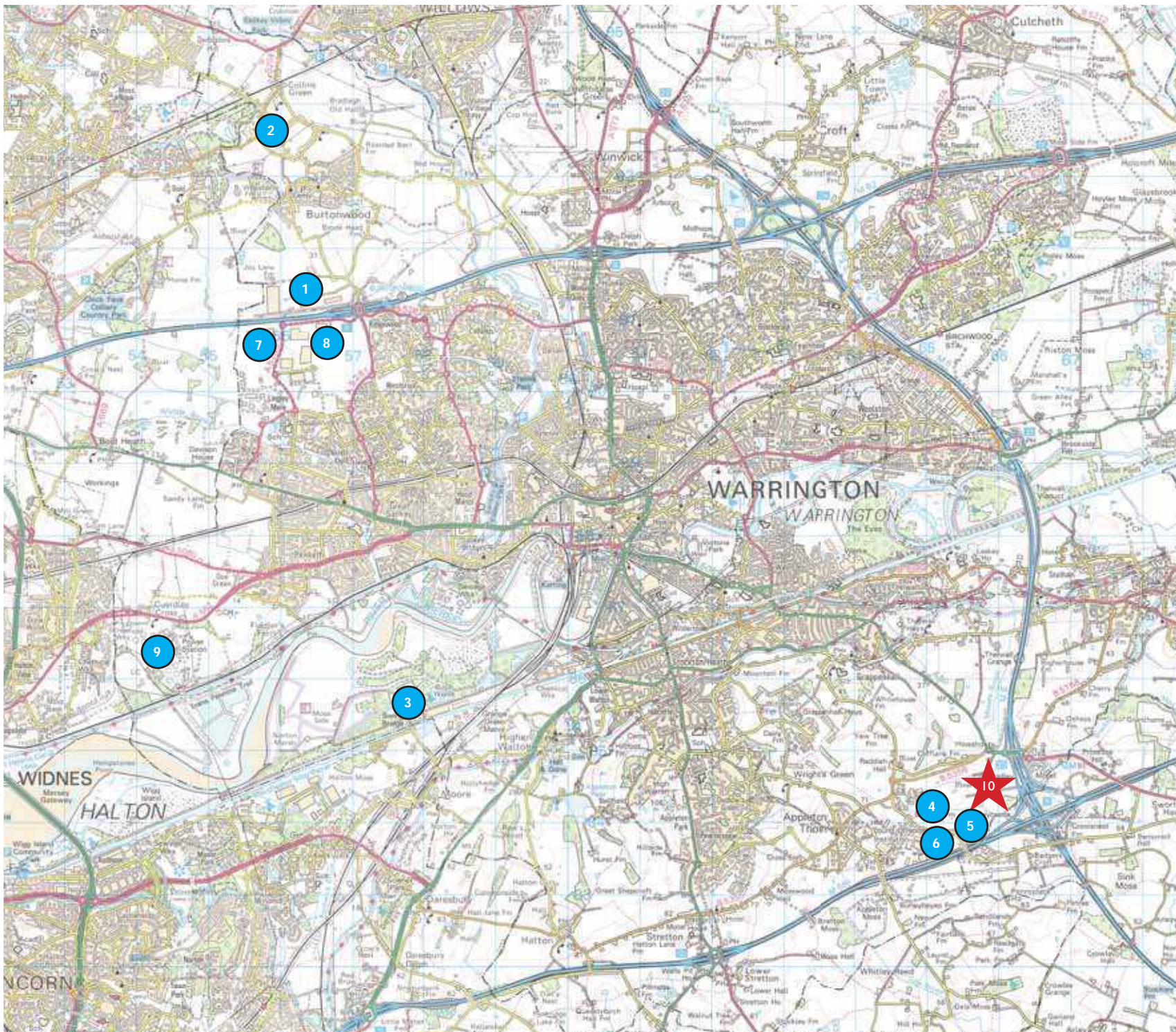
## 4. Conclusions

- 4.1 In conclusion, this Alternative Sites Assessment has considered whether development that is being proposed at the Six 56 sites could not be accommodated on a more suitable site either within or outside of the Green Belt. The assessment has concluded that there are no sites that are suitable for either the development as a whole, or indeed its component parts (scope for disaggregation).
- 4.2 It should be noted that no other site will deliver the regenerative benefits at Six 56.
- 4.3 The Site meets with the locational and site requirements for logistics operators. These locational characteristics and site requirements cannot currently be fully met at any other location within the Borough. The site is a flat and expansive with no topographic constraints. It is accessible to the supporting supply chain and it will be close to an established employment area and an area of population growth, given it forms part of a Garden Suburb in which up to 7000 additional houses are now proposed. All these attributes are key drivers for logistics operators when making decisions on locations for new employment space. It is logical therefore for employment land to be allocated in this location which is attractive to the employment market and will continue the success in the Borough provided by Omega.
- 4.4 Delivery of high quality logistics floorspace on this site will act as a catalyst for urban regeneration and will aid delivery of the wider Garden Suburb, creating a well-balanced community by generating significant long term employment. The Application Proposals will help to support the regeneration of these neighbourhoods, providing a range of accessible jobs and working with organisations such as Warrington & Co., will help to ensure that the uptake of employment by economically inactive residents can be optimised.
- 4.5 The delivery of the Site will bring direct and indirect employment opportunities, in the short-term for construction and, as the Site is developed, longer-term employment opportunities. In turn the Proposals will also lead to in-ward investment and confidence in the market, bringing about further investment and development opportunities. This is all of direct benefit to the Borough and its regeneration.

## **Appendix I – Plan of Identified Sites**



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KEY

- 1. Omega North Extension
- 2. Burtonwood Brewery & White House Farm
- 3. Port Warrington
- 4. Land North of Barley Castle Lane
- 5. Land at Barley Castle Lane
- 6. Land South of Barley Castle Lane
- 7. Omega South Plot 7E / 7 F
- 8. Omega South Zone 1B
- 9. Fiddlers Ferry Power Station
- 10. Six 56 (The Application Site)

# ALTERNATIVE SITES ASSESSMENT PLAN

## Appendix I Key:

| Site Ref | Site Address   | Size (Ha) |
|----------|--|-----------|
| 1        | Omega North Extension  | 13.5      |
| 2        | Burtonwood Brewery & White House Farm  | 4.22      |
| 3        | Port Warrington  | 74.19     |
| 4        | Land at Barley Castle Lane, Appleton   | 15.3      |
| 5        | Land South of Barley Castle Farm (including land at the east end of Barleycastle Lane) | 19.64     |
| 6        | Land South of Barley Castle Lane   | 9.97      |
| 7        | Omega South  | 18.27     |
| 8        | Omega South Zone 1B  | 17.99     |
| 9        | Fiddlers Ferry Station   | 330       |
| 10       | Six 56, Warrington   | 97        |

## **Appendix 2 – Individual Site Assessments**

| Site Ref.   | Address/ Site Description  | Site Size |
|---|--|-----------|
| 1   | Omega North Ref: R18/066   | 13.5      |
| Stage 1 Considerations  |  | Score     |
| Motorway Access   | Site is located less than 1 km from Junction 8 of the M62, but it is not connected to the M/Way by an A Road   | X/N       |
| Trunk Road Access   | Site is located slightly off an A Road   | X/N       |
| Public Transport  | Bus routes at site entrance  | √         |
| Separation (Sensitive Uses)   | There is a residential property on the northern boundary. The impact could be mitigated, but it reduces the scope of the site to accommodate the larger units.   | X/N       |
| Stage 2 Considerations  |  |           |
| Shape   | Regular shape, but could be difficult to accommodate the largest Big Box sheds i.e. 10 ha plus.  | X/N       |
| Proximity to Key Settlement   | To the north of Warrington (within 1km)  | X/N       |
| Topography  | Relatively flat  | √         |
| Flood Risk  | Flood Zone 1   | √         |
| Stage 3 Green Belt Purposes Test (if Applicable)  |  |           |
| To check the unrestricted sprawl of large built-up areas  | The site is on the edge of Omega with existing units on the southern and western boundaries. The northern boundary is defined by Burtonwood Road and Joy Lane.   | √         |
| To prevent neighbouring towns merging into one another;   | Omega is located away from the main urban and it would maintain a strategic gap with Burtonwood and therefore it will not lead to coalescence of towns   | √         |
| To assist in safeguarding the countryside from encroachment;  | The site would lead to encroachment into the countryside, but the level of encroachment would not be significant   | X/N       |
| To preserve the setting and special character of historic towns   | The site is not within 250m of the Town Centre and does not impact on any viewpoints of the Parish Church  | √         |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.  | The sites are greenfield with no built form.   | X         |
| Other Site Considerations   |  |           |
| Land Use/ Neighbouring uses   | Open countryside with neighbouring industrial and logistics uses   |           |
| Market Planning Policy  | The site is located on the edge of the existing Omega site where there is a proven demand. However due to the shape of the site it would not be able to accommodate the larger industrial and logistic Big Box units (10 ha plus). |           |
| Summary/ Comments   |  |           |
| <p>The Site is located close to the built-up area and on the edge of an established employment area. Nevertheless, it scores poorly because it is not connected to the Motorway by an A1. Its size and shape would make it difficult to accommodate the larger industrial and logistic Big Box units (10 ha plus). The promotional masterplan submitted with the call for sites representations shows that the site could accommodate two units of approximately 274,400 sq. ft. and 211,000 sq. ft., which is below the majority of the unit sizes on Six56.</p> |  |           |

| Site Ref.   | Address/ Site Description   | Site Size    |
|---|---|--------------|
| 2   | Burtonwood Brewery & White House Farm   | 4.22         |
| <b>Stage 1 Considerations</b>   |   | <b>Score</b> |
| Motorway Access   | The M62 M/Way is approximately 3km from the site.   | X            |
| Trunk Road Access   | Not connected to them M/Way by A Roads  | X            |
| Public Transport  | Bus routes nearby on Broad Lane   | √            |
| Separation (Sensitive Uses)   | A number of residential properties nearby and the size of the site limits the scope for mitigation  | X            |
| <b>Stage 2 Considerations</b>   |   |              |
| Shape   | The site is relatively long and thin which limits its attractiveness for the larger logistics operators.  | X/√          |
| Proximity to Key Settlement   | The site is remote from any key settlement (approximately 1.5 km from St Helens)  | X            |
| Topography  | Relatively flat   | √            |
| Flood Risk  | Flood Zone 1  | √            |
| <b>Stage 3 Green Belt Purposes Test (if Applicable)</b>   |   |              |
| To check the unrestricted sprawl of large built-up areas  | The site is an outlier to the settlement and partially contained.   | X            |
| To prevent neighbouring towns merging into one another;   | The site is located within a strategic gap between Burtonwood and Ashton Green/St Helens and would alter the character of countryside in this location.   | X            |
| To assist in safeguarding the countryside from encroachment;  | The site is partially developed, but the proposal would represent an encroachment within to the countryside   | X/√          |
| To preserve the setting and special character of historic towns   | The proposal is remote from Warrington Town Centre and would have no impact any important viewpoints of the Parish Church   | √            |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.  | The site comprises of a mix of greenfield and brownfield land   | X/√          |
| <b>Other Site Considerations</b>  |   |              |
| Land Use/ Neighbouring uses   | Industrial, residential, agriculture/forestry.  |              |
| Market  | The site is remote from any significant population centre and from the strategic road network. Its shape and proximity to residential properties also makes it unattractive to logistics operators. |              |
| <b>Summary/ Comments</b>  |   |              |
| Site is too peripheral from the Motorway network to be suitable or attractive to the market for large primary employment development. |   |              |

| Site Ref.   | Address/ Site Description   | Site Size |
|---|---|-----------|
| 3   | Port Warrington   | 74.19     |
| Stage 1 Considerations  |   | Score     |
| Motorway Access   | 6 km to M56 M/way and 13km to M62 M/way   | X         |
| Trunk Road Access   | The site is located off the A Road Network  | X         |
| Public Transport  | Nearest bus stops on Runcorn Road, which are 1.5km from the site  | X         |
| Separation (Sensitive Uses)   | Site is away from sensitive uses and where these are present mitigation could be introduced due to site size              | √         |
| Stage 2 Considerations  |   |           |
| Shape   | Regular shape   | X         |
| Proximity to Key Settlement   | To the east of Runcorn (5km) and west of Warrington (4km)   | X         |
| Topography  | Relatively flat   | √         |
| Flood Risk  | Predominately within Flood Zone 1 with a proportion within FZ2 and 3  | X/√       |
| Stage 3 Green Belt Purposes Test (if Applicable)  |   |           |
| To check the unrestricted sprawl of large built-up areas  | The site is not well contained and is separate from the urban area  | X         |
| To prevent neighbouring towns merging into one another;   | The site would not merge Warrington and Runcorn, but would reduce the strategic gap between the two settlements           | X/√       |
| To assist in safeguarding the countryside from encroachment;  | The site would not lead to a significant encroachment into the countryside  | X         |
| To preserve the setting and special character of historic towns   | The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.      | X         |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.  | The site is predominately greenfield, but does involve the redevelopment an area of brownfield land                       | X/√       |
| Other Site Considerations   |   |           |
| Land Use/ Neighbouring uses   | Agriculture, Nature Reserve, sewerage works and caravan park  |           |
| Market  | The site is remote from the strategic highway network and therefore would not be attractive for large logistic operators. |           |
| Summary/ Comments   |   |           |
| The site is remote from the strategic highway network and therefore is not currently suitable for large logistic operators who require convenient access on to the M/way. The site has also been allocated in the Core Strategy to become a multi modal port facility utilising the ship canal with an opportunity for rail freight. Therefore, the utilisation of the site for road-based logistics would be contrary to the Core Strategy and would potentially lead to the loss of the opportunity to create a multi modal port facility within the Borough. |   |           |



| Site Ref.  | Address/ Site Description  | Site Size    |
|--|--|--------------|
| 4  | Land North of Barley Castle, Appleton  | 15.3         |
| <b>Stage 1 Considerations</b>  |  | <b>Score</b> |
| Motorway Access  | M56 is less than 2.5km from the M6. Access not direct by A road  | X/√          |
| Trunk Road Access  | Site is located away from the A road network but with broad connectivity   | X/√          |
| Public Transport   | The nearest bus stops are on Grappenhall Lane, which are more than 400 metres from the site  | X            |
| Separation (Sensitive Uses)  | The site borders on to Booth Farm, which contains a Grade II listed farmhouse. However, the site is large enough to accommodate mitigation.  | √            |
| <b>Stage 2 Considerations</b>  |  |              |
| Shape  | Fairly regular   | √            |
| Proximity to Key Settlement  | The site is more than 1 km to the south and east of Warrington   | X            |
| Topography   | Relatively flat  | √            |
| Flood Risk   | Flood Zone 1   | √            |
| <b>Stage 3 Green Belt Purposes Test (if Applicable)</b>  |  |              |
| To check the unrestricted sprawl of large built-up areas   | The site borders directly onto the Trading Estate and is partially contained by established field boundaries and Bradley Brook   | X/√          |
| To prevent neighbouring towns merging into one another;  | The site would not lead to merging of towns  | √            |
| To assist in safeguarding the countryside from encroachment;   | The site would lead to encroachment, but it would be perceived as a rounding off of the Trading Estate   | X/√          |
| To preserve the setting and special character of historic towns  | The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.   | √            |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.   | The site is entirely greenfield  | X            |
| <b>Other Site Considerations</b>   |  |              |
| Land Use/ Neighbouring uses  | Agricultural with a small number of residential uses,  |              |
| Market   | The site is located on the edge of an established and successful trading estate and therefore is considered to be attractive to logistics operators, subject to appropriate highway works. |              |
| <b>Summary/ Comments</b>   |  |              |
| The site is one the edge of an established and successful Trading Estate. However, it is not linked on to the strategic road network and is away from any key settlements. The site is also too small to accommodate the whole of the Six 56 scheme. |  |              |

| Site Ref.   | Address/ Site Description   | Site Size    |
|---|---|--------------|
| 5   | Land at Barley Castle Farm (including two parcels at east end of Barley Castle Lane)  | 19.64        |
| <b>Stage 1 Considerations</b>   |   | <b>Score</b> |
| Motorway Access   | M56 is approx. 2.9km from the M6. Access not direct by A road   | X            |
| Trunk Road Access   | Site is located away from the A road network, but with broad connectivity   | X/√          |
| Public Transport  | The nearest bus stops are on Grappenhall Lane, which are more than 400 metres from the site.  | X            |
| Separation (Sensitive Uses)   | There are a number of residential properties within or in close proximity to the site. Two of these properties are listed. However, there are opportunities to mitigate the potential impact. | X/√          |
| <b>Stage 2 Considerations</b>   |   |              |
| Shape   | Fairly regular  | √            |
| Proximity to Key Settlement   | The site is approximately 2.5km to the south and east of Warrington   | X            |
| Topography  | Relatively flat   | √            |
| Flood Risk  | Flood Zone I  | √            |
| <b>Stage 3 Green Belt Purposes Test (if Applicable)</b>   |   |              |
| To check the unrestricted sprawl of large built-up areas  | The site is not contained and is separate from the urban area   | X            |
| To prevent neighbouring towns merging into one another;   | The site would not lead to merging of towns   | √            |
| To assist in safeguarding the countryside from encroachment;  | The site would lead to encroachment into the countryside  | X            |
| To preserve the setting and special character of historic towns   | The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.  | √            |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.  | The site is entirely greenfield   | X            |
| <b>Other Site Considerations</b>  |   |              |
| Land Use/ Neighbouring uses   | Agricultural with a small number of residential uses  |              |
| Market  | The site is located close to an established and successful trading estate and therefore is considered to be attractive to logistics operators, subject to appropriate highway works.          |              |
| <b>Summary/ Comments</b>  |   |              |
| The site is close to an established and successful Trading Estate. However, it is not linked on to the strategic road network and is away from any key settlements. The site is also too small to accommodate the whole of the Six 56 scheme. |   |              |

| Site Ref.   | Address/ Site Description   | Site Size    |
|---|---|--------------|
| 6   | Land South of Barley Castle Lane  | 9.97         |
| <b>Stage 1 Considerations</b>   |   | <b>Score</b> |
| Motorway Access   | M56 is approx. 2.9km from the M6. Access not direct by A road   | X            |
| Trunk Road Access   | Site is located away from the A road network, but with broad connectivity   | X/√          |
| Public Transport  | The nearest bus stops are on Grappenhall Lane, which are more than 400 metres from the site.  | X            |
| Separation (Sensitive Uses)   | There is a residential property in the middle of the site, which limits the opportunities for mitigation on this relatively small site.   | X/√          |
| <b>Stage 2 Considerations</b>   |   |              |
| Shape   | Fairly regular  | √            |
| Proximity to Key Settlement   | The site is approximately 2.5km to the south and east of Warrington   | X            |
| Topography  | Relatively flat   | √            |
| Flood Risk  | Flood Zone I  | √            |
| <b>Stage 3 Green Belt Purposes Test (if Applicable)</b>   |   |              |
| To check the unrestricted sprawl of large built-up areas  | The site is well contained and borders on the urban area  | √            |
| To prevent neighbouring towns merging into one another;   | The site would not lead to merging of towns   | √            |
| To assist in safeguarding the countryside from encroachment;  | The site would lead to encroachment into the countryside, but it can be mitigated,  | X/√          |
| To preserve the setting and special character of historic towns   | The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.  | √            |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.  | The site is entirely greenfield   | X            |
| <b>Other Site Considerations</b>  |   |              |
| Land Use/ Neighbouring uses   | Industrial to the north and west and agriculture to the east  |              |
| Market  | The site is located adjacent to an established and successful trading estate and therefore is considered to be attractive to logistics operators, subject to appropriate highway works. |              |
| <b>Summary/ Comments</b>  |   |              |
| The site is adjacent to an established and successful Trading Estate. However, it is not linked on to the strategic road network and is away from any key settlements. The site is also too small to accommodate the whole of the Six 56 scheme |   |              |

| Site Ref.  | Address/ Site Description  | Site Size |
|--|--|-----------|
| 7  | Omega South Plot 7E and 7F   | 18.27     |
| Stage 1 Considerations   |  | Score     |
| Motorway Access  | Less than 2.5km to M62 Junction  | √         |
| Trunk Road Access  | Estate road directly onto M/way junction   | √         |
| Public Transport   | Site is located close to a bus route   | √         |
| Separation (Sensitive Uses)  | Site is distant from any sensitive uses  | √         |
| Stage 2 Considerations   |  |           |
| Shape  | Regular size   | √         |
| Proximity to Key Settlement  | On the edge of Warrington (within 1 km)  | X/√       |
| Topography   | Relatively flat  | √         |
| Flood Risk   | Flood Zone 1   | √         |
| Stage 3 Green Belt Purposes Test (if Applicable)   |  |           |
| To check the unrestricted sprawl of large built-up areas   | N/A  | N/A       |
| To prevent neighbouring towns merging into one another;  |  |           |
| To assist in safeguarding the countryside from encroachment;   |  |           |
| To preserve the setting and special character of historic towns  |  |           |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.   |  |           |
| Other Site Considerations  |  |           |
| Land Use/ Neighbouring uses  | Industrial to the north and east and agricultural land to the west.                              |           |
| Market   | The site is within an established and successful logistics park with direct access on to the M62 |           |
| Summary/ Comments  |  |           |
| The site is within an established industrial and logistics park and benefits from direct access on to the M62. Omega Zone 7 is exclusively for manufacturing and logistics floorspace. The site is too small to accommodate the whole of the Six 56 proposals. |  |           |

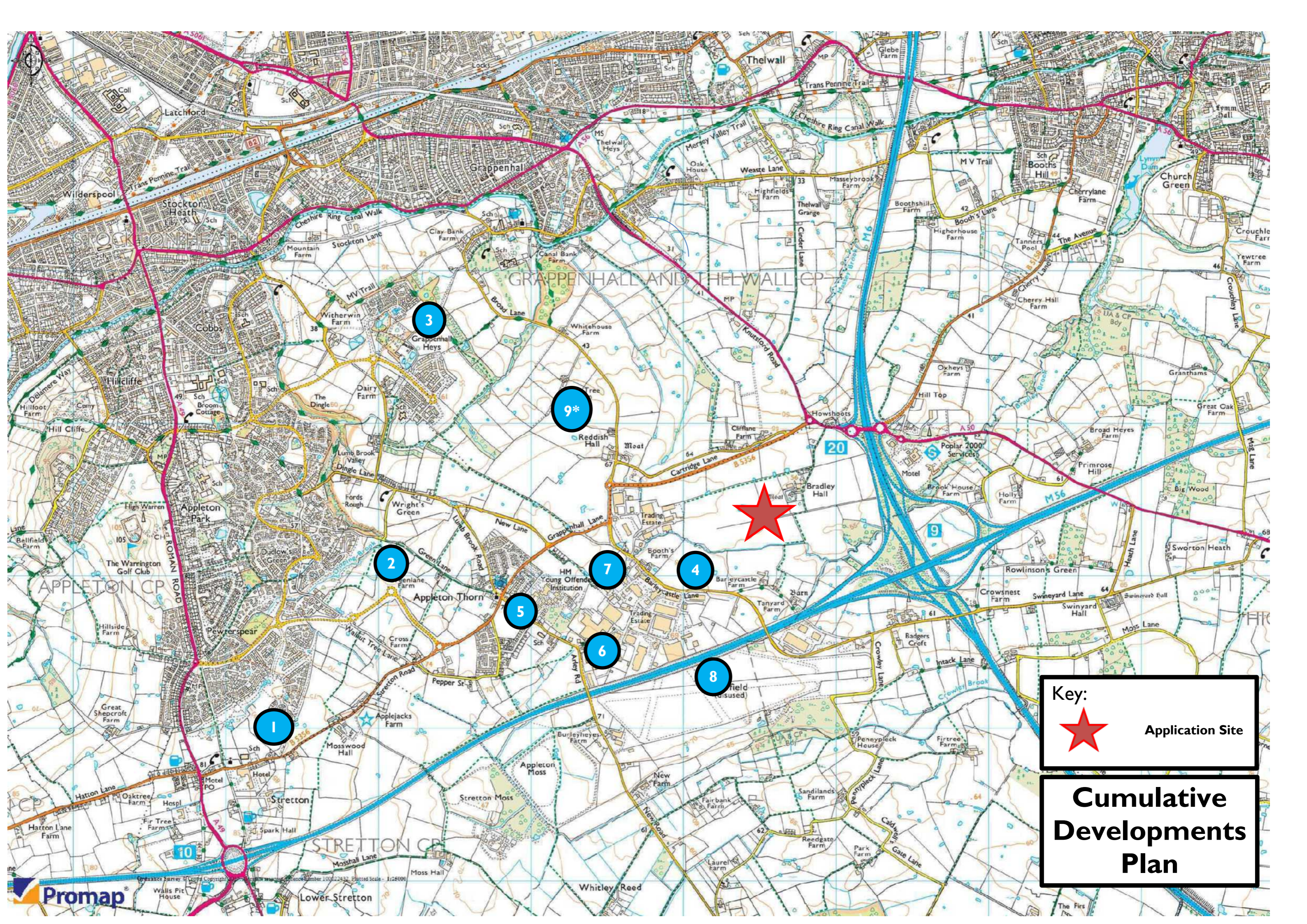
| Site Ref.  | Address/ Site Description  | Site Size |
|--|--|-----------|
| 8  | Omega South Zone 1B  | 18.27     |
| Stage 1 Considerations   |  | Score     |
| Motorway Access  | Less than 2.5km to M62 Junction  | √         |
| Trunk Road Access  | Estate road directly onto M/way junction   | √         |
| Public Transport   | Site is located close to a bus route   | √         |
| Separation (Sensitive Uses)  | Site is next to proposed residential site and PROW runs through the site but there is potential for mitigation | √         |
| Stage 2 Considerations   |  |           |
| Shape  | The site is irregularly shaped, but is large enough to accommodate regular shaped logistic buildings           | √         |
| Proximity to Key Settlement  | Proximity to Warrington (within 1 km)  | X/√       |
| Topography   | Relatively flat  | √         |
| Flood Risk   | Flood Zone 1   | √         |
| Stage 3 Green Belt Purposes Test (if Applicable)   |  |           |
| To check the unrestricted sprawl of large built-up areas   | N/A  | N/A       |
| To prevent neighbouring towns merging into one another;  |  |           |
| To assist in safeguarding the countryside from encroachment;   |  |           |
| To preserve the setting and special character of historic towns  |  |           |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.   |  |           |
| Other Site Considerations  |  |           |
| Land Use/ Neighbouring uses  | Industrial, office (B1a) and residential   |           |
| Market   | The site is within an established and successful logistics park with direct access on to the M62               |           |
| Summary/ Comments  |  |           |
| The site is within an established industrial and logistics park and benefits from direct access on to the M62. Omega Zone 7 is exclusively for manufacturing and logistics floorspace. The site is too small to accommodate the whole of the Six 56 proposals. |  |           |

| Site Ref.  | Address/ Site Description   | Site Size |
|--|---|-----------|
| 9  | Fiddlers Ferry Power Station  | 330ha     |
| Stage 1 Considerations   |   | Score     |
| Motorway Access  | The Site is over 2.5km from the M62   | X         |
| Trunk Road Access  | Site is located close to the A562   | √         |
| Public Transport   | Bus routes nearby on Widnes Road  | √         |
| Separation (Sensitive Uses)  | No adjacent sensitive uses  | √         |
| Stage 2 Considerations <sup>62</sup>   |   |           |
| Shape  | Regular shape   | √         |
| Proximity to Key Settlement  | The site is located within 1 km of a key settlement (Widnes)                  | X/√       |
| Topography   | Relatively flat   | √         |
| Flood Risk   | Flood Zone 1  | √         |
| Stage 3 Green Belt Purposes Test (if Applicable)   |   |           |
| To check the unrestricted sprawl of large built-up areas   | N/A   | N/A       |
| To prevent neighbouring towns merging into one another;  |   |           |
| To assist in safeguarding the countryside from encroachment;   |   |           |
| To preserve the setting and special character of historic towns  |   |           |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.   |   |           |
| Other Site Considerations  |   |           |
| Land Use/ Neighbouring uses  | Agricultural land, chemical works and residential development                 |           |
| Market   | Secondary location due to poor accessibility to the strategic highway network |           |
| Summary/ Comments  |   |           |
| Fiddlers Ferry is an active power station. Therefore, it is currently not available for B8 logistics use. Furthermore, even when decommissioned there will be extensive demolition and remediation necessary before the site is ready for employment/logistics uses. |   |           |

| Site Ref.   | Address/ Site Description  | Site Size    |
|---|--|--------------|
| 10  | Six 56, Warrington   | 97           |
| <b>Stage 1 Considerations</b>   |  | <b>Score</b> |
| Motorway Access   | Close to Junction 20 of the M56 and M6 junction  | √            |
| Trunk Road Access   | The site links on to the A50   | √            |
| Public Transport  | Bus routes over 400m from the site   | X            |
| Separation (Sensitive Uses)   | A number of residential properties and a scheduled monument are located within the site, but there is space for buffering and mitigation                                       | √            |
| <b>Stage 2 Considerations</b>   |  |              |
| Shape   | Regular shaped site  | √            |
| Proximity to Key Settlement   | The site is over 1 km from Warrington  | X            |
| Topography  | Relatively flat land   | √            |
| Flood Risk  | Flood Zone 1   | √            |
| <b>Stage 3 Green Belt Purposes Test (if Applicable)</b>   |  |              |
| To check the unrestricted sprawl of large built-up areas  | Site borders on to the urban area and is reasonably well contained   | X/√          |
| To prevent neighbouring towns merging into one another;   | The site does not fulfil a strategic green belt function and would not lead to merging of settlements.   | √            |
| To assist in safeguarding the countryside from encroachment;  | The Development would lead to encroachment into the countryside, but the site has relatively strong boundaries in terms of roads, motorways and field boundaries.              | X/√          |
| To preserve the setting and special character of historic towns   | The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.   | √            |
| To assist in urban regeneration by encouraging the recycling of derelict and other urban land.  | The site is predominately greenfield.  | X            |
| <b>Other Site Considerations</b>  |  |              |
| Land Use/ Neighbouring uses   | Industrial to the west, the motorway (M6) to the east and agricultural land to the north and south.  |              |
| Market  | The site is located within an area where there is high demand for logistic sites because of its proximity to the M6 and M56. As evidenced in the EDNA and JLL Marketing Report |              |
| <b>Summary/ Comments</b>  |  |              |
| The site is located in the south of Warrington where there is significant pent-up demand and a shortage of available B8 premises to take advantage of the strategic location close to the M6 and M 56. The site has scored relatively poorly in respect to accessibility, but by their very nature logistics sites need to be located away from urban areas and close to the Strategic Highway Network. |  |              |

## **ES Part I Appendix I I**






GRAPPENHALL AND THELWALL CP

APPLETON CP

STRETTON CP

Key:



Application Site

# Cumulative Developments Plan

## ES Part I Appendix I 2

**Langtree PP and First Panattoni**

# **Six: 56 Warrington**

## **Environmental Impact Scoping Report**

Revision B 23 February 2018



This Environmental Scoping Request Report is prepared in association with:



**Stephen George**  
+ Partners LLP  
Architects + Masterplanners



Spawforths has been accepted as a registrant to the Institute of Environmental Management and Assessment's (IEMA) EIA Quality Mark scheme. The EIA Quality Mark demonstrates Spawforths commitment to excellence when providing environmental impact assessment services.

## Revision Record

| Revision Reference | Date of Revision | Nature of Revision | Author | Checked By |
|--------------------|------------------|--------------------|--------|------------|
| B                  | 23 February 2018 |                    | JR     | AP / DR    |

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**Appendices:**

- Appendix 1 – Location Plan (National, Regional, Local Context)
- Appendix 2 – Redline Application Boundary Plan
- Appendix 3 – Parameter Plan (for Scoping)
- Appendix 4 – Key Receptors
- Appendix 5 – Cumulative Development Plan
- Appendix 6 – Topographical Plan
- Appendix 7 - Constraints and Opportunities Plan
- Appendix 8 – Geology and Ground Conditions
  - Baseline Geotechnical and Geoenvironmental Assessment
  - Phase I Geotechnical and Geoenvironmental Assessment
- Appendix 9 - Traffic and Transportation:
  - Plan of Junctions Assessed
- Appendix 10 - Flood Risk and Drainage:

- Drainage and Flood Risk Baseline Assessment

Appendix 11 – Landscape and Visual Impact:

- LV1 - Extract of plan from the Warrington Borough Council Green Belt Assessment 2017
- LV 2-3 - National Character Areas Plan and Local Character Areas Plan
- LV 4-6 - Zone of Theoretical Visibility Plans
- LV 7 - Field Work Zones Plans
- LV 8-26 - Photographs from the Landscape and Visual Baseline Fieldwork
- LV27-33 - Arboricultural Assessment Report and Plans

Appendix 12 - Ecology and Nature Conservation:

- Preliminary Ecological Appraisal

Appendix 13 - Noise and Vibration:

- Environmental Noise Baseline Assessment

Appendix 14 - Lighting Baseline Assessment

Appendix 15 – Glossary and Abbreviations

# I. Overview

## Summary of Proposals

1.1. Spawforths are to submit a planning application for a strategic employment development on land adjacent to Junction 20 of the M6 Motorway and Junction 9 of the M56 Motorway (known as Six:56 Warrington), on behalf of Langtree Property Partners and First Panattoni. This will be in the form of an outline planning application with all matters, apart from access to the Site reserved for consideration at a later date.

1.2. The description of development is as follows:

### **Matters of Outline**

*The outline application (all matters reserved except for means of access) comprises demolition of existing buildings and the construction of up to 325,150m<sup>2</sup> (3.5 million ft<sup>2</sup>) (gross internal) of employment floorspace (Use Class B8 and B2 and B1 (a) offices) and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation and alteration of existing access road into site including works to existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.*

1.3. The Site is located in the North West of England. It is predominantly within the local authority area of Warrington, with the areas identified for proposed ecological mitigation to the south of the site (south of Bradley Brook), located within Cheshire East's local authority area. The site's location in the national and regional context is shown on the plans below in red and on the plans at a larger scale within **Appendix I**:



**Figure I.1: National Context**

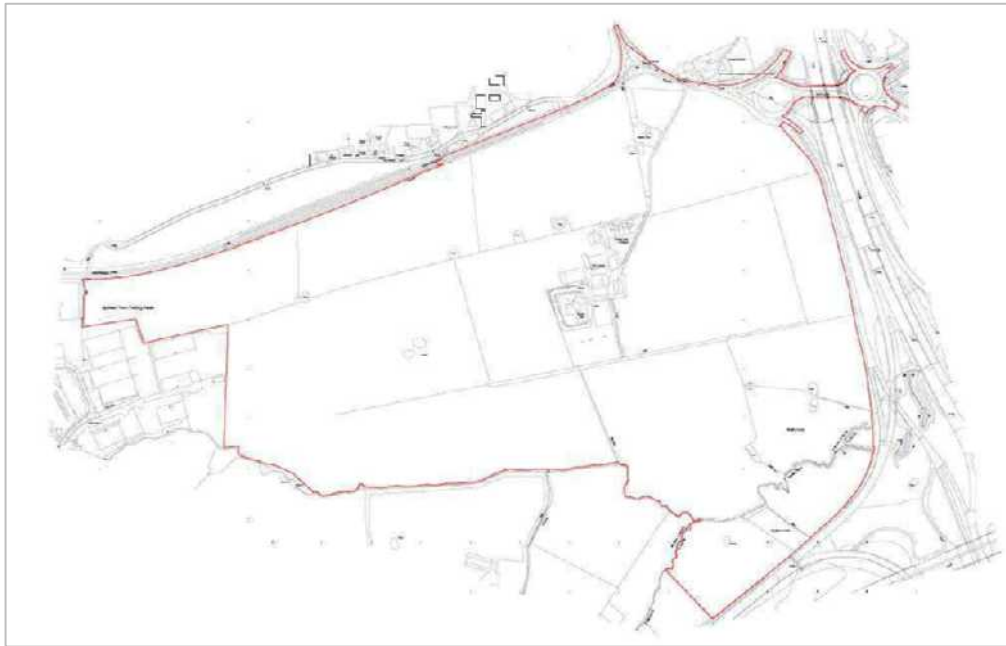


**Figure I.2: Regional Context**

I.4. The Site is located to the southeast of the town of Warrington (approximately 6 km (3.5 miles) from the town centre) and between the cities of Liverpool and Manchester

(approximately 22km (13 miles) and 31km (19 miles) respectively). It is also located approximately 16km (10 miles) from Manchester Airport.

- 1.5. The site is shown on the plans below and on the plans within **Appendix 2**:



**Figure 1.3: Application Site Boundary**

- 1.6. Plans within **Appendices 1** and **2** show the site location and the plan within **Appendix 3** shows the parameters of the proposals which are currently evolving and which will evolve further as the environmental assessment work is undertaken. This has been informed, in part, by the Site Topography and Constraints and Opportunities included in **Appendix 6**, the Key Receptors, which are shown on a series of plans within **Appendix 4** and a series of baseline reports included in **Appendices 8 to 14**. The plan at **Appendix 5** shows the projects to be considered as part of the cumulative assessment.

## Summary of Approach to EIA

- 1.7. The Proposed Development does not fall within Schedule 1 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as “the EIA Regulations”) where an Environmental Statement (ES) is mandatory. However, the

Proposed Development does fall within Schedule 2 of the EIA Regulations as an “Urban Development Project, including the construction of shopping centres and car parks, sports stadiums, leisure centres and multiplex cinemas”.

- 1.8. An Environmental Impact Assessment (EIA) is not needed for every Schedule 2 project. However as the Proposed Development is likely to give rise to “significant effects on the environment by virtue of factors such as its nature, size or location” due to the scale and nature of the Proposed Development, the surroundings and the likely cumulative effects with other development, there is a need to fully assess the environmental impacts of the Proposed Development. The proposals are therefore considered to constitute EIA Development and as such, in line with the EIA Regulations, the planning application will be accompanied by an Environmental Statement (ES). On this basis, a Screening Opinion has not been sought from the Local Authority as the Proposed Development is considered to be EIA development.
- 1.9. This report is a request for a Scoping Opinion from the Planning Authority to agree the scope and level of detail of information to be provided within the ES that will be produced for submission with the planning application. This Scoping Request is submitted in line with Part 4, Regulation 15 (1) and (2) of the EIA Regulations.

### Summary of Items to be ‘Scoped In’ and ‘Scoped Out’ of the ES

- 1.10. Each of the Technical Chapters within this Scoping Request Report (Chapters 7 to 18) set out the likely significant impacts to be considered further through the environmental assessment. A series of plans within **Appendix 4** identify the receptors that are relevant to each of the technical assessments. The summary tables below identify the items to be ‘scoped in’ and those to be ‘scoped out’ and these should be read in conjunction with each of the Technical Chapters of this report.

#### Scoped In

| Environmental Issue  | Reason for “scoping in”  |
|--|--|
| <b>Ground</b><br><i>Construction:</i><br>Temporary flood risk<br>Pollution to receptors<br>Unstable ground | Construction work will present new risks to the greenfield site. |

| Environmental Issue   | Reason for “scoping in”   |
|---|---|
| <p><b>Traffic and Transportation</b></p> <p><i>Construction:</i><br/> Driver Delay<br/> Pedestrian Amenity and Delay<br/> Road Safety<br/> Public Transport<br/> Severance</p> <p><i>Operation:</i><br/> Driver Delay<br/> Pedestrian Amenity and Delay<br/> Road Safety<br/> Public Transport<br/> Severance</p>   | <p>The development is likely to result in additional traffic on the highway network during the construction and operational phase. This may impact on all of the environmental issues listed.</p>   |
| <p><b>Flood Risk &amp; Drainage</b></p> <p><i>Construction:</i><br/> Temporary flood risk and pollution to watercourse due to incomplete systems/spills.</p> <p><i>Operation:</i><br/> Flood risk, pollution to watercourse and impact to aquifer.</p>  | <p>The sites previous greenfield classification and the potential for increased flows, collection, concentration and conveyance of storm water during construction and operational uses. The increased pathways for contamination and the location of the underlying Aquifer as well as the potential impact on adjacent uses, construction workers and future site users.</p>  |
| <p><b>Landscape and Visual Impact</b></p> <p><i>Construction and Operation:</i><br/> Visual receptors on roads, PRoW's, in local open space, educational locations and dwellings identified within the 5km study area.<br/> Landscape receptors identified within the 5km study area, especially where there is a distinct change in character or type to the current landscape;<br/> Security and compound lighting.</p>   | <p>The significance of the effect will potentially be greater than Slight.</p>  |
| <p><b>Ecology and Nature Conservation</b></p> <p><i>Construction:</i><br/> Impacts to habitats e.g. loss or damage<br/> Impacts to protected and priority species e.g. loss of habitat that supports them or disturbance<br/> Spread of invasive non-native species (INNS)<br/> Impacts to badgers</p> <p><i>Operation:</i><br/> Impacts to protected sites e.g. recreational disturbance/degradation<br/> Impacts to habitats e.g. degradation<br/> Impacts to protected and priority species e.g. disturbance<br/> Impacts to badgers</p> | <p>Impacts to habitats and species of ecological importance must be considered under local and national planning policy and legislation.<br/> Spread of INNS is prohibited under in the WCA 1981.<br/> Badgers are afforded legal protection from disturbance, killing and injury under the PBA 1992.<br/> Impacts to protected sites, habitats and species of ecological importance must be considered under local and national planning policy and legislation.</p> |
| <p><b>Socio Economic</b></p> <p><i>Construction:</i></p> <ul style="list-style-type: none"> <li>• Temporary increase in employment</li> <li>• Short-term increase in economic output (GVA)</li> <li>• Training and apprenticeship opportunities</li> <li>• Effects on local services and facilities</li> <li>• Wider socio-economic impacts</li> </ul>  | <p>The provision of new B8 and B2 floorspace through the Proposed Development will support the creation of a significant number of new employment opportunities, both during the Construction Phase and Operational Phase. This is expected to lead to further impacts relating to training and apprenticeship opportunities, demand for local services and wider socio-economic impacts, along with potential effects</p>  |

| Environmental Issue  | Reason for “scoping in”  |
|--|--|
| <p><i>Operation:</i></p> <ul style="list-style-type: none"> <li>• Creation of long-term employment opportunities</li> <li>• Long-term increases in economic output (GVA)</li> <li>• Increase in business rate revenue</li> <li>• Training and apprenticeship opportunities</li> <li>• Effect on local labour market</li> <li>• Commuting and migration impact</li> <li>• Effect on local services and facilities</li> <li>• Wider socio-economic impacts</li> </ul>  | <p>on the local labour market and commuting patterns during the Operational Phase.</p>   |
| <p><b>Noise and Vibration</b></p> <p><i>Construction Phase:</i><br/> Noise impacts associated with construction related fixed and mobile plant<br/> Noise impacts associated with increase in traffic on approach to Application Site due to construction related vehicles<br/> Vibration impacts associated with construction related fixed plant and mobile plant (e.g. piling)</p> <p><i>Operation Phase:</i><br/> Noise impacts associated with resultant increases in traffic on the local highway network surrounding the Application Site following completion of the Proposed Development</p> <p>Noise impact associated with the “industrial” noise emissions from the Proposed Development e.g. movement of industrial vehicles, operation of service yards and loading bays and operation of building services plant.</p> | <p>There is the potential for significant impacts at nearby sensitive receptors</p>  |
| <p><b>Air Quality, Odour and Dust</b></p> <p><i>Construction:</i><br/> Dust<br/> Changes in NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> due to construction traffic if HGV numbers exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i><br/> Changes in NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> due to changes in operational traffic</p>  | <p>During construction there is the potential for fugitive dust and exhaust emissions from the Assessment Site.</p> <p>The operation of the Proposed Development has the potential to change the number, type and speed of vehicles using the local road network. The main pollutants from road traffic with potential for local air quality impacts are nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM<sub>10</sub>). Emissions of total NO<sub>x</sub> from combustion sources comprise nitric oxide (NO) and NO<sub>2</sub>. The NO oxidises in the atmosphere to form NO<sub>2</sub>. The assessment of operational impacts will therefore focus on changes in NO<sub>2</sub> and PM<sub>10</sub> concentrations. The impact from fine particulate matter, known as PM<sub>2.5</sub> (a subset of PM<sub>10</sub>) concentrations will also be considered. Increases in NO<sub>2</sub> and PM can lead to an increase in cardiovascular diseases.</p> |
| <p><b>Cultural Heritage and Archaeology:</b></p>   |  |



| Environmental Issue  | Reason for “scoping in”  |
|--|--|
| Bradley Hall Moated Site ( <b>DCH159</b> )   | The Proposed Development will negatively impact the setting of the scheduled monument.   |
| Grade II* Listed Tanyard farm building ( <b>DCH13677</b> )   | Development will diminish the agricultural setting of the farm building.   |
| Grade II Listed Barley Castle Farmhouse ( <b>DCH1935</b> )   | Development will affect the agricultural setting to the asset.   |
| Effect on demolition of Locally listed Bradley Hall and Barn ( <b>DCH127563</b> )  | Demolition will result in the loss of a locally listed asset   |
| Roman road ( <b>547/1/7</b> ) within the site  | Groundworks and construction activities will impact any surviving sections of Roman road.  |
| Roman road ( <b>547/1/7</b> )  | Groundworks and construction activities will impact any features associated with the Roman road.   |
| Medieval Cross ( <b>551</b> )  | Groundworks and construction activities will impact the site of the medieval cross.  |
| <p><b>Utilities</b></p> <p><i>Construction:</i><br/>Disconnections / Diversions of existing utility infrastructure crossing the site.<br/>New EHV Primary sub-station.<br/>Temporary proposed utilities to site.</p> <p><i>Operation:</i><br/>Disruption to existing connections to residential properties adjacent Bradley Hall Farm.</p>   | <p>Existing services are required to be disconnected and relocated to facilitate the Proposed Development.</p> <p>A new EHV Primary sub-station is required to provide the Electrical power to the Proposed Development from Scottish Power’s network.</p> <p>Temporary utilities are required for construction activities and offer a more energy efficient and acoustic solution.</p> <p>Disruptions are likely which are associated with the diversion and disconnection works.</p> |
| <p><b>Waste</b></p> <p><i>Construction:</i><br/>The types and likely quantities of waste generated during the construction of the Proposed Development.<br/>The treatability of waste generated by the Proposed Development<br/>The measures to manage wastes.</p> <p><i>Operation:</i><br/>The types and likely quantities of waste generated during the operation of the Proposed Development.<br/>The treatability of waste generated by the Proposed Development<br/>The measures to manage waste.</p> | <p>The additional waste generated by the Proposed Development may exceed the capacity of existing and proposed waste management infrastructure.<br/>The types of waste generated may have to be transported outside the borough or county to be managed.<br/>National and local policies set requirements for how to manage types of waste.</p>  |
| <p><b>Energy</b></p> <p>Baseline energy model of speculative units.</p> <p>Energy and CO<sub>2</sub> emissions.</p>  | <p>To establish baseline Energy use and Carbon emissions.</p> <p>Due to increased energy and subsequent CO<sub>2</sub> required for the proposed development.</p>  |

| Environmental Issue                   | Reason for “scoping in”   |
|---------------------------------------|---|
| Reduce demand to Proposed Development | To mitigate the energy and CO <sub>2</sub> produced. Refer to table 18.9 within this paper.     |
| Energy efficient systems              | To mitigate the energy and CO <sub>2</sub> produced. Refer to table 18.9 within this paper.     |
| Renewable and Low Carbon Technologies | To mitigate the energy and CO <sub>2</sub> produced. Refer to table 18.10 within this paper.    |
| <b>Cumulative Assessment</b>          | Section 6 of this Report identifies the projects to be scoped in for the Cumulative Assessment. |

**Table 1.1: Environmental Issues Scoping In**

### Scoped Out

| Environmental Issue   | Reason for “scoping out”  |
|---|---|
| <b>Ground Conditions and Contamination</b><br>Ground Gas  | Ground gas is not considered to represent a significant risk due to the absence of a significant source. The proposed cutting and filling exercise is unlikely to make a significant difference to the site contaminative status and is therefore not considered further.   |
| <b>Flood Risk &amp; Drainage</b><br><i>Construction:</i><br>Hydromorphological changes<br><i>Operation:</i><br>Hydromorphological changes                                   | The Development does not change the physical form or functioning of a waterbody. The brook system to the southern boundary will be retained in its current form with no more than greenfield runoff being discharged. The Development will have no effect on the flow dynamics of the river.  |
| <b>Flood Risk &amp; Drainage</b><br><i>Construction:</i><br><i>Moat around Bradley Hall - Hydrology</i><br><i>Operation:</i><br><i>Moat around Bradley Hall - Hydrology</i> | <i>There will be no implications from the development on the hydrology of the moat. The moat is not a permanent water feature and the conveyance of storm water to the moat from surrounding areas (other than internally) is very limited and the development will have no impact on the operation/quality of the moat or its waters. There is no physical connectivity to the moat from the surrounding site.</i> |

| Environmental Issue   | Reason for “scoping out”  |
|---|---|
| <p><b>Landscape and Visual Impact Assessment</b></p> <p>Visual receptors beyond the 5km study area.</p> <p>Visual receptors in airplanes passing overhead on flight path into or out of Manchester airport</p> <p>Visual receptors travelling along the M6 &amp; M56 Motorways</p> <p>Visual receptors at Barleycastle Industrial Estate.</p> | <p>Receptors over 5km will not be affected by the proposed development.</p> <p>Airplanes passing over will not be affected by the proposed development as the site will be seen in the context of the nearby motorways and the Barleycastle Trading Estate.</p> <p>Views towards the site are well screened and the impact upon views travelling at speed (70mph) by both passengers and drivers will be negligible.</p> <p>The sensitivity of views towards the site from the Barleycastle Trading Estate will be low, given the context of the existing light industrial units.</p>       |
| <p><b>Ecology and Nature Conservation</b></p> <p><i>Construction:</i></p> <p>Arable, improved grassland and tall ruderal habitats</p>   | <p>Habitats are of low value and do not need to be considered further. However, the protected species that they may host will be considered further in the fauna section of the ES chapter.</p>   |
| <p><b>Socio Economic</b></p> <p><i>Construction:</i></p> <p>Effect on local labour market</p> <p>Commuting and migration impact</p>   | <p>Commuting and migration impacts and the effect on the local labour market will be considered in relation to the Operational Phase. However, these impacts have not been considered as part of the Construction Phase, given the temporary and transient nature of construction related employment.</p>   |
| <p><b>Noise and Vibration</b></p> <p><i>Operation Phase:</i></p> <p><i>Operational vibration impacts</i></p>  | <p>Based on the nature of operations associated with B8 storage or distribution units, as well as the distances involved between B8 units and sensitive receptors, it is not considered that any element of the typical operational activities undertaken at B8 units will result in any significant vibration impacts.</p> <p>It is therefore considered that the only potential source of vibration associated with the operational phase of the scheme is additional HGV movements on existing road networks. However, due to existing quantities of HGV movements on the local road</p> |

| Environmental Issue  | Reason for “scoping out”  |
|--|---|
|  | <p>network, vibration values attributable to additional HGVs travelling to / from the Application Site would not be considered significant.</p> <p>On this basis, the assessment of potential Operational vibration impacts can be scoped out of the ES assessment.</p> |
| <p><b>Air Quality, Odour and Dust</b></p> <p><i>Construction:</i></p> <p>Changes in NO<sub>2</sub> , PM<sub>10</sub> and PM<sub>2.5</sub> due to construction traffic if HDV numbers do not exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i></p> <p>Odour</p> <p>Dust</p>  | <p>Unlikely to have a significant impact if below the threshold.</p> <p>There are no proposed sources of odour or dust during the operational phase.</p>  |
| <p><b>Cultural Heritage and Archaeology</b></p> <p>DCH1638 Yew Tree Farmhouse Grade II Listed Building I139340</p> <p>DCH1659 Beehive Farmhouse Grade II Listed Building I139361</p> <p>DCH1660 Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I139362</p> <p>DCH1934 Booths Farm Farmhouse Grade II Listed Building I329740</p> <p>DCH12753 Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building</p> <p>DCH12869 Milepost at Gallows Croft, Knutsford Road, Lymm</p> <p>DCH12879 Old Chapel, Old Cherry Lane, Lymm Locally Listed Building</p> <p>DCH13677 Tan House Farm, Barleycastle Lane, Appleton</p> | <p>No impact on the setting of these assets</p>   |
| <p><b>Utilities</b></p> <p><i>Construction:</i></p> <p>Disconnections of services to the existing Telecommunication mast.</p>  | <p>Telecommunications mast is to remain operational and services diverted.</p>  |

| <b>Environmental Issue</b>   | <b>Reason for “scoping out”</b>  |
|--|--|
| <p><i>Operation:</i><br/>Relocation of the existing Telecommunication mast.</p>  | <p>The Telecommunications mast is to remain in its current location and is not affected by the Proposed Masterplan.</p>  |
| <p><b>Waste</b><br/><i>Operation:</i><br/>Local Authority Collected Waste, Agricultural Waste, Low Level (Non -Nuclear) Radioactive Waste, and Waste Water/Sewage Sludge</p> | <p>These types of waste will not be generated by the Proposed Development</p>  |
| <p><b>Energy</b><br/>Future tenant specific Energy modelling.<br/><br/>Renewable Technologies deemed not appropriate</p>   | <p>Detailed operation unknown at this stage.</p> <p>Some Renewable Technologies are deemed not appropriate for the Proposed Development and are therefore not to be considered during future design works. Refer to table 18.10 within this paper.</p> |
| <p><b>Cumulative Assessment</b></p>  | <p>Section 6 of this Report identifies the projects to be scoped out of the Cumulative Assessment.</p>   |

**Table 1.2: Environmental Issues Scoping In**

## 2. Introduction and Background

- 2.1. Spawforths have been instructed by Langtree PP and First Panattoni to prepare and submit an outline planning application for land adjacent to Junction 20 of the M6 Motorway and Junction 9 of the M56 Motorway (known as Six:56 Warrington). The proposal comprises 325,150m<sup>2</sup> (3.5 million ft<sup>2</sup>) (gross internal) of employment floorspace (Use Class B8 and B2 with ancillary B1(a) Office space) and associated development.
- 2.2. The applicants have taken professional advice from a competent development team and supplementary information has been prepared in support of this scoping request by the following consultants:

- Project Management – Ridge and Partners LLP
- Planning – Spawforths
- Environmental Assessment Co-ordination - Spawforths
- Masterplan and Design – Stephen George and Partners
- Ground Conditions – Cundall
- Traffic and Transportation – Curtins
- Flood Risk and Drainage – Cundall
- Landscape and Visual Impact – Munro and Whitten
- Ecology and Nature Conservation – Tyler Grange
- Socio Economic – Amion
- Noise and Vibration – Cundall
- Air Quality and Dust – RPS
- Cultural Heritage and Archaeology – BWB
- Utilities – Ridge and Partners LLP
- Waste – RPS
- Energy – Ridge and Partners LLP

- 2.3. A statement confirming the relevant experience and qualifications of the development team will be provided with the ES in line with the EIA Regulations (Part 5, Regulation 18(5b)).

### History

- 2.4. The Site is currently predominantly undeveloped being in use only for arable and both livestock / cattle production. Historically the site has no recorded use other than agricultural, although anecdotally it is known that part of the Site may have been used as a decoy during the Second World War.

- 2.5. Located at the near center of the site is Bradley Hall Moated site which is scheduled under the Ancient Monuments and Archaeological Area Act 1979. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house which date from the 14<sup>th</sup> Century. The medieval manor house no longer remains and has been replaced with a more recent house and barn. Between the early 18<sup>th</sup> and the early 19<sup>th</sup> century the hall was considerably altered as was the location and extent of the moat. Analysis of later maps show the addition of a number of outbuildings to the hall as well as a number of agricultural buildings immediately to the northwest of the moat.

## Policy and Guidance

- 2.6. Policy, guidance and legislation relevant to each technical area of the environmental assessment is set out within the Introduction and Baseline Section of Chapters 7 to 18 in this report.
- 2.7. The National Planning Policy Framework (the Framework) (2012) provides the national planning policy and promotes sustainable economic growth and seeks to support economic recovery through the planning system. National Planning Practice Guidance (NPPG) provides additional guidance.
- 2.8. Local Planning Policy is provided within the Warrington Local Plan Core Strategy (July 2014). Following a High Court Challenge, Warrington's housing target within the Core Strategy was quashed in the High Court in February 2015. Warrington Council is therefore committed to establishing a new evidence base of housing and employment needs and pursuing a new Local Plan.
- 2.9. The South Warrington Urban Extension Framework Plan Document (SWUEFP) (June 2017) produced on behalf of Warrington Borough Council as part of their evolving planning policy, classifies the Site for redevelopment for Employment Use.
- 2.10. The planning policy context will be set out fully within the Environmental Statement to be submitted with the outline planning application.

## 3. Approach to Scoping

### Environmental Impact Regulations

- 3.1. The Proposed Development does not fall within Schedule 1 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as “the EIA Regulations”) where an Environmental Statement (ES) is mandatory. However, the Proposed Development does fall within Schedule 2 of the EIA Regulations as an “Urban Development Project, including the construction of shopping centres and car parks, sports stadiums, leisure centres and multiplex cinemas” in excess of one hectare of urban development which is not a dwelling house development / includes more than 150 dwellings / the overall area is in excess of five hectares.
- 3.2. Nevertheless, an Environmental Impact Assessment is not needed for every Schedule 2 project. The EIA Regulations and the PPG (Planning Practice Guidance) are clear that an Environmental Impact Assessment (EIA) is required for Schedule 2 projects only if they are likely to give rise to “significant effects on the environment”.
- 3.3. Due to the scale, nature and surroundings, there is a need to fully assess the environmental impacts of the development. It is therefore considered that the Proposed Development falls within Schedule 2 of the Regulations and accordingly an ES will follow this Scoping Request. On this basis, a Screening Opinion has not been sought from the Local Authority as the Proposed Development is considered to be EIA development.

### Scoping Requirements

- 3.4. As the Proposed Development is considered to require EIA, a Scoping Report can be produced under the EIA Regulations. In line with best practice, this Scoping Report seeks to set out the relevant environmental issues which should be assessed as part of the ES. This will be done through consultation with Warrington Council, statutory consultees and other interested groups. In accordance with Regulations Part 4 (15), this Scoping Report sets out a description of the project (Chapter 4), including the nature and purpose of the development, including its location and technical capacity. Location plans are included at **Appendices 1 and 2**.



3.5. Further information includes a Parameter Plan at **Appendix 4** which identifies the key parameters to the Proposed Development. These will evolve through further environmental assessment and will inform an indicative masterplan, which will be submitted with the planning application and ES to show how the Site could be developed in line with the parameters set for the Proposed Development.

3.6. Sections 7 through to 18 include a series of topic scoping chapters which include an explanation of the likely significant effects of the development on the environment and therefore issues to be assessed as part of the ES. These should be read alongside the Key Receptor Plans included at **Appendix 4** and a series of baseline reports in **Appendices 8 to 14**. The topic scoping chapters include:

- Chapter 7 - Ground Conditions and Contamination
- Chapter 8 - Traffic and Transportation
- Chapter 9 - Flood Risk and Drainage
- Chapter 10 - Landscape and Visual Impact
- Chapter 11 - Ecology and Nature Conservation
- Chapter 12 - Socio Economic
- Chapter 13 - Noise and Vibration
- Chapter 14 - Air Quality (including odour and dust)
- Chapter 15 - Cultural Heritage and Archaeology
- Chapter 16 - Utilities
- Chapter 17 - Waste
- Chapter 18 - Energy

3.7. Each of these topic chapters is laid out as follows:

- Introduction
- Baseline Information
- Alternatives Considered
- Potential Environmental Impacts
- Methodology for the Environmental Statement
- Significance of Effects
- Mitigation
- Additive Impacts (Cumulative Impacts)

- Further Work Required
- Summary

3.8. The scoping of matters associated with Human Health are addressed through the Ground Conditions and Contamination, Air Quality, Noise and Vibration and Socio Economic Chapters. Matters associated with Climate are addressed within the Flood Risk and Drainage, Ecology and Nature Conservation, Air Quality and Energy Chapters. Soil matters are addressed within the Ground and Contamination Chapter, which will also be supported by an Agricultural Land Assessment.

## Aims and Process

3.9. Scoping is the process of determining the content and extent of matters to be covered by the Environmental Impact Assessment and in the resulting Environmental Statement (ES). Scoping is not mandatory for every application, but the EIA Regulations provide a mechanism for developers to agree the scope of the EIA formally through the request for a 'scoping opinion'. Scoping helps to focus minds on the submission and the feedback received from ES consultees may also provide developers and their project teams with a different perspective on likely environmental effects. The benefits of scoping can be summarised as:

- Local Planning Authorities (LPA): an opportunity to influence the ES in the early stages of preparation to ensure that specific concerns, based on local understanding are properly addressed.
- Developers: to identify primary concerns at an early stage in the process that appropriate surveys can be conducted, stakeholders consulted and methods agreed prior to submission of the application.
- Consultees: to ensure that principal concerns appropriate to the local area are addressed comprehensively.
- Overall a more concise ES focusing on the key issues of concern and one that should minimise the need to request further information thereby accelerating the decision-making process.

- 3.10. Importantly, the scoping process should seek to discount, or 'scope out', those issues where significant effects are unlikely.

## Methodology for the Assessment of Significant Effects

- 3.11. The EIA Regulations stipulate that an ES should, where possible, identify, describe and assess the likely effects of the development on the environment. The methodology has three stages to identify the effects:
- Receptors
  - Environmental Impacts
  - Significant Effects

### Receptors

- 3.12. The significance of an effect is relative to the sensitivity or quality of a receptor. Receptors are set out in accordance with the magnitude of their importance. Some receptors are given relatively high levels of importance through legislation, such as designated conservation sites or world heritage sites. Determining the importance of other receptors can be more subjective. To maintain consistency in how receptors are considered, this scoping report assesses each one in relation to the following hierarchy:
- International
  - National
  - Regional
  - County
  - Borough/District
  - Local/Neighbourhood
- 3.13. Each environmental topic area within this report has outlined the relevant receptors and how they fit within the above hierarchy. A series of plans showing the receptors are included at **Appendix 4**. The scoping report provides an opportunity for consultees to have an input into the designation of each receptor.

## **Environmental Impacts**

3.14. This Scoping Report will adopt the standard approach of assessing the impacts of the relevant area of the proposals. These impacts have been developed giving due regard to the following:

- Beneficial and adverse impacts
- Short, medium and long term impacts
- Direct and indirect impacts
- Permanent and temporary impacts
- Cumulative impacts

3.15. Each of the impacts assessed will be categorised as being

- Neutral
- Negligible
- Minor
- Moderate
- High
- Substantial

3.16. These impacts can be classified as being either positive or negative.

## **Significant Effects**

3.17. Once the receptors and impacts have been established they need to be assessed against each other to provide the likely significant effects. Each of these will be considered in relation to the following:

- Extent and magnitude of the effect
- Effect duration (whether short, medium or long term)
- Effect nature (whether direct or indirect, reversible or irreversible)
- Whether the effect occurs in isolation, is cumulative or interactive
- Performance against environmental quality standards or other relevant pollution
- control thresholds
- Sensitivity of the receptor
- Compatibility with environmental policies

3.18. In order to define the magnitude of the effect the matrix in Table 3.1 has been developed. An effect will be categorised as being either:

- Substantial This **will** have a **significant** influence on the environment.
- High This **may** have a **significant** influence on the environment.
- Moderate This **will** have a **slight** influence on the environment.
- Minor This **may** have a **slight** influence on the environment.
- Negligible This **will not** have **any notable** influence on the environment.
- Neutral This **will not** have **any** influence on the environment.

3.19. The interaction or cumulative impact or nature of these effects is also important. In isolation the lower categories may not have a significant influence on decision making however in combination with a number of other effects, the significance may be increased.

|                     |                  | Sensitivity Value of Receptor |                     |                     |                     |                  |                  |                  |
|---------------------|------------------|-------------------------------|---------------------|---------------------|---------------------|------------------|------------------|------------------|
|                     |                  | International                 | National            | Regional            | County              | Borough          | Local            |                  |
| Magnitude of Effect | Positive         | Substantial                   | Substantial Benefit | Substantial Benefit | Substantial Benefit | High Benefit     | Moderate Benefit | Moderate Benefit |
|                     |                  | High                          | Substantial Benefit | Substantial Benefit | High Benefit        | Moderate Benefit | Moderate Benefit | Minor Benefit    |
|                     |                  | Moderate                      | Substantial Benefit | High Benefit        | High Benefit        | Moderate Benefit | Minor Benefit    | Minor Benefit    |
|                     |                  | Minor                         | Moderate Benefit    | Moderate Benefit    | Moderate Benefit    | Minor Benefit    | Minor Benefit    | Minor Benefit    |
|                     | Negligible       | Negligible                    | Negligible          | Negligible          | Negligible          | Negligible       | Negligible       |                  |
|                     | Neutral          | Neutral                       | Neutral             | Neutral             | Neutral             | Neutral          | Neutral          |                  |
|                     | Negligible       | Negligible                    | Negligible          | Negligible          | Negligible          | Negligible       | Negligible       |                  |
|                     | Negative Impacts | Minor                         | Moderate Adverse    | Moderate Adverse    | Moderate Adverse    | Minor Adverse    | Minor Adverse    | Minor Adverse    |
|                     |                  | Moderate                      | Substantial Adverse | High Adverse        | High Adverse        | Moderate Adverse | Minor Adverse    | Minor Adverse    |
|                     |                  | High                          | Substantial Adverse | Substantial Adverse | High Adverse        | Moderate Adverse | Moderate Adverse | Minor Adverse    |
| Substantial         |                  | Substantial Adverse           | Substantial Adverse | Substantial Adverse | High Adverse        | Moderate Adverse | Moderate Adverse |                  |

Significance Matrix

**Table 3.1 Significance Matrix**

## Impact Prediction Confidence

- 3.20. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description   |
|------------------|---|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.  |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

**Table 3.2: Impact Prediction Confidence**

## 4. Project Description

- 4.1. This section identifies the Site's location and context and describes the Proposed Development.

### Site Location and Context

- 4.2. The Site is located in the North West of England, predominantly within the local authority area of Warrington.
- 4.3. The Site is located to the southeast of the town of Warrington (approximately 6 km (3.5 miles) from the town centre) and between the cities of Liverpool and Manchester (approximately 22km (13 miles) and 31km (19 miles) respectively). It is also located approximately 16km (10 miles) from Manchester Airport.
- 4.4. The M56 Motorway and M6 Motorway interchange (Junction 20 and 20A of the M6 and Junction 9 of the M56 Motorways) is located adjacent to the south east of the Site, with the M56 Motorway running east-west to the south of the Site, providing links to Cheshire and Greater Manchester; and the M6 Motorway running north-south to the east of the Site, provide links to Lancashire, Staffordshire and Greater Manchester, as well as the M62 Motorway at Junction 22A of the M6 Motorway to the north, which provides links east-west to Liverpool, Greater Manchester and Yorkshire.
- 4.5. The Site is shown on the national and regional context plans below and on a larger scale on the plans within **Appendix I**.



**Figure 4.1: National Context Plans**

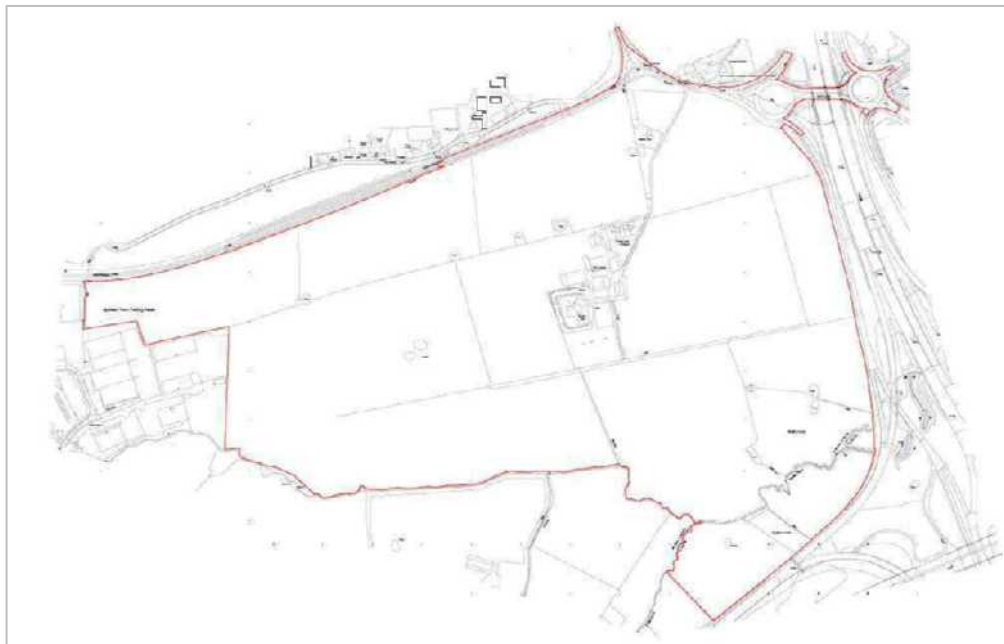


**Figure 4.2: Regional Context Plan**



- 4.6. The Site relates to an area of land of approximately 97 hectares (239 acres) in extent and is irregular in shape.
- 4.7. The Site is bound by the B5356 Grappenhall Lane and the A50 Cliff Lane to the north and motorway slip road to the east. Appleton Thorn Trading Estate, Barleycastle Trading Estate and Stretton Green Distribution Park are located to the west and Bradley Brook runs east-west to the southern boundary. The Site is predominantly farm land (arable and pastoral for cattle), with a series of hedges and trees to field boundaries. Bradley Hall Farm consists of farm house and a series of farm buildings as well as a number of neighbouring residential properties that are all within the Application Site. The farm buildings will be demolished as part of the proposals. Two options will however be considered for the residential houses located to the north of Bradley Hall Farm - Option 1 for the properties to remain in situ, and Option 2 for them to be demolished. Bradley Hall moated site is a Scheduled Ancient Monument located within the Site boundary, to the eastern part of the site, adjacent to the farm buildings. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house, which is to be retained. The moated island is partly occupied by a farm house associated with Bradley Hall Farm, which is excluded from the Scheduling, and which will be demolished as part of the Proposed Development.
- 4.8. Beyond the northern boundary of the Site (within the triangle of land outside of the Application Site to the south of Cliff Lane) is a residential property and associated outbuildings, which is accessed from the A50 Cliff Lane via the same access as Bradley Hall Farm. There is a Grade II\* and a Grade II Listed Building located beyond the south of the Site and to the north of Barleycastle Lane (Tanyard Farm Building and Barleycastle Farm House). There are other listed buildings within the wider area (see Cultural Heritage section below).
- 4.9. There are some wooded areas and wooded outcrops within the Site, including Bradley Gorse and Wrights Covert within the south east of the Site. A series of field boundaries consisting of hedgerows and trees and a number of ponds (ten in total) and ditches are located across the Site.
- 4.10. The character of the area is generally rural, with farms and agricultural land beyond the boundaries of the Site, predominantly to the north and south. However this is interrupted with the Strategic Highway Network and further industrial/logistic uses, most notably those beyond the Site boundary to the south, south west and east

4.11. The Site in its local context is shown on the plan below and in **Appendix 2**



**Figure 4.3: Application Site Boundary**

- 4.12. Vehicular access to the Site is currently via Bradley Hall Farm from the A50 Cliff Lane, which has direct access to Junction 20 of the M6 Motorway, as well as Junction 9 of the M56 Motorway. There are also four field access points available from the Site's 1.15km long frontage to the B5356 Grappenhall Lane.
- 4.13. There are three designated Public Rights of Way across the Site, all of which are Footpaths. Footpath No 28 runs between the residential properties adjacent to Bradley Hall Farm in the east and Appleton Thorn Trading Estate in the west, however no actual connection is available on foot into the trading estate at its western end. Also, Footpath No's 31 and 23 run north-south across the site along the route of the main site access between Howshoots Farm to the north-east and Barleycastle Lane to the south of the Site.
- 4.14. The Site's topography is generally level, although it has two distinct areas of topography that are separated by a ridgeline running east to west. The northern plateau is a relatively flat area and the southern plateau becomes more undulating, with occasional ponds and depressions.
- 4.15. The Site is currently designated as Green Belt within the adopted Local Plan Core Strategy (July 2014) and Saved Proposals Map. The Site however forms part of a wider area identified

for future growth in the form of the Garden City Suburb within the emerging new Local Plan (Preferred Options Consultation (July 2017)). The Site is identified for employment development which can be delivered independently of the Garden City Suburb.

## Development Description

### The Development

- 4.16. The application will be an outline planning application as described below:

*The outline application (all matters reserved except for means of access) comprises the construction of up to 325,150m<sup>2</sup> (3.5 million ft<sup>2</sup>) (gross internal) of employment floorspace (Use Class B8 and B2 and B1(a) offices) and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation and alteration of existing access road into site including works to existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.*

- 4.17. All matters, except for the Means of Access are reserved for consideration at a later date.
- 4.18. The South Warrington Urban Extension Framework Plan Document (SWUEFP) (June 2017) produced on behalf of Warrington Borough Council as part of their evolving planning policy, classifies the Site for redevelopment for Employment Use.

### Parameters

- 4.19. During the evolution of the proposals, a number of parameters will be fixed, and will form the basis of the environmental assessments.
- 4.20. The parameters that inform the proposals for the Site have been generated from the key drivers identified within the SWUEFP. From this starting point, the arrangement of the Site has been heavily influenced by the presence of the Scheduled Ancient Monument on Site, the strong transport links and facilities that establish a series of hard boundary conditions, site

topography and geological features, and substantial landscape features including Bradley Gorse and Bradley Brook to the immediate South East of the Development Site.

4.21. The scheme’s evolution will be influenced by a sequence of development plateaus relating to their immediate and wider context arranged around access routes through the Site. The scope of development of each of the plateaus is directly related to that of its immediate neighbours and the associated boundaries of that plateau. Environmental testing will also influence the scheme evolution.

4.22. The scheme is in evolution, however, the parameters identified at this stage are identified on the plan below and at a larger scale at **Appendix 3**:



Figure 4.4: Parameters Plan (For Scoping)

4.23. The parameters will be developed and confirmed as the scheme evolves and environmental testing is undertaken to establish the acceptability of the proposals in respect of the environment, however, for Scoping Stage, the following Parameters are identified on the plan above as the maximum scenario for development:

- Development Cells – land use, developable area, floor space, number of units, unit height, unit floor level, car parking provision and SUDs provision
- Green Infrastructure – strategic landscaping, open green corridor, ecological mitigation, SUDs and stand off to watercourse
- Access – points of access into the Site
- Heritage - stand off to Heritage Asset

4.24. It is anticipated that the Parameters to be confirmed once the scheme evolves and therefore the basis of environmental assessment through the ES are as follows:

- Development Cells - Land use and disposition of uses, developable area, floor space, building heights, finished ground levels, finished floor levels
- Green Infrastructure – strategic landscaping, open green corridor, ecological mitigation, buffers, retained vegetation
- Access and Circulation – points of access into the Site, footpaths and cycleways
- Drainage / Flood Risk – including drainage easements
- Noise
- Utility Corridors
- Lighting
- Heritage – buffers to Heritage Asset

4.25. The current proposals identify a maximum development area of 3,500,000 ft<sup>2</sup> (325,150m<sup>2</sup>) of floor space ranging from 2 to 10 units covering use classes B2/B8 (80% B8 and 20% B2) with ancillary B1(a) office. Built form will range in height between 12m and 40m to haunch, with a maximum ridge height of up to 43.5m above FFL. This will ultimately be determined by further environmental testing and taking account of end user requirements that is driven by commercial demand.

4.26. Ultimately, each development plot will have its own surface water drainage strategy as well as attenuation of the associated and immediate public realm. A strategy is being developed for plot level and site wide drainage.

4.27. Buffer zones, landscape planting and bund formation will be determined as the scheme evolves, and as an outline landscape strategy is evolving.

4.28. Design development of the masterplan which will be developed in line with the parameters plan, will identify internal access routes serving each of the development plots suitable for pedestrians, cyclists, light vehicles and heavy good vehicles. These routes will be planned to ensure good connectivity throughout the site and beyond to the wider context, complying with the aspirations of the SWUE proposals.

## **Infrastructure Arrangements and Ground Conditions**

4.29. This section details service arrangements, drainage and flood risk, access and highways and ground conditions.

### **Existing Services Arrangements**

4.30. The existing Site has the following services that will need to be disconnected and / or diverted to facilitate the proposed development:

- Electrical services (Low Voltage only)
- Telecommunication services
- Water services

4.31. The existing electrical services comprise an overhead low voltage cable that runs south from the B5356 Grappenhall Lane, across the site to Barleycastle Lane. The cable serves Bradley Hall, an on-site telephone mast, adjacent to Bradley Gorse, and properties on Barleycastle Lane.

4.32. The Electrical supplies to the existing site will be disconnected and the existing services on Barleycastle Lane shall be re-fed from new supplies to the south of the Site. Should the residential properties adjacent to Bradley Hall Farm be retained, new services will be installed.

4.33. The telephone mast will be re-fed by a new supply via underground cabling from the proposed development.

4.34. The existing Telecommunications services feed the existing residential properties adjacent to Bradley Hall Farm, these services will be disconnected back to B5356 Grappenhall Lane or new services installed should the residential properties be retained.

- 4.35. The existing water services feed the existing residential properties adjacent to Bradley Hall Farm, these services will be disconnected back to B5356 Grappenhall Lane or new services installed should the residential properties be retained.

### **Proposed Services Arrangements**

- 4.36. New Utilities services will be installed for the proposed development including electric, telecommunications, water and gas services.
- 4.37. The proposed electrical supplies to the proposed development will comprise a new 33kV primary sub-station to be located within the Proposed Development Site, this primary sub-station will feed a number of 11kV sub-stations located adjacent to the units. The capacity applied for the proposed development supply is 20Mva.
- 4.38. The proposed telecommunications services to the proposed development will comprise an infrastructure of below ground ducts and wire ways to each unit. The ducts will connect back to the telecommunications primary network on B5356 Grappenhall Lane.
- 4.39. The proposed water service to the Proposed Development will derive from the existing water main on B5356 Grappenhall Lane, and will distribute throughout the Site to serve each unit and fire hydrants, where required, a pumping station is likely to be required. The existing water mains infrastructure requires upgrading to support the Proposed Development. The capacity applied for the proposed development is 13.39 l/s.
- 4.40. The proposed gas supply to the Proposed Development will be derived from the existing 180PE M/P main, located near to the junction of Barleycastle Lane and Grappenhall Lane, the new gas main will run underground along Grappenhall Lane to the Proposed Development, this distance is approximately 900 meters. The new gas supplies for the Proposed Development will run underground to each unit location terminating into a dedicated gas meter per unit. The currently applied for gas load is 26,500 kWh. The existing network is unlikely to require reinforcement; however a full study is required to confirm this.

### **Drainage and Flood Risk**

- 4.41. The Site is wholly within Environment Agency Flood Zone 1 land, classified as land that has a low probability of flooding.

- 4.42. A main EA river network is present on the southern boundary of the Site. A tributary of Bradley Brook originates from Barleycastle Lane flowing west to east before joining Bradley Brook prior to being culverted under the M6. The river continues north through Lymm with eventual connection to the Manchester Ship Canal network.
- 4.43. There are no groundwater abstraction points or primary aquifers within 1 km of the Proposed Development.
- 4.44. There are no formal foul or storm artificial drainage connections offsite from the development. The existing drainage assets are limited to the farm house, cottages and field drainage. The waste from the existing properties is collected within an underground system and discharges to a series of local artificial cess pits which are emptied at regular intervals. The storm water drainage from the properties and surrounding infrastructure is collected and conveyed to a combination of ground and overland routes with eventual collection in the Bradley Brook network on the southern boundary. Artificial drainage from the agricultural fields is also present with discharge to various ditches throughout the Site.
- 4.45. The closest adoptable sewer network is located in the industrial estate to the west, under the responsibility of United Utilities. The closest adoptable sewer network with available connection to processing plants is found further south-west within the outer regions of Appleton.
- 4.46. The natural drainage patterns on the Site indicate mainly greenfield runoff toward Bradley Brook. There are also a series of onsite ponds which collect and store water for sub-catchments without positive artificial connections. Bradley Gorse also has an independent natural drainage network which includes ponds and overland connectivity with eventual connection back to Bradley Brook.
- 4.47. The proposed foul drainage strategy is to collect and convey waste via gravity to a central pumping station. This will then be pumped within a rising main west and south along the B5356 with connection to the United Utilities sewer network.
- 4.48. The proposed storm water drainage strategy will see the Site with eventual discharge direct to Bradley Brook at Greenfield Runoff Rate. Storm water will be restricted to GRR from each plot and conveyed to a central SUDs corridor where discharge from the road network will also discharge. Treatment levels will be provided both on plot and in the public realm.



4.49. A series of Key Receptor Plans are included in **Appendix 4**.

### **Access Arrangement and Highway Works**

4.50. The Site currently benefits from five access points along the B5356 Grappenhall Lane, including one main Site access into Bradley Hall Farm, between the A50 Cliff Lane / Grappenhall Lane roundabout and the western roundabout of the M6 Motorway Junction 20, plus four field accesses along the Site's frontage to Grappenhall Lane.

4.51. The main Site access into Bradley Hall Farm also forms part of the Public Right of Way Network (Footpath No 31), which allows a connection through the Site to Barleycastle Lane to the south (where the route becomes Footpath No 23).

4.52. The proposed development will be accessed via a single roundabout arrangement on Grappenhall Lane at a point approximately 380m to the west of the A50 Cliff Lane / Grappenhall Lane roundabout.

4.53. The roundabout will be designed in full accordance with design standard TD16/07 of the Design Manual for Roads and Bridges and will accommodate the swept path manoeuvres of a high volume of large HGV vehicles.

4.54. Internally, the initial section of the proposed Site access road will feature a dual-carriageway road, which will lead to an internal network of roads with minimum 7.3m carriageway width and 2m footways.

4.55. It is anticipated that a new 3.5m wide combined foot / cycleway will also be provided alongside the full extent of the Site's northern frontage onto Grappenhall Lane, including suitable access points onto Grappenhall Lane at each end. Suitable pedestrian and cycle provision will be catered for within the internal Site layout as part of the development of a detailed scheme layout. Where possible, the existing Public Rights of Way through the Site will be retained.

4.56. It is anticipated that a series of improvements will be required to the A50 Cliff Lane / Grappenhall Lane roundabout and the two 'dumbbell' roundabouts at the M6 Motorway Junction 20. Such works are likely to involve capacity-related improvements and will be confirmed as the scheme evolves and environmental assessment progressed.

- 4.57. In terms of access by sustainable modes, the Site is located within the typical preferred maximum 2km walking distance of Appleton Thorn Village, which includes facilities characteristic of its scale and nature.
- 4.58. The Site is also within the typical maximum 8km cycle distance of a range of areas including Daresbury to the west, central Warrington to the north-west, Warburton to the north-east, and Arley to the south.
- 4.59. The nearest bus stops to the site are situated in Appleton Thorn Village some 2.3km walk distance from the centre of the Site. Currently, the bus stops in Appleton Thorn are served by the No's 8/8A/8E & 7 services, which (combined) provide an hourly service to Warrington / Stockton Heath. This reflects the semi-rural location of Appleton Thorn in the Borough.
- 4.60. The potential to improve the accessibility of the Site by public transport will therefore be investigated as part of future Transport Assessment work. Nonetheless, and setting aside the potential significant improvements to public transport that could be brought about by the Warrington Garden City Suburb allocation, there is already a commitment to improve bus services to the west of the Site. It is understood that Warrington Borough Council (WBC) have recently secured circa £500,000 via a S106 financial obligation from the HCA in connection with their three recently-approved residential schemes near Appleton, and that the obligation relates to the improvement of the no.8 bus service provision along Stretton Road (which becomes Grappenhall Lane further towards the Site).
- 4.61. The nearest railway stations are in Warrington (Warrington Bank Quay and Warrington Central), both situated some 6.5km crow-fly distance from the Site. The stations lie within 8km cycle distance from the Site, making a longer journey by rail / cycle a possibility.
- 4.62. Both stations are collectively served by a large number of train services that route to a wide variety of destinations across the entire country at a high frequency. Whilst it is not intended to exhaustively list each destination, selected destinations include Manchester, Liverpool, Blackpool, London, Glasgow, Edinburgh and Llandudno.
- 4.63. At the time of writing, the scope of the Transport Assessment (TA) and Travel Plan reports are being discussed with WBC and Highways England. These reports will provide a full assessment of the accessibility of the Site by non-car modes, all improvements that are to be

included as part of the application and an assessment all transport & highway-related facets of the proposals.

4.64. The TA and Travel Plan will inform the traffic and transport environmental assessment and will be appended to the ES Traffic and Transportation Paper when this is produced.

4.65. A plan of the Key Receptor Plan is included in **Appendix 4**.

### Ground Conditions

4.66. The site is recorded as being undeveloped historically, aside from the curtilage of Bradley Hall. The inferred historical land uses are agricultural. In addition, it is known from the Unexploded Ordnance (UXO) assessments that part of the Site was used as a decoy during World War II.

4.67. Ground conditions at the Site are anticipated to comprise a downward sequence of topsoil, glacial till (clay) and sandstone. Depths to rock are expected to be shallow in the western third of the Site. No contamination is anticipated, though locally soft / unconsolidated soils may be present where any ponds or old watercourses have been infilled.

4.68. It is anticipated that the glacial till and sandstone would be suitable for re-use on Site as part of enabling works to create a development platform. Treatment for contamination is not anticipated. Topsoil is not suitable for re-engineering so any surplus topsoil will be either accommodated in the landscaping or removed from Site.

4.69. Any soft / organic soils associated with infilled ponds etc. would also not be considered suitable for engineering purposes, therefore this material would require either treatment, accommodation in landscaped areas, or off-site removal. It should be noted that the volumes of material associated with infilled ponds etc. is not considered significant in the wider development context.

4.70. As the Site is greenfield with no significant sources of contamination identified, and there is no requirement for a significant import of materials to form finished levels, the Site is considered to not represent a significant environmental risk during either the construction or operational phases.

4.71. A plan of the Key Receptor Plan is included in **Appendix 4**.

## Ecology and Landscape

### Ecology and Nature Conservation

- 4.72. There are no statutory designated sites within the Site, or within the study area. Four locally designated non-statutory sites are present within 2km of the Site, but no impacts to these are expected.
- 4.73. An 'extended' Phase I habitat survey undertaken in November 2016 identified features of ecological importance comprising:
- Broadleaved Woodland
  - Hedgerows
  - Ponds
  - Scattered Trees
  - Watercourses (Bradley Brook and tributary adjacent to Site boundary)
- 4.74. Other habitats comprise improved grassland and arable fields, scrub and tall ruderal.
- 4.75. Habitats of ecological importance will be retained wherever possible. Where losses are unavoidable, compensation will be made through the inclusion of replacement planting of similar species within the landscape design including enhancement of boundary features and replacement planting to provide green buffers and open space throughout the Site.
- 4.76. Based on the findings of the Phase I habitat survey and a desk-based study, a series of detailed species surveys have been undertaken, or will be completed prior to submission of the outline planning application. These surveys comprise:
- Badger survey (April 2017)
  - Bat Activity survey (May – October 2017)
  - Bat Preliminary Roost Assessment (PRA) of Buildings (late 2017)
  - Bat and Barn Owl Preliminary Roost Assessment (PRA) of Trees, and follow-up aerial inspections, if required (to be completed)
  - Bat and Barn Owl Roost Surveys of Buildings, if required (to be completed)
  - Breeding Bird Survey (April – June 2017)
  - Great Crested Newt (GCN) Survey (April - June 2017)

- Wintering Bird Survey (October 2017 – March 2018, ongoing)

- 4.77. A small population of GCN is present in one pond within the Site boundary. A small population of GCN was also recorded in an off-site pond to the south. A mitigation strategy and NE licence will be required prior to works, detailing measures to avoid killing/injury of GCN, and mitigation for losses of breeding and terrestrial habitat.
- 4.78. Evidence of badger activity, but no badger setts, has been recorded within the Site. Surveys for breeding birds identified a range of common passerine species; barn owl was also heard calling within the vicinity of the Site during the GCN surveys. Bat activity surveys identified bats using the woodland, hedgerows and watercourse corridor for foraging and commuting. Based on surveys undertaken to date, it is anticipated that compensation for losses to bat and bird habitats can be accommodated within the landscaping design, as described above.
- 4.79. A Habitat Features plan is included in **Appendix 4**.

### Landscape and Visual Impact

- 4.80. 'The Character of England' produced by Natural England places the Site within the Mersey Valley: National Character Area 60. To the south of the Site, the study area is placed within National Character Area 61: Shropshire, Cheshire and Staffordshire Plain.
- 4.81. Warrington Borough Council's Landscape Character Assessment (2007) places the majority of the Site within the Landscape Type 1b Undulating Enclosed Farmland – Appleton Thorn. The southern tip of the Site lies within the Landscape Type LFW 3: Arley Character Area identified by Cheshire East Council (2008).
- 4.82. The Site is predominantly a rural, pastoral landscape of small to medium-scale fields bounded by mature hedgerows with occasional hedgerow trees. Tree cover includes small woodland blocks and copses, including Wrights Covert and Bradley Gorse. The well-vegetated Bradley Brook runs along the southern boundary of the Site. There are several field ponds within the northern part of the Site with mature trees and scrub. To the centre of the Site lies Bradley Hall Farm with the remains of Bradley Hall moated site, a Scheduled Ancient Monument, to the west of the farm. Immediately to the north of the farm are several small private dwellings and circa 150m further north, Bradley View, a larger private dwelling. Grappenhall Lane lies along the northern Site boundary linking fast moving traffic including HGVs from Barleycastle Trading Estate to the west, to the J20 M6/M56 Motorway Interchange east of the Site.

- 4.83. The baseline Arboricultural Survey and Assessment carried out in September 2017 (which will be appended to the ES) has established that the tree stock across the Site is broadly made up of either moderate (Category B) or high landscape value (Category A) trees, which are generally in a good condition. The report recommends that buffer zones should be placed between new development and landscape features including Wrights Covert, Bradley Gorse and Bradley Hall moated site. Managed hedgerows both within and along the boundaries of the Site are generally mature and appear to be in a good condition.
- 4.84. The existing trees and mature hedgerows within the Site should be retained and enhanced within the emerging masterplan where possible. Retained trees and woodlands blocks, particularly along the Site boundaries, will form an important part of mitigating the potential impacts of new development. The developing landscape proposals will include new woodland belts on earth mounding along the Site boundaries and internal roads which with the Sustainable urban Drainage Scheme will aim to enhance site-wide biodiversity and create new wildlife corridors.
- 4.85. The landscape philosophy accepts that the landscape character of the Site will change, from a rural, pastoral landscape heavily influenced by the established visual and audible presence of the nearby motorways and Barleycastle Trading Estate, to a landscape of large scale, coarse grain built form with associated infrastructure. The landscape proposals aim to deliver a robust scheme that over time will develop to mitigate the adverse nature of the impacts through the implementation of new native woodlands and tree cover; with the long-term goal of improving biodiversity, developing new ecological habitats, and establishing wildlife connections with the wider landscape to enhance the local area.

**Zone of Theoretical Visibility**

- 4.86. A desktop study has been carried out using a computer model of the 5km study area to produce a Zone of Theoretical Visibility (ZTV) based on the topographical OS data for the study area. The ZTV is used to ascertain locations from within the study area where the Proposed Development is theoretically visible from an observer’s eye level. The ZTV was run using three different building heights for the Proposed Development with the following results:

**ZTV**

- 14-17m High Units: **69.62%** theoretically visible within the study area.
- 14-22m High Units: **72.94%** theoretically visible within the study area.

- 14-40m High Units: **73.01%** theoretically visible within the study area.

4.87. The ZTV analysis was then modified to take into account intervening screening by woodland (nominal 10m height) and buildings (nominal 7.5m height) with the following results:

#### **ZTV (Modified)**

- 14-17m High Units: **23.68%** theoretically visible within the study area.
- 14-22m High Units: **29.66%** theoretically visible within the study area.
- 14-40m High Units: **35.29%** theoretically visible within the study area.

4.88. A plan of the Key Receptor Plan is included in **Appendix 4**.

### **Air Quality, Dust and Odour**

4.89. The main source of emissions to air at the Application Site is traffic-related pollution from the M6 Motorway, the M56 Motorway and the surrounding roads. There are no other nearby significant sources of emissions to air.

4.90. For the operational phase, arrivals at and departures from the Proposed Development may change the number, type and speed of vehicles using the local road network. Changes in road vehicle emissions are the most important consideration during this phase of the development.

4.91. For the construction phase of the Proposed Development the key pollutant is dust, covering both the PM<sub>10</sub> fraction that is suspended in the air that can be breathed, and the deposited dust that has fallen out of the air onto surfaces and which can potentially cause temporary annoyance effects.

4.92. There are a number of Air Quality Management Areas (AQMA) within close proximity of the site. AQMA No. 1 is a 50 m continuous strip on both sides of the M6, M62 and M56 Motorway corridors in WMB. A small part of the Proposed Development is within this AQMA. AQMA No. 2 is located approximately 5.5 km northwest of the Proposed Development and covers an area of central Warrington bounded by Parker Street, Wilson Pattern Street, Bold Street, Museum Street, Winmarleigh Street and Sankey Street.

- 4.93. A plan of the Air Quality Management Area in relation to the Site is shown on the plan below in orange:



**Figure 4.5: Air Quality Management Area (AQMA) Plan**

- 4.94. A plan of the Key Receptor Plan is included in **Appendix 4**.

## **Noise and Vibration**

- 4.95. Baseline noise monitoring has identified that the prevailing noise climate around the Site is dominated by traffic noise from the adjacent M6 and M56 Motorways, with contributions from the B5356 to the north. There are no other significant sources of noise which have been identified in close proximity to the Site. Furthermore, no existing sources of environmental vibration have been identified.
- 4.96. The nearest and most exposed noise sensitive receptors are Grappenhall Lodge, the residential dwellings on Cartridge Lane, the Bradley View Cottage and the Howshoots Farm to the north of the Site, and Tan House Farm and Barleycastle Farm on Barleycastle Lane to the south of the Site. Generally speaking, the existing noise climate at existing receptors is relatively high due to the proximity to the Motorway network.



- 4.97. Baseline and potential traffic flow data, along with identified fixed and moving plant items and vehicles will be used to create a 3D acoustic model of the site, in order to predict the noise levels at the identified noise sensitive receptors and to advise on potential noise mitigation measures during the Construction and Operation phases of the Proposed Development.
- 4.98. A plan of the Key Receptor Plan is included in **Appendix 4**.

## Cultural Heritage/Archaeology

- 4.99. A corpus of work has been undertaken to understand the Cultural Heritage Context of the Site including the historical built form including listed buildings, conservations areas, the archaeological resource and the historic landscape within which the Site sits.
- 4.100. The Cheshire Environments Records (HER) have identified a number of archaeological sites and findspots within the area. These have either been recorded through aerial photographs, evaluation/ mitigation or through chance discoveries.
- 4.101. Identified to the southeast of the Site is an elliptical enclosure which may have prehistoric origins. Found to the north of this near to Junction 9 of the M56 Motorway was a prehistoric stone shaft-hole axe. No other artefacts or monuments of this date are recorded within the study area.
- 4.102. Recorded within the northern extent of the Site is a Roman road which heads in an east west direction. Accounts state that it has been traced for over 12km with its alignment dictated by the crest-line of an escarpment of New Red Sandstone which overlooks the Mersey Valley to the north. Evidence for the road has been proven from the study of Tithe and estate maps, parish boundaries, hedge lines, place names, and observations of road material in plough fields.
- 4.103. A section through the road was excavated to the west of the site prior to the development of the adjacent industrial estate. At this point the road was found to be 13.5m wide. Accounts suggest that the road continued in use during the medieval period which is in part substantiated by the placement of a cross on the road near to Bradley Hall Medieval moated site.
- 4.104. Throughout the medieval and post-medieval periods the area was farmed as evident on the early Ordnance Survey map series. Depicted on the 1st edition Ordnance Survey map are a

series of farms and barns some of which are recorded on the HER. This farming landscape evolved through the removal of a number of field boundaries to form larger fields in the late 19th and early to mid-20th century. Further change occurred with the construction of Stretton Airfield in World War II to the southeast of the Site and the development of the motorway infrastructure during the 1970s and 1980s.

#### *Designated Assets*

- 4.105. Located within the eastern part of the Site is Bradley Hall Moated Site which was designated a scheduled monument in 1991. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house. The moated island is approximately 70m by 55m and is grass covered in the areas not occupied by buildings. Excluded from the scheduling are the farmhouse, access drive, fences, hedged field boundaries and a telegraph pole.
- 4.106. The moat remains water filled and within the island are two occupation phases which survive beneath the present house and gardens. The moat surrounding the island is c. 10m wide and 2.5m deep. Part of the moat has been disturbed through the creation of an ornamental pond on its east side. Access is currently gained from a causeway also on the east side which replaced an earlier drawbridge.
- 4.107. The original hall within the moat was erected in the early 14th century. Documentary sources refer to it around this time with its first depiction on a map dating to 1735 which shows the hall to the northeast of its current position and the moat extending beyond its present location. The hall shown on the aforementioned map replaced that erected in the 14th century. Between the early 18th and the early 19th century the hall was considerably altered as was the location and extent of the moat. Analysis of later maps shows the addition of a number of outbuildings to the hall as well as a number of agricultural buildings immediately to the northwest of the moat.
- 4.108. In November 2009 National Museums Liverpool Field Archaeology Unit undertook a watching brief at Bradley Hall on behalf of Brewster Associates. This was undertaken during works to replace an early 20th century extension to the farmhouse. The watching brief revealed a poorly constructed cobbled surface which was deemed to be associated with the construction of the present house. Underlying the cobbles was a layer of clay which was interpreted as the arising from the excavation of the moat. During the watching brief a number of finds were

encountered including the base of a 14th -15th century jar and later 17th to 18th century pottery sherds.

- 4.109. A number of listed assets are recorded to the south of the site along Barleycastle Lane including Beehive Farmhouse, Booth Farmhouse, Barley Castle Farmhouse and Tanyard Farm. All of these are listed at grade II with the exception of Tanyard Farm which is listed at grade II\*.
- 4.110. A plan of the Key Receptor Plan is included in **Appendix 4**.

### **Demolition and Construction**

- 4.111. Construction hours will be between 0800 hours and 1800 hours on Mondays to Fridays, and 0800 hours to 1300 hours on Saturdays with no working on Sundays or Bank Holidays, unless first agreed with the Local Planning Authority.
- 4.112. The construction site office and laydown areas will be within the Site, but outside the landscape and ecological mitigation areas. All deliveries will be within the construction working hours.
- 4.113. It is anticipated that construction access will initially be gained from the existing farm access from the A50 Cliff Lane in order to form Site compounds and to construct the new Site entrance from the B5356 Grappenhall Lane. Once the access point and associated access road from Grappenhall Lane is constructed, this will be utilised by construction traffic to develop the rest of the Site.
- 4.114. No contamination is anticipated on Site. Control measures will be put in place to avoid any new contaminants being introduced to the Site during construction, so that no new contamination that represents a risk either to Site users or the wider environment is present.
- 4.115. Work to establish the Site levels and the associated cut and fill to achieve development platforms and infrastructure corridors is ongoing. This will inform the requirement for any import and export of material. At this stage there is expected to be a need for import and export of material, including the import of material for the sub-base of roads and buildings. This will be confirmed as the scheme evolves.

- 4.116. Stockpiling locations for material to be retained for re-use on-Site is to be determined and the material is expected to be utilised within the Site shortly after excavation.
- 4.117. During construction, drainage features and flood prevention measures will be installed in the early phases of development. These will be required to limit the surface water run-off from the Site and provide flood storage areas with any required flow control measures to manage the storm water. Any required infrastructure for foul water including pumping stations, rising mains and offsite works will also be required for implementation prior to plot works occurring.
- 4.118. Given the Site's location, UXO (Unexploded Ordnance) banksmen will be required during construction to avoid encounters with previously unexploded ordnance, particularly during the bulk earthworks.
- 4.119. There are a number of existing buildings/structures associated with the current farm use that will be demolished as part of the proposals. Work is ongoing to determine if the residential properties will be retained. As part of the demolition planning, pre-demolition surveys will be undertaken to gather the following information:
- The presence, location and condition of asbestos containing materials;
  - The presence of any hazardous materials (e.g. agro-chemicals, fuel etc.);
  - Constraints to demolition; and
  - Pre-construction information.
- 4.120. The pre-demolition survey would also include an audit of the materials which make up the interior and exterior of the buildings to identify what materials could be reused or recycled. In the case of the farm house and farm buildings, the key demolition products are likely to be bricks, concrete and steel. Site clearance will also include the removal of fencing, necessary hedgerows, farm tracks, drainage and utilities to the farm house and farm buildings.
- 4.121. Where possible, material arising from demolition and Site clearance will be recycled and used on Site. Other types of waste likely to be generated during construction will be identified in the Waste chapter of the Environmental Statement.
- 4.122. Demolition works to drainage assets will be minor as the Site, to current understanding, only contains natural drainage depressions and localised relief drains for agriculture. Site outfalls to land boundaries are present however they will be maintained through the development of the Site.

- 4.123. During the construction phase of the development, the Site will be required to have the necessary safety and security lighting. The aiming of all lighting will be critical to minimise light trespass and sky glow. Light plants will be localized to the specific tasks to minimise any impacts. The lighting installed will be inspected, to ensure the aiming of all floodlights is appropriate and no lighting is being directed towards the residential properties, during the site set up and mobilization period.
- 4.124. The details of the type and quantity of construction and earthworks plant/vehicles will be those typically expected for large construction development sites. Further details of these will be provided within the Noise and Vibration assessment and will be confirmed as the scheme evolves and environmental assessment is undertaken.
- 4.125. During the construction phase of the development, noise and vibration impacts from the construction of the Site and the infrastructure associated with it will depend on the length, the location and the type of plant used for the works taking place during each construction phase, as well as the location of proposed construction traffic routes. The implementation of best practice noise and vibration mitigation measures will be necessary to minimise the impact on the nearest noise-sensitive receptors. Such measures could include regulating plant operating times, directing plant away from receptors wherever possible or proposing engineering controls to effectively sound attenuate the plant and will be set out as part of the Noise and Vibration assessment.
- 4.126. For the construction phase of the Proposed Development the key emissions to air is dust, covering both the PM<sub>10</sub> fraction that is suspended in the air that can be breathed, and the deposited dust that has fallen out of the air onto surfaces and which can potentially cause temporary annoyance effects. The quantity of this will be assessed through the Air Quality environmental assessment and reported in the ES.
- 4.127. A Construction Environmental Management Plan (CEMP) will be produced to ensure measures are taken to reduce the effects of the construction phase, particularly in respect of noise, vibration, dust, site lighting, ecology and habitats, trees, drainage and flood risk. For example, run off of silts / clays etc. into the Bradley Brook; good construction practice to mitigate spillages / leaks from plant and egress of dust into the wider environment; control measures to prevent the introduction of new contaminants to the Site; tree protection measures; and appropriate mitigation for flora and fauna.

## Operation

- 4.128. The end use of the Site is B8 (storage and distribution) and B2 (general industry) with ancillary BI(a) office. As such the operations are likely to be 24 hours.
- 4.129. The residues and emissions from the Site are those associated with a typical B8 and B2 use and will be confirmed through the environmental assessment work, including for water, air, noise and vibration, light and waste.
- 4.130. The SUDs features in the public realm will be managed and maintained by a private management company in accordance with maintenance schedules to be set out in the drainage strategy. All Site drainage generally will be under the split ownership of Warrington Borough Council, United Utilities and the plot developers.
- 4.131. The need for noise mitigation measures to minimise the noise impact on the nearest noise sensitive receptors will be assessed through the Noise and Vibration assessment.
- 4.132. For the operational phase, arrivals at and departures from the Proposed Development may change the number, type and speed of vehicles using the local road network. Changes in road vehicle emissions are the most important consideration for air quality during this phase of the development. This will be assessed through the Air Quality environmental assessment and reported in the ES.
- 4.133. The Proposed Development uses will generate commercial and industrial (C&I) waste, and this will be assessed through the environmental assessment of waste.
- 4.134. The key changes to the development with regards to light spill and sky glow will be from the car park and loading bay lighting, amenity lighting and pathway lighting. A lighting strategy is to be devised and this will be centered around a higher quantity, of lower power luminaires mounted closer to the area to be lit, as this will provide a scheme which is far less likely to cause light pollution compared with more powerful but fewer luminaires.

## Decommissioning

- 4.135. Decommissioning of the Proposed Development is not relevant to this project, given the proposed end use for the site.

## Phasing

4.136. The delivery of the Proposed Development will come forward in phases. This will ultimately be driven by the demand for the employment buildings, however for the purposes of the Environmental Assessment, the following timescales have been assumed, which represent a precautionary approach (and therefore a worst case scenario) by assuming a single continuous phase of site enabling works and means of access for the Phase I Development, followed by a three year build period:

- Planning Submission – 2018 (late Q3)
- Planning Determination – 2019 (early Q1)
- Reserve Matters/Detailed Design – 2019
- Initial Site enabling and infrastructure works – 2020 (6 months - Q2 2020 to Q4 2020)
- Development – 2020 to 2027 (6.5 years - Q2 2020 to Q1 2027, with each plot taking approximately 9 months to develop)

4.137. The Development stage is expected to take approximately 6.5 years, with the initial enabling works running concurrent with the first 6 months of the development. The delivery of the units will be phased across the 6.5 years, alongside the other infrastructure works which are likely to be developed on a plot by plot basis. This will be dependent on market demand. The timing of mitigation, such as landscape screening and ecological related mitigation will be confirmed as the masterplan evolves and environmental testing is undertaken.

## 5. Alternative Development Options

5.1. Paragraph 2, Schedule 4 of the EIA Regulations states the need for inclusion of the following details:

*“A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”*

5.2. A series of alternatives associated with scheme design have been considered as part of the evolution of the Proposed Development. These will be documented fully within the ES, identifying how environmental considerations have influenced the final Proposed Development. These will include consideration of the following matters:

- Alternative Sites – making reference to Warrington Borough Council’s Evidence Base documents for the evolving Local Plan and consideration of sites.
- Do nothing – leave the Site as it is, undeveloped and therefore not address the Objectively Assessed Need (OAN) for employment in a strategically located site adjacent to the strategic highway network.
- Preferred Option – Compliance with the emerging Local Plan for Warrington (Preferred Development Option, July 2017) and delivery of employment development as set out within the Project Description (Section 4 of this Report).
- Scheme Evolution – the ES will include details of the scheme evolution, the alternatives considered and the environmental considerations that have led to determining the final Proposed Development. This will include the consideration of development design, technology, location, size and scale as studied by the developer. This will be detailed in each of the ES Technical Papers, with an overarching summary provided within the Part I Report of the ES.



## 6. Interaction of Effects and Cumulative Impact

- 6.1. In respect of the assessment of cumulative effects, Schedule 4 of the EIA Regulations states that an Environmental Statement must include a description of the likely significant effects of the development on the environment (those identified in the Regulations as population and human health; biodiversity; land, soil, water and climate; and material assets, cultural heritage and the landscape), resulting from *'the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.'*
- 6.2. The European Commission identifies cumulative impacts as *'impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project.'*
- 6.3. In respect of the assessment of the interaction of effects, Regulation 4 (2) of the EIA Regulations requires a description and assessment in an appropriate manner, of the direct and indirect significant effects of the proposed development on the interaction of the factors assessed within the ES (i.e. population and human health; biodiversity; land, soil, water and climate; and material assets, cultural heritage and the landscape).
- 6.4. For the purposes of this ES we define the cumulative and the interaction of effects as:

***'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself and the synergistic effects (in-combination) which arise from the reaction between impacts of the project on different aspects of the environment.'***

- 6.5. The additive impacts and their effects and the synergistic effects are considered in turn below.

### Additive Impacts (Cumulative Impact and their Effects)

- 6.6. A geographical search area has been identified where it is considered that cumulative impacts could be caused together with the Proposed Development, as shown on the Cumulative Development Plan (**Appendix 5** and Figure 6.1 below). Within this geographical area a site sieve has been undertaken to include the following within the Cumulative Assessment:

- Development with planning permission that is not yet constructed
- Any existing development that needs to be considered.

6.7. Excluded from the cumulative assessment are therefore sites that are not existing development or do not have planning permission, such as allocated development or emerging allocations. This is due to the uncertainty of these coming forward for development in the future, and/or the unknown nature and scale of the development, which therefore renders them to be 'not reasonably foreseeable' in terms of the environmental assessment. This is with the exception of Land off Barleycastle Lane, Appleton, Warrington, which we understand is likely to be a development of up to 50,000m<sup>2</sup> of logistics development. This will be included in the cumulative assessment due to its proximity to the site, the scheme has gone through an EIA Scoping exercise and received a Scoping Opinion from WMBC and as an application is to be submitted imminently. The scheme is therefore considered to be reasonably foreseeable and the likely nature and scale of the development is known.

6.8. A number of sites have subsequently been identified that are likely to be relevant for consideration as part of the Cumulative Impact Assessment (CIA) and these are included within the table and figure below (also included at **Appendix 5**). The table also identifies those technical areas where there is a potential relationship between the Proposed Development and the cumulative development and which will therefore be considered further in the cumulative assessment within the ES. Where there is not considered to be a link, a reason why this will not form part of the cumulative assessment within the ES is given.

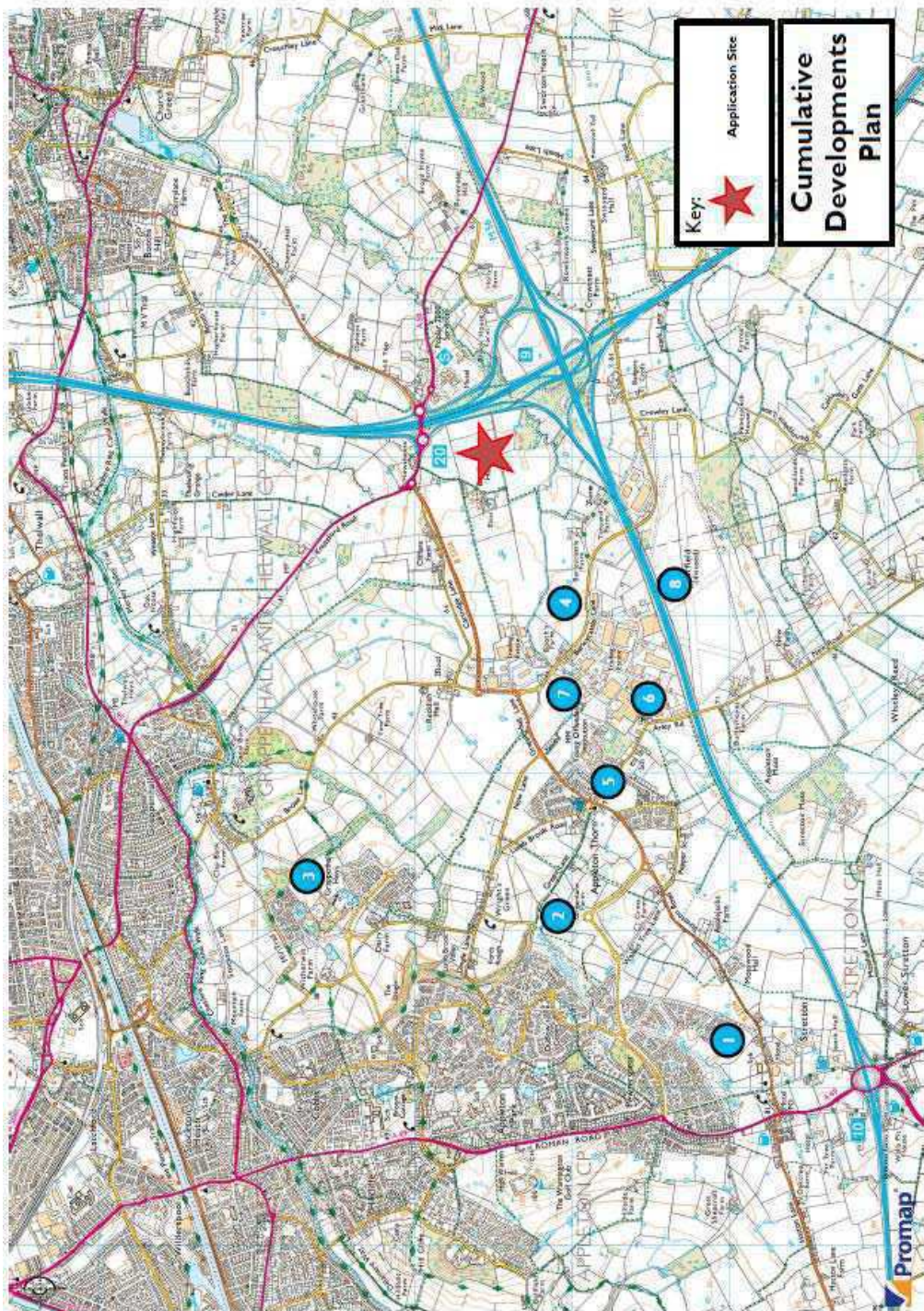


Figure 6.1: Cumulative Development Plans

|   | Possible Cumulative Development   | Details   | Status   | Justification for Cumulative   | To be considered in the CIA (Yes/No)  |
|---|---|---|--|--|---|
| 1 | Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington<br><br>LPA Ref: 2016/28807<br><br>Applicant - HCA   | Outline Planning Application for 180 dwellings. | Planning permission granted by WMBC 28-09-2017   |  |   |
| 2 | Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN<br><br>LPA Ref: 2017/29930<br><br>Applicant - HCA                                       | Outline Planning Application for 370 dwellings  | Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017                        | Potential relationship in terms of socio economic.<br><br>It is a committed development and therefore included within the future baseline and assessed within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport, noise and vibration and air quality.  | Yes – socio economic  |
| 3 | Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG<br><br>LPA Ref: 2017/29929<br><br>Applicant - HCA | Outline Planning Application for 400 dwellings  | Resolution to grant planning permission by WMBC Development Management   | Not considered to be a link in respect of any of the other technical areas due to distance and detached nature from the site.  |   |
| 4 | Land off Barleycastle Lane, Appleton, Warrington<br><br>Liberty Properties  | 50,000m <sup>2</sup> logistics development      | Pre-application discussions with WMBC<br><br>Scoping Request (LPA Ref: 2017/30243)<br>Application to be submitted. | Potential relationship in terms of geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; and operational noise.<br><br>It is to form part of a sensitivity test for traffic and therefore included within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport; and in terms of traffic generation in respect of noise and vibration; and air quality. | Yes- geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; and operational noise |
| 5 | Land to the east of Stretton Road, north of Pepper Street, Stretton   | Full Planning Application for 78 dwellings      | REFUSED by WMBC 29-06-2017   | Application refused and therefore not considered to be relevant for consideration in the cumulative assessment.  | No  |

|   |   |  |   |  |   |
|---|---|--|---|--|---|
|   | Road, Appleton Thorn, Warrington<br><br>LPA Ref: 2016/29511   |  |   |  |   |
| 6 | Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY<br><br>LPA Ref: 2016/28994           | Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping.<br><br>(1,699m <sup>2</sup> new build, 180m <sup>2</sup> and 265m <sup>2</sup> extensions)  | Application Approved 17-02-2017<br>(3 years to implement planning permission) | Potential relationship in terms of geology and ground conditions; flood risk and drainage; socio economic; and waste.<br><br>The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality.<br><br>Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; and energy due to distance and detached nature from the site. | Yes - geology and ground conditions; flood risk and drainage; socio economic; and waste |
| 7 | Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br><br>LPA Ref: 2015/25255<br><br>Morley Estates | Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618)<br><br>(4,545sqm industrial warehouse building) | Application Approved 16-10-2015<br>(3 years to implement planning permission) | Potential relationship in terms of geology and ground conditions; flood risk and drainage; and socio economic.<br><br>The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality.<br><br>Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site.  | Yes - geology and ground conditions; flood risk and drainage; and socio economic        |
| 8 | Former Stretton Airfield, Warrington, WA4 4RG<br><br>LPA Ref: 2014/2332<br><br>Hensmill Property                          | Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.  | Application Approved 23-06-2015<br>(3 years to implement planning permission) | Potential relationship in terms of landscape and visual impact; and socio economic.<br><br>The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality.<br><br>Not considered to be a link in respect of geology and ground conditions; flood risk and drainage; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site.  | Yes - landscape and visual impact; and socio economic                                   |

**Table 6.1: Cumulative Developments**

## **Synergistic Effects (In-Combination / Interaction of Effects)**

- 6.9. There are a number of interactions of effects that will need to be considered for the Proposed Development, both at construction and operational phases i.e. the interaction between different effects on one receptor. Each individual effect may be small but, taken together, in-combination, could be deemed significant and as such this will need to be identified and assessed as part of the environmental assessment work.
- 6.10. The different types of receptors are categorised as follows:
- Humans- (a) long term human receptors- residents, business users; and (b) transient human receptors, including pedestrians, cyclists, drivers and public transport users, construction workers.
  - Property- residencies and business uses.
  - Ecological- habitats, including protected sites or species.
  - Historic Environment– heritage assets
  - Landscape - character areas
  - Controlled waters- surface waters like water courses or groundwater (aquifers).
  - The economy
  - Local waste infrastructure i.e. landfills, recycle and recovery facilities
- 6.11. The likely interaction of effects are summarised below:
- Construction – these may include impacts in terms of ground and water; air, noise and traffic; landscape, ecology and drainage; ecology, air quality and noise; and visual impact and heritage.
  - Operation – these may include proposed use of land and the traffic generated and consequential noise and air quality; landscape, ecology and drainage; cultural heritage and landscape; utilities and landscape.
- 6.12. Details of the likely interactions of effects will be considered further through the environmental assessment work and detailed within the ES Part I Report.

## 7. Geology and Ground Conditions

### Introduction

- 7.1. The Technical Chapter of the ES will be prepared by a Chartered Environmental Scientist from Cundall.
- 7.2. The Technical Chapter will identify how the proposed development will impact soil, rock, groundwater and surface water resources beneath and near the site, and, how the proposed development will affect the site's contaminative status. The Technical Chapter will consider the effects from both the construction and operational phases.
- 7.3. Impacts from and to the proposed development will be considered.
- 7.4. The assessments will be in accordance with National Planning Policy (the Framework) and the relevant baseline information outlined below.
- 7.5. The Environmental Health Officer or Contaminated Land Officer will be consulted as part of the assessment process where required.
- 7.6. This Chapter links closely with the Flood Risk & Drainage Chapter 9 and they should be read in conjunction with one another. In relation to the ground, this Chapter will assess the impact that naturally occurring risks, permanent development and also construction logistics will have on the underlying sub-strata, receiving waters. The Drainage & Flood Risk Chapter also assesses the impact on the underlying sub-strata and receiving waters but from drainage conveyance.

### Baseline Information

- 7.7. The Technical Chapter will be based upon the published guidance and documents / surveys identified in this section.
- 7.8. BS10175:2011+A1:2013 Investigation of potentially contaminated sites. Code of practice.
- 7.9. CIRIA C665: Assessing risks posed by hazardous ground gases to buildings.
- 7.10. CIRIA 552: *Contaminated Land* Risk Assessment – A Guide to Good Practice

- 7.11. BS8485:2015 Code of practice for the design of new protective measures for methane and carbon dioxide ground gases for new buildings.
- 7.12. Cundall, September 2017, Phase I Geotechnical and Geoenvironmental Assessment. Report reference I015524.RPT.GL.002.
- 7.13. Cundall, September 2017, Baseline Geotechnical and Geoenvironmental Assessment, Report reference I015524.RPT.GL.003.
- 7.14. In addition the Technical Chapter will be supported by an Exploratory Site Investigation undertaken in general accordance with BS:10175 together with an associated geoenvironmental interpretive Ground Investigation Report (GIR).

## Existing Site Status

- 7.15. The Site is currently predominantly undeveloped being in use only for arable and both livestock / cattle production. Historically the site has no recorded use other than agricultural, although anecdotally it is known that part of the Site may have been used as a decoy during the Second World War.

Geological mapping indicates that the site is likely to be underlain by Glacial Till (sandy gravelly clay) which is classified as a Secondary Undifferentiated Aquifer (although in practice is likely to be Unproductive Strata), overlying Mudstone, classified as a Secondary B Aquifer. Given the site's current and historic agricultural uses some topsoil improvement is anticipated at surface, and locally deeper topsoil is anticipated where infilling of ponds or ditches has occurred. Borehole records near the site examined as part of the Baseline Assessment indicate that rockhead is likely to be shallow (typically less than 5m).

Groundwater is unlikely to be present given the mapped geology, however some perched water trapped upon either the Glacial Till or Mudstone is anticipated given the anticipated low permeability of those strata.

No significant widespread sources of contamination or potential contamination other than agrichemicals (which typically have limited persistence) have been identified. There is an unquantified risk that some asbestos containing materials may exist in the building fabric of Bradley Hall Farm, and may have affected the soils in this vicinity.



## Alternatives Considered

- 7.16. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

## Potential Environmental Impacts

- 7.17. This section sets out the likely environmental impacts likely to be associated with the Proposed Development.

### Construction Phase

- 7.18. Potential environmental impacts during the construction phase are identified in this section.
- 7.19. Importation of contaminated fill; there is the potential that additional soils / fill materials will be required for engineering purposes. If this material is from a brownfield / recycled source there is a possibility this material will introduce new contaminants. This would be a transient risk as any unsuitable fill would then have to be immediately removed from site once identified.
- 7.20. Spillages; there is the potential for heavy plant / machinery fuel spillages which could enter the Bradley Brook via surface runoff / overland flow. Note that in this Chapter references to the Bradley Brook also include its tributaries that are either on or adjacent to the site.
- 7.21. Dust; there is the potential for dust migration off-site should stockpiled clay soils become desiccated during the works.
- 7.22. Silt; there is the potential for run-off into the Bradley Brook of silt impacted water due to poor control of earthworks.
- 7.23. There is a theoretical risk of unstable ground associated with gypsum dissolution in the mudstone.
- 7.24. At this point ground gas is not considered to represent a significant risk due to the absence of a significant source. The proposed cutting and filling exercise is unlikely to make a significant difference to the site contaminative status and is therefore not considered further.

- 7.25. Agricultural land classifications and status will be assessed upon completion of the relevant investigations.
- 7.26. A Detailed Unexploded Ordinance (UXO) Survey has been carried out by Alpha Associates which identifies the site as a medium risk rating due to the site location being near an airfield and near WWII bombing targets.

**Operational Phase**

- 7.27. No potential impacts have been identified as no significant sources of contamination or ground gas that represent a risk to receptors during the operational phase have been identified.

**Methodology for the Environmental Statement**

- 7.28. The ES assessment will be undertaken in accordance with the requirements of the Framework and will assesses ground conditions and contamination to and from the proposed development in addition to any affects to the wider environment. It will also include the mitigation measures considered necessary in the event that further actions are required to contamination and render the site ‘suitable for use’.

**Receptors**

- 7.29. Potential receptors are limited to those identified in Table 7.1. These are further presented in the Receptor Plan. The receptors are all within the local/neighborhood level and due to the baseline assessment findings, which include the PHI Desk Study (Appendix 7), they are limited to the receiving waters, sub-strata and construction operatives.

| Designation   | Receptors       |
|---------------|-----------------|
| International | None identified |
| National      | None identified |
| Regional      | None identified |
| County        | None identified |

| Designation         | Receptors  |
|---------------------|--|
| Borough/District    | None identified  |
| Local/Neighbourhood | Bradley Brook, Secondary (B) Aquifer, Construction workers |

Table 7.1: Receptors

## Environmental Impacts

7.30. Potential environmental impacts are identified in Table 7.2. Where possible these have been aligned with relevant contaminated land assessment guidance such as CIRIA 552.

| Magnitude   | Environmental Impact   |
|-------------|--|
| Substantial | Tangible / identified acute and significant harm to surface water, built environment, groundwater and / or human health receptors.<br>Significant improvement to surface water, built environment, groundwater and / or human health receptors, typically would include remediation of a Part IIa site.  |
| High        | Tangible / identified chronic and significant harm to surface water, built environment, groundwater and / or human health receptors.<br>Improvement to surface water, built environment, groundwater and / or human health receptors, typically would include some form of remediation.  |
| Moderate    | Potential risk of significant harm / damage to surface water, built environment, groundwater and / or human health receptors.<br>Limited improvement to surface water, built environment, groundwater and / or human health receptors, may include some form of remediation but it is unlikely to be site wide.  |
| Minor       | Limited potential risk of significant harm / damage to surface water, built environment, groundwater and / or human health receptors.<br>Limited improvement to surface water, built environment, groundwater and / or human health receptors, may include some form of remediation but it is likely to be passive (i.e. achieved through modern construction methods rather than active remediation). |

| Magnitude  | Environmental Impact  |
|------------|---|
| Negligible | Very limited risk of significant harm / damage to surface water, built environment, groundwater and / or human health receptors.<br>Discernable improvement to surface water, built environment, groundwater and / or human health receptors very limited, Unlikely to form remediation and it is likely to be passive. |
| Neutral    | No risk of significant harm / damage to surface water, built environment, groundwater and / or human health receptors.<br>No improvement to surface water, built environment, groundwater and / or human health receptors very limited,   |

Table 7.2: Environmental Impacts

### Impact Prediction Confidence

7.31. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below in Table 7.3:

| Confidence Level | Description   |
|------------------|---|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.  |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

Table 7.3: Confidence Levels

## Significance of Effects

### Construction Phase

7.32. The significance of the construction phase impacts is given in Table 7.4. Due to the relatively low risk of pollution, all impacts are seen to only have a minor adverse potential of effect other than the potential settlement which will be assessed as part of the Technical Chapter.

| Nature of Impact   | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|--|----------|----------------------|------------------------|------------------|
| Silt impacted water entering the Bradley Brook during construction.                                  | Borough  | Moderate Negative    | Minor Adverse          | High             |
| Dust migration from site during construction affecting construction workers and adjacent site users. | Local    | Moderate Negative    | Minor Adverse          | High             |
| Spillages from plant / machinery during construction entering the Bradley Brook                      | Local    | Moderate Negative    | Minor Adverse          | High             |
| Downward migration of spillages from plant and machinery to the Secondary (B) Aquifer.               | Local    | Minor Negative       | Minor Adverse          | High             |
| Gypsum dissolution causing excess settlement to new buildings and infrastructure.                    | Local    | Moderate Negative    | Moderate Adverse       | High             |

Table 7.4: Significance of Impact - Construction

### Operational Phase

7.33. No Operational Phase impacts have been identified for the scheme.

### Mitigation

7.34. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

### Additive Impacts (Cumulative Impact and their Effects)

7.35. For the purposes of this ES we define the cumulative effects as:

***‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’***

7.36. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the ground conditions cumulative assessment are listed in the table below:

| No. | Cumulative Development   | Details   | Status  | Justification for Inclusion in Cumulative Assessment  |
|-----|--|---|---|---|
| 4   | Land off Barleycastle Lane,<br>Appleton, Warrington<br><br>Liberty Properties  | 50,000m <sup>2</sup> logistics development  | Pre-application discussions with WMBC<br><br>Scoping Request (LPA Ref: 2017/30243)<br>Application to be submitted November 2017 | Site lies upstream of the Application Site with potential to impact the same Controlled Waters (Bradley Brook). This may influence the Controlled Waters risk assessments for the scheme. |
| 6   | Blue Machinery Ltd,<br>Barleycastle Trading Estate,<br>Lyncastle Road, Warrington,<br>WA4 4SY<br><br>LPA Ref: 2016/28994 | Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping.<br><br>(1,699m <sup>2</sup> new build, 180m <sup>2</sup> and 265m <sup>2</sup> extensions) | Application Approved 17-02-2017<br>(3 years to implement planning permission)   | Site lies upstream of the Application Site with potential to impact the same Controlled Waters (Bradley Brook). This may influence the Controlled Waters risk assessments for the scheme. |

| No. | Cumulative Development  | Details  | Status   | Justification for Inclusion in Cumulative Assessment  |
|-----|---|--|--|---|
| 7   | Land off Lyncastle Way,<br>Barleycastle Lane, Appleton,<br>Warrington, WA4 4SN<br><br>LPA Ref: 2015/25255<br><br>Morely Estates | Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618)<br><br>(4,545sqm industrial warehouse building) | Application Approved 16-10-2015 (3 years to implement planning permission) | Site lies upstream of the Application Site with potential to impact the same Controlled Waters (Bradley Brook). This may influence the Controlled Waters risk assessments for the scheme. |

Table 7.6: Cumulative Projects

7.37. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

## Further Work Required

An Exploratory Investigation and associated Phase II Geoenvironmental Assessment has been undertaken in accordance with BS10175:2011+A1:2013 Investigation of potentially contaminated sites and BS:5930:2015 Code of practice for ground investigations (alongside

other relevant guidance) to support the ES, therefore, no further work will be required other than the assessment of impacts.

## Summary

7.38. Identified impacts are highly limited and restricted to the Construction Phase. It is likely that good construction practice and health and safety legislation will mitigate the majority of the risks (e.g. use of PPE and dust control to manage the risk of dust) given the absence of identified significant sources of contamination.

7.39. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Flood Risk & Drainage.

### Scoped In

| Environmental Issue  | Reason for “scoping in”   |
|--|---|
| <b>Ground</b><br><i>Temporary flood risk and pollution to receptors and unstable ground.</i> | <i>Construction work will present new risks to the greenfield site.</i> |

### Scoped Out

| Environmental Issue                | Reason for “scoping out”   |
|------------------------------------|--|
| <b>Ground</b><br><i>Ground Gas</i> | <i>Ground gas is not considered to represent a significant risk due to the absence of a significant source. The proposed cutting and filling exercise is unlikely to make a significant difference to the site contaminative status and is therefore not considered further.</i> |



## 8. Traffic and Transportation

### Introduction

- 8.1. This chapter of the Environmental Statement (ES) scoping study has been prepared by Curtins Consulting (Curtins).
- 8.2. Curtins has been commissioned to provide the traffic and transportation advice for the development of Six:56 Warrington.
- 8.3. This chapter of the ES Scoping paper will outline the methodology and data to be used in the preparation of the Traffic and Transportation chapter of the ES as well as the Transport Assessment (TA) and Travel Plan (TP) reports. The TA and TP will be appended to the Traffic and Transport ES Technical Paper.
- 8.4. The primary traffic and transportation impacts associated with the Proposed Development relate to the number of new trips on the transport network in the vicinity of the Site.
- 8.5. The new trips include additional HGVs, LGVs and cars on the highway network as well as additional person trips on the public transport network. The former requires consideration of possible effects upon the capacity and operation of the local road networks (links and junctions), road safety, severance, driver delay and pedestrian delay and amenity.
- 8.6. As a result, Curtins has liaised with the Highways Officers at Warrington Borough Council (WBC) and the regional authority responsible for the Strategic Road Network (SRN); Highways England (North West). This is to discuss the development and scope of any necessary assessment work.
- 8.7. The TA and TP will be prepared in accordance with the principles set out in the Department for Transport document 'Guidance on Transport Assessment' (2007) and National Planning Policy Guidance (NPPG).
- 8.8. The ES Paper will be prepared in accordance with the Institute of Environmental Assessment (IEA) 'Guidelines for the Environmental Assessment of Road Traffic' (1993).
- 8.9. In summary, this section of the ES Scoping Paper considers the traffic and transportation issues relating to the development and identifies environmental effects, the significance of these

effects, mitigation or enhancement measures and the significance of the residual effects of each.

## **Baseline Information**

### **Planning Policy**

- 8.10. This section sets out the key transport policy and guidance documents that are relevant to this application.

### **National Planning Policy**

#### **National Planning Policy Framework, March 2012**

- 8.11. The National Planning Policy Framework (The Framework) sets out the current national planning policy and outlines the important role that transport policies have to play in facilitating development. From the outset, the Minister for Planning's Foreword lays the foundations for current policy thinking:

'The Purpose of planning is to help achieve sustainable development...Development means growth. We must accommodate the new ways by which we will earn our living in a competitive world. We must house a rising population, which is living longer and wants to make new choices. We must respond to the changes that new technologies offer us. Our lives, and the places in which we live them, can be better, but they will certainly be worse if things stagnate.'

- 8.12. Paragraph 14 states that at the heart of 'The Framework' is a:

'...presumption in favour of sustainable development, which should be seen as a golden thread running through both plan making and decision making.'

- 8.13. For decision making this means granting permission unless:

'...any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies.'

- 8.14. Paragraph 32 of 'The Framework' states the following in relation to the impacts of the proposed development on the surrounding highway network:

'Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.'

#### **Planning Practice Guidance, March 2014**

- 8.15. In addition to 'The Framework', a Planning Practice Guidance (PPG) has been developed by government. Within this document there is a specific section that clarifies the over-arching principles on transport planning for developments.
- 8.16. The 'PPG' has been used in the production of the traffic and transportation chapter of this EIA.

#### **Local Planning Policy**

##### **Warrington Borough Council – Adopted Core Strategy (2014)**

- 8.17. The Warrington Local Plan Core Strategy was adopted by the council on 21 July 2014. It is the overarching strategic policy document in the Local Planning Framework and sets out the planning framework for guiding the location and level of development in the borough up to 2027.
- 8.18. Some elements of the Local Plan were subject to a High Court Challenge but this only affected certain policies and the key traffic and transport policies remain unaltered.
- 8.19. Policy MPI- General Transport Principles states that:

To secure sustainable development the Council and its partners will support proposals where they:

- reduce the need for private car use through its location, travel planning and marketing (smarter choices) and any other measures to change travel behaviour.
- consider demand management measures including the effective reallocation of road space in favour of public transport, pedestrians and cyclists.
- adhere to locally determined car and cycle parking standards.
- Mitigate the impact of development or improve the performance of Warrington's Transport Network, including the Strategic Road Network, by delivering site specific infrastructure which will support the proposed level of development.

- 8.20. Policy MP5 – Freight Transport states that:

Proposals for freight related development will be supported where they achieve a reduction in road traffic kilometres through their location and/or where they reduce the impact of freight traffic on local or inappropriate routes.

In addition to the provisions set out in Policy CSI I Strategic Opportunity – Port Warrington, the Council will encourage development which generates significant movement of freight to locate on Sites which are served by rail and / or water or where such facilities can be provided as part of the development. Where such opportunities are not available, such development should be located where there is good access to the Primary Road Network.

Proposals should demonstrate that they would not have an adverse impact in terms of;

- heavy goods vehicles using local or residential roads or congested central areas;
- unacceptable problems of noise, vibration, lighting, emissions, or other pollution for neighbouring occupiers.

8.21. Policy MP7 Transport Assessments and Travel Plans states that:

The Council will require all development to:

demonstrate that it will not significantly harm highway safety and that trips generated by the development can adequately be served by Warrington's Transport Network.  
identify where there are any significant effects on Warrington's Transport Network and/or the environment and ensure appropriate mitigation measures including any necessary transport infrastructure are in place before the development is used or occupied.

Development proposals which would prejudice the primary function of the Strategic Road Network will not be allowed unless improvements are designed and carried out to provide suitable mitigation to the satisfaction of the local highway authority, having regard to the views of the Highways Agency.

Applications for major developments, developments that are not consistent with the Local Planning Framework or developments that raise specific issues in a locality that consist of housing, employment, retail, leisure, and service uses must be accompanied by a Transport Assessment, Transport Statement, and Travel Plan in accordance with National Planning Policy and national guidance on Transport Assessments.

### **Warrington Borough Council - Emerging Local Plan**

8.22. Following an initial 'call for sites' exercise, WBC published their "Preferred Development Option Regulation 18 Consultation" document, dated July 2017. This sets out the Council's preferred approach to allocating land within central Warrington and to delivering mainly large strategic redevelopment schemes around the rest of the Borough.

8.23. The Site is identified for allocated within this emerging policy as part of the employment zone for the 'Warrington Garden City Suburb'.

- 8.24. The “Preferred *Development Option Regulation 18 Consultation*” document indicates that the Warrington Garden City Suburb will provide for the development of some 7,000 new homes and other facilities along with some 117ha of land set aside for employment uses, centred around 3 garden neighbourhoods.

### **Other Policies and Guidance**

#### **Guidelines for the Environmental Assessment of Road Traffic, 1993**

- 8.25. Guidance from the IEA is considered throughout this traffic and transportation chapter. The IEA is now known as the Institute of Environmental Management and Assessment (IEMA). The guidance document entitled “Guidelines for the Environmental Assessment of Road Traffic” has been used to inform the methodology of assessment.

#### **Initial Scoping Discussions**

- 8.26. Curtins have recently met with senior representatives from both WBC’s Highway Development Control team and Highways England (HE) in respect of promoting the scheme through the emerging local plan process, with a view to a planning application submission in due course.
- 8.27. Curtins met WBC (Mr Andy Oates) on 19th July 2017 to discuss the scope of the TA work that would be required to accompany any future submissions, and also for WBC to consider the scope more fully.
- 8.28. Curtins also met representatives from HE (Mr Neville McKenzie from WSP and Mr Ben Laverick, Assistant Asset Manager at HE) on 24th July 2017 to discuss the scope of the technical work that would be required to accompany any future submissions from HE’s perspective.
- 8.29. Nonetheless, the scope of the TA / Environmental Impact Assessment (EIA)-related work that will be required is similar for both highway authorities, as summarised below:
- In order to properly consider and agree the list of junctions to be included in the TA (and therefore those locations that need to be surveyed and subject to more detailed capacity assessment), WBC and HE require further work to be carried out. Specifically, they require an indication of the traffic-generating

potential of the scheme and its distribution and assignment throughout the local / strategic road network.

- Both WBC and HE agree that the methodology for estimating the traffic generated by the scheme should be based on trip rates from the industry-standard TRICS Database. Staff-related car journeys and industrial / warehouse-related HGV journeys should be split using the mode split data provided by TRICS within the trip rates.
- To augment and validate the above trip generation methodology, WBC are to provide Curtins with information showing the observed staff drivers:metre<sup>2</sup> ratio (or similar data) for Omega Park, Warrington. At the time of writing this data has not yet been provided.
- Both WBC and HE agree that the methodology for distributing operational staff and operational HGV-related journeys should differ, with staff-related journeys based on the 2011 census 'journey to work' data (centred on the census output area within which the industrial estate to the west is situated). All HGV journeys should be assigned directly to the M56 / M6 Motorway Lymm Interchange junction and distributed via a suitable methodology through that junction.
- WBC require a number of schemes to be treated as committed development in any traffic impact assessment work, including 3 recently approved HCA housing schemes situated nearby. There is also a proposed 50,000m<sup>2</sup> logistics scheme situated adjacent to the Site (currently at pre-application stage) that WBC would wish to see included in any assessments, as a 'sensitivity' test to be included as an addition to the baseline position. HE will take WBC's lead (as the LPA) on the list of committed developments to be assessed. These developments are summarized in Table 8.6 of this Paper.
- Without prejudice to the above, and in terms of the local highway network, WBC have confirmed that the TA study area may potentially need to extend (subject to additional discussions and traffic modelling) to the following junctions:
  - The Site access junction/s.
  - **The M6 Motorway Junction 20 Cliff Lane dumbbell roundabouts;**
  - **A50 Cliff Lane / Grappenhall Lane roundabout;**
  - **Grappenhall Lane / Broad Lane roundabout;**
  - **Grappenhall Lane / Barleycastle Lane;**
  - Cat & Lion crossroads (A49 Stretten Road / B5356 London Road);
  - London Road / Lyons Lane roundabout;
  - Witherwins Lane / Lyons Lane roundabout;
  - A49 / A56 at Stockton Heath;
  - Lumb Brook Road canal underpass signals;
  - **Church Lane / A56 Chester Road;**
  - A56 Chester Road / Ackers Road;
  - **Church Lane / Broad Lane;**
  - **A50 Knutsford Road/A56 Chester Road;** and

- Merge / diverge assessments at the variations on-slips / off-slips at the M6 / M56 junction.

(Note those junctions highlighted in bold above have already been surveyed on 6th July 2017. All junctions are shown on the Plan in **Appendix 9**).

- Both WBC and HE agree that the TA Assessment years should include the estimated year of completion and year of completion + 10 years (assumed to be 2031 for the first units), although any growth rates used can be discounted to avoid the double-counting of any committed development trips.
- WBC's consultants are currently carrying out work to update and re-validate the 'Warrington Multi-Modal Transport Model'. This is a large scale high-level theoretical model of the highway network across the Borough that will be used to test the impact of the Council's emerging Local Plan allocation aspirations. This may be another tool that may be employed to assess the impact of the proposed scheme.
- Similarly, HE have their own theoretical Vissim-based model of the strategic network (known as the 'box' model) that extends from the M56 J11, through the M6 J20 up to the Croft Interchange, then across to J7 of the M62. This model is also currently being updated to test WBC's emerging Local Plan aspirations and may be utilised as a tool to assess the scheme in due course.
- WBC have stated that any Site access arrangements should conform to the Design Manual for Roads and Bridges (DMRB) design standards, given the national speed limit on Grappenhall Lane.
- WBC have stated that the internal Site layout should conform to WBC's adopted parking standards Supplementary Planning Document (SPD) (2015) and their Design Guide.
- WBC have stated that the TA should include a review of access by sustainable modes, an appraisal of the accident record at junctions within the agreed study area, a review of relevant highway planning policy, and generally follow the guidance on the preparation of TA's within the National Planning Practice Guidance (NPPG). HE have stated that the TA should also follow the advice within their "The Strategic Road Network: Planning for the Future" 2015 document.
- There is an expectation that the Internal Site Access Roads within the Site will be offered up for adoption.
- Early consultation with WBC's Public Right of Way Officer should ideally be carried out to discuss rights of way through the Site and how they may or may not be affected by the scheme.

### Traffic Surveys

- 8.30. As indicated earlier, Curtins recently commissioned traffic surveys at 7 off-site junctions near the Site, including the following:

- The M6 J20 / Cliff Lane partially signalised dumbbell roundabouts;
- The A50 Cliff Lane / Grappenhall Lane roundabout;
- The Grappenhall Lane / Broad Lane roundabout;
- The Grappenhall Lane / Barleycastle Lane priority junction;
- The Church Lane / A56 signalised junction;
- The Church Lane / Broad Lane priority junction; and
- The A50 / A56 signalised crossroads.

8.31. The data was collected independently by the NDC traffic survey consultancy on the 6<sup>th</sup> July 2017 in the peak periods of 7:00am-10:00am and 16:00pm-18:00pm. The counts were fully classified and recorded all turning movements and queue lengths at the 7 junctions.

8.32. Using this data, the network highway peak hours have been calculated as lying between 07:30-08:30am and 16:30-17:30pm, respectively.

8.33. Curtins have also gathered extensive traffic survey data of the M56 and M6 mainlines and slip roads from the online WebTRIS database resource.

### **Traffic Growth**

8.34. As discussed recently with HE and WBC, all traffic impact assessment work should be undertaken for the assumed year of **completion** of the development and then the year of completion + 10.

8.35. At this stage of the project, it is assumed that the first part of the scheme could potentially be completed in 2021 and therefore the assessment years are 2021 and 2031. The 2021 assessments however assume full completion for simplicity and robustness, and given unknowns regarding future demand and occupation rates.

8.36. In order to quantify the level of background traffic growth that could occur on the local network between the year of the traffic surveys (2017) and the future assessment years, National Traffic Model (NTM) growth factors, modified by TEMPRO local growth factors have been used.



8.37. These factors suggest growth of between 5% and 14% between 2017 and 2031. In due course, and following further scoping discussions / agreement with WBC, the approach to applying traffic growth forecasts will be refined to ensure that trips are not 'double-counted' on the network.

### **Traffic Generation**

8.38. At this stage of the project, the level of trips that could be generated by the scheme have been estimated through reference to average peak hour trip rates obtained from surveys of 'commercial warehousing – B8' and 'general industrial – B2' schemes from within the industry-standard TRICS Database, as agreed with WBC / HE during recent discussions.

8.39. A split of 80% B8 and 20% B2 has been assumed.

8.40. The results indicate that the Proposed Development could generate circa 568 two-way trips in the AM peak period and 415 two-way vehicle in the PM peak period.

8.41. In due course, the above approach may be refined having regard to information to be supplied by WBC on the level of staff vehicle movements observed at Omega Park to the north-west of Warrington, as derived from Travel Plan surveys carried out by WBC.

### **Traffic Distribution**

8.42. As agreed with WBC, staff-related vehicle trips generated by the proposed development will be distributed on the local highway network based on travel-to-work data obtained from the 2011 Census for all 'in-moves' for the Middle Super Output Area (MSOA) in which the nearby Stretton Green Distribution Park is situated.

8.43. The existing travel-to-work trip distribution pattern at the Stretton Green Distribution Park is considered to represent a good proxy for the likely trip distribution of staff at the proposed development given that it is similarly located to the Site and features a similar overall level of employment uses to the proposed development.

8.44. An initial review of this information suggests the following distribution:

- B5356 Grappenhall Lane - 17% of Staff;
- A50 Knutsford Road - 27% of Staff

- A56 Stockport Road - 3% of Staff
- M6 (north) - 31% of Staff
- A50 Cliff Lane - 3% of Staff
- M56 (west) – 14 of Staff

8.45. M6 (south) – 5% of Staff With regard to HGV's and as agreed with HE / WBC during recent discussions, it is assumed that all development-related HGVs will route almost exclusively between the Site and the strategic highway network at the M56 / M6 Lymm Interchange.

8.46. At the M56 / M6 Lymm Interchange, HGV trips have been distributed based on the relative numbers of HGV trips observed to head away from the junction on each mainline during the month of June 2017. This data has been obtained from the online WebTRIS resource (formerly TRADS).

8.47. An initial review suggests the following distribution:

- M6 (north) – 43%
- M56 (west) – 25%
- M6 (south) – 31%
- M56 (east) – 2%

8.48. The above baseline analysis has been used to inform an initial assessment of the impacts, which is summarised later in this Paper.

## Alternatives Considered

8.49. A series of masterplan options have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

## Potential Environmental Impacts

8.50. The key traffic and transportation impacts associated with the proposed development will either occur during the construction phase or the operational phase, as set out below. The key elements will be covered by the TA and ES will include:

- Severance;
- Driver delay;
- Pedestrian delay, amenity and consideration of fear and intimidation;
- Accidents and road safety; and,
- Public transport users.

### Construction Phase

| Potential Impact  | Assessment  |
|---|---|
| <i>Increase in HGV traffic flows on the strategic and local highway network</i>   | <i>The application is for outline consent and therefore an assumption will be made regarding the proposed construction methodology and quantum of traffic generated. However, Curtins will liaise with the team to agree reasonable assumptions regarding the construction impacts.</i> |
| <i>The HGVs associated with the construction process may result in increased dust and dirt</i>  | <i>As above Curtins will liaise with the applicant to agree reasonable assumptions regarding the construction impacts. A Construction Management Plan (CMP) will be produced and this will be designed to mitigate negative construction impacts.</i>                                   |
| <i>The construction of the Site will create a number of construction jobs over a number of years. These workers will arrive from all over the region and therefore the additional traffic may have an impact on the local and strategic highway network</i> | <i>As above Curtins will liaise with the team to agree reasonable assumptions regarding the construction impacts.</i>   |
| <i>The increase in traffic may impact all road users in terms of severance, delay, amenity, road safety and public transport</i>  | <i>Consideration of mitigation measures will form a key part of the TA and ES.</i>  |

|   |  |
|---|--|
| <i>Construction of any mitigation measures on the highway network</i> | <i>Consideration of mitigation measures will form a key part of the TA and ES.</i> |
|---|--|

### Operational Phase

| <b>Potential Impact</b>   | <b>Assessment</b>   |
|---|---|
| <i>Increase in traffic and driver delay on the local highway network</i>                                | <i>The TA and ES will consider the impact at junctions within the vicinity of the Site (within the geographical study area) by modelling the without development and with development scenarios and consideration will be given to mitigation as appropriate.</i> |
| <i>Increase in traffic and driver delay on the strategic highway network</i>                            | <i>The TA will include consideration of junction capacity at the M6/M56 Interchange.</i>  |
| <i>Reductions in driver delay and improvements to highway safety due to highway mitigation measures</i> | <i>Consideration of mitigation measures will form a key part of the TA. It is possible that some of these measures will have benefits beyond 'nil detriment'.</i>   |
| <i>Increases in traffic flows may affect pedestrians, cyclists and public transport</i>                 | <i>Consideration of severance, pedestrian delay and amenity with mitigation if appropriate.</i>   |

## Methodology for the Environmental Statement

- 8.51. The methodology for the Environmental Statement will be in accordance with the IEMA method set out in the document 'Guidelines for the Environmental Assessment of Road Traffic' (1993).
- 8.52. The IEMA guidelines recommend that the environmental effects listed in table 2.1 of the guidance may be considered important when considering traffic from an individual development. These effects include:
- Noise;
  - Vibration;

- Visual Impact;
- Severance;
- Driver delay;
- Pedestrian delay;
- Pedestrian amenity;
- Accidents and safety;
- Hazardous loads;
- Air pollution;
- Dust and dirt;
- Ecological impact; and
- Heritage and conservation.

8.53. Of these effects, many are considered in chapters elsewhere in this document due to the specialist skills required; namely noise, vibration, visual impact, air pollution, ecological effects and heritage and conservation.

8.54. With regard to the remaining effects the guidance states that the following rules should be used as a screening process to delimit the scale and extent of the assessment:

- Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles (HGV) will increase by more than 30%); and
- Include any other specifically sensitive areas where traffic flows have increased by 10%, or more.

8.55. The IEMA guidelines go on to state that any increases in traffic flows of less than 10% are generally accepted as having no discernible environmental impact as daily variance in traffic flows can be of equal magnitude.

8.56. The 30% threshold relates to the level at which humans may perceive change and there may therefore be an effect. Impacts above this level therefore do not suggest that there is a significant impact, only that further consideration is required to assess the significance.

### **Transport Assessment**

8.57. To determine whether the traffic flows at the junctions listed in Section 8.27 of this paper exceed the 10% or 30% threshold the TA will include:

- Assessment of the local highway network in the geographic study area described earlier;
- Assessment of the strategic highway network including the junctions of the M6 and M56 as described earlier;
- Consideration of the development traffic generation and distribution; and
- Consideration of the without development and with development at future year (2031), the difference is the highway impact, expressed as a percentage.

### **Travel Plan**

8.58. A framework Travel Plan will be prepared and appended to the ES Technical Paper. This will be an overarching document, from which each individual development plot can, in due course, provide a Site-specific Travel Plan for each occupier. The TP will:

- Identify the objectives of the TP and how it will link with the occupiers of the Site;
- Provide targets which will need to be achieved and maintained in order to reduce the overall traffic and transportation impact of the Site;
- Identify the measures and initiatives to achieve the objectives of the TP to increase travel to the Site sustainably: on foot, by cycle and/or using public transport;
- Provide details of how the TP will be marketed for staff and visitors;
- Set out realistic and achievable preliminary targets for reducing travel to Site by private car and identify specific timescales to be agreed with the local authorities; and
- Derive a monitoring schedule to assess the effectiveness of the TP.

8.59. The TP is a live document that will apply throughout the lifecycle of the project.

### **Other Assessments**

8.60. Once the above assessments have been undertaken and mitigation measures have been considered any links with a predicted increase above 30% (or 10% in sensitive areas) will be

assessed in accordance with IEMA guidelines. As mentioned previously this will include consideration of:

- Severance;
- Driver delay;
- Pedestrian delay;
- Pedestrian amenity; and
- Accidents and safety.

8.61. With regard to severance, the IEMA guidelines indicate that traffic flows would have to increase by more than 30% in order for a 'slight' change in severance to occur, 60% for a 'moderate' change to occur and 90% for a 'substantial' change to occur.

8.62. Driver delay can occur as a result of increased traffic flows on the network as a result of development. This generally occurs at junctions where turning traffic flows increase. As part of the TA, junction capacity assessments will be undertaken at all of the key junctions in the vicinity of the Site and the wider agreed geographical study area.

8.63. With regard to pedestrian delay and amenity, changes in the volume, composition or speed of traffic may affect the ability of people to cross roads and increases in traffic generally lead to greater increase in delay for pedestrians.

8.64. The IEMA guidance indicates that a two-way link flow of approximately 1,400 vph (vehicles per hour) broadly equates to a 10 second pedestrian delay in crossing a single carriageway road. Based on the above guidance the actual delay can be calculated for each link road.

8.65. As part of the TA highway safety and accessibility by sustainable modes of travel will be considered in detail and a summary will be provided therein.

### **Receptors**

8.66. Receptors are required to be assessed to assess the effect magnitude and sensitivity of each that are within the vicinity of the Site. The following hierarchy is used to assess the how receptors are considered:

- International

- National
- Regional
- County
- Borough/District
- Local/Neighbourhood

8.67. Below sets out the receptors around the Site and which designation that they fall into.

| Designation         | Receptors   |
|---------------------|---|
| International       | N/A   |
| National            | Existing traffic on the M6 Motorway   |
| Regional            | Existing traffic on the M56 Motorway  |
| County              | Existing traffic on the A50   |
| Borough/District    | Existing traffic on the local highway network   |
| Local/Neighbourhood | Residential Housing in the vicinity of the Site<br>Existing traffic on the local highway network in the vicinity of the Site<br>Pedestrians and cyclists on the local highway network<br>Public transport users in the vicinity of the Site |

Table 8.1: Receptors

8.68. The above table shows that there are no international receptors in the vicinity of the development. However, the M6 and M56 motorways are considered national and regional receptors, respectively. The county and local level receptors would be the existing traffic on the local highway network in Warrington. A plan showing the locations of receptors is shown on the drawing “Traffic and Transportation – Receptor Plan” at Appendix 4.

8.69. Other key receptors would be Residential Housing in the vicinity of the Site, Pedestrians and cyclists on the local highway network and Public transport users in the vicinity of the Site. The previously mentioned receptors will be assessed by their allotted designation level to assess their environmental impacts.

### Environmental Impacts



8.70. The exact impact on the receptors is yet to be determined and will not be known until the TA and ES is completed.

8.71. The magnitude and environmental impacts will be assessed against the parameters as presented in Table 8.2 below, where the percentages quoted represent increases.

| Magnitude   | Environmental Impact   |
|-------------|--|
| Substantial | Construction – Significant number of construction vehicles over a protracted period (over 35% increase)<br>Operational – Sustainable Travel – No provision for pedestrians, cyclists or public transport<br>Operational – HGVs – Significant number of HGVs on a permanent basis (over 35% increase)<br>Operational – Traffic – Significant number of cars on a permanent basis (over 35%)                         |
| High        | Construction – High number of construction vehicles over a protracted period (30% to 34% increase)<br>Operational – Sustainable Travel – Limited access to sustainable modes of travel<br>Operational – HGVs – High number of HGVs on a permanent basis (30% to 34% increase)<br>Operational – Traffic – High number of cars on a permanent basis (30% to 34% increase)  |
| Moderate    | Construction – Moderate number of construction vehicles over a protracted period (15% to 29% increase)<br>Operational – Sustainable Travel – Some access to either walking, cycling or public transport but not all three<br>Operational – HGVs – Moderate number of HGVs on a permanent basis (15% to 29% increase)<br>Operational – Traffic – Moderate number of cars on a permanent basis (15% to 29% increase) |
| Minor       | Construction – Small number of construction vehicles over a protracted period (6% to 14% increase)<br>Operational – Sustainable Travel – Some access to walking, cycling and public transport facilities<br>Operational – HGVs – Small number of HGVs on a permanent basis (6% to 14% increase)<br>Operational – Traffic – Small number of cars on a permanent basis (6% to 14% increase)                          |
| Negligible  | Construction – Occasional access required (less than 5% increase)<br>Operational – Sustainable Travel – Dedicated access to walking, cycling and public transport facilities<br>Operational – HGVs – Immaterial number of HGVs on a permanent basis (less than 5% increase)<br>Operational – Traffic – Immaterial number of cars on a permanent basis (less than 5% increase)                                      |
| Neutral     | No change  |

Table 8.2: Environmental Impacts

8.72. Some of the above parameters are subjective; for robustness the worst case scenario will be taken initially with due consideration of the realistic and practical range of impact.

**Impact Prediction Confidence**

8.73. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description  |
|------------------|--|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.   |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels |

Table 8.3: Confidence Levels

**Significance of Effects**

8.74. The significance of effect is determined using the significance matrix in **Section 3** of this Scoping Request Report. This identifies the receptor level across the top of the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect.

8.75. At this stage of the project it is not possible to advise on the significance of the impacts in a detailed manner. The following provides a broad summary, although the impacts, significance and confidence level are subject to change following further work as outlined later in this chapter.

**Construction Phase**

8.76. The Proposed Development consists of both industrial and storage and distribution buildings and their vehicle aprons together with secondary internal Site access roads connecting to the primary internal Site access road that joins the surrounding local highway network at the B5356 Grappenhall Lane.

8.77. The current construction phasing is described earlier in this ES Scoping document.

8.78. There are three main construction related impacts; deliveries to Site, workers commuting to Site and Site operation during the construction phase.

8.79. Construction traffic is likely to have a moderate impact. It is anticipated that the volume of construction traffic will be below the 10% increase threshold set out in the IEA “Guidelines for the Environmental Assessment of Road Traffic” whereby additional assessment is necessary.

#### Site

8.80. It is anticipated that construction access will initially be gained from the existing farm access from the A50 Cliff Lane in order to form Site compounds and to construct the new Site entrance from the B5356 Grappenhall Lane. Once the access point and associated access road from Grappenhall Lane is constructed, this will be utilised by construction traffic to develop the rest of the Site.

8.81. The Construction Traffic Management Plan will direct that construction traffic will operate outside peak hours where possible and abnormal or oversize vehicles will be escorted as appropriate. All unloading will be within the Site and within the Site operating hours and therefore will have minimal effect on adjacent occupiers.

8.82. All Site works will be undertaken to the Environment Agency’s Pollution Prevention Guidance Note 6 “Working at Construction and Demolition Sites”. Plant will be maintained in order to minimise noise, vibration and pollution (air and ground). Measures will be in place to minimise the risk of hydrocarbon contamination. Plant will only be active within the hours of Site operation and only when required.

8.83. Highway mitigation measures are being considered and the environmental impact of these will be assessed as part of the EA. The following table shows the initial assessment without mitigation being taken into consideration:

| Nature of Impact  | Receptor                                       | Environmental Impact | Significance of Effect | Confidence Level |
|---|--|----------------------|------------------------|------------------|
| Increase in HGV traffic flows on the M6 may impact on driver delay due to construction traffic  | National                                       | Minor Negative       | Moderate Adverse       | Low              |
| Increase in HGV traffic flows on the M56 may impact on driver delay due to construction traffic   | Regional                                       | Minor Negative       | Moderate Adverse       | Low              |
| Increase in HGV traffic flows on the local highway network may impact on driver delay, road safety, pedestrian amenity and public transport | Local/<br>Neighbourhood,<br>Borough,<br>County | High Negative        | Moderate Adverse       | Low              |
| The HGVs associated with the construction process may result in increased dust and dirt   | Local/<br>Neighbourhood                        | Minor Negative       | Minor Adverse          | Low              |

| Nature of Impact   | Receptor                        | Environmental Impact  | Significance of Effect | Confidence Level |
|--|---------------------------------|-----------------------|------------------------|------------------|
| <p>The construction of the Site will create a number of construction jobs over a number of years. These workers may have an impact on the local network in terms of driver delay, pedestrian amenity, road safety and public transport</p> | <p>Local/<br/>Neighbourhood</p> | <p>Minor Negative</p> | <p>Minor Adverse</p>   | <p>Low</p>       |
| <p>The construction of the Site will create a number of construction jobs over a number of years. These workers may have an impact on key roads.</p>   | <p>Borough</p>                  | <p>Minor Negative</p> | <p>Minor Adverse</p>   | <p>Low</p>       |

| Nature of Impact   | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|--|----------|----------------------|------------------------|------------------|
| The construction of the Site will create a number of construction jobs over a number of years. These workers will arrive from all over the region and therefore the additional traffic may have an impact on the M6 and M56 in terms of driver delay | County   | Minor Negative       | Moderate Adverse       | Low              |

Table 8.4: Significance of Impact – Construction

8.84. The low confidence level is on the basis that scoping discussion with Highways Officers are ongoing and the traffic analysis is at a preliminary stage.

### Operational Phase

8.85. The Site, once constructed will consist of circa 3.5 M sq. ft. of B8/B2 uses; the operational traffic will be related to this level of development. As a result of the ongoing traffic and transportation studies in the TA, it is considered that a series of junction improvements may be necessary. These improvements are likely to be linked to a series of development triggers and more information will be provided in the TA as the scoping discussions, proposals and mitigation evolve.

8.86. The environmental impacts of the junction improvements considered in the TA will be assessed as part of the EA.

8.87. The table below gives the nature of the impact without mitigation unless stated otherwise.

| Nature of Impact  | Receptor            | Environmental Impact | Significance of Effect | Confidence Level |
|---|---------------------|----------------------|------------------------|------------------|
| Increase in traffic on the local network impacting on driver delay, road safety, pedestrian amenity and public transport users. | Local/Neighbourhood | High Negative        | Moderate Adverse       | Low              |
| Increase in traffic and driver delay on the M56 impacting on driver delay   | Regional            | High Negative        | High Adverse           | Low              |
| Increase in traffic and driver delay on the M6 impacting on driver delay  | National            | High Negative        | High Adverse           | Low              |
| Increase in traffic on the A50 impacting on driver delay, road safety, pedestrian amenity and public transport users            | County              | Moderate Negative    | Moderate Adverse       | Low              |

Table 8.5: Significance of Impact – Operation

8.88. The low confidence level is on the basis that scoping discussion with Highways Officers are ongoing and the traffic analysis is at a preliminary stage.

## Mitigation

8.89. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements, a series of junction improvements to offset the operational highway impact as

mentioned above, will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

## Additive Impacts (Cumulative Impact and their Effects)

8.90. For the purposes of this ES we define the cumulative effects as:

***‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’***

8.91. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report.

8.92. The projects to be considered in respect of the Traffic and Transportation technical topic area cumulative assessment are listed in the table below:

| No. | Cumulative Development  | Details  | Status  | Justification for Inclusion in Cumulative Assessment  |
|-----|---|--|---|---|
| 1   | Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington<br>LPA REF:2016/28807<br>Applicant - HCA  | Outline Planning Application for 180 dwellings | Planning permission granted by WMBC 28-09-2017  | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment. |
| 2   | Land bounded by Green Lane & Dipping Brook Avenue, Appleton, Warrington, WA4 5NN<br>LPA Ref: 2017/29930<br>Applicant HCA  | Outline Planning Application for 370 dwellings | Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017 | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment. |
| 3   | Land South of Astor drive, East of Lichfield Avenue & South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3lg<br>Lpa Ref:2017/29929<br>Applicant - HCA | Outline Planning Application for 400 dwellings | Resolution to grant planning permission by WMBC Development Management                      | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment. |
| 4   | Land off Barleycastle Lane, Appleton, Warrington<br>Liberty Properties  | 50,000sqm Logistics Development                | Pre-application stage   | Agreed with Warrington Highways that would be included as a sensitivity test within the baseline.   |

Table 8.6: Cumulative Projects



- 8.93. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

### Further Work Required

- 8.115 Consultation is still on-going with the local authorities responsible for traffic and transportation within the geographic study area.
- 8.116 The geographical study may need to be increased to include further junctions which will require new traffic surveys. This will be confirmed via additional scoping discussions with WBC and HE and the results of modelling work which they are undertaking.
- 8.117 Ongoing work that will be completed for the Environmental Statement includes the TA and TP.

### Summary

- 8.118 This EIA Scoping Technical Chapter 'Traffic and Transportation has been prepared by Curtins and considers the scope of the proposed Six:56 Warrington development upon the traffic and transportation conditions within the vicinity of the Site.
- 8.119 At the junctions the impact in terms of capacities, queues and driver delays will be assessed as part of the TA.
- 8.120 This chapter sets out the Traffic and Transportation methodology to be used in the ES which includes identification of receptors, a methodology to identify the severity of the environmental impacts and a methodology for identifying the significance of the impacts.
- 8.121 The methodology is based on 'Guidelines for the Environmental Assessment of Road Traffic' (1993) and in accordance with the guidance the following rules will be used as a screening process to delimit the scale and extent of the assessment:
- "Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and

- Include any other specifically sensitive areas where traffic flows have increased by 10%, or more.”

8.122 The TA will determine the highway impact of the traffic and transportation aspects of the Proposed Development and will consider these and make recommendations for junction improvements and other highway mitigation as appropriate. Any such mitigation will be developed through close liaison with the relevant highway authority in order to ensure the proposals are appropriate.

8.123 The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Traffic and Transportation.

**Scoped In**

| Environmental Issue   | Reason for “scoping in”   |
|---|---|
| <p><b>Traffic and Transportation</b></p> <p><i>Construction:</i></p> <p>Driver Delay</p> <p>Pedestrian Amenity and Delay</p> <p>Road Safety</p> <p>Public Transport</p> <p>Severance</p> <p><i>Operation:</i></p> <p>Driver Delay</p> <p>Pedestrian Amenity and Delay</p> <p>Road Safety</p> <p>Public Transport</p> <p>Severance</p> | <p>State reason eg:</p> <p>The development is likely to result in additional traffic on the highway network during the construction and operational phase. This may impact on all of the environmental issues listed.</p> |

8.124 No environmental issues have been scoped out at this stage of the project.

## 9. Flood Risk and Drainage

### Introduction

- 9.1. The Technical Chapter of the ES will be prepared by a Chartered Engineer from Cundall.
- 9.2. Cundall will be undertaking the Drainage and Flood Risk assessment to identify how the proposed development may impact local water resources, the surface water regime and the surrounding area.
- 9.3. From the baseline, the potential impact can be identified and the effects that may occur as a result of the proposed development will be assessed. The detailed assessment will, where required, recommend mitigation measures to reduce any adverse effects of the development.
- 9.4. Impacts from and to the proposed development will be considered. These will include the capacity of receiving waters or infrastructure, fluvial impact, pluvial impact and groundwater impact.
- 9.5. A Flood Risk Assessment (FRA) and Drainage Strategy (DS) will be provided as part of the planning application and these findings will form the basis of the environmental assessment and ES Technical Chapter.
- 9.6. The assessments will be in accordance with National Planning Policy (the Framework) and the Local Authorities Local Plan and Core Strategy. Reference will also be made to the local Strategic Flood Risk Assessment (SFRA) and relevant Environment Agency (EA) Plans to identify any wider risks.
- 9.7. The Lead Local Flood Authority (LLFA), the Environment Agency (EA) and United Utilities (UU) will be consulted as part of the assessment process.
- 9.8. This Chapter links closely with the Geology and Ground Conditions Chapter 7 and they should be read in conjunction with one another. In relation to the ground, this Chapter will assess the impact that temporary and permanent drainage conveyance will have on the underlying sub-strata and receiving waters. The Ground Chapter also assesses the impact on the underlying sub-strata and receiving waters but from naturally occurring risks and also construction logistics.

## Baseline Information

- 9.9. Information available on flood risk related to the Site from Government and Local Authority publications will be collated and reviewed as part of the impact assessment.
- 9.10. The following documents will be consulted as part of the assessment;
- National Planning Policy Framework (The Framework), 2012
  - Flood risk and coastal change PPG, Revision date: 6 March 2014
  - Climate change PPG, Revision date: 12 June 2014
  - Water supply, wastewater and water quality PPG, Revision date: 23 March 2015
  - Sustainable drainage systems: non-statutory technical standards Guidance by Department for Environment, Food and Rural Affairs (DEFRA), Revision date: 23 March 2015
  - Non-Statutory Technical Standards for Sustainable Drainage Practice Guidance by Local Authority SuDS Officer Organisation (LASOO), 05 2015
  - Flood & Water Management Act (FWMA), 2010
  - Water Framework Directive, 23 October 2000
  - Living on the edge, the Environment Agency (EA), 2016
  - Site specific documents referred to in Section 5, Baseline.
  - Additional relevant guidance identified during the assessment process
- 9.11. The Site sits within National Flood Zone 1 land and is not at risk of flooding from rivers or seas.
- 9.12. A main EA river network is present on the southern boundary of the Site. A tributary of Bradley Brook originates from Barleycastle Lane flowing west to east before joining Bradley Brook prior to being culverted under the M6 Motorway. The river continues north through Lymm with eventual connection to the Manchester Ship Canal network.

- 9.13. There are no formal foul or storm artificial drainage connections offsite from the existing development buildings. The storm water appears to discharge back to the ground regime with eventual discharge to the Bradley Brook Network. The foul water appears to be collected locally in tanked cess pits.
- 9.14. The closest adoptable sewer network is located in the industrial estate to the west, under the responsibility of United Utilities. The closest adoptable sewer network with available connection to processing plants is found further south-west within the outer regions of Appleton.
- 9.15. The natural drainage patterns on the Site indicate mainly greenfield runoff toward Bradley Brook. There are also a series of onsite ponds which collect and store water for sub-catchments without positive artificial connections. Bradley Gorse also has an independent natural drainage network which includes ponds and overland connectivity with eventual connection back to Bradley Brook.
- 9.16. Beneath the site, the superficial Glacial Till is classified as a Secondary Aquifer (Undifferentiated) and the underlying Bollin Mudstone Member bedrock is classified as a Secondary Aquifer B by the Environment Agency. This is generally capable of storing only limited amounts of groundwater.
- 9.17. The site is not located within an Environment Agency groundwater Source Protection Zone and there is no groundwater abstraction points within 250m of the site.
- 9.18. The baseline drainage setting will be derived from the United Utilities public sewer record, EA maps and topographical and geoenvironmental information.
- 9.19. The baseline assessment for Flood Risk and Drainage is included in Appendix 9. This baseline assessment includes initial liaison with Statutory Consultees and although liaison will continue through the impact assessment, the baseline will not be updated as this is the basis for review. For up to date consultation records, these will be included in the body of the Technical Chapter.
- 9.20. The existing Site Flood Risk exposure will be identified and confirmed in the ES.
- 9.21. The existing drainage regime for the existing properties will be defined and confirmed in the ES.

- 9.22. The likely evolution of the environment without implementation of the development in relation to flood risk and drainage would stay neutral with no change to the existing. Without intervention the drainage and flood risk patterns would remain albeit with slightly elevated pond levels due to increase in rainfall intensity due to climate change

## **Alternatives Considered**

- 9.23. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

## **Potential Environmental Impacts**

- 9.24. This section sets out likely potential environmental impacts from the Proposed Development.

### **Construction Phase**

- 9.25. Groundwater ponding from large excavations during construction causing flood risk and potential pollutant pathways from construction activities.
- 9.26. Storm water flows overland during the installation of impermeable surfaces or removing topsoil and vegetation prior to installing storm water drainage connections, attenuation or a live connection, creating a potential flood risk and pollution pathway during the works.
- 9.27. Pollution pathway to Bradley Brook network.
- 9.28. Pollution of the Bradley Brook Network by conveyed storm water with silt and sediment (dealing with solids with low settleability) from any potential spills during construction or any surface water flows.
- 9.29. Excessive ponding from intense storms leading to additional infiltration to the ground.

### **Operational Phase**

- 9.30. Risk of flooding to the Site from offsite sources from overland routes.

- 9.31. Risk of flooding from the Site to offsite sources due to the increased development causing increased surface water runoff.
- 9.32. Future impact of climate change on increased storm events creating more intense rainfall periods with additional surface water to deal with.
- 9.33. Potential increase in flow to receiving waters from increased hard standing areas and newly generated waste.
- 9.34. Potential increase in pollutants to receiving waters from the new storm water system from the type of surfacing and operation in relation to water quality.
- 9.35. Potential increase in pollutants to the below aquifer in relation to water quality from rainfall over new impermeable areas.

### Methodology for the Environmental Statement

- 9.36. The ES assessment will be undertaken in accordance with the requirements of the Framework and will assesses flood risk to and from the proposed development in addition to any water quality changes. It will also include the mitigation measures provided by the proposed drainage strategy which will be designed and detailed in accordance with the LLFA requirements.

#### Receptors

- 9.37. The receptors identified as susceptible to potential impact from the development are the receiving waters and sewers for the drainage and adjacent neighborhoods for flood risk, all within the local area as shown on the Receptor Plan.

| Designation   | Receptors |
|---------------|-----------|
| International |           |
| National      |           |
| Regional      |           |
| County        |           |

| Designation         | Receptors  |
|---------------------|--|
| Borough/District    |  |
| Local/Neighbourhood | United Utilities Sewers, Bradley Brook network, Bradley Gorse, adjacent lower lying site, ground water regime/aquifer, Bradley View, Bradley Hall Cottages, site users |

Table 9.1: Receptors

## Environmental Impacts

9.38. The below table outlines the definition of the magnitude of environmental impact in relation to Flood Risk and Drainage effects. The environmental impacts outline the the level of change to water quality and flood risk associated to the relevant magnitude assessment.

| Magnitude   | Environmental Impact  |
|-------------|---|
| Substantial | <p>A very large change in water quality which could result in exceedance of statutory objectives and/or breaches of legislation</p> <p>A substantial change to flood risk off site resulting in the flooding of properties</p> <p>A substantial change off site resulting in improving flood risk</p> |
| High        | <p>A large change in water quality within 1000m of the site</p> <p>A large change to flood risk off site resulting in the flooding of properties</p> <p>A large change off site resulting in improving flood risk</p>   |
| Moderate    | <p>An intermediate change in water quality within 500m of the site</p> <p>An intermediate change to flood risk to properties or infrastructure off site</p> <p>An intermediate change off site resulting in improving flood risk</p>  |



| Magnitude  | Environmental Impact   |
|------------|--|
| Minor      | <p>A small change in water quality within 100m of the site.</p> <p>A small change to the flood risk within the site boundary</p> <p>A small change on site resulting in improving flood risk</p> |
| Negligible | No noticeable change in water quality / flood risk   |
| Neutral    | No detectable change in water quality / flood risk   |

Table 9.2: Environmental Impacts

### Impact Prediction Confidence

- 9.39. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description   |
|------------------|---|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.  |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

Table 9.3: Confidence Levels

### Significance of Effects

- 9.40. The impacts below have been assessed without mitigation. Relevant mitigation will neutralize or look to neutralize the impact and will be considered during scheme evolution and further ES assessment work.

### Construction Phase

| Nature of Impact   | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|--|----------|----------------------|------------------------|------------------|
| Groundwater ponding in excavations causing flood risk                        | Local    | Minor Negative       | Minor Adverse          | High             |
| Increase in impermeable areas leading to increased flood risk on and offsite | Local    | Minor Negative       | Minor Adverse          | High             |
| Pollution through existing drainage systems to the Bradley Brook network     | Local    | High Negative        | Minor Adverse          | High             |
| Pollution through conveyed storm water with silt/sediment                    | Local    | High Negative        | Minor Adverse          | High             |
| Excessive ponding leading to additional infiltration to ground               | Local    | Moderate Negative    | Minor Adverse          | High             |

Table 9.4: Significance of Impact - Construction

## Operational Phase

| Nature of Impact   | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|--|----------|----------------------|------------------------|------------------|
| Overland flows originating offsite flooding the site                         | Local    | Moderate Negative    | Negligible             | High             |
| Increased development leading to increased flood risk offsite                | Local    | High Negative        | Minor Adverse          | High             |
| Climate change impact on storm intensity                                     | Local    | High Negative        | Minor Adverse          | High             |
| Increased storm and foul water flow to receiving waters                      | Local    | High Negative        | Minor Adverse          | High             |
| Increased pollution to receiving waters due to increased industrial surfaces | Local    | High Negative        | Minor Adverse          | High             |

|  |       |               |               |      |
|--|-------|---------------|---------------|------|
| Potential pollutants to below underlying aquifer | Local | High Negative | Minor Adverse | High |
| Potential pollutants to below ground strata      | Local | High Negative | Minor Adverse | High |

Table 9.5: Significance of Impact – Operation

## Mitigation

- 9.41. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES but are thought at this stage to include the following:
- 9.42. All large and deep construction excavations should be avoided as far as possible. Where this is not possible, they should be covered, especially in periods of heavy rain. As a last resort, they should be managed in accordance with Pollution Prevention Guideline (PPG) 5 and potentially pumped out under controlled fashion. No connection from excavations should be made to the watercourse unless treatment processes are put in place.
- 9.43. Haul roads or matting should be provided as part of the construction works to prevent consolidation of the Site which will reduce permeability and increase runoff but will limit the amount of disturbed sediment/soils from reaching surface waters.
- 9.44. A portion of surface water attenuation should be developed prior to increasing the impermeable area, where necessary, to utilize as storage. Water management on site is to be in accordance with PPG5.
- 9.45. A suitable surface water management system should be developed as part of any construction plans which should include the use of temporary drainage where required.
- 9.46. If existing live flows (that are required to be retained) are to be cut off by the works (either overland or underground) temporarily these are to be maintained in a like for like scenario without hindering the course of flow or adding to it. This will be closely linked to the proposed detailed design for retention of any existing flow conveyance routes.

- 9.47. Potential pollution spills should be managed and monitored. This should include providing bunds around at risk areas, particularly handling oils and fuels and these areas should be isolated and away from potential water pathways.
- 9.48. Disturbance of ground should be limited to works required for the permanent scheme, otherwise haul roads, lay down or matting should be used to prevent consolidation and increase potential runoff with silts/solids entering existing drainage pathways. Disturbance of ground through major earthworks should be planned, designed and phased to ensure that it is not a direct source for stormwater to convey silts/solids overland.
- 9.49. In order to minimise the risk of sediment on the construction site, vegetation should only be removed from areas that need to be removed and stockpiles should be seeded or covered.
- 9.50. Any drainage ditches, swales or basins to be excavated are to be sealed or finished immediately to prevent the conveyance of silts and solids to receiving waters.
- 9.51. Any vehicles accessing the site and tracking through the disturbed ground are to be removed of potential debris that could pollute offsite waters prior to them leaving site.
- 9.52. All works should follow the EA's Pollution Prevention Guidelines.
- 9.53. If any waters onsite are known to be polluted, treatment may be necessary before disposal to the surface water receptor. Treatment should include settlement.
- 9.54. A Flood Risk Assessment will be undertaken to assess the flood risk to and from the proposed development in accordance with the Framework.
- 9.55. The increased impermeable/developable area is to be drained via a new foul and storm water system and conveyed to new outfalls.
- 9.56. The foul water network will be sized and designed to accept all flows from the Proposed Development Site with a new connection to the United Utilities combined sewer network. The exact connection point is under negotiation with United Utilities, however they have confirmed that their system can accommodate the proposed flows.
- 9.57. The storm water network will be sized and designed to accept all flows from the Proposed Development Site with additional flood protection including climate change allowances and a

new connection to the Bradley Brook system at a restricted rate of discharge (Greenfield Runoff Rate).

- 9.58. The storm water design will be in accordance with the LLFA Flood Risk/Drainage design guidance and the Framework.
- 9.59. In order to provide flood risk protection to the Site and to the surrounding neighbourhood to manage the limited storm water discharge, onsite attenuation will be provided both in the main infrastructure and within the plots. This will be to the required return periods as required by the LLFA including allowances for climate change in accordance with the Framework. All storm water flows for the 1 in 30 year storm events will be contained below ground with all flows for the 1 in 100 year events plus climate change allowance of 40% being contained safely within the Site boundaries overland and/or underground.
- 9.60. All new impermeable surfacing (roads, car parks, roofs etc.) will be drained to the new storm water drainage network and conveyed to the new outfall to the Bradley Brook system. As part of the main network, Sustainable urban Drainage Systems (SuDS) will be included to improve water quality prior to the discharge to the receiving waters. SuDS will naturally filter the water and remove pollutants and solids prior to discharge.
- 9.61. No infiltration is proposed to the sub-strata below due to the low permeability at the surface. As all developable/impermeable areas will be drained, treated and discharged to Bradley Brook there will be no risk of pollution to the underlying aquifer.
- 9.62. Limiting re-entry of fallen stormwater onto the Development Site over the underlying aquifer and recharging the groundwater will have no adverse effect. Areas of proposed landscaping will still slowly infiltrate to ground as they do now. Areas of new impermeable surfacing will intercept stormwater that previously discharged to ground although this will have a negligible impact on water resources due to the impermeable Glacial Till and aquifer classification. Similarly, any rainwater will be collected and conveyed to discharge to Bradley Brook on the southern boundary of the Site which closely follows the regional groundwater model. The brook lies lower than the sites existing and finished levels. There are also no groundwater abstraction zones or source protection zones within the vicinity of the site further declassifying risk.

9.63. No works will restrict access to the banks of the Bradley Brook system and the responsibility for general maintenance responsibilities will lie with the Riparian land owner to further ensure the working condition. The riparian land owner and the responsibilities are outlined in the EA document Living on the edge (2016).

### Additive Impacts (Cumulative Impact and their Effects)

9.64. For the purposes of this ES we define the cumulative effects as:

***‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’***

9.65. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Drainage and Flood Risk cumulative assessment are listed in the table below:

| No. | Cumulative Development   | Details                                    | Status  | Justification for Inclusion in Cumulative Assessment   |
|-----|--|--|---|--|
| 4   | Land off Barleycastle Lane, Appleton, Warrington<br><br>Liberty Properties | 50,000m <sup>2</sup> logistics development | Pre-application discussions with WMBC<br><br>Scoping Request (LPA Ref: 2017/30243)<br><br>Application to be submitted November 2017 | Site lies upstream of the Application Site with potential to drain and contribute to the same Bradley Brook waterway network. This could influence flood risk and water quality assessments. |

| No. | Cumulative Development   | Details   | Status  | Justification for Inclusion in Cumulative Assessment  |
|-----|--|---|---|---|
| 6   | <p>Blue Machinery Ltd,<br/>Barleycastle Trading Estate,<br/>Lyncastle Road, Warrington,<br/>WA4 4SY</p> <p>LPA Ref: 2016/28994</p> | <p>Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping.</p> <p>(1,699m<sup>2</sup> new build, 180m<sup>2</sup> and 265m<sup>2</sup> extensions)</p> | <p>Application Approved 17-02-2017<br/>(3 years to implement planning permission)</p> | <p>Site lies upstream of the Application Site with potential to drain and contribute to the same Bradley Brook waterway network. This could influence flood risk and water quality assessments.</p> |

| No. | Cumulative Development  | Details  | Status   | Justification for Inclusion in Cumulative Assessment   |
|-----|---|--|--|--|
| 7   | Land off Lyncastle Way,<br>Barleycastle Lane, Appleton,<br>Warrington, WA4 4SN<br><br>LPA Ref: 2015/25255<br><br>Morely Estates | Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618)<br><br>(4,545sqm industrial warehouse building) | Application Approved 16-10-2015 (3 years to implement planning permission) | Site lies upstream of the Application Site with potential to drain and contribute to the same Bradley Brook waterway network. This could influence flood risk and water quality assessments. |

Table 9.6: Cumulative Projects

9.66. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

### Further Work Required

9.67. As part of the ES, a Flood Risk Assessment and Drainage Strategy will be completed for the development.



- 9.68. An outline drainage design, hydraulic calculations and model will be completed to inform the Drainage Strategy.
- 9.69. Liaison with the LLFA, EA and United Utilities is still ongoing and will be further developed as part of the FRA and DS process.

## Summary

- 9.70. Drainage and Flood Risk impacts have been identified and require further detailed analysis through a formal Flood Risk Assessment and Drainage Strategy which will inform the environmental assessment.
- 9.71. The main impacts to be assessed are the potential increase to flood risk of receiving waters and adjacent streets and the potential pollutants created as part of the Proposed Development.
- 9.72. Potential mitigation measures have been outlined and these will be further specified as part of the ES.
- 9.73. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Flood Risk & Drainage that may not (or would normally in respect of the scoping out) form part of a standard assessment.

### Scoped In

| Environmental Issue  | Reason for “scoping in”  |
|--|--|
| <p><b>Flood Risk &amp; Drainage</b></p> <p><i>Construction:</i><br/>Temporary flood risk and pollution to watercourse due to incomplete systems/spills.</p> <p><i>Operation:</i><br/>Flood risk, pollution to watercourse and impact to aquifer.</p> | <p><i>The sites previous greenfield classification and the potential for increased flows, collection, concentration and conveyance of stormwater during construction and operational uses. The increased pathways for contamination and the location of the underlying Aquifer as well as the potential impact on adjacent uses, construction workers and future site users.</i></p> |

## Scoped Out

| Environmental Issue  | Reason for “scoping out”   |
|--|--|
| <p><b>Flood Risk &amp; Drainage</b></p> <p>Construction:<br/>Hydromorphological changes</p> <p>Operation:<br/>Hydromorphological changes</p>                     | <p><i>The Development does not change the physical form or functioning of a waterbody. The brook system to the southern boundary will be retained in its current form with no more than greenfield runoff being discharged. The Development will have no effect on the flow dynamics of the river.</i></p>   |
| <p><b>Flood Risk &amp; Drainage</b></p> <p>Construction:<br/>Moat around Bradley Hall - Hydrology</p> <p>Operation:<br/>Moat around Bradley Hall - Hydrology</p> | <p><i>There will be no implications from the development on the hydrology of the moat. The moat is not a permanent water feature and the conveyance of storm water to the moat from surrounding areas (other than internally) is very limited and the development will have no impact on the operation/quality of the moat or its waters. There is no physical connectivity to the moat from the surrounding site.</i></p> |

## 10. Landscape and Visual Impact

### Introduction

- 10.1. This chapter of the ES Scoping Report has been produced by Munro and Whitten Ltd a registered practice of the Landscape Institute, to provide an evaluation of the predicted Landscape and Visual Impacts resulting from the Proposed Development.
- 10.2. The purpose of the Chapter is to describe the baseline landscape character and visual amenity of the Site and then the resulting landscape and visual effects predicted as a result of the Proposed Development on the receiving landscape and visual resources.
- 10.3. A baseline landscape and visual review was carried out in October 2017 following a site visit. An accompanying Arboricultural Survey and Assessment of the Site was carried out during September 2017.

### Legislative and Policy Context

- 10.4. **Warrington Borough Council Local Plan Core Strategy (2014)**  
Current planning policy relating to matters of landscape character and visual amenity has been considered and will be reviewed further in the ES. This section provides a summary with extracts of issues relevant to landscape and visual matters. Not all policies are referred to or listed in full but insofar as they are relevant to the Proposed Development and this assessment.

#### Policy CS 5

*The Council will maintain the general extent of the Green Belt for as far as can be seen ahead and at least until 2032.*

#### Policy QE 6

*The Council, will only support development which would not lead to an adverse impact on the environment or amenity of future occupiers or those currently occupying adjoining or nearby properties, or does not have an unacceptable impact on the surrounding area. The Council will take into consideration the following:*

*'Levels of light pollution and impacts on the night sky'*

#### Policy QE7

*The Council will look positively upon proposals that are designed to;*

- 'be sustainable, durable, adaptable and energy efficient'
- 'function well in relation to existing patterns of movement and activity'
- 'maintain and respect the landscape character and, where appropriate, distinctiveness of the surrounding countryside'
- 'be visually attractive as a result of good architecture' and the inclusion of appropriate public space.

Policy QE 8

The Council will ensure that the fabric and setting of heritage assets are appropriately protected and enhanced in accordance with the principles set out in National Planning Policy.

Development proposals which affect the character and setting of all heritage assets will be required to:

- 'avoid the unnecessary loss of and any decay to the historic fabric which once lost cannot be restored'.
- 'recognise and enhances the asset's contribution to the special qualities, local distinctiveness and unique physical aspects of the area';
- 'includes suitable mitigation measures'.

Policy CC 2

Development proposals in the countryside which accord with Green Belt policies set out in national planning policy will be supported provided that; the detailed siting and design of the development relates satisfactorily to its rural setting, in terms of its scale, layout and use of materials; they respect local landscape character, both in terms of immediate impact, or from distant views; unobtrusive provision can be made for any associated servicing and parking facilities or plant, equipment and storage; they relate to local enterprise and farm diversification; and it can be demonstrated that there would be no detrimental impact on agricultural interests.

10.5. Following the adoption of the Local Plan Core Strategy in 2014 a legal challenge was made which resulted in the housing allocation being removed from the adopted Local Plan. In 2016 the Warrington Green Belt land was assessed independently to understand how Warrington's Green Belt contributes to the five purposes of Green Belt, as set out in national policy. The report and final site-specific assessment of the Green Belt Parcels (**Appendix 11 - LVI**) identified parcel **R108/106** (within which the site is located) as:

- Having no contribution to check the unrestricted sprawl of large built-up areas.
- Having a weak contribution to preventing Warrington urban area and the town of Lymm from merging into one another.
- Having a strong contribution to assist in safeguarding the countryside from encroachment due to its openness and the non-durable western and southern boundaries.

- Offering no contribution to preserving the setting and special character of historic towns.
- Making a moderate contribution to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.
- Overall the site has been judged to make a Moderate Contribution.

10.6. The Site, forms part of a managed release of Green Belt land proposed for future employment development forming part of the South Eastern Urban Extension, within the emerging new Local Plan (Preferred Options Consultation (July 2017).

## Baseline Information

### Introduction

- 10.7. The landscape and visual baseline study reviews the Landscape Character of the Site and its Visual Influence (with a preliminary Zone of Theoretical Visibility).
- 10.8. The baseline review covers a 5km study area centred on the Site and has been appraised at a desktop and field-based level to understand the potential implications of the Proposed Development on potential local visual receptors and on the local landscape character.
- 10.9. The Landscape and Visual Assessment and the ES Chapter will consider the evolution of the Baseline Information without the development.

### Landscape Character

- 10.10. 'The Character of England' produced by Natural England places the site within the **Mersey Valley**: National Character Area 60 (**Appendix 11 - LV2**).
- 10.11. Many of the regional landscape characteristics are recognisable elements (emphasised in bold) within the study area;

#### **Mersey Valley**: National Character Area 60

- Trees and woodland are mainly associated with settlements, occasional parkland and **isolated woodland blocks**;
- **Large-scale, open, predominantly flat**, high-quality farmland occurs between developments;

- The field pattern is **regular and large-scale**, often defined by hedgerows with isolated hedgerow trees; many hedgerows are intermittent and have been replaced by post-and-wire fencing;
- Densely populated urban and suburban areas;
- There is **large-scale, highly visible** industrial development;

10.12. It is considered that the above statements are an accurate overview of the landscape character around the Site and how this affects views to the Site.

10.13. Statements of Environmental Opportunity (SEO) now form part of NCA profiles. Of the four SEOs in the NCA60 profile SEO1 and SEO2 are relevant to the Site:

**SEO 1:** *“Promote the Mersey Valley’s historic environment and landscape character and positively integrate the environmental resource with industry and development, providing greenspace within existing and new development, to further the benefits provided by a healthy natural environment, as a framework for habitat restoration and for public amenity.”*

For example by:

*Carefully designing and integrating green infrastructure within housing, business, transport and industrial development, linking new developments with the wider countryside;*

*Developing networks of linear habitats, corridors and stepping stones within housing and industrial development, linking developments with the wider countryside, making a more permeable landscape to enable species movement and to enable urban populations to engage with the natural environment through better access provision.*

*Creating new woodlands and planting individual trees in appropriate urban and industrial areas and settlements;*

*Conserving the NCA’s heritage assets, including archaeological sites, historic buildings and the character of the parkland and villages and ensuring high-quality design;*

*Developing Sustainable urban Drainage Systems (SuDS) in new and existing development to improve infiltration and manage surface water;*

**SEO 2:** *“Manage the arable and mixed farmland along the broad linear Mersey Valley, and create semi-natural habitats, woodlands and ecological networks, to protect soils and water, enhance biodiversity, increase connectivity and improve the character of the landscape, while enabling sustainable food production.”*

For example by:

*Planning to link and connect fragmented habitats into a more cohesive whole, providing corridors and stepping stones for wildlife, enabling movement of species, and enhancing the landscape.*

*Seeking opportunities to restore and enhance hedgerows, field boundary trees and field margins to encourage a network of habitats to link fragmented habitats, to act as a windbreak and bind/filter out the soil in times of flood.*

10.14. To the south of the site, the study area is placed within National Character Area **NCA61: Shropshire, Cheshire and Staffordshire Plain**.

10.15. Many of the regional landscape characteristics are recognisable elements (emphasised in bold) within the study area;

- Few woodlands, confined to the area around Northwich and to estates, cloughs and deciduous and mixed woods on the steeper slopes of the wind-swept sandstone ridges. Locally extensive tracts of coniferous woodland and locally distinctive orchards scattered throughout.
- Strong field patterns with generally well-maintained boundaries, predominantly hedgerows, with dense, mature hedgerow trees. Sandstone walls occur on the ridges and estate walls and Cheshire-style (curved topped) metal railing fences occur locally on estates in Cheshire.
- The field pattern is **regular and large-scale**, often defined by hedgerows with isolated hedgerow trees; many hedgerows are intermittent and have been replaced by post-and-wire fencing;
- Densely populated urban and suburban areas;
- There is **large-scale, highly visible** industrial development;

10.16. Statements of Environmental Opportunity (SEO) now form part of NCA profiles. Of the four SEOs in the NCA61 profiles SEO2 and SEO3 are relevant to the site;

**SEO 2:** *“Protect the landscape of the plain, recognising its importance to food production and incorporating well-maintained hedgerows, ponds and lowland grassland margins within agricultural systems, to secure resource protection and maintain productivity, while reducing fragmentation of semi-natural habitats to benefit a wide range of services, such as landscape character, sense of place, water quality and biodiversity.”*

For example by:

*Ensuring that new development is informed by and sympathetic to landscape character and quality and contributes, as appropriate, to the conservation of the landscape, having regard to visual impact and local vernacular.*

**SEO 3:** *“Manage and restore lowland heathland and ancient and plantation woodland, support partnerships to plan appropriately scaled new woodland cover, particularly where this will link and extend existing woodlands, restore and reinstate traditional orchards and increase biomass*

*provision to mitigate the impact of climate change, where this will benefit biodiversity, landscape character and enhance the experiential qualities of the area.”*

For example by:

*Planting trees around settlements, along motorways and major highway corridors to screen the visually intrusive urban areas from the surrounding landscape.*

- 10.17. It is considered that the above statements are a reasonable overview of the landscape character around the sites southern setting and how this affects views to the site.

## **District Landscape Character**

### **Warrington Borough Council Landscape Character Assessment 2007**

- 10.18. In 2007, Warrington Borough Council undertook a district landscape character assessment of the Borough and a broad assessment of the landscape character types and the key sensitivities and change affecting the landscape character. The assessment identified an **Undulating Enclosed Farmland** landscape type (**Appendix 11 - LV3**).

- 10.19. The characteristics of **Undulating Enclosed Farmland** identified were:

- Undulating enclosed farmland
- Sweeping views from higher ground
- Mainly medium to often large-scale mainly arable fields
- Sparsity of hedgerow trees
- Hedgerows field boundaries often fragmented

- 10.20. The study then sub-divided the landscape type further in which the majority of the site falls within **Ib Undulating Enclosed Farmland – Appleton Thorn**.

- 10.21. The characteristics of **Ib Undulating Enclosed Farmland – Appleton Thorn** identified were:

- Broad expansive agricultural landscape lacking hedgerows
- Strong visual and audible effect of M56
- Noticeably gently sloping land to the south
- Views of Pennine skyline to the east
- Skyline imposition of commercial development on ridgeline at Appleton Thorn



- Ridgeline feature of Appleton Thorn church tower

10.22. The study outlines the key elements of landscape sensitivity as being:

- Skyline location
- Remaining hedgerows
- Remaining views of Appleton Thorn Church on the skyline
- Marl pit ponds

10.23. The study outlines the key elements of landscape change which include:

- Past impact of M56 Motorway
- Substantial reduction in hedgerows and hedgerow trees
- Decline in management of remaining hedgerows and hedgerow trees
- Encroachment of housing and development imposing onto the skyline

10.24. The study concludes with its recommended management and landscape objectives:

*“The restoration and management of hedgerows, together with the re-introduction of hedgerow trees, would greatly strengthen the landscape structure and improve the visual appearance of the area”. “Native woodland screen planting should also be considered for the more obtrusive aspects of the industrial estate, together with the more exposed sections of the M56.”*

10.25. In 2008, Cheshire East Council undertook a district landscape character assessment of the borough and identified a **Lower Farms and Woodland** landscape type.

10.26. The characteristics of **Lower Farms and Woodland** identified were:

- Low lying gently rolling topography.
- Hedgerow boundaries and standard trees in a mix of medieval and post-medieval re-organised fields (irregular, semi-regular and regular up to 8ha) but with a loss of boundaries leading to the formation of large fields and a large proportion of fences adding to this impression.
- Horsiculture – fenced horse paddocks.
- High density of woodland – blocks, coverts and riparian
- Medium settlement density - mix of dispersed farms and nucleated hamlets/ villages

- Mosses and some meres resulting from glacial deposits
- Large number of water bodies

10.27. The study then sub-divided the landscape type further in which the southern tip of the site lies within **LFW 3: Arley Character Area**.

10.28. The study concludes with “*Fundamentally this is a rural character area, with a network of minor roads and settlement. However, the M6 bisects the centre of the type and the M56 cuts across the northern portion. The visual impact increases locally where the motorway is raised upon embankment or where over-bridges allow a number of minor roads to cross over the motorway.*”

10.29. The assessments recognise the presence of large-scale industrial development within the local landscape character and identify a series of recommendations which are considered to be positive to development, which are achievable through the masterplan development process. These include:

- Carefully designing and integrating green infrastructure
- Creating new woodlands and planting individual trees
- Developing sustainable urban drainage systems (SUDS) the restoration and management of hedgerows.

## Summary

10.30. Based on the landscape and visual baseline review, observations in the field and published landscape character assessments at a local and regional level it is reasonable to summarise the site and its local landscape as being:

- In a series of large contained fields to the east of the Barleycastle Trading Estate, bounded by the M56 to the south, the M6 to the east and Grappenhall Lane to the north.
- Predominantly pastoral farmland giving a coherent landscape.
- Adjacent mature hedgerows and nearby small woodlands offer mature tree cover.
- In an area of gently undulating topography restricting views locally
- The rural character of the landscape is strongly influenced by the proximity of the motorways both visually and audibly, and the visual presence of the Barleycastle Trading Estate to the west.

### **Zone of Theoretical Visibility**

- 10.31. A desktop study has been carried out using a 3D computer model of the 5km study area to produce a Zone of Theoretical Visibility (ZTV) based on the topographical OS data for the study area. The ZTV is used to ascertain locations from within the study area where the proposed development is theoretically visible from an observers eye level (2m above the ground).
- 10.32. The ZTV analysis was then modified to take into account intervening screening by woodland (nominal 10m height) and buildings (nominal 7.5m height) The ZTV was run using three different building heights for the proposed development with the following results:

### **ZTV Modified, (Appendix 11 - LV4, 5 & 6)**

- 14-17m High Units: **23.68%** theoretically visible within the study area.
  - 14-22m High Units: **29.66%** theoretically visible within the study area.
  - 14-43.5m High Units: **35.29%** theoretically visible within the study area.
- 10.33. The identified ZTV for the study area could be broken down into six broad geographical zones. With the relatively limited Public Rights of Way network within the study area and with mature tree and hedgerow cover, it is considered that the extent of the ZTV can be refined when tested in the field.
- 10.34. The site and study area was visited during early October 2017. Local roads were driven and nearby Public Rights of Way to the site were walked to determine the actual extent of visibility of the site in the surrounding landscape from the Field Work Zones (**Appendix 11 - LV7**).

### **The Study Area Landscape Character**

- 10.35. The landscape character of the study area is of an agricultural landscape with small to medium size villages to the south of the large town of Warrington. The patchwork of small-scale settlements, isolated farms and a gently rolling landscape is cut through by the route of the M6 (north/south) and M56 (east/west) motorways which dominate the landscape visually and audibly, diminishing the scenic quality and tranquillity of the local landscape.
- 10.36. There is good tree cover within the local landscape with strong field boundaries of mature hedgerows and hedgerow trees along with frequent small to medium scale woodland blocks. Local roads, particularly around the smaller villages are more often winding with mature hedgerows and hedgerow trees offering infrequent views into the wider landscape.

10.37. Light industry focused around the Barleycastle Industrial Estate has increased HGV traffic and further diminished the scenic character of the landscape to the east of Appleton Thorn.

**Views from within and adjacent to the site (Appendix 11 - LV8)**

10.38. The landscape character of the Site is that of a green, open, pastoral landscape with medium to large size fields bounded by mature hedgerows with hedgerow trees. However, the rural countryside character, scenic quality and tranquillity are greatly diminished by the noise from the nearby M6 and M56 motorways which pass within 300m of the site boundary.

10.39. Views from residences on Barleycastle Lane and the start of footpath FP00015/23/1 (**Appendix 11 - LV9, Picture 1**) travelling north towards the Site, is of a gently sloping field leading down to Bradley Brook and then rising up towards Bradley Hall Farm to the northeast with the edge of Barleycastle Industrial Estate in view to the west. Views into the Site are viewed through the mature foliage of trees along Bradley Brook on the Site boundary.

10.40. Footpath FP00015/23/1 does not appear to be well-used with mature overgrown vegetation impeding the route (**Appendix 11 - LV9, Picture 2**) and field conditions severely limiting the passage of movement and any enjoyment of the route (**Appendix 11 - LV9, Picture 3**). Views from the footpath are of a broad pastoral landscape with mature field boundaries with vehicles travelling at speed along Grappenhall Lane partially in view on the horizon. Two-storey industrial units on the edge of the Barleycastle Industrial Estate are in view to the west (**Appendix 11 - LV10, Picture 4**).

10.41. The presence of fast-moving traffic including HGVs on Grappenhall Lane (B5356) along with the industrial units in view and the noise from the nearby motorways significantly reduces the scenic qualities of the landscape and the enjoyment received from using the PROW.

10.42. Footpath FP00015/28/1 running west from Bradley Hall Farm appears to be no longer in use and finishes in the middle of a field, probably cut off during the development of the Barleycastle Industrial Estate.

10.43. Views from Bradley View, the private dwelling north of Bradley Hall (along the PROW) across the site are extensive both east and west (**Appendix 11 - LV10, Picture 5**) and will require significant mitigation during the development of the masterplan.

**Field Work Zone 1: Grappenhall South (Appendix 11 - LV11)**

- 10.44. Zone I covers an area south of the village of Grappenhall to Grappenhall Lane and the M6 to the east. The area is typified by isolated farms in a broad agricultural landscape with occasional woodland blocks intersected by country lanes and the busy A50 trunk road heading north-west from J20 (M6) towards Warrington. Public rights of way (PROWs) connect from the edge of Grappenhall towards the villages of Wright's Green and Appleton Thorn to the south.
- 10.45. Fields are predominantly medium to large-scale defined by mature hedgerows and occasional mature hedgerow trees. Views out across the landscape when driving the lanes and larger roads are often contained by the established vegetative cover and undulating ground.
- 10.46. The land rises up from the edge of Grappenhall (30m AOD) towards Grappenhall Lane (60m AOD) which prevents views towards the Site from the edge of residential areas, the A50 and Broad Lane until circa 1km from the northern edge of the site. Picture 9 (**Appendix 11 - LV13**) from bridleway 00129/17/1 illustrates the view experienced by users on the PROW and is similar to those experienced by vehicles travelling at speed on the A50 south towards Grappenhall Lane.
- 10.47. Footpath FP00129/5/1 north of the Site, heading north/south towards Grappenhall was walked from Barry's Covert towards the site (**Appendix 11 - LV12, Picture 6**). The footpath follows the line of the covert with houses and farms along Cartridge Lane in view on the horizon, viewed through the foliage of mature hedgerows and occasional hedgerow trees. Development within the site will be viewed against a backdrop of dwellings and agricultural units (some two storey) and established vegetative cover.
- 10.48. First storey windows from properties along Cartridge Lane look out over Grappenhall Lane into the edge of the site (**Appendix 11 - LV12, Picture 7**). Ground floor views and those of vehicles passing at speed along Cartridge Lane and Grappenhall Lane will be partially screened by mature hedgerows and occasional hedgerow trees (**Appendix 11 - LV12/LV13, Picture 7 & 8**) with open views only possible through gaps in the hedge line.
- 10.49. Partial, middle distance views from Broad Lane (**Appendix 11 - LV14, Picture 10**) to the site will be possible on the horizon set against the backdrop of mature hedgerows with isolated hedgerow trees and moving traffic along Grappenhall Lane.
- 10.50. Views towards the western edge of the Site from the footpath leading from Wright's Green towards the Barleycastle Industrial Estate will likely be limited and seen on the horizon against

a backdrop of two-storey industrial units and the movement of HGVs on Grappenhall Lane (**Appendix 11 - LV14, Picture 11**).

**Field Work Zone 2: M6 East (Appendix 11 - LV15)**

- 10.51. Zone 2 covers an area east of the M6 (north/south), north of the M56 (east/west) and south of the edge of the large village of Lymm. The landscape is a predominantly gently undulating agricultural character of often medium to large fields with isolated farms and small villages. Lymm Dam lies within a small valley to the south of the village of Lymm with well-wooded valley sides with the established tree cover extending along the course of Bradley Brook and Mag Brook tributaries leading south-east and south-west towards the M56. The valley slopes and thick woodland effectively screens views from the east of the area towards the site.
- 10.52. The B5158 leads north-east from J20 (M6) towards Lymm, characteristically the road is a tree-lined route with isolated farms and a network of agricultural fields in the view. Views out to the wider countryside and towards the site when travelling along the road at speed are limited with the predominant view being a tree-lined country lane (**Appendix 11 - LV16, Pictures 12 & 13**).
- 10.53. Views out from Crouchley Lane on the road to Deansgreen are limited with woodland blocks and undulating landform around Lymm Dam and Bradley Brook preventing long distance views towards the Site.
- 10.54. Views towards the Site are further screened by mature woodland planting along the edge of J20 (M6).

**Field Work Zone 3: M6 West (Appendix 11 - LV17)**

- 10.55. Zone 3 covers an area to the south-west of the village of High Legh and between the M6 and M56 motorways. The area is a predominantly open, flat landscape of small to medium agricultural fields with occasional woodland blocks. Small groups of dwellings and isolated farms are set within a network of narrow, quiet country lanes, often bounded by mature hedgerows and hedgerow trees.
- 10.56. To the east mature woodland belts along the edge of the M6 forms a strong visual edge of middle to long distance views (**Appendix 11 - LV18, Picture 15**).

- 10.57. Lanes within the area are narrow, winding and often bounded by mature hedgerows with hedgerow trees which limits views across the broader landscape.
- 10.58. Middle to long distance views to the site (**Appendix 11 - LV18, Pictures 14 & 15**) are screened by intervening woodland blocks and mature tree cover and views of the site are unlikely.

**Field Work Zone 4: M56 South (Appendix 11 - LV19)**

- 10.59. Zone 4 covers an area to the south of the M56 and to the west of the M6. It covers a number of hamlets, isolated farms and the small village of Arley. The area includes a number of listed buildings and estates including Crowley Hall and Arley Hall with a listed park and garden. To the north of the area adjacent to the M56 is a disused airfield with small two storey light industrial units along its north-eastern edge.
- 10.60. The area is characterised by a patchwork of small to medium scale agricultural fields set within a network of rural, narrow country lanes. Traffic is generally light on the lanes often bounded by mature hedgerows and hedgerow trees with views out into the wider landscape often restricted to small gaps or gates in hedgerows.
- 10.61. Middle to long distance views towards the Site are not direct and appear to be well screened by intervening vegetation (**Appendix 11 - LV20, Pictures 16 & 17**).

**Field Work Zone 5: A533 North East (Appendix 11 - LV21)**

- 10.62. Zone 5 covers an area to the east of the A559 and south of the M56 and includes a number of hamlets and the village of Antrobus. The area is predominately an agricultural landscape with isolated farms covering a range of field sizes with a network of winding country lanes. The lanes are more often bounded by mature hedgerows with hedgerow trees with small-scale woodland blocks.
- 10.63. Views towards the Site (**Appendix 11 - LV22/23, Pictures 18, 19 & 20**) are long-distance, well screened by the intervening vegetation and the tree belts along the edge of the M56.

**Field Work Zone 6: River Mersey (Appendix 11 - LV24)**

- 10.64. Zone 6 covers an area to the south of Manchester Road (A57) and to the east of the A50 on the edge of Warrington. It covers a short section of the River Mersey and Paddington Meadows, a Local Nature Reserve.

- 10.65. Views from Paddington Meadows (**Appendix 11 - LV25, Picture 21**) towards the Site are of a meadow landscape viewed through mature vegetation along the banks for the River Mersey with industrial works in the view. No views of the Site are afforded from this location.

### **Fieldwork Summary**

- 10.66. Visiting the Site, walking the nearby PROWs and driving the local roads and lanes within the identified field work zones (established by the modified ZTV) has determined the actual extent of the visibility of the Site in the surrounding landscape and refine potential visual receptors.
- Long views; due to the extent of intervening tree and hedgerow cover and the undulating landform, views to the Site are effectively screened from most of the study area (Field Work Zones 2, 3, 4, 5 and 6).
  - Medium views; towards the Site from north and north-west (Field Work Zone 1) are possible over a backdrop of mature screening vegetation and busy roads, however, views will be screened from the east, south-east and south-west (Field Work Zones 2, 3, 4, 5 and 6) by intervening vegetation and topography.
  - Short distance views; there are short distance views towards the Site from nearby roads and PROWs (Field Work Zone 1) and these will need to be mitigated during the development of the masterplan.

### **Arboricultural Assessment**

- 10.67. The Arboricultural Survey and Assessment was carried out on site in September 2017 (**Appendix 11 - LV26 (The Report) LV27-33 (The Plans)**). The findings of the survey were that the tree stock across the Site is broadly made up of moderate trees (Category B) with some high landscape value (Category A) trees and woodland, which are generally in a good condition. It is likely that the implementation of the development will incur the removal of Category B to C value trees including individual trees and groups found around existing field ponds.
- 10.68. The report recommends a minimum width of 20m buffer zones between landscape features (of managed grassland swaths and/or shrub planting) including Wrights Covert, Bradley Gorse, Bradley Farm Moat and Scheduled Ancient Monument and Bradley Brook and construction. Trees along other boundaries should be protected by 5-10m landscape buffer zones and in general, trees to be retained should be protected to the British Standard BS 5837:2012 'Trees in relation to Design, Demolition and Construction – Recommendations'.

### **Lighting**



10.69. The baseline Light Spill Assessment carried out by CUNDALL in September 2017 (see **Appendix I4**) concluded that:

- *proposed working lights, site safety and security lighting located within the development area will not have an effect on the residential properties to the north or the south of the development if the correct lighting techniques are adhered to.*
- *The use of trees will act as an obstruction to the site and will, therefore, limit any light spill and sky glow.*
- *Lighting in relation to Bradley View will require careful consideration and further tree planting maybe required to mitigate light spill.*

### **Landscape Value**

10.70. Valued landscapes are referenced in NPPF however, the value of a landscape is not defined. However, case law precedent (Stroud District Council v Secretary of State for Communities and Local Government, 2015) established that a landscape was only valued if it had physical attributes which took it out of the ordinary rather than being a landscape which has a designation or is simply popular.

10.71. The Site and its immediate surrounds are currently designated as within the Green Belt land by Warrington Borough Council. However, Warrington Borough Councils Preferred Option has identified the area for future employment land as an extension of the Barleycastle Trading Estate within the emerging Local Plan (Preferred Options Consultation (July 2017)).

10.72. The landscape of the site is not considered to be rare, unspoilt or out of the ordinary and the landscape character is typical of the LCA 1b Undulating Enclosed Farmland – Appleton Thorn. The Appleton Thorn LCA is effected by the strong visual and audible effects of the M56 and M6 motorways and the imposition of housing and commercial development including the nearby Barleycastle Trading Estate on the skyline.

10.73. The condition of the landscape is considered to be fair. The Sites internal boundaries are largely intact and are predominantly mature hedgerows with hedgerow trees. There are several small woodland blocks and copses within the site including Bradleys Gorse and Wrights Covert. These woodland blocks, located to the south-east of the Site are established woodlands of a fairly uniform age structure. The Site is comprised predominantly of farmland which is currently grazed, with mature hedgerow field margins. Of note are the mature field trees found along the course of Bradley Brook, and along the boundaries of the Site and those associated with Bradley Hall Farm and Moat.

- 10.74. Given this combination of factors, the landscape is not considered to be of value, The Site does have some conservation interest with the potential for enhancement through new Green Infrastructure provision.

## Potential Environmental Impacts

### Introduction

- 10.75. The Proposed Development will be for the construction of employment and associated landscaping, internal roads and areas of open space. The site will be accessed from a new highway connection off Grappenhall Lane, which will necessitate the removal of stretches of existing mature hedgerows.
- 10.76. The introduction of Green Infrastructure, including new woodland belts (minimum 20m width on earth mounding) to the boundaries of the site and planting belts along internal roads, new SuDS hollows and ponds, will enhance biodiversity.

### Construction Phase

- 10.77. It is considered that the short-term effects upon landscape character and resources arising from construction of the development might include:
- the stripping and storage of topsoil
  - the construction of new roads off Grappenhall Lane.
  - the construction of units and internal roads;
  - the loss of farmland, including the removal of internal field boundaries including hedgerows and hedgerow trees;
  - new tree and shrub planting and habitat creation;
  - earthworks for the creation of development plateaus and the new SuDS system
  - materials storage, importing new topsoil, (the removal off-site of existing topsoil), the erection of site compounds, hoarding and the use of working lights and security lighting.
  - Vehicle movements on existing roads for the importation of bulk materials, delivery of building materials and general construction traffic.

10.78. Whilst these impacts will be temporary in nature, the works noted above would adversely affect NCAs 60 & 61 and LCAs Undulating Enclosed Farmland 1B– Appleton Thorn and LFW 3: Arley Character Area for the duration of construction.

#### **Operational Phase**

10.79. Long-term effects upon landscape character and resources arising from completion of the scheme might include:

- new units and internal roads;
- 24 hour working lights
- new road connections off Grappenhall Lane;
- new areas of open space with open grassland, new tree and shrub planting with habitat creation and the creation of a SuDS system assessed at Year 0 and Year 15
- the loss of farmland, including the removal of internal field boundaries including hedgerows and hedgerow trees
- new buffer planting belts along the edge of the Grappenhall Lane and the site boundaries and alongside internal roads assessed at Year 0 and Year 15
- new areas of woodland planting assessed at Year 0 and Year 15.

10.80. There will be a change of land use from farmland to employment, woodland belts, and open space. These changes would be permanent and would result in the change in character from a predominantly open and rolling rural landscape influenced by the nearby motorways, to an employment development character. Impacts would directly affect both NCAs 60 & 61 and LCAs Undulating Enclosed Farmland 1B– Appleton Thorn and LFW 3: Arley Character Area.

## **Methodology for the Environment for the Environmental Statement**

### **Receptors**

10.81. The potential impacts of development can affect both landscape and visual receptors. Landscape receptors consider the effect of the proposals on the physical character and quality of the landscape. Visual receptors consider the likely changes that the proposals will have within the views of receptors. Visual receptors have been identified and refined by the modified ZTV and by further fieldwork to take place during the assessment stage.

### **Landscape Sensitivity**

10.82. The sensitivity of the landscape type will be assessed followed by determining the extent of the impact on the landscape. These are then combined in a table to determine the Magnitude of the Impact:

#### **Sensitivity**

Sensitivity of the landscape is defined by the following.

|               |  |
|---------------|--|
| <b>High</b>   | Key features and characteristics of a landscape of distinctive character, susceptible to relatively small changes. National Parks and Areas of Outstanding Beauty. |
| <b>Medium</b> | Moderately significant features and characteristics in a distinctive landscape or a landscape of moderately distinctive character reasonably tolerant of changes.  |
| <b>Low</b>    | Unimportant features or characteristics or distinct landscape types potentially tolerant of substantial change.  |

### **Landscape Change**

10.83. When considering the magnitude of landscape change the following will be applied;

|                            |   |
|----------------------------|---|
| <b>Major adverse</b>       | At considerable variance to the landscape degrading its integrity   |
| <b>Moderate adverse</b>    | Is out of scale with the landscape or at odds with the pattern and landform   |
| <b>Minor adverse</b>       | It does not quite fit into the landform or pattern of the landscape   |
| <b>Neutral</b>             | Fits well with the existing landscape character and any negative effects are offset by beneficial aspects or fully mitigated. |
| <b>Minor beneficial</b>    | Fits well with the existing landscape character and results in a positive change of a minor scale.                            |
| <b>Moderate beneficial</b> | Fits well with the existing landscape character and results in a positive change of a moderate scale.                         |
| <b>Major beneficial</b>    | Major scale positive change which increases the value of the landscape.   |

### Visual Sensitivity

10.84. The sensitivity of the visual receptor will be important for the purposes of the visual assessment, the sensitivity of the visual receptors to a development proposal is described as High, Medium or Low based on the criteria below.

|               |   |
|---------------|---|
| <b>High</b>   | Residential properties with views towards the proposals from the ground floor windows and/or the gardens.<br><br>Important public sites used by many people; parks.<br><br>Public rights-of-way and public open spaces in regular use<br><br>Other locations where the view is the main reason for being at that place.   |
| <b>Medium</b> | Residential properties with views towards the proposals from the first-floor windows (bedroom, bathroom or others with limited daily use).<br><br>Schools, colleges or universities.<br><br>Hospitals, rest homes or similar care establishments.<br><br>Public rights-of-way and public open spaces infrequently used Playing fields.<br><br>Other areas where the view is not a key reason for being at that place. |
| <b>Low</b>    | Commercial and industrial premises.<br><br>Infrastructure and associated ancillary areas and buildings<br><br>Roads and rail with views towards the development where the viewer passes at speed<br><br>Other areas where the view is not a reason for being at that place  |

### Visual Change

10.85. The magnitude of visual change will be described by reference to:

|                |  |
|----------------|--|
| <b>High*</b>   | A considerable change in the existing view |
| <b>Medium*</b> | A noticeable change in the existing view   |

**Low\***

A barely perceptible change in the existing view.

**Negligible\***

No discernible deterioration or improvement in the existing view.

\* Please note that the magnitude of visual change can be considered to be either beneficial or adverse.

### **Significance Change**

- 10.86. The overall significance of landscape impact is determined by cross-referencing the sensitivity of the landscape receptor or the visual receptor with the magnitude of change. A table in the assessment will determine the significance from Substantial through Moderate and Slight to No Change. Professional judgement will be used to determine the overall significance of effects. The outcomes from the assessment level of significance will then be cross-referenced against the ES common methodology matrix.

### **Impact Prediction Confidence**

- 10.87. It will also be of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| <b>Confidence Level</b> | <b>Description</b>  |
|-------------------------|---|
| High                    | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur based on reliable information or previous experience.   |
| Low                     | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

**Table 10.1: Confidence Levels**

## Significance of Effects

### Construction Phase:

| Nature of Possible Effects   | Landscape Receptors  | Visual Receptors   | Anticipated Significance of Effect | Confidence Level |
|--|--|--|------------------------------------|------------------|
| Increase of traffic movement   | Highway corridor including impact on and setting of hedgerows and trees                                      | Users of local roads; walkers and cyclists particularly. Dwellings adjacent the roads. | Moderate to Slight Adverse         | Low              |
| The loss of farmland   | Removal of internal field boundaries including hedgerows and hedgerow trees.                                 | Users of local PRoW's passing users on adjacent highways                               | Substantial to Slight Adverse      | Low              |
| Construction buildings and mechanical plant  | Anomalous features in the landscape  | Users of local PRoW's passing users on adjacent highways                               | Substantial to Slight Adverse      | Low              |
| New tree and shrub planting and habitat creation.  | Improvements to the fabric of the landscape  | Users of local PRoW's passing users on adjacent highways                               | Slight Beneficial to Neutral       | Low              |
| Earthworks for development plateaus and the creation of new SuDS system  | Changes to the form and topography of the landscape locally  | Users of local PRoW's passing users on adjacent highways                               | Slight Adverse to Neutral          | Low              |
| Materials storage, importing new topsoil, (the removal off-site of existing topsoil), the erection of site compounds, hoarding and the use of security lighting. | notional changes in the night sky, loss of dark sky, mollified by presence of Motorway and Services lighting | Limited due to lack of use of PRoW's, noticeable to passing motorists                  | Slight Adverse to Neutral          | Low              |

Table 10.2: Significance of Impact – Construction: Units 14-43.5m

### Operational Phase:

| Nature of Possible Effects         | Landscape Receptors   | Visual Receptors   | Anticipated Significance of Effect | Confidence Level |
|------------------------------------|---|--|------------------------------------|------------------|
| The increase of vehicular movement | Highway corridor including impact on and setting of hedgerows and trees | Users of local roads; walkers and cyclists particularly. Dwellings adjacent the roads. | Moderate to Slight Adverse         | Low              |

| Nature of Possible Effects  | Landscape Receptors  | Visual Receptors   | Anticipated Significance of Effect | Confidence Level |
|---|--|--|------------------------------------|------------------|
| New internal roads and a new access onto Grappenhall Lane.  | Removal of internal field boundaries including hedgerows and hedgerow trees.                                 | Users of local PRow's passing users on adjacent highways                       | Slight Adverse to Neutral          | Low              |
| New areas of open space with species-rich grassland, new tree and shrub planting with habitat creation and balancing ponds and hollows; | Improvements to the fabric of the landscape  | Users of local PRow's passing users on adjacent highways                       | Minor Beneficial to Neutral        | Low              |
| New built forms   | Anomalous features in the landscape  | Users of local and possibly distant PRow's, passing users on adjacent highways | Substantial to Slight Adverse      | Low              |
| The planting of new woodland belts along internal roads and along the site boundary.  | Improvements to the fabric of the landscape  | Users of local PRow's passing users on adjacent highways                       | Slight Beneficial to Neutral       | Low              |
| The loss of farmland, including the removal of internal field boundaries including hedgerows and hedgerow trees;                        | Removal of internal field boundaries including hedgerows and hedgerow trees.                                 | Users of local PRow's passing users on adjacent highways                       | Substantial to Slight Adverse      | Low              |
| New lighting for 24 hour working  | notional changes in the night sky, loss of dark sky, mollified by presence of Motorway and Services lighting | Limited due to lack of use of PRow's, noticeable to passing motorists          | Slight Adverse to Neutral          | Low              |
|   |  |  |                                    |                  |

Table 10.3: Significance of Impact – Operation: Units 14-43.5m

- 10.88. All will need to be tested during the Landscape and Visual Impact Assessment prepared as part of the Environmental Statement (ES).

## Mitigation

- 10.89. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any



effects where considered necessary. These mitigation measures will be confirmed in the ES but might include;

### **Green Infrastructure**

- 10.90. The development of the proposals includes the provision of new woodland belts (minimum 20m width to the boundaries of the Site) and planting along the edges of internal roads to screen views of the new units, enhanced by earth bunds, along the edge of Grappenhall Lane to elevate new woodland planting. New tree and shrub planting to open space areas and around SuDS hollows and ponds will help to establish new habitats and enhance biodiversity.
- 10.91. The material choices, texture and colours of the elevations of the new units will be considered to establish opportunities for mitigating views of the new units against the existing and proposed landscape fabric.
- 10.92. The layout and design of lighting especially reducing overspill for the new units and service yards and will be considered to limit their impact on nearby landscape and visual receptors.
- 10.93. A landscape management plan will be drawn up to manage the establishment of new tree and woodland planting and existing woodland.

### **Additive Impacts (Cumulative Impact and their Effects)**

- 10.94. For the purposes of this ES, we define the cumulative effects as:  
  
***‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’***
- 10.95. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Landscape and Visual Impacts cumulative assessment are listed in the table below:

| No. | Cumulative Development                           | Details   | Status                                | Justification for Inclusion in Cumulative Assessment                       |
|-----|--|---|---------------------------------------|--|
| 4   | Land off Barleycastle Lane, Appleton, Warrington | 50,000m2 logistics development  | Pre-application discussions with WMBC | Will form part of the view towards the Site from views to the south.       |
| 8   | Former Stretton Airfield, Warrington, WA4 4RG    | Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane. | Application Approved 23-06-2015       | Will form part of the view towards the Site from the south and south west. |

Table 10.4: Cumulative Projects

- 10.96. Both Construction and Operational phases will be considered and the short, medium and long-term impacts assessed.

## Further Work Required

- 10.97. A full Landscape and Visual Impact Assessment for the Site will need to be carried out as part of the Environmental Assessment, including the agreement with the local planning authority on the locations of viewpoints representing visual receptors.
- 10.98. The Site and Proposed Development will need to be modelled in detailed 3D in order to review and refine mitigation measures.
- 10.99. The post pre-app submission of the development application on land to the southwest of the Site will need to be reviewed to consider its implication on the proposed development and views from identified visual receptors and the modified ZTV for the cumulative assessment.

## Summary

- 10.100. The 5km study area is predominantly a gently undulating, rural agricultural landscape lying to the south of the large town of Warrington, in the Mersey Valley. The study area includes the

southern urban fringe of Warrington, the villages of Grappenhall, Lymm and Appleton-Thorn and a number of hamlets set within in a generally well-wooded landscape. The presence of woodland blocks, belts, copses and tree-lined roads with mature hedgerow field boundaries limits long-distance views from the surrounding area towards the site.

- 10.101. The landscape character of Site and its local landscape setting is heavily influenced by the visual and audible presence of the nearby M56 and M6 motorways. Local, fast-moving traffic including HGVs on Grappenhall Lane and the presence of the Barleycastle Trading Estate to west of the site contribute to the loss of tranquillity and scenic quality of the countryside locally.
- 10.102. It is a landscape of limited value, albeit currently designated as Warrington Green Belt. However, the area has been identified for future employment land by Warrington Borough Council in its emerging Local Plan and will be released from the Green Belt.
- 10.103. The Landscape and Visual baseline including the modified ZTV and fieldwork, has confirmed that only local receptors will be affected by the proposed development of the site, which will be seen in the context of potential proposed development on land to the southwest of the site.
- 10.104. The local PRoW network is fragmented by the intersection of fast-moving traffic on Grappenhall Lane to the north, the M6 and M56 motorways to the east and south, and the Barleycastle Trading Estate to the west; with footpath FP00015/23/1 heading north from Barleycastle Lane through the site, appearing to be unused. There are, however, limited views towards the site from well-used PRoWs to the north and the development of the masterplan should include mitigation to reduce the adverse impacts of development upon these views.
- 10.105. The baseline Arboricultural Survey and Assessment has established that the Green Infrastructure Assets across the Site including small woodland blocks, copses and mature trees are in a good condition and made up of either moderate or high landscape value trees. These assets should be retained and protected where possible within the proposed development.
- 10.106. The tables below confirm the details to be Scoped In and Scoped Out of the landscape and visual impact assessment in respect of Chapter 10 – Landscape and Visual Impacts.

## Scoped In

| Environmental Issue  | Phase                       | Reason for “scoping in”   |
|--|-----------------------------|---|
| Visual receptors on roads, PRoW's, in local open space, educational locations and dwellings identified within the 5km study area.                    | Construction<br>Operational | The significance of the effect will potentially be greater than Slight. |
| Landscape receptors identified within the 5km study area, especially where there is a distinct change in character or type to the current landscape; | Construction<br>Operational | The significance of the effect will potentially be greater than Slight  |
| Security and compound lighting.  | Construction<br>Operational | The significance of the effect will potentially be greater than Slight. |

## Scoped Out

| Environmental Issue   | Reason for “scoping out”   |
|---|--|
| Visual receptors beyond the 5km study area.   | Receptors over 5km will not be affected by the proposed development.   |
| Visual receptors in airplanes passing overhead on flight path into or out of Manchester airport | Airplanes passing over will not be effected by the proposed development as the site will be seen in the context of the nearby motorways and the Barleycastle Trading Estate. |
| Visual receptors travelling along the M6 & M56 motorways  | Views towards the site are well screened and the impact upon views travelling at speed (70mph) by both passengers and drivers will be negligible.                            |
| Visual receptors at Barleycastle Industrial Estate.   | The sensitivity of views towards the site from the Barleycastle Trading Estate will be low, given the context of the existing light industrial units.                        |

## 11. Ecology and Nature Conservation

### Introduction

- 11.1. This chapter will be prepared by Tyler Grange LLP.
- 11.2. The chapter will assess the impacts of the Proposed Development on ecological resources including protected sites, habitats and protected and priority species. The approach outlined in this Scoping Report has been informed by desk-based study, site survey work and published guidance.
- 11.3. An 'extended' Phase I habitat survey and desk-based study were undertaken in November 2016. Based on the findings a number of protected species surveys have also been undertaken, or will be completed prior to submission of the outline planning application.
- 11.4. Where necessary, the scope of detailed species surveys was agreed with the Warrington Metropolitan Borough Council ecologist.
- 11.5. A review of relevant legislation, and local and national planning policy, including those listed below, will be undertaken as part of the assessment of impacts.

### Legislation

- 11.6. Specific habitats and species are afforded protection in the UK under the following legislation:
- The Conservation of Habitats and Species Regulations 2010 (as amended) (The Habitat Regulations);
  - Wildlife and Countryside Act (WCA) 1981 (as amended);
  - The Countryside and Rights of Way (CRoW) Act 2000;
  - Natural Environment and Rural Communities (NERC) Act 2006;
  - The Protection of Badgers Act (PBA) 1992; and
  - Hedgerow Regulations 1997.

### National Policy

- 11.7. Chapter 11 of the National Planning Policy Framework (NPPF) 2012, Conserving and Enhancing the Natural Environment, sets out the relevant adopted policy at the national level.
- 11.8. The Government Circular 06/2005 accompanies the NPPF and sets out the application of the law in relation to planning and nature conservation.

### **Local Policy**

- 11.9. The following policies contained in the Warrington Metropolitan Borough Council Local Plan Core Strategy (adopted July 2014) are considered to be of relevance:
- Policy QE3 – Green Infrastructure; and
  - Policy QE5 – Biodiversity and Geodiversity.
- 11.10. A small area in the south of the site lies within Cheshire East Council (CEC). Therefore, a number of policies in the CEC Local Plan (adopted July 2017) are also considered to be of relevance:
- Policy SE3 Biodiversity and Geodiversity;
  - Policy SE5 Trees, Hedgerows and Woodland; and
  - Policy SE6 – Green Infrastructure.
- 11.11. The Cheshire Region Biodiversity Action Plan (BAP) lists a number of habitats and species which are subject to ongoing conservation action in the region. The potential impacts on these habitats and species should be considered when designing new developments.

## **Baseline Information**

### **Protected Sites**

- 11.12. A desk-based study was undertaken in November 2016, see **Appendix 12** for Preliminary Ecological Appraisal (Tyler Grange LLP) for full details. The data search has been undertaken

for a 10km radius around the site for international statutory sites, a 2km radius for national statutory and non-statutory sites and a 1km radius for protected and priority<sup>1</sup> species records.

11.13. There are no statutory designated sites within the Site boundary. However, four such sites are present within the study area:

- Rixton Clay Pits Special Area of Conservation (SAC), located 5.5km northeast;
- Manchester Mosses SAC, located 6.3km north;
- Midland Meres and Mosses Phase I Ramsar, located 7.2km east; and
- Rostherne Mere Ramsar, located 7.4km east.

11.14. There are no non-statutory designated sites within the site boundary. However, four such sites are present within the study area:

- The Bongs and The Gorse Local Wildlife Site (LWS), located 1.3km northeast;
- The Dingle and Ford's Rough LWS, located 1.7km northwest;
- Grappenhall Heys LWS, located 1.7km northwest; and
- Stretton Moss LWS, located 2km southwest.

11.15. SACs and Ramsar sites are of international importance for nature conservation and are legally protected in the UK by The Habitat Regulations. LWSs are of county importance. All protected sites are considered under Policy QE5 of the WMBC Local Plan and Policy SE3 of the CEC Local Plan.

### **Habitats**

11.16. An 'extended' Phase I habitat survey undertaken in November 2016 identified features of ecological importance comprising:

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<sup>1</sup> UK priority species and habitats are those subject to conservation action and referred to as Species of Principal Importance (SoPIs) or Habitats of Principal Importance (HoPIs). They are listed at Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act states that local planning authorities must have regard for the conservation of both SoPIs and HoPIs.

- Broadleaved woodland;
- Hedgerows;
- Ponds;
- Scattered trees and scrub; and
- Watercourses (Bradley Book and tributary adjacent to site boundary, and agricultural ditches).

11.17. Hedgerows, woodland, ponds and rivers are all listed as Habitats of Principal Importance (HoPI) in the NERC Act 2006. All of these except rivers are also included in the Cheshire BAP. Priority habitats are considered under Policy QE5 of the WMBC Local Plan.

11.18. Other habitats comprise improved grassland and arable fields, scrub and tall ruderal. Please refer to **Appendix 12** for full details of the habitats present within the site.

#### **Protected Species**

11.19. Based on the habitats present, and the findings of the desk study, a number of protected and priority species surveys have been undertaken, or will be completed prior to submission of the outline planning application. These are listed below (survey timescales in brackets):

- Badger survey (April 2017);
- Bat Activity survey (May – October 2017);
- Bat Preliminary Roost Assessment (PRA) of Buildings (late 2017);
- Bat Roost Surveys of Buildings, if required (to be completed);
- Bat Preliminary Roost Assessment (PRA) of Trees, and follow-up aerial inspections, if required (to be completed);
- Breeding Bird (including Barn Owl) Survey (April – June 2017);
- Great Crested Newt (GCN) Survey (April - June 2017); and
- Wintering Bird Survey (October 2017 – March 2018, ongoing).



In accordance with Schedule 4 (3) of the EIA Regulations the likely evolution of the environment without implementation of the development will be assessed as far as possible based on the availability of environmental information and scientific knowledge.

## Alternatives Considered

- 11.20. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

## Potential Environmental Impacts

- 11.21. The following sections identify the likely environmental impacts during construction and operational phases of the Proposed Development. The potential impacts will consider the effects resulting from changes identified in other chapters, e.g. air quality, noise etc. This section will also consider the impact that predicted changes in climate and biodiversity will have on the proposed project, potentially over a long timescale, and the project's resilience and capacity to cope.

### Construction Phase

#### *Statutory Sites*

- 11.22. No significant impacts to statutory sites are expected as a result of the Proposed Development due to physical distance from the development site.

#### *Non-statutory Sites*

- 11.23. No significant impacts to non-statutory sites are expected as a result of the Proposed Development due to physical distance from the site.

#### *Habitats*

- 11.24. Permanent loss, or fragmentation, of habitats of ecological importance include;
- Broadleaved woodland;
  - Hedgerows;

- Ponds and agricultural ditches;
- Scattered trees and scrub; and
- Tall Ruderal.

11.25. Other habitats present (arable land, buildings, hardstanding, and improved grassland) are of negligible ecological importance, so no significant impacts are expected as a result of habitat loss.

11.26. Habitat degradation of retained habitats (including woodland, watercourse, hedgerows and trees) due to damage caused by site vehicles, storage of materials, or pollution.

*Invasive Non-native Species (INNS)*

11.27. Spread of an INNS (*Rhododendron ponticum*) outside of the site, which is present in the woodland, which would breach WCA 1981 legislation.

Protected and Priority Species

11.28. Loss of habitat with the potential to support protected and priority species as a result of the Proposed Development, and disturbance (e.g. noise and construction light) of species present, including:

- Badger;
- Bats, roosting and foraging/commuting;
- Breeding birds, including barn owl;
- Brown hare;
- GCN and other amphibians;
- Hedgehog;
- Otter (if development impacts Bradley Brook); and
- Wintering birds.

11.29. Direct killing / injury of protected and priority species during demolition and site clearance including:

- Badger, if present on the site;
- Bats (roosting), if present on the site;
- Birds (nesting); and
- GCN, if present on the site.

### **Operational Phase**

#### *Statutory Sites*

11.30. No significant impacts to statutory sites are expected as a result of the Proposed Development due to physical distance from the development site, and non-residential development type.

#### *Non-statutory Sites*

11.31. No significant impacts to non-statutory sites are expected as a result of the Proposed Development due to physical distance from the site, and non-residential development type.

#### *Habitats*

11.32. Degradation of retained habitats (woodland, trees, hedgerows and watercourse) due to changes in management, or pollution from the development.

#### *Protected and Priority Species*

11.33. Displacement as a result of disturbance due to increased human activity, traffic, noise, and lighting, of species including:

- Bats, roosting (if present) and foraging/commuting (particularly due to increased lighting);
- Breeding birds (including barn owl);
- Brown hare;
- GCN and other amphibians, if present;

- Otter; and
- Hedgehog.

11.34. Direct killing/ injury of GCN and other amphibians, if present on the site, as a result of becoming trapped in unsuitable drainage features on new roads.

## Methodology for the Environmental Statement

### Baseline Methodology

- 11.35. A desk-based study and initial Site survey were used to identify important ecological features (sites, habitats and species) which may be affected by the development proposals, to determine the potential 'zone of influence'<sup>2</sup> (Zol), and to inform the scope of further survey work required.
- 11.36. The study area extends beyond the site boundary to include a 10km radius for international statutory site designations, a 2km radius for national statutory site designations; and a 1km radius for all protected and priority species records. See **Appendix 12** for details of resources included in the desk study.

### Receptors

- 11.37. The results of the initial desk study, site surveys and data gathered during detailed surveys will be used to evaluate the importance of ecological resources within the Zol in accordance the CIEEM Ecological Impact Assessment (EclA) guidance<sup>3</sup>.
- 11.38. The guidance provides a framework for the evaluation of features that considers the direct biodiversity importance of habitats and species, the indirect importance of features which help support the ecological integrity of key features, legal protection for both sites and species, and evaluation against national and local planning guidance and objectives. It uses a geographic frame of reference for identifying important ecological features according to the scale in Table 11.1.

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<sup>2</sup> Defined as the areas over which ecological features may be subject to significant effects as a result of the proposed development and associated activities.

<sup>3</sup> Chartered Institute of Ecology and Environmental Management. (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. 2 nd ed. CIEEM, Winchester.

| Designation           | Receptors  |
|-----------------------|--|
| International         | <p>An ecological feature (species, designated site or habitat) which is important at an international level.</p> <p>A population that would meet the published selection criteria as a qualifying feature for designation of a SAC.</p> <p>An internationally designated site or candidate site, i.e. an SPA, proposed SPA (pSPA), SAC, candidate SAC (cSAC), Ramsar site, or an area which would meet the published selection criteria for such designation. Other significant areas of Annex I priority habitats listed in the Habitats Directive, the loss of which would significantly change the overall range and area at the European scale in the long term.</p>   |
| National              | <p>Nationally significant populations of species identified in the Natural Environment and Rural Communities (NERC) Act 2006 Section 41 as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the national scale. A population that would meet the published selection criteria as a qualifying feature of a SSSI.</p> <p>A nationally designated site, i.e. SSSI, NNR or discrete area which would meet the published selection criteria for national designation (e.g. SSSI selection guidelines). A significant area of a non-designated habitat type identified in the NERC Act 2006, Section 41 as being of principal importance for the conservation of biodiversity in England, the loss of which would significantly change the overall range and area of that habitat at the national scale in the long term. Such habitat should be a major component of areas that are at near-equivalence to SSSIs, meeting most of the published SSSI selection criteria.</p> |
| Regional (north-west) | <p>Regionally significant populations of species identified in the NERC Act 2006 Section 41 as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the regional scale.</p> <p>A significant area of a non-designated habitat type identified in the NERC Act 2006, Section 41 as being of principal importance for the conservation of biodiversity in England, the loss of which would significantly change the overall range and area of that habitat at the regional level in the long term.</p> <p>Significant areas of semi-natural ancient woodland that do not meet the national value criteria (above) should be considered at this scale due to the irreplaceable nature of such habitat.</p>  |

| Designation                             | Receptors   |
|---|---|
| County (Cheshire)                       | Significant populations of species identified in the NERC Act 2006 Section 41 as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), or priority species in the County BAP the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the County scale. Sites formally recognised by local authorities, e.g. SBI, or considered to meet published ecological selection criteria for such designation. A significant area of a non-designated habitat type identified in the NERC Act 2006, Section 41 as being of principal importance for the conservation of biodiversity in England, the loss of which would significantly change the overall range and area of that habitat at the county scale in the long term. A significant area of key habitat identified in the County BAP. |
| Local (Warrington Metropolitan Borough) | Species listed on any of the above-mentioned priority lists, that appreciably enrich District/Borough biodiversity, but which are not in themselves of District/Borough importance or greater. Semi-natural habitats, listed on any of the above-mentioned priority lists, that appreciably enrich local biodiversity, but which are not in themselves of District/Borough importance or greater.   |
| Site                                    | Species populations of limited ecological importance due to their size, composition or lack of threat/rarity. The loss of such features would have no discernible impact on the species'/habitat's overall range and conservation status at any administrative scale in the long term. Areas of habitat of limited ecological importance due to their size, species composition or lack of threat/rarity. The loss of such features would have no significant impact on the habitat's overall range and conservation status at any administrative scale in the long term.   |

Table 11.1: Importance of Ecological Features

11.39. Habitat features of ecological importance within the site are shown on Plan I0682/P01a in **Appendix 4**.

#### **Environmental Impacts**

11.40. The assessment should consider impacts including direct loss of habitats, fragmentation and isolation of habitats, disturbance or killing / injury of species, changes to key ecological features, and changes to the local hydrology or water quality.

11.41. The following factors are considered when describing ecological impacts:

- Positive or negative – an impact can improve or reduce the quality of the environment, evaluated against nature conservation objectives and policy;

- Extent - this is the area over which an effect occurs;
- Magnitude - the size or amount of an effect, determined on a quantitative basis where possible;
- Duration - the time for which an effect is expected to last prior to recovery or replacement of the resource or feature;
- Timing and frequency - some effects are only likely if they happen to coincide with a critical life-stage or seasons. Others may occur if the frequency of an activity is sufficiently high;
- Reversibility - an irreversible (permanent) effect is defined as one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) effect is one from which spontaneous recovery is possible or for which effective mitigation is both possible and enforceable; and
- Cumulative effects - where consideration is given to any other developments within the Zol, together with the proposed development, may result in significant effects.

| Magnitude   | Environmental Impact   |
|-------------|--|
| Substantial | An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a national level or above. |
| High        | An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a regional level.          |
| Moderate    | An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a county level.            |
| Minor       | An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a local or site level.     |
| Negligible  | An effect which will have an insignificant impact on an ecological feature.  |
| Neutral     | No effect which will impact an ecological feature.   |

Table 11.2: Environmental Impacts

### **Significant Effects**

- 11.42. The significance of an effect is the product of the magnitude of the impact and the importance or sensitivity of the ecological feature affected. The EclA Guidance provides a complex framework for the consideration of impacts to ecological features and the reader is referred to the actual guidance for full details. However, in summary, greater levels of significance are generally ascribed to large impacts on features of higher ecological importance and lesser levels of significance are generally ascribed to small impacts on features of higher ecological importance, or larger impacts on features of lower ecological importance.
- 11.43. In accordance with professional guidance and terminology, a significant effect, in ecological terms, is defined as an effect (positive or negative) on the integrity of a defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative effects. Insignificant effects are those that would not result in such changes.
- 11.44. The importance of any features that would be significantly affected is then used to identify geographical scales at which the effect is significant. This value relates directly to the consequences, in terms of legislation, policy and/or development control at the appropriate level. So, a significant negative effect on a feature of importance at one level would be likely to trigger related planning policies and, if permitted, generate the need for development control mechanisms as described in those policies.
- 11.45. Significant effects on features of ecological importance should be mitigated (or compensated for) in accordance with the guidance derived from policies applied at the scale relevant to the feature or resource.
- 11.46. Effects are unlikely to be significant where features of local importance or sensitivity are subject to small scale or short-term effects. However, where there are a number of small scale effects that are not significant alone, it may be that, cumulatively, these may result in an overall significant effect.
- 11.47. The assessment of effects uses the terminology described above. However, to provide consistency with the terminology throughout the ES, potential and residual effects (positive or negative) are also described using the terms set out in Table 11.2.



### Impact Prediction Confidence

11.48. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description   |
|------------------|---|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.  |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

Table 11.3: Confidence Levels

## Significance of Effects

### Construction Phase

11.49. Potential impacts during the construction phase, in the absence of mitigation, are summarised in Table 11.4.

| Feature / Nature of Impact  | Importance    | Environmental Impact | Significance of Effect | Confidence Level |
|---|---------------|----------------------|------------------------|------------------|
| <b>Protected Sites</b>  |               |                      |                        |                  |
| Statutory Sites – direct / indirect impacts                         | International | Negligible           | Negligible             | High             |
| Non-statutory Sites – direct / indirect impacts                     | County        | Negligible           | Negligible             | High             |
| <b>Habitats</b>   |               |                      |                        |                  |
| Broadleaved Woodland – permanent loss, fragmentation or degradation | Local         | Minor Negative       | Minor Adverse          | High             |
| Hedgerow - permanent loss, fragmentation or degradation             | Local         | Minor Negative       | Minor Adverse          | High             |
| Ponds - permanent loss or degradation                               | Local         | Minor Negative       | Minor Adverse          | High             |
| Scattered Trees and Scrub - permanent loss, or degradation          | Site          | Minor Negative       | Minor Adverse          | High             |

| Feature / Nature of Impact  | Importance | Environmental Impact                  | Significance of Effect | Confidence Level |
|---|------------|---------------------------------------|------------------------|------------------|
| Tall Ruderal - permanent loss or degradation  | Site       | Negligible                            | Negligible             | High             |
| Watercourses – degradation  | Local      | Minor Negative                        | Minor Adverse          | High             |
| Arable and Improved Grassland – permanent loss  | Negligible | Negligible                            | Negligible             | High             |
| Buildings and Hardstanding – permanent loss   | Negligible | Neutral                               | Neutral                | High             |
| <b>Invasive Non-native Species (INNS)</b>   |            |                                       |                        |                  |
| Spread of Rhododendron  | Negligible | Minor Negative                        | Minor Adverse          | High             |
| <b>Species</b>  |            |                                       |                        |                  |
| Badger - disturbance, killing / injury  | Negligible | Neutral (but legislative requirement) | Neutral                | Low*             |
| Bats – loss / fragmentation of habitat, disturbance, killing / injury   | Local      | Minor Negative                        | Minor Adverse          | Low*             |
| Birds - loss / fragmentation of habitat, disturbance, killing / injury  | Local      | Minor Negative                        | Minor Adverse          | Low*             |
| Brown Hare – loss / fragmentation of habitat, disturbance   | Local      | Minor Negative                        | Minor Adverse          | High             |
| GCN (and other amphibians) - loss / fragmentation of habitat, disturbance, killing / injury   | Local      | Minor Negative                        | Minor Adverse          | Low*             |
| Hedgehog - loss / fragmentation of habitat.   | Local      | Minor Negative                        | Minor Adverse          | High             |
| Otter – disturbance, killing / injury   | Local      | Minor Negative                        | Minor Adverse          | High             |
| *The assessment of impacts to these species will be confirmed following completion of surveys and analysis of ecological data and as such this assessment is currently identified as having a low confidence level. |            |                                       |                        |                  |

Table 11.4: Significance of Impact - Construction

### Operational Phase

11.50. Potential impacts during the operation phase, in the absence of mitigation, are summarised in Table 11.5.

| Nature of Impact   | Receptor      | Environmental Impact                  | Significance of Effect | Confidence Level |
|--|---------------|---------------------------------------|------------------------|------------------|
| <b>Protected Sites</b>   |               |                                       |                        |                  |
| Statutory Sites – direct / indirect impacts  | International | Negligible                            | Negligible             | High             |
| Non-statutory Sites – direct or indirect impacts   | County        | Negligible                            | Negligible             | High             |
| <b>Habitats</b>  |               |                                       |                        |                  |
| Broadleaved Woodland – habitat degradation   | Local         | Minor Negative                        | Minor Adverse          | High             |
| Hedgerow - habitat degradation   | Local         | Minor Negative                        | Minor Adverse          | High             |
| Ponds - habitat degradation  | Local         | Minor Negative                        | Minor Adverse          | High             |
| Scattered Trees and Scrub - habitat degradation  | Site          | Minor Negative                        | Minor Adverse          | High             |
| Watercourses – habitat degradation   | Local         | Minor Negative                        | Minor Adverse          | High             |
| Improved Grassland – habitat degradation   | Negligible    | Negligible                            | Negligible             | High             |
| <b>Species</b>   |               |                                       |                        |                  |
| Badger – none expected   | Negligible    | Neutral (but legislative requirement) | Neutral                | High             |
| Bats – disturbance / displacement from retained habitats   | Local         | Minor Negative                        | Minor Adverse          | Low*             |
| Birds – disturbance / displacement from retained habitats  | Local         | Minor Negative                        | Minor Adverse          | Low*             |
| Brown Hare – disturbance / displacement from retained habitats   | Local         | Minor Negative                        | Minor Adverse          | High*            |
| GCN (and other amphibians) – displacement / displacement from retained habitats, direct killing/injury | Local         | Minor Negative                        | Minor Adverse          | Low*             |
| Hedgehog – disturbance / displacement from retained habitats, habitat fragmentation                    | Local         | Minor Negative                        | Minor Adverse          | High             |

| Nature of Impact  | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|---|----------|----------------------|------------------------|------------------|
| Otter – none expected   | Local    | Neutral              | Neutral                | High             |
| *The assessment of impacts to these species will be confirmed following completion of surveys and analysis of ecological data gathered, and as such this assessment is currently identified as having a low confidence level. |          |                      |                        |                  |

Table 11.5: Significance of Impact – Operation

## Mitigation

- 11.51. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.
- 11.52. The area identified for ecological mitigation in the south of the site will contribute to the mitigation of impacts to species and habitats. Additional mitigation for any losses incurred will be provided within the green infrastructure as part of landscaping proposals, where possible.
- 11.53. Refer to Section 4 of **Appendix 12** for recommendations regarding mitigation of impacts to habitats and species.
- 11.54. Mitigation will be considered where necessary to reduce the significance of the impacts identified.

## Additive Impacts (Cumulative Impact and their Effects)

- 11.55. For the purposes of this ES we define the cumulative effects as:
- ‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’***
- 11.56. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Ecology and Nature Conservation cumulative assessment are listed in the table below. The other sites listed in Section 6 are not relevant to ecology and nature conservation for various reasons, including distances from the Site, nature of the development or no connectivity to the Site.

| No. | Cumulative Development  | Details                                    | Status   | Justification for Inclusion in Cumulative Assessment  |
|-----|---|--|--|---|
| 4   | Land off Barleycastle Lane, Appleton, Warrington Liberty Properties | 50,000m <sup>2</sup> logistics development | Scoping Request (LPA Ref: 2017/30243) Application to be submitted November 2017. | <p>Directly adjacent to the southern boundary of the Site. Bradley Brook forms the boundary between the two sites.</p> <p>Potential impacts to species and habitats on site will require consideration in the cumulative assessment where they occur on both sites.</p> |

Table 11.6: Cumulative Projects

11.57. Both Construction and Operational phases will be considered, and the short, medium and long-term impacts assessed.

### Further Work Required

11.58. Detailed survey work and the analysis of ecological data gathered is still ongoing. Full details of the following surveys will be included with the Ecology and Nature Conservation ES Technical Paper, and will be used to inform the assessment of impacts:

- Badger survey;
- Bat activity survey;
- Bat roost surveys of buildings and trees;
- Breeding bird survey (including barn owl assessment);
- GCN survey; and
- Wintering bird survey.

11.59. Where necessary, the scope of detailed surveys was agreed in advance with WMBC.

11.60. Where mitigation is required in respect of protected species, including GCN and bats, the details will need to be agreed with WMBC and Natural England.

## Summary

11.61. The proposed development has the potential to impact protected site, habitats and species as detailed above. The extent of impacts will be confirmed through the environmental assessment process and appropriate mitigation identified where required.

11.62. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Ecology and Nature Conservation.

### Scoped In

| Environmental Issue  | Reason for “scoping in”   |
|--|---|
| <p><b>Ecology and Nature Conservation</b></p> <p><i>Construction:</i></p> <p>Impacts to habitats e.g. loss or damage</p> <p>Impacts to protected and priority species e.g. loss of habitat that supports them or disturbance</p> <p>Spread of invasive non-native species</p> <p>Impacts to badgers</p> <p><i>Operation:</i></p> <p>Impacts to protected sites e.g. recreational disturbance/degradation</p> <p>Impacts to habitats e.g. degradation</p> <p>Impacts to protected and priority species e.g. disturbance</p> | <p>Impacts to habitats and species of ecological importance must be considered under local and national planning policy and legislation.</p> <p>Spread of INNS is prohibited under in the WCA 1981.</p> <p>Badgers are afforded legal protection from disturbance, killing and injury under the PBA 1992.</p> <p>Impacts to protected sites, habitats and species of ecological importance must be considered under local and national planning policy and legislation.</p> |

## Scoped Out

| Environmental Issue   | Reason for “scoping out”  |
|---|---|
| <p><b>Ecology and Nature Conservation</b></p> <p><i>Construction:</i></p> <p>Arable, improved grassland and tall ruderal habitats</p> | <p>Habitats are of low value and do not need to be considered further. However, the protected species that they may host will be considered further in the fauna section of the ES chapter.</p> |

## 12. Socio Economic

### Introduction

- 12.1. AMION Consulting will be undertaking the ES Technical Paper on socio-economics. Through the construction and occupation of B8 and B2 floorspace, the Proposed Development is expected to generate a range of socio-economic impacts, both during the Construction Phase and Operational Phase, including direct, indirect and induced impacts such as increased employment and economic output (defined in terms of Gross Value Added (GVA))<sup>4</sup>.
- 12.2. The key objectives of the socio-economic assessment are as follows:
- To review the local economy and determine the associated socio-economic issues in the context of the Proposed Development.
  - To identify the principal socio-economic impacts (both positive and negative) that may result from the Proposed Development and assess the significance of these effects.
  - To recommend measures for avoiding or reducing any identified adverse effects, and/or enhancing positive effects, where possible.
  - To highlight the significance of any residual effects that would remain after mitigation.
- 12.3. Baseline socio-economic data was collected to inform an initial assessment of the economic impact of the Proposed Development. This economic impact assessment is being updated, along with the baseline data, and will be issued as part of the EIA.

### Baseline Information

- 12.4. Prior to considering the socio-economic effects, it is necessary to establish a clear understanding of baseline socio-economic conditions within the geographical areas relevant to the Site. The baseline analysis will focus on the Borough of Warrington, as well as the neighbouring Boroughs of Cheshire East, Cheshire West and Chester, Halton, St Helens and

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<sup>4</sup> Gross Value Added is a measure of the economic value of goods and services produced in an area.



Wigan. Trends in the change over time of key socio-economic indicators will be analysed compared to those for the North West and nationally.

12.5. The socio-economic assessment will detail local socio-economic conditions, including a full analysis of the following issues:

- Employment (economic activity rate and sectoral employment analysis).
- Local labour market (resident employment by occupation, resident earnings and qualifications).
- Commuting patterns.
- Unemployment and worklessness.
- Capacity of social infrastructure (local education and health facilities).
- Deprivation.

12.6. As part of the baseline analysis within the ES Technical Paper, consideration will be given to how the baseline would evolve in the absence of the Proposed Development, albeit recognising the impact of wider macro-economic factors.

12.7. Baseline data for Warrington has been collected across the key indicator groups and is summarised below. Comparable data is currently being collated for the other key local authority areas.

#### **Economic activity**

12.8. The number of economically active people aged between 16 and 64 in Warrington stood at 105,300 as at July 2016 to June 2017. This represents 79.8% of the total working age population of Warrington.

12.9. Economic activity rates for Warrington and comparator areas between July 2012 and June 2017 are provided in the following table.

| <b>Economic Activity (% of resident population aged 16-64)</b> | <b>Jul 2012-<br/>Jun 2013</b> | <b>Jul 2013-<br/>Jun 2014</b> | <b>Jul 2014-<br/>Jun 2015</b> | <b>Jul 2015-<br/>Jun 2016</b> | <b>Jul 2016-<br/>Jun 2017</b> |
|--|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Warrington   | 82.4%                         | 83.6%                         | 80.8%                         | 80.7%                         | 79.8%                         |
| Cheshire and Warrington LEP                                    | 80.0%                         | 78.0%                         | 77.6%                         | 78.3%                         | 79.3%                         |
| North West   | 75.3%                         | 74.7%                         | 74.6%                         | 75.8%                         | 76.0%                         |
| United Kingdom   | 76.9%                         | 77.1%                         | 77.4%                         | 77.7%                         | 77.9%                         |

Table 12.1: Economic Activity, source: ONS annual population survey

## Employment

12.10. In 2016, total employment in Warrington stood at 133,000. A breakdown of sectoral employment is provided within Table 12.2, showing the absolute employment levels by broad industry group for Warrington, together with the proportion of employment in each industrial group for comparator areas.

| Breakdown of sectoral employment (2015)          | Warrington Total Employment | Warrington (%) | Cheshire and Warrington LEP (%) | North West (%) | Great Britain (%) |
|--|-----------------------------|----------------|---------------------------------|----------------|-------------------|
| Agriculture, forestry & fishing                  | 30                          | 0.0%           | 0.3%                            | 1.1%           | 1.6%              |
| Mining, quarrying & utilities                    | 3,000                       | 2.3%           | 1.4%                            | 1.3%           | 1.2%              |
| Manufacturing                                    | 8,000                       | 6.0%           | 9.0%                            | 9.7%           | 7.9%              |
| Construction                                     | 6,000                       | 4.5%           | 3.8%                            | 4.1%           | 4.7%              |
| Motor trades                                     | 2,500                       | 1.9%           | 1.8%                            | 1.4%           | 1.8%              |
| Wholesale  | 6,000                       | 4.5%           | 3.2%                            | 3.5%           | 3.9%              |
| Retail   | 12,000                      | 9.0%           | 10.4%                           | 10.4%          | 9.5%              |
| Transport & storage (inc postal)                 | 9,000                       | 6.8%           | 5.8%                            | 5.5%           | 4.8%              |
| Accommodation & food services                    | 9,000                       | 6.8%           | 8.2%                            | 7.9%           | 7.4%              |
| Information & communication                      | 5,000                       | 3.8%           | 3.0%                            | 2.7%           | 4.1%              |
| Financial & insurance                            | 2,000                       | 1.5%           | 4.2%                            | 2.9%           | 3.5%              |
| Property   | 2,000                       | 1.5%           | 1.6%                            | 1.7%           | 1.7%              |
| Professional, scientific & technical             | 15,000                      | 11.3%          | 11.4%                           | 8.5%           | 8.7%              |
| Business admin & support services                | 21,000                      | 15.8%          | 9.6%                            | 8.4%           | 8.8%              |
| Public admin & defence                           | 5,000                       | 3.8%           | 3.0%                            | 4.3%           | 4.2%              |
| Education  | 7,000                       | 5.3%           | 7.2%                            | 8.7%           | 8.6%              |
| Health   | 17,000                      | 12.8%          | 12.0%                           | 14.1%          | 13.0%             |
| Arts, entertainment, recreation & other services | 4,500                       | 3.4%           | 4.0%                            | 3.8%           | 4.6%              |
| <b>TOTAL</b>                                     | <b>133,000</b>              | <b>100.0%</b>  | <b>100.0%</b>                   | <b>100.0%</b>  | <b>100.0%</b>     |

Table 12.2: Sectoral employment, source: ONS Business Register and Employment Survey

## Occupations

- 12.11. The proportion of resident employment by occupation (2017) is set out in the following table for Warrington and comparator areas.

| Occupational level (% of all persons in employment, 2016) | Warrington | Cheshire and Warrington LEP | North West | Great Britain |
|---|------------|-----------------------------|------------|---------------|
| Managers, directors and senior officials                  | 11.4%      | 13.7%                       | 9.8%       | 10.6%         |
| Professional occupations                                  | 19.6%      | 20.0%                       | 18.6%      | 20.3%         |
| Associate prof & tech occupations                         | 15.6%      | 16.0%                       | 13.6%      | 14.1%         |
| Administrative and secretarial occupations                | 11.8%      | 10.8%                       | 10.7%      | 10.3%         |
| Skilled trades occupations                                | 9.4%       | 10.2%                       | 10.4%      | 10.4%         |
| Caring, leisure and other service occupations             | 7.7%       | 7.1%                        | 10.0%      | 9.2%          |
| Sales and customer service occupations                    | 8.9%       | 7.5%                        | 8.5%       | 7.6%          |
| Process, plant and machine operatives                     | 5.8%       | 5.6%                        | 7.0%       | 6.4%          |
| Elementary occupations                                    | 9.6%       | 8.7%                        | 11.2%      | 10.6%         |

Table 12.3: Occupational profile, source: ONS annual population profile

## Earnings

- 12.12. Median gross weekly earnings between 2015 and 2017 for Warrington and comparator areas are shown in Table 12.4.

| Median resident earnings (£ per week) | 2015   | 2015   | 2017   | Change 2015-2017 (%) |
|---------------------------------------|--------|--------|--------|----------------------|
| Warrington                            | £542.3 | £537.7 | £577.6 | 6.5%                 |
| Cheshire and Warrington LEP           | £536.6 | £545.3 | £561.3 | 4.6%                 |
| North West                            | £491.5 | £502.5 | £514.5 | 4.7%                 |
| United Kingdom                        | £527.1 | £538.6 | £550.4 | 4.4%                 |

Table 12.4: Earnings, source: ONS annual survey of hours and earnings – resident analysis

## Qualifications

- 12.13. The proportion of residents with particular National Vocational Qualification (NVQ) levels in 2016 is shown in the following table for Warrington and comparator areas.

| Qualification level (% of resident population aged 16-64) | NVQ4+ | NVQ3  | NVQ2  | NVQ1  | Other qualifications | No qualifications |
|---|-------|-------|-------|-------|----------------------|-------------------|
| Warrington  | 37.7% | 18.2% | 18.7% | 11.7% | 7.2%                 | 6.6%              |
| Cheshire and Warrington LEP                               | 39.1% | 17.3% | 21.2% | 9.7%  | 5.4%                 | 7.3%              |
| North West  | 34.0% | 19.7% | 19.3% | 11.8% | 5.7%                 | 9.5%              |
| Great Britain   | 38.2% | 18.7% | 17.4% | 11.0% | 6.6%                 | 8.0%              |

Table 12.5: Qualifications, source: ONS annual population survey

## Commuting Patterns

- 12.14. Origin destination data from the 2011 Census has been used to provide an indication of the likely commuting patterns of people who will work at the Site once the Proposed Development is complete. The Site is located within the Lower Super Output Area (LSOA) Warrington 024A. According to ONS Business Register and Employment Survey data, this area already contains a reasonable amount of employment, including employment in the transport and storage sector. It is therefore considered to represent an appropriate basis against which to reflect potential commuting patterns for future workers.
- 12.15. As of the 2011 Census, around 38% of those working within LSOA 024A live within Warrington. A further 8% live within Wigan, with 7% living in Halton and 6% living within Cheshire West and Chester.
- 12.16. The overall commuting patterns for the LSOA area are shown in Figure 12.1. While this does provide an indication of the commuting in-flows that might be associated with the Proposed Development, it is important to note that it does not reflect any interventions to increase the proportion of local employees working at the Site. Discussions will be held with local partners about how to maximise the potential for local people from within Warrington to access the employment opportunities that will be generated by the Proposed Development.

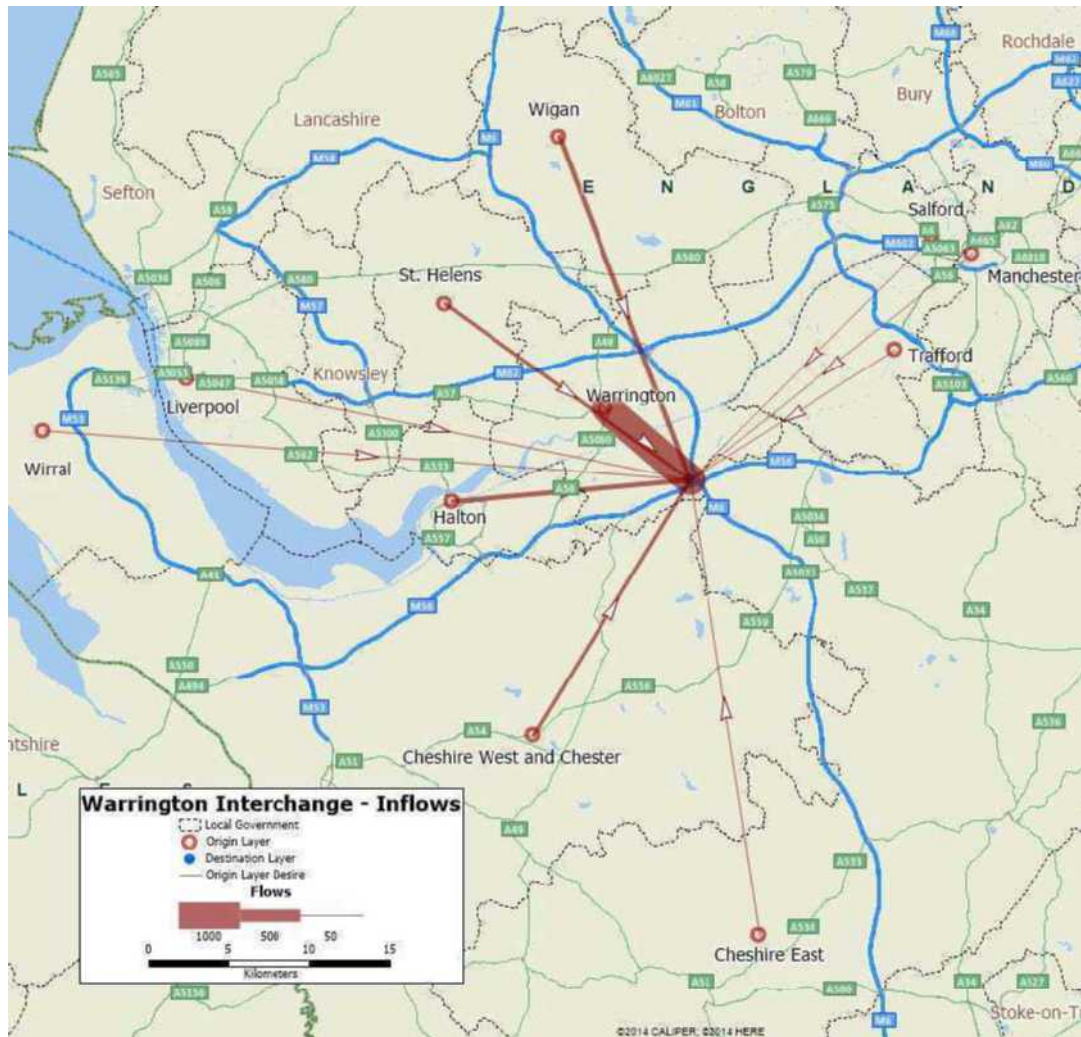


Figure 12.1: Commuting flows, source: ONS Census 2011

## Unemployment

- 12.17. As at October 2017, there were 2,880 out-of-work benefit claimants residing in Warrington (2.2% of the resident population aged 16-64). This represents an increase of 835 claimants since October 2016, although the claimant rate is still below the regional average.
- 12.18. The claimant rate between October 2014 and October 2017 is shown in the following table for Warrington and comparator areas.

| Claimant rate (% of resident population aged 16-64) | Oct 2014 | Oct 2015 | Oct 2016 | Oct 2017 |
|---|----------|----------|----------|----------|
| Warrington  | 2.2%     | 1.9%     | 1.6%     | 2.2%     |
| Cheshire and Warrington LEP                         | 1.6%     | 1.4%     | 1.3%     | 1.6%     |
| North West  | 2.5%     | 2.3%     | 2.3%     | 2.4%     |
| Great Britain                                       | 2.1%     | 1.8%     | 1.8%     | 1.9%     |

Table 12.6: Claimant rate, source: ONS claimant count

### Education (Primary and Secondary schools)

12.19. There are 68 local authority Primary schools located within Warrington. The capacity of these schools to accommodate the increased Primary school age population within Warrington as a result of the scheme will be tested.

12.20. There are 13 local authority Secondary schools located within the Warrington Local Authority District. The capacity of these schools to accommodate the increased Secondary school age population within Warrington as a result of the scheme will be tested.

### Health (GP surgeries)

12.21. There are 28 member GP Member Practices within the Warrington Clinical Commissioning Group. The capacity of these Practices to accommodate the increased population residing within Warrington as a result of the scheme will be tested.

### Deprivation

12.22. The overall levels of deprivation within Warrington have been assessed using the DCLG's English Indices of Deprivation (2015). As a whole, the Borough of Warrington does not demonstrate particularly high levels of deprivation, with it ranked as 176 out of 326 English local authority districts (a rank of 1 representing the most deprived local authority). However, there are many parts of the Borough that do suffer from high levels of deprivation, as demonstrated by Warrington's rank of 90 in terms of the proportion of LSOAs in the most deprived 10% nationally. There are also particularly high levels of deprivation in other parts of the wider impact area, such as in St Helens.

## **Policy Context**

12.23. As part of the baseline analysis and to inform the assessment of potential socio-economic impacts, a review has been undertaken of the national, regional and local policy context. This has encompassed the following key policy documentation:

- National Planning Policy Framework (The Framework).
- Northern Powerhouse Strategy (2016).
- Cheshire and Warrington Strategic Economic Plan (2017)
- Gateway to the Northern Powerhouse (Cheshire and Warrington Devolution – A Growth Deal Bid Summary (2015).
- Warrington Adopted Core Strategy (2014).
- Warrington Local Plan Preferred Options (2017).
- Warrington’s Economic Growth & Regeneration Programme (Warrington Means Business) (2017).
- Warrington Economic Development Needs Study (2016).

12.24. Within the ES Technical Paper on socio-economics, the Proposed Development’s fit and contribution to national, regional and local policy will be assessed.

## **Alternatives Considered**

12.25. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

## **Potential Environmental Impacts**

12.26. It is anticipated that the Proposed Development will result in a range of potentially significant socio-economic impacts during both the Construction and Operational Phases. These impacts may occur as a direct result of the Proposed Development or indirectly, such as through those employed on the Application Site spending their wages in the local economy.

12.27. The likely socio-economic impacts during the Construction Phase and Operational Phase of the Proposed Development are set out in turn below.



### **Construction Phase**

12.28. The socio-economic assessment will consider the following potential impacts during the Construction Phase:

- Temporary employment generated as a result of the construction works – this will include direct employment associated with site remediation and redevelopment, as well as indirect and induced employment (multiplier effects) from supply chain expenditure and the expenditure in the local economy of workers employed during the Construction Phase.
- Short-term increase in economic output (GVA) – in line with the temporary employment impact, this will again take account of the direct, indirect and induced economic output impact during the Construction Phase.
- Creation of training and apprenticeship opportunities during the Construction Phase.
- Effect on local labour market during the Construction Phase.
- Commuting and migration impacts resulting from the creation of temporary employment opportunities.
- Effects on local facilities and services, specifically schools and healthcare facilities, from the increase in construction workforce.
- Wider socio-economic impacts – this will include those impacts, which although difficult to quantify, are important in understanding the overall socio-economic effect of the Proposed Development. For example, consideration will be given to wider impacts such as image and perceptions of the local area and crime/security.

### **Operational Phase**

12.29. The socio-economic assessment will consider the following potential impacts during the Operational Phase:

- Creation of direct, indirect and induced long-term employment opportunities from the proposed B8 and B2 uses on the Application Site.
- Long-term increase in economic output (GVA) resulting from the direct, indirect and induced impacts of the Proposed Development during the Operational Phase.
- Increase in business rate revenue generated due to the provision of new B8 and B2 floorspace on the Application Site.
- Creation of training and apprenticeship opportunities during the Operational Phase.

- Effect on local labour market, specifically in terms of the employment opportunities generated by the Proposed Development for local residents within Warrington.
- Commuting and migration impacts resulting from the creation of long-term employment opportunities.
- Effect on local facilities and services, such as schools and healthcare facilities, due to the increase in workforce in the local economy.
- Wider socio-economic impacts - consideration will be given to wider impacts such as health and wellbeing, image and perceptions of the local area, crime/security and catalytic regeneration effects.

## Methodology for the Environmental Statement

### Overall approach

12.30. The assessment of socio-economic impacts will be undertaken using the following methodology:

- A review of the strategic policy context to provide an outline of the relevant national and sub-national / local social and economic objectives of the area.
- Identification of the impact area, in relation to each potential socio-economic impact, for the assessment of the Proposed Development.
- A desktop review of all publicly available information on current socio-economic and labour market conditions in the study area to establish the baseline using accepted Government sources, such as the Census and Office for National Statistics (ONS) data, including the baseline indicator groups and assembled data outlined above.
- Assessment of likely significant socio-economic effects of the Proposed Development during the Construction and Operational Phases, based on sensitivity value of receptor and magnitude of effect.
- Recommendation of mitigation measures where necessary.
- Assessment of significance of residual effects assuming that the mitigation measures are implemented.
- Identification of likely significant additive / cumulative effects with regard to other consented schemes in the local area.
- Consideration of synergistic effects including the in-combination / interaction of socio-economic effects with other ES topic areas.

- 12.31. Qualitative and quantitative assessments will be undertaken using assessment methodologies from published guidance, including the Homes and Communities Agency's (HCA's) Additionality Guide and Employment Densities Guide, and professional judgement.
- 12.32. Key to understating the socio-economic effects of the Proposed Development will be determining its net additional impact or 'additionality'. This is the extent to which activity takes place at all, on a larger scale, earlier or within a specific designated area or target group as a result of the intervention. The approach to assessing the net additional impact of a project is shown diagrammatically in Figure 12.2.

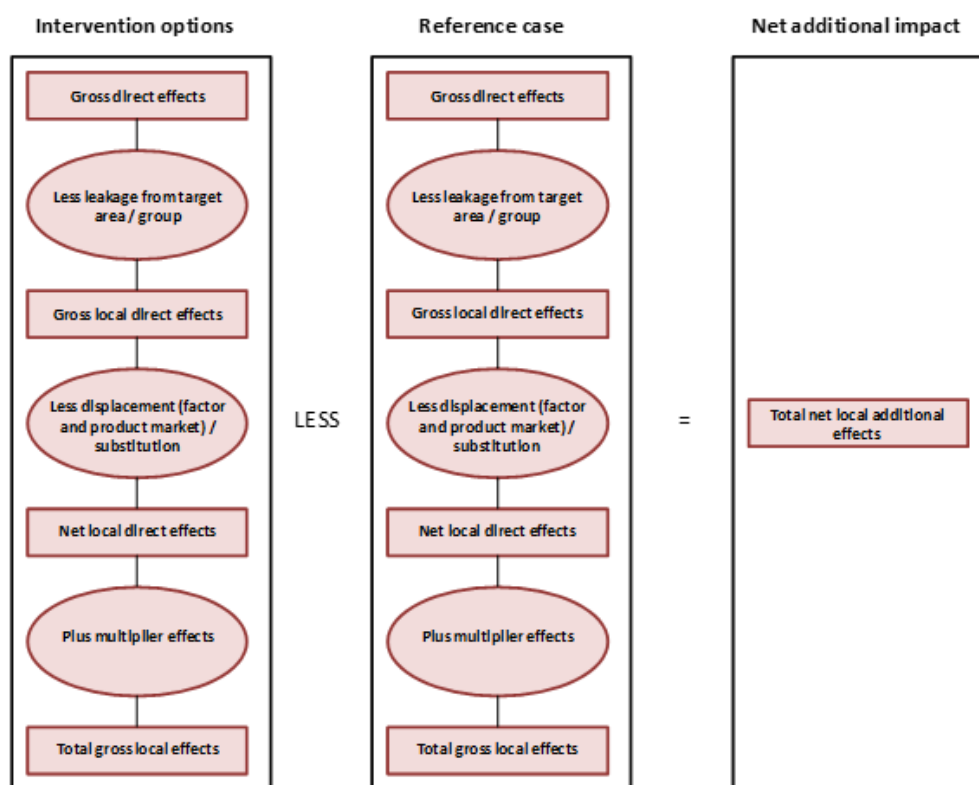


Table 12.2: Approach to calculating net additional impact

- 12.33. In order to assess the additionality of the Proposed Development, the following factors will be considered:
- Leakage – the proportion of outputs that benefit those outside of the area of impact.
  - Displacement – the proportion of outputs accounted for by reduced outputs elsewhere in the area of impact. Displacement may occur in both the factor and product markets.

- Multiplier effects – further economic activity associated with additional local income and local supplier purchases.
- Deadweight – outputs which would have occurred without the Proposed Development. This is referred to as the reference case.

12.34. The above approach to assessing the additional impact of a project is consistent with central Government guidance for physical development projects, including the recently published Appraisal Guide (2016) by the Department for Communities and Local Government (DCLG).

### Receptors

12.35. Table 12.7 sets out a definition of the receptor criteria that will be used to inform the significance of effects.

| Designation         | Receptors  |
|---------------------|--|
| International       | <ul style="list-style-type: none"> <li>• The receptor is of international importance</li> <li>• It has Socio-economic value outside of the UK</li> </ul>   |
| National            | <ul style="list-style-type: none"> <li>• The receptor is of national importance</li> <li>• It is identified as a key priority within national policy</li> </ul>  |
| Regional            | <ul style="list-style-type: none"> <li>• The receptor is of regional importance</li> <li>• It is identified as a key priority within regional policy</li> </ul>  |
| County / sub-region | <ul style="list-style-type: none"> <li>• The receptor is of importance at the county / sub-regional level</li> <li>• It is identified as a key priority within policy for the county / sub-region</li> </ul> |
| Borough/District    | <ul style="list-style-type: none"> <li>• The receptor is of importance to the Borough of Warrington</li> <li>• It is identified as a key priority within policy for Warrington</li> </ul>                    |
| Local/Neighbourhood | <ul style="list-style-type: none"> <li>• The receptor is of importance locally</li> <li>• It is identified as a key priority locally</li> </ul>  |

Table 12.7: Receptors

12.36. Based on the initial identified receptors, the area of impact is expected to principally extend to the Boroughs of Warrington and its constituent wards. The wider area of impact will also incorporate the Boroughs of Cheshire East, Cheshire West and Chester, Halton, St Helens and Wigan, as outlined within Figure 12.2 and at **Appendix 4**.



Figure 12.3: Receptor Plan

### **Environmental Impacts**

- 12.37. In relation to socio-economics, there are no published standards against which the predicted impacts of a development can be assessed in terms of defining the magnitude of effect. The approach adopted therefore takes account of the socio-economic profile of the area and industry knowledge of similar projects being brought forward across the sub-region. As set out in Table 12.8, for a number of the socio-economic impacts, thresholds have been identified to categorise the magnitude of effect. For other impacts, such as wider socio-economic effects, it has been necessary to make a more subjective judgement.

| Magnitude   | Environmental Impact  |   |   |   |   |  |   |   |
|-------------|---|---|---|---|---|--|---|---|
|             | Employment effects  | Economic output effects   | Business rates revenue  | Training & apprenticeship   | Effect on local labour market   | Commuting & migration impacts                                    | Effect on local facilities and services   | Wider socio-economic effects  |
| Substantial | A substantial change in net number of jobs at the county / sub-regional level of more than 1,000 jobs         | A substantial change in net economic output at the county / sub-regional level of more than £50m per annum          | A substantial change in business rates revenue within Warrington of more than £5m per annum           | A substantial change in training and apprenticeship opportunities at the county / sub-regional level of more than 1% of current provision           | A substantial change in local labour market conditions, with an impact equivalent to more than 1% of the resident workforce (economically active) in Warrington           | A substantial change in net out commuting from within Warrington | Substantial restriction or increase in local facilities or services for a period of at least five years     | Substantial wider socio-economic effects within the Borough area for a period of at least five years    |
| High        | A high level of change in net number of jobs at the county / sub-regional level of between 500 and 1,000 jobs | A high level of change in net economic output at the county / sub-regional level of between £25m and £50m per annum | A high level of change in business rates revenue within Warrington of between £2.5m and £5m per annum | A high level of change in training and apprenticeship opportunities at the county / sub-regional level of between 0.75% and 1% of current provision | A high level of change in local labour market conditions, with an impact equivalent to between 0.75% and 1% of the resident workforce (economically active) in Warrington | A high level of change in net out commuting from Warrington      | High degree of restriction or increase in local facilities or services for a period of at least three years | High occurrence of wider socio-economic effects within the Borough for a period of at least three years |

| Magnitude | Environmental Impact   |  |  |  |   |   |  |  |
|-----------|--|--|--|--|---|---|--|--|
|           | Employment effects   | Economic output effects  | Business rates revenue   | Training & apprenticeship  | Effect on local labour market   | Commuting & migration impacts   | Effect on local facilities and services  | Wider socio-economic effects   |
| Moderate  | A moderate change in net number of jobs at the county / sub-regional level of between 100 and 500 jobs         | A moderate change in net economic output at the county / sub-regional level of between £5m and £25m per annum        | A moderate change in business rates revenue within Warrington of between £1m and £2.5m per annum       | A moderate change in training and apprenticeship opportunities at the county / sub-regional level of between 0.5% and 0.75% of current provision       | A moderate change in local labour market conditions, with an impact equivalent to between 0.5% and 0.75% of the resident workforce (economically active) in Warrington      | A moderate change in net out commuting from within Warrington               | A moderate restriction or increase in local facilities or services for a period of at least two years              | Moderate wider socio-economic effects within the Borough for a period of at least two years              |
| Minor     | A small, but measurable, change in net number of jobs at the county / sub-regional level of less than 100 jobs | A small, but measurable, change in net economic output at the county / sub-regional level of less than £5m per annum | A small, but measurable, change in business rates revenue within Warrington of less than £1m per annum | A small, but measurable, change in training and apprenticeship opportunities at the county / sub-regional level of less than 0.5% of current provision | A small, but measurable change in local labour market conditions, with an impact equivalent to less than 0.5% of the resident workforce (economically active) in Warrington | A small, but measurable, change in net out commuting from within Warrington | A small, but noticeable, restriction or increase in local facilities or services for a period of at least one year | Small, but noticeable, wider socio-economic effects within the Borough for a period of at least one year |



| Magnitude  | Environmental Impact  |  |  |  |  |  |  |   |
|------------|---|--|--|--|--|--|--|---|
|            | Employment effects  | Economic output effects  | Business rates revenue   | Training & apprenticeship  | Effect on local labour market                          | Commuting & migration impacts                                    | Effect on local facilities and services                                      | Wider socio-economic effects                                  |
| Negligible | No noticeable change in net number of jobs at the county / sub-regional level | No noticeable change in economic output at the county / sub-regional level | No noticeable change in business rates revenue within Warrington | No noticeable change in training and apprenticeship opportunities at the county / sub-regional level | No noticeable change in local labour market conditions | No noticeable change in net out commuting from within Warrington | Not a noticeable difference in the provision of local facilities or services | No noticeable wider socio-economic effects within the Borough |
| Neutral    | No change in net number of jobs at the county / sub-regional level            | No net change in economic output at the county / sub-regional level        | No change in business rates revenue within Warrington            | No change in training and apprenticeship opportunities at the county / sub-regional level            | No change in the local labour market                   | No change in net out commuting from within Warrington            | A neutral effect on the provision of local facilities and services           | Neutral wider socio-economic effects within the Borough area  |

Table 12.8: Environmental Impacts

### Impact Prediction Confidence

12.38. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description   |
|------------------|---|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.  |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

Table 12.9: Confidence Levels

## Significance of Effects

- 12.39. Having determined the nature of the impact, its level of receptor (International to Local) and level of environmental impact (Substantial to Neutral and positive or negative), within the ES Technical Paper on socio-economics a significance matrix will be utilized to determine the significance of effect and a level of confidence assigned (included in Section 2 of this Scoping Request Report).
- 12.40. As part of this Scoping Paper, an initial assessment of the significance of effect has been undertaken for the Construction Phase and Operational Phase. It is important to note, however, that even where the confidence level is identified as ‘high’, the assessment will be subject to revision as the EIA is developed.

### Construction Phase

| Nature of Impact                             | Receptor            | Environmental Impact | Significance of Effect | Confidence Level |
|--|---------------------|----------------------|------------------------|------------------|
| Temporary increase in employment             | County / sub-region | Moderate Positive    | Moderate Benefit       | High             |
| Short-term increase in economic output (GVA) | County / sub-region | Moderate Positive    | Moderate Benefit       | High             |
| Training and apprenticeship opportunities    | County / sub-region | Minor Positive       | Minor Benefit          | Low*             |
| Effects on local services and facilities     | Local               | Negligible           | Negligible             | Low**            |
| Wider socio-economic impacts                 | Borough             | Negligible           | Negligible             | Low***           |

Table 12.10: Significance of Impact - Construction

\*Further work is to be undertaken, in partnership with local stakeholders, to explore the potential for training and apprenticeship opportunities.

\*\*In relation to the effect on local services and facilities during the Construction Phase, further work will be undertaken to determine the potential demand from the construction workforce on local services and facilities. This will also be informed by the Traffic and Transportation assessment in terms of disruption to local services and facilities.

\*\*\*Further work is to be undertaken in terms of public access and security/crime management methods as part of the EIA

## Operational Phase

| Nature of Impact                               | Receptor            | Environmental Impact | Significance of Effect | Confidence Level |
|--|---------------------|----------------------|------------------------|------------------|
| Creation of long-term employment opportunities | County / sub-region | Substantial Positive | High Benefit           | High             |
| Long-term increases in economic output (GVA)   | County / sub-region | Substantial Positive | High Benefit           | High             |
| Increase in business rate revenue              | Borough             | High Positive        | Moderate Benefit       | High             |
| Training and apprenticeship opportunities      | County / sub-region | Minor Positive       | Minor Benefit          | Low*             |
| Effect on local labour market                  | Borough             | Substantial Positive | Moderate Benefit       | High             |
| Commuting and migration impact                 | Borough             | Minor Positive       | Minor Benefit          | High             |
| Effect on local services and facilities        | Local               | Negligible           | Negligible             | Low**            |
| Wider socio-economic impacts                   | Borough             | High Positive        | Moderate Benefit       | High             |

Table 12.11: Significance of Impact – Operation

\*Further work is to be undertaken, in partnership with local stakeholders, to explore the potential for training and apprenticeship opportunities.

\*\*In relation to the effect on local services and facilities during the Operational Phase, further work will be undertaken to determine the potential demand from the workforce on local services and facilities. This will also be informed by the Traffic and Transportation assessment in terms of disruption to local services and facilities.

## Mitigation

- 12.41. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

## Additive Impacts (Cumulative Impact and their Effects)

- 12.42. For the purposes of this ES we define the cumulative effects as:

***'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.'***

- 12.43. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Socio Economic cumulative assessment are listed in the table below:

| No. | Cumulative Development  | Details   | Status  | Justification for Inclusion in Cumulative Assessment   |
|-----|---|---|---|--|
| 1   | Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington<br><br>LPA Ref: 2016/28807<br><br>Applicant – HCA   | Outline Planning Application for 180 dwellings  | Planning permission granted by WMBC 28-09-2017  | Expected to generate socio-economic effects, including further job creation through construction expenditure |
| 2   | Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN<br><br>LPA Ref: 2017/29930<br><br>Applicant - HCA                                       | Outline Planning Application for 370 dwellings  | Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017                                     | Expected to generate socio-economic effects, including further job creation through construction expenditure |
| 3   | Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG<br><br>LPA Ref: 2017/29929<br><br>Applicant - HCA | Outline Planning Application for 400 dwellings  | Resolution to grant planning permission by WMBC Development Management  | Expected to generate socio-economic effects, including further job creation through construction expenditure |
| 4   | Land off Barleycastle Lane, Appleton, Warrington<br><br>Liberty Properties  | 50,000m2 logistics development  | Pre-application discussions with WMBC<br><br>Scoping Request (LPA Ref: 2017/30243)<br>Application to be submitted November 2017 | Expected to generate socio-economic effects, including further job creation                                  |
| 6   | Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY<br><br>LPA Ref: 2016/28994   | Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping.<br><br>(1,699m2 new build, 180m2 and 265m2 extensions) | Application Approved 17-02-2017 (3 years to implement planning permission)  | Expected to generate socio-economic effects, including further job creation                                  |

|   |   |  |  |   |
|---|---|--|--|---|
| 7 | Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br><br>LPA Ref: 2015/25255<br><br>Morley Estates | Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618)<br><br>(4,545sqm industrial warehouse building) | Application Approved 16-10-2015 (3 years to implement planning permission) | Expected to generate socio-economic effects, including further job creation |
| 8 | Former Stretton Airfield, Warrington, WA4 4RG<br><br>LPA Ref: 2014/2332<br><br>Hensmill Property                          | Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.  | Application Approved 23-06-2015 (3 years to implement planning permission) | Expected to generate socio-economic effects, including further job creation |

Table 12.12: Cumulative Projects

- 12.44. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

### Further Work Required

- 12.45. The analysis of baseline information is ongoing and is being expanded to include comparable data for the wider impact area. As part of the ES, a review of the Proposed Development's strategic fit and contribution to national, regional and local policy will also be undertaken.
- 12.46. A full economic impact model will be developed, informed by the above baseline and contextual analysis, to assess the net additional impact of the Proposed Development, building on initial assessment work already undertaken.

- 12.47. Further work also needs to be carried out to support the assessment of impact on local facilities and services and to explore the potential for training and apprenticeship opportunities. The latter will be informed by discussions with local partners.
- 12.48. A cumulative assessment will be undertaken as part of the ES, encompassing the projects outlined above.
- 12.49. The Socio Economic assessment will need to take into consideration the results and feedback from the proposed consultation process.

## Summary

- 12.50. This Scoping Paper has summarised existing baseline data and outlined the potential impacts that will be considered as part of the Socio Economic assessment, including the following:
- New temporary and long-term employment opportunities.
  - Increased economic output (GVA).
  - Increased business rate revenue.
  - Local labour market effects.
  - Effect on local services and facilities.
  - Wider socio-economic impacts.
- 12.51. The Paper has then presented the proposed ES methodology, setting out the framework for assessing the significance of potential effects.
- 12.52. An initial assessment of the significance of effects has been provided, demonstrating that the impacts of the Proposed Development are expected to be largely positive.
- 12.53. Further work will be undertaken as part of the ES, including confirmation of mitigation measures and an assessment of additive (cumulative) impact.
- 12.54. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Socio Economics.

## Scoped In

| Environmental Issue  | Reason for “scoping in”  |
|--|--|
| <p><b>Socio Economic</b></p> <p><i>Construction:</i></p> <ul style="list-style-type: none"> <li>• Temporary increase in employment</li> <li>• Short-term increase in economic output (GVA)</li> <li>• Training and apprenticeship opportunities</li> <li>• Effects on local services and facilities</li> <li>• Wider socio-economic impacts</li> </ul> <p><i>Operation:</i></p> <ul style="list-style-type: none"> <li>• Creation of long-term employment opportunities</li> <li>• Long-term increases in economic output (GVA)</li> <li>• Increase in business rate revenue</li> <li>• Training and apprenticeship opportunities</li> <li>• Effect on local labour market</li> <li>• Commuting and migration impact</li> <li>• Effect on local services and facilities</li> <li>• Wider socio-economic impacts</li> </ul> | <p>The provision of new B8 and B2 floorspace through the Proposed Development will support the creation of a significant number of new employment opportunities, both during the Construction Phase and Operational Phase. This is expected to lead to further impacts relating to training and apprenticeship opportunities, demand for local services and wider socio-economic impacts, along with potential effects on the local labour market and commuting patterns during the Operational Phase.</p> |

## Scoped Out

| Environmental Issue   | Reason for “scoping out”  |
|---|---|
| <p><b>Socio Economic</b></p> <p><i>Construction:</i></p> <p>Effect on local labour market</p> <p>Commuting and migration impact</p> | <p>Commuting and migration impacts and the effect on the local labour market will be considered in relation to the Operational Phase. However, these impacts have not been considered as part of the Construction Phase, given the temporary and transient nature of construction related employment.</p> |



## 13. Noise and Vibration

### Introduction

- 13.1. This Chapter, prepared by Cundall, presents the potential noise and vibration effects of the Proposed Development.
- 13.2. The chapter describes: the measured baseline conditions at the Site and surroundings; the assessment methodology; the anticipated significant environmental effects; and the outline mitigation measures required to prevent, reduce or offset any significant adverse effects.
- 13.3. In order to assess the prevailing levels of environmental noise affecting nearby noise-sensitive receptors to the site, environmental noise surveys have been undertaken at six different locations in August 2017.

### Planning Policy Context

- 13.4. The overarching planning policy document which applies to the Proposed Development in respect of noise is the National Planning Policy Framework (the Framework) (March 2012).
- 13.5. The key statements of the Framework relevant to the assessment are:
- The planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability;
  - Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
  - Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of planning conditions;
  - Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and
  - Identify and protect areas of tranquility which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

- 13.6. With specific reference to noise effects, the Framework refers to the Noise Policy Statement for England (NPSE) (2010). The NPSE provides guidance which enables decisions to be made regarding the acceptable noise burden to place on society, using three key phrases – the No Observed Effect Level (NOEL), the Lowest Observed Effect Level (LOAEL) and the Significant Observed Adverse Effect Level (SOAEL).

### Relevant British Standards and Guidance

- 13.7. The effects of the Proposed Development upon the existing noise sensitive receptors are to be assessed by reference to the relevant British Standard and relevant guidance as set out in the table below:

| Source  | Description   |
|---|---|
| BS5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites (BS 5228)   | Recommendations for basic methods of noise and vibration control relating to construction sites where work activities may generate significant noise and / or vibration. It also provides guidance on methods of predicting and measuring noise and vibration, and assessing its impact on receptors. |
| BS8233:2014 Guidance on sound insulation and noise reduction for buildings (BS 8233)  | Recommendations for desirable internal and external ambient noise levels in dwellings that should not be exceeded for steady external noise sources.  |
| BS4142:2014 Methods for rating and assessing industrial and commercial sound (BS 4142)  | Methods for determining, at the outside of a building, noise levels from industrial and manufacturing premises, fixed installations and other associated activities. The rating method takes into account specific source characteristics, such as tonality, impulsivity and intermittency.           |
| Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 7 Noise and Vibration (DMRB) | Advice on the assessment of noise and vibration impacts due to road traffic. The guidance provides a classification of magnitude of impacts related to changes in road traffic noise levels.  |
| The Department of Transport/Welsh Office Memorandum 'Calculation of Road Traffic Noise' (CRTN)  | Describes procedures for traffic noise calculation, and is suitable for environmental assessments of schemes where road traffic noise may have an impact.   |

| Source   | Description  |
|--|--|
| British Standard 7385 'Evaluation and Measurement for Vibration in Buildings' (BS 7385). | Presents guide values or limits for transient vibration, above which there is a likelihood of cosmetic damage. |
| The World Health Organisation 'Guidelines for Community Noise' (WHO 1999).               | Provides evidence based research on the effect of environmental noise on communities / residential occupants.  |

Table 13:1 - Relevant British Standards and Guidance

### Consultation with Local Authority

13.8. Cundall are progressing discussions with Warrington Borough Council (WBC) in respect of noise and vibration.

13.9. The following table summarises the initiated consultation to date:

| Theme / Issue                | Date     | Consultee  | Method | Summary of Discussion   | Outcome / Output   |
|------------------------------|----------|--|--------|---|--|
| Noise assessment methodology | 14-11-17 | Steve Smith – Principal Officer (Environmental Protection) at Warrington Borough Council | Email  | Project summary with proposed site uses. Provided a red line boundary drawing with identified nearest noise sensitive receptors. Proposed a noise assessment methodology for review and confirmation of acceptance. | The proposed assessment methodology has been accepted, with attention being drawn on two additional receptors to the south west of the proposed site, and on assessment of operational noise specifically from the B2/B3 uses of the new development during night-time, which are close to existing receptors. |
|                              | 23-11-17 |  |        | Confirmation of the location of the additional noise sensitive receptors was sought.  | Their location was clarified.  |

Table 13:2 - Summary of Consultations and Discussions

## Baseline Information

### Baseline Noise Survey

- 13.10. In order to assess the prevailing levels of environmental noise affecting noise-sensitive receivers, continuous unattended noise logging measurements have been undertaken at six different locations.
- 13.11. The following subsections provide a summary of the recorded baseline data. Full details of the baseline survey measures (including meteorological data, single figure measurement results, subjective assessments of noise climates etc.) are detailed within the Cundall Baseline Results Survey Report presented in **Appendix 13**.
- 13.12. Table 13:3 below documents the monitoring positions and the corresponding measurement type / period.

| Monitoring position | Monitoring location  | Measurement duration  |
|---------------------|--|---|
| MP 1                | North-west corner of the site, approximately 3m from the boundary hedge to Grappenhall Lane.<br><br>Assumed to be representative of the prevailing background noise climate at the Grappenhall Lodge, approximately 45m away.        | Unattended measurement undertaken between 16 and 17 August 2017.  |
| MP 2                | North boundary of the site, approximately 3m from the boundary hedge to Grappenhall Lane.<br><br>Assumed to be representative of the prevailing background noise climate at the dwellings on Cartridge Lane, approximately 40m away. | Unattended measurements undertaken between 17 and 18 August 2017. |
| MP 3*               | North-east corner of the site, approximately 3m from the boundary hedge to Cliff Lane.<br><br>Assumed to be representative of the prevailing background noise climate at Howshoots Farm approximately 16m away.                      | Unattended measurements undertaken between 24 and 30 August 2017. |
| MP 4                | South-east corner of the site, on the site boundary.<br><br>Assumed to be representative of the prevailing background noise climate at Tan House Farm on Barleycastle Lane, approximately 150m away.                                 | Unattended measurements undertaken between 24 and 30 August 2017. |
| MP 5                | On the south boundary of the site.<br><br>Assumed to be representative of the prevailing background noise climate at Barleycastle Farm on Barleycastle Lane, approximately 150m away.  | Unattended measurements undertaken between 24 and 30 August 2017. |

| Monitoring position  | Monitoring location  | Measurement duration  |
|--|--|---|
| MP 6*  | Near the eastern pond in the centre of the site, on the boundary to Bradley View Cottages. | Unattended measurements undertaken between 24 and 30 August 2017. |
| *The monitoring position representative of the prevailing background noise climate at Bradley View Cottage is to be identified at the next stage of the acoustic assessment. |  |   |

Table 13:3 - Monitoring Positions and Measurement Periods

13.13. A figure detailing the approximate location of each unattended measurement position is presented in Figure 13:1 below.

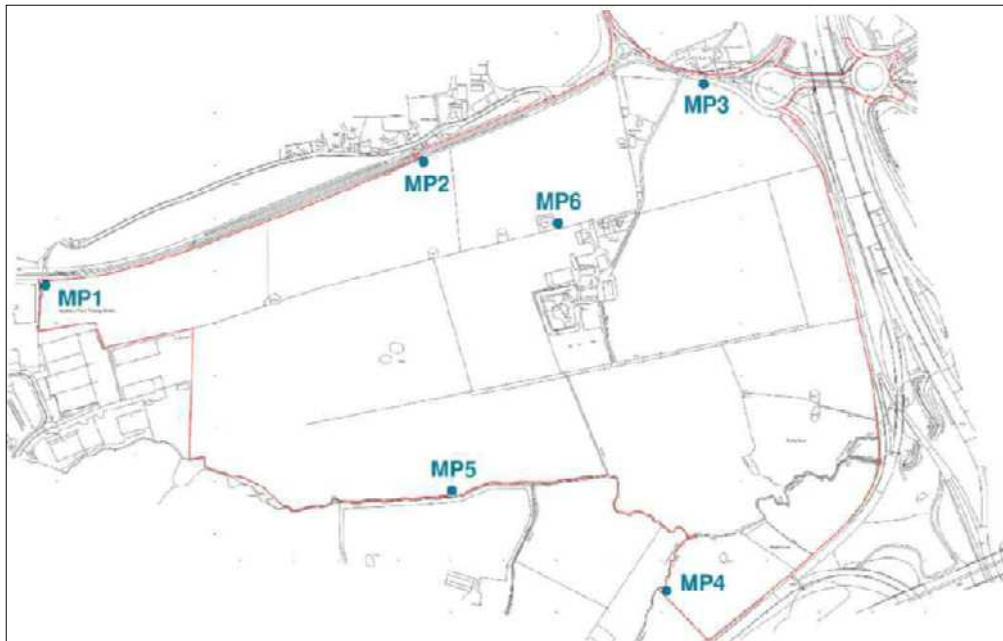


Figure 13:1 - Noise measurement positions mark-up, adapted from "Cliff Lane, Warrington – Red Line Boundary Plan" drawing no. P002 Rev-, issued by Stephen George & Partners LLP in November 2017

13.14. A summary of the average daytime (07:00 – 23:00 hours) and night-time (23:00 – 07:00 hours) ambient noise levels recorded is detailed within Table 13:4. The values are the logarithmically averaged  $L_{Aeq,15min}$ , the maximum  $L_{AFmax,15min}$  and range of  $L_{A90,15min}$  dB values measured. All values have been rounded to the nearest integer value (as fractions of a decibel are imperceptible) and are given in dBA.

| Period  | Location | Average<br>L <sub>Aeq,15min</sub> (dB) | Highest<br>L <sub>AF,Max</sub> (dB) | Highest<br>L <sub>AF10,15min</sub> (dB) | Range<br>L <sub>AF90,15min</sub> (dB) |
|---|----------|--|-------------------------------------|---|---------------------------------------|
| Daytime<br>(measurements between<br>07:00 – 23:00 hours)    | MP1      | 68                                     | 106                                 | 81                                      | 43 – 58                               |
|   | MP2      | 66                                     | 93                                  | 73                                      | 46 – 56                               |
|   | MP3      | 69                                     | 100                                 | 82                                      | 48 – 68                               |
|   | MP4      | 59                                     | 89                                  | 69                                      | 48 – 66                               |
|   | MP5      | 56                                     | 97                                  | 73                                      | 40 – 58                               |
|   | MP6      | 47                                     | 96                                  | 72                                      | 36 – 47                               |
| Night-time<br>(measurements between<br>23:00 – 07:00 hours) | MP1      | 65                                     | 100                                 | 73                                      | 46 – 57                               |
|   | MP2      | 64                                     | 87                                  | 73                                      | 44 – 54                               |
|   | MP3      | 66                                     | 96                                  | 75                                      | 44 – 66                               |
|   | MP4      | 59                                     | 96                                  | 69                                      | 47 – 66                               |
|   | MP5      | 53                                     | 74                                  | 60                                      | 40 – 59                               |
|   | MP6      | 42                                     | 65                                  | 56                                      | 36 – 47                               |

Table 13:4 - Summary of Baseline Monitoring Results

- 13.15. Based on statistical analysis of measured L<sub>AF90,15min</sub> dB values (see Baseline Results Summary Report in **Appendix I3**), Table 13:5 below presents a summary of assumed representative background levels at each monitoring location during the daytime and night-time:

| Period   | Location | Average L <sub>A90,15min</sub> (dB) |
|--|----------|-------------------------------------|
| Daytime<br>(measurements between<br>07:00 – 23:00 hours) | MP1      | 52                                  |
|  | MP2      | 51                                  |
|  | MP3      | 59                                  |
|  | MP4      | 56                                  |
|  | MP5      | 50                                  |
|  | MP6      | 38                                  |

| Period  | Location | Average LA90,15min (dB) |
|---|----------|-------------------------|
| Night-time<br>(measurements between<br>23:00 – 07:00 hours) | MP1      | 49                      |
|   | MP2      | 47                      |
|   | MP3      | 57                      |
|   | MP4      | 54                      |
|   | MP5      | 48                      |
|   | MP6      | 37                      |

Table 13:5 - Measured Representative Background Noise Levels

- 13.16. Committed Developments that will potentially be considered part of the future baseline are detailed in the following Table:

| Committed Developments   |
|--|
| <p><b>Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington</b><br/>LPA Ref: 2016/28807<br/>(HCA)</p>  |
| <p><b>Land bounded by Green Lane, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN</b><br/>LPA Ref: 2017/29930<br/>(HCA)</p>  |
| <p><b>Land South of Astor Drive, East of Lichfield Avenue, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG</b><br/>LPA Ref: 2017/29929<br/>(HCA)</p>  |
| <p><b>Land off Barleycastle Lane, Appleton, Warrington</b><br/>LPA Ref: 2017/30243<br/>(Liberty Properties)<br/>Note – this development is expected to be submitted imminently and will be assessed as part of a transport sensitivity check. Assuming the applicant provides data in a suitable format the operational road traffic flows will be used to consider the affect of the scheme on the baseline noise conditions at nearby receptors.</p> |

Table 13:6 - Summary of Committed Developments

## Alternatives Considered

- 13.17. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

## Potential Environmental Impacts

- 13.18. There are a number of likely significant noise and related environmental impacts, which will be fully assessed at sensitive receptors. Most of these relate to the impact of noise on existing residential receptors in the locality of the site at both Construction and Operational phases.
- 13.19. It is understood that the developer will seek to avoid the use of piling for buildings within the Proposed Development. However, it is understood that the need for piling (albeit in a limited number of locations) cannot be ruled out at this stage. To this end, it is also necessary to consider the potential vibration impacts associated with any piling activities.
- 13.20. It is not considered that any element of the Operational Phase is likely to result in any significant vibration impacts, as vibration levels from HGVs travelling to / from the Application Site would not be expected to be greater than any impacts from existing HGV movements on the local road network. On this basis, it is proposed that the assessment of potential Operational vibration impacts can be scoped out of the ES assessment.

### Construction Phase

- 13.21. Potential noise related environmental impacts which may arise during the Construction Phase are considered to be as follows:
- Noise impacts associated with construction related fixed and mobile plant;
  - Vibration impacts associated with construction related fixed and mobile plant (e.g. piling); and
  - Noise impacts associated with increase in traffic on approach to Application Site due to construction related vehicles.

### Operational Phase

- 13.22. Potential noise related environmental impacts which may arise during the Operational Phase are considered to be as follows:



- Noise impact associated with the “industrial” noise emissions from the Proposed Development based on an 80/20 split between B8/B2 use classes. Examples of anticipated noise generating activities include movement of industrial vehicles, operation of service yards and loading bays and operation of building services plant; and
- Noise impacts associated with resultant increases in traffic on the local highway network surrounding the Application Site following completion of the Proposed Development.

## Methodology for the Environmental Statement

### Receptors

- 13.23. Noise-sensitive and vibration-sensitive receptors in proximity to the site which have been taken into consideration in this assessment are detailed in the following table:

| Designation         | Receptors   |
|---------------------|---|
| International       | n/a   |
| National            | n/a   |
| Regional            | n/a   |
| County              | n/a   |
| Borough/District    | Receptors adjacent to roads assessed as part of transport assessment will be considered. These may be situated on the wider highway network.  |
| Local/Neighbourhood | Residential receptors at:<br>A. Grappenhall Lodge<br>B. Dwellings on Cartridge Lane:<br>– Southott<br>– Hunters Lodge and Hunters Croft<br>– Manors Farm with The Old Stables<br>– Croftside<br>– The Bungalow<br>– 5 Cartridge Lane<br>– 7 Cartridge Lane<br>C. Bradley View Cottage<br>D. Howshoots Farm<br>E. Tan House Farm<br>F. Barleycastle Farm<br>G. Bradley Hall Cottages<br>H. Beehive Farm<br>I. Booth's Farm |

Table 13:7 – Receptors

- 13.24. The approximate location of noise-sensitive receptors highlighted in the above table is presented in Figure 13:2 and **Appendix 13**.



Figure 13:2 - Noise Sensitive Receptors

## Environmental Impacts - Construction Phase

### Construction Noise

- 13.25. BS 5228 provides practical information on demolition and construction noise and vibration reduction measures, and promotes a 'Best Practice Means' approach to control noise and vibration. The calculation method provided in BS 5228 is based on the numbers and types of equipment operating, their associated Sound Power Levels (SWL), and the distance to receptors, together with the effects of any screening. The types and numbers of construction plant will be based on information presented within the Construction Programme.
- 13.26. There are no current national standards or guidelines that give noise limits for construction sites. However, as a guide, typical daytime levels for noisy temporary works at neighbouring premises usually lie in the range of 70 – 80 dB  $L_{Aeq}$ .
- 13.27. It is therefore recommended that the following good practice limits apply to construction noise:

- 70 dB L<sub>Aeq,T</sub> Monday – Friday; and
- 70 dB L<sub>Aeq,T</sub> Saturday – Sunday.

13.28. The Magnitude criteria for construction noise have been derived from BS 5228 guidance. A semantic scale for description of the magnitude of construction noise effects is shown in Table 13:8.

| Magnitude   | Description   |
|-------------|---|
| Substantial | Daytime noise levels greater than 75 dB L <sub>Aeq</sub> for a total of more than 10 days in any 15-day period, or for a total of days more than 40 in any 6-month period             |
| High        | Daytime noise levels greater than 75 dB L <sub>Aeq</sub> for a total of less than 10 days in any 15-day period, or for a total of days less than or equal to 40 in any 6-month period |
| Moderate    | Daytime noise levels between 70 and 75 dB L <sub>Aeq</sub>  |
| Minor       | Daytime noise levels between 65 and 70 dB L <sub>Aeq</sub>  |
| Negligible  | Daytime noise levels less than or equal to 65 dB L <sub>Aeq</sub>   |
| Neutral     | Daytime noise levels more than 10 dB below existing background levels   |

Table 13:8 - Construction Noise Magnitude Criteria

13.29. Construction hours have been set as follows:

- 08:00 – 18:00 hours on Monday to Fridays, and
- 08:00 – 13:00 hours on Saturdays;
- No working on Sundays or Bank Holidays, unless first agreed with the Local Planning Authority.

#### Construction Traffic Noise

13.30. Construction traffic will be assessed by considering the short-term increase in traffic flows during works, following the principles of CRTN and DMRB.

13.31. The criteria for the assessment of the magnitude of effect of traffic noise changes arising from construction works have been taken from Table 3.1 of DMRB and are provided in Table 13:9.

| Description (change in dBA) | Magnitude of Impact |
|-----------------------------|---------------------|
| 15 dBA or more              | Substantial         |
| 10 – 14.9 dBA               | High                |
| 5.0 – 9.9 dBA               | Moderate            |
| 3.0 – 4.9 dBA               | Minor               |
| 0.1 – 2.9 dBA               | Negligible          |
| 0 dBA                       | Neutral             |

Table 13:9 - Construction Traffic Noise Magnitude Criteria

### Construction Vibration

- 13.32. BS 5228 Part 2 provides further guidance on the perception of vibration resulting from construction activities within occupied buildings. This provides a simple method of determining annoyance alongside evaluation of cosmetic damage associated with vibration.
- 13.33. The table below details potential vibration levels measured in terms of ‘Peak Particle Velocity’ (PPV), and provides a semantic scale for description of construction vibration impacts on human receptors.

| Peak Particle Velocity Level | Description   | Magnitude of Impact |
|------------------------------|---|---------------------|
| 15 mm/s                      | Vibration will be intolerable   | Substantial         |
| 10 mm/s                      | Vibration is likely to be intolerable for any more than a very brief exposure to this level.  | High                |
| 1.0 mm/s                     | It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.                  | Moderate            |
| 0.3 mm/s                     | Vibration might be just perceptible in residential environments.  | Minor               |
| 0.14 mm/s                    | Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration. | Negligible          |

| Peak Particle Velocity Level | Description              | Magnitude of Impact |
|------------------------------|--------------------------|---------------------|
| 0 mm/s                       | No vibration perceptible | Neutral             |

Table 13:10 - Guidance on Effects of Construction Vibration (PPV) Levels

13.34. Construction activities that produce vibration may impact on adjacent buildings. The criteria used in this assessment relate to the potential for cosmetic damage, not structural damage. The principal concern is generally transient vibration due to piling, which at this stage cannot be ruled out as necessary. Cosmetic damage is most likely to occur within the first 20 metres (m) of piling activities; at greater distances damage is less likely to occur. Likely levels of vibration at given distances can be estimated from existing piling vibration data, as provided in BS 5228 Part 2.

13.35. BS 7385 establishes the basic principles for carrying out vibration measurements and processing the data, with regard to evaluating vibration effects on buildings. Recommended PPV vibration limits for transient excitation for different types of buildings are presented in the following table.

| Type of building   | Peak Component Particle Velocity in Frequency Range of Predominant Pulse <sup>1</sup> |   |
|--|---|---|
|  | 4 Hz to 15 Hz   | 15 Hz and above   |
| Reinforced or framed structures  | 50 mm/s at 4 Hz and above   |   |
| Industrial and heavy commercial buildings  | 15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz <sup>2</sup>                           | 20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above |
| <p>1 - Values referred to are at the base of the building;</p> <p>2 - At frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) should not be exceeded;</p> <p>mm/s – millimetres per second.</p> |   |   |

Table 13:11 - Peak Particle Velocity Limits for Cosmetic Damage to Buildings

13.36. Where vibration experienced at structures exceeds the values shown in the table above, this would be considered to be a significant adverse impact.

## Environmental Impacts - Operational Phase

### Operational Traffic Noise

- 13.37. Operational traffic noise will be assessed by considering the long-term increase in traffic flows following completion of the Proposed Development, following the principles of CRTN and DMRB.
- 13.38. The criteria for the assessment of the magnitude of the impact of traffic noise changes arising from the Proposed Development will be taken from Table 3.2 of DMRB and are provided in Table 13:12.

| Description (change in dBA) | Magnitude of Impact |
|-----------------------------|---------------------|
| 15 dBA or more              | Substantial         |
| 10 – 14.9 dBA               | High                |
| 5.0 – 9.9 dBA               | Moderate            |
| 3.0 – 4.9 dBA               | Minor               |
| 0.1 – 2.9 dBA               | Negligible          |
| 0 dBA                       | Neutral             |

Table 13:12 - Operational Traffic Noise Magnitude Criteria

- 13.39. In addition to the above, the DMRB states the following:

*“In the period following a change in traffic flow, people may report positive or negative benefits when the actual noise changes are as small as 1 dB(A). As this noise change is equivalent to an increase of 25% or a decrease in traffic flow of 20%, this reaction may be partly attributed to an awareness of the changes in traffic rather than noise.”*

- 13.40. As such, it is considered that overall flow increase of less than 25% would cause changes in road traffic noise levels of negligible magnitude.

### Industrial Noise

- 13.41. Industrial noise emissions will be assessed by in accordance with the methodology set out in BS 4142. This standard provides an assessment methodology and criteria relating to the following industrial noise sources:

- a) sound from industrial and manufacturing processes;
- b) sound from fixed installations which comprise mechanical and electrical plant and equipment;
- c) sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- d) sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

13.42. The proposed criteria for the assessment of the magnitude of impact of industrial noise emissions from the Proposed Development are provided below in Table 13:13 and are based on the relative level difference between the BS 4142 Rating Levels ( $L_{Ar,Tr}$ ) and the representative background sound levels ( $L_{A90,T}$ ).

| Description                  | Magnitude   |
|------------------------------|-------------|
| $L_{Ar,Tr} = L_{A90,T} + 15$ | Substantial |
| $L_{Ar,Tr} = L_{A90,T} + 10$ | High        |
| $L_{Ar,Tr} = L_{A90,T} + 5$  | Moderate    |
| $L_{Ar,Tr} = L_{A90,T}$      | Minor       |
| $L_{Ar,Tr} = L_{A90,T} - 5$  | Negligible  |
| $L_{Ar,Tr} = L_{A90,T} - 10$ | Neutral     |

Table 13:13 - BS4142 Noise Management Criteria

### Impacts Prediction Confidence

13.43. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description  |
|------------------|--|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience. |

|     |   |
|-----|---|
| Low | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |
|-----|---|

Table 13:14 - Confidence Levels

## Significance of Effects

### Construction Phase

- 13.44. The following table presents the potential Significance of Effect for noise and vibration impacts identified during the Construction Phase.

| Nature of Impact  | Receptor | Environmental Impact | Significance of Effect | Confidence Level   |
|---|----------|----------------------|------------------------|--------------------|
| Vibration impacts associated with construction works at Application Site  | Local    | Minor Negative       | Minor Adverse          | Low <sup>(1)</sup> |
| Noise impacts associated with construction works at Application Site  | Local    | Minor Negative       | Minor Adverse          | Low <sup>(1)</sup> |
| Increase in traffic on approach to Application Site   | Local    | Negligible           | Negligible             | Low <sup>(2)</sup> |
| <u>Notes on Table:</u>  |          |                      |                        |                    |
| <sup>(1)</sup> Confidence level will be increased to 'High' following modelling exercise based on construction programme and indicative plant quantities.     |          |                      |                        |                    |
| <sup>(2)</sup> Confidence level will be increased to 'High' following assessment of predicted future construction traffic flows against baseline data values. |          |                      |                        |                    |

Table 13:15 - Significance of Impact – Construction

### Operational Phase

- 13.45. The proposed end uses of the site are B8, B2 and B1(a), which are likely to extend over 24-hour periods.
- 13.46. The following table presents the determined Significance of Effect for noise and vibration impacts identified during the Operational Phase.

| Nature of Impact | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|------------------|----------|----------------------|------------------------|------------------|
|------------------|----------|----------------------|------------------------|------------------|



|  |       |                   |               |                     |
|--|-------|-------------------|---------------|---------------------|
| Vibration impacts associated with Development        | Local | Negligible        | Negligible    | High <sup>(1)</sup> |
| Industrial noise impacts associated with Development | Local | Moderate Negative | Minor Adverse | Low <sup>(2)</sup>  |
| Increase in traffic on local road networks           | Local | Minor Negative    | Minor Adverse | Low <sup>(3)</sup>  |

Notes on Table

<sup>(1)</sup> Due to 'High' confidence level of negligible Significance of Effect, it is proposed to scope out the assessment of operational stage vibration impacts

<sup>(2)</sup> Confidence level will be increased to 'High' following model modelling exercise based on additional information on potential industrial noise sources.

<sup>(3)</sup> Confidence level will be increased to 'High' following assessment of predicted future 'do-something' traffic flows against baseline 18hr AAWT data values.

Table 13:16 - Significance of Impact – Operation

## Mitigation

- 13.47. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.
- 13.48. A Parameter Plan presented in **Appendix 3** of this report. As the scheme evolves, noise impact at nearby sensitive receptors will be considered and reflected in the orientation of buildings, locations of noise generating uses (loading bays, service yards, services plant) and potential inclusion of perimeter landscape bunding to aid in attenuating noise egress from the site. These mitigation measures will be developed and confirmed in the ES and the Parameters for environmental assessment as required.

## Additive Impacts (Cumulative Impact and their Effects)

- 13.49. For the purposes of this ES we define the cumulative effects as:

***'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.'***

13.50. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Noise and Vibration cumulative assessment are listed in the table below:

| No. | Cumulative Development  | Details  | Status  | Justification for Inclusion in Cumulative Assessment  |
|-----|---|--|---|---|
| 1   | Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington<br>LPA Ref: 2016/28807<br>Applicant - HCA   | Outline Planning Application for 180 dwellings | Planning Permission granted by WMBC 28-09-2017  | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment. |
| 2   | Land bounded by Green Lane, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN<br>LPA Ref: 2017/29930<br>Applicant - HCA                                       | Outline Planning Application for 370 dwellings | Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017 | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment. |
| 3   | Land South of Astor Drive, East of Lichfield Avenue, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG<br>LPA Ref: 2017/29929<br>Applicant - HCA | Outline Planning Application for 400 dwelling  | Resolution to grant planning permission by WMBC Development Management                      | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment. |

| No. | Cumulative Development  | Details                                    | Status  | Justification for Inclusion in Cumulative Assessment  |
|-----|---|--|---|---|
| 4   | Land off Barleycastle Lane, Appleton, Warrington<br>Liberty Properties  | 50,000m <sup>2</sup> logistics development | Pre-application discussions with WMBC Scoping Request (LPA Ref: 2017/30243)<br>Application to be submitted November 2017. | Road traffic flows associated with this development are to be considered as a committed development and therefore included within the future baseline. Operational noise associated with the development will be considered in the cumulative assessment. |
| 5   | Land to the east of Stretton Road, north of Pepper Street, Stretton Road, Appleton Thorn, Warrington<br>LPA Ref: 2016/29511 | Full Planning Application for 78 dwellings | REFUSED by WMBC 29-06-2017  | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment.   |

Table 13:17 - Cumulative Projects

- 13.51. Both Construction and Operational phases will be considered and the short, medium and long-term impacts assessed.

### Further Work Required

- 13.52. Following planned consultations with Warrington Borough Council (WBC), it will be necessary to determine requirements for the following acoustic assessment elements:

- Confirmation of recommended BS 4142 Rating Level limits to protect existing sound-sensitive receptors from future operational industrial noise impacts.

- 13.53. The following table sets out the further works required in assessing the Significance of effect for likely significant noise and vibration related environmental impacts.

| Phase              | Nature of impact   | Further assessment works required   |
|--------------------|--|---|
| Construction Phase | Noise impacts associated with construction works at Application Site               | Assessment of noise impacts based on proposed construction programme and construction plant quantities  |
|                    | Noise and vibration impacts associated with construction works at Application Site | Assessment of noise and vibration impacts based on proposed construction programme and construction plant quantities  |
|                    | Increase in traffic on approach to Application Site                                | Assessment of noise based on predicted 18-hour AAWT proposed 'do something' traffic flows for construction traffic  |
| Operational Phase  | Industrial noise impacts associated with the Proposed Development                  | Assessment of noise industrial impacts based on indicative information on potential industrial noise sources e.g. fixed building services plant, services yard activities |
|                    | Increase in traffic on local road networks   | Assessment of traffic impacts based on predicted 18-hour AAWT proposed 'do something' traffic flows for the Proposed Development  |

Table 13:18 - Further Assessment Work Required

## Summary

- 13.54. This Scoping Paper has documented initial surveyed baseline conditions at nearby receptors and has highlighted the noise and vibration effects which will be addressed in detail as part of the ES. The most likely noise effects identified relate to the “industrial” noise emissions from the site during the operational phase. These have been identified within the design team at an early stage and have led to an indicative masterplan and mitigation strategy which should reduce noise egress from the site. This will continue to be developed as the scheme design progresses as part of the ES assessment.
- 13.55. For Operational Phase vibration impacts, it has been identified that there is a ‘high’ confidence level in the Significant of Effect being negligible. For this reason, it is proposed to scope out the assessment Operational Phase vibration impacts from the environmental assessment.

- 13.56. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Noise and Vibration.

### Scoped In

| Environmental Issue  | Reason for “scoping in”   |
|--|---|
| <p><u>Construction Phase:</u></p> <p>Noise impacts associated with construction related fixed and mobile plant</p> <p>Noise impacts associated with increase in traffic on approach to Application Site due to construction related vehicles</p> <p>Vibration impacts associated with construction related fixed plant and mobile plant (e.g. piling)</p> <p><u>Operation Phase:</u></p> <p>Noise impacts associated with resultant increases in traffic on the local highway network surrounding the Application Site following completion of the Proposed Development</p> <p>Noise impact associated with the “industrial” noise emissions from the Proposed Development e.g. movement of industrial vehicles, operation of service yards and loading bays and operation of building services plant.</p> | <p>There is the potential for significant impacts at nearby sensitive receptors</p> |

### Scoped Out

| Environmental Issue  | Reason for “scoping out”  |
|--|---|
| <p><b>Noise and Vibration</b></p> <p><i>Operation Phase:</i></p> <p><i>Operational vibration impacts</i></p> | <p>Based on the nature of operations associated with B2 and B8 uses, as well as the distances involved between the proposed units and sensitive receptors, it is not considered that any element of the typical operational activities undertaken will result in any significant vibration impacts. It is therefore considered that the only potential source of vibration associated with the operational phase of the scheme is additional HGV movements on existing road networks. However, due to existing quantities of HGV movements on the local road network, vibration values attributable</p> |

| Environmental Issue | Reason for “scoping out”   |
|---------------------|--|
|                     | <p>to additional HGVs travelling to / from the Application Site would not be considered significant.</p> <p>On this basis, the assessment of potential Operational vibration impacts can be scoped out of the ES assessment.</p> |

## 14. Air Quality, Odour and Dust

### Introduction

14.1. RPS has been instructed to undertake the air quality assessment for the Proposed Development.

14.2. The local planning authority, Warrington Metropolitan Borough Council (WMBC), has designated three Air Quality Management Areas (AQMAs) due to high levels of nitrogen dioxide (NO<sub>2</sub>) pollution from road traffic. The nearest, AQMA No. 1, is a 50 m continuous strip on both sides of the M6, M62 and M56 Motorway corridors. Approximately 1% of the Proposed Development is within this AQMA.

14.3. The air quality assessment will cover the elements recommended in the National Planning Practice Guidance (NPPG). The approach is consistent with the EPUK/IAQM Land-Use Planning & Development Control: Planning For Air Quality document [<sup>5</sup>], the IAQM Guidance on the assessment of dust from demolition and construction [<sup>6</sup>] and, where relevant, Defra's Local Air Quality Management Technical Guidance: LAQM.TG16 [<sup>7</sup>]. It will include the key elements listed below:

- assessment of the existing air quality in the study area (existing baseline) and prediction of the future air quality without the development in place (future baseline), using official government estimates from Defra, publically available air quality monitoring data for the area, and relevant Air Quality Review and Assessment (R&A) documents;
- a qualitative assessment of likely construction-phase impacts with mitigation and controls in place; and
- a quantitative prediction of the future operational-phase air quality impact with the development in place (with any necessary mitigation), encompassing the

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<sup>5</sup> EPUK/IAQM (January 2017) Land-Use Planning & Development Control: Planning For Air Quality  
<sup>6</sup> IAQM (2014) Guidance on the assessment of dust from demolition and construction  
<sup>7</sup> Defra (2016) Local Air Quality Management Technical Guidance, 2016 (LAQM.TG16)

impacts of the development traffic on the local area including any effects on the AQMAs and at local sensitive receptors

## Baseline Information

14.4. A review of local monitoring data has been undertaken to characterize the existing baseline air quality as outlined below. Measured concentrations from both background monitoring locations (away from busy roads) and roadside locations have been considered.

### Overview

14.5. The background concentration often represents a large proportion of the total pollution concentration, so it is important that the background concentration selected for the assessment is realistic. National Planning Practice Guidance and EPUK/IAQM guidance highlight public information from Defra and local monitoring studies as potential sources of information on background air quality. LAQM.TG16 recommends that Defra mapped concentration estimates are used to inform background concentrations in air quality modelling and states that: “Where appropriate these data can be supplemented by and compared with local measurements of background, although care should be exercised to ensure that the monitoring site is representative of background air quality”.

14.6. For this assessment, the background air quality has been characterised by drawing on information from the following public sources:

- Defra maps, which show estimated pollutant concentrations across the UK in 1 km grid squares; and
- published results of local authority Review and Assessment (R&A) studies of air quality, including local monitoring and modelling studies.

14.7. A detailed description of how the baseline air quality has been derived is summarised in the following paragraphs.

### Review and Assessment Process

14.8. The local planning authority, Warrington Metropolitan Borough Council (WMBC), has designated three Air Quality Management Areas (AQMAs) due to high levels of nitrogen dioxide (NO<sub>2</sub>) pollution from road traffic. The nearest, AQMA No. 1, is a 50 m continuous



strip on both sides of the M6, M62 and M56 Motorway corridors. A small part of the Proposed Development is within this AQMA.

14.9. WMBC has implemented a number of actions to improve air quality, primarily through the Local Transport Plan. These include:

- Implementing the ‘Eco Stars Fleet Recognition Scheme’ to target freight and bus/coach operators to encourage improved environmental performance to reduce emissions.
- Encouraging sustainable transport
- Extending the off road cycle network to link up employment areas, encouraging cycling for health and commuting reasons.
- Encouraging the uptake of electric vehicles via the planning process with charging points being required in all new car parks and residential schemes.
- The publishing of a Low Emissions Strategy feasibility (LES) Study in 2016.

**Local Urban Background Monitoring**

14.10. Monitors at urban background locations measure concentrations away from the local influence of emission sources and are therefore broadly representative of residential areas within large conurbations. Monitoring at local urban background locations is considered an appropriate source of data for the purposes of describing baseline air quality for the Application Site.

14.11. There is one local monitoring station where urban background concentrations are measured using continuous automatic instruments; NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are measured at the Selby Street urban background location to the west of Warrington town centre. The most recently measured annual-mean concentrations are presented in Table 14.1.

| Monitor Name | Approximate Distance to Site (km) | Pollutant         | Air Quality Assessment Level (µg.m <sup>-3</sup> ) | Concentration (µg.m <sup>-3</sup> ) |      |      |      |      |
|--------------|-----------------------------------|-------------------|--|-------------------------------------|------|------|------|------|
|              |                                   |                   |  | 2012                                | 2013 | 2014 | 2015 | 2016 |
| Selby Street | 7.8                               | NO <sub>2</sub>   | 40   | 26.7                                | 25.6 | 20.5 | 24.4 | 25.0 |
|              |                                   | PM <sub>10</sub>  | 40   | 19                                  | 18   | 16   | 16   | 16   |
|              |                                   | PM <sub>2.5</sub> | 25   | 13                                  | 14   | 14   | 11   | 11   |

Table 14.1 Automatically Monitored Urban Background Annual-Mean Concentrations

- 14.12. In addition WMBC manually monitor NO<sub>2</sub> concentrations at a number of urban background locations using passive diffusion tubes and the measured annual-mean concentrations are presented in Table 14.2.

| Monitor Code       | Approximate Distance to Site (km) | Concentration (µg.m <sup>-3</sup> ) |      |      |      |      |
|--------------------|-----------------------------------|-------------------------------------|------|------|------|------|
|                    |                                   | 2011                                | 2012 | 2013 | 2014 | 2015 |
| WA14 Bruche Avenue | 5.9                               | 20.9                                | 24.5 | 24.5 | 19.1 | 23.3 |

Table 14.2 Passively Monitored Urban Background Annual-Mean NO<sub>2</sub> Concentrations

### Defra Mapped Concentration Estimates

- 14.13. Defra's total annual-mean NO<sub>2</sub> concentration estimates have been collected for the 1 km grid squares of the monitoring sites and the Proposed Development and are summarised in Table 14.3.

| Monitor Name         | Distance to Site (km) | Concentration (µg.m <sup>-3</sup> ) |                        |
|----------------------|-----------------------|-------------------------------------|------------------------|
|                      |                       | Range of Monitored                  | Estimated Defra Mapped |
| Proposed Development |                       |                                     | 27.5                   |
| Selby Street         | 7.8                   | 20.5 – 26.7                         | 23.5                   |
| WA14 Bruche Avenue   | 5.9                   | 19.1 – 24.5                         | 21.1                   |

Table 14.3 Defra Mapped Annual-Mean Background NO<sub>2</sub> Concentration Estimates

- 14.14. Similarly, the Defra total annual-mean PM<sub>10</sub> and PM<sub>2.5</sub> concentration estimates have been collected for the grid square of the monitoring sites and the Proposed Development and are summarised in Table 14.4 and Table 14.5.

| Monitor Name         | Distance to Site (km) | Concentration (µg.m <sup>-3</sup> ) |                        |
|----------------------|-----------------------|-------------------------------------|------------------------|
|                      |                       | Range of Monitored                  | Estimated Defra Mapped |
| Proposed Development |                       |                                     | 16.9                   |
| Selby Street         | 7.8                   | 16 – 19                             | 15.6                   |

Table 14.4 Defra Mapped Annual-Mean Background PM<sub>10</sub> Concentration Estimates

| Monitor Name         | Distance to Site (km) | Concentration (µg.m <sup>-3</sup> ) |                        |
|----------------------|-----------------------|-------------------------------------|------------------------|
|                      |                       | Range of Monitored                  | Estimated Defra Mapped |
| Proposed Development |                       |                                     | 11.7                   |
| Selby Street         | 7.8                   | 11 – 14                             | 11.1                   |

Table 14.5 Defra Mapped Annual-Mean Background PM<sub>2.5</sub> Concentration Estimates

**Appropriate Background Concentrations for the Development Site**

- 14.15. For NO<sub>2</sub>, the Defra mapped background concentration estimates are within the range of the results from monitoring. The background annual-mean NO<sub>2</sub> concentrations at the Site have been derived from the Defra mapped background concentration estimate.
- 14.16. For PM<sub>10</sub>, the Defra mapped background concentration estimate is below the range of results from monitoring at Selby Street and the use of these data would not be conservative. Monitored annual-mean PM<sub>10</sub> concentrations at Selby Street range from 16 to 19 µg.m<sup>-3</sup>. To ensure the assessment is conservative, the background annual-mean PM<sub>10</sub> concentration has been derived from the 19 µg.m<sup>-3</sup> measured in 2011 and 2012.
- 14.17. For PM<sub>2.5</sub>, the Defra mapped background concentration estimate is at the lower end of the range of results from monitoring at Selby Street and the use of these data would not be conservative. Monitored annual-mean PM<sub>2.5</sub> concentrations at Selby Street range from 11 to 14 µg.m<sup>-3</sup>. To ensure the assessment is conservative, the background annual-mean PM<sub>2.5</sub> concentration has been derived from the 14 µg.m<sup>-3</sup> measured in 2013 and 2014.
- 14.18. Historically the view has been that background traffic-related NO<sub>2</sub> concentrations in the UK would reduce over time, due to the progressive introduction of improved vehicle technologies and increasingly stringent limits on emissions. However, the results of recent monitoring across the UK suggest that background annual-mean NO<sub>2</sub> concentrations have not decreased in line with expectations.
- 14.19. To ensure that the assessment presents conservative results, no reduction in the background has been applied for future years.
- 14.20. Table 14.6 summarises the annual-mean background concentrations for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> used in this assessment.

| Pollutant         | Data Source               | Concentration (µg.m <sup>-3</sup> ) |
|-------------------|---------------------------|-------------------------------------|
| NO <sub>2</sub>   | Defra (2013)              | 27.5                                |
| PM <sub>10</sub>  | Selby Street (2011, 2012) | 19                                  |
| PM <sub>2.5</sub> | Selby Street (2013, 2014) | 14                                  |

Table 14.6 Summary of Background Annual-Mean Concentrations used in the Assessment

### Local Roadside Monitoring

- 14.21. Monitors at roadside locations measure the influence of road traffic emission sources and are therefore broadly representative of areas within 10 metres of the kerbside.
- 14.22. There is one local monitoring location within 3 km of the Site in the neighbouring borough of Cheshire East where roadside NO<sub>2</sub> concentrations are measured using passive diffusion tubes. Intack Farm is located approximately 1.5 km south of the Site and is a similar distance from the M6 Motorway as the Site. The measured annual-mean concentrations are presented in Table 14.7.

| Monitor Name     | Approximate Distance to Site (km) | Pollutant       | Concentration (µg.m <sup>-3</sup> ) |      |      |      |
|------------------|-----------------------------------|-----------------|-------------------------------------|------|------|------|
|                  |                                   |                 | 2013                                | 2014 | 2015 | 2016 |
| CE65 Intack Farm | 1.5                               | NO <sub>2</sub> | 38.5                                | 35.1 | 30.9 | 34.5 |

Table 14.7 Automatically Monitored Roadside Annual-Mean Concentrations

The annual-mean NO<sub>2</sub> Air Quality Strategy Objective of 40 µg.m<sup>-3</sup> has been met for the last four years at the nearest roadside monitoring location.

### Future Baseline

- 14.23. Historically the view has been that background traffic-related NO<sub>2</sub> concentrations in the UK would reduce over time, due to the progressive introduction of improved vehicle technologies and increasingly stringent limits on emissions. However, the results of recent monitoring across the UK suggest that background annual-mean NO<sub>2</sub> concentrations have not decreased in line with expectations. Inspection of the results of local monitoring presented here indicates that there has been a slight decrease in concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> in the vicinity of the Site.
- 14.24. To ensure that the assessment presents conservative results, no reduction in the background has been applied for future years.
- 14.25. The future baseline will also include emissions from committed developments to the extent that the traffic from the committed developments is included in the traffic data to be modelled. Traffic has been allowed for from three HCA housing development schemes to the west/north-west of the site:
- Land off Pewterspear Green Road – 180 dwellings (application ref 2016/28807);

- Appleton Cross – Mixed use scheme including 370 dwellings (application ref 2017/29930); and,
- Grappenhall Heys – 400 dwellings (application ref 2017/29929).

## Alternatives Considered

- 14.26. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

## Potential Environmental Impacts

### Construction Phase

- 14.27. During construction there is the potential for fugitive dust and exhaust emissions from the Assessment Site.
- 14.28. The effects of dust are linked to particle size and two main categories are usually considered:
- PM<sub>10</sub> particles, up to 10 µm in diameter, remain suspended in the air for long periods and are small enough to be breathed in and so can potentially impact on health; and
  - Dust, generally considered to be particles larger than 10 µm which fall out of the air quite quickly and can soil surfaces (e.g. a car, window sill, laundry). Additionally, dust can potentially have adverse effects on vegetation and fauna at sensitive habitat sites.
- 14.29. Regarding exhaust emissions from construction-related vehicles (contractors' vehicles and Heavy Goods Vehicles (HGVs), diggers, and other diesel-powered vehicles), these are unlikely to have a significant impact on local air quality except for large, long-term construction sites: the EPUK/IAQM Land-Use Planning & Development Control: Planning For Air Quality document indicates that air quality assessments should include developments increasing annual average daily Heavy Duty Vehicle (HDV) traffic flows by more than 25 within or adjacent to an AQMA and more than 100 elsewhere. The HDV numbers are not known at this stage but if the aforementioned EPUK/IAQM thresholds are not exceeded for any individual road during

the construction phase of this project then the construction-vehicle exhaust emissions will not be assessed specifically.

#### **Operational Phase**

- 14.30. The operation of the Proposed Development has the potential to change the number, type and speed of vehicles using the local road network. Changes in road vehicle emissions are the most important consideration during this phase of the development. The main pollutants from road traffic with potential for local air quality impacts are nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM<sub>10</sub>). Emissions of total NO<sub>x</sub> from combustion sources comprise nitric oxide (NO) and NO<sub>2</sub>. The NO oxidises in the atmosphere to form NO<sub>2</sub>. The assessment of operational impacts will therefore focus on changes in NO<sub>2</sub> and PM<sub>10</sub> concentrations. The impact from fine particulate matter, known as PM<sub>2.5</sub> (a subset of PM<sub>10</sub>) concentrations will also be considered. Increases in NO<sub>2</sub> and PM can lead to an increase in cardiovascular diseases.
- 14.31. The Proposed Development will not introduce any sources of odour so an odour assessment has been scoped out.

### **Methodology for the Environmental Statement**

- 14.32. For the construction phase, a risk assessment of dust and emissions during demolition / construction of the Proposed Development, having regard to the Institute of Air Quality Management (IAQM) 'Guidance on the assessment of dust from demolition and construction' will be undertaken.
- 14.33. For the operational phase, modelling of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> from traffic emissions will be undertaken using the ADMS-Roads dispersion model. Two scenarios will be modelled; with and without the Proposed Development in the first year the development is expected to be fully operational. The model will be verified using local monitoring data. The split between B2 and B8 uses is unknown so a worst case traffic data will be modelled to ensure that the air quality assessment is conservative.

#### **Receptors**

- 14.34. For the construction-phase risk assessment, the IAQM dust guidance sets out 350 m as the distance from the site boundary and 50 m from the site traffic route(s) up to 500 m of the entrance, within which there could potentially be nuisance dust and PM<sub>10</sub> effects on human

receptors. Receptors within these distances will be identified and their sensitivity will be established with reference to the principles set out in the IAQM dust guidance.

- 14.35. For the operational phase, using the threshold criteria for determining when an assessment is required set out in the EPUK/IAQM guidance, the extent of the study area for the assessment will be determined by the local road network on which annual average daily light duty vehicle flows are expected to increase by more than 500 and annual average daily heavy duty vehicle flows are expected to increase by more than 100 outside an AQMA and by 100 light duty vehicles or 25 heavy duty vehicles within an AQMA. Receptors will be selected in locations within the study area where concentrations are already high and/or where concentrations are expected to change most as a consequence of the development. All human-health receptors are considered to be high sensitivity receptors in the context of air pollution.

| Designation         | Receptors  |
|---------------------|--|
| International       | None   |
| National            | None   |
| Regional            | None   |
| County              | None   |
| Borough/District    | Areas where the public is regularly present and likely to be exposed over the averaging period of the objective. |
| Local/Neighbourhood | Areas where the public is regularly present and likely to be exposed over the averaging period of the objective. |

Table 14.8 Receptors

- 14.36. Sensitive receptors for the assessment have been selected at representative properties where pollutant concentrations and/or changes in pollutant concentrations are anticipated to be greatest and are shown in the map below and also **Appendix 4**.



Figure 14.3 Air Quality - Receptor Plan

| Receptor ID | Receptor Name     | x      | Y      |
|-------------|-------------------|--------|--------|
| 1           | Intack Farm       | 367001 | 383414 |
| 2           | Massey Avenue     | 366476 | 386920 |
| 3           | Masseybrook Farm  | 366297 | 386553 |
| 4           | Howshoots Farm    | 365973 | 384981 |
| 5           | Cartridge Lane    | 365525 | 384892 |
| 6           | Stockport Road 1  | 365559 | 387158 |
| 7           | Stockport Road 2  | 365913 | 387481 |
| 8           | Cliff Lane        | 366919 | 384923 |
| 9           | Primrose Hill     | 367908 | 384455 |
| 10          | Tan House Farm    | 365738 | 383800 |
| 11          | Crows Nest Farm   | 366888 | 383825 |
| 12          | Mill Farm         | 367706 | 382537 |
| 13          | Grappenhall Lodge | 364669 | 384641 |
| 14          | Crofton Close     | 363994 | 384082 |



| Receptor ID | Receptor Name                   | x      | Y      |
|-------------|---------------------------------|--------|--------|
| 15          | Hatchery Close                  | 363643 | 383622 |
| 16          | St Matthews CofE Primary School | 362159 | 382770 |
| 17          | Knutsford Road                  | 365028 | 385960 |
| 18          | Cliff Lane                      | 364649 | 386272 |
| 19          | Gilwell Close                   | 364376 | 386650 |
| 20          | Westminster Close               | 364374 | 386957 |
| 21          | Summit Close                    | 362189 | 382078 |
| 22          | Bradley View                    | 365862 | 384877 |
| 23          | Bradley Hall Cottages           | 365824 | 384695 |
| 24          | Bradley Hall                    | 365775 | 384551 |

**Table 14.9 Sensitive Receptors**

### **Environmental Impacts**

#### **Construction Phase**

- 14.37. The IAQM dust guidance will be used to estimate the impacts of both PM<sub>10</sub> and dust through a risk-based assessment procedure. The IAQM dust guidance document states: *“The impacts depend on the mitigation measures adopted. Therefore the emphasis in this document is on classifying the risk of dust impacts from a site, which will then allow mitigation measures commensurate with that risk to be identified.”*
- 14.38. The IAQM dust guidance provides a methodological framework, but notes that professional judgement is required to assess effects: *“This is necessary, because the diverse range of projects that are likely to be subject to dust impact assessment means that it is not possible to be prescriptive as to how to assess the impacts. Also a wide range of factors affect the amount of dust that may arise, and these are not readily quantified.”*
- 14.39. Consistent with the recommendations in the IAQM dust guidance, a risk-based assessment will be undertaken for the development, using the well-established source-pathway-receptor approach:
- The dust impact (the change in dust levels attributable to the development activity) at a particular receptor will depend on the magnitude of the dust source and the effectiveness of the pathway (i.e. the route through the air) from source to receptor.
  - The effects of the dust are the results of these changes in dust levels on the exposed receptors, for example annoyance or adverse health effects. The

effect experienced for a given exposure depends on the sensitivity of the particular receptor to dust. An assessment of the overall dust effect for the area as a whole will be made using professional judgement taking into account both the change in dust levels (as indicated by the Dust Impact Risk for individual receptors) and the absolute dust levels, together with the sensitivities of local receptors and other relevant factors for the area.

Operational Phase

14.40. The severity of the environmental impacts will be described using the EPUK/IAQM Land-Use Planning & Development Control: Planning For Air Quality document which advises that:

”The significance of the effects arising from the impacts on air quality will depend on a number of factors and will need to be considered alongside the benefits of the development in question. Development under current planning policy is required to be sustainable and the definition of this includes social and economic dimensions, as well as environmental. Development brings opportunities for reducing emissions at a wider level through the use of more efficient technologies and better designed buildings, which could well displace emissions elsewhere, even if they increase at the development site. Conversely, development can also have adverse consequences for air quality at a wider level through its effects on trip generation.”

14.41. When describing the air quality impact at a sensitive receptor, the change in magnitude of the concentration will be considered in the context of the absolute concentration at the sensitive receptor. Table 14.10 provides the EPUK/IAQM approach for describing the human-health air quality impacts at sensitive receptors. The impact descriptors have been changed from “Slight” to “Minor” to fit in with the common methodology.

| Long term average concentration at receptor in assessment year | % Change in concentration relative to Air Quality Assessment Level |            |          |          |
|--|--|------------|----------|----------|
|  | 1  | 2-5        | 6-10     | >10      |
| 75 % or less of AQAL   | Negligible   | Negligible | Minor    | Moderate |
| 76 -94 % of AQAL   | Negligible   | Minor      | Moderate | Moderate |

|                         |          |             |             |             |
|-------------------------|----------|-------------|-------------|-------------|
| 95 - 102 % of AQAL      | Minor    | Moderate    | Moderate    | Substantial |
| 103 – 109 % of AQAL     | Moderate | Moderate    | Substantial | Substantial |
| 110 % or more than AQAL | Moderate | Substantial | Substantial | Substantial |

**Table 14.10 Impact Descriptors for Individual Sensitive Receptors**

1. AQAL = Air Quality Assessment Level, which may be an air quality objective, EU limit or target value, or an Environment Agency 'Environmental Assessment Level (EAL)'.
2. The table is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which then makes it clearer which cell the impact falls within. The user is encouraged to treat the numbers with recognition of their likely accuracy and not assume a false level of precision. Changes of 0%, i.e. less than 0.5% will be described as negligible.
3. The table is only designed to be used with annual mean concentrations.
4. Descriptors for individual receptors only; the overall significance is determined using professional judgement. For example, a 'moderate' adverse impact at one receptor may not mean that the overall impact has a significant effect. Other factors need to be considered.
5. When defining the concentration as a percentage of the AQAL, use the 'without scheme' concentration where there is a decrease in pollutant concentration and the 'with scheme;' concentration for an increase.
6. The total concentration categories reflect the degree of potential harm by reference to the AQAL value. At exposure less than 75% of this value, i.e. well below, the degree of harm is likely to be small. As the exposure approaches and exceeds the AQAL, the degree of harm increases. This change naturally becomes more important when the result is an exposure that is approximately equal to, or greater than the AQAL.
7. It is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are close to the AQAL. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the AQAL, rather than being exactly equal to it.

### Impact Prediction Confidence

14.42. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description   |
|------------------|---|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.  |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

**Table 14.11 Confidence Levels**

## Significance of Effects

### Construction Phase

- 14.43. The dust risk categories that will be determined for each of the four activities (demolition, earthworks, construction and trackout) will be used to define the appropriate site-specific mitigation measures based on those described in the IAQM dust guidance. The guidance states that provided the mitigation measures are successfully implemented, the resultant effects of the dust exposure will normally be “not significant”.

| Nature of Impact                            | Receptor             | Environmental Impact   | Significance of Effect   | Confidence Level |
|---|----------------------|--|--|------------------|
| Increase of suspended dust and dust soiling | Local (within 350 m) | The dust impact risk (low, medium or high) will be determined for the site as a whole and for each activity (demotion, earthworks, construction and trackout). Providing the recommended mitigation measures are in place the impact will be ‘negligible’. | Providing the recommended mitigation measures are in place the impact will be ‘negligible’ and the effect will be not significant. | High             |

Table 14.12 Significance of Impact - Construction

### Operational Phase

- 14.44. The human-health impact descriptors in Table 14.10 apply at individual receptors. The EPUK/IAQM guidance states “*In those circumstances where a single development can be judged in isolation, it is likely that a ‘moderate’ or ‘substantial’ impact will give rise to a significant effect and a ‘negligible’ or ‘slight’ impact will not have a significant effect*”. However it also states that the impact descriptors “*are not, of themselves, a clear and unambiguous guide to reaching a conclusion on significance. These impact descriptors are intended for application at a series of individual receptors. Whilst it maybe that there are ‘slight’, ‘moderate’ or ‘substantial’ impacts at one or more receptors, the overall effect may not necessarily be judged as being significant in some circumstances.*”
- 14.45. Professional judgement by a competent, suitably qualified professional is required to establish the significance associated with the consequence of the impacts. This judgement is likely to take into account the extent of the current and future population exposure to the impacts and the influence and/or validity of any assumptions adopted during the assessment process.

| Nature of Impact  | Receptor   | Environmental Impact   | Significance of Effect  | Confidence Level |
|---|--|--|---|------------------|
| Changes in NO <sub>2</sub> , PM <sub>10</sub> and PM <sub>2.5</sub> due to changes in traffic | Local and Borough/District (within 200 m of roads affected by development) | The impact descriptor at each sensitive receptor will be categorized based on the criteria in Table 14.10. | Likely to be 'not significant' if the majority of impact descriptors are 'negligible' or 'minor'.<br>Likely to be 'significant' if the majority of impact descriptors are 'moderate' or 'substantial' | Low*             |

**Table 14.13 Significance of Impact – Operation**

\*The confidence level will increase to high once modelling of traffic-related emissions has been undertaken.

## Mitigation

- 14.46. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.
- 14.47. For the construction phase, measures for the mitigation of dust will be based on the dust risk categories. Site-specific mitigation measures will be recommended based on those described in the IAQM dust guidance. The guidance states that provided the mitigation measures are successfully implemented, the resultant effects of the dust exposure will normally be “*not significant*”.

## Additive Impacts (Cumulative Impact and their Effects)

- 14.48. For the purposes of this ES we define the cumulative effects as:
- ‘Those that result from additive impacts (cumulative) caused by other past, present or reasonably foreseeable actions together with the project itself.’**
- 14.49. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report.
- 14.50. For the construction phase, the IAQM guidance considers the effect of dust up to 350 m from the site boundary. Therefore other developments more than 700 m from the Site boundary

are not considered to affect the Proposed Development. However should there be a development within 700 m of the site boundary providing that the appropriate mitigation measures are implemented for both developments then the cumulative effects should be ‘not significant’.

14.51. For the operational phase, the impacts of cumulative schemes will be included in the air quality assessment to the extent that flows from cumulative schemes are included in the traffic data for the assessment. Developments to be included in the traffic data are shown in Table 14.14

| No. | Cumulative Development  | Details   | Status  | Justification for Inclusion in Cumulative Assessment   | To be considered in CIA (Yes/No) |
|-----|---|---|---|--|----------------------------------|
| 1   | Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington<br><br>LPA Ref: 2016/28807<br><br>Applicant - HCA       | Outline Planning Application for 180 dwellings. | Planning permission granted by WMBC 28-09-2017  | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment | No                               |
| 2   | Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN<br><br>LPA Ref: 2017/29930<br><br>Applicant - HCA | Outline Planning Application for 370 dwellings  | Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017 | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment | No                               |

| No. | Cumulative Development  | Details  | Status   | Justification for Inclusion in Cumulative Assessment  | To be considered in CIA (Yes/No) |
|-----|---|--|--|---|----------------------------------|
| 3   | Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG<br><br>LPA Ref: 2017/29929<br><br>Applicant - HCA | Outline Planning Application for 400 dwellings | Resolution to grant planning permission by WMBC Development Management Committee                                     | This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment                | No                               |
| 4   | Land off Barleycastle Lane, Appleton, Warrington<br><br>Liberty Properties  | 50,000 m <sup>2</sup> logistics development    | Pre-application discussions with WMBC Scoping Request (LPA Ref: 2017/30243 Application to be submitted November 2017 | This will be included as a sensitivity text and therefore not included in the cumulative assessment. This approach is the same as the Traffic and Transportation Paper. | No                               |

**Table 14.14 Developments to be included in Traffic Data**

## Further Work Required

- 14.52. Detailed dispersion modelling of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> will be undertaken once the final traffic data is available. This will determine the impact of the development on the surrounding area. Where significant adverse effects are predicted, suitable mitigation measures will be recommended.
- 14.53. A construction dust assessment will be undertaken to determine the appropriate level of mitigation measures.

## Summary

- 14.54. The air quality chapter of the ES will include an assessment of dust from construction and recommend the appropriate level of mitigation to minimize the effect so that it is “not significant”.

- 14.55. The HDV numbers during the construction phase are not known at this stage but if the aforementioned EPUK/IAQM thresholds are not exceeded for any individual road during the construction phase of this project then the construction-vehicle exhaust emissions will not be assessed specifically.
- 14.56. For the operational phase detailed dispersion modelling will be undertaken to determine the effect of the development on the surrounding area. Should significant adverse effects be predicted, suitable mitigation measures will be recommended.
- 14.57. The development does not include any centralized combustion sources so an assessment of emissions from combustion sources has been scoped out. Similarly there are no proposed odour sources so an odour assessment is scoped out.
- 14.58. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Air Quality, Odour and Dust.

### Scoped In

| Environmental Issue  | Reason for “scoping in”   |
|--|---|
| <p><b>Air Quality, Odour and Dust</b></p> <p><i>Construction:</i></p> <p><i>Dust</i></p> <p><i>Changes in NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> due to construction traffic if HDV numbers exceed EPUK/IAQM thresholds</i></p> <p><i>Operation:</i></p> <p><i>Changes in NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> due to changes in operational traffic</i></p> | <p><i>During construction there is the potential for fugitive dust and exhaust emissions from the Assessment Site.</i></p> <p><i>The operation of the Proposed Development has the potential to change the number, type and speed of vehicles using the local road network. The main pollutants from road traffic with potential for local air quality impacts are nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM<sub>10</sub>). Emissions of total NO<sub>x</sub> from combustion sources comprise nitric oxide (NO) and NO<sub>2</sub>. The NO oxidises in the atmosphere to form NO<sub>2</sub>. The assessment of operational impacts will therefore focus on changes in NO<sub>2</sub> and PM<sub>10</sub> concentrations. The impact from fine particulate matter, known as PM<sub>2.5</sub> (a subset of PM<sub>10</sub>) concentrations will also be considered. Increases</i></p> |



| Environmental Issue | Reason for “scoping in”  |
|---------------------|--|
|                     | <p><i>in NO<sub>2</sub> and PM can lead to an increase in cardiovascular diseases.</i></p> |

### Scoped Out

| Environmental Issue   | Reason for “scoping out”   |
|---|--|
| <p><b>Air Quality, Odour and Dust</b></p> <p><i>Construction:</i><br/>Changes in NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> due to construction traffic if HDV numbers do not exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i><br/>Odour<br/>Dust</p> | <p>Unlikely to have a significant impact if below the threshold.</p> <p>There are no proposed sources of odour or dust during the operational phase.</p> |

## 15. Cultural Heritage and Archaeology

### Introduction

- 15.1. BWB Consulting will be producing the Cultural Heritage ES Technical Paper. This will initially establish the baseline position with regard to archaeology, historic landscape and built heritage. This information and assessment undertaken to inform this will establish the framework from which to assess the effect from the proposed development on the cultural heritage resource.
- 15.2. To inform the baseline section of the Technical Paper a data search has been obtained from the Cheshire Historic Environment Record (HER). In addition to this, supplementary information including aerial photographs will be assessed to provide further information on the cultural heritage resource and the extent to which this has been affected by 19th and 20th century development within the Site and the wider study area. This will be supplemented by a site visit which will assess any assets identified, the landscape within which they sit and will establish how the landscape setting contributes to the significance of the identified assets.
- 15.3. The search area for the HER searches comprises a 1km buffer around the Site to identify all designated and non-designated assets within the Proposed Development. All of the receptors identified will be assessed to establish the current baseline conditions.
- 15.4. The following depositories have been consulted during the establishment of the updated baseline position including:
- The Cheshire Historic Environments Record; and
  - The Cheshire Archives and Local Studies Library.
- 15.5. During the course of the preparation of the Cultural Heritage and Archaeology ES Technical Paper, the following statutory consultees will be consulted:
- The Development Control Archaeologist for Cheshire (Mr. Mark Leah); and
  - Historic England's Principal Inspector of Ancient Monument (Mr. Andrew Davison).

## Baseline Information

- 15.6. The baseline assessment has been undertaken in accordance with section 12 of the NPPF 'Conserving and enhancing the historic environment' and the Standard and Guidance for Historic Environment Desk-Based Assessment published by the Chartered Institute for Archaeologists (CIfA 2014). The principles set out in Warrington's Borough Council Local Plan Core Strategy (adopted July 2014) has also been taken into account. The following outlines the policy on the Historic Environment.

### **Policy QE 8**

*The Council will ensure that the fabric and setting of heritage assets, as set out below, are appropriately protected and enhanced in accordance with the principles set out in National Planning Policy.*

- *Scheduled Monuments;*
- *Listed Buildings;*
- *Conservation Areas;*
- *Areas of known or potential Archaeological Interest;*
- *Locally Listed Heritage Assets.*

*The Council and its partners will aim to recognise the significance and value of historic assets by identifying their positive influence on the character of the environment and an area's sense of place; their ability to contribute to economic activity and act as a catalyst for regeneration; and their ability to inspire the design of new development.*

*Heritage Assets such as buildings, structures and sites which are valued as good examples of local architectural styles or for their historic associations, are included on a local list produced by the Council. The buildings, structures and sites included on this list are detailed in Appendix 4.*

*To be included on the local list, an asset should be substantially unaltered and retain the majority of its original features and either:*

- 1. be a good example of a particular local asset type, craftsmanship, architectural quality, style or detailing, or*
- 2. display physical evidence of periods of local economic, technical or social significance, well-known local people or historic events*

Development proposals which affect the character and setting of all heritage assets will be required to provide supporting information proportionate to the designation of the asset which;

- adopts a strong vision of what could be achieved which is rooted in an understanding of the asset's significance and value, including its setting;
- avoids the unnecessary loss of and any decay to the historic fabric which once lost cannot be restored;
- recognises and enhances the asset's contribution to the special qualities, local distinctiveness and unique physical aspects of the area;
- fully accords with the design principles outlined elsewhere within the Local Planning Framework;
- includes suitable mitigation measures, including an appropriate desk-based assessment and where necessary field evaluation and publication, for areas with known or potential archaeological interest;
- ensures the knowledge and understanding of the historic environment is available for this and future generations. The evidence arising from any investigations should be publicly accessible through the Historic Environment Record and the local museum.

Applications for new development will also be required to take all reasonable steps to retain and incorporate non-statutorily protected heritage assets contributing to the quality of the borough's broader historic environment.

15.7. The baseline assessment examined the available sources to assess the heritage potential within the Proposed Development. The assessment identified three heritage receptors within the application area including Bradley Hall Moat (**550/1**) which is designated as a scheduled monument (**1011924**), the site of a medieval cross (**551**) and a Roman road (**547/1/7**). The road traverses the site in a northeast and southwest direction. These assets are listed in Table 15.1 below, identified on Figure 15.1 and included in Appendix 4.

| HER ID Ref        | Name  | Designation |
|-------------------|---|-------------|
| 547/1/7           | The North Cheshire Ridge Roman Road Section of Roman road |             |
| 550/1/<br>1011924 | Bradley Hall Medieval moated site                         | Scheduled   |
| 551               | Bradley Cross Site of medieval cross                      |             |

Table 15.1: Receptors identified within the Proposed Development Area

- 15.8. A number of heritage assets lie either within close proximity to the Proposed Development including Reddish Hall Medieval moat (**615**) and a post-medieval farm complex (**549/1**). A number of other assets were recorded further afield which are identified on Figure 15.1 and included in Appendix 4. Included within these are:
- five grade II listed buildings;
  - one grade II\* listed building;
  - Five locally listed buildings; and
  - 21 heritage assets recorded on the Cheshire HER database.
- 15.9. There are no World Heritage sites, Registered Battlefields, Conservation Areas or Registered Historic Parks and Gardens within the 1km study area shown on Figure 15.1.
- 15.10. These receptors have either been recorded through aerial photographs, evaluation/ mitigation or through chance discoveries.
- 15.11. Only those receptors which contribute to the understanding of the historical and archaeological background of the site and its wider area are detailed in this section of the Scoping Report. These receptors are shown on Figure 15.1 included in Appendix 4 and are highlighted in bold in the chronological summary that follows.

*Prehistoric Period*

- 15.12. Concentrations of Neolithic and Bronze Age finds including stone and metal axes have been found to the south of Warrington and the River Mersey. Several Bronze Age burial sites have also been identified in the wider landscape, again following the pattern of distribution of the sporadic finds, to the north and south of the Mersey. Little settlement evidence has been identified although timber piles along the banks of the Mersey has led to the suggestion that there were lakeside settlements, perhaps of Iron Age date but this remains to be proven. Within the search area there is a single find spot of a prehistoric axe (**2734**) which is located to south-east of the Site.
- 15.13. Hinchliffe's 1974-6 excavations at Lousher's Lane 3.7km to the northwest revealed a small pit, which was apparently of pre-Roman date and contained a sherd of coarse, gritty pottery, which was possibly Iron Age. These excavations also revealed residual flintwork in a number of Romano-British features (Hinchliffe and Williams 1992, 100).

- 15.14. There is little evidence for Iron Age settlement, occupation and agricultural activity within the study area. There is a single possible enclosure located within the search area at Badger's Croft Farm (**2908**). The feature is undated so it could potential be later in date.

*Romano British Period*

- 15.15. The fortress of Deva (Chester) was established by the Romans between AD 75 and 80 to control North Wales and North West England. The advance of the Roman Area across Cheshire would have used the lowest bridging point on the Mersey at Warrington. Roman Roads are known within Warrington itself. A Roman road was also constructed to the south of Warrington, along the red sandstone escarpment, connecting the fort at Manchester to the Legionary fortress of Chester. This may have reused an earlier route along the ridgeline (**547/1/0**, **547/1/13**, **547/1/17** and **547/1/8**) part of which runs through the site in an east west direction above the Bradley Hall Moated Site (**DCH159**). Analysis of aerial photographs taken between 1945 and 1948 infer the presence of some quarry pits/ roadside ditches along the section which traverses the site. Later aerial photograph taken in the 1970s show similar features towards the western part of the site.
- 15.16. There is substantial evidence of Roman activity in the Warrington area. A large settlement, existed at Wilderspool, which was a large industrial complex, producing metals, glass and pottery. The River Mersey would have been used to transport bulky items to and from the fort at Manchester and via the River Dee, to the fort at Chester.
- 15.17. East of Lumb Brook, adjacent to Lousher's Lane, excavations have revealed enclosures and timber framed buildings as well as a round house, indicating Romano – British occupation of a former Iron-Age farm. Roman arable farming activities would have been generally confined to the lighter soils of the Red Sandstone Escarpment. Roman ploughs, while more efficient than their predecessors, were probably not capable of tackling the heavier clay soils. At the close of the Roman era, much of the woodland clearance of the area had probably been accomplished and was therefore generally being farmed. There are no villas discovered within the Warrington area, but there is evidence of a number of small, unenclosed farmsteads.

*The Anglo - Saxon Period*

- 15.18. The frontier between the Kingdom of Northumbria and the Kingdom of Mercia is believed to be the River Mersey. Numerous raids and attacks on each other's territories probably used the bridge at Warrington and the upstream fords as the frontier crossings. Evidence of Saxon activity within the Warrington area is well documented. At Southworth Farm, located to the north of Warrington, there is a cemetery of over 800 burials, focused on a Bronze Age burial mound, but arranged in such a way as to suggest a building amongst them. Given the orientation of the graves, it is likely that they were Christian burials. The nearby Winwick Church is Saxon in origin and may well have been a Saxon Minster of considerable local importance.
- 15.19. Later in the period Viking raids are thought to have passed via the Mersey. The Danish occupation of York and effective takeover of the Northumbrian kingdom meant that the Mersey frontier again became important. Various skirmishes are documented throughout this period and as a result, Aethelflaed established a series of defensive 'burghs' along the south side of the Mersey, including Runcorn in 915 and Thelwall in 919. These burghs proved highly effective in preventing Viking incursions. It is believed that during the Saxon period woodland clearance was well advanced with larger areas of land under cultivation. Much of the Saxon landscape is revealed in the Domesday Book entries for the Warrington area, which although post-Conquest, details previous lords and their lands.

*Medieval Period*

- 15.20. Extensive woodland clearance had taken place during this period and the clearances were carried out in a more organised way than previously. Many villages creating clearing in woodlands for fields. Medieval 'townfields' can still be traced in the landscape, particularly those around Thelwall Heys, as well as those on either side of 'The Gorse' south of Grappenhall Heys 'Ancient Field Systems', those fields enclosed prior to 1600 AD, include several former townfields.
- 15.21. A large number of moated sites were built during the 12th and 13th centuries. These are found in the areas which have clay soils, over parts of the Red Sandstone Escarpment. Several are located within the study area including Reddish Hall (615) and Bradley Hall (550/1) located within the site. Associated with some of the larger halls were a number of deer parks.
- 15.22. The Domesday reference to Warrington demonstrates that there was a settlement on the north bank of the river by the time of the Norman Conquest. At this time Warrington was

the focus of Warrington Hundred, which included the parishes of Warrington, Prescot and Leigh, as well as a number of outlying manors. St Elphin's church had also been constructed by the time of the Domesday Survey. Within the search areas there are additional medieval sites such as the medieval cross (551), and the site of the King's Brook watermill (1197/1).

*Post – Medieval Period*

- 15.23. By the time of the civil war in 1642 Warrington was still a small town with a population of around 2,000, but it was strategically important because of its bridge. In 1642 Royalists seized Warrington but the parliamentarians laid siege in 1643. In May 1643 they captured Warrington and they held it for the rest of the war.
- 15.24. Various farmstead would have existed in the wider landscape as part of the intensive agricultural production that was taking place. A number of farmsteads are recorded in study area including Yew Tree Farm (538/1) and Tanyard Farm (549/1) located to the south of the Site.
- 15.25. By 1724, Daniel Defoe recorded Warrington as a *'large populous old built town, but rich and full of good country tradesmen. Here is particularly a weekly market for linen'*. This implies a degree of manufacturing, probably cottage based, as well as a substantial area of arable farming to support linen production. Towards the end of this period Warrington was also a noted producer of sailcloth. The various navigational improvements on the River Mersey from 1730, the construction of the Bridgewater Canal in the 1770s and the construction of other subsequent canals greatly improved the bulk transport of goods, stimulating manufacturing towards the end of the period.
- 15.26. The early Industrial Revolution in Warrington was marked by the establishment of a copper works in 1717. More metal working factories were established through the century including wire works in 1780 and 1799 and tanneries, glass works and other industries. These industries used coal which lead to the establishment of local mines towards the north west of Warrington.

*Modern Period - present*



- 15.27. This period saw a massive expansion in industrial manufacturing and the formation of the extended urban area of Warrington, with large numbers of terraced properties and many larger houses. Numerous house date from this period included further farmstead and cottages (**DCHI1935, DCHI3677, DCHI2753, DCHI2763, 540/1/1, 540/1/2, 541/1 and 548/1, 2728, 2729/0/1, 2729/0/2**).
- 15.28. A Strict Baptist Chapel (**4468/0/0**) was built in 1819 towards the north-east of the site had a porch added with the interior refitted in 1889.
- 15.29. The result of this industrial expansion was a corresponding increase in the demand for raw materials and natural resources, such as coal, clay and especially water.
- 15.30. All this had impacts on the local landscapes. In the early part of this period grain production rapidly increased, leading to the expansion of fields. Some of the most important features in the local landscape in this era were the result of the introduction of new communications routes. The Manchester Ship Canal in 1894, the Manchester – Liverpool railway line in 1830, and the construction of other lines throughout the 19th century, radically improved the bulk transport of goods and materials as well as the movement of people.
- 15.31. During the Second World War RNAS Stretton (HMS Blackcap) was constructed towards the south of the Site (**4091**). This was originally planned as a RAF night-fighter station to protect Liverpool and Manchester but was transferred to the Admiralty on completion. HMS Blackcap was commissioned on 1 June 1942 and forty-one Fleet Air Arm Squadrons were based there for varying periods, some aircraft being flown directly to and from aircraft carriers operating in the Irish Sea and other nearby waters. The airfield was closed on 4 November 1958 with the northern area being used for modern warehousing.

### **Designated Assets**

There are no World Heritage Sites, Registered Parks and Gardens or Registered Battlefields within the Site or the study area.

### **Scheduled Monuments**

- 15.32. Located at the near center of the site is Bradley Hall Moated site (**DCHI59**) which is scheduled under the Ancient Monuments and Archaeological Area Act 1979, its full description being Bradley Hall moated Site (list entry number 1011924). The site was

scheduled in 1991 and comprises the buried and earthwork remains of a medieval moated site for a medieval manor house. The moated island is approximately 70m by 55m and is grass covered in the areas not occupied by buildings. Excluded from the scheduling are the farmhouse, access drive, fences, hedged field boundaries and a telegraph pole.

- 15.33. The scheduled monument is in good condition and is reported to survive well and is described as a good example of a moated medieval manor house. The moat remains water filled and within the island are two occupation phases which survive beneath the present house and gardens. The moat surrounding the island is c. 10m wide and 2.5m deep. Part of the moat has been disturbed through the creation of an ornamental pond on its east side. Access is currently gained from a causeway also on the east side which replaced an earlier drawbridge.
- 15.34. The original hall within the moat was erected in the early 14th century. Documentary sources refer to it around this time with its first depiction on a map dating to 1735 which shows the hall to the northeast of its current position and the moat extending beyond its present location. The hall shown on the aforementioned map replaced that erected in the 14th century. Between the early 18th and the early 19th century the hall was considerably altered as was the location and extent of the moat. Analysis of later maps show the addition of a number of outbuildings to the hall as well as a number of agricultural buildings immediately to the northwest of the moat.
- 15.35. In November 2009 National Museums Liverpool Field Archaeology Unit undertook a watching brief (**ECH4566**) at Bradley Hall on behalf of Brewster Associates. This was undertaken during works to replace an early 20th century extension to the farmhouse. The watching brief revealed a poorly constructed cobbled surface which was deemed to be associated with the construction of the present house. Underlying the cobbles was a layer of clay which was interpreted as the arising from the excavation of the moat. During the watching brief a number of finds were encountered including the base of a 14th -15th century jar and later 17th to 18th century pottery sherds.
- 15.36. The historic setting of the moated manor site was clearly intended to be isolated from the historic built core of Appleton although it would have had a greater prominence in the landscape than is now the case. Surrounding field patterns suggest that the land around the manor site was farmed during the medieval period and medieval ridge and furrow has been recorded, based on aerial photography within the vicinity of the proposed development site.

#### Listed Buildings

- 15.37. Within the study area are a number listed buildings the predominance of which lie between the southern boundary of the Site and the Barleycastle Trading Estate. The closest designated assets to the Site is Barleycastle Farmhouse which is listed at Grade II (**DCHI935**). This is situated on Barleycastle Lane as is Tanyard Farm (**DCHI661**) which is designated at Grade II\*. East of these along Barleycastle is Booths Farm Farmhouse (**DCHI934**) and Shippon (**DCHI660**), and Beehive Farmhouse (**DCHI659**), all of which are listed at Grade II. South of this group of listed assets in the northeastern edge of Barleycastle Trading Estate is the Grade II listed Yew Tree Farmhouse (**DCHI638**).

#### Locally Listed Buildings

- 15.38. Within the study area are a number of listed buildings including Bradley Hall and Barn (**DCHI2763**) which lies within the center of the aforementioned scheduled monument (**DCHI159**). To the north of this are three further locally listed buildings including the barn at Manor House Farm (**DCHI2753**), the Old Chapel on Cherry Lane (**DCHI2879**) and the Milepost (**DCHI2869**) at Gallows Croft on Knutsford Road. In addition to these Tan House Farm (**DCHI3677**) to the south of the Site is also locally listed.

#### Conservation Area

- 15.39. There are no conservation Areas located within the study area. The nearest conservation is within the village of Grappenhall situated 2.3km to the northwest of the site. To the northeast beyond the M6 is the village of Lymm whose historic core fall lies within a conservation area, the southern boundary of which lies 2.23km to the north east of the Site.

#### Archaeological Events

- 15.40. A number of archaeological events have been recorded in the study area including desk-based assessments, geophysical surveys, earthwork surveys, watching briefs and recording of test pits (these are listed in Table 15.2 below). These will be assessed as part of the Cultural Heritage ES Technical Paper to aid in the assessment of the Site's archaeological potential.

| HER Reference | Archaeological Intervention  | Grid Reference |
|---------------|--|----------------|
| ECH3541       | M6 Motorway Widening Scheme, Junctions 16-20. Archaeological Recording of Test Pits. | SJ 723 679     |

| HER Reference | Archaeological Intervention  | Grid Reference |
|---------------|--|----------------|
| ECH3554       | Greater Manchester Western and Northern Relief Road (M56-M6 link): Archaeological Assessment Report  | SJ 703 908     |
| ECH3566       | M6 Junctions 16-20 Widening: Archaeological Desk-Top Survey  | SJ 755 637     |
| ECH3652       | M6 widening: Junctions 16- 20: Report on Geophysical Survey  | SJ 755 637     |
| ECH3653       | M6 Widening: Junctions 16- 20. Report on Earthwork Survey  | SJ 755 637     |
| ECH3654       | M6 Widening: Junctions 16- 20, Cheshire. Cultural Heritage, Stage 3 Assessment Report Text   | SJ 755 637     |
| ECH4557       | Report on Northwest Telent Techmac Design and Consultancy Services Framework Provision of Variable Message Signs on the M56 Between Junctions J9 -16 | SJ 520 781     |
| ECH4559       | Bradley Hall Appleton, The Moated Site and Survey and Research Report  | SJ 657 845     |
| ECH4566       | An Archaeological Watching Brief at Bradley Hall Moat, Appleton, Warrington. Final Report  | SJ 657 845     |
| ECH5845       | Stretton Airfield, Design Access Statement   | SJ 652 835     |

**Table 15.2: Archaeological Interventions Recorded within the study area.**

## Alternatives Considered

- 15.41. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

## Potential Environmental Impacts

- Construction Phase**
- 15.42. Running through the site in an east west direction is a Roman road (**547/1/7**). The setting of this will be affected by the proposed development as will the ability to interpret the asset within the landscape. Despite this it is acknowledged that it has been previously compromised by the development of the industrial estate immediately to the west of the site and the M6 Motorway to the east.

- 15.43. The route of the Roman road and associated features including roadside aggers are likely to be affected by the Proposed Development.
- 15.44. The site of the medieval cross (**511**) which lies in close proximity to the modern houses that lies to the northeast of Bradley Hall Moated Site will be impacted by the Proposed Development. However, any remains may have been compromised by the development of the aforementioned houses.
- 15.45. Located near to the center of the site is Bradley Hall Scheduled Moated Site (**550/1**) whose setting will be impacted by construction activities. This will affect the setting of the moat although demolition of later farm buildings within its immediate landscape will help to off-set this.
- 15.46. Set at the heart of the moat is Bradley Hall and Barn (**DCHI2763**) and associated barn which carry a local listing. Immediately to the northeast of these are a number of farm buildings will be demolished as part of the Proposed Development. This will improve the setting of the moated site.
- 15.47. Work is ongoing to determine if the residential properties near to the center of the site including Manor House Farm (**DCHI2753**) are to be demolished as part of the Proposed Development. If demolition is proposed this will be of some benefit to improving the historical integrity of the Scheduled Monument.
- 15.48. Situated to the south of the site is the Tanyard Farm complex which lies in close proximity to the M56 Motorway. The complex comprises a Grade II\* listed farm building (**DCHI661**) which lies adjacent to the locally listed Tan House Farm. Development will affect the agricultural setting of this complex although this has to some extent already been impacted by the construction of later agricultural buildings, the M56 Motorway and the slip road to the M6 Motorway.
- 15.49. To the west of the Tanyard Farm complex is Barleycastle Farmhouse (**DCHI935**) which carries a Grade II listing. This setting of this has been partly eroded by later agricultural buildings, however, the Proposed Development will further impact this setting.
- 15.50. It is not anticipated that the setting of the other listed assets recorded in close proximity to the scheme will be impacted due to the intervening built form and landscape. This will be further assessed as part of the Environmental Statement.

- 15.51. There will be no impact on World Heritage Sites, Registered Historic Parks and Gardens, Registered Battlefields or Conservation Areas.

**Operational Phase**

- 15.52. The Proposed Development will be designed to limit impacts on the historic environment including the Bradley Hall Moated site and those listed buildings that lie to the south of the Proposed Development. Design, style, materials, layout and positioning will be carefully considered where feasible to limit any adverse impact and to enhance any receptors that will be affected. Landscape mitigation will also be incorporated to soften adverse impacts, where appropriate. In addition to this consideration of the demolition of buildings within the Bradley Hall Farm complex will also be undertaken to determine if the designated assets would benefit from such proposals.
- 15.53. Impacts during the operational phase are considered to be limited to the setting of some of the designated assets. It is considered that there will be an adverse impact on the setting of Bradley Hall Moated site (**DCHI59**), although improvements to the landscape and some demolition of non-designated structures may help to alleviate the level of impact that the scheduled monument will experience from development proposals.
- 15.54. There will be an impact on the setting of the Grade II\* Listed Tanyard Farm building (**DCHI661**) and the Grade II Listed Barleycastle Farm (**DCHI935**) and the landscape in which they sit. Landscaping and design will be carefully considered to preserve aspects of setting and landscape, where possible.

## **Methodology for the Environmental Statement**

- 15.55. The method used for assessing the potential effects of the Proposed Development on the heritage receptors conform to the regulatory framework set out in the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 as amended 2015. It takes into account the significance (importance) of each feature, and the likely impact (without mitigation) of the Proposed Development upon them, in order to appraise the potential effects of the Proposed Development (Significance of Effects). The following tables were used to aid the assessment process.

### Receptors

15.56. The table below details the criteria used to determine the importance of the receptors found within the Site and the study area.

| Designation         | Receptors   |
|---------------------|---|
| International       | None identified   |
| National            | Scheduled Bradley Hall Moated Site<br>Grade II* Listed Tanyard farm building  |
| Regional            | Grade II Listed Barley Castle Farmhouse   |
| County              | Roman road  |
| Borough/District    | Locally listed buildings including Bradley Hall and barn and Tan House Farm<br>Site of Medieval Cross                       |
| Local/Neighbourhood | 18th – 20th century buildings<br>Prehistoric, Roman, medieval and post-medieval findspots<br>Post-medieval field boundaries |

**Table 15.2: Receptors**

### Environmental Impacts

15.57. The following table details the criteria used to judge the impact (both positive and negative) upon the receptors from the Proposed Development.

| Magnitude   | Environmental Impact  |
|-------------|---|
| Substantial | Change to designated or important whole archaeological/historic building/historic landscape elements or their setting, such that the resource is totally altered  |
| High        | Change to most key archaeological/historic building/historic landscape elements or their setting, such that the resource is altered.  |
| Moderate    | Change to many key archaeological/historic building/historic landscape elements or their setting, such that the resource is clearly modified.<br>Demolition or removal of assets of local significance. |
| Minor       | Changes to key archaeological/historic building/historic landscape elements, such that the asset or its setting is slightly altered.  |

| Magnitude  | Environmental Impact            |
|------------|---------------------------------|
| Negligible | Very minor changes to elements. |
| Neutral    | No change.                      |

**Table 15.3: Environmental Impacts**

### Impact Prediction Confidence

- 15.58. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description   |
|------------------|---|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.  |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

**Table 15.4: Confidence Levels**

## Significance of Effects

- 15.59. The following table details the significance of effects that may result from construction and operation of the scheme using the significance matrix in Section 3 of this Scoping Report. It is based upon details of the scheme as outlined earlier in this report and the collation of baseline and survey information to date.
- 15.60. The following table outlines the predicted impacts as a result of the scheme prior to mitigation being identified and considered. Those assets not included within this as shown on figure 15.1 are not considered to be impacted by the scheme including **DCHI638, DCHI659, DCHI660, DCHI934, DCHI2753, DCHI2869, DCHI2879, I197/I, 2278, 2729/0/I, 2729/0/2, 2734, 2908, 4091, 4468/0/0, 4657, 538/I, 540/I/1, 540/I/2, 541/I, 547/I/8, 547/I/13** and **615**.



### Construction Phase

| Nature of Impact   | Receptor        | Environmental Impact     | Significance of Effect  | Confidence Level |
|--|-----------------|--------------------------|-------------------------|------------------|
| <i>Effect on setting of Bradley Hall Moated Site (DCH159)</i>                  | <i>National</i> | <i>Moderate Negative</i> | <i>High Adverse</i>     | <i>High</i>      |
| <i>Effect on setting of Grade II* Listed Tanyard farm building (DCH13677)</i>  | <i>National</i> | <i>Minor Negative</i>    | <i>Moderate Adverse</i> | <i>High</i>      |
| <i>Effect on setting of Grade II Listed Barley Castle Farmhouse (DCH1935)</i>  | <i>Regional</i> | <i>Minor Negative</i>    | <i>Moderate Adverse</i> | <i>High</i>      |
| <i>Effect on demolition of Locally listed Bradley Hall and Barn (DCH12763)</i> | <i>Borough</i>  | <i>Moderate Negative</i> | <i>Minor Adverse</i>    | <i>High</i>      |
| <i>Loss of Roman road (5471117) within the site</i>                            | <i>County</i>   | <i>Moderate Negative</i> | <i>Moderate Adverse</i> | <i>Low</i>       |
| <i>Loss of archaeological features associated with Roman road (5471117)</i>    | <i>County</i>   | <i>Moderate Negative</i> | <i>Moderate Adverse</i> | <i>Low</i>       |
| <i>Loss of archaeology associated with site of Medieval Cross 551)</i>         | <i>Borough</i>  | <i>Minor Negative</i>    | <i>Minor Adverse</i>    | <i>Low</i>       |

**Table 15.5: Significance of Impact – Construction**

- 15.61. A number of the assets identified above have not been proven through physical investigation thus whether any remains exist cannot be verified until further assessment and non-intrusive / survey such as geophysical survey is carried out. Subsequently their confidence level is currently identified as low. Any survey deemed necessary will be undertaken as part of the baseline gathering exercise so as to aid in the determination of the application.

## Operational Phase

| Nature of Impact   | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|--|----------|----------------------|------------------------|------------------|
| Effect on setting of Bradley Hall Moated Site (DCH159) due to significant changes to the landscape within which it lies. | National | Moderate Negative    | High Adverse           | High             |
| Effect on Grade II* Listed Tanyard farm building (DCH13677) from encroachment into its agricultural setting.             | National | Minor Negative       | Moderate Adverse       | High             |
| Effect on Grade II Listed Barleycastle Farmhouse (DCH1935) from encroachment into its agricultural setting.              | Regional | Minor Negative       | Moderate Adverse       | High             |

**Table 15.6: Significance of Impact Operational Phase**

## Mitigation

- 15.62. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

## Additive Impacts (Cumulative Impact and their Effects)

- 15.63. For the purposes of this ES we define the cumulative effects as:
- ‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’***
- 15.64. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Cultural Heritage cumulative assessment are listed in the table below:

| No. | Cumulative Development                          | Details                                    | Status  | Justification for Inclusion in Cumulative Assessment   |
|-----|---|--|---|--|
| 4   | Land at Barleycastle Lane, Appleton, Warrington | 50,000m <sup>2</sup> logistics development | Pre-application discussions with WMBC<br>Scoping Request<br>ILPA Ref: 2017/30243)<br>Application to be submitted<br>November 2017 | Further loss of the agricultural landscape to the south of the Grade II* Tanyard farm building ( <b>DCHI661</b> ) and Grade II Barleycastle Farmhouse ( <b>DCHI935</b> ). This will affect the setting of these listed assets. |

**Table 15.7: Cumulative Projects**

- 15.65. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.
- 15.66. The cumulative development outlined in Table 15.7 will be considered in the Cultural Heritage Paper of the ES. This is due to the additional impact on the known heritage receptors recorded within the study area including the setting impact on the grade II\* listed Tanyard Farm building (**DCHI661**) and the Grade II listed Barley Castle Farmhouse (**DCHI935**) that lie to the northwest of the proposed logistics development. This development will lead to further loss of the post-medieval agricultural landscape which forms part of its historic setting.
- 15.67. The other cumulative developments described in Section 6 will not be taken forward to assessment within the Cultural Chapter as it considered that they will not further impact the identified receptors.
- 15.68. Any other likely cumulative developments have been discounted on account of their distance from the Application Site or the intervening vegetation, topography or built form which will preclude any further impact to that which has been identified. This will be kept under review during the preparation of the Cultural Heritage Technical Paper.
- 15.69. BWB will consult with the Statutory Consultees referred to in paragraph 15.5 to agree the extent of the cumulative assessment.

## Further Work Required

- 15.70. It has been determined that within the site are archaeological receptors including a Roman road (**547/1/7**) and the site of a medieval cross (**551**). Further assessment of the identified receptors as part of the Cultural Heritage and Archaeology Chapter of the EIA will determine the scope of any necessary mitigation. The archaeological potential of the rest of the site will also be further determined through a geophysical survey in the first instance.

## Summary

- 15.71. In summary, a Cultural Heritage and Archaeology chapter of the Environmental Statement is required to determine the potential impacts on archaeological features and deposits, the historic landscape and the built form identified within Table 15.1. A number of potential impacts both during construction and operation of the scheme have currently been identified. Further assessment and survey will ensure that the identified resource is adequately assessed.
- 15.72. The tables below confirm the assets to be Scoped In and Scoped Out of the environmental assessment in respect of Cultural Heritage.

### Scoped In

| Environmental Issue   | Reason for “scoping in”  |
|---|--|
| Bradley Hall Moated Site ( <b>DCH159</b> )  | <i>The Proposed Development will negatively impact the setting of the scheduled monument.</i>    |
| Grade II* Listed Tanyard farm building ( <b>DCH13677</b> )                        | <i>Development will diminish the agricultural setting of the farm building.</i>                  |
| Grade II Listed Barley Castle Farmhouse ( <b>DCH1935</b> )                        | <i>Development will affect the agricultural setting to the asset.</i>                            |
| Effect on demolition of Locally listed Bradley Hall and Barn ( <b>DCH127563</b> ) | <i>Demolition will result in the loss of a locally listed asset</i>                              |
| Roman road ( <b>547/1/7</b> ) within the site                                     | <i>Groundworks and construction activities will impact any surviving sections of Roman road.</i> |

| <b>Environmental Issue</b>  | <b>Reason for “scoping in”</b>  |
|-----------------------------|---|
| <i>Roman road (547/117)</i> | <i>Groundworks and construction activities will impact any features associated with the Roman road.</i> |
| <i>Medieval Cross (551)</i> | <i>Groundworks and construction activities will impact the site of the medieval cross.</i>              |

### Scoped Out

| <b>Environmental Issue</b>   | <b>Reason for “scoping out”</b>               |
|--|---|
| DCH1638 Yew Tree Farmhouse Grade II Listed Building I 139340   | <i>No impact on the setting of this asset</i> |
| DCH1659 Beehive Farmhouse Grade II Listed Building I 139361  | <i>No impact on the setting of this asset</i> |
| DCH1660 Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I 139362 | <i>No impact on the setting of this asset</i> |
| DCH1934 Booths Farm Farmhouse Grade II Listed Building I 329740                                      | <i>No impact on the setting of this asset</i> |
| DCH12753 Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building                  | <i>No impact on the setting of this asset</i> |
| DCH12869 Milepost at Gallows Croft, Knutsford Road, Lymm   | <i>No impact on the setting of this asset</i> |
| DCH12879 Old Chapel, Old Cherry Lane, Lymm Locally Listed Building                                   | <i>No impact on the setting of this asset</i> |
| DCH13677 Tan House Farm, Barleycastle Lane, Appleton   | <i>No impact on the setting of this asset</i> |
| ECH5845 Stretton Airfield, Design Access Statement   | <i>No impact on the setting of this asset</i> |
| I 197/I Kings Brook Mill Site of Watermill Industrial Site, Mill, Watermill                          | <i>No impact on the setting of this asset</i> |

| <b>Environmental Issue</b>   | <b>Reason for “scoping out”</b>                              |
|--|--|
| 2728 Unnamed Site in High Legh Parish Site of 19th century cottage House                       | <i>No impact on the setting of this asset</i>                |
| 2729/0/1 Swineyard Lane Site of a 19th century house   | <i>No impact on the setting of this asset</i>                |
| 2729/0/2 Swineyard Lane Site of 19th Century Building House                                    | <i>No impact on the setting of this asset</i>                |
| 2734 Swineyard Farm Prehistoric axe Findspot   | <i>No impact on the setting of this asset</i>                |
| 2908 Badger's Croft Farm I Cropmark Enclosure. Ditched Enclosure                               | <i>No impact on the setting of this asset</i>                |
| 4091 RNAS Stretton/HMS Blackcap Airfield WW2 Airfield Military Airfield                        | <i>No impact on the setting of this asset</i>                |
| 4468/0/0 Strict Baptist Chapel, Cherry Lane Strict Baptist Chapel Strict Baptist Chapel        | <i>No impact on the setting of this asset</i>                |
| 4657 Pond, North of Cartridge Lane, Grappenhall. Pond shown on OS 1st Edition Maps of Cheshire | <i>No impact on the setting of this asset</i>                |
| 538/1 Yew Tree Farmhouse 17th century farmhouse Farm, Farmstead,                               | <i>No impact on the setting of this asset</i>                |
| 540/1/1 Booth's Farm Farmhouse Post Medieval farmhouse Farm, Farmstead                         | <i>No impact on the setting of this asset</i>                |
| 540/1/2 Shippon, Booth's Farm Timber framed barn Cow House, Farm, Farmstead, Barn              | <i>No impact on the setting of this asset</i>                |
| 541/1 Beehive Farmhouse Post Medieval farmhouse Farm, Farmstead, Timber Framed Building,       | <i>No impact on the setting of this asset</i>                |
| 547/1/0 North Cheshire Ridge Roman Road  | <i>No physical impact on this section of the Roman road.</i> |
| 547/1/13 North Cheshire Ridge Roman Road – Stretton Airfield Section of Roman Road             | <i>No physical impact on this section of the Roman road.</i> |

| <b>Environmental Issue</b>  | <b>Reason for “scoping out”</b>                              |
|---|--|
| 547/1/8 The North Cheshire Ridge Roman Road Section of Roman road                                   | <i>No physical impact on this section of the Roman road.</i> |
| 548/1 Barley castle Farmhouse Post Medieval farmhouse Farm,   | <i>No impact on the setting of this asset</i>                |
| 549/1 Tanyard Farm Farm-building 16th century barn Cow House, Farm, Stable                          | <i>No impact on the setting of this asset</i>                |
| 550/1/ 1011924 Bradley Hall moated site Medieval moated site Manor, Manor House, Moat, Gate Centred | <i>No impact on the setting of this asset</i>                |
| 615 Reddish Hall Medieval moated site Moat  | <i>No impact on the setting of this asset</i>                |

## 16. Utilities

### Introduction

- 16.1. Ridge and Partners LLP are undertaking the production of the ES Technical Paper for Utilities.
- 16.2. Ridge and Partners LLP have carried out preliminary design works to establish the new development utility loads.
- 16.3. This Paper will examine the feasibility of the Proposed Development from a utilities perspective and in particular assess the existing utility infrastructure local to the Site and the requirements for proposed utilities servicing the Proposed Development. The paper will then assess the impacts on the existing utility infrastructure due to the Proposed Development. The assessment will include necessary utility diversions, disconnections and alterations.
- 16.4. The overall utility assessment, including responses from the enquiries from the utility providers, will be analyzed to identify potential environmental impacts.
- 16.5. Note that discussions have been held with the various asset owners to establish the new Points of Connections and future maintenance required for the various services remaining within the Proposed Development.
- 16.6. The current load allowances for the site, and new connection enquiries, are based on desk top studies for the types of buildings proposed using industry standard benchmarking and historical data for similar developments, and also include for an element of spare capacity for future expansion.

### Baseline Information

- 16.7. The baseline data used to undertake the Utility Assessment include:
- Proposed Parameters Plans for the Development
  - Proposed Masterplan for the Development
  - All available utility providers existing utility record plans



- Utility load schedules based on proposed usage

16.8. The above has been used to form the basis of the Proposed utility strategy.

16.9. All available existing record drawings were obtained from the relevant asset owners.

16.10. The Parameters Plan and Masterplan have been considered to assist in the proposed service routes and equipment.

## Alternatives Considered

16.11. Alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

16.12. A number of considerations have influenced the Utilities proposal, Strategy and Parameter Plans, for the Proposed Development including;

- The existing residential properties adjacent Bradley Hall Farm
- Proposed Parameters Plan
- Proposed Masterplan
- Site demand
- Existing telephone mast
- Energy Strategy

16.13. The proposed usage of the site facilities, and energy strategy influenced the load capacities required from the local utilities infrastructure, and, in turn, the locations of the Points of Connections.

16.14. Of the above, considerations were influenced by environmental conditions when establishing the 'Points of Connections' (PoC's), the closest possible PoC's have been progressed to ensure as minimal disruption as possible when installing new underground utilities.

16.15. The alternatives progressed within the scheme include;

- Various load assessments to suit a mixture of building uses, to establish PoC's and provide flexibility to the Proposed Development.
- Alternative Points of Connections and services routes to ensure proposals with the least environmental impacts have been progressed.

## Potential Environmental Impacts

- 16.16. Potential environmental impacts envisaged include:
- 16.17. Impact on the existing natural environment and habitats within the site by installation of on-site utility infrastructure to service the overall Proposed Development.
- 16.18. Impact on existing residential receptors local to the site as well as the surrounding areas, due to roadworks and traffic management during installation of the proposed underground utilities being installed to site, and the potential upgrade and reinforcement of offsite existing utility infrastructure to provide increased utility supplies in which to accommodate the Proposed Development.
- 16.19. Potential impact to the residential receptors adjacent to the proposed development due to increased traffic to the site for deliveries of plant and workforce traffic when installing the onsite utilities infrastructure for the Proposed Development.

### **Construction Phase**

- 16.20. Impacts which have the potential to be significant during the construction phase include:
- 16.21. Diversions and disconnections of the existing Electrical and Telecommunications infrastructure crossing the site. These services will need to be disconnected and diverted as required by the Proposed Development layout. Relevant asset owners and customers will be consulted and works will result in construction activities on site including travelling to Site for workforces.
- 16.22. New Extra High Voltage (EHV) Electrical Primary sub-station. This work will involve installation of new underground EHV cabling to site, and will involve traffic management systems to facilitate the installation of the underground cabling, also construction works on site to form the new EHV Primary sub-station.
- 16.23. Temporary services connections to the site for the construction activities, workforces will require installation of a new temporary service infrastructure during the construction period.

### **Operational Phase**

- 16.24. Impacts which have the potential to be significant during the operational phase include:

- 16.25. Disruption of existing connections to the existing residential properties adjacent Bradley Hall Farm on the Proposed Development.
- 16.26. Disruption of existing connections to the existing Telephone Mast on the Proposed Development.
- 16.27. The impacts and the significance of these impacts are summarised below;

### Methodology for the Environmental Statement

- 16.28. The methodology and approach adopted during this process include:
- 16.29. Network capacity requests have been issued to all relevant utility providers based on anticipated loadings required to service the overall Proposed Development, with the aim to establish the capability of the various existing utilities in and around the Site and identify any upgrading/reinforcement requirements.
- 16.30. Preparation and submission of all proposed utility enquiry applications requesting confirmation of works required to existing utilities to accommodate the Proposed Development based on the Proposed Masterplan Layout in terms of diversions and protections; existing infrastructure capacity assessment based on anticipated loadings calculated for the overall development using Energy Benchmark loadings for each area of the development in accordance with BSRIA Guide 5<sup>th</sup> Edition to establish capacity capabilities for servicing the Proposed Development. The infrastructure capacity assessment will identify, if applicable, any off site and on site reinforcement and upgrading requirements.

#### **Receptors**

- 16.31. The geographical extents of the potential impacts from the development are set out below:

| Designation   | Receptors       |
|---------------|-----------------|
| International | None applicable |
| National      | None applicable |
| Regional      | None applicable |

| Designation         | Receptors  |
|---------------------|--|
| County              | None applicable  |
| Borough/District    | None applicable  |
| Local/Neighbourhood | Existing residential receptors within the surrounding area and site habitats and ecological features |

**Table 16.1 Receptors**

### Environmental Impacts

16.32. The Environmental impacts from the development are outlined are set out below:

| Magnitude   | Environmental Impact   |
|-------------|--|
| Substantial | Permanent/irreversible change to key characteristics of the strategic utility network (electric, gas, water, telecommunications) with important consideration at a district scale. Impacts certain or likely to occur  |
| High        | Permanent/irreversible change to key characteristics of utility networks (Electric, Gas, Water, Telecommunications) with important considerations on the local network (e.g upgrade local infrastructure)  |
| Moderate    | Permanent/irreversible change to the local utility network (electricity, gas, water, telecommunications) that may result in temporary disruptions locally  |
| Minor       | Temporary change over a limited area to key characteristics of the utility network (electricity, gas, water, telecommunications). Impacts likely to occur (e.g. increase in loading due to the Proposed Development prior to completion of any necessary offsite infrastructure improvements)      |
| Negligible  | Minor temporary change over a limited area to key characteristics of the utility network (electricity, gas, water, telecommunications). Impacts unlikely or rarely to occur (e.g. protection of existing local minor utility apparatus to facilitate the construction of the Proposed Development) |
| Neutral     | An impact on the utility network which will not have any influence   |

**Table 16.2 Environmental Impacts**

### Impact Prediction Confidence

16.33. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description   |
|------------------|---|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.  |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

**Table 16.3 Confidence Levels**

## Significance of Effects

- 16.34. The significance of effect is determined using the significance matrix in Section 3 of this Scoping report. This identifies the receptor level across the top of the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect.

### Construction Phase

- 16.35. Significance of affects during the construction phase before the consideration of mitigation are as set out below:

| Nature of Impact  | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|---|----------|----------------------|------------------------|------------------|
| Disconnections / Diversions of existing utility infrastructure crossing the Site. | Local    | Neutral              | Neutral                | High             |
| New EHV supply for Primary sub-station  | Local    | Minor adverse        | Minor adverse          | High             |
| Temporary / Proposed utilities to site  | Local    | Minor adverse        | Minor adverse          | High             |

**Table 16.4: Significance of Impact – Construction**

- 16.36. The potential environmental impacts are mainly during the construction phase and are not deemed significant. These include disruption to local receptors due to the installation of underground utilities within the highways.

### Operational Phase

16.37. Significance of affects during the operational phase are as set out below:

| Nature of Impact  | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|---|----------|----------------------|------------------------|------------------|
| Disruption to existing operations on Proposed Development                               | Local    | Neutral              | Neutral                | High             |
| Disruption to existing connections to the Telephone mast on the Proposed Development    | Local    | Neutral              | Neutral                | High             |
| Disruption to existing connections to residential properties adjacent Bradley Hall Farm | Local    | Neutral              | Neutral                | High             |

**Table 16.5: Significance of Impact – Operation phase**

16.38. The potential environmental impacts during the operational phase are not significant.

### Mitigation

16.39. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

16.40. Proposed mitigation to reduce and manage potential impacts include:

16.41. All services are to be installed within an agreed services corridor and installed underground within soft verge where possible, taking in to account any existing natural environment and habitats within the Site.

16.42. All new utility connections have been applied for, the applications provide the required capacities for the Proposed Development plus spare capacities for potential future upgrade works.

- 16.43. All services are anticipated to be derived from roads local to the site. Existing services to surrounding areas are not envisaged to be affected, and any road works will be subject to an approved traffic management plan.
- 16.44. Confirmation of the Utilities Points of Connections for Water are to be confirmed by United Utilities, approved traffic management plans will be in place for the works associated with laying the new piped services.
- 16.45. Confirmation of the Utilities Points of Connections for Electricity are to be confirmed by Scottish Power, approved traffic management plans will be in place for the works associated with laying the new cables.
- 16.46. The Gas Point of Connection has been received from Cadent, approved traffic management plans will be in place for the works associated with laying the new piped services.

### Additive Impacts (Cumulative Impact and their Effects)

- 16.47. For the purposes of this ES we define the cumulative effects as:
- ‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’***
- 16.48. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the cumulative assessment are listed in the table below:

| No. | Cumulative Development  | Details                        | Status  | Justification for Inclusion in Cumulative Assessment   |
|-----|---|--------------------------------|---|--|
| 1   | Liberty Properties development on Land off Barleycastle Lane, Appleton, Warrington. | 50,000m2 logistics development | Pre-application discussions with WMBC.<br>Scoping request (LPA ref:2017/30243)<br>Application to be submitted November 2017 | Utility services loading to be considered by relevant asset owners and potential upgrading of infrastructure to deliver services to both developments. |

**Table 16.6: Cumulative Projects**

- 16.49. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

### **Further Work Required**

- 16.50. Further works are required include;
- 16.51. Obtain Points of Connections and designs from the asset owners for Water and Electricity services.
- 16.52. Obtain diversion proposals from the asset owners for Telecommunications, Gas, Water and Electricity services.
- 16.53. Verify Utilities record drawings by undertaking GPRS surveys.
- 16.54. Agree with Scottish Power location and access arrangements and easements for proposed EHV primary sub-station.

### **Summary**

- 16.55. In summary, the findings of this Paper highlight any potential effects the new Utilities works may cause by the required new Utilities connections, disconnections and diverted services required to facilitate the Proposed Development.
- 16.56. As identified throughout this paper, the Utilities proposals to the Proposed Development do not provide any significant effects to the local and surrounding receptors. All potential effects envisaged have been identified within this paper and the proposed mitigation methods explained.
- 16.57. All relevant asset owners have been contacted and are in the process of preparing their designs for the new Points of Connections required for the Proposed Development.
- 16.58. Network capacity enquiries have been issued to all relevant utility providers based on anticipated loadings required to service the Proposed Development.
- 16.59. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Technical Paper 16 – Utilities.



## Scoped In

| Environmental Issue   | Reason for “scoping in”  |
|---|--|
| <p><b>Technical Paper 16 – Utilities</b></p> <p>Construction:</p> <p>Disconnections / Diversions of existing utility infrastructure crossing the site.</p> <p>New EHV Primary sub-station.</p> <p>Temporary proposed utilities to site.</p> <p>Operation:</p> <p>Disruption to existing connections to residential properties adjacent Bradley Hall Farm.</p> | <p>Existing services are required to be disconnected and relocated to facilitate the Proposed Development.</p> <p>A new EHV Primary sub-station is required to provide the Electrical power to the Proposed Development from Scottish Power’s network.</p> <p>Temporary utilities are required for construction activities and offer a more energy efficient and acoustic solution.</p> <p>Disruptions are likely which are associated with the diversion and disconnection works.</p> |

## Scoped Out

| Environmental Issue   | Reason for “scoping out”  |
|---|---|
| <p><b>Technical Paper 16 – Utilities</b></p> <p>Construction:</p> <p>Disconnections of services to the existing Telecommunication mast.</p> <p>Operation:</p> <p>Relocation of the existing Telecommunication mast.</p> | <p>Telecommunications mast is to remain operational and services diverted.</p> <p>The Telecommunications mast is to remain in it’s current location and is not affected by the Proposed Masterplan.</p> |

## **17. Waste**

### **Introduction**

- 17.1. The chapter has been prepared by RPS Planning and Environment. It considers the likely significant effects of the Proposed Development in terms of waste generation and management. Waste will be generated as a result of the construction and the operation of the proposed buildings. The waste streams generated during these phases will comprise different types and volumes of waste that will require appropriate management measures. The chapter has been prepared using desk based information.

### **Baseline Information**

#### **Overview**

- 17.2. The baseline conditions for waste are established from the volumes of waste currently generated within the local area and the existing (and proposed) waste management infrastructure. The baseline information is taken from publicly available sources including:
- Warrington Local Plan Core Strategy, adopted July 2014;
  - Environment Agency Waste Data Interrogator 2015;
  - Defra and Government Statistical Service 'UK Statistics on Waste', December 2016;
  - Warrington Borough Council Waste Study and Policy Review, May 2017; and
  - Warrington Borough Council Waste Arisings and Capacity Requirements Report, April 2017.
- 17.3. The Site is located in the administrative area of Warrington Borough Council and is located between the major conurbations of Merseyside and Greater Manchester.
- 17.4. Warrington Borough Council shares boundaries with Halton, Cheshire West and Chester, Cheshire east, and the four metropolitan boroughs of St Helens, Wigan, Salford and Trafford.

### **Waste Streams**

- 17.5. Waste generated within the borough of Warrington comprise the following types of waste:

- Local Authority Collected Waste (LACW);
- Commercial and Industrial (C&I) Waste;
- Construction, Demolition and Excavation (CD&E) Waste;
- Hazardous Waste;
- Agricultural Waste;
- Low Level (Non-Nuclear) Radioactive (LLR) Waste; and
- Waste Water/Sewage Sludge.

17.6. The scope of this chapter focuses on the types of waste likely to be generated during the construction and operation of the Proposed Development. These are Construction, Demolition and Excavation Waste, Commercial & Industrial Waste, and Hazardous Waste. Whilst the other waste streams are important considerations in the waste planning policy of Warrington Borough Council, they would be managed at different facilities to the waste generated by the Proposed Development.

17.7. The following tables provide data on the quantity of waste generated in the area for the years 2015 to 2037 according to different waste streams. The data is derived from the Waste Arisings and Capacity Requirements Report (Warrington Borough Council, 2017). Table 17.1 below sets out the baseline and projected total annual volume of waste generated within the borough of Warrington.

| Waste Type                            | Quantity 2015 | Quantity 2020 | Quantity 2025 | Quantity 2030 | Quantity 2037 |
|---------------------------------------|---------------|---------------|---------------|---------------|---------------|
| Commercial & Industrial               | 165,234       | 163,880       | 162,541       | 162,015       | 161,457       |
| Construction, Demolition & Excavation | 241,682       | 244,892       | 246,374       | 247,352       | 248,453       |
| Hazardous                             | 10,865        | 11,181        | 11,519        | 11,859        | 12,394        |

**Table 17.1 Projected waste arisings by waste stream (tonnes per annum) – based on Oxford Economics growth projections**

17.8. Construction, Demolition and Excavation (CD&E) waste represents the largest waste stream. The projections by Oxford Economics show CD&E arisings are predicted to increase from

the baseline of approximately 242,000 tonnes per annum in 2015 to approximately 248,000 tonnes per annum in 2037.

## Waste Management Options

### Construction, Demolition and Excavation Waste

- 17.9. Table 17.2 illustrates the methods used to manage CD&E wastes during 2015 in Warrington. Approximately 550,000 tonnes of CD&E waste managed within Warrington, however of this total approximately 230,000 tonnes were generated outside Warrington.

| Management Method                      | Construction and Demolition Waste | Excavation Waste | Total          |
|--|-----------------------------------|------------------|----------------|
| Civic Amenity Site                     | 337                               |                  | 337            |
| Hazardous Waste Transfer/<br>Treatment | 56,449                            | 52,023           | 108,471        |
| Inert Landfill                         | 16,495                            | 130,255          | 146,750        |
| Non Hazardous Landfill                 | 5,657                             | 82,367           | 88,024         |
| Non Hazardous Transfer                 | 4,447                             | 3,451            | 7,898          |
| Non Hazardous Transfer/<br>Treatment   | 4,679                             | 5,041            | 9,720          |
| Deposit of waste to land<br>(recovery) |                                   | 166,113          | 166,113        |
| Restricted Landfill                    |                                   | 22,042           | 22,042         |
| <b>TOTALS</b>                          | <b>88,063</b>                     | <b>461,293</b>   | <b>549,356</b> |

Table 17.2 CD&E waste deposits by management method in Warrington in 2015 (tonnes)

### Commercial and Industrial Waste

- 17.10. A total of 165,234 tonnes of Commercial and Industrial (C&I waste) were recorded as arising in Warrington in 2015. No breakdown of how this waste is managed is provided in the Waste Arisings and Capacity Requirements Report (April 2017) and this may be partly attributable to the limited number of waste management facilities permitted only to receive C&I waste.
- 17.11. In terms of hazardous waste, approximately 10,900 tonnes was generated within Warrington in 2015. Of this, only 33 tonnes was managed in Warrington with the remainder exported out of the area for recovery (60%). Only a minor proportion was sent to landfill (8%).

## Policy Background

17.12. Warrington Borough Council is the waste planning authority for the local area and as such is required to prepare a Local Plan that meets the requirements of the National Planning Policy for Waste (NPPW). The Local Plan must identify the existing and future needs of the area for the management of waste streams and explain how potential waste sites will be identified and assessed.

17.13. The Local Plan is currently under review and will take into account the need for Warrington to accommodate a significant increase in new homes and jobs over the next 20 years as part of the Councils 'New City' aspirations. Prior to the completion of the review, the only extant policy of the Warrington Development Plan relating to waste is Policy MP8 'Waste' of the Local Plan Core Strategy (adopted July 2014), which states that:

*"The Council will promote sustainable waste management in accordance with the waste hierarchy. This means that the Council will seek to manage waste at as high a level of the waste hierarchy as possible. In order to achieve this the Council will;*

- bring forward a Waste Local Plan which will identify and if necessary safeguard sites/areas appropriate to meet the waste management needs of the borough in accordance with the borough's spatial aspirations; and
- seek to achieve a continuing reduction in the amount of waste materials imported into the borough by working with adjacent authorities to help them achieve their own self sufficiency; and
- encourage waste minimisation in new developments, the use of recycled materials, the sustainable transportation of waste and the preparation of site waste management plans.
- In determining application for new waste management facilities within the Borough, the Council will have full regard to the environmental, social and economic impact of such development."

17.14. It is understood that Warrington Borough Council now intends to include minerals and waste within the Local Plan rather than within separate Minerals and Waste Plans.

## Waste Management Facilities

17.15. The Warrington Borough Council Waste Arising and Capacity Requirements Report 2017 presents a detailed assessment of need for future waste management capacity over the plan period up to 31<sup>st</sup> December 2037.

17.16. The table below presents the operating waste management capacity within Warrington including actual capacity for 2015 and projected capacity for the rest of the plan period. The capacity has been calculated from throughputs reported via the Environment Agency Waste Data Interrogator and planning permission data. Facilities that only manage LACW have not been included.

| Waste Type                 | Facility Type                       | 2015      | 2018      | 2022      | 2023      | 2031      |
|----------------------------|-------------------------------------|-----------|-----------|-----------|-----------|-----------|
| LACW, C&I                  | Composting                          | 72,000    | 72,000    | 72,000    | 72,000    | 72,000    |
| LACW, C&I, CD&E            | Transfer stations (non-hazardous)   | 38,864    | 38,864    | 38,864    | 38,864    | 38,864    |
| Hazardous                  | Transfer stations                   | 6,373     | 6,373     | 5,000     | 5,000     | 5,000     |
| LACW, C&I, CD&E            | Treatment facility                  | 99,148    | 99,148    | 99,148    | 99,148    | 99,148    |
| CD&E only                  | Restricted landfill                 | 1,025,691 | 1,025,691 | 1,025,961 | 1,025,961 | 1,025,961 |
| LACW, C&I, CD&E            | Non-hazardous landfill              | 854,828   | 0         | 0         | 0         | 0         |
| LACW, C&I                  | Non-hazardous landfill (restricted) | 93,083    | 93,083    | 93,083    | 0         | 0         |
| CD&E                       | Inert landfill                      | 473,350   | 473,350   | 473,350   | 473,350   | 0         |
| CD&E                       | Reclamation                         | 213,620   | 213,620   | 213,620   | 213,620   | 0         |
| C&I, CD&E, Hazardous       | Metal recycling                     | 20,472    | 20,472    | 20,472    | 20,472    | 20,472    |
| LACW, C&I                  | Biological Treatment (WWT)          | 313,284   | 313,284   | 313,284   | 313,284   | 313,284   |
| CD&E                       | Recycling                           | 100,000   | 100,000   | 100,000   | 100,000   | 100,000   |
| LACW, C&I, CD&E, Hazardous | Recycling                           | 38,239    | 38,239    | 38,239    | 38,239    | 38,239    |

**Table 17.3 Existing Waste Management Facilities**

## Alternatives Considered

17.17. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

## Potential Environmental Impacts

17.18. The assessment will focus on the impacts of waste generated from the construction and operation phases on the existing and proposed waste management infrastructure. These impacts will relate to the availability of waste management facilities within the local area, the siting of future waste management facilities and capacity of these facilities to manage the additional waste volumes generated by the Proposed Development.

### **Construction Phase**

17.19. The impacts which may arise during the Construction Phase are:

- The generation of additional waste in the borough and the impact on the existing and proposed waste management infrastructure.
- The “treatability” of the waste generated by the Proposed Development (i.e. if the waste can be easily treated with minimal residual waste, or if the waste requires specialised treatment with potentially toxic residual waste).
- Conformity of the waste management procedures and targets to manage construction waste (set out in the Construction Waste Management Plan) with national and regional waste policy.

### **Operational Phase**

17.20. The impacts which may arise during the Operational Phase are:

- The generation of additional waste in the borough and the impact on the existing and proposed waste management infrastructure.
- The “treatability of the waste generated by the Proposed Development (i.e. if the waste can easily be treated with minimal residual waste, or if the waste requires specialised treatment with potentially toxic residual waste).
- Conformity of the waste management procedures and targets to manage construction waste (set out in the Waste Management Plan) with national waste policy.

## Methodology for the Environmental Statement

17.21. The assessment methodology has been developed with regard to national, regional and local waste planning policy and guidance.

17.22. There is no published assessment guidance or criteria for assessing waste impacts or assigning a level of significance to the predicted effects. The methodology is therefore, based on relevant policy and previous experience of undertaking similar assessments.

**Receptors**

17.23. For the waste assessment, the key receptor is the existing and proposed waste management infrastructure, its location and its associated capacity to accept the waste types and volumes likely to be generated by the Proposed Development. The other receptor is waste policy/targets and the how the waste management procedures within the Proposed Development will conform.

| Designation         | Receptors   |
|---------------------|---|
| International       | Waste Framework Directive Targets   |
| National            | None  |
| Regional            | None  |
| County              | Waste management facilities in neighboring boroughs/districts.  |
| Borough             | Waste management facilities of importance to Warrington Borough. Recommended policies for the Local Plan. |
| Local/Neighbourhood | None  |

**Table 17.4 Environmental Receptors**

| Magnitude   | Environmental Impact   |
|-------------|--|
| Substantial | Waste is generated is hazardous and requires specialized treatment outside the region. Waste from Proposed Development is >15% of waste generated in the borough. There is |



|            |  |
|------------|--|
|            | an immediate shortfall in the capacity of existing waste management facilities for the types of waste likely to be generated. No Waste Management Plan.  |
| High       | Waste generated is hazardous and requires incineration or landfilling. Waste is transported outside of region for treatment or disposal.<br>No commitment to recycle waste within Waste Management Plans.<br>Waste from Proposed Development is >10% of waste generated in the borough.<br>A shortfall in the capacity of existing waste management facilities is predicted early in the Waste Local Plan period and no new sites have been allocated. |
| Moderate   | Waste is hazardous but can be recovered with pre-treatment. Waste can be managed within the region using methods lower down the waste hierarchy.<br>Waste from Proposed Development is >5% of waste generated in the borough.<br>A shortfall in the capacity of existing waste management facilities is predicted later in the Waste local Plan period and several potential sites have been allocated.  |
| Minor      | Waste is non-hazardous or inert and can be recycled or composted within the borough. Waste Management Plans for construction and operational waste complies with national and regional targets and policy to divert waste from landfill.<br>Waste from Proposed Development is >1% of waste generated in the region.<br>No shortfall in capacity of existing and proposed waste management facilities.   |
| Negligible | Waste generated is inert and can be re-used on the site.<br>Evidence that waste has been minimised in the design of the Proposed development.<br>Waste from Proposed Development is less than 1% of waste generated in the borough.  |
| Neutral    | The construction and operational phases of the Proposed Development implement a zero waste to landfill policy.   |

**Table 17.5 Magnitude of Impact**

17.24. The environmental impacts of the Proposed Development in terms of waste are likely to be adverse as the construction and operational phases will generate waste streams which currently do not exist.

*Impact Prediction Confidence*

17.25. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for the definitions of confidence levels are set out in Chapter 1: EIA Methodology and Process.

## Significance of Effects

### Construction Phase

- 17.26. An initial assessment of the impacts has been undertaken (without mitigation) and are set out below:

| Nature of Impact   | Receptor      | Environmental Impact | Significance of Effect | Confidence Level |
|--|---------------|----------------------|------------------------|------------------|
| Impact of waste generated on the capacity of existing/proposed waste management infrastructure | Borough       | Minor Negative       | Minor Adverse          | High             |
| Impact of waste generated on the capacity of existing/proposed waste management infrastructure | Borough       | Minor Negative       | Minor Adverse          | High             |
| Treatability of the waste generated  | Borough       | Minor Negative       | Minor Adverse          | High             |
| Conformity with waste targets/policy   | International | Negligible           | Negligible             | High             |

**Table 17.6 Significance of Effect - Construction**

## Mitigation

### Operational Phase

- 17.27. An initial assessment of the impacts has been undertaken (without mitigation) and are set out below:

**Table 17.7 Significance of Effect - Operation**

| Nature of Impact   | Receptor      | Environmental Impact | Significance of Effect | Confidence Level |
|--|---------------|----------------------|------------------------|------------------|
| Impact of waste generated on the capacity of existing/proposed waste management infrastructure | Borough       | Minor Negative       | Minor Adverse          | High             |
| Nature of Impact   | Receptor      | Environmental Impact | Significance of Effect | Confidence Level |
| Impact of waste generated on the capacity of existing/proposed waste management infrastructure | Borough       | Minor Negative       | Minor Adverse          | High             |
| Treatability of the waste generated  | Borough       | Minor Negative       | Minor Adverse          | High             |
| Conformity with waste targets/policy   | International | Negligible           | Negligible             | High             |

## Additive Impacts (Cumulative Impact and their Effects)

17.28. For the purposes of this ES we define the cumulative effects as:

***‘Those that result from additive impacts (cumulative) caused by other past, present or reasonably foreseeable actions together with the project itself.’***

17.29. All the projects to be considered as part of the cumulative impact assessment are described in section 6 of this Scoping report. The projects to be considered in respect of the waste cumulative assessment are listed in the table below:

|   | Possible Cumulative Development   | Details   | Status  | Justification for Cumulative   | To be considered in the CIA |
|---|---|---|---|--|-----------------------------|
| 1 | Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington<br><br>LPA Ref: 2016/28807<br><br>Applicant - HCA   | Outline Planning Application for 180 dwellings. | Being determined by WMBC Application Registered 09-09-2016                                  | Potential relationship in terms of C&D waste but no link during operation as different waste streams would be generated.   | No                          |
| 2 | Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN<br><br>LPA Ref: 2017/29930<br><br>Applicant - HCA                                       | Outline Planning Application for 370 dwellings  | Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017 | Potential relationship in terms of C&D waste but no link during operation as different waste streams would be generated  | No                          |
| 3 | Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG<br><br>LPA Ref: 2017/29929<br><br>Applicant - HCA | Outline Planning Application for 400 dwellings  | Resolution to grant planning permission by WMBC Development Management                      | Potential relationship in terms of C&D waste but no link during operation as different waste streams would be generated<br>Difference waste streams would be generated | No                          |
| 4 | Land off Barleycastle Lane, Appleton, Warrington<br><br>Liberty Properties  | 50,000m <sup>2</sup> logistics development      | Pre-application discussions with WMBC   | Potential relationship during operation as similar waste streams may be generated therefore require similar waste management facilities.                               | Yes                         |

|   | Possible Cumulative Development   | Details  | Status   | Justification for Cumulative  | To be considered in the CIA |
|---|---|--|--|---|-----------------------------|
| 6 | Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY<br>LPA Ref: 2016/28994 | Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping. (1,699m2 new build, 180m2 and 265m2 extensions) | Application Approved 17-02-2017 (3 years to implement planning permission) | Potential relationship during construction and operation as similar waste streams may be generated therefore require similar waste management facilities. | Yes                         |

|   | Possible Cumulative Development   | Details   | Status   | Justification for Cumulative   | To be considered in the CIA |
|---|---|---|--|--|-----------------------------|
| 7 | Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br>LPA Ref: 2015/25255<br>Morley Estates | Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618) (4,545sqm industrial warehouse building) | Application Approved 16-10-2015 (3 years to implement planning permission) | Not considered to be a link in terms of construction waste due to temporal differences. Potential link regarding operational waste but likely to be limited due to proposed use. | No                          |
| 8 | Former Stretton Airfield, Warrington, WA4 4RG<br>LPA Ref: 2014/2332<br>Hensmill Property                          | Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.   | Application Approved 23-06-2015 (3 years to implement planning permission) | No link during construction due to different timeframes and no link during operation as different waste streams would be generated   | No                          |

**Table 17.8 Cumulative Projects**

- 17.30. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.
- 17.31. The schemes listed in Table 17.8 will be considered within the cumulative assessment of the ES as these schemes are relatively close to the site and are likely to generate similar waste streams during construction and operation.

### Further Work Required

- 17.32. Work is still ongoing to identify the existing and proposed waste management infrastructure and its associated capacity. Consultation with Warrington Borough Council may also be required to obtain up-to-date information on the waste policies within the Local Plan. The types and quantities of waste likely to be generated from the construction and operation of the Proposed Development will be identified as the design of the buildings and the construction methodology progresses.
- 17.33. It is acknowledged that the operational waste streams generated by B2 uses may be very different from B8 uses. Until detailed information on the uses of the buildings is available, it will not be possible to identify the specific types of waste that would be generated. However, the waste chapter and accompanying operational waste management strategy will set out the principles for how the waste will be managed and how waste management has been taken into account in the design of the buildings.

### Summary

- 17.34. The construction and operation of the Proposed Development would generate waste and the environmental effects of this will be assessed and reported in a Waste ES Technical Paper. The waste generated through the construction and operational phases of the Proposed Development will be identified within a Waste Management Plan together with the proposed management measures and targets to divert from landfill.
- 17.35. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Waste.

### Scoped In

| Environmental Issue  | Reason for “scoping in”   |
|--|---|
| <p><b>Waste</b></p> <p><i>Construction:</i></p> <p>The types and likely quantities of waste generated during the construction of the Proposed Development.</p> <p>The treatability of waste generated by the Proposed Development</p> <p>The measures to manage wastes.</p> <p><i>Operation:</i></p> <p>The types and likely quantities of waste generated during the operation of the Proposed Development.</p> <p>The treatability of waste generated by the Proposed Development</p> <p>The measures to manage waste.</p> | <p>The additional waste generated by the Proposed Development may exceed the capacity of existing and proposed waste management infrastructure.</p> <p>The types of waste generated may have to be transported outside the borough or county to be managed.</p> <p>National and local policies set requirements for how to manage types of waste.</p> |

### Scoped Out

| Environmental Issue   | Reason for “scoping out”  |
|---|---|
| <p><b>Waste</b></p> <p><i>Operation:</i></p> <p>Local Authority Collected Waste, Agricultural Waste, Low Level (Non Nuclear) Radioactive Waste, and Waste Water/Sewage Sludge</p> | <p>These types of waste will not be generated by the Proposed Development</p> |



## **18. Energy**

### **Introduction**

- 18.1. Ridge and Partners LLP are undertaking the production of the ES Technical Paper for Energy.
- 18.2. This Paper examines the proposed Energy Strategy for the Proposed Development including the anticipated Energy demands and subsequent carbon emissions for the operational site.
- 18.3. The assessment will take into consideration the opportunities and limitations on the site in terms of a potential Energy Strategy. This will also consider the availability of utility supplies being gas, water and electricity and the impact on existing Utility services.
- 18.4. The assessment will take into consideration the type of buildings proposed on the development and subsequent energy demand and Carbon emissions.
- 18.5. A site wide energy strategy will be developed that will provide a template of design technologies and techniques for future construction of the buildings that meet the targets set out in the relevant government and local planning documents.
- 18.6. This Paper shall be read in conjunction with the Utilities Paper – Chapter 16.

### **Baseline Information**

- 18.7. The following information was used to develop the baseline carbon emissions for the development :
- Proposed ES Parameters plan and Masterplan
  - Utility load schedules
- 18.8. The following process will be followed to establish the Proposed Developments' carbon emissions.

| RIBA Stage                  | Key Activity  | Carbon Analysis   |
|-----------------------------|---|---|
| 1<br>Appraisal              | Brief & Client Aspirations<br>Determine Relevant Legislation/Requirements<br>Initial Site Appraisal   | Initial Benchmark CIBSE TM46, this document offers a comprehensive outline of building energy benchmarks. |
| 2<br>Strategic Briefing     | Establish Specialist Consultant Input   |   |
| 3<br>Outline Proposals      | Detailed Site Appraisal<br>Strategic Energy Opportunities (Decentralisation)<br>Passive Design – Shape/Form/Orientation<br>Façade Options – Materials/Mass/Shading<br>Initial Technology Review Low Carbon & Renewables | Refined Benchmarking<br>↓<br>Dynamic Energy Simulation<br>↓   |
| 4<br>Detailed Design        | Finalise Renewable & Low Carbon Technologies<br>Establish Sizes, Locations & Renewable & Low Carbon Technologies  | Final Dynamic Energy Simulation   |
| 5<br>Final Proposals        | Equipment Selection<br>Detailed Design Drawings   | <b>As Built Dynamic Energy Simulation</b>   |
| 6<br>Production Information | Small Scale Hydro   |   |

**Table 18.1 : RIBA Stages and Energy Modelling**

- 18.9. Beyond the initial CIBSE TM46 Benchmarking a detailed Energy Model will be developed for a typical Employment Unit using a set of reasonable assumptions and to the future type of employment unit required.
- 18.10. Although detailed designs are not available for the proposed units and the specific end users are not known at this stage, a series of assumptions have been made to allow an energy model to be developed to assess the overall site Energy Use and Carbon Emissions. It should be noted that these are assumptions, and not proposed design solutions at this stage and should not be adopted on final proposals but offer a reasonable guide to the future energy use. A further consideration is that the model assumes that building is heated whereas the future tenant may use ambient employment units, or cold storage which will impact on the Energy Model. The energy assessment will be based on a mixture of heated and un-heated

employment units, therefore the heated buildings will likely be more reliant on fossil fuels such as gas supply whereas a cold storage unit will be more relevant on Electricity use.

18.11. A sample Employment Unit will be modelled to establish typical Energy Use of Carbon Emissions as detailed below.

- It should be noted those are not final detailed inputs but initial elements at this stage to establish energy benchmarking.
- The calculations and modelling will be undertaken to establish compliance with part L2A of the Building Regulations.

18.12. The internal conditions are assigned to the zones as indicated in Table 18.2 below:

| Internal Condition Type | Zones assigned to |
|-------------------------|-------------------|
| Indust Circulation      | Corridor          |
| Indust_IndProcess       | Workshops         |
| Indust_Toilet           | WCs               |

Table 18.2: Internal Conditions

## Lighting Efficiencies and Controls

18.13. Lighting

| Zone                | W/m <sup>2</sup><br>100lux | Presence<br>detection | Daylight-<br>control | Back-space<br>sensor |
|---------------------|----------------------------|-----------------------|----------------------|----------------------|
| Office/<br>corridor | 2.50                       | Auto-on/auto-<br>off  | Photo-control        | No                   |
| Employment<br>Unit  | 2.67                       | Auto-on/auto-<br>of   | Photo-control        | Yes                  |
| WC                  | 4.0                        | Auto-on/auto-<br>of   | Manual               | N/A                  |

Table 18.3: Lighting

18.14. Air Permeability

An air permeability of 5.0 m<sup>3</sup>/m<sup>2</sup>.hr at 50 Pa is assumed.

18.15. Natural Ventilation

To all areas apart from WCs.

18.16. Building Fabric

- External walls:
- Ground floor: Solid concrete, carpet upper (offices), concrete upper (workshop/WC) U-value = 0.20 W/m<sup>2</sup>K).
- Roof: Lightweight, aluminum outer, plasterboard inner with void above (U-value = 0.20 W/m<sup>2</sup>K).
- Glazing: SG cool-lite SKN Neutral SKN165 - Total transmittance (g-value) = 0.34, U-value = 1.64 W/m<sup>2</sup>K
- Frame: U-value = 1.70 W/m<sup>2</sup>K (15% of rooflights, 50mm wide for non-openable windows and 100mm wide for glazed doors and openable windows)
- Vehicle doors and fire exits:
- U-value = 1.20 W/m<sup>2</sup>K
- Internal walls: plastered concrete block

18.17. Mechanical Ventilation (extract only)

To WCs:

- Extract fan SFP: 0.4 W/l/s
- Flow rate: 8.0 ach

18.18. Heating

To offices, corridor and WC (LTHW to radiators):

- Fuel: gas
- Seasonal efficiency: 92%
- Distribution efficiency: 90%

18.19. To Employment Unit (Gas fired Radiant Heater or equal)

Fuel: gas

- Seasonal Efficiency: 88%
- Radiant efficiency: 60%

18.20. Domestic Hot Water

- Fuel: gas
- Efficiency: 92%
- Distribution efficiency: 95%

18.21. Management Features

- Heating, Ventilation and Air Conditioning (HVAC) monitoring with warning for out of range values
- Light metering with warnings for out-of-range values

18.22. Pumps

Variable, with multiple pressure sensors.

18.23. Weather Data

CIBSE Test Reference Year for Manchester (nearest location for data)

18.24. It should be noted the inputs at this stage are not a final design and adopted to establish a quantum of the predicted Energy Use and Carbon Emissions. These inputs will vary throughout the detailed design process.

18.25. Energy Use:

Energy consumption table:

| <b>Energy Consumption by End User [kWh/m2] Per Annum</b>                              |               |                 |
|---|---------------|-----------------|
|   | <b>Actual</b> | <b>Notional</b> |
| <b>Heating</b>  | 69.76         | 52.08           |
| <b>Cooling</b>  | 0.41          | 0.73            |
| <b>Auxiliary</b>  | 0.72          | 0.39            |
| <b>Lighting</b>   | 25.33         | 60.13           |
| <b>Hot water</b>  | 4.74          | 5.2             |
| *Energy used by equipment does not count towards the total for calculating emissions. |               |                 |
| **Total is net of any electrical energy displaced by CHP generators, if applicable.   |               |                 |

Table 18.4: Energy Use

18.26. Carbon Emission Results:

| <b>Carbon Emissions</b> | <b>Kg CO2/m2 Per annum</b> |
|-------------------------|----------------------------|
| <b>Heating</b>          | 12.8                       |
| <b>Cooling</b>          | 0.22                       |
| <b>Auxiliary</b>        | 0.39                       |
| <b>Lighting</b>         | 13.7                       |
| <b>Hot water</b>        | 0.87                       |

Table 18.5: Carbon Emissions

From the results it is evident that even with a heated employment unit, the highest carbon emissions are attributed from the lighting followed by the heating demand. This is a result of the large extent of artificial lighting required in an employment unit facility.

The outcome from these results promotes focus in terms of addressing the key areas to reduce energy and subsequent carbon emissions.

18.27. Below is a table with the initial resultant estimated Energy Use and Carbon Emissions based on the site wide parameters plan.

| Unit            | M <sup>2</sup> | Elec                |            | Fossil Fuel         |             | Elec                            |                      | Fossil Fuel                     |                      | Sub-Total  |
|-----------------|----------------|---------------------|------------|---------------------|-------------|---------------------------------|----------------------|---------------------------------|----------------------|------------|
|                 |                | Kwhr/m <sup>2</sup> | Kwhr/ann   | Kwhr/m <sup>2</sup> | Kwhr/ann    | C0 <sub>2</sub> /m <sup>2</sup> | C0 <sub>2</sub> /ann | C0 <sub>2</sub> /m <sup>2</sup> | C0 <sub>2</sub> /ann |            |
| Plot 1          |                |                     |            |                     |             |                                 |                      |                                 |                      |            |
| Employment Unit | 3,325,000      | 27                  | 89,777,000 | 75                  | 249,375,000 | 11                              | 36,575,000           | 14                              | 46,550,000           | 83,125,000 |
| Office          | 175,000        | 25                  | 4,375,000  | 21                  | 3,675,000   | 10                              | 1,750,000            | 4                               | 700,000              | 2,450,000  |
| Total           | 3,500,000      |                     |            |                     |             |                                 |                      |                                 |                      |            |

Table 18.6: Energy Use & Carbon Emissions

18.28. The overall carbon emissions for the site are based on the criteria set out in the Baseline data that was inputted in to the Energy Model.

18.29. This model is currently based on heated employment units which may not be the case and hence the fossil fuel usage is in the higher end of the calculations.

18.30. The calculations undertaken all demonstrate a betterment of Part L2A of the building regulations.

## Alternatives Considered

18.31. As part of the design development the following has been considered as potential solutions and technologies to be part of the design these are not detailed solutions to be adopted at this stage:

18.32. Initial Summary of Technologies Considered, Adopted & Discounted.

- 18.33. Our initial stage is to discount or consider further particular technologies before detailed analysis is undertaken.

Key: Y – Yes N – No P – Possibly

| REDUCE DEMAND                  | SUITABLE FOR CONSIDERATION | COMMENTARY  |
|--------------------------------|----------------------------|---|
| Natural ventilation/mixed mode | Y                          | Site is suitable for natural ventilation solutions.   |
| Natural daylight               | Y                          | As part of the master-planning and individual unit design.  |
| Thermal mass                   | N                          | Considered to minimise cyclical energy fluctuations but not conducive to construction methods for Employment Units. |
| Air tightness                  | Y                          | Essential to minimise air leakage and reduce heat losses (improve on Part L)  |
| Solar shading/Solar Glass      | P                          | Yes to mitigate summertime overheating to offices.  |
| Thermal Insulation             | Y                          | Essential to minimise heat losses (improvement on minimum Part L requirements)                                      |
| Low Energy Fit Out             | P                          | Promoted with future tenants/ occupiers.  |

**Table 18.8: Reducing Demand**

| ENERGY EFFICIENCY       | SUITABLE FOR CONSIDERATION | COMMENTARY  |
|-------------------------|----------------------------|---|
| Heat recovery           | Y                          | Could be adopted for particular rooms/ areas.   |
| Low energy lighting     | Y                          | LED fittings important to reduce energy use for artificial lighting                               |
| Power management        | Y                          | System can be adopted to limit excessive over voltage and energy use.                             |
| DC motors               | Y                          | Can be adopted on specific systems where appropriate.   |
| Variable speed drive    | Y                          | Variable speed drives can be adopted on pumps motors where possible to reduce energy consumption. |
| Demand Operated Systems | Y                          | The use of passive infra-red (PIR) for lighting, heating, ventilation is feasible.                |
| De-stratification Fans  | Y                          | Important to adopt in heated environments   |
| Energy Metering         | Y                          | Promotes energy monitoring & out of range energy use.   |
| Lighting Control        | Y                          | Yes to operate in conjunction with daylight sensing   |

**Table 18.9: Energy Efficiency**

Key: Y – Yes N – No P – Possibly

| RENEWABLE AND LOW CARBON | SUITABLE FOR CONSIDERATION | COMMENTARY   |
|--------------------------|----------------------------|--|
| <b>SOLAR</b>             |                            |  |
| Solar hot water          | P                          | On the whole, distribution units will not have a high domestic hot water load. |
| Photovoltaics (PV's)     | Y                          | Can be used to offset electrical demand subject to financial appraisal.        |
| <b>WATER</b>             |                            |  |
| Small scale hydro power  | N                          | Not feasible as no significant water source available                          |
| Tidal power              | N                          | Not Applicable   |

| <b>RENEWABLE AND LOW CARBON</b>   | <b>SUITABLE FOR CONSIDERATION</b> | <b>COMMENTARY</b>   |
|---|-----------------------------------|---|
| Wave power  | N                                 | Not Applicable  |
| <b>WIND</b>   |                                   |   |
| Wind turbines   | N                                 | Impact of building Flicker and noise are key considerations, also visual impact on site, so discounted at this stage of the design.                         |
| <b>BIOMASS</b>  |                                   |   |
| Biomass single room heaters/stoves  | N                                 | (relevant to residential buildings only) .  |
| Biomass boilers   | N                                 | Peaks & Troughs of hot water demand not conducive to biomass operations if ambient employment unit adopted then large heating demands will not be required. |
| Biomass community heating schemes   | N                                 | Uncertainty of end user not conducive to strategy.  |
| <b>COMBINED HEAT AND POWER (CHP) for use with the following fuels:</b>  |                                   |   |
| Biofuel   | N                                 | Gasification process possible for scale of site, but Biodiesel considered immature feedstock and unreliable.  |
| Natural gas   | P                                 | Required baseline heating demand not ideal for uncertainty of end user.   |
| <b>Heat Pumps</b>   |                                   |   |
| Ground source heat pumps  | P                                 | Availability of land makes solution feasible but high capital cost.   |
| Water source heat pumps   | N                                 | No significant water sources to reject / absorb heat.   |
| Air source heat pumps   | P                                 | Sufficient space available at each unit but may be more appropriate to offices element only.  |
| For heat pumps to comply, the heat source (ground or water) must be from a renewable source, for example soil, outside air, ground water, or a river. |                                   |   |
| <b>OTHER</b>  |                                   |   |
| Fuel cells using hydrogen generated from any of the above 'renewable' sources.  | N                                 | Technology not yet mature enough for application.   |
| Rainwater recycling   | P                                 | Rainwater collection system, could be adopted to recycle rainwater for toilet flushing purposes for each block.   |
| Green roofs   | P                                 | Could promote the site ecology but not specifically adopted at this stage.  |

**Table 18.10: Renewable and Low Carbon Technologies**

## **STAGE I - Design Review Reduce Demand**

### **i. Proportion of transparent elements**

- 18.34. The approach to the design will be to carefully consider the balance between transparent elements and opaque elements of the building façade.
- 18.35. This is important to ensure the avoidance of excess heat losses but at the same time, allowance of good natural daylight. Different approaches will be applied to the offices and other employment units.



**ii. Natural Daylighting**

- 18.36. As the Energy model highlighted, the major Carbon emission can be attributed to artificial lighting and hence the ability to reduce the reliance on artificial lighting with good natural daylighting is essential. Typically the employment unit area will have 10-15% of the roof area being roof-lights.
- 18.37. This percentage of glazing will help to provide a good daylight factor therefore reducing lighting consumption. The proportion of glazing may be locally increased where access to daylight is limited.

**iii. Natural Ventilation**

- 18.38. As the site is suitable for natural ventilation methods, then both the employment unit (B2/B8) element of a typical unit and the office area will be considered for natural ventilation methods.
- 18.39. It is intended to omit the use of Artificial cooling by the use of passive measures such as:

- Consideration of Building orientation
- Natural ventilation solutions
- Low energy fit out
- High performance glazing where required

**iv. Minimise Air Infiltration to Reduce Heat Loss**

- 18.40. In buildings where the fabric allows uncontrolled air movement (higher heating energy is required in winter as a result of the higher heat losses. The building will be designed and built to very high standards in order to reduce air infiltration rates through the incorporation of robust building detailing and high quality construction techniques. The target air permeability rate of 3-5m<sup>3</sup>/h/m<sup>2</sup> at 50 Pa is considered an aspiration for the future building design (compared to 10 m<sup>3</sup>/h/m<sup>2</sup> at 50 Pa required by Part L 2013).

**STAGE 2 - Design Review Meet Demand Efficiently**

- i. Once the passive measures have been fully optimised in terms of reducing the initial demand the design solutions will target meeting the demand by energy efficiency measures namely:-

- Mixed Mode Ventilation (offices)
- Low Energy Lighting (LED)
- Daylight Dimming where appropriate
- Occupancy demand systems (such as lighting, heating and ventilation)
- Energy Metering
- Variable Speed Drives on pumps & fan
- Heating set back
- De-stratification fans

**ii. Energy Metering**

- 18.41. There is evidence that energy metering will reduce energy by up to 10%, the information provided will allow analysis of energy trends and comparison with benchmark data.
- 18.42. As a minimum all metering shall fully comply with CIBSE Guide for Energy metering.

**iii. Variable Speed Drivers**

- 18.43. These will be adopted on the systems (such as LTHW heating & ventilation systems) to optimise energy use against demand to reduce energy consumption when appropriate

**iv. Lighting Control Systems**

**Low Energy Lighting (LED)**

- 18.44. Low energy lighting will be an essential component in the reduction of the overall energy use of the building coupled with control systems that operate lighting systems on demand (such as PIR systems and due to environmental criteria such as a daylight Dimming).

**v. Destratification fans**

- 18.45. These systems reduce heating demand by recirculating stratifying warm air in tall buildings and hence reduce energy demand.

### **STAGE 3 - Design Review Renewable & Low Carbon Technologies**

18.46. The final element of the design stage is to review the Renewable & Low Carbon Technologies namely:-

- Solar Thermal
- Photovoltaics
- Ground Source Heat Pumps (GSHP)
- Air Source Heat Pumps (ASHP)
- Combined Heat & Power CHP
- Biomass

#### **i. Solar Thermal Panels**

18.47. The use of solar panels to collect the sun's rays and produce hot water for domestic purposes is extensively used within the UK.

18.48. Panels can be used to offset up to 20-40% of the annual hot water demand dependent on size, orientation etc. While the initial capital cost is relatively high the Government Renewable Heat Incentive of improves the payback and life cycle analysis.

18.49. Invariably employment unit facilities will not have high hot water demands unless due to a specific process which is not possible to predict at this stage. On that basis dedicated Solar thermal panels are not proposed at this stage but roof space on the office area for potential future installation.

#### **ii. Biomass**

18.50. Energy from biomass is produced by burning organic matter. Biomass products such as trees, crops or animal dung are harvested and processed to create bio-energy in the form of electricity, heat, steam and solid fuels. Biomass is the solid form of 'bioenergy', but liquid fuels can also be generated from plant matter and this is referred to as 'biofuel'.

18.51. Biomass is carbon-based so when used as fuel it also generates carbon emissions. However, the carbon that is released during combustion is equivalent to the amount that was absorbed during growth, and so the technology is carbon-neutral (the fuel generally requires treatment and transport, with associated carbon emissions). Unlike fossil fuels, biomass can be replaced relatively quickly.

18.52. At this stage the requirement for heated employment units is unknown and therefore the use of biomass cannot be committed to.

### **iii. Anaerobic Digestion (AD) at new Wastewater Treatment plant**

- 18.53. The anaerobic decomposition process is a natural process that happens in absence of oxygen. It is a biological process where a biodegradable waste stream is combined with certain types of bacteria to generate biogas. The biogas could be used to power vehicles, or alternatively used in a Combined Heat and Power (CHP) plant to provide the heat needed to warm the digester and/ or to feed into a nearby district heating network and also electricity that can be used in-situ or sold to the grid.
- 18.54. Suitable waste streams come in the form of organic domestic or commercial waste, sludge from wastewater or farm slurry. The creation of a new wastewater treatment facility for the Denny St Francis development presents an opportunity to consider the possibilities of using the wastewater sludge in an adjacent AD plant. There is also the potential for this to be augmented with organic water or slurry from adjacent farms. Industry precedent indicates that the scale of Denny St Francis puts an AD system designed for wastewater sludge around the borderline of commercial viability, such that more detailed analysis would be required.
- 18.55. The scale of the development and the potential different uses does not constitute the adoption of this type of technology.

### **iv. Wind Power**

- 18.56. Wind turbines are essentially tall structures with rotation blades which require sufficient space to operate satisfactorily. The rotating blades operate under wind pressure and generate electricity, which can be used on site by the operator or exported on the electrical grid. The extent of electricity generated will depend on the type of site, the wind speeds experienced and the size of the turbine. Typically a 9m high turbine will generate a peak 6kW (KWP) of electricity.
- 18.57. The extent of electricity generated will depend upon the type of site, the wind speeds experienced and the size of the turbine.
- 18.58. The principal consideration when assessing wind power are:
- Suitability of site with respect to average wind speeds and surrounding buildings
  - Financial viability of wind power
  - Aesthetical impact and planning considerations

- Noise generated from Turbine (rule of thumb minimum spacing 5 times rotor diameter)
- Space requirement to accommodate the wind turbine
- Electrical transmission systems to connect to electrical grid system.

18.59. Although the site does have favourable wind speeds over 4.5m/s the use of wind power is discounted on the basis of:

- Proximity of existing residential units
- Visual impact on site

#### **v. Photovoltaics**

18.60. Photovoltaics convert solar radiation into electricity and must not be confused with solar panels which use the sun's energy to heat water usually for domestic hot water purposes or space heating. When PV's are exposed to the Sun's rays they generate a direct current (DC) The DC power is then converted to AC power and is utilised either by the operator of the system and/or converted to the electrical grid and sold/credited to the utility company. Theoretical efficiencies of PV's are around 30% with a further reduction in electrical power when converting to AC alternating power of 15% efficiency.

18.61. The location of PV's is very important they must fully exploit the Sun's rays and hence must be located in un-shaded positions. The exact orientation is not critical but to improve efficiencies then the PV's should tilt to absorb the optimum extent of solar radiation. As a general rule of thumb 1m<sup>2</sup> of PV array at a reasonable tilt, orientation and efficient system will develop about 100-130 (Kilowatt hours per year) in the UK. PV array comes in many different forms from free standing modules located on roof areas to building integrated systems that form part of the building fabric or vertical rain screen type arrangements.

18.62. This technology does offer an attractive method of reducing carbon emissions in the form of electricity production a feature that most occupiers of the employment unit buildings may require.

### **Decentralised Energy**

#### **i. Overview**

18.63. This step in the hierarchy relates to this consideration of decentralised energy, such as district heating supplied through energy centre containing centralised boilers or combined heat and power installations.

## **ii. CHP Technology & District Heating**

18.64. Development- size CHP engines tends to be gas- fired and will typically produce heat for domestic hot water and a proportion of electricity supply to the units. CHP systems can supply a single building, small clusters of buildings/ flats or a cluster of many buildings through a heat network. The more units attached to the network, the higher the demand, which would allow a selection from a broader spectrum of CHP technologies. District heating can be applied on a phase by phase network that remain stand alone or connect together in later phases to create a site- wide network. If a district heating system were to be applied at site- wide scale, then this would increase the economies and the efficiencies possible for the overall system.

## **iii. Decentralised Energy and Viability**

18.65. Since the role of decentralised energy in the search for CO2 emissions reduction was first raised, the industry has been gathering knowledge in relation to the financial visibility and delivery implications of such systems.

18.66. Of particular interest has been the financial implications of district heating, given that the UK has little experience or precedent to draw on. It has emerged that the cost of the distribution pipe- work has a significant impact on viability, thus making the concept of heat density an important aspect to consider.

- What constitutes 'business as usual' against what a district system is being compared, i.e. as the policy environment tightens it is no longer possible to compare with conventional energy solutions.
- The ability of the energy sector and finance industry to assist in solving the need for higher upfront capital injection in order to implement district energy schemes.
- The industry uptake of district heating such that monopoly situations don't affect the cost of pipework.
- The ability to streamline groundwork with other trades and how the statutory authorities allow district heating pipe-work to be accommodated in 'adopted standard' roads.
- The emerging design solutions to issues such as distribution losses (which will affect both size and specification of pipe- work components)

- The influence of government incentivisation and cost of compliance burden on viability comparisons and energy strategy selections, particularly with respect to ‘on plot’ micro based or decentralised approaches.
- How local authorities are facilitating decentralised energy solutions on a local scale such that developers can discharge their compliance burden by connection to an existing system.
- How the tightening of Building Regulations policy, specifically the improvements in fabric energy efficiency which will lead to reduced heat demand, will affect the viability.
- The interplay between the existing building stock, which can provide a good customer base for the heat sales, and the proximity of new build developments that can act as the catalyst for such systems to be implemented.

18.67. Overall it can be concluded that, when accompanied by a suitable level of vision, district heating is often a viable option in areas with heat density and as this cannot be established at this stage, then its adoption cannot be committed to.

## Potential Environmental Impacts

### Construction Phase

18.68. The potential environmental effects of the development as a result of the Energy Strategy:

- Increased energy use and carbon emissions as a result of construction activities
- Increased NO<sub>x</sub> levels as a result of construction related activities
- Increased water use as a result of construction activities

### Operational Phase

18.69. The potential environmental effects of the development as a result of the energy strategy:

- Increased CO<sub>2</sub> emissions in to the environment from the development
- Increased NO<sub>x</sub> levels from (burning fossil fuels) such as gas fired boilers into the atmosphere.
- Increased water use for the development

## Methodology for the Environmental Statement

### **Baseline methodology for scheme evolution / design**

18.70. The principle method of how the team has integrated low energy and carbon reduction into Proposed Development is to follow a 'Strategic Route'. This has steered the Team to focus on key aspects of the design at the appropriate juncture in the process.

18.71. The following Section explains how this strategic route has been followed:

i. **Establish Client Requirements, Regulations & Benchmarks:**

It is important from the onset to set out and establish the relevant criteria that is to be adopted and to understand what implications they have on the energy and sustainability strategy.

While these benchmarks, standards regulations etc. are fundamental in achieving statutory and regulatory compliance we believe this has been achieved in a way that does not distract from good sustainable and low energy design and avoid "box ticking" exercises.

18.72. **Site Appraisal**

It has been important to understand the opportunities and limitations of the site and surroundings in the context of the opportunity to implement renewable and low carbon technology.

### **Noise Quality**

The acoustic study undertaken by Cundall has concluded that the site and the buildings are on the whole suitable for natural ventilation solutions from an acoustic perspective. These solutions could be applied to both the office elements of the units and subject to the use also applied to the employment unit (B2/B8) elements.

### **Mean Wind Speeds**

While mean wind speeds of the site are favourable (in excess of 4.5 m/s) for the production yield of energy from wind for the site, there are a number of key points for consideration and further investigation:



- Noise generated by wind turbines will not be conducive to the local residences.
- Flicker effect of wind turbines on the buildings on sunny days - prohibitive.
- Visual impact of wind turbines does not align with current Development Teams planning strategy.
- Proximity of existing Buildings & Wildlife

### **Site Layout**

The site layout has been influenced by a number of factors including existing constraints of the site such as:

- Overhead low voltage cabling
- Existing below ground services

### **Natural Daylight**

At detailed design stage, feasible window positions and roof lights will take due regard of the guidance set out by the BRE document reviewing the skyline and the amount of skylight falling on a vertical wall or window.

The combination of maximising daylight and passive solar design will reduce both the reliance on artificial lighting and reduce the heating demand resulting in both energy and carbon reduction.

The measures adopted in targeting these daylight factors are:-

- Optimum sizing of windows.
- Avoiding internal rooms.
- Minimising deep plan rooms.
- Light coloured internal finishes where appropriate.
- Glazing taken to underside of ceiling finish.
- Maximising floor to ceiling heights.
- Glass specification with good daylight penetration.
- Roof lights to employment units.

#### **18.73. Baseline Carbon Emissions**

Initial baseline carbon emissions have been established using CIBSE Benchmarking TM46 however, to establish a more refined and detailed energy predictions (and carbon emission prediction) a model for a typical employment unit has been produced to predict the energy use and predicted carbon emissions from the scheme.

#### **18.74. Design**

At the design stage a strategic process was followed to promote the implementation of Best Practice Carbon reduction methods and technologies:

This strategic route was as follows:

- a) Reduce demand - Passive Measures
- b) Meet demand efficiently - Energy Efficiency
- c) Low & Renewable Technology

It is considered that following this route has promoted 'Best Value and Practice' in the incorporation of Renewable and Low Carbon Technologies.

## Receptors

- 18.75. The geographical extent of the potential impact from the development are outlined in the following:

| Designation         | Receptors   |
|---------------------|---|
| International       | Not Applicable  |
| National            | Not Applicable  |
| Regional            | Not Applicable  |
| County              | Not Applicable  |
| Borough / District  | Existing Utility Networks   |
| Local/Neighbourhood | Existing residential receptors within the surrounding area, sit habits, ecological features and existing utility networks |

**Table 18.11: Receptors**

## Environmental Impacts

- 18.76. The extent of the CO<sub>2</sub> and NO<sub>x</sub> emissions as a result of the Energy Strategy will have an impact on the current levels

| Magnitude   | Environmental Impact   |
|-------------|--|
| Substantial | Permanent/irreversible change to key characteristics of the strategic utility network (electric and gas) as a result of the energy demand with important consideration at a district scale plus increased CO <sub>2</sub> and NO <sub>x</sub> emissions. |

| Magnitude  | Environmental Impact   |
|------------|--|
| High       | Permanent/irreversible change to key characteristics of the local utility network (gas and electricity) as a result of the energy demand with important consideration at a local level plus increased CO <sub>2</sub> and NO <sub>x</sub> emissions  |
| Moderate   | Permanent/irreversible change to the local utility network (electricity and gas) that may result in temporary disruptions locally as a result of the energy demand plus increased CO <sub>2</sub> and NO <sub>x</sub> emissions  |
| Minor      | Temporary change over a limited area to key characteristics of the utility network (electricity and gas). Impacts likely to occur (e.g. increase in loading due to the Proposed Development prior to completion of any necessary offsite infrastructure improvements) plus increased CO <sub>2</sub> and NO <sub>x</sub> emissions |
| Negligible | Minor temporary change over a limited area to key characteristics network (electricity and gas). Impacts unlikely or rarely to occur and minimal increases to CO <sub>2</sub> and NO <sub>x</sub> levels   |
| Neutral    | No impact on existing utility servicing CO <sub>2</sub> and NO <sub>x</sub>  |

**Table 18.12: Environmental Impacts**

## Impact Prediction Confidence

- 18.77. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

| Confidence Level | Description   |
|------------------|---|
| High             | The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.  |
| Low              | The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels. |

**Table 18.13: Confidence Levels**

## Significance of Effects

- 18.78. The significance of effect is determined using the significance matrix in Section 3 of this Scoping Report. This identifies the receptor level across the top of the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect.

### Construction Phase

- 18.79. A summary of the impacts from construction stage are presented in the table below. The impacts and the significance of these impacts are summarised below using the methodology set out in this Paper:

| Nature of Impact                      | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|---------------------------------------|----------|----------------------|------------------------|------------------|
| Increase in CO <sub>2</sub> emissions | Local    | Minor Negative       | Minor Adverse          | High             |
| Increase in NO <sub>x</sub> emissions | Local    | Minor Negative       | Minor Adverse          | High             |
| Increase in water consumption         | Local    | Minor Negative       | Minor Adverse          | High             |

**Table 18.14: Significance of Effect - Construction Phase**

- 18.80. The potential impacts at construction phase are not significant in the wider context of the Environment in terms of Energy and Water use.

### Operational Phase

- 18.81. A summary of the impacts from operational stage are presented in the table below. The impacts and the significance of these impacts are summarised below using the methodology set out in this Paper:

| Nature of Impact                      | Receptor | Environmental Impact | Significance of Effect | Confidence Level |
|---------------------------------------|----------|----------------------|------------------------|------------------|
| Increase in CO <sub>2</sub> emissions | Local    | Minor Negative       | Minor Adverse          | High             |
| Increase in NO <sub>x</sub> emissions | Local    | Minor Negative       | Minor Adverse          | High             |
| Increase in water consumption         | Local    | Minor Negative       | Minor Adverse          | High             |

**Table 18.15: Significance of Effect - Operation Phase**

- 18.82. In conclusion, the development will increase the CO<sub>2</sub> and NO<sub>x</sub> levels in the local area including the water consumption dependent on the ultimate employment usage.

### Mitigation

- 18.83. This section identifies the mitigation measures proposed to manage and/or address the adverse effects of the proposed development at construction and operational stage in relation to the energy strategy.

- Construction Phase**
- 18.84. During the construction stage of the project number of mitigation measures will be adopted to reduce and manage the environmental impact of the construction activities:

**Energy Consumption**

- Monitor and record data on principal contractor and subcontractor's energy consumption in kWh (and where relevant, liters of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation.

**Water Consumption**

- Monitor and record data on principal constructor's and subcontractors' potable water consumption (m<sup>3</sup>) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation.
- Using the collated data report the total net water consumption (m<sup>3</sup>), I.e. consumption minus any recycled water use
- The adoption of metering and monitoring technologies of energy use and subsequent carbon emissions against benchmarks will promote mitigation. This could be achieved by the contractor adopting systems such as a low water volume appliances or water recycling systems

Combination of measures will mitigate the energy use and subsequent carbon emissions to meet the Local Plan Core Strategy

- Operational Phase**
- 18.85. During the operational phase the development will benefit from the low carbon approach incorporated into the design as set out within this paper and baseline information. The low carbon design features will mitigate the Energy consumption with the following strategy adopted:

- 18.86. A combination of measures will mitigate the energy use and subsequent carbon emissions to meet the Local Plan Core Strategy and improve on the Part L2A of the Building Regulations.

## **Additive Impacts (Cumulative Impact and their Effects)**

- 18.87. For the purposes of this ES we define the cumulative effects as:

***'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.'***

18.88. All the projects to be considered as part of the cumulative impact assessment are described in this Scoping Report. The projects to be considered in respect of the [insert technical topic area e.g. Traffic and Transportation] cumulative assessment are listed in the table below:

| No. | Cumulative Development  | Details                        | Status  | Justification for Inclusion in Cumulative Assessment                     |
|-----|---|--------------------------------|---|--|
| 1   | Liberty Properties development on Land off Barleycastle Lane, Appleton, Warrington. | 50,000m2 logistics development | Pre-application discussions with WMBC. Scoping request (LPA ref:2017/30243) Application to be submitted November 2017 | Energy usage and CO <sub>2</sub> emissions in the area will be affected. |

**Table 18.16: Cumulative Projects**

## Further Work Required

- 18.89. Further works are required include;
- 18.90. Develop outline Energy model in line with the design developments of the Proposed Development.
- 18.91. Review Energy Strategy when utilities Points of Connections are received.

## Summary

- 18.92. During the assessment of the Energy Strategy the key focus was to follow a strategic approach to reducing energy and consider how the impacts of energy use will have on Carbon Emissions and NO<sub>x</sub> production at both construction and operational phases. Furthermore the use of water at both construction and operational stage has been assessed with mitigation measures adopted and built into the design for future feasibility.
- 18.93. It has been determined that the Energy Strategy for the Proposed Development will promote Low Carbon Design and flexibility in the development of the site. This flexibility will be fundamental in attracting future tenants/end users who will seek to occupy a building with low operating energy use and costs.
- 18.94. The key aspects have been to follow a strategic design route to promote

- Passive design and reduce the United Utilities demand on the buildings development
- Energy Efficiency measures to use energy in a more efficient way.
- Design features adopted for the future installations of - Renewable & Low carbon technology

18.95. Final definitive Renewable and low carbon technologies are not be adopted at the stage until the specific requirements of the tenant/end users are known, however the design of the development will promote the potential incorporation of these solutions.

18.96. At the construction stage the impact on the environment will be mitigated by monitoring and measuring CO<sub>2</sub> and NO<sub>x</sub> levels promote energy and water use for construction activities.

18.97. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Energy

**Scoped In**

| Environmental Issue   | Reason for “scoping in”   |
|---|---|
| <p><b>Technical Paper 18 - Energy</b><br/>Baseline energy model of speculative units.</p> | To establish baseline Energy use and Carbon emissions.  |
| Energy and CO <sub>2</sub> emissions.   | Due to increased energy and subsequent CO <sub>2</sub> required for the proposed development. |
| Reduce demand to Proposed Development   | To mitigate the energy and CO <sub>2</sub> produced. Refer to table 18.9 within this paper.   |
| Energy efficient systems  | To mitigate the energy and CO <sub>2</sub> produced. Refer to table 18.9 within this paper.   |
| Renewable and Low Carbon Technologies   | To mitigate the energy and CO <sub>2</sub> produced. Refer to table 18.10 within this paper.  |

## Scoped Out

| Environmental Issue   | Reason for “scoping out”  |
|---|---|
| <p><b>Technical Paper 18 - Energy</b></p> <p>Future tenant specific Energy modelling.</p><br><p>Renewable Technologies deemed not appropriate</p> | <p>Detailed operation unknown at this stage.</p><br><p>Some Renewable Technologies are deemed not appropriate for the Proposed Development and are therefore not to be considered during future design works. Refer to table 18.10 within this paper.</p> |



## 19. Conclusion

- 19.1. The redevelopment of this Site provides an opportunity to deliver a strategic employment site with 325,150m<sup>2</sup> (3.5 million ft<sup>2</sup>) B8 and B2 uses (with ancillary B1(a) Office) with associated road infrastructure, landscape, drainage areas in a sustainable location, adjacent to the strategic highway network.
- 19.2. Whilst the Proposed Development is considered to be appropriate for the Site, it is accepted that the Proposed Development will have an impact on the environment both in the context of the Site and the wider areas. These impacts can be both positive and negative. The aim of the Scoping Report is to set out the baseline information where possible and provide an initial assessment of environmental impacts in order to be able to identify those impacts that are likely to be of significance and therefore need further consideration through Environmental Assessment, as well as those that are not likely to be significant and can be scoped out of the Environmental Assessment. The Scoping Report also sets out the methodology by which the significance of these impacts will be assessed.
- 19.3. The Scoping exercise shows that the primary focus for the environmental assessment is:-
- traffic generation and its associated impact in respect of noise and air quality;
  - the impact on heritage assets, given the Site's location adjacent to a Scheduled Ancient Monument moated site and listed buildings within the study area;
  - landscape and visual impact, given the nature and location of the Site and the development proposed;
  - the impacts of the development on ecological habitats and species, given those present on the existing Site and the Site's location adjacent to a brook and woodland;
  - drainage and flood risk;
  - ground; as well as
  - utilities, waste, energy and socio economic.

19.4. It is however considered that some impacts and their effects are not significant and as such can be scoped out of the Environmental Assessment. The justification for this is set out in each of the Technical Chapters (Chapters 7-18) and summarised in the tables below:

### Scope In

19.5. The areas to be included and therefore ‘scoped in’ to the ES are summarised in the table below. These matters will be the subject of further assessment:

| Environmental Issue   | Reason for “scoping in”  |
|---|--|
| <p><b>Ground</b><br/> <i>Construction:</i><br/>           Temporary flood risk<br/>           Pollution to receptors<br/>           Unstable ground</p>   | <p>Construction work will present new risks to the greenfield site.</p>  |
| <p><b>Traffic and Transportation</b><br/> <i>Construction:</i><br/>           Driver Delay<br/>           Pedestrian Amenity and Delay<br/>           Road Safety<br/>           Public Transport<br/>           Severance</p> <p><i>Operation:</i><br/>           Driver Delay<br/>           Pedestrian Amenity and Delay<br/>           Road Safety<br/>           Public Transport<br/>           Severance</p>                                   | <p>The development is likely to result in additional traffic on the highway network during the construction and operational phase. This may impact on all of the environmental issues listed.</p>  |
| <p><b>Flood Risk &amp; Drainage</b><br/> <i>Construction:</i><br/>           Temporary flood risk and pollution to watercourse due to incomplete systems/spills.</p> <p><i>Operation:</i><br/>           Flood risk, pollution to watercourse and impact to aquifer.</p>  | <p>The sites previous greenfield classification and the potential for increased flows, collection, concentration and conveyance of storm water during construction and operational uses. The increased pathways for contamination and the location of the underlying Aquifer as well as the potential impact on adjacent uses, construction workers and future site users.</p> |
| <p><b>Landscape and Visual Impact</b><br/> <i>Construction and Operation:</i><br/>           Visual receptors on roads, PRow's, in local open space, educational locations and dwellings identified within the 5km study area.<br/>           Landscape receptors identified within the 5km study area, especially where there is a distinct change in character or type to the current landscape;<br/>           Security and compound lighting.</p> | <p>The significance of the effect will potentially be greater than Slight.</p>   |
| <p><b>Ecology and Nature Conservation</b><br/> <i>Construction:</i><br/>           Impacts to habitats e.g. loss or damage</p>  |  |

| Environmental Issue  | Reason for “scoping in”  |
|--|--|
| <p>Impacts to protected and priority species e.g. loss of habitat that supports them or disturbance<br/>Spread of invasive non-native species (INNS)<br/>Impacts to badgers</p> <p><i>Operation:</i><br/>Impacts to protected sites e.g. recreational disturbance/degradation<br/>Impacts to habitats e.g. degradation<br/>Impacts to protected and priority species e.g. disturbance<br/>Impacts to badgers</p>   | <p>Impacts to habitats and species of ecological importance must be considered under local and national planning policy and legislation.<br/>Spread of INNS is prohibited under in the WCA 1981.<br/>Badgers are afforded legal protection from disturbance, killing and injury under the PBA 1992.<br/>Impacts to protected sites, habitats and species of ecological importance must be considered under local and national planning policy and legislation.</p>   |
| <p><b>Socio Economic</b></p> <p><i>Construction:</i></p> <ul style="list-style-type: none"> <li>• Temporary increase in employment</li> <li>• Short-term increase in economic output (GVA)</li> <li>• Training and apprenticeship opportunities</li> <li>• Effects on local services and facilities</li> <li>• Wider socio-economic impacts</li> </ul> <p><i>Operation:</i></p> <ul style="list-style-type: none"> <li>• Creation of long-term employment opportunities</li> <li>• Long-term increases in economic output (GVA)</li> <li>• Increase in business rate revenue</li> <li>• Training and apprenticeship opportunities</li> <li>• Effect on local labour market</li> <li>• Commuting and migration impact</li> <li>• Effect on local services and facilities</li> <li>• Wider socio-economic impacts</li> </ul>       | <p>The provision of new B8 and B2 floorspace through the Proposed Development will support the creation of a significant number of new employment opportunities, both during the Construction Phase and Operational Phase. This is expected to lead to further impacts relating to training and apprenticeship opportunities, demand for local services and wider socio-economic impacts, along with potential effects on the local labour market and commuting patterns during the Operational Phase.</p> |
| <p><b>Noise and Vibration</b></p> <p><i>Construction Phase:</i><br/>Noise impacts associated with construction related fixed and mobile plant<br/>Noise impacts associated with increase in traffic on approach to Application Site due to construction related vehicles<br/>Vibration impacts associated with construction related fixed plant and mobile plant (e.g. piling)</p> <p><i>Operation Phase:</i><br/>Noise impacts associated with resultant increases in traffic on the local highway network surrounding the Application Site following completion of the Proposed Development</p> <p>Noise impact associated with the “industrial” noise emissions from the Proposed Development e.g. movement of industrial vehicles, operation of service yards and loading bays and operation of building services plant.</p> | <p>There is the potential for significant impacts at nearby sensitive receptors</p>  |

| Environmental Issue  | Reason for “scoping in”  |
|--|--|
| <p><b>Air Quality, Odour and Dust</b></p> <p><i>Construction:</i><br/>Dust<br/>Changes in NO<sub>2</sub> , PM<sub>10</sub> and PM<sub>2.5</sub> due to construction traffic if HGV numbers exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i><br/>Changes in NO<sub>2</sub> , PM<sub>10</sub> and PM<sub>2.5</sub> due to changes in operational traffic</p> | <p>During construction there is the potential for fugitive dust and exhaust emissions from the Assessment Site.</p> <p>The operation of the Proposed Development has the potential to change the number, type and speed of vehicles using the local road network. The main pollutants from road traffic with potential for local air quality impacts are nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM<sub>10</sub>). Emissions of total NO<sub>x</sub> from combustion sources comprise nitric oxide (NO) and NO<sub>2</sub>. The NO oxidises in the atmosphere to form NO<sub>2</sub>. The assessment of operational impacts will therefore focus on changes in NO<sub>2</sub> and PM<sub>10</sub> concentrations. The impact from fine particulate matter, known as PM<sub>2.5</sub> (a subset of PM<sub>10</sub>) concentrations will also be considered. Increases in NO<sub>2</sub> and PM can lead to an increase in cardiovascular diseases.</p> |
| <p><b>Cultural Heritage and Archaeology:</b></p>   |  |
| Bradley Hall Moated Site ( <b>DCH159</b> )   | The Proposed Development will negatively impact the setting of the scheduled monument.   |
| Grade II* Listed Tanyard farm building ( <b>DCH13677</b> )   | Development will diminish the agricultural setting of the farm building.   |
| Grade II Listed Barley Castle Farmhouse ( <b>DCH1935</b> )   | Development will affect the agricultural setting to the asset.   |
| Effect on demolition of Locally listed Bradley Hall and Barn ( <b>DCH127563</b> )  | Demolition will result in the loss of a locally listed asset   |
| Roman road ( <b>547/1/7</b> ) within the site  | Groundworks and construction activities will impact any surviving sections of Roman road.  |
| Roman road ( <b>547/1/7</b> )  | Groundworks and construction activities will impact any features associated with the Roman road.   |
| Medieval Cross ( <b>551</b> )  | Groundworks and construction activities will impact the site of the medieval cross.  |
| <p><b>Utilities</b></p> <p><i>Construction:</i><br/>Disconnections / Diversions of existing utility infrastructure crossing the site.<br/>New EHV Primary sub-station.<br/>Temporary proposed utilities to site.</p> <p><i>Operation:</i></p>  | <p>Existing services are required to be disconnected and relocated to facilitate the Proposed Development.</p> <p>A new EHV Primary sub-station is required to provide the Electrical power to the Proposed Development from Scottish Power’s network.</p> <p>Temporary utilities are required for construction activities and offer a more energy efficient and acoustic solution.</p>  |

| Environmental Issue  | Reason for “scoping in”  |
|--|--|
| Disruption to existing connections to residential properties adjacent Bradley Hall Farm.   | Disruptions are likely which are associated with the diversion and disconnection works.  |
| <p><b>Waste</b></p> <p><i>Construction:</i><br/>The types and likely quantities of waste generated during the construction of the Proposed Development.<br/>The treatability of waste generated by the Proposed Development<br/>The measures to manage wastes.</p> <p><i>Operation:</i><br/>The types and likely quantities of waste generated during the operation of the Proposed Development.<br/>The treatability of waste generated by the Proposed Development<br/>The measures to manage waste.</p> | <p>The additional waste generated by the Proposed Development may exceed the capacity of existing and proposed waste management infrastructure.<br/>The types of waste generated may have to be transported outside the borough or county to be managed.<br/>National and local policies set requirements for how to manage types of waste.</p>  |
| <p><b>Energy</b></p> <p>Baseline energy model of speculative units.</p> <p>Energy and CO<sub>2</sub> emissions.</p> <p>Reduce demand to Proposed Development</p> <p>Energy efficient systems</p> <p>Renewable and Low Carbon Technologies</p>  | <p>To establish baseline Energy use and Carbon emissions.</p> <p>Due to increased energy and subsequent CO<sub>2</sub> required for the proposed development.</p> <p>To mitigate the energy and CO<sub>2</sub> produced. Refer to table 18.9 within this paper.</p> <p>To mitigate the energy and CO<sub>2</sub> produced. Refer to table 18.9 within this paper.</p> <p>To mitigate the energy and CO<sub>2</sub> produced. Refer to table 18.10 within this paper.</p> |
| <b>Cumulative Assessment</b>   | Section 6 of this Report identifies the projects to be scoped in for the Cumulative Assessment.  |

**Table 19.1: Environmental Issues Scoped into ES**

## Scope Out

- 19.6. The issues that are not considered relevant to the Proposed Development or that are not considered to result in significant environmental effects as a result of the Proposed Development are to be ‘scoped out’ of any further assessment. These are summarised in the table below:

| Environmental Issue   | Reason for “scoping out”  |
|---|---|
| <p><b>Ground Conditions and Contamination</b></p> <p>Ground Gas</p>   | <p>Ground gas is not considered to represent a significant risk due to the absence of a significant source. The proposed cutting and filling exercise is unlikely to make a significant difference to the site contaminative status and is therefore not considered further.</p>  |
| <p><b>Flood Risk &amp; Drainage</b></p> <p><i>Construction:</i></p> <p>Hydromorphological changes</p> <p><i>Operation:</i></p> <p>Hydromorphological changes</p>  | <p>The Development does not change the physical form or functioning of a waterbody. The brook system to the southern boundary will be retained in its current form with no more than greenfield runoff being discharged. The Development will have no effect on the flow dynamics of the river.</p>   |
| <p><b>Flood Risk &amp; Drainage</b></p> <p><i>Construction:</i></p> <p>Moat around Bradley Hall - Hydrology</p> <p><i>Operation:</i></p> <p>Moat around Bradley Hall - Hydrology</p>  | <p><i>There will be no implications from the development on the hydrology of the moat. The moat is not a permanent water feature and the conveyance of storm water to the moat from surrounding areas (other than internally) is very limited and the development will have no impact on the operation/quality of the moat or its waters. There is no physical connectivity to the moat from the surrounding site.</i></p>  |
| <p><b>Landscape and Visual Impact Assessment</b></p> <p>Visual receptors beyond the 5km study area.</p> <p>Visual receptors in airplanes passing overhead on flight path into or out of Manchester airport</p> <p>Visual receptors travelling along the M6 &amp; M56 Motorways</p> <p>Visual receptors at Barleycastle Industrial Estate.</p> | <p>Receptors over 5km will not be affected by the proposed development.</p> <p>Airplanes passing over will not be affected by the proposed development as the site will be seen in the context of the nearby motorways and the Barleycastle Trading Estate.</p> <p>Views towards the site are well screened and the impact upon views travelling at speed (70mph) by both passengers and drivers will be negligible.</p> <p>The sensitivity of views towards the site from the Barleycastle Trading Estate will be low, given the context of the existing light industrial units.</p> |

| Environmental Issue  | Reason for “scoping out”   |
|--|--|
| <p><b>Ecology and Nature Conservation</b></p> <p><i>Construction:</i><br/>Arable, improved grassland and tall ruderal habitats</p>   | <p>Habitats are of low value and do not need to be considered further. However, the protected species that they may host will be considered further in the fauna section of the ES chapter.</p>  |
| <p><b>Socio Economic</b></p> <p><i>Construction:</i><br/>Effect on local labour market<br/>Commuting and migration impact</p>  | <p>Commuting and migration impacts and the effect on the local labour market will be considered in relation to the Operational Phase. However, these impacts have not been considered as part of the Construction Phase, given the temporary and transient nature of construction related employment.</p>  |
| <p><b>Noise and Vibration</b></p> <p><i>Operation Phase:</i><br/><i>Operational vibration impacts</i></p>  | <p>Based on the nature of operations associated with B8 storage or distribution units, as well as the distances involved between B8 units and sensitive receptors, it is not considered that any element of the typical operational activities undertaken at B8 units will result in any significant vibration impacts.</p> <p>It is therefore considered that the only potential source of vibration associated with the operational phase of the scheme is additional HGV movements on existing road networks. However, due to existing quantities of HGV movements on the local road network, vibration values attributable to additional HGVs travelling to / from the Application Site would not be considered significant.</p> <p>On this basis, the assessment of potential Operational vibration impacts can be scoped out of the ES assessment.</p> |
| <p><b>Air Quality, Odour and Dust</b></p> <p><i>Construction:</i><br/>Changes in NO<sub>2</sub> , PM<sub>10</sub> and PM<sub>2.5</sub> due to construction traffic if HDV numbers do not exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i><br/>Odour<br/>Dust</p> | <p>Unlikely to have a significant impact if below the threshold.</p> <p>There are no proposed sources of odour or dust during the operational phase.</p>   |

| Environmental Issue  | Reason for “scoping out”   |
|--|--|
| <p><b>Cultural Heritage and Archaeology</b></p> <p>DCH1638 Yew Tree Farmhouse Grade II Listed Building I 139340</p> <p>DCH1659 Beehive Farmhouse Grade II Listed Building I 139361</p> <p>DCH1660 Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I 139362</p> <p>DCH1934 Booths Farm Farmhouse Grade II Listed Building I 329740</p> <p>DCH12753 Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building</p> <p>DCH12869 Milepost at Gallows Croft, Knutsford Road, Lymm</p> <p>DCH12879 Old Chapel, Old Cherry Lane, Lymm Locally Listed Building</p> <p>DCH13677 Tan House Farm, Barleycastle Lane, Appleton</p> | <p>No impact on the setting of these assets</p>  |
| <p><b>Utilities</b></p> <p><i>Construction:</i></p> <p>Disconnections of services to the existing Telecommunication mast.</p> <p><i>Operation:</i></p> <p>Relocation of the existing Telecommunication mast.</p>   | <p>Telecommunications mast is to remain operational and services diverted.</p> <p>The Telecommunications mast is to remain in its current location and is not affected by the Proposed Masterplan.</p>   |
| <p><b>Waste</b></p> <p><i>Operation:</i></p> <p>Local Authority Collected Waste, Agricultural Waste, Low Level (Non -Nuclear) Radioactive Waste, and Waste Water/Sewage Sludge</p>   | <p>These types of waste will not be generated by the Proposed Development</p>  |
| <p><b>Energy</b></p> <p>Future tenant specific Energy modelling.</p> <p>Renewable Technologies deemed not appropriate</p>  | <p>Detailed operation unknown at this stage.</p> <p>Some Renewable Technologies are deemed not appropriate for the Proposed Development and are therefore not to be considered during future design works. Refer to table 18.10 within this paper.</p> |



| Environmental Issue   | Reason for “scoping out”  |
|-----------------------|---|
| Cumulative Assessment | Section 6 of this Report identifies the projects to be scoped out of the Cumulative Assessment. |

**Table 19.1: Environmental Issues Scoped Out of ES**

19.7. Although technical areas are described in this report under separate headings, the final ES will pay close attention to the inter-relationship of the various factors in order to assemble a holistic picture of the likely impacts and mitigation measures. It should be noted that the EIA is an interactive process, enabling matters not recognised at the preliminary stage to be addressed in the final ES. Further assessment is on-going regarding the technical areas scoped into the Environmental Assessment, and where significant environmental impacts are identified, appropriate mitigation will be proposed to address the significance of impact accordingly.

19.8. The structure of the final ES will therefore be as follows:

**Part 1 Report:**

- Introduction
- Project Description
- The Need for Development
- Alternative Development Options
- Plans and Policies
- Environmental Assessment Methodology and Approach
- Summary of Environmental Impacts
- Key Mitigation Measures
- Interaction of Effects and Cumulative Impact
- Conclusions
- Reference List
- Appendices

**Part 2 – Technical Papers (each with their own technical appendices):**

- Geology and Ground Conditions
- Traffic and Transportation

- Flood Risk and Drainage
- Landscape and Visual Impact
- Ecology and Nature Conservation
- Socio Economic
- Noise and Vibration
- Air Quality and Dust
- Cultural Heritage and Archaeology
- Utilities
- Energy
- Waste

Each Technical Paper will include the following subsections:

- Introduction
- Documents Consulted
- Consultations
- Methodology and Approach
- Baseline Information
- Alternatives Considered
- Potential Environmental Impacts
- Proposed Mitigation
- Potential Residual Effects
- Additive Impacts (Cumulative Impacts and their Effects)
- Conclusion
- Reference List
- Appendices

#### **Non-Technical Summary**

- Separately bound report

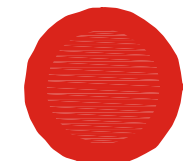
19.9. The consideration and ranking of the issues in the Scoping Report is preliminary. The scoping process will be on-going with the Council, key consultees and the public up until the finalization of the final ES. The Council and consultees are therefore invited to comment on the intended scope of the ES and highlight any potential matters or alternative emphasis.

# ES Scoping Appendices

## **ES Scoping Appendix I – Location Plans**



Rev: Date: By: Description:

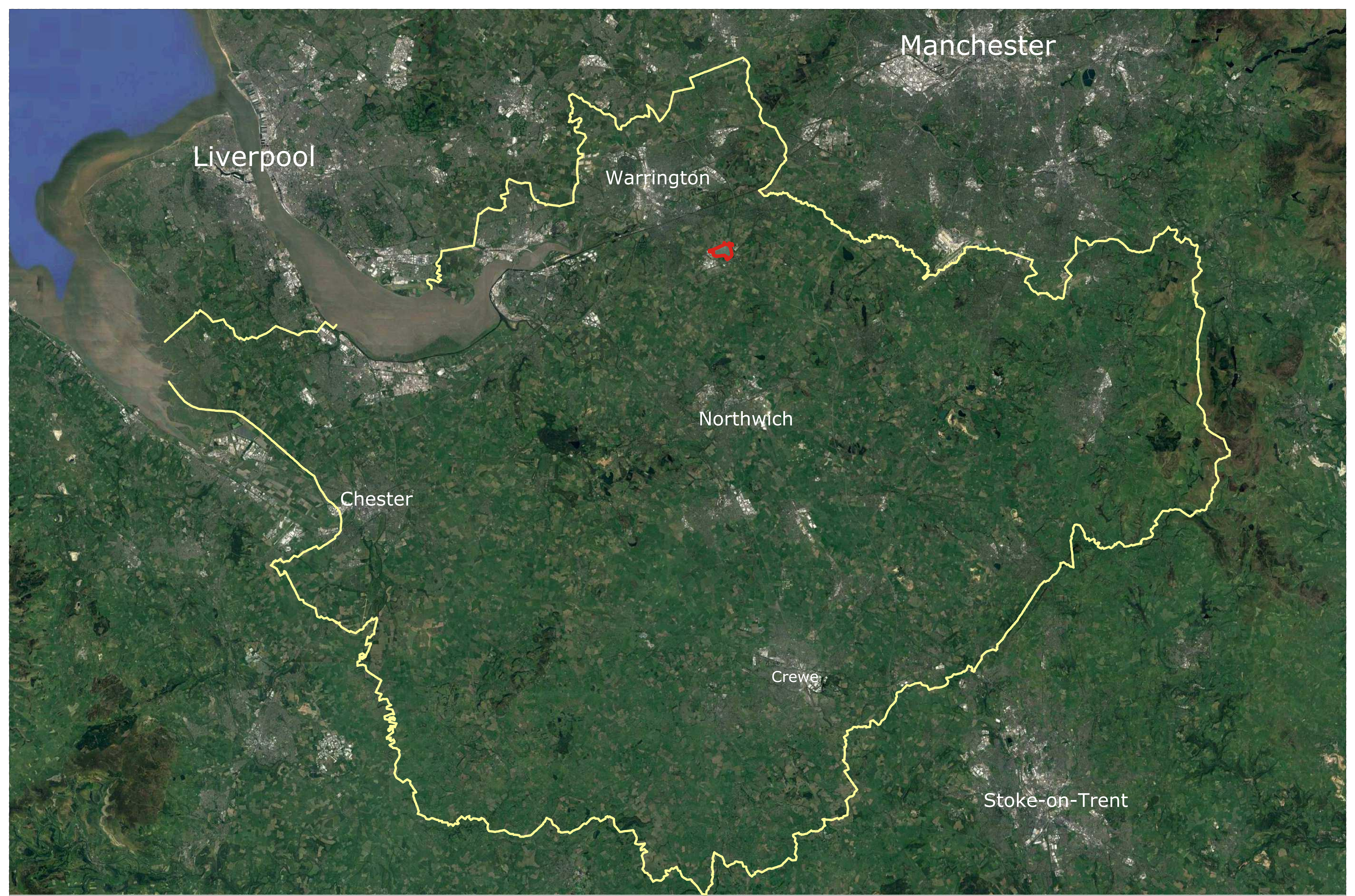


The Site



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Cliff Lane, Warrington  
National Plan  
Drawn: JB  
Date: 07/05/2016  
Project No: 16-184  
Dwg No: K007  
Rev: -



Liverpool

Manchester

Warrington

Northwich

Chester

Crewe

Stoke-on-Trent

Rev: 04/16

— Planning Boundary — Cheshire County

Langtree

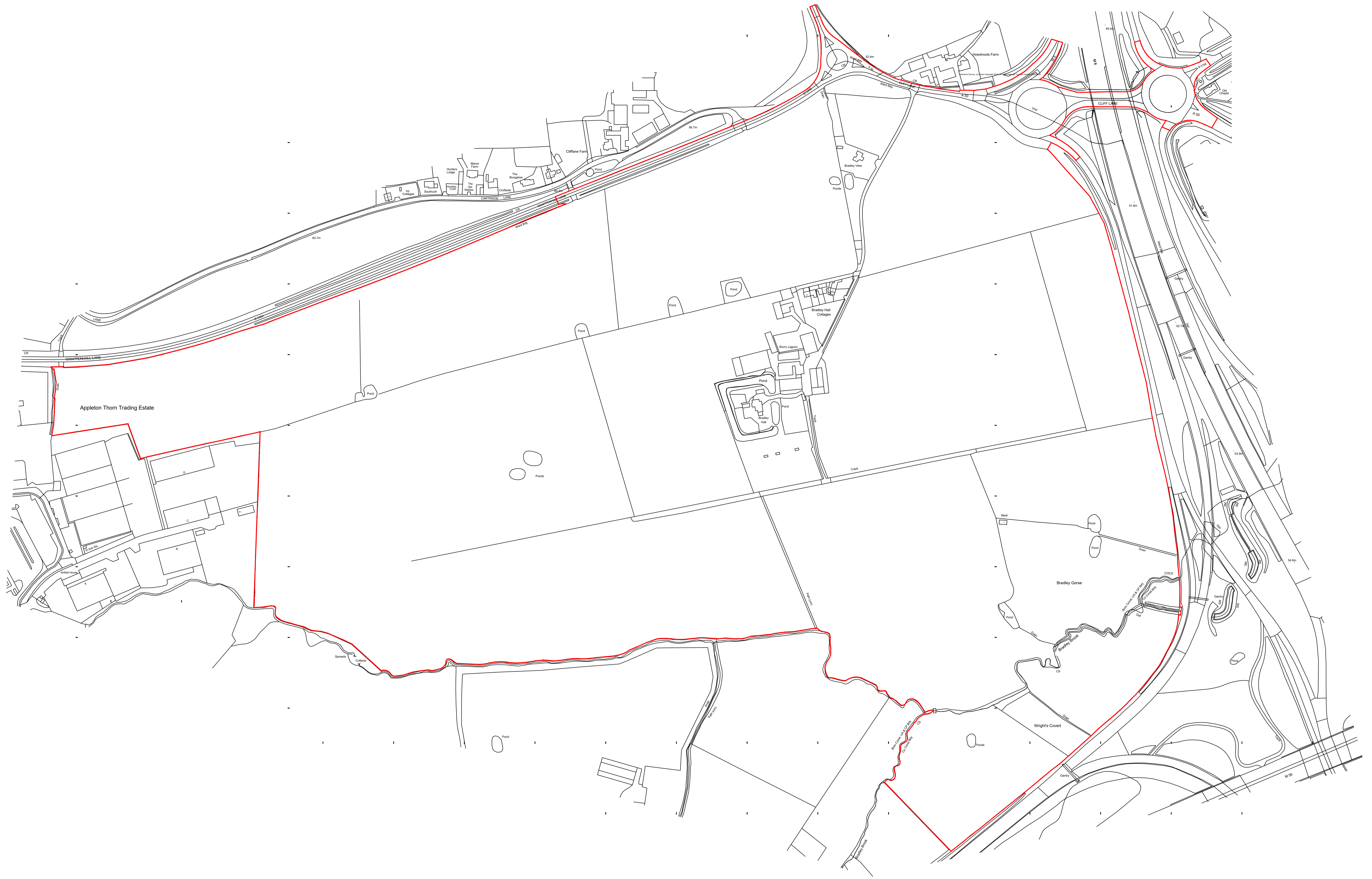
PGIM

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Cliff Lane, Warrington Regional Plan  
Drawing No: 16-184  
Dwg No: K006  
Rev: -

## **ES Scoping Appendix 2 – Redline Application Boundary Plan**



Rev. Date By Description

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**Stephen George  
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Architects + Masterplanners



Cliff Lane, Warrington  
Red Line Boundary Plan  
CDE Reference

|                    |                            |
|--------------------|----------------------------|
| Drawn: JB          | Planning                   |
| Team: MMS          | CAD Reference: 16-184-P002 |
| Scale: 1:1000 @ A1 | Date: 23/11/2017           |
| Project No: 16-184 | Dwg No: P002               |
|                    | Rev: -                     |



## **ES Scoping Appendix 3 – Parameter Plan (for Scoping)**

**OVERALL SUMMARY:**

**Redline Area:**  
96.86 Ha / 239.35 Ac

**Total Developable Area:**  
61.82 Ha / 152.63 Ac

**Proposed Use:**  
Flexible B2/B8 with ancillary B1(a)

**Maximum Total Floorspace:**  
325,160m<sup>2</sup> (3,500,000 ft<sup>2</sup>) GIA

Existing PRoW subject to diversion or extinguishment

Potential Retention of Existing Residential Properties

Possible Highway Improvement Works

Junction 20

Scheduled Ancient Monument

Bradley Gorse

Wrights Covert

Ecological Mitigation Area

**Employment Zone A Parameters:**

**Developable Area:**  
32.48 Ha / 80.26 Ac

**Proposed Use:**  
Flexible B2/B8 with ancillary B1(a)

**Number of Units:**  
Ranging from 1 to 6 Units

**Proposed Unit Height:**  
Haunch height ranging from 12m to 40 m (from 79.00 AOD to 101.00 AOD)  
Maximum ridge height - 43.5m above FFL

**Proposed Unit Floor Level:**  
Ranging from FFL 59.00 AOD to 67.00 AOD

**Car Parking Provision:**  
Compliant with Council's parking standards for B2 use - 1/60m<sup>2</sup> and B8 use - 1/120m<sup>2</sup>

**SuDS Provision:**  
Each Unit will have its own surface water drainage strategy as well as attenuation of public realm

**Landscaping:**  
Appropriate landscaping will be included as part of the development proposals

**Employment Zone B Parameters:**

**Developable Area:**  
26.74 Ha / 66.08 Ac

**Proposed Use:**  
Flexible B2/B8 with ancillary B1(a)

**Number of Units:**  
Ranging from 1 to 4 Units

**Proposed Unit Height:**  
Haunch height ranging from 12m to 40m (from 72.00 AOD to 96.00 AOD)  
Maximum ridge height - 43.5m above FFL

**Proposed Unit Floor Level:**  
Ranging from FFL 55.00 AOD to 60.00 AOD

**Car Parking Provision:**  
Compliant with Council's parking standards for B2 use - 1/60m<sup>2</sup> and B8 use - 1/120m<sup>2</sup>

**SuDS Provision:**  
Each Unit will have its own surface water drainage strategy as well as attenuation of public realm

**Landscaping:**  
Appropriate landscaping will be included as part of the development proposals

M6

M56

|  |  |   |  |  |  |   |                              |                                      |  |   |   |
|--|--|---|--|--|--|---|------------------------------|--------------------------------------|--|---|---|
| <p>Rev. Date</p> <p>By Description</p> | <p> Planning Boundary</p> <p> Employment Development Zones</p> <p> Strategic Landscaping</p> | <p> Existing PRoW</p> <p> Proposed PRoW</p> | <p> Existing Watercourse</p> <p> Proposed Cycle Link</p> | <p> Area for Proposed Main Access Road</p> <p> South-North Open Green Corridor</p> | <p> Watercourse 15m Stand Off from the top of the bank</p> <p> SAM 50m Stand Off from the outer bank of the moat</p> | <p> Proposed Emergency Access</p> <p> Existing Ancient Roman Road</p> | <p> Proposed Main Access</p> | <p> FIRST PANATTONI</p> <p> PGIM</p> | <p><b>Stephen George + Partners LLP</b><br/>Architects + Masterplanners</p> <p> Langtree</p> | <p>Cliff Lane, Warrington<br/>Parameters Plan (for Scoping Stage)<br/>CDE Reference</p> <p>Drawn: JB<br/>Team: HMS<br/>Scale: 1:2500 @ A1</p> <p>Project No: 16-184</p> | <p>Draft Status: Draft<br/>CAD Reference: 16-184-001<br/>Date: 13/11/2017</p> <p>Dwg No: P001</p> <p>Rev: B</p> |
|--|--|---|--|--|--|---|------------------------------|--------------------------------------|--|---|---|

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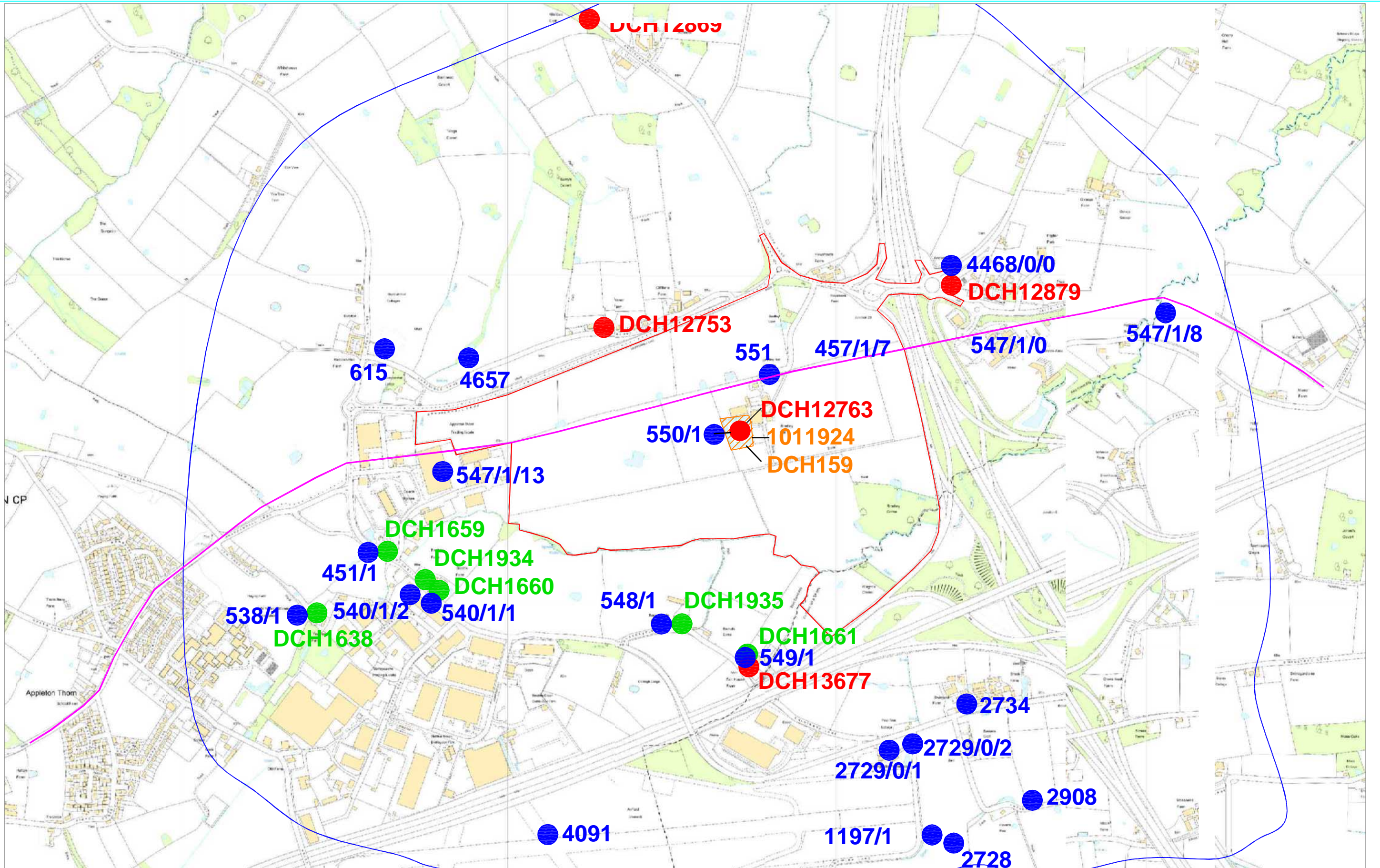
## **ES Scoping Appendix 4 – Key Receptor Plans**

## Air Quality - Receptor Plan



| Receptor ID | Receptor Name     | x      | Y      |
|-------------|-------------------|--------|--------|
| 1           | Intack Farm       | 367001 | 383414 |
| 2           | Massey Avenue     | 366476 | 386920 |
| 3           | Masseybrook Farm  | 366297 | 386553 |
| 4           | Howshoots Farm    | 365973 | 384981 |
| 5           | Cartridge Lane    | 365525 | 384892 |
| 6           | Stockport Road 1  | 365559 | 387158 |
| 7           | Stockport Road 2  | 365913 | 387481 |
| 8           | Cliff Lane        | 366919 | 384923 |
| 9           | Primrose Hill     | 367908 | 384455 |
| 10          | Tan House Farm    | 365738 | 383800 |
| 11          | Crows Nest Farm   | 366888 | 383825 |
| 12          | Mill Farm         | 367706 | 382537 |
| 13          | Grappenhall Lodge | 364669 | 384641 |

| <b>Receptor ID</b> | <b>Receptor Name</b>            | <b>x</b> | <b>Y</b> |
|--------------------|---------------------------------|----------|----------|
| 14                 | Crofton Close                   | 363994   | 384082   |
| 15                 | Hatchery Close                  | 363643   | 383622   |
| 16                 | St Matthews CofE Primary School | 362159   | 382770   |
| 17                 | Knutsford Road                  | 365028   | 385960   |
| 18                 | Cliff Lane                      | 364649   | 386272   |
| 19                 | Gilwell Close                   | 364376   | 386650   |
| 20                 | Westminster Close               | 364374   | 386957   |
| 21                 | Summit Close                    | 362189   | 382078   |
| 22                 | Bradley View                    | 365862   | 384877   |
| 23                 | Bradley Hall Cottages           | 365824   | 384695   |
| 24                 | Bradley Hall                    | 365775   | 384551   |



**NOTES**

1. DO NOT SCALE THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED/VERIFIED ON SITE. IF IN DOUBT ASK.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
3. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.
4. ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

**KEY**

|  |                           |  |                          |
|--|---------------------------|--|--------------------------|
|  | Study area                |  | Archaeological Monuments |
|  | Proposed development site |  | Scheduled Monuments      |
|  | Roman Roads               |  | Locally listed buildings |
|  | Listed building           |  |                          |

**ISSUES & REVISIONS**

| Rev | Date     | Details of issue / revision | Drw | Rev |
|-----|----------|-----------------------------|-----|-----|
| PI  | 15.10.17 | PRELIMINARY ISSUE           | KW  | XX  |
| PI  | 28.11.17 | FINAL ISSUE                 | KW  |     |

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|               |                  |          |     |
|---------------|------------------|----------|-----|
| Client        |                  |          |     |
| Project Title | Grappenhall Lane |          |     |
| Scale         | 1:11000          | Drawn    | KM  |
| Size          | A3               | Reviewed | JMQ |

|                |  |          |
|----------------|--|----------|
| Drawing Title  | Fig. 15.1 Plan showing the development site, the study area boundary, monuments and listed buildings |          |
| Drawing Status | FINAL  |          |
| Drawing No.    | ABC/123/100  | Revision |
|                |  | P2       |

## Appendix 4 Cultural Heritage Assets

| HER Reference                | Site Name  | Grid Reference        |
|------------------------------|--|-----------------------|
| <i>Designated Assets</i>     |  |                       |
| DCHI638                      | Yew Tree Farmhouse Grade II Listed Building I139340  | SJ 6442 8396          |
| DCHI659                      | Beehive Farmhouse Grade II Listed Building I139361   | SJ 6463 8415          |
| DCHI660                      | Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I139362  | SJ 6475 8406          |
| DCHI661                      | Tanyard Farm, Farm Building Grade II* Listed Building I139363  | SJ 6573 8384          |
| DCHI934                      | Booths Farm Farmhouse Grade II Listed Building I329740   | SJ 6477 8404          |
| DCHI935                      | Barleycastle Farmhouse Grade II Listed Building I329741  | SJ 6553 8393          |
| DCHI59                       | Bradley Hall Moated Site, Scheduled Monument, 1011924  | SJ 6570 8452          |
| <i>Locally Listed Assets</i> |  |                       |
| DCHI2753                     | Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building   | SJ 6529 8484          |
| DCHI2763                     | Bradley Hall and barn, Cliff Lane, Appleton  | SJ 6571 8453          |
| DCHI2869                     | Milepost at Gallows Croft, Knutsford Road, Lymm  | SJ 6524 8578          |
| DCHI2879                     | Old Chapel, Old Cherry Lane, Lymm Locally Listed Building  | SJ 6635 8497          |
| DCHI3677                     | Tan House Farm, Barleycastle Lane, Appleton  | SJ 6573 8381          |
| <i>Archaeological Events</i> |  |                       |
| ECH3541                      | M6 Motorway Widening Scheme, Junctions 16-20. Archaeological Recording of Test Pits.   | SJ 723 679            |
| ECH3554                      | Greater Manchester Western and Northern Relief Road (M56-M6 link): Archaeological Assessment Report  | SJ 703 908            |
| ECH3566                      | M6 Junctions 16-20 Widening: Archaeological Desk-Top Survey  | SJ 755 637            |
| ECH3652                      | M6 widening: Junctions 16- 20: Report on Geophysical Survey  | SJ 755 637            |
| ECH3653                      | M6 Widening: Junctions 16- 20. Report on Earthwork Survey  | SJ 755 637            |
| ECH3654                      | M6 Widening: Junctions 16- 20, Cheshire. Cultural Heritage, Stage 3 Assessment Report Text   | SJ 755 637            |
| ECH4557                      | Report on Northwest Telent Techmac Design and Consultancy Services Framework Provision of Variable Message Signs on the M56 Between Junctions J9 -16 | SJ 520 781            |
| ECH4559                      | Bradley Hall Appleton, The Moated Site and Survey and Research Report  | SJ 657 845            |
| ECH4566                      | An Archaeological Watching Brief at Bradley Hall Moat, Appleton, Warrington. Final Report  | SJ 657 845            |
| ECH5845                      | Stretton Airfield, Design Access Statement   | SJ 652 835            |
| <i>Monuments</i>             |  |                       |
| I197/1                       | Kings Brook Mill Site of Watermill Industrial Site, Mill, Watermill  | SJ 6 8                |
| 2728                         | Unnamed Site in High Legh Parish Site of 19th century cottage House  | SJ 663 832            |
| 2729/0/1                     | Swineyard Lane Site of a 19th century house  | SJ 661 835            |
| 2729/0/2                     | Swineyard Lane Site of 19th Century Building House   | SJ 662 835<br>(point) |
| 2734                         | Swineyard Farm Prehistoric axe Findspot  | SJ 66 83              |
| 2908                         | Badger's Croft Farm I Cropmark Enclosure. Ditched Enclosure  | SJ 66 83              |
| 4091                         | RNAS Stretton/HMS Blackcap Airfield WW2 Airfield Military Airfield   | Centred SJ            |

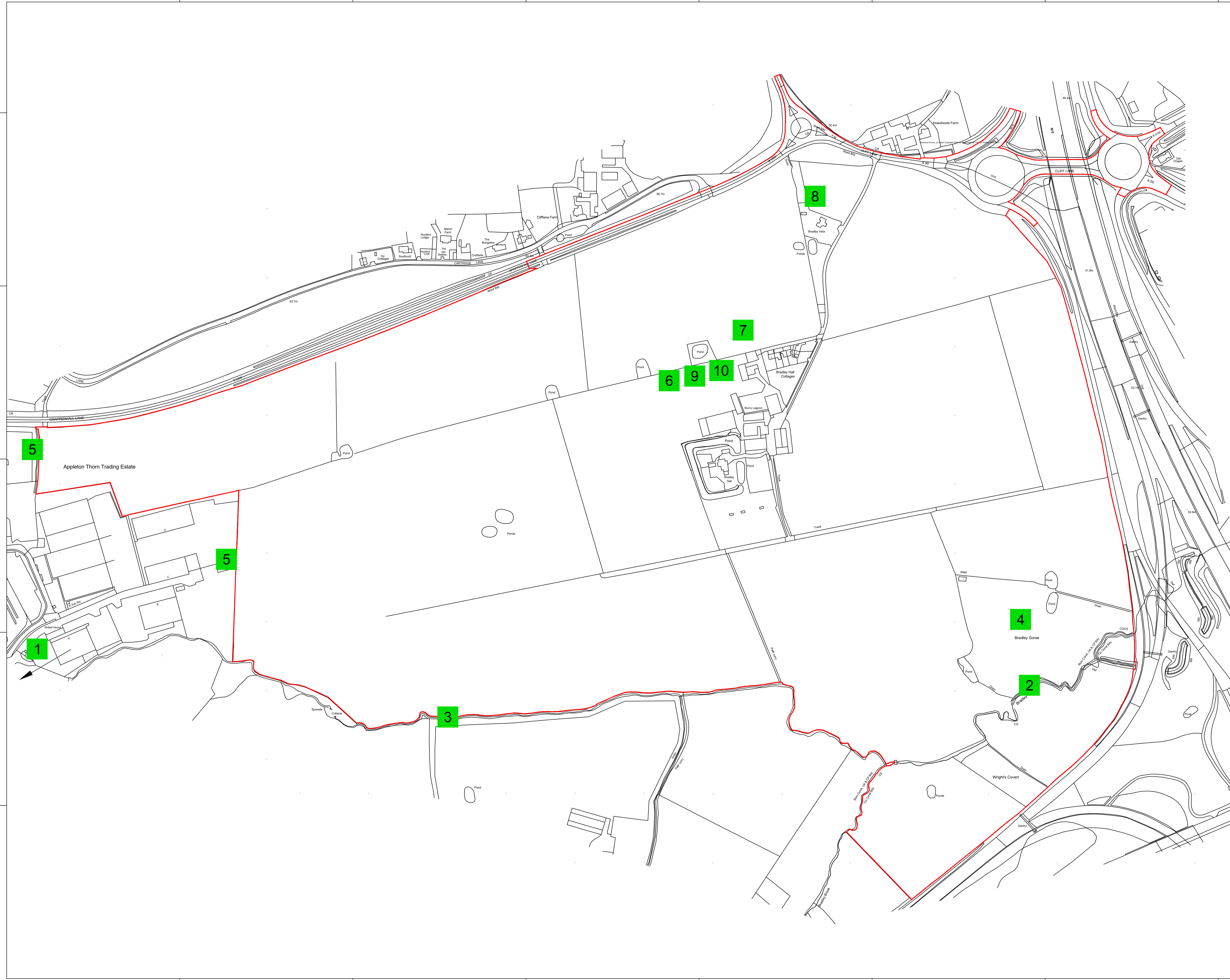
|                |   |                       |
|----------------|---|-----------------------|
|                |   | 652 835               |
| 4468/0/0       | Strict Baptist Chapel, Cherry Lane Strict Baptist Chapel Strict Baptist Chapel            | Centred SJ<br>663 849 |
| 4657           | Pond, North of Cartridge Lane, Grappenhall. Pond shown on OS 1st Edition Maps of Cheshire | SJ 648 847            |
| 538/1          | Yew Tree Farmhouse 17th century farmhouse Farm, Farmstead,                                | SJ 644 839            |
| 540/1/1        | Booth's Farm Farmhouse Post Medieval farmhouse Farm, Farmstead                            | SJ 647 840            |
| 540/1/2        | Shippon, Booth's Farm Timber framed barn Cow House, Farm, Farmstead, Barn                 | SJ 647 840            |
| 541/1          | Beehive Farmhouse Post Medieval farmhouse Farm, Farmstead, Timber Framed Building,        | SJ 646 841            |
| 547/1/0        | North Cheshire Ridge Roman Road   | SJ 66 83              |
| 547/1/13       | North Cheshire Ridge Roman Road – Stretton Airfield Section of Roman Road                 | SJ 648 844            |
| 547/1/7        | The North Cheshire Ridge Roman Road Section of Roman road                                 | SJ 658 846            |
| 547/1/8        | The North Cheshire Ridge Roman Road Section of Roman road                                 | SJ 67 84              |
| 548/1          | Barley castle Farmhouse Post Medieval farmhouse Farm,                                     | SJ 655 839            |
| 549/1          | Tanyard Farm Farm-building 16th century barn Cow House, Farm, Stable                      | SJ 657 838            |
| 550/1/ 1011924 | Bradley Hall moated site Medieval moated site Manor, Manor House, Moat, Gate Centred      | SJ 656 845            |
| 551            | Bradley Cross Site of medieval cross  | SJ 6 8                |
| 615            | Reddish Hall Medieval moated site Moat  | SJ 646 847            |



|                    |     |
|--------------------|-----|
| Based on:          | Rev |
| Architects Dwg No. | Rev |
| Structural Dwg No. | Rev |
| Survey Dwg No.     | Rev |
| Other Dwg No.      | Rev |
| Other Dwg No.      | Rev |

Notes

| ID | RECEPTOR                |
|----|-------------------------|
| 1  | UNITED UTILITIES SEWERS |
| 2  | BRADLEY BROOK           |
| 3  | BRADLEY BROOK TRIBUTARY |
| 4  | BRADLEY GORSE           |
| 5  | ADJACENT SITE           |
| 6  | GROUNDWATER             |
| 7  | BRADLEY HALL COTTAGES   |
| 8  | BRADLEY VIEW            |
| 9  | SITE USERS              |
| 10 | CONSTRUCTION WORKER     |



|       |          |                  |    |      |       |
|-------|----------|------------------|----|------|-------|
| -     | 27/11/17 | RED LINE UPDATED | JA | LF   | LF    |
| Issue | Date     | Description      | By | Chkd | Verfd |

Project  
SIX:56 WARRINGTON

Client  
LANGTREE / FIRST INDUSTRIAL

Architect  
STEPHEN GEORGE PARTNERS

Title  
DRAINAGE AND FLOOD RISK RECEPTOR PLAN

|             |              |                |             |
|-------------|--------------|----------------|-------------|
| Drawing No. | CLXX(52)0001 | Drawing Status | INFORMATION |
| Job No.     | 1015524      | Scale          | NTS         |

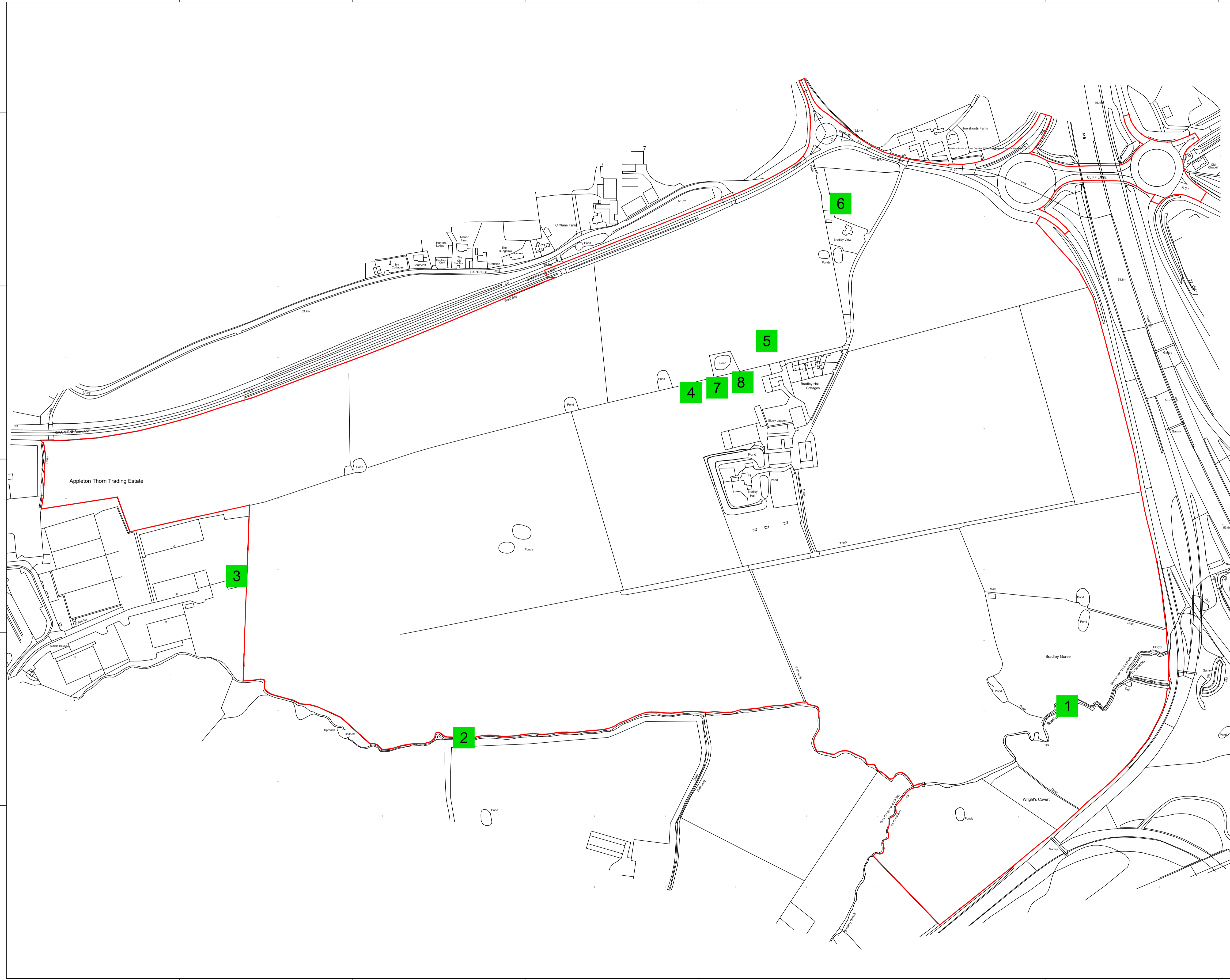
**CUNDALL**

4th Floor, Partnership House  
Regent Farm Road,  
Gosforth,  
Newcastle, NE3 3AF  
Telephone: +44 (0)191 213 1515  
Website: www.cundall.com

|                    |     |
|--------------------|-----|
| Based on:          | Rev |
| Architects Drg No. | Rev |
| Structural Drg No. | Rev |
| Survey Drg No.     | Rev |
| Other Drg No.      | Rev |
| Other Drg No.      | Rev |

Notes

| ID | RECEPTOR                |
|----|-------------------------|
| 1  | BRADLEY BROOK           |
| 2  | BRADLEY BROOK TRIBUTARY |
| 3  | ADJACENT SITE           |
| 4  | GROUNDWATER             |
| 5  | BRADLEY HALL COTTAGES   |
| 6  | BRADLEY VIEW            |
| 7  | SITE USERS              |
| 8  | CONSTRUCTION WORKER     |



| Issue | Date     | Description      | By | Chkd | Verfd |
|-------|----------|------------------|----|------|-------|
| -     | 27/11/17 | RED LINE UPDATED | JA | LF   | LF    |

Project  
**SIX: 56 WARRINGTON**

Client  
**LANGTREE / FIRST INDUSTRIAL**

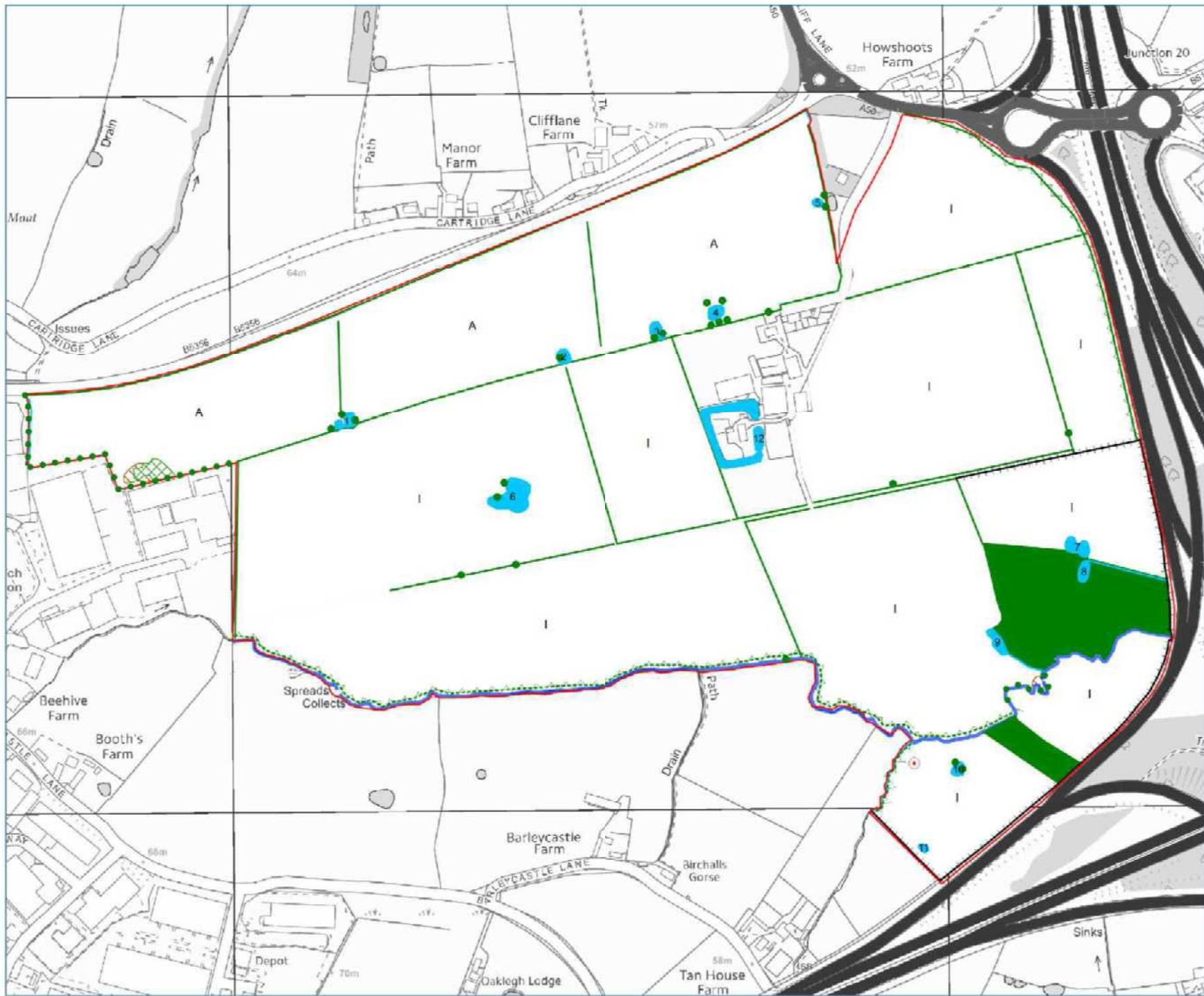
Architect  
**STEPHEN GEORGE PARTNERS**

Title  
**GROUND CONDITIONS RECEPTOR PLAN**

|             |              |                |             |
|-------------|--------------|----------------|-------------|
| Drawing No. | CLXX(52)0003 | Drawing Status | INFORMATION |
| Job No.     | 1015524      | Scale          | NTS         |

**CUNDALL**

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 Gosforth,  
 Newcastle, NE3 3AF  
 Telephone: +44 (0)191 213 1515  
 Website: [www.cundall.com](http://www.cundall.com)



- Redline boundary
- A Arable
- Ditch
- Fence
- Hedgerow species rich (intact)
- Hedgerow species rich defunct
- Hedgerow species poor intact
- I Improved grassland
- Flowing water
- Ponds
- Scattered tree
- Tall ruderal
- TN1
- Tree line
- Scrub dense
- Semi-natural broad-leaved woodland



Project Cliff Lane Warrington

Drawing Title Habitat Features

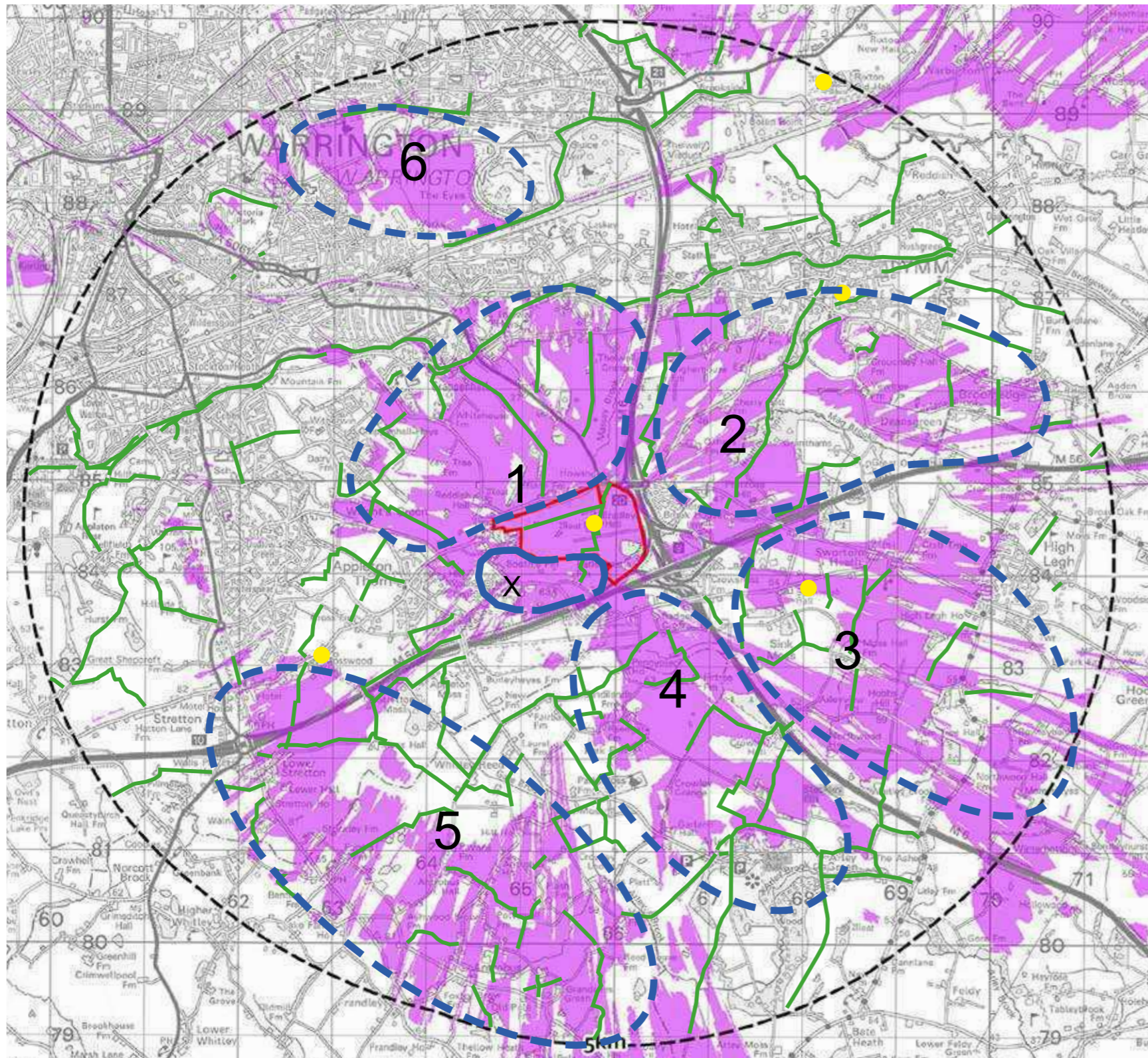
Scale As Shown (Approximate)

Drawing No. 10682/P01a

Date October 2017

Checked PM/HC





Identified field work zones to confirm typical views of the proposed development identified by the ZTV.

- 1 Grappenhall South (area for allocated SUE)
- 2 M6 East
- 3 M6 South East
- 4 M56 South
- 5 A533 North East
- 6 Manchester Ship Canal

X Area of future employment considered to be lower sensitivity

Field Work Zones 14-22m Plus 40m High Units ZTV

|                    |     |
|--------------------|-----|
| Based on:          | Rev |
| Architects Drg No. | Rev |
| Structural Drg No. | Rev |
| Survey Drg No.     | Rev |
| Other Drg No.      | Rev |

Notes

| ID | RECEPTOR  |
|----|---|
| 1  | GRAPPENHALL LODGE   |
| 2  | DWELLINGS ON CARTRIDGE LANE:<br>-IVY COTTAGES<br>-SOUTHOTT<br>-HUNTERS LODGE AND HUNTERS CROFT<br>-MANOR FARM WITH THE OLD STABLES<br>-CROFTSIDE<br>-THE BUNGALOW<br>-5 CARTRIDGE LANE<br>-7 CARTRIDGE LANE |
| 3  | BRADLEY VIEW COTTAGE  |
| 4  | HOWSHOOTS FARM  |
| 5  | TAN HOUSE FARM  |
| 6  | BARLEYCASTLE FARM   |
| 7  | BRADLEY HALL COTTAGES   |
| 8  | BEEHIVE FARM  |
| 9  | BOOTH'S FARM  |

KEY:

- NEAREST NOISE SENSITIVE RECEPTOR
- NOISE MONITORING POSITIONS

| Issue | Date     | Description                    | By | Chkd | Verfd |
|-------|----------|--------------------------------|----|------|-------|
| -     | 27/11/17 | RECEPTORS AND RED LINE UPDATED | JA | LF   | LF    |

Project  
**SIX: 56 WARRINGTON**

Client  
**LANGTREE / FIRST INDUSTRIAL**

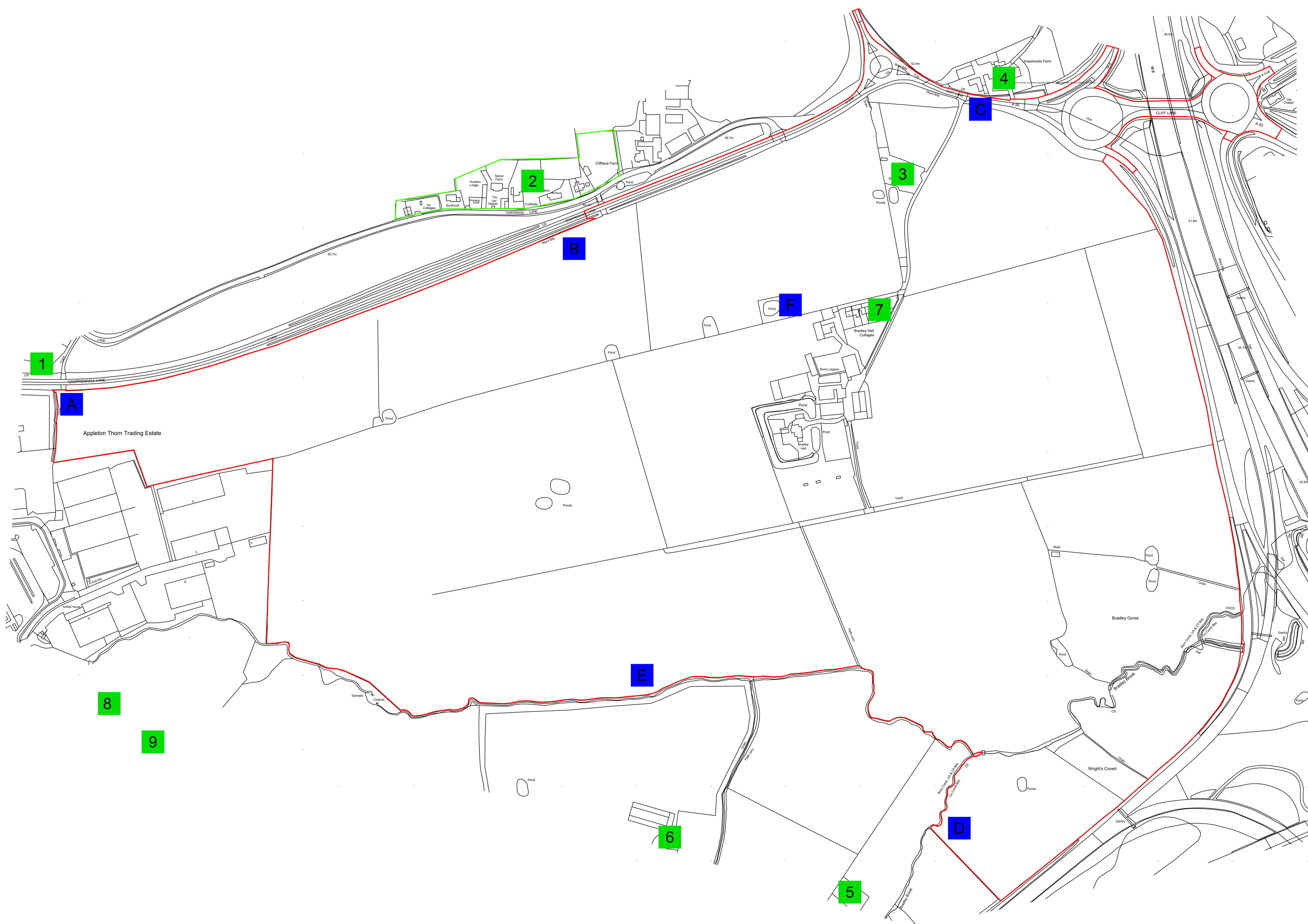
Architect  
**STEPHEN GEORGE PARTNERS**

Title  
**NOISE RECEPTOR PLAN**

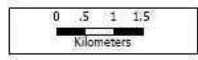
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|-------------|--------------|----------------|-------------|
| Drawing No. | CLXX(52)0002 | Drawing Status | INFORMATION |
| Job No.     | 1015524      | Scale          | NTS         |

**CUNDALL**

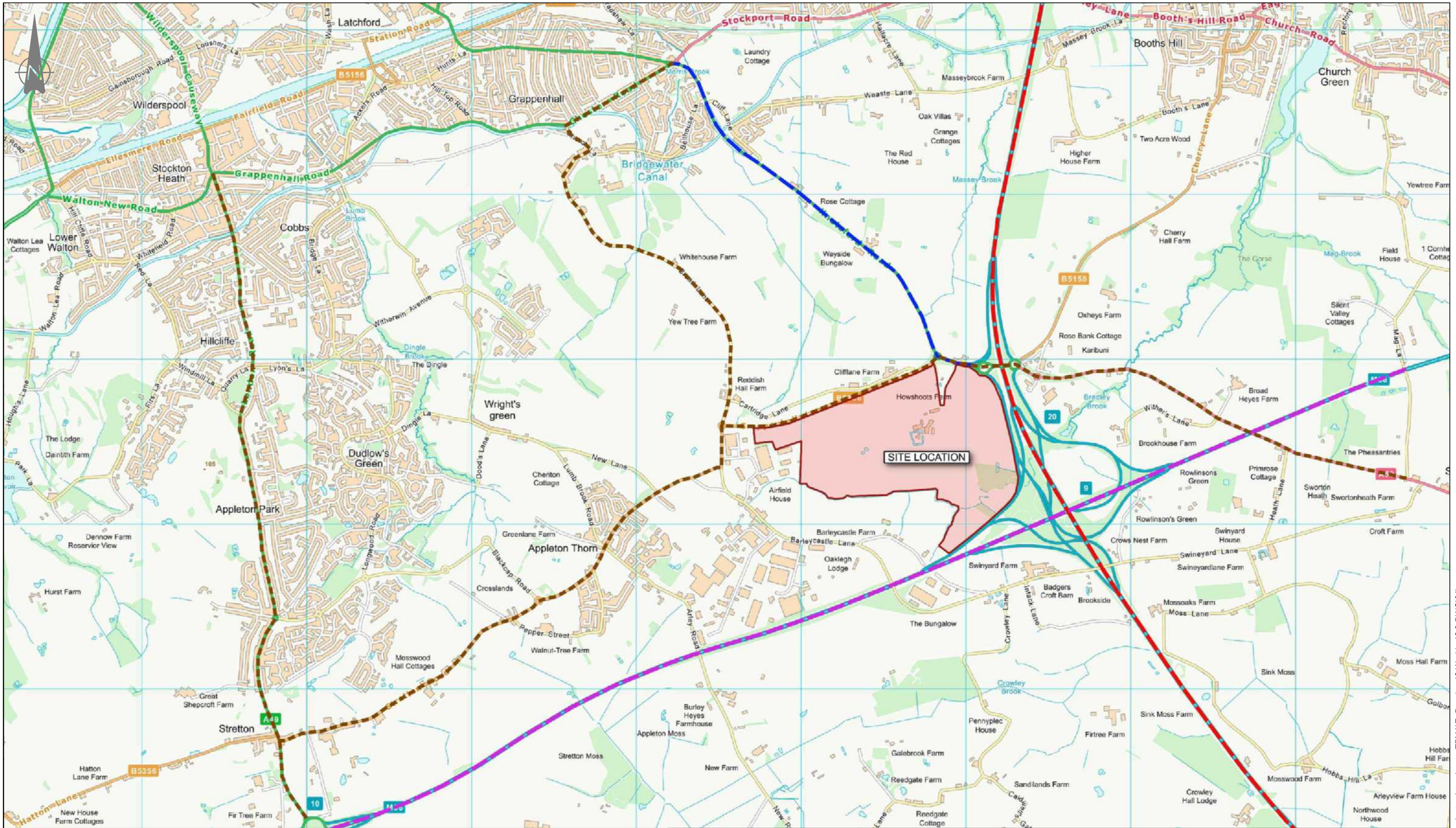
4th Floor, Partnership House  
Regent Farm Road,  
Gosforth,  
Newcastle, NE3 3AF  
Telephone: +44 (0)191 213 1515  
Website: [www.cundall.com](http://www.cundall.com)



# Socio Economic – Receptor Plan



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**KEY:**

|  |                                       |
|--|---------------------------------------|
|  | Site                                  |
|  | County road                           |
|  | Regional road                         |
|  | National road                         |
|  | Borough/ District/ Local Neighborhood |



Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG  
 0161 236 2394  
 manchester@curtins.com  
 www.curtins.com

|             |                     |              |             |                |             |                    |      |
|-------------|---------------------|--------------|-------------|----------------|-------------|--------------------|------|
| Project:    | SIX : 56 WARRINGTON | Status:      | PRELIMINARY |                |             |                    |      |
| Drg Title:  | ES RECEPTOR PLAN    | Drawn By:    | JM          | Checked By: AV |             |                    |      |
|             |                     | Designed By: | JM          | Date: 16/11/17 |             |                    |      |
|             |                     | Scale:       | NTS         |                |             |                    |      |
| Project No: | Originator:         | Zone:        | Level:      | Type:          | Discipline: | Category / Number: | Rev: |

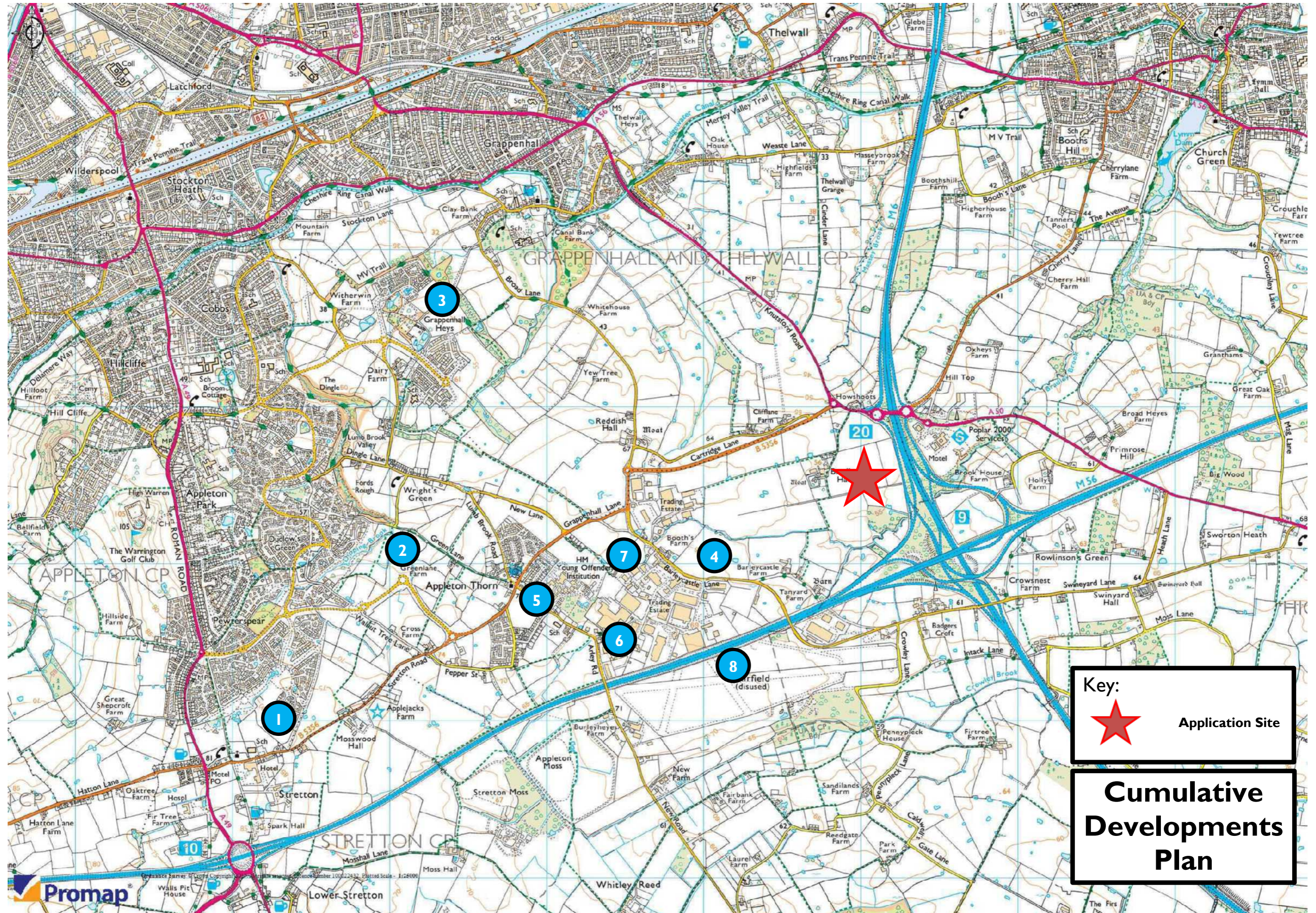
64076 - CUR - XX - 00 - DR - TP - 04001 -P01

|                |      |              |       |     |
|----------------|------|--------------|-------|-----|
| GENERAL NOTES: | Rev: | Description: | Date: | By: |
|----------------|------|--------------|-------|-----|

\\mafs01\Projects\064001 - 065000\064076 - Warrington Interchange TPMAE - Drawings\2-Working\2.2-DWG\041

## **ES Scoping Appendix 5 – Cumulative Development Plan**





GRAPPENHALL AND THELWALL CP

APPLETON CP

STRETTON CP

Key:



Application Site

**Cumulative  
Developments  
Plan**

|   | Possible Cumulative Development   | Details   | Status   | Justification for Cumulative   | To be considered in the CIA (Yes/No)  |
|---|---|---|--|--|---|
| 1 | Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington<br><br>LPA Ref: 2016/28807<br><br>Applicant - HCA   | Outline Planning Application for 180 dwellings. | Planning permission granted by WMBC 28-09-2017   |  |   |
| 2 | Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN<br><br>LPA Ref: 2017/29930<br><br>Applicant - HCA                                       | Outline Planning Application for 370 dwellings  | Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017                        | Potential relationship in terms of socio economic.<br><br>It is a committed development and therefore included within the future baseline and assessed within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport, noise and vibration and air quality.  | Yes – socio economic  |
| 3 | Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG<br><br>LPA Ref: 2017/29929<br><br>Applicant - HCA | Outline Planning Application for 400 dwellings  | Resolution to grant planning permission by WMBC Development Management   | Not considered to be a link in respect of any of the other technical areas due to distance and detached nature from the site.  |   |
| 4 | Land off Barleycastle Lane, Appleton, Warrington<br><br>Liberty Properties  | 50,000m <sup>2</sup> logistics development      | Pre-application discussions with WMBC<br><br>Scoping Request (LPA Ref: 2017/30243)<br>Application to be submitted. | Potential relationship in terms of geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; and operational noise.<br><br>It is to form part of a sensitivity test for traffic and therefore included within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport; and in terms of traffic generation in respect of noise and vibration; and air quality. | Yes- geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; and operational noise |
| 5 | Land to the east of Stretton Road, north of Pepper Street, Stretton Road, Appleton Thorn,   | Full Planning Application for 78 dwellings      | REFUSED by WMBC 29-06-2017   | Application refused and therefore not considered to be relevant for consideration in the cumulative assessment.  | No  |

|   |  |  |   |  |   |
|---|--|--|---|--|---|
|   | Warrington<br><br>LPA Ref:<br>2016/29511   |  |   |  |   |
| 6 | Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY<br><br>LPA Ref:<br>2016/28994           | Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping.<br><br>(1,699m <sup>2</sup> new build, 180m <sup>2</sup> and 265m <sup>2</sup> extensions)  | Application Approved 17-02-2017<br>(3 years to implement planning permission) | Potential relationship in terms of geology and ground conditions; flood risk and drainage; socio economic; and waste.<br><br>The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality.<br><br>Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; and energy due to distance and detached nature from the site. | Yes - geology and ground conditions; flood risk and drainage; socio economic; and waste |
| 7 | Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br><br>LPA Ref:<br>2015/25255<br><br>Morley Estates | Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618)<br><br>(4,545sqm industrial warehouse building) | Application Approved 16-10-2015<br>(3 years to implement planning permission) | Potential relationship in terms of geology and ground conditions; flood risk and drainage; and socio economic.<br><br>The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality.<br><br>Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site.  | Yes - geology and ground conditions; flood risk and drainage; and socio economic        |
| 8 | Former Stretton Airfield, Warrington, WA4 4RG<br><br>LPA Ref:<br>2014/2332<br><br>Hensmill Property                          | Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.  | Application Approved 23-06-2015<br>(3 years to implement planning permission) | Potential relationship in terms of landscape and visual impact; and socio economic.<br><br>The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality.<br><br>Not considered to be a link in respect of geology and ground conditions; flood risk and drainage; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site.  | Yes - landscape and visual impact; and socio economic                                   |

## **ES Scoping Appendix 6 – Topographical Plan**

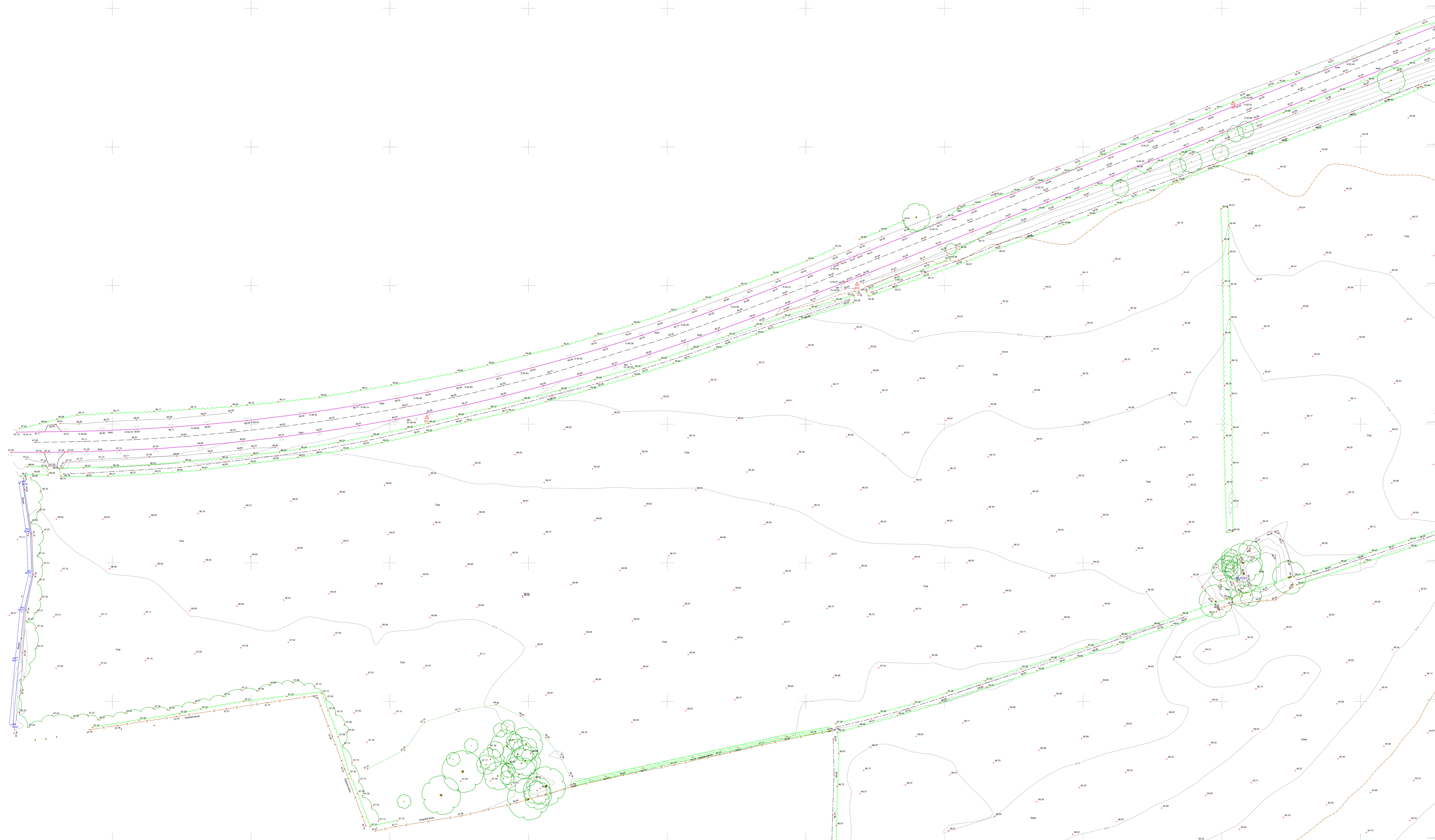






**Legend**

|            |                             |
|------------|-----------------------------|
| AV         | Air valve                   |
| BH         | Bound                       |
| BSL        | British Telecom cover       |
| CB         | Cable metering cover        |
| CL         | Close level                 |
| DC         | Deep point opening level    |
| EM         | Electric meter              |
| ELEC       | Electric cover              |
| EP         | Electric pole               |
| Fence ES   | Iron railing fence          |
| Fence CS   | Chainlink fence             |
| Fence CPSP | Concrete post & panel fence |
| Fence FS   | Flatiron fence              |
| Fence FW   | Post and wire fence         |
| Fence FB   | Post and rail fence         |
| Fence FP   | Post and panel fence        |
| FLS        | Flat top level              |
| FS         | Flow sensor                 |
| G          | Gully                       |
| GAS        | Gas cover                   |
| I          | Inspection manhole          |
| K          | Kent level                  |
| L          | Level                       |
| L2         | Level post                  |
| L3         | Level post                  |
| L4         | Level post                  |
| LI         | Light                       |
| LI1        | Light                       |
| LI2        | Light                       |
| LI3        | Light                       |
| LI4        | Light                       |
| LI5        | Light                       |
| LI6        | Light                       |
| LI7        | Light                       |
| LI8        | Light                       |
| LI9        | Light                       |
| LI10       | Light                       |
| LI11       | Light                       |
| LI12       | Light                       |
| LI13       | Light                       |
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| LI46       | Light                       |
| LI47       | Light                       |
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| LI81       | Light                       |
| LI82       | Light                       |
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| LI91       | Light                       |
| LI92       | Light                       |
| LI93       | Light                       |
| LI94       | Light                       |
| LI95       | Light                       |
| LI96       | Light                       |
| LI97       | Light                       |
| LI98       | Light                       |
| LI99       | Light                       |
| LI100      | Light                       |



**SURVEY STATIONS**

| Name | Easting   | Northing  | Height |
|------|-----------|-----------|--------|
| SA   | 34778.465 | 34841.170 | 57.811 |
| SB   | 34779.144 | 34842.230 | 58.214 |
| SC   | 34800.875 | 34805.138 | 57.255 |
| SD   | 34800.840 | 34800.000 | 57.414 |
| SE   | 34797.280 | 34805.550 | 57.303 |
| SF   | 34796.851 | 34808.521 | 57.289 |
| SG   | 34796.283 | 34808.198 | 57.287 |
| SH   | 34796.214 | 34807.931 | 57.288 |
| SI   | 34796.881 | 34805.011 | 58.118 |
| SJ   | 34797.488 | 34804.386 | 57.218 |
| SK   | 34797.684 | 34804.684 | 57.233 |
| SL   | 34794.115 | 34804.485 | 58.171 |
| SM   | 34796.880 | 34802.810 | 58.411 |
| SN   | 34792.228 | 34802.710 | 58.254 |
| SO   | 34800.031 | 34802.738 | 57.683 |
| SP   | 34800.141 | 34802.712 | 58.081 |
| SQ   | 34800.104 | 34803.113 | 58.081 |
| SR   | 34800.191 | 34802.710 | 58.118 |
| SS   | 34800.245 | 34803.104 | 58.200 |
| ST   | 34800.040 | 34802.887 | 57.811 |
| SU   | 34800.238 | 34800.441 | 53.118 |
| SV   | 34800.141 | 34800.040 | 53.683 |
| SW   | 34800.011 | 34801.712 | 58.683 |
| SX   | 34800.441 | 34800.040 | 58.683 |
| SY   | 34800.040 | 34802.000 | 61.475 |
| SZ   | 34800.441 | 34802.000 | 61.475 |

KEY DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORKS

**NOTE**  
Grid and level related to OS using active GPS network

**Amendments**

| Date | Surveyor | Description of work |
|------|----------|---------------------|
|      |          |                     |
|      |          |                     |
|      |          |                     |

**Powers & Tiltman Ltd**  
Land Surveyors

Mecklen House  
58-60 Hibald Road, Frodsham, Cheshire WA6 6AG  
Tel: 01928 734471 Fax: 01928 735513  
Email: mail@powersiltman.co.uk  
www.powersiltman.co.uk

**Warrington Interchange**  
**Lymm**  
**Topographical Survey**  
Client: Ridge & Partners LLP

|                       |                    |              |
|-----------------------|--------------------|--------------|
| Surveyed By: SHDGP/PE | Date: Aug 2017     | A0 @         |
| Drawn By: SHDGP/PE    | Drawing No: 787904 | 1:500        |
| Checked By: DGP/PE    | Amendment:         | Sheet 4 of 9 |











**Legend**

|            |                             |
|------------|-----------------------------|
| AV         | As value                    |
| B&I        | Boundary                    |
| BSL        | Boland                      |
| BT         | British Telecom cover       |
| CATV       | Cable television cover      |
| CL         | Clutter                     |
| DPC        | Drain pipe opening level    |
| EMERGED    | Emergency exit              |
| ELEC       | Electric cover              |
| EP         | Electric pole               |
| Fence EG   | Iron setting fence          |
| Fence GIB  | Chainlink fence             |
| Fence CP&P | Concrete post & panel fence |
| Fence RB   | Retained fence              |
| Fence FW   | Post and wire fence         |
| Fence FB   | Post and wire fence         |
| Fence FP   | Post and wire fence         |
| FS         | Free Highway                |
| FIS        | Flower bed                  |
| FI         | Fine Highway                |
| G          | Gully                       |
| GAS        | Gas cover                   |
| K          | Iron level                  |
| KF         | Inspection manhole          |
| PV         | Level bed                   |
| LP         | Level point                 |
| LL         | Light                       |
| M          | Manhole                     |
| N          | North                       |
| N&M        | Telephone/mobile cover      |
| OSM        | Ordnance Survey Bench Mark  |
| P          | Parking space machine       |
| RE         | Road sign                   |
| RI         | Road sign                   |
| R/W        | Retaining wall              |
| S          | Sign post                   |
| SP         | Sign post                   |
| S&P        | Safety playing surface      |
| ST         | Step top                    |
| SU         | Service valve               |
| TBM        | Temporary Bench Mark        |
| T&P        | Telephone pole              |
| T&P        | Tree                        |
| TV         | TV cable                    |
| V          | Water cover                 |
| VO         | Water out                   |

**SURVEY STATIONS**

| Name | Easting  | Northing | Height |
|------|----------|----------|--------|
| BA   | 56774485 | 56461170 | 57.851 |
| BA1  | 56771841 | 56461176 | 58.514 |
| CA   | 56800184 | 56461170 | 57.314 |
| CD   | 56800185 | 56465138 | 57.263 |
| DA   | 56798180 | 56465130 | 57.411 |
| DB   | 56797288 | 56465130 | 57.203 |
| DB1  | 56797182 | 56465132 | 57.288 |
| DB2  | 56796183 | 56465138 | 57.287 |
| DC   | 56796184 | 56465131 | 57.389 |
| DC1  | 56796181 | 56465131 | 58.118 |
| DC2  | 56797188 | 56465136 | 57.618 |
| DC3  | 56797184 | 56465134 | 57.618 |
| DC4  | 56797189 | 56465136 | 57.618 |
| DC5  | 56797115 | 56464145 | 58.175 |
| DC6  | 56797184 | 56465139 | 58.413 |
| DE   | 56796288 | 56462170 | 58.284 |
| DF   | 56800181 | 56462178 | 57.883 |
| DF1  | 56800184 | 56462172 | 58.981 |
| DF2  | 56800181 | 56462171 | 58.881 |
| DF3  | 56800184 | 56462171 | 58.881 |
| DF4  | 56800181 | 56462171 | 58.281 |
| DF5  | 56800184 | 56462171 | 58.281 |
| DF6  | 56800181 | 56462171 | 58.281 |
| DF7  | 56800184 | 56462171 | 58.281 |
| DF8  | 56800181 | 56462171 | 58.281 |
| DF9  | 56800184 | 56462171 | 58.281 |
| DF10 | 56800181 | 56462171 | 58.281 |
| DF11 | 56800184 | 56462171 | 58.281 |
| DF12 | 56800181 | 56462171 | 58.281 |
| DF13 | 56800184 | 56462171 | 58.281 |
| DF14 | 56800181 | 56462171 | 58.281 |
| DF15 | 56800184 | 56462171 | 58.281 |
| DF16 | 56800181 | 56462171 | 58.281 |
| DF17 | 56800184 | 56462171 | 58.281 |
| DF18 | 56800181 | 56462171 | 58.281 |
| DF19 | 56800184 | 56462171 | 58.281 |
| DF20 | 56800181 | 56462171 | 58.281 |
| DF21 | 56800184 | 56462171 | 58.281 |
| DF22 | 56800181 | 56462171 | 58.281 |
| DF23 | 56800184 | 56462171 | 58.281 |
| DF24 | 56800181 | 56462171 | 58.281 |
| DF25 | 56800184 | 56462171 | 58.281 |
| DF26 | 56800181 | 56462171 | 58.281 |
| DF27 | 56800184 | 56462171 | 58.281 |
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| DF44 | 56800181 | 56462171 | 58.281 |
| DF45 | 56800184 | 56462171 | 58.281 |
| DF46 | 56800181 | 56462171 | 58.281 |
| DF47 | 56800184 | 56462171 | 58.281 |
| DF48 | 56800181 | 56462171 | 58.281 |
| DF49 | 56800184 | 56462171 | 58.281 |
| DF50 | 56800181 | 56462171 | 58.281 |

KEY DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORKS

NOTE

Grid and level related to OS using active GPS network

Amendments

| Date | Surveyor | Description of work |
|------|----------|---------------------|
|      |          |                     |
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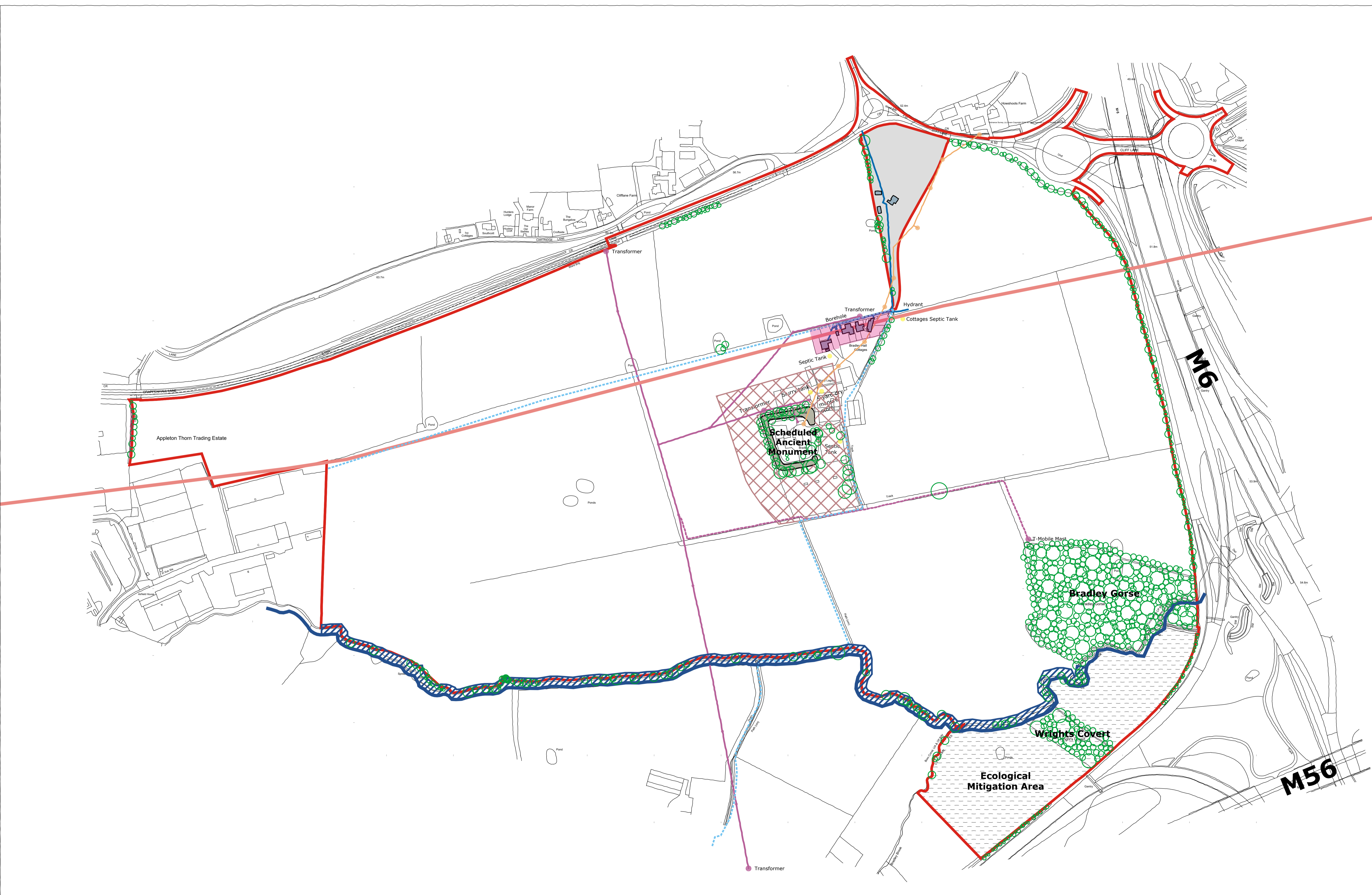


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Warrington Interchange  
Lymm  
Topographical Survey  
Client: Ridge & Partners LLP

|                      |                     |              |
|----------------------|---------------------|--------------|
| Surveyed By: SHDG/PE | Date: Aug 2017      | AO @         |
| Drawn By: SHDG/PE    | Drawing No: 7879/09 | 1:500        |
| Checked By: DG/PE    | Amendment:          | Sheet 9 of 9 |

## **ES Scoping Appendix 7 – Constraints and Opportunities Plan**



|  |  |  |   |
|--|--|--|---|
| <p>Rev. Date By Description</p> <p> Planning Boundary</p> <p> Existing Residential Properties</p> <p> Existing Trees To be Retained</p> <p> Existing Watercourse</p> <p> Existing PRoW</p> <p> Proposed Cycle Link</p> | <p> Existing Ancient Roman Road</p> <p> Existing Residential Properties</p> <p> Existing Trees To be Retained</p> <p> Existing Watercourse</p> <p> Existing PRoW</p> <p> Proposed Cycle Link</p> | <p> Watercourse 15m Stand Off from the top of the bank</p> <p> SAM 50m Stand Off from the outer bank of the moat</p> <p> Overhead Power</p> <p> Underground Cable</p> <p> Overhead BT Line</p> <p> Water Mains</p> | <p> Area not included in the Planning Boundary</p> <p> Ecological Mitigation Area</p> |
|--|--|--|---|

Cliff Lane, Warrington  
Constraints Plan  
CDE Reference

Drawn: JB  
Team: HHS  
Scale: 1:2500 @ A1  
Project No: 16-184

Drafting Status: Draft  
CAD Reference: 16-184-P003  
Date: 12/2017  
Dwg No: P003  
Rev: -

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## **ES Scoping Appendix 8 - Geology and Ground Conditions**

- Baseline Geotechnical and Geoenvironmental Assessment



# Warrington Interchange Masterplan

---

**Phase I Geotechnical and  
Geoenvironmental Assessment**

**First Industrial / Langtree**

Job No: 1015524

Doc Ref: 1015524.RPT.GL.002

Revision: —

Revision Date: 09 November 2017

|                      |  |                   |
|----------------------|--|-------------------|
| <b>Project title</b> | Warrington Interchange Masterplan                    | <b>Job Number</b> |
| <b>Report title</b>  | Phase I Geotechnical and Geoenvironmental Assessment | 1015524           |

**Document Revision History**

| Revision Ref | Issue Date       | Purpose of issue / description of revision |
|--------------|------------------|--|
| —            | 09 November 2017 | Final                                      |
|              |                  |  |
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**Document Validation (latest issue)**

|   |   |  |
|---|---|--|
| <p>09/11/2017</p> <p><b>X</b> </p> <hr style="border: 0.5px solid black;"/> <p>Principal author</p> <p>Signed by: Bee, Lily</p> | <p>09/11/2017</p> <p><b>X</b> </p> <hr style="border: 0.5px solid black;"/> <p>Checked by</p> <p>Signed by: Bee, Lily</p> | <p><b>X</b> </p> <hr style="border: 0.5px solid black;"/> <p>Verified by</p> <p>Signed by: k.mcgee@cundall.com</p> |
|---|---|--|

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## Executive Summary

|  |   |
|--|---|
| <b>Objectives &amp; Scope</b>  | Cundall was commissioned by the Client to undertake a Phase I Geoenvironmental Assessment for the site in the context of the proposed development to assess potential geoenvironmental risks and geotechnical constraints to inform scheme design and provide outline recommendations for further work as considered necessary.   |
| <b>Proposed Development</b>  | The proposed development is understood to comprise nine warehouse units located across the site, surrounding the existing Bradley Hall and Bradley Gorse, including areas of soft landscaping and three large ponds.  |
| <b>Current Land Use and Features</b>   | A number of buildings associated with Bradley Hall Farm, including Bradley Hall, are located in the centre of the site with Bradley Hall Cottages directly north. Pastural fields associated with Bradley Hall Farm cover most of the site, with fields associated with the neighbouring Cliff Lane Farm covering the north west of the site.<br><br>An area of dense woodland known as Bradley Gorse covers an area in the south east corner of the site and Bradley Brook runs through the south east corner of the site.   |
| <b>Historic Land Use</b>   | The site's recorded history has been dominated by agricultural uses.  |
| <b>Geology &amp; Ground Conditions</b>   | The entire site is anticipated to be covered by firm to stiff glacial till, underlain by the bedrock of the Bollin Mudstone Member (red marl interbedded with evaporite deposits).  |
| <b>Unexploded Ordnance (UXO) Risk</b>  | The site has been classified as having a medium risk of UXO encounter and risk mitigation measures have been recommended and should be employed during any subsequent intrusive ground investigation or construction.   |
| <b>Preliminary Geoenvironmental Assessment</b>   | No potential sources of contamination were identified during the site inspection.<br>Potential sources identified as part of the desk based research are as follows: <ul style="list-style-type: none"> <li>▪ Contamination within shallow soils associated with the agricultural use of the site.</li> <li>▪ The infilled ponds located on (and surrounding) the site are considered a potential source of hazardous ground gas.</li> </ul>  |
| <b>Development Constraints</b>   | The following possible development constraints have been identified: <ul style="list-style-type: none"> <li>• The entire site is underlain by the Bollin Mudstone Member. Therefore, there is potential for dissolution features to exist within the evaporite deposits where in contact with groundwater beneath the site.</li> <li>• High sulphate concentrations resulting from the weathering of the Bollin Mudstone Member bedrock beneath the site have the potential to attack buried concrete.</li> <li>• The bedrock is anticipated to be present at shallow depths in the centre and towards the west of the site.</li> <li>• Groundwater levels beneath the site are anticipated to be shallow due to the presence of Bradley Brook and several ponds and water features located across the site.</li> <li>• A number of historical ponds are assumed to have been infilled based upon historical mapping of the site.</li> <li>• Organic material may be present across the site due to the presence of both historical and existing water features located on site. This may be soft and compressible, representing a risk to buildings in terms of both absolute and differential settlements.</li> <li>• Due to the presence of cohesive Glacial Till and the number of trees located across the site, it is likely that the areas surrounding the trees have the potential to be significantly desiccated.</li> </ul> |
| <b>Recommendations for Further Works</b>   | An exploratory geoenvironmental investigation will be required to satisfy Planning requirements for the proposed development. Additionally, a detailed geoenvironmental investigation will be required to target any identified sources of contamination identified as part of the exploratory geoenvironmental investigation as well as a detailed design investigation to inform the geotechnical design of the proposed development.   |
| <b>This Executive Summary is intended as a summary of the geotechnical and geoenvironmental assessment of the site in the context of the current development proposals based on information received by Cundall at the time of production and should be read in conjunction with the main Report text.</b> |   |

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**DRAWINGS**

1011461.GL.DWG.001 Key Features Plan  
1011461.GL.DWG.002 Preliminary Conceptual Site Model  
1011461.GL.DWG.003 Geotechnical Constraints

**APPENDICES**

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| Appendix C | Historical Borehole Records                               |
| Appendix D | CON29M Non-Residential Mining Report                      |
| Appendix E | Preliminary Unexploded Ordnance UXO Threat Assessment     |
| Appendix F | Detailed Unexploded Ordnance UXO Threat & Risk Assessment |
| Appendix G | Risk Assessment Framework and Methodology                 |

# 1.0

## Introduction

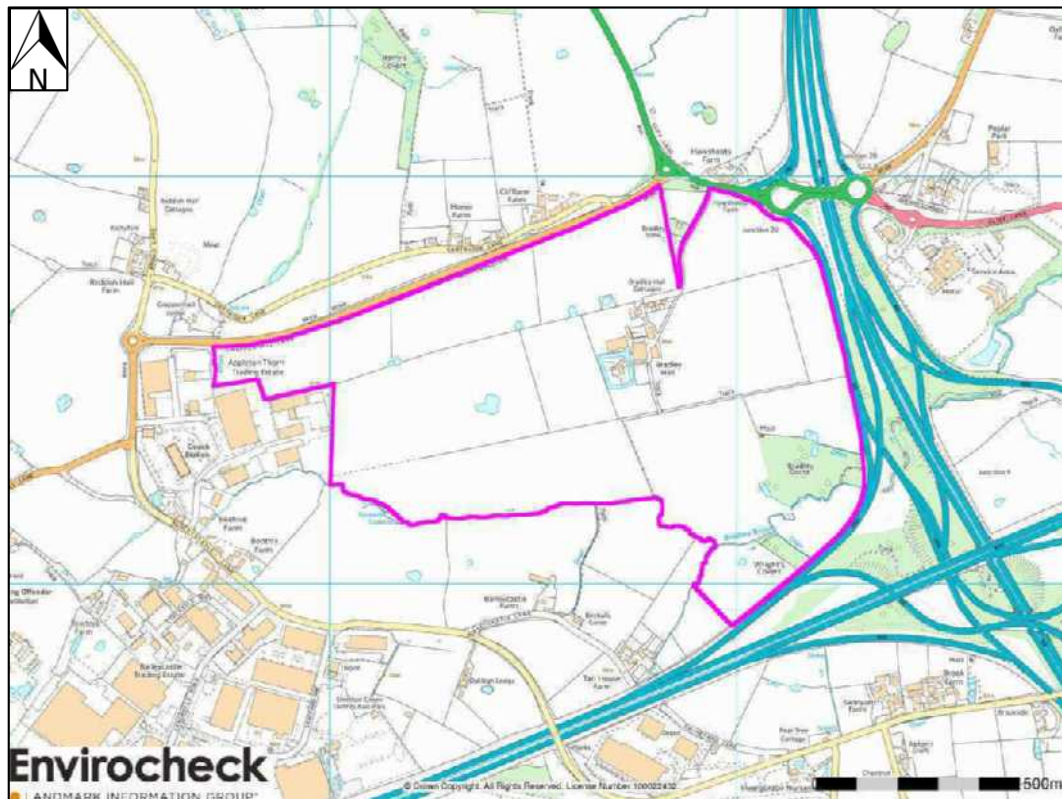
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## 1.0 Introduction

### 1.1 Context

First Industrial / Langtree (the Client) are proposing to redevelop the site of approximately 93.66 hectares located approximately 6 km from the centre of Warrington, Cheshire. The site is situated at approximate Grid Reference 364910, 385200 and the site's location and boundary is shown in Figure 1.

Figure 1: Site Location Plan



### 1.2 Objectives and Scope of Assessment

Cundall was commissioned by the Client to undertake a Phase I Geotechnical and Geoenvironmental Assessment for the site in the context of the proposed development in order to assess potential geoenvironmental risks and geotechnical constraints to inform scheme design and provide outline recommendations for further work as considered necessary.

This desk study is based upon review of published and readily available information pertaining to the site and a site inspection visit and includes a preliminary conceptual site model (CSM) and geoenvironmental risk assessment.

### 1.3 The Scheme

The proposed development is understood to comprise industrial / commercial warehouse units located across the site, surrounding the existing Bradley Hall and Bradley Gorse, including areas of soft landscaping and three large ponds.

## 1.4 Sources of Information

This Report has been based on a review of readily available published information and background research, including, but not limited to, the sources described below. Where additional sources of background information have been used, these are stated in the text.

1. 6 Alpha Associates. 18 September 2017. Detailed Unexploded Ordnance (UXO) Threat & Risk Assessment, project number P6173 Version number 1.0.
2. The Coal Authority. 15 September 2017. CON29M Non-Residential Mining Report, reference 139491618\_1.
3. 6 Alpha Associates. 14 September 2017. Preliminary Unexploded Ordnance (UXO) Threat Assessment, reference 139294091\_2.
4. Environment Agency (EA). 14 August 2017. What's In Your Backyard. <http://apps.environment-agency.gov.uk/wiyby/>
5. British Geological Survey (BGS). 14 August 2017. Geology of Britain Viewer. <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>
6. Landmark Information Group. 14 August 2017. Envirocheck Report, reference 135773225\_1\_1.
7. Cundall Johnston & Partners LLP (Cundall). 15 September 2017. Warrington Interchange MP Drainage and Flood Baseline Assessment, reference 1015524-RPT-CL-001.

## 1.5 Limitations

The findings and opinions conveyed in this report are based on information obtained from a variety of readily available sources as detailed within the report and which Cundall believes are reliable. The information contained in this report is to the best of our knowledge accurate at the date of issue. If new information comes to light pertaining to the site or proposed development, Cundall reserves the right to review the information and revise the recommendations made in the report.



# 2.0

## Site Description

---

## 2.0 Site Description

### 2.1 Site Details

A summary of the site's key features is given in Table 1.

**Table 1: Site Description**

|  |  |
|--|--|
| <b>Site Area and Shape</b>                           | The site comprises an irregular shaped parcel of land approximately 93.66 Ha in area.  |
| <b>Site Boundaries and Adjacent Land Use</b>         | <p>The B5356 runs along the northern site boundary meeting the A50 to the north east of the site with farmland beyond. Bradley View house is located immediately north of the site, to the south of the B5356.</p> <p>The M6 is located to the east of the site running along the site boundary.</p> <p>Bradley Brook is located along the southern boundary of the site with farmland associated with Barleycastle Farm beyond.</p> <p>Appleton Thorn Trading Estate lies immediately west of the site.</p>                           |
| <b>Site Topography</b>                               | The site generally slopes from the north of the site downward to the south east and south of the site towards Bradley Brook with a level difference of about 10 m.   |
| <b>Existing Land Uses/Features and Surface Cover</b> | <p>Most of the site is in agricultural production, generally comprising arable in the north under crop, and livestock in the south under pasture.</p> <p>A number of buildings associated with Bradley Hall Farm, including Bradley Hall are located in the centre of the site with Bradley Hall Cottages directly to the north.</p> <p>An area of dense woodland known as Bradley Gorse is located in the south east corner of the site and Bradley Brook runs through the south east corner of the site, south of Bradley Gorse.</p> |

### 2.2 Site Inspection & Key Features

A site inspection was undertaken by a Cundall Geoenvironmental Engineer on 30 August 2017. Key features identified as part of the walk over are described below and relevant photographs are presented on drawing number 1015524.DWG.GL.001.

- A number of ponds are present across the site, with four located in the north of the site (see Image 1).
- Buildings associated with Bradley Hall Farm are located in the centre of the site, including a number of corrugated metal sheds, a brick building and storage tanks (see Image 2).
- Bradley Cottages are located to the north of Bradley Hall Farm in the centre of site (see Image 3)
- A power mast and cabinet are located in the south east of the site (see Image 4).
- An area of dense woodland called Bradley Gorse is located in the south east corner of the site (see Image 5).
- Wrights Covert is an area of trees located in the south east corner of the site (see Image 6).
- Bradley Brook runs along the southern site boundary and enters the south east corner of the site (see Image 7).
- A water tank and drinking container are located in the south of the centre of the site adjacent to a pile of granular material with large pieces of brick and concrete (see Images 8 and 9).
- Pastoral fields cover the western half of the site (see Image 10).
- A track runs through the centre of site from Bradley Hall Farm and connects with a track running east to west to the south of the farm (see Image 11).
- Bradley Hall is in the centre of the site, to the south west of Bradley Hall Farm, and is surrounded by a moat (see Image 12).

# 3.0

## Historical Development

---

## 3.0 Historical Development

### 3.1 Historical Review

Available historical maps were reviewed and a summary of historic land use considered relevant to the proposed development site is given in Table 2, with distances noted from the closest boundary of the site. Copies of the historical maps and plans are presented in Appendix A.

**Table 2: Summary of Historical Land Use**

| Date                                  | Scale (Source)                    | Relevant Site Features  | Surrounding Land Use (Note: Distances are approximate)  |
|---------------------------------------|-----------------------------------|---|---|
| 1874 – 1877,<br>1876 – 1877 &<br>1877 | 1:2,500<br>(Cheshire)             | <p>Bradley Hall Farm is located in the centre of the site with a moat and orchard surrounding a number of buildings.</p> <p>A number of trees are recorded in the south west corner and the north east corner of the site.</p> <p>An area of woodland is recorded in the south east corner of the site and an additional large area of woodland in the south east of the site is labelled 'Bradley Gorse'.</p> <p>Bradley Brook runs along the southern site boundary and enters the site in the south east corner. The brook then runs across the site to the north east.</p> <p>There are 21 ponds recorded on site and a water course running from one of the ponds in the north to a pond located ~10m north of the site.</p> <p>See drawing 1015524.DWG.GL.003 for locations of historical water features located on site.</p> | <p>Grappenhall Lodge is located immediately north west of the site with Cartridge Lane running ~90m north, parallel to the north west boundary. Clifflane Farm is located ~30m north of the site off Cartridge Lane.</p> <p>A Houshed is recorded ~50m north of the site off Cartridge Lane.</p> <p>A pond and sluice are recorded ~180m north of the site associated with a water course running south west to north east, north of the site.</p> <p>Barleycastle Lane is located ~280m south of the site running parallel with the southern site boundary.</p> <p>A number of trees are recorded surrounding Bradley Brook immediately south of the western site extents.</p> <p>Booth's Farm and Beehive Farm are located ~250m and ~360m south west of the site, respectively.</p> <p>There are fifteen ponds recorded within 200m of the site.</p> |
| 1881 - 1882                           | 1:10,560<br>(Cheshire)            | No significant changes.   | No significant changes.   |
| 1898                                  | 1:10,560<br>(Cheshire)            | <p>The trees previously located in the south west of the site are no longer recorded. Additionally, the pond located in the south west corner of the site is now recorded as two separate ponds.</p> <p>The orchard previously surrounding Bradley Hall is no longer recorded.</p> <p>A water course is now located in the north of the site adjacent to Clifflane Farm, joining the watercourse running through the centre of the site.</p>  | <p>The Houshed located ~90m north of the site off Cartridge Lane is now recorded as How shoots.</p> <p>Manor Farm is recorded ~50m north of the site, to the west of Clifflane farm.</p>  |
| 1910 &<br>1910 – 1911                 | 1:2,500 &<br>10,560<br>(Cheshire) | The area recorded in the south east of the site is recorded as Wright's Covert  | <p>A well is recorded ~45m north of the site adjacent to Manor Farm.</p> <p>The trees previously noted surrounding Bradley Brook immediately south of the site in the west are no longer recorded and an area of marshland is recorded in the same locations.</p>   |

| Date                      | Scale (Source)  | Relevant Site Features   | Surrounding Land Use (Note: Distances are approximate)  |
|---------------------------|---|--|---|
| 1938                      | 1:10,560 (Cheshire)   | No significant changes.  | No significant changes.   |
| 1954                      | 1:10,000 (Ordnance Survey Plan)                               | No significant changes.  | An airfield is recorded ~400m south of the site.  |
| 1964 – 1966, 1966 & 1967  | 1:10,000 & 1:2,500 (Ordnance Survey Plan)                     | The pond and small areas of trees previously located in the south west corner of the site are no longer recorded and the area is completely clear of features.   | The well previously located ~45m north of the site adjacent to Manor Farm is no longer recorded.<br>Hullbrow Farm previously located ~350m north west is now recorded as Reddish Hall Cottages.<br>The marshland located along Bradley Brook immediately south of the site is labelled 'spreads and collects'.<br>A general storage depot is located immediately west of the site.<br>The M6 is recorded running south east to north west parallel to the eastern site boundary. A roundabout connecting the M6 with Cliff Lane to the north of the site is located within ~50m to the north east of the site.<br>Bradley Brook is noted to have been culverted to the east of the site, beneath the gantries of the motorway.<br>Bradley View is recorded immediately north of the site to the north east of Bradley Hall. |
| 1970 – 1971               | 1:10,000 (Ordnance Survey Plan)                               | A drain is recorded along the western site boundary in the north west corner of the site.<br>A number of buildings labelled as Bradley Hall Cottages are recorded on the site to the north east of Bradley Hall. | Embankments are recorded to the north east of the site associated with Reddish Hall Farm.<br>The airfield recorded ~400m south of the site is now noted to be disused.  |
| 1975                      | 1:25,000 (Manchester)   | No significant changes.  | The M56 runs south west to north east, south of the site ~50m from the south east corner of the site.   |
| 1978 – 1991 & 1978 - 1992 | 1:2,500 (Additional SIMs)                                     | No significant changes.  | No significant changes.   |
| 1984                      | 1:10,000 (Russian Military Mapping)                           | No significant changes.  | No significant changes.   |
| 1991 & 1992 & 1992-1993   | 1:2,500 & (Additional SIMs) & 1:10,000 (Ordnance Survey Plan) | The two of the ponds previously located in the north west corner of the site are no longer recorded and two ponds are still recorded.  | Grappenhall Lane B5356 is recorded immediately north of the northern site boundary orientated west – east.  |

| Date | Scale (Source)                           | Relevant Site Features                        | Surrounding Land Use (Note: Distances are approximate)  |
|------|--|---|---|
| 1993 | 1:2,500 (Large-Scale National Grid Data) | No significant changes.                       | No significant changes.   |
| 1999 | 1:10,000 (10k Raster Mapping)            | No significant changes.                       | The storage depot immediately west of the north of the site is recorded as Appleton Thorn Trading Estate. |
| 2000 | (Historical Aerial Photography)          | 1:10,000 (10k Raster Mapping)                 | No significant changes.   |
| 2006 | 1:10,000 (10k Raster Mapping)            | No significant changes.                       | No significant changes.   |
| 2017 | 1:10,000 (VectorMap Local)               | A total of 12 ponds are now recorded on site. | There are now five ponds recorded within 200 m of the site.   |

## 3.2 Historical Development Summary

### 3.2.1 On Site

The site's recorded land use history has generally remained unchanged; namely with agricultural uses. The mapping does indicate that the number of ponds on the site has reduced by about half, implying some localised infilling.

### 3.2.2 Surrounding Land Use

The key changes in the surrounding land use are noted as follows:

- In 1877, the land surrounding the site is mainly farmland with a number of farms, including Cliff Lane Farm ~30m north of the site, and fifteen ponds located within 500m of the site.
- In 1954, an airfield is recorded to cover the area ~400m south of the site. By 1970, the airfield is noted to be disused however it is still recorded on the mapping in 2017.
- By 1964, the M6 is recorded running parallel with the eastern site boundary and by 1975, the M56 is recorded ~50m south of the site.
- A general storage depot is recorded immediately west of the site by 1967 and is later recorded as Appleton Thorn Trading Estate in 1999. By 1999, the land to the north and west of the site has seen mostly residential development.
- By 2017, only five ponds are recorded within ~500m of the site implying a degree of infilling.

# 4.0

## Geological Setting

---

## 4.0 Geological Setting

The information discussed in the following section was primarily obtained from BGS geology mapping (Ref 5, Section 1.4) and the Envirocheck Report prepared for the site (Ref 6, Section 1.4) which is presented in Appendix B. Where other data sources are used, these are detailed in the text.

### 4.1 Published Geology

#### 4.1.1 Superficial Geology

Superficial deposits at the site are indicated to be Glacial Till, typically comprising firm to stiff clays with variable amounts of sands and gravels along with occasional lenses of granular materials. In the west of the site it is likely that rockhead will be shallow, as mapping of the area immediately west of the site shows superficial deposits to be absent.

#### 4.1.2 Solid Geology

The entire site is underlain by the Bollin Mudstone Member, a red marl interbedded with evaporite deposits.

### 4.2 Historical Borehole Records

A number of historical boreholes are located within 100 m of the eastern site boundary and three of the most relevant borehole records are summarised in Table 3 below. The historical borehole records referenced in this report are presented as Appendix C.

*Table 3 Historical Borehole Details:*

| BGS ID No. | BGS Reference | Orientation | Borehole Depth (m bgl) |
|------------|---------------|-------------|------------------------|
| 657057     | SJ68SE3       | ~ 50m East  | 5.38                   |
| 657065     | SJ68SE11      | ~ 75m East  | 4.25                   |
| 657066     | SJ68SE12      | ~ 50m East  | 3.05                   |

The generalised stratigraphic sequence depicted within the three BGS boreholes is summarised in Table 4.

*Table 4: Summary of Soil Stratigraphy from BGS Boreholes*

| Stratum                | Strata Description*                                 | Depth to Top of Stratum (mbgl) | Stratum Thickness (m) | Borehole Locations Encountered |
|------------------------|---|--------------------------------|-----------------------|--------------------------------|
| Topsoil                | -   | 0.00                           | 0.30                  | 657057,                        |
| Made Ground            | Fine to medium sand to stiff brown sandy silty clay | 0.00 to 0.30                   | 1.60 to 3.00          | All borehole locations         |
| Glacial Till           | Stiff silty clay                                    | 1.60 to 3.00                   | 0.90 to 2.70          | All borehole locations         |
| Bollin Mudstone Member | Weak siltstone and sandstone                        | 2.50 to 4.70                   | > 0.05 to >0.68       | All borehole locations         |

\*Strata descriptions based on those recorded on the exploratory hole logs.

The made ground encountered within the historical borehole records is likely to be associated with the development of the M6 to the east of the site and is therefore not anticipated to be located on site. Aside from the made ground, the stratigraphy recorded in the historical boreholes records are generally consistent with the published and anticipated geology for the site.



### 4.3 Mineral Extraction

The Coal Authority report (Ref 1, Section 1.4) indicates the site is not known to be in an area which may be affected by coal mining activity. The report is presented in Appendix D.

The report also indicates the site is located within the Cheshire Brine Subsidence Compensation District, however, it is not within any consultation area prescribed by the Board under Section 38(1) of the Cheshire Brine Pumping (compensation for Subsidence) Act 1952.

There are no BGS recorded mineral sites within 250m of the site. The closest is located 371m north west of the site recorded as an opencast Glaciofluvial sand mine under the name Buttyfold Farm and is noted to have 'ceased'.

Additionally, the Envirocheck Report (Ref 6, Section 1.4) records the following potential geological hazards / risks within the general site area:

- Very low risk of collapsible ground;
- No risk of compressible ground;
- No risk of ground dissolution;
- Very low risk of landslides; and
- No risk to very low risk of running sands.

# 5.0

## Unexploded Ordnance (UXO) Risk

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## 5.0 Unexploded Ordnance (UXO) Risk

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A preliminary UXO risk assessment was obtained for the site due to the proximity of an airfield recorded on historical maps ~250m south of the site by 1954 to the present day, which may have existed during the second world war. The airfield is noted to be disused from 1970 onwards.

The report (ref 3, Section 1.4) indicated that the site has a high possibility of UXO encounter and therefore, a detailed UXO risk assessment was undertaken for the site.

The detailed UXO risk assessment classified the site as at medium risk of UXO encounter and recommended the following:

- An operational UXO emergency response plan
- UXO safety and awareness briefings required for all site personnel prior to the works commencing.
- An on-call EOD Engineer to identify/advise the appropriate course of action, if required.

The risk mitigation measures outlined above should be employed during any subsequent intrusive ground investigation or construction phases.

The preliminary UXO threat assessment is presented in Appendix E and the detailed UXO threat and risk assessment is presented in Appendix F.

# 6.0

## Geoenvironmental Setting

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## 6.0 Geoenvironmental Setting

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The information discussed in the following section was primarily obtained from the Envirocheck Report prepared for the site (Ref 6, Section 1.4), where other data sources are used these are detailed in the text.

### 6.1 Hydrology

There are twelve ponds located on site and Bradley Brook is recorded running along the southern site boundary (flowing west to east), entering the site in the south west corner. Additionally, a drain is located along the western boundary in the north west corner of the site, and a moat surrounds Bradley Hall in the centre of the site.

The Drainage and Flood Baseline Assessment (Ref 7, Section 1.4) prepared for the site by Cundall outlines the flooding potential at the site and should be referred to for further information regarding flood risk.

### 6.2 Hydrogeology

The superficial Glacial Till is classified as a Secondary Aquifer – Undifferentiated and the underlying Bollin Mudstone Member bedrock is classified as a Secondary Aquifer – B by the Environment Agency and therefore, is generally capable of storing only limited amounts of groundwater.

The site is not located within an Environment Agency groundwater Source Protection Zone.

The Envirocheck Report indicates there to be no groundwater abstractions within 250m of the site.

### 6.3 BGS Urban Soil Chemistry Averages

The BGS estimated soil chemistry data covering the site and the immediate vicinity indicated the following likely total soil concentration averages at the site:

- Arsenic (<15 mg/kg)
- Cadmium (<1.8 mg/kg)
- Chromium (60 – 90 mg/kg to 90 – 120 mg/kg))
- Lead (<100 mg/kg)
- Nickel (15 – 30 mg/kg)

It should be noted that the above soil chemistry data provided by BGS for the site are indicative only and the actual soil concentrations will require confirmation by intrusive site investigation.

### 6.4 Landfill & Waste

There are no BGS Recorded Landfill site, Local Authority Recorded Landfill sites, Registered Landfill sites or Historical Landfill sites within 1km of the site.

There are no registered Waste Treatment or Disposal sites, registered Waste Transfer sites, Licenced Waste Management Facilities (Landfill Boundaries or Locations) or registered Integrated Pollution Control Registered Waste sites within 1 km of the site.

### 6.5 Infilled Land

There are no recorded Potentially Infilled Land (Non-Water) located within 250m of the site.

There is one Potentially Infilled Land (Water) site located in the west of the site by 1882 which is most likely to relate to a water feature present prior to historical mapping of the site. There are twelve recorded Potentially Infilled Land (Water) sites within 250m of the site classified as Unknown Filled Ground and are likely to relate to the infilling of ponds and / or water courses surrounding the site (including Bradley Brook).

Additionally, historical maps indicate a number of infilled ponds located on site and in close proximity of the site.

## 6.6 Radon

The site is in a lower probability radon area where less than 1% of homes are estimated to be at or above the action level. As such radon protection measures will not be required.

## 6.7 Statutory Registers & Environmental Data

### 6.7.1 Discharge Consents

There are three registered discharge consents within 250m of the site. All three consents are registered to WWTW at Three Properties (Tanhouse Cottage) on Barleycastle Lane and relate to the discharge of final/ treated effluent into Bradley Brook.

### 6.7.2 Pollution Incidents & Pollution Prevention and Controls

Two Local Authority Pollution Prevention and Controls are recorded within 500m of the site. The closest is located 82m north west of the site in Appleton Thorn Industrial Estate registered under the name Buildmix and relates to blending, packing, loading and the use of bulk cement. The other site is located 301m west of the site, registered under Haulmark Equipment Ltd.

There are three Pollution Incidents to Controlled Waters recorded within 250m of the site. The closest is a Category 3 – minor incident recorded 88m north west of the site involving crude sewage pollution. One Category 2 – significant incident is recorded 145m north west of the site relating to crude sewage pollution. The remaining Pollution Incident to Controlled Waters is located 112m north of the site, rated a Category 3 – minor incident, relating to a miscellaneous – unknown pollutant.

None of the following are located within 250m of the site:

- Integrated Pollution Controls and Integrated Pollution Prevention and Control.
- Enforcement and Prohibition Notices.
- Control of Major Accident Hazards Sites (COMAH)
- Prosecutions relating to Authorised Processes or Controlled Waters.
- Local Authority Pollution Prevention and Control Enforcements.
- Local Authority Integrated Pollution Prevention and Control.

## 6.8 Industrial Land Use & Fuel Station Entries

The Envirocheck Report refers to 11 contemporary trade directory entries recorded within 250m of the site. Those entries relating to potentially significant contaminative land usages are described as follows:

- A car body repairs registered as Howley Quay Motors on Grappenhall Lane, 164m north west of the site, listed as active.
- A petrol filling station listed as Lymm Service Station on Cliff Lane, located 191m north of the site, is recorded as active.

Additionally, two further fuel station entries recorded 191m north of the site both relate to Lymm Service Area along Cliff Lane.

## 6.9 Sensitive Land Use & Other Environmental Information

The whole site falls within an area of Adopted Green Belt and an area of Unadopted Green Belt is recorded in the south east of the site.

None of the following were recorded within 250m of the site:

- Contaminated Land Register Entries or Notices.
- Nitrate Vulnerable Zones
- Notification of Installations Handling Hazardous Substances (NIHHS).

- Sensitive land uses including; Ancient Woodland, National Parks, World Heritage Sites, Special Areas of Conservation, World Heritage Sites and Local Nature Reserves.

### **6.10 Summary of Potential Contaminative Sources Affecting the Site**

The main land use on the site has been agricultural up to the present day with Bradley Hall Farm and Bradley Cottages present on site during this time. Additionally, a number of historical infilled ponds are recorded on, and in close proximity to, the site.

The following sources of potential contamination are therefore considered plausible:

- The infilled ponds located on the site and surrounding the site are considered to be a potential source of hazardous ground gas.
- Contamination associated with the agricultural use of the site within the topsoil (i.e. agrichemicals).
- Asbestos containing materials which may be present within shallow soils on site as a result of the age and both the historical and current use of the buildings associated with Bradley Hall Farm.

# 7.0

## Preliminary Conceptual Site Model

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## 7.0 Preliminary Conceptual Site Model

### 7.1 Background Methodology

Reference should be made to the detailed information on the geoenvironmental risk assessment framework and methodology presented in Appendix G.

### 7.2 Preliminary Conceptual Site Model

A preliminary Conceptual Site Model (CSM) of the site has been generated in the context of existing development proposals and it is outlined in Table 5 below.

*Table 5: Potential Sources, Pathways and Receptors*

| Potential Sources of Contamination  |
|---|
| Contamination on site associated with the agricultural use of the site (agricultural chemicals) |
| Infilled ponds located on site and in close proximity to the site                               |
| Weathering (oxidising) of the shallow, sulphate rich bedrock on site.                           |
| Asbestos containing materials on site associated with Bradley Hall Farm.                        |
| Potential Contamination Migration Pathways  |
| Ingestion of soils during and following construction  |
| Direct contact during and following construction  |
| Inhalation of fugitive dust during and following construction                                   |
| Lateral and vertical migration of mobile contaminants   |
| Lateral and vertical migration of ground gas  |
| Direct contact of buried concrete.  |
| Potential Contamination Receptors   |
| Construction workers (during construction)  |
| Adjacent site users (during construction)   |
| Site end users  |
| Controlled Waters: Secondary Aquifers   |
| Controlled Waters: Surface water – Bradley Brook and water features located on site             |
| Built environment / structures  |

### 7.3 Risk Assessment Considerations

Table 6 summarises the key considerations in this risk assessment.

**Table 6: Risk Assessment Considerations**

|                   |   |
|-------------------|---|
| Human Health      | <ul style="list-style-type: none"> <li>▪ The infilled ponds located on, and adjacent to, the site are considered to be a possible source of hazardous ground gas. However, the low permeability strata are likely to break the pollutant linkage pathway.</li> <li>▪ Construction and landscaping of the site may potentially expose any contamination present within topsoil across the site from agrichemicals. This is likely to be a decreasing risk over time due to the limited persistence of many agrichemicals.</li> <li>▪ Due to the age and the historical use of Bradley Hall Farm, it is considered plausible that asbestos containing materials may be locally present, particularly close to Bradley Hall Farm.</li> <li>▪ The risk of contamination during the construction phase can be partially mitigated by the appropriate use of PPE, site hygiene procedures and environmental controls during the works.</li> <li>▪ The proposed development is to comprise a mixed use development with large areas of building and associated hard standing which would largely remove the 'source-pathway-receptor' linkage to the sites end users.</li> </ul> |
| Built Environment | <ul style="list-style-type: none"> <li>▪ The infilled ponds located on, and adjacent to, the site are considered to be a possible source of hazardous ground gas. However, the low permeability strata are likely to break the pollutant linkage pathway.</li> <li>▪ The bedrock on site is likely to be shallow and contain high oxidisable sulphate concentrations. The cutting and filling anticipated will likely allow much of the near to surface bedrock to be oxidised and sulphates liberated.</li> </ul>  |
| Controlled Waters | <ul style="list-style-type: none"> <li>▪ The nearest surface water receptors are Bradley Brook located in the east of the site and several water features located on site.</li> <li>▪ Shallow groundwater is anticipated across the site due to the presence of Bradley Brook and additional present day and historical water features (ponds) located across the site.</li> <li>▪ The Secondary B Aquifer bedrock is not within a source protection zone and there are no groundwater abstractions recorded within 250m of the site. The Glacial Till is a Secondary (Undifferentiated) Aquifer and is likely to significantly limit both lateral and vertical migration of any leachate.</li> </ul>   |

### 7.4 Preliminary Risk Assessment

A preliminary risk assessment has been undertaken based on the reviewed information in this report. This is based upon the "source – pathway – receptor" conceptual risk model in accordance with the relevant UK legislation. Potential sources, pathways and receptors identified as part of the preliminary desk based assessment are presented in Table 7 and a graphical representation is presented in 1015524.DWG.GL.002.

Table 7: Preliminary Risk Assessment

| Contaminant Source  | Pathway  | Receptor  | Consequence of Pollutant Linkage | Likelihood of Pollutant Linkage | Overall Risk   |
|---|--|---|----------------------------------|---------------------------------|----------------|
| Presence of contamination on site within shallow soils                                      | 1. Dermal contact  | Construction workers  | Severe                           | Low                             | Moderate       |
|   |  | Site users  | Severe                           | Unlikely                        | Moderate / Low |
|   | 2. Accidental ingestion  | Construction workers  | Severe                           | Low                             | Moderate       |
|   |  | Site users  | Severe                           | Unlikely                        | Moderate / Low |
|   | 3. Inhalation of fugitive dust   | Construction workers / adjacent site users during construction              | Severe                           | Low                             | Moderate       |
|   |  | Site users  | Severe                           | Unlikely                        | Moderate / Low |
|   | 4. Leaching of mobile contaminants / migration of contaminated groundwater | Secondary Aquifers / Surface Waters   | Medium                           | Unlikely                        | Low            |
|   | 5. Potable Water Supply Pipes  | Construction workers / Site users   | Medium                           | Unlikely                        | Low            |
| Presence of asbestos containing materials on site – particularly close to Bradley Hall Farm | 6. Inhalation of airborne fibres   | Construction workers / adjacent site users during construction / site users | Severe                           | Unlikely                        | Moderate / Low |
| Oxidisable Sulphates  | 7. Direct attack of buried structures                                      | Built Environment / Structures  | Medium                           | Likely                          | High           |
| Hazardous gas generated from on and off-site sources  | 8. Lateral / vertical migration and accumulation                           | Construction workers / Site users   | Severe                           | Unlikely                        | Moderate       |
|   |  | Built Environment / Structures  | Severe                           | Unlikely                        | Moderate       |

# 8.0

## Development Constraints

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## 8.0 Development Constraints

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Possible development constraints that should be considered during scheme design have been identified as part of the desk study and are also presented in Drawing 1015524.DWG.GL.003. They include the following:

- The entire site is underlain by the Bollin Mudstone Member, a red marl interbedded with evaporite and is recorded to be within the Cheshire Brine Subsidence Compensation District. Therefore, there may be potential for the dissolution features to exist within the evaporite deposits where in contact with groundwater beneath the site and where salt workings may be present beneath the site.
- High sulphate concentrations resulting from the weathering of the Bollin Mudstone Member bedrock beneath the site have the potential to attack buried concrete.
- The bedrock is anticipated to be present at shallow depths in the centre and towards the west of the site. This may have an impact on deep drainage across the site and the ease of excavation for foundations and development platforms of proposed buildings.
- Groundwater levels beneath the site are anticipated to be shallow due to the presence of Bradley Brook and several ponds and water features located across the site.
- A number of historical ponds are assumed to have been infilled based upon historical mapping of the site.
- Organic material may be present across the site due to the presence of both historical and existing water features located on site. This may be soft and compressible, representing a risk to buildings in terms of both absolute and differential settlements.
- Due to the presence of cohesive Glacial Till deposits at the site and the number of trees located across the site, it is likely that the areas surrounding the trees have the potential to be significantly desiccated and at risk of volume change.

# 9.0

## Recommendations for Further Works

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## 9.0 Recommendations for Further Works

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An exploratory geoenvironmental investigation will be required to support an ES Technical Chapter for the proposed development. These works should comprise the following:

- 360 No. Hand auger pits to approximately 1.2m depth with approximately 50m centre spacings across the site to confirm ground conditions;
- 40 No. Dynamic Sampler boreholes to approximately 5.0m to confirm ground and groundwater conditions at the site and to obtain samples for chemical testing;
- 10 No. water samples from Bradley Brook and selected boreholes;
- Appropriate chemical analysis;
- Installation of 10 No. groundwater and ground gas monitoring wells in selected exploratory holes;
- Monitoring of ground gas and groundwater on a minimum of four occasions over a period of no less than two months (in accordance with CIRIA C665 2007).

Additionally, a detailed geoenvironmental investigation will be required to target any identified sources of contamination identified as part of the exploratory geoenvironmental investigation.

Furthermore, a detailed design investigation will also be required to inform the geotechnical design of the proposed development including cut and fill works, earthworks, road, drainage and foundation design and to further quantify the risks associated with the development constraints outlined in Section 8.0.

# Drawings

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Notes



-  Site Boundary
-  Image Location & Direction



Image 1. Pond located in the north of the site.

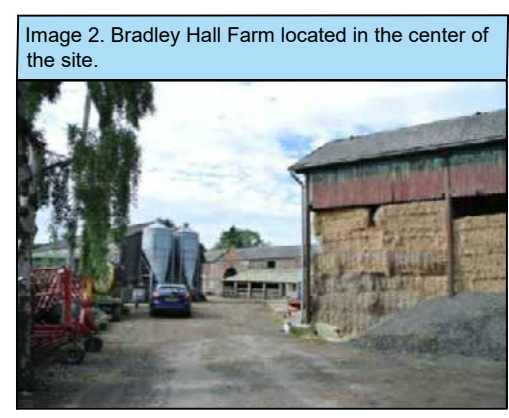


Image 2. Bradley Hall Farm located in the center of the site.



Image 3. Bradley Cottages are located in the center of the site to the north of Bradley Farm.



Image 4. A power mast and cabinet are located in the south east of the site.



Image 5. Bradley Gorse is an area of dense woodland located in the south east of the site.



Image 6. Wrights Covert is an area of trees located in the south east corner of the site.

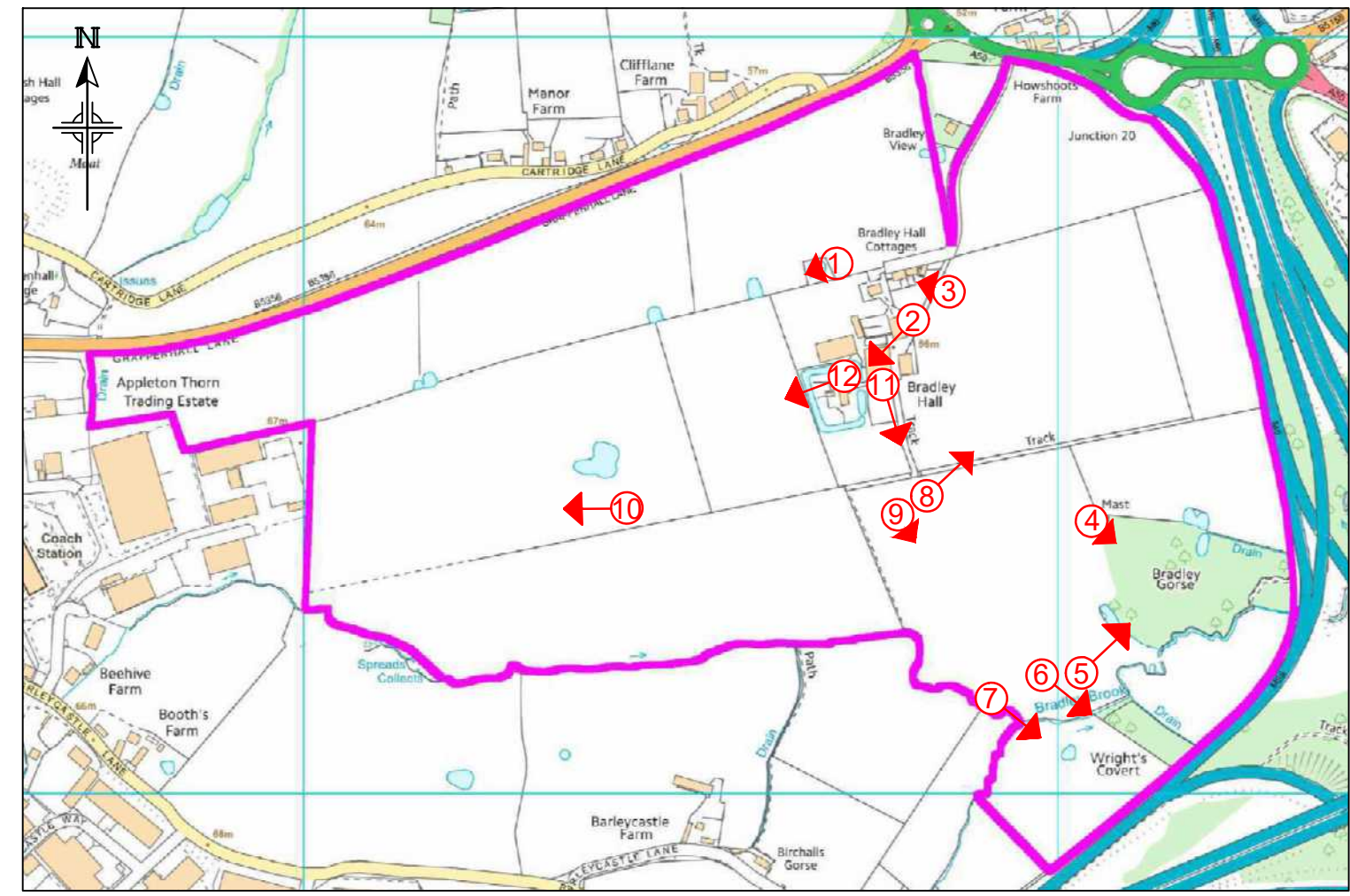


Image 12. Bradley Hall is located in the center of the site, south of Bradley Hall Farm.



Image 11. A track runs north to south through the center of the site and meets with a track running east to west, to the south of Bradley Farm.



Image 10. Pastoral fields cover the western half of the site.

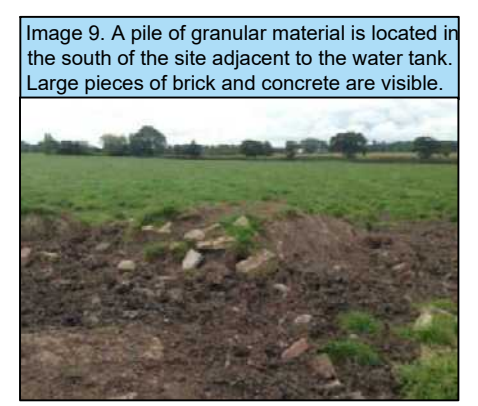


Image 9. A pile of granular material is located in the south of the site adjacent to the water tank. Large pieces of brick and concrete are visible.



Image 8. A water tank and container are located in the south of the site.



Image 7. Bradley Brook runs along the southern site boundary and enters the site in the south east.

|       |          |                 |    |      |       |
|-------|----------|-----------------|----|------|-------|
| -     | 31/08/17 | For Information | LB | DS   | JA    |
| Issue | Date     | Description     | By | Chkd | Verfd |

Project  
Warrington Interchange Masterplan

Client  
First Industrial / Langtree

Architect  
Stephen George & Partners LLP

Title  
Key Features Plan

|                                   |                         |
|-----------------------------------|-------------------------|
| Drawing No.<br>1015524.DWG.GL.001 | Drawing Status<br>Final |
|-----------------------------------|-------------------------|

|                    |              |
|--------------------|--------------|
| Job No.<br>1013398 | Scale<br>NTS |
|--------------------|--------------|

|                  |               |                |             |
|------------------|---------------|----------------|-------------|
| Originator<br>LB | Checked<br>DS | Verified<br>JA | Issue.<br>- |
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Notes

This Preliminary Conceptual Site Model is based upon the identified 'Source - Pathway - Receptor' linkages identified by this report.

Legend

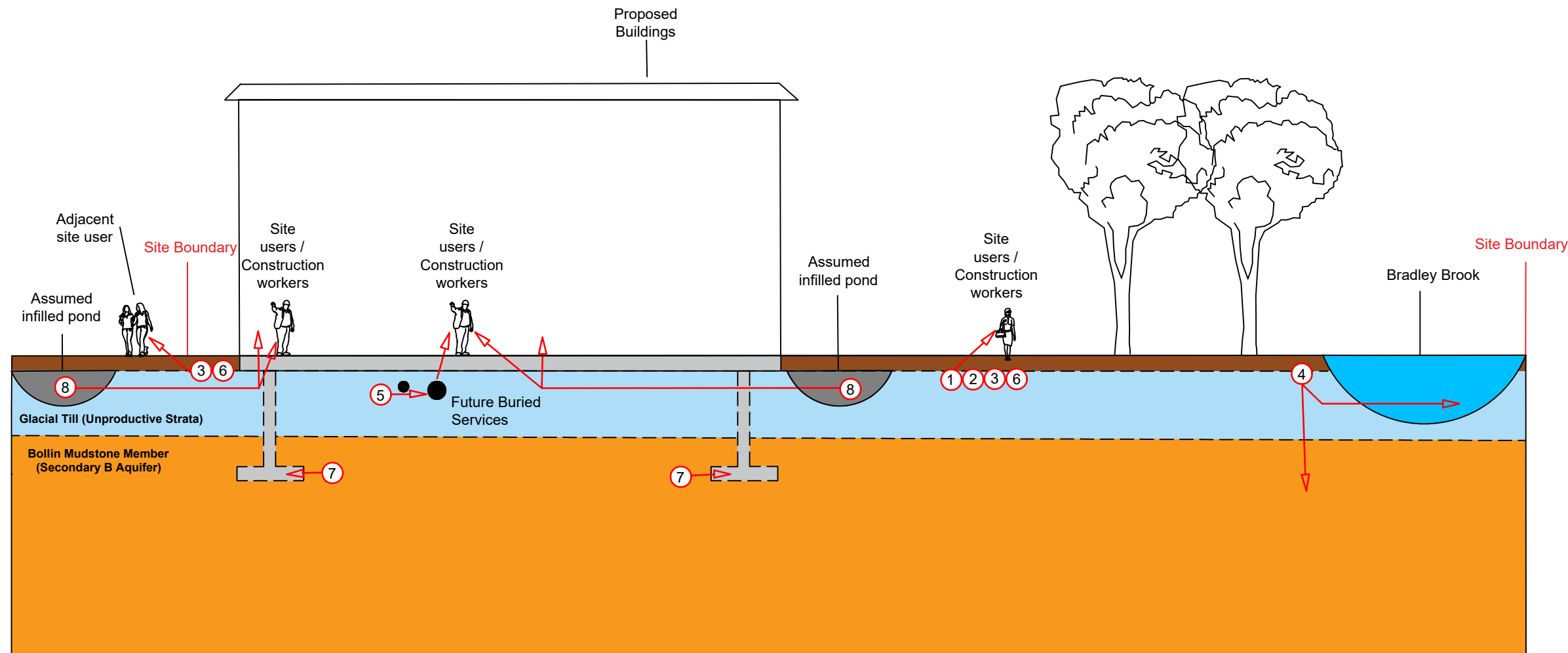
Topsoil

Glacial Till

Bollin Mudstone Member

Potential Contaminant Linkage

Inferred Strata Boundary



| Contaminant Source   | Pathway  | Receptor  | Consequence of Pollutant Linkage | Likelihood of Pollutant Linkage | Overall Risk   |
|--|--|---|----------------------------------|---------------------------------|----------------|
| Presence of contamination on site within shallow soils                     | 1. Dermal contact                                | Construction workers  | Severe                           | Low                             | Moderate       |
|  |  | Site users  | Severe                           | Unlikely                        | Moderate / Low |
|  | 2. Accidental ingestion                          | Construction workers  | Severe                           | Low                             | Moderate       |
|  |  | Site users  | Severe                           | Unlikely                        | Moderate / Low |
|  | 3. Inhalation of fugitive dust                   | Construction workers / adjacent site users during construction              | Severe                           | Low                             | Moderate       |
|  |  | Site users  | Severe                           | Unlikely                        | Moderate / Low |
| 4. Leaching of mobile contaminants / migration of contaminated groundwater | Secondary Aquifers / Surface Waters              | Medium  | Unlikely                         | Low                             |                |
|  | 5. Potable Water Supply Pipes                    | Construction workers / Site users   | Medium                           | Unlikely                        | Low            |
| Presence of asbestos containing materials on site within shallow soils     | 6. Inhalation of airborne fibres                 | Construction workers / adjacent site users during construction / site users | Severe                           | Unlikely                        | Moderate / Low |
| Oxidisable Sulphates   | 7. Direct attack of buried structures            | Built Environment / Structures  | Medium                           | High                            | High           |
| Hazardous gas generated from on site and offsite sources                   | 8. Lateral / vertical migration and accumulation | Construction workers / Site users   | Severe                           | Low                             | Moderate       |
|  |  | Built Environment / Structures  | Severe                           | Low                             | Moderate       |

|       |          |                 |    |      |       |
|-------|----------|-----------------|----|------|-------|
| -     | 30.08.17 | For Information | LB | DS   | KM    |
| Issue | Date     | Description     | By | Chkd | Verfd |

Project  
Warrington Interchange Masterplan

Client  
First Industrial / Langtree  
Architect  
Stephen George & Partners LLP

Title  
Preliminary Conceptual Site Model

Drawing No.  
1015524.DWG.GL.002

Drawing Status  
Final

Job No.  
1015524

Scale  
Not to Scale







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Notes

Key:

-  Existing Water Feature's may result in soft ground in their surroundings
-  Historical Water Features (presumed to be infilled) are a potential source of ground gas and soft ground within their surroundings
-  Development Boundary
-  5m impact radius around Water Features

The entire site is underlain by Bollin Mudstone Member and high sulphate concentrations are likely to result from the weathering of this bedrock.

The bedrock is anticipated to exist at shallow depths beneath the site, particularly in the center and the west. The superficial cohesive Glacial Till could result in desiccation of the clay surrounding trees located on site.

Additionally, there is a potential for the site to be at risk from UXO due to the airfield located ~400m south of the site.

|       |          |                 |    |      |       |
|-------|----------|-----------------|----|------|-------|
| -     | 21.08.17 | For Information | LB | DS   | KM    |
| Issue | Date     | Description     | By | Chkd | Verfd |

Project  
Warrington Interchange MP

Client  
First Industrial / Langtree  
Architect  
Stephen George & Partners LLP

Title  
Geological Constraints Drawing

Drawing No.  
1015524.DWG.GL.003

Drawing Status  
Final

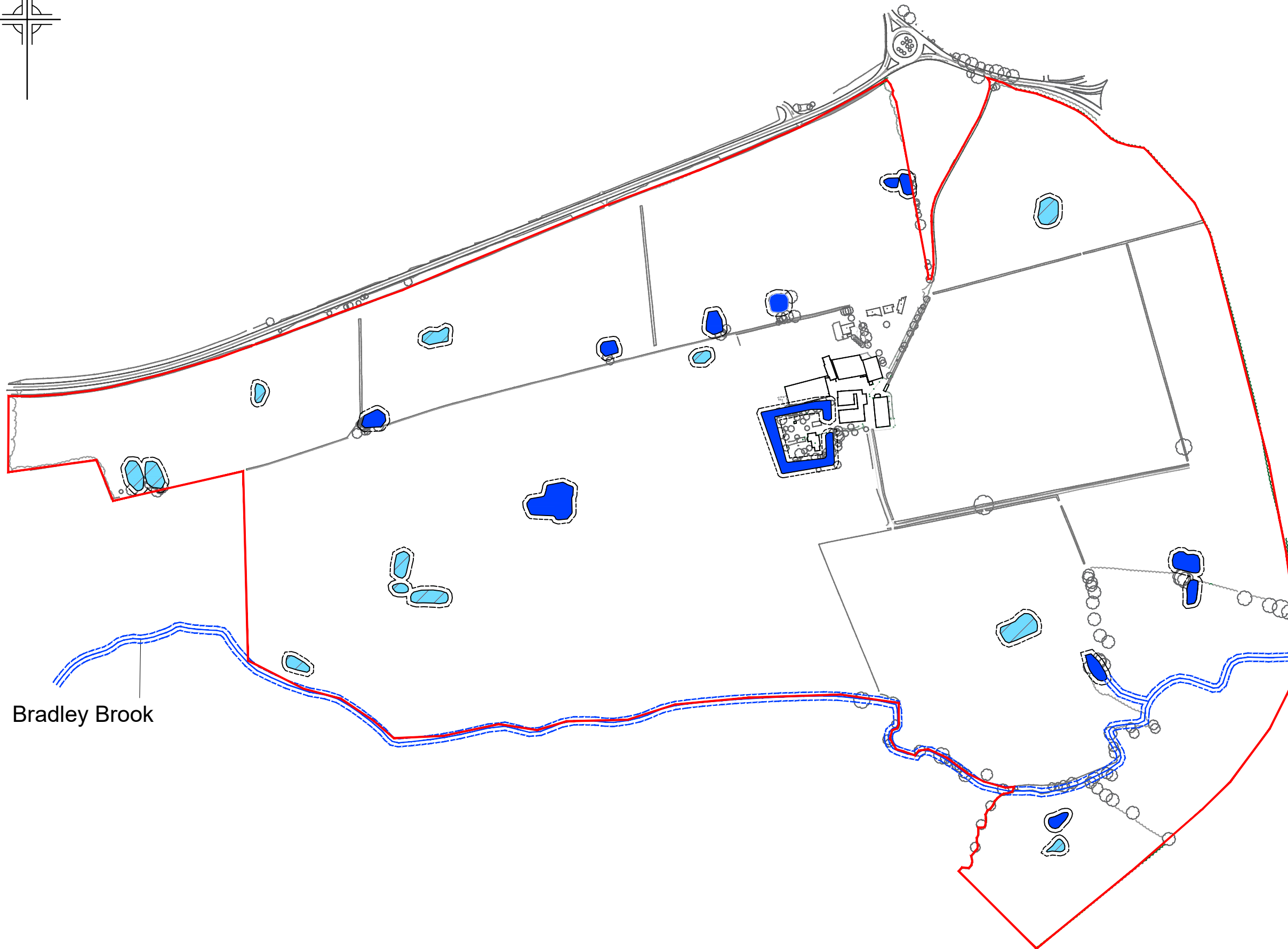
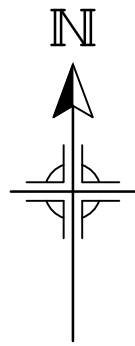
Job No.  
1015524

Scale  
1:5000



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Bradley Brook

# Appendix A: Historical Maps & Plans

---

# Historical Mapping Legends

## Ordnance Survey County Series 1:10,560

- Gravel Pit
- Sand Pit
- Other Pits
- Quarry
- Shingle
- Orchard
- Osiers
- Reeds
- Marsh
- Mixed Wood
- Deciduous
- Brushwood
- Fir
- Furze
- Rough Pasture
- Arrow denotes flow of water
- Trigonometrical Station
- Site of Antiquities
- Bench Mark
- Pump, Guide Post, Signal Post
- Well, Spring, Boundary Post
- 285** Surface Level
- Sketched Contour
- Instrumental Contour
- Main Roads
- Minor Roads
- Sunken Road
- Raised Road
- Road over Railway
- Railway over River
- Railway over Road
- Level Crossing
- Road over River or Canal
- Road over Stream
- Road over Stream
- County Boundary (Geographical)
- County & Civil Parish Boundary
- Administrative County & Civil Parish Boundary
- Co. Boro. Bdy. County Borough Boundary (England)
- Co. Burgh Bdy. County Burgh Boundary (Scotland)
- R.D. Bdy. Rural District Boundary
- Civil Parish Boundary

## Ordnance Survey Plan 1:10,000

- Chalk Pit, Clay Pit or Quarry
- Gravel Pit
- Sand Pit
- Disused Pit or Quarry
- Refuse or Slag Heap
- Lake, Loch or Pond
- Dunes
- Boulders
- Coniferous Trees
- Non-Coniferous Trees
- Orchard
- Scrub
- Coppice
- Bracken
- Heath
- Rough Grassland
- Marsh
- Reeds
- Saltings
- Building
- Glasshouse
- Sloping Masonry
- Pylon
- Electricity Transmission Line
- Pole
- Cutting
- Embankment
- Standard Gauge Multiple Track
- Standard Gauge Single Track
- Siding, Tramway or Mineral Line
- Narrow Gauge
- Geographical County
- Administrative County, County Borough or County of City
- Municipal Borough, Urban or Rural District, Burgh or District Council
- Borough, Burgh or County Constituency  
Shown only when not coincident with other boundaries
- Civil Parish  
Shown alternately when coincidence of boundaries occurs
- BP, BS Boundary Post or Stone
- Ch Church
- CH Club House
- F E Sta Fire Engine Station
- FB Foot Bridge
- Fn Fountain
- GP Guide Post
- MP Mile Post
- MS Mile Stone
- Pol Sta Police Station
- PO Post Office
- PC Public Convenience
- PH Public House
- SB Signal Box
- Spr Spring
- TCB Telephone Call Box
- TCP Telephone Call Post
- W Well

## 1:10,000 Raster Mapping

- Gravel Pit
- Refuse tip or slag heap
- Rock
- Rock (scattered)
- Boulders
- Boulders (scattered)
- Shingle
- Mud
- Sand
- Sand Pit
- Slopes
- Top of cliff
- General detail
- Underground detail
- Overhead detail
- Narrow gauge railway
- Multi-track railway
- Single track railway
- County boundary (England only)
- Civil, parish or community boundary
- District, Unitary, Metropolitan, London Borough boundary
- Constituency boundary
- Area of wooded vegetation
- Non-coniferous trees
- Non-coniferous trees (scattered)
- Coniferous trees
- Coniferous trees (scattered)
- Positioned tree
- Orchard
- Coppice or Osiers
- Rough Grassland
- Heath
- Scrub
- Marsh, Salt Marsh or Reeds
- Water feature
- Flow arrows
- MHW(S) Mean high water (springs)
- MLW(S) Mean low water (springs)
- Telephone line (where shown)
- Electricity transmission line (with poles)
- Bench mark (where shown)
- Triangulation station
- Point feature (e.g. Guide Post or Mile Stone)
- Pylon, flare stack or lighting tower
- Site of (antiquity)
- Glasshouse
- General Building
- Important Building

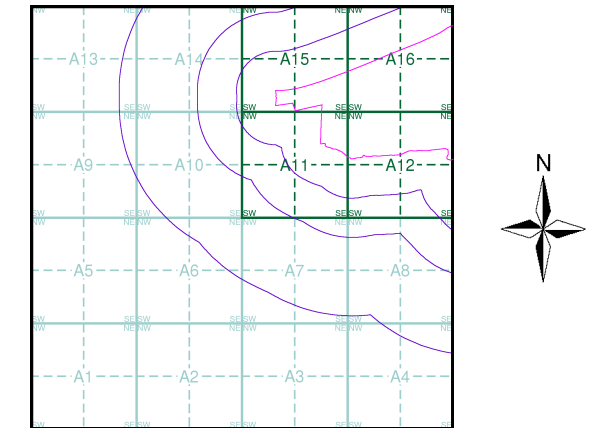
# Envirocheck

LANDMARK INFORMATION GROUP

## Historical Mapping & Photography included:

| Mapping Type           | Scale    | Date        | Pg |
|------------------------|----------|-------------|----|
| Lancashire And Furness | 1:10,560 | 1849        | 3  |
| Cheshire               | 1:10,560 | 1881 - 1882 | 4  |
| Cheshire               | 1:10,560 | 1899        | 5  |
| Cheshire               | 1:10,560 | 1910 - 1911 | 6  |
| Cheshire               | 1:10,560 | 1910 - 1911 | 7  |
| Cheshire               | 1:10,560 | 1910 - 1911 | 8  |
| Cheshire               | 1:10,560 | 1938        | 9  |
| Cheshire               | 1:10,560 | 1938        | 10 |
| Ordnance Survey Plan   | 1:10,000 | 1954        | 11 |
| Ordnance Survey Plan   | 1:10,000 | 1964 - 1966 | 12 |
| Ordnance Survey Plan   | 1:10,000 | 1967        | 13 |
| Ordnance Survey Plan   | 1:10,000 | 1970 - 1971 | 14 |
| Manchester             | 1:25,000 | 1975        | 15 |
| Ordnance Survey Plan   | 1:10,000 | 1981 - 1987 | 16 |
| Ordnance Survey Plan   | 1:10,000 | 1984        | 17 |
| Warrington             | 1:10,000 | 1984        | 18 |
| Ordnance Survey Plan   | 1:10,000 | 1992 - 1993 | 19 |
| 10K Raster Mapping     | 1:10,000 | 1999        | 20 |
| 10K Raster Mapping     | 1:10,000 | 2006        | 21 |
| VectorMap Local        | 1:10,000 | 2017        | 22 |

## Historical Map - Slice A



## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

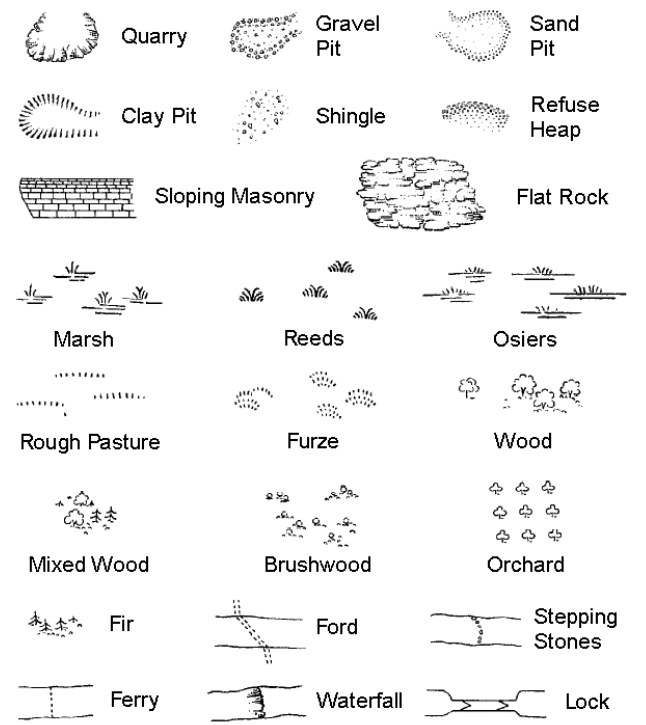
Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

**Landmark**  
 INFORMATION GROUP

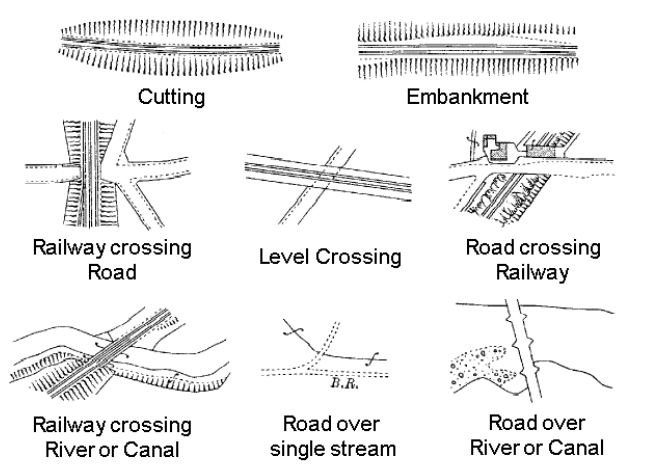
Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

# Historical Mapping Legends

## Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



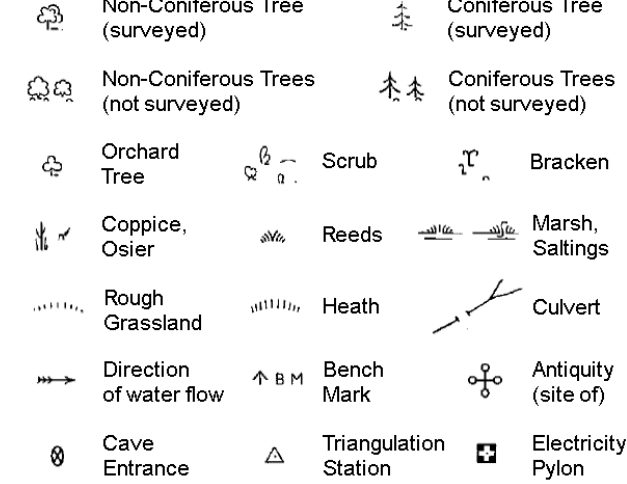
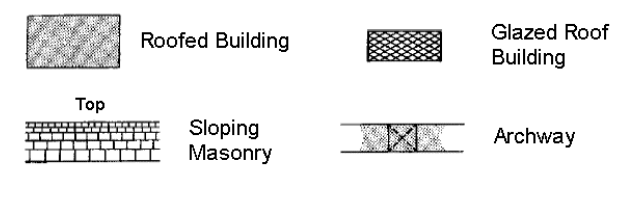
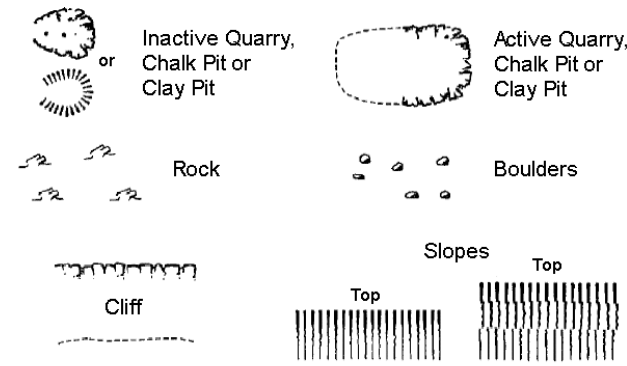
△ Trig. Station 507 △ Altitude at Trig. Station  
 B.M. 325.9 ↑ Bench Mark 342 + Surface Level  
 ← Arrow denotes flow of water  
 Antiquities (site of)



----- County Boundary (Geographical)  
 - - - - - County & Civil Parish Boundary  
 + + + + + Administrative County & Civil Parish Boundary  
 ----- County Borough Boundary (England)  
 Co. Boro. Bdy. County Borough Boundary (England)  
 ----- County Burgh Boundary (Scotland)  
 Co. Burgh Bdy. County Burgh Boundary (Scotland)

*B.P.B.S.* Boundary Post or Stone     *P.C.B.* Police Call Box  
*B.R.* Bridle Road     *P* Pump  
*E.P.* Electricity Pylon     *S.P.* Signal Post  
*F.B.* Foot Bridge     *Sl* Sluice  
*F.P.* Foot Path     *Sp.* Spring  
*G.P.* Guide Post or Board     *T.C.B.* Telephone Call Box  
*M.S.* Mile Stone     *Tr.* Trough  
*M.P.M.R.* Mooring Post or Ring     *W* Well

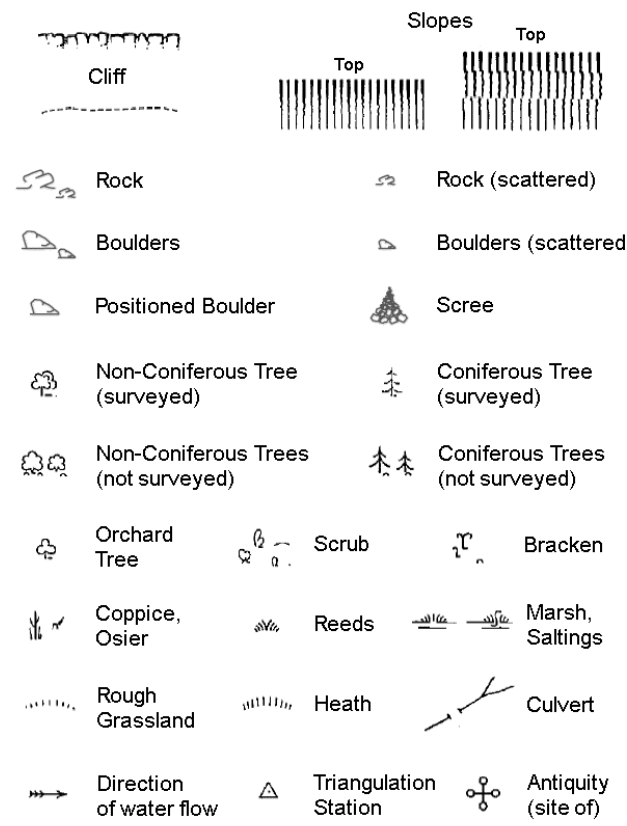
## Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



  E T L   Electricity Transmission Line  
 --- County Boundary (Geographical)  
 - - - County & Civil Parish Boundary  
 . . . Civil Parish Boundary  
 . . . . . Admin. County or County Bor. Boundary  
 L B Bdy London Borough Boundary  
 Symbol marking point where boundary mereing changes

|        |                            |             |                        |
|--------|----------------------------|-------------|------------------------|
| BH     | Beer House                 | P           | Pillar, Pole or Post   |
| BP, BS | Boundary Post or Stone     | PO          | Post Office            |
| Cn, C  | Capstan, Crane             | PC          | Public Convenience     |
| Chy    | Chimney                    | PH          | Public House           |
| D Fn   | Drinking Fountain          | Pp          | Pump                   |
| EI P   | Electricity Pillar or Post | SB, S Br    | Signal Box or Bridge   |
| FAP    | Fire Alarm Pillar          | SP, SL      | Signal Post or Light   |
| FB     | Foot Bridge                | Spr         | Spring                 |
| GP     | Guide Post                 | Tk          | Tank or Track          |
| H      | Hydrant or Hydraulic       | TCB         | Telephone Call Box     |
| LC     | Level Crossing             | TCP         | Telephone Call Post    |
| MH     | Manhole                    | Tr          | Trough                 |
| MP     | Mile Post or Mooring Post  | Wr Pt, Wr T | Water Point, Water Tap |
| MS     | Mile Stone                 | W           | Well                   |
| N.T.L. | Normal Tidal Limit         | Wd Pp       | Wind Pump              |

## Large-Scale National Grid Data 1:2,500 and 1:1,250



  E T L   Electricity Transmission Line     ⊠ Electricity Pylon  
 BM 231.60m Bench Mark     Buildings with Building Seed  
 Roofed Building     Glazed Roof Building  
 . . . . . Civil parish/community boundary  
 --- District boundary  
 - - - County boundary  
 o Boundary post/stone  
 Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

|            |                                |                |                          |
|------------|--------------------------------|----------------|--------------------------|
| Bks        | Barracks                       | P              | Pillar, Pole or Post     |
| Bty        | Battery                        | PO             | Post Office              |
| Cemy       | Cemetery                       | PC             | Public Convenience       |
| Chy        | Chimney                        | Pp             | Pump                     |
| Cis        | Cistern                        | Ppg Sta        | Pumping Station          |
| Dismtd Rly | Dismantled Railway             | PW             | Place of Worship         |
| EI Gen Sta | Electricity Generating Station | Sewage Ppg Sta | Sewage Pumping Station   |
| EI P       | Electricity Pole, Pillar       | SB, S Br       | Signal Box or Bridge     |
| EI Sub Sta | Electricity Sub Station        | SP, SL         | Signal Post or Light     |
| FB         | Filter Bed                     | Spr            | Spring                   |
| Fn / D Fn  | Fountain / Drinking Ftn.       | Tk             | Tank or Track            |
| Gas Gov    | Gas Valve Compound             | Tr             | Trough                   |
| GVC        | Gas Governor                   | Wd Pp          | Wind Pump                |
| GP         | Guide Post                     | Wr Pt, Wr T    | Water Point, Water Tap   |
| MH         | Manhole                        | Wks            | Works (building or area) |
| MP, MS     | Mile Post or Mile Stone        | W              | Well                     |

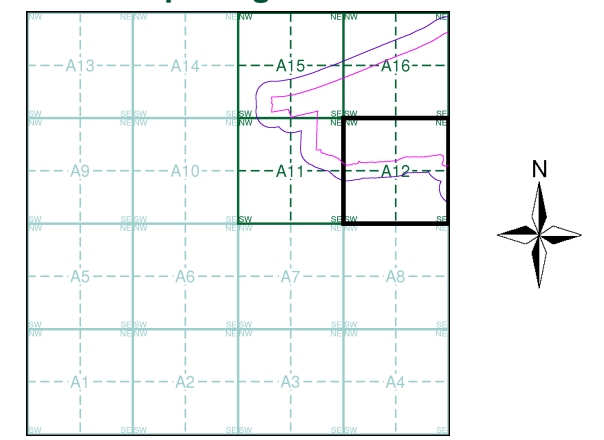
# Envirocheck®

LANDMARK INFORMATION GROUP®

## Historical Mapping & Photography included:

| Mapping Type                   | Scale   | Date        | Pg |
|--------------------------------|---------|-------------|----|
| Cheshire                       | 1:2,500 | 1877        | 2  |
| Cheshire                       | 1:2,500 | 1898        | 3  |
| Cheshire                       | 1:2,500 | 1910        | 4  |
| Ordnance Survey Plan           | 1:2,500 | 1967        | 5  |
| Additional SIMs                | 1:2,500 | 1978 - 1991 | 6  |
| Ordnance Survey Plan           | 1:2,500 | 1986        | 7  |
| Additional SIMs                | 1:2,500 | 1992        | 8  |
| Large-Scale National Grid Data | 1:2,500 | 1993        | 9  |
| Historical Aerial Photography  | 1:2,500 | 2000        | 10 |

## Historical Map - Segment A12



**Order Details**  
 Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

**Site Details**  
 Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

**Landmark** INFORMATION GROUP  
 Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

# Russian Military Mapping Legends

## 1:5,000 and 1:10,000 mapping

a. Not drawn to scale    b. Drawn to scale

Government and Administrative Buildings

Military and Industrial Buildings

Military and Communication Areas

Subway Entrance

Fireproof Building

Prominent Fireproof Building

Non-fireproof Building

Non-fireproof Building (non-dwelling)

Factory, mill, and flour mill, with chimneys

Factory, mill, and flour mill, without chimneys

Power Station, drawn to scale

Hydroelectric Power Station

Radio Station, drawn to scale

Telephone Station, drawn to scale

Abandoned Open-pit Mine or Quarry

Open-pit Salt Mine

Pit

Oil Deposit or Well

Oil Seepage

Tailings Pile

Fuel Storage Tanks

Natural Gas Tank

Bench Mark

Drill Hole

Burial Mound

Triangulation Point on Burial Mound

Fill

Cut

Small Bridge

Tunnel

Pipe (Culvert)

Single-track Railroad

Double-track Railroad and Station Building

Coniferous Forest

Deciduous Forest

Mixed Forest

Lawns

Citrus Orchard

Wet Ground

Scattered Vegetation

243.8 Values for prominent elevations

186.0 Numbers for spot elevations, depth soundings, contour lines, etc.

0.2 Velocity of the current, width of river bed, depth of river

Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

### Russian Alphabet (For reference and phonetic interpretation of map text)

|          |         |          |                |
|----------|---------|----------|----------------|
| А а (A)  | З з (Z) | П п (P)  | Ч ч (CH)       |
| Б б (B)  | И и (I) | Р р (R)  | Ш ш (SH)       |
| В в (V)  | Й й (Y) | С с (S)  | Щ щ (SHCH)     |
| Г г (G)  | К к (K) | Т т (T)  | Ь ь (-)        |
| Д д (D)  | Л л (L) | У у (U)  | Ы ы (Y)        |
| Е е (E)  | М м (M) | Ф ф (F)  | Ь ь (')        |
| Ё ё (YO) | Н н (N) | Х х (KH) | Э э (E)        |
| Ж ж (ZH) | О о (O) | Ц ц (TS) | Ю ю (YU or IU) |
|          |         |          | Я я (YA or IA) |

## 1:25,000 mapping

a. Not drawn to scale    b. Drawn to scale

Government and Administrative Buildings

Military and Industrial Buildings

Military and Communication Areas

Subway Entrance

Partly Demolished Buildings

Demolished Buildings

Built-Up Area with Fireproof Buildings Predominant

Built-Up Area with Non-Fireproof Buildings Predominant

Individual Fireproof Building

Prominent Industrial Building

Individual Dwelling, Fireproof

Ruins of an Individual Dwelling

Factory or Mill Chimney

Factory or Mill with Chimney

Factory or Mill without Chimney

Mine or Open Pit Mine

Operating Shaft or Mine

Non-Operating Shaft or Mine

Salt Mine

Tailings Pile

Pit

Stone Quarry

Gas Pump or Service Station

Fuel Storage or Natural Gas Tank

Oil or Natural Gas Derrick

Small Hydroelectric Power Station

Power Station

Transformer Station

Cemetery

Burial Mound (height in metres)

Triangulation Point on Burial Mound

Triangulation Point

Bench Mark

Bench Mark (monumented)

Telegraph Office

Telephone Station

Radio Station

Radio Tower

Airfield or Seaplane Base

Landing Strip

Cut

Fill

Km Post

Plantings

Width of Road

Telegraph/Telephone Lines

Main Highway

Highway under Construction

Improved Dirt Road (former truck road)

Steep Grade

Small Bridge

Pipe (Culvert)

Tunnel

Dismantled Railroad

Double-track Railroad with First Class Station

Railroad Under Construction

Shore Embankment

River or Ditch with Embankment

Direction and velocity of current

Water Gauge

Water Level Mark

Well

Water Reservoir or Rain Water Pit

Spring

Isobath with value

Heavy (Index) Contour Line

Contour Line and Value

Half Contour Line

Spot Elevation Value

Coniferous

Deciduous

Mixed

Scrub

## Key to Numbers on Mapping

### SJ68\_Manchester

| No. | Description      |
|-----|------------------|
| 4   | Airfield/Airport |

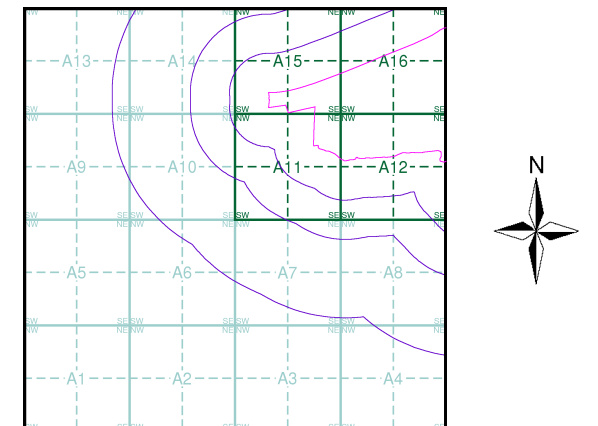
# Envirocheck

LANDMARK INFORMATION GROUP

## Historical Mapping & Photography included:

| Mapping Type           | Scale    | Date        | Pg |
|------------------------|----------|-------------|----|
| Lancashire And Furness | 1:10,560 | 1849        | 3  |
| Cheshire               | 1:10,560 | 1881 - 1882 | 4  |
| Cheshire               | 1:10,560 | 1899        | 5  |
| Cheshire               | 1:10,560 | 1910 - 1911 | 6  |
| Cheshire               | 1:10,560 | 1910 - 1911 | 7  |
| Cheshire               | 1:10,560 | 1910 - 1911 | 8  |
| Cheshire               | 1:10,560 | 1938        | 9  |
| Cheshire               | 1:10,560 | 1938        | 10 |
| Ordnance Survey Plan   | 1:10,000 | 1954        | 11 |
| Ordnance Survey Plan   | 1:10,000 | 1964 - 1966 | 12 |
| Ordnance Survey Plan   | 1:10,000 | 1967        | 13 |
| Ordnance Survey Plan   | 1:10,000 | 1970 - 1971 | 14 |
| Manchester             | 1:25,000 | 1975        | 15 |
| Ordnance Survey Plan   | 1:10,000 | 1981 - 1987 | 16 |
| Ordnance Survey Plan   | 1:10,000 | 1984        | 17 |
| Warrington             | 1:10,000 | 1984        | 18 |
| Ordnance Survey Plan   | 1:10,000 | 1992 - 1993 | 19 |
| 10K Raster Mapping     | 1:10,000 | 1999        | 20 |
| 10K Raster Mapping     | 1:10,000 | 2006        | 21 |
| VectorMap Local        | 1:10,000 | 2017        | 22 |

## Russian Map - Slice A



## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

Landmark  
 INFORMATION GROUP

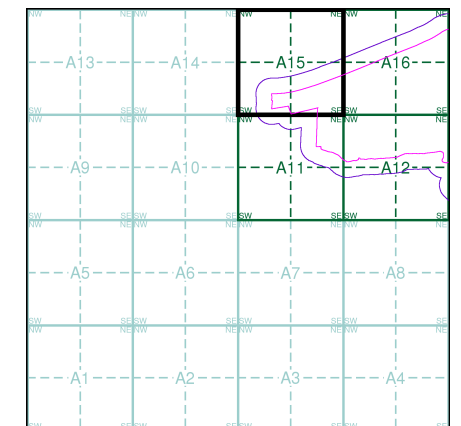
Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

**Map Name(s) and Date(s)**

|         |
|---------|
| 017_09  |
| 1874    |
| 1:2,500 |
| 017_13  |
| 1877    |
| 1:2,500 |

**Historical Map - Segment A15**

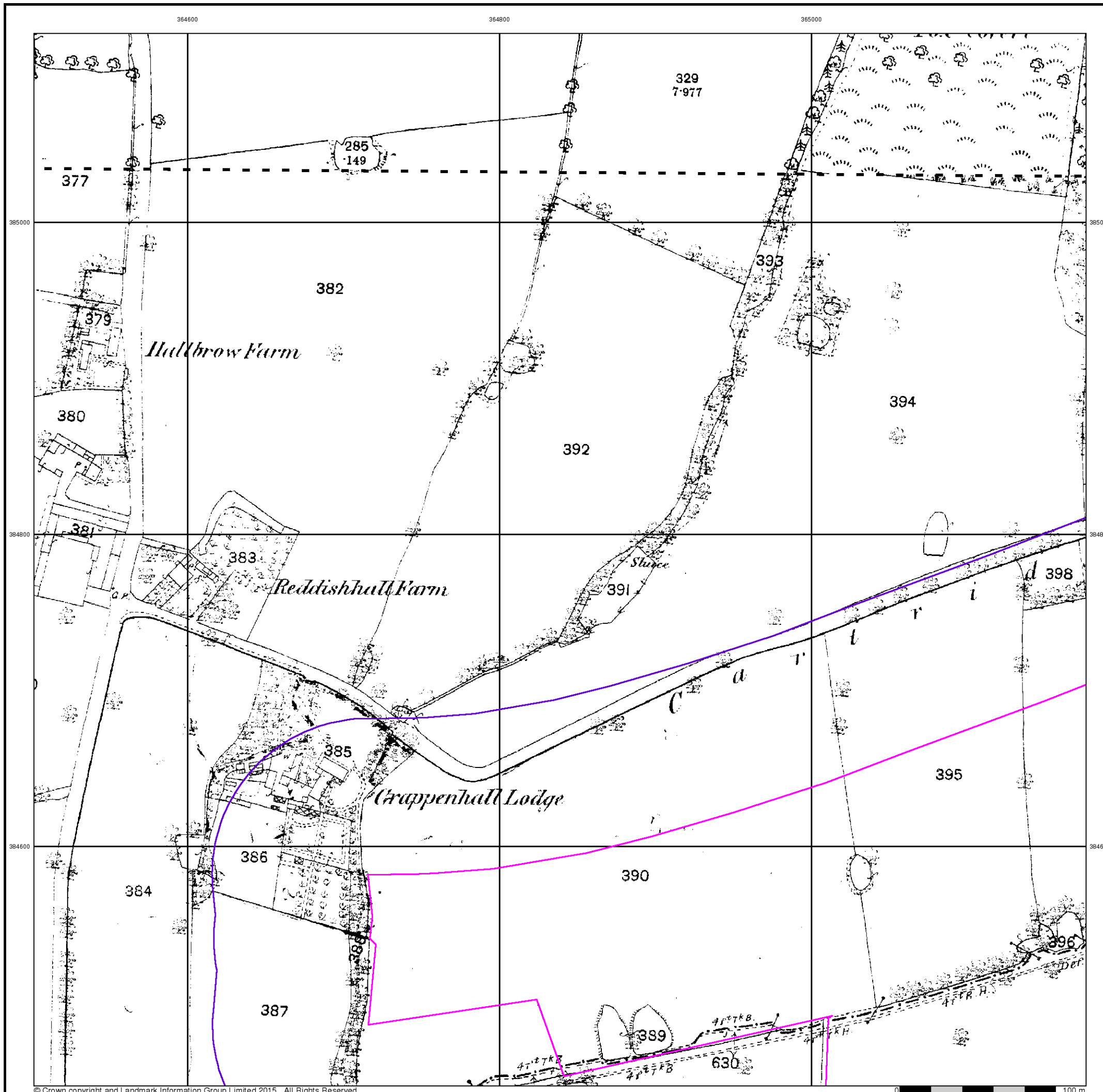


**Order Details**

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

**Site Details**

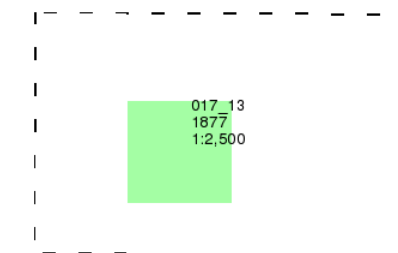
Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



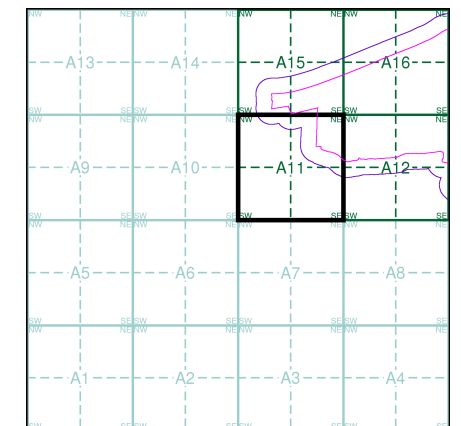


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)



### Historical Map - Segment A11

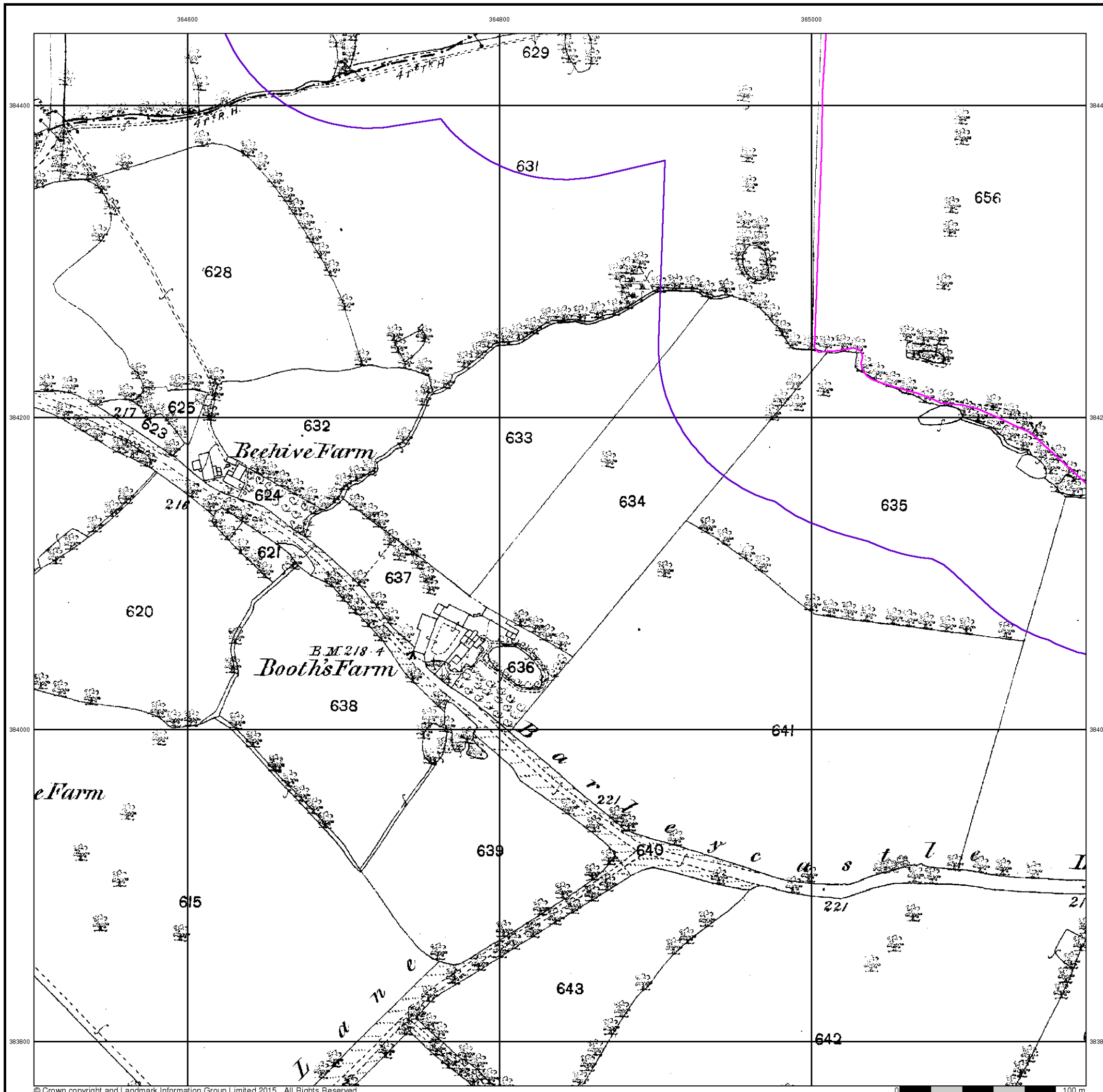


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

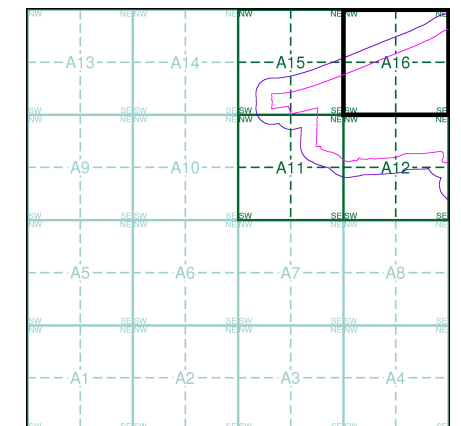


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|         |
|---------|
| 017_09  |
| 1874    |
| 1:2,500 |
| 017_13  |
| 1877    |
| 1:2,500 |

### Historical Map - Segment A16

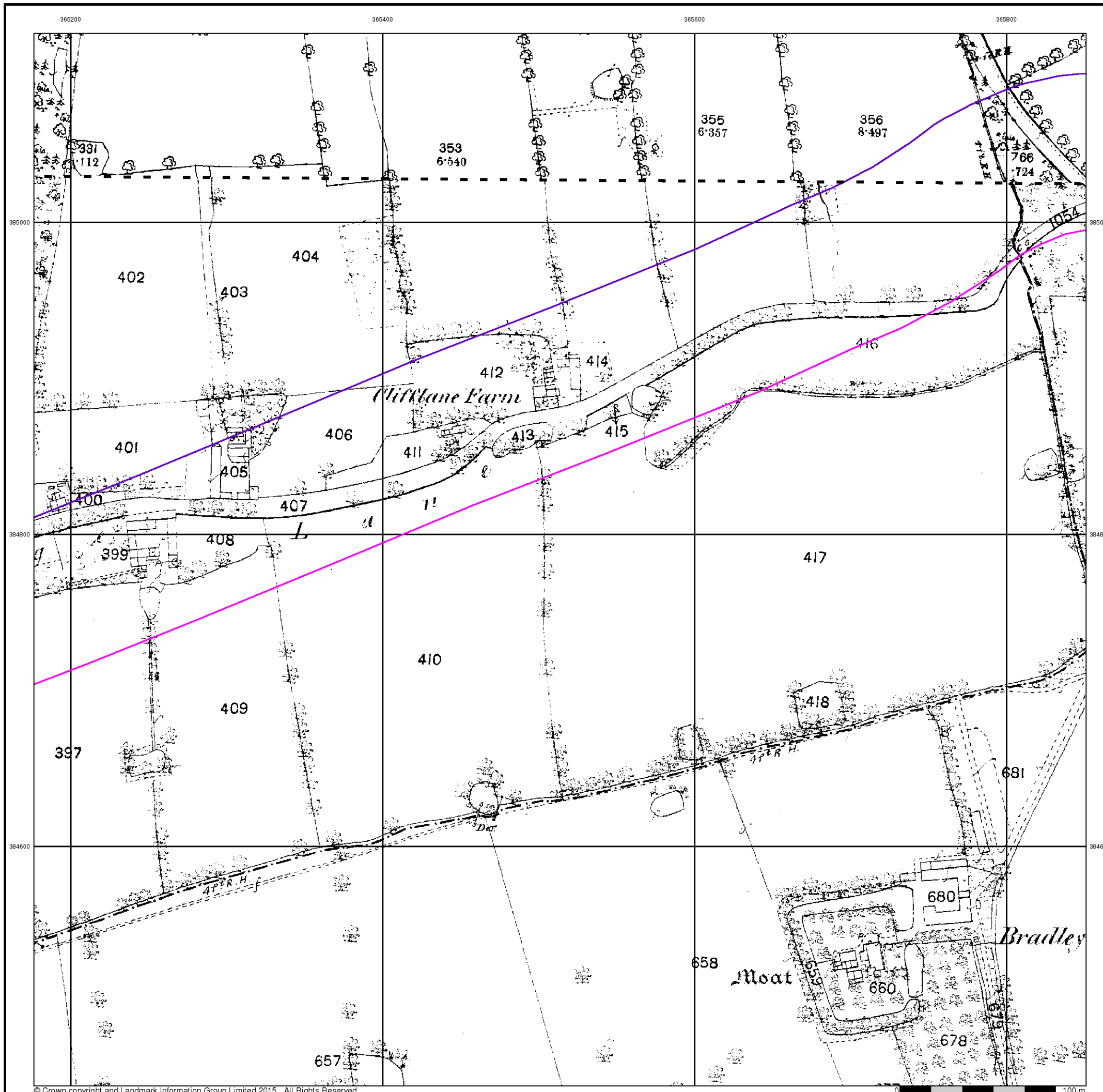


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## Cheshire

Published 1874 - 1877

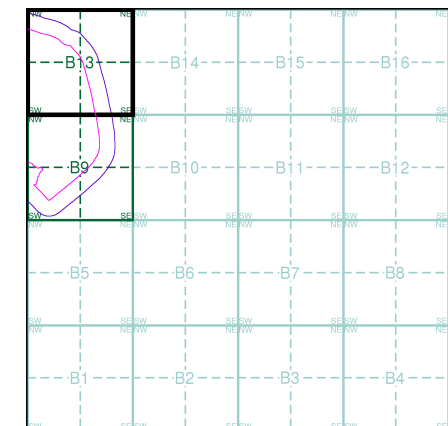
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| 017_09<br>1874<br>1:2,500 | 017_10<br>1876<br>1:2,500 |
| 017_13<br>1877<br>1:2,500 | 017_14<br>1876<br>1:2,500 |

### Historical Map - Segment B13

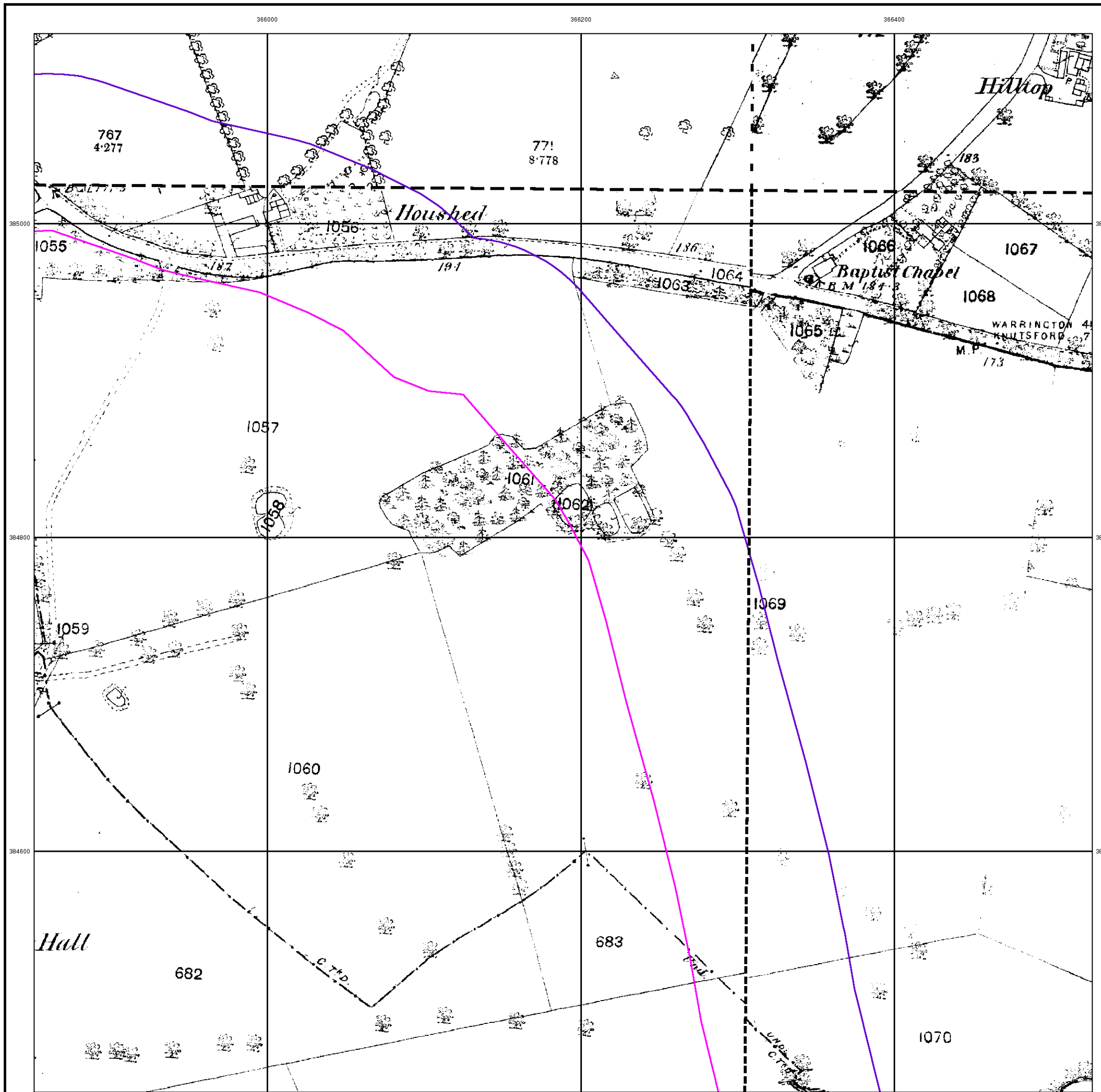


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

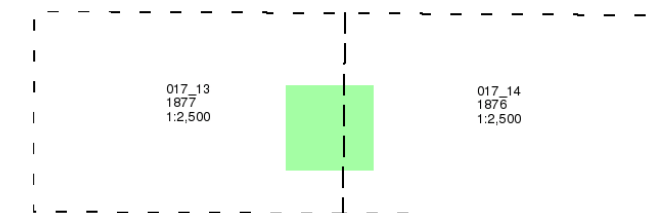
### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

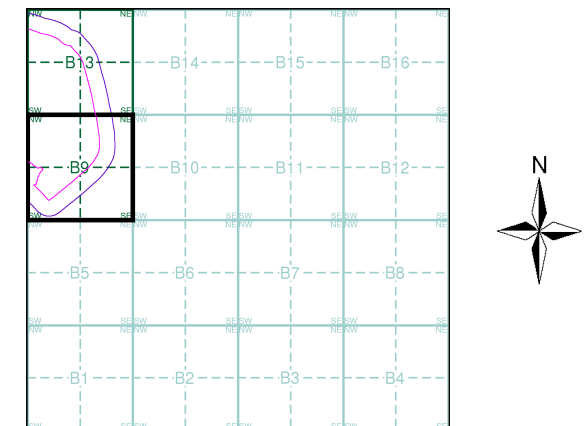


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)



### Historical Map - Segment B9

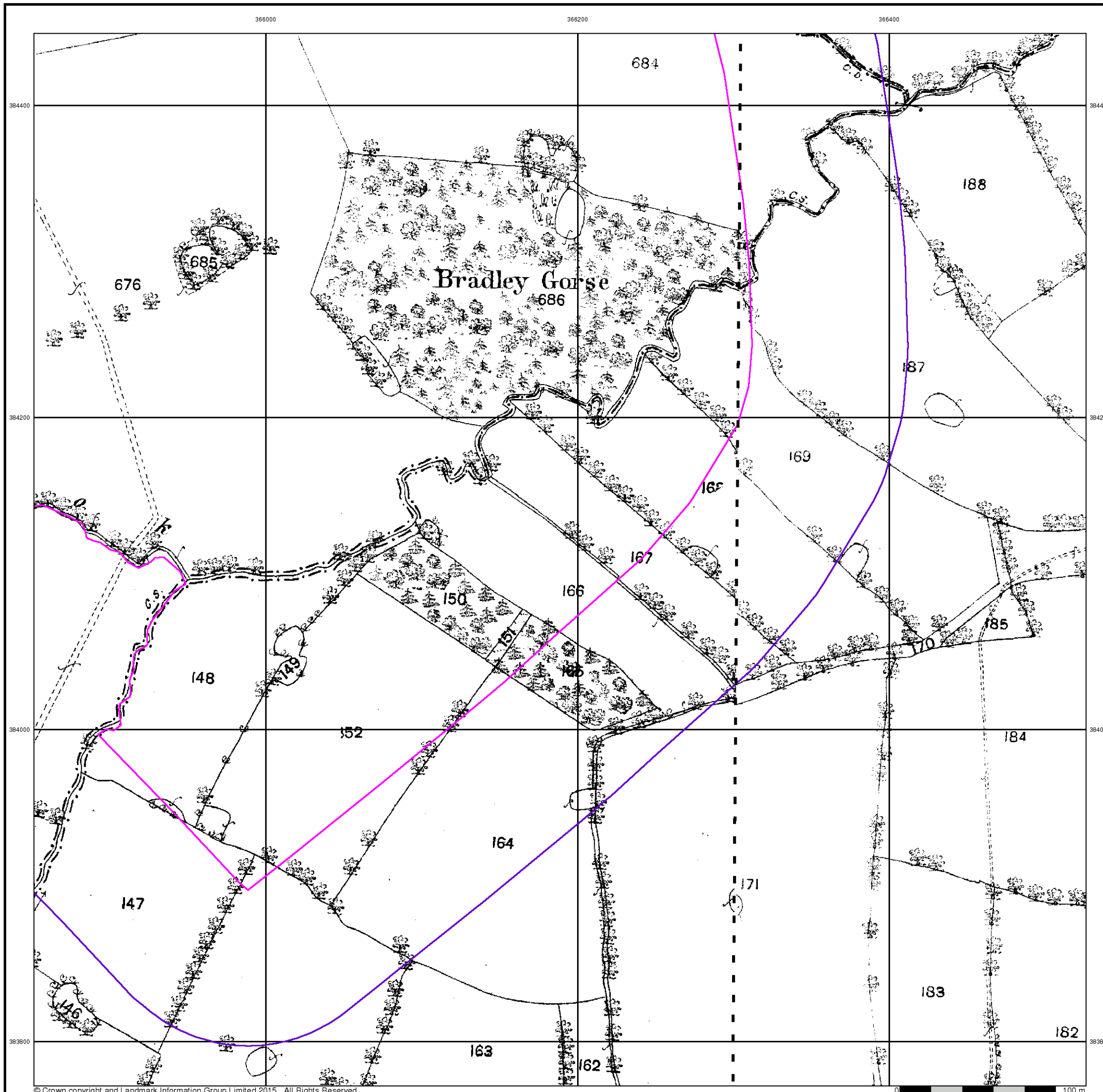


### Order Details

Order Number: 135773225\_1\_1  
Customer Ref: 1015524 - Warrington Interchange MP  
National Grid Reference: 366500, 384120  
Slice: B  
Site Area (Ha): 93.66  
Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

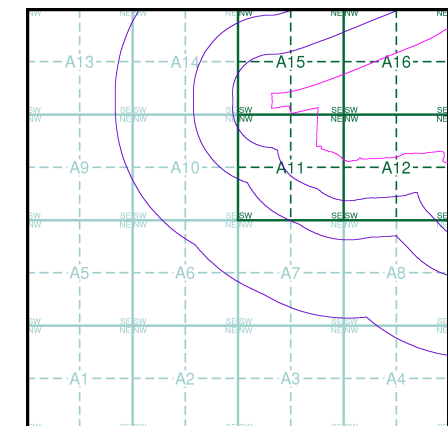


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| 01600<br>1882<br>1:10,560 | 01700<br>1882<br>1:10,560 |
| 02500<br>1881<br>1:10,560 | 02600<br>1881<br>1:10,560 |

### Historical Map - Slice A

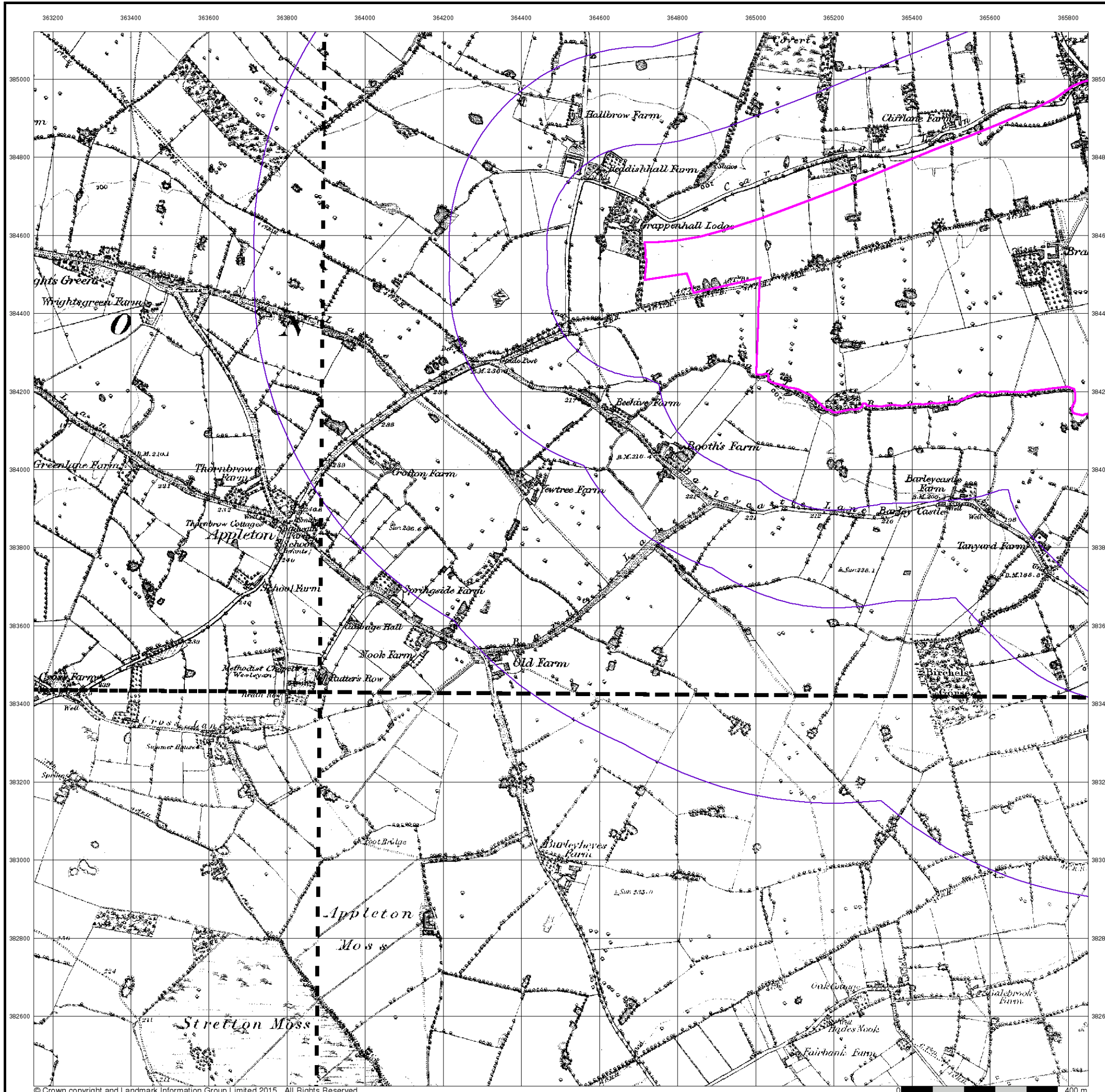


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
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 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

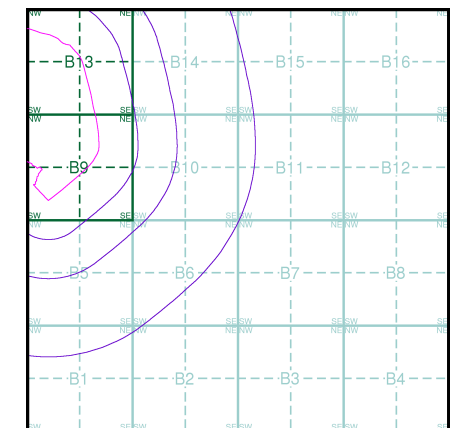


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|       |      |          |
|-------|------|----------|
| 01700 | 1882 | 1:10,560 |
| 02600 | 1881 | 1:10,560 |

### Historical Map - Slice B

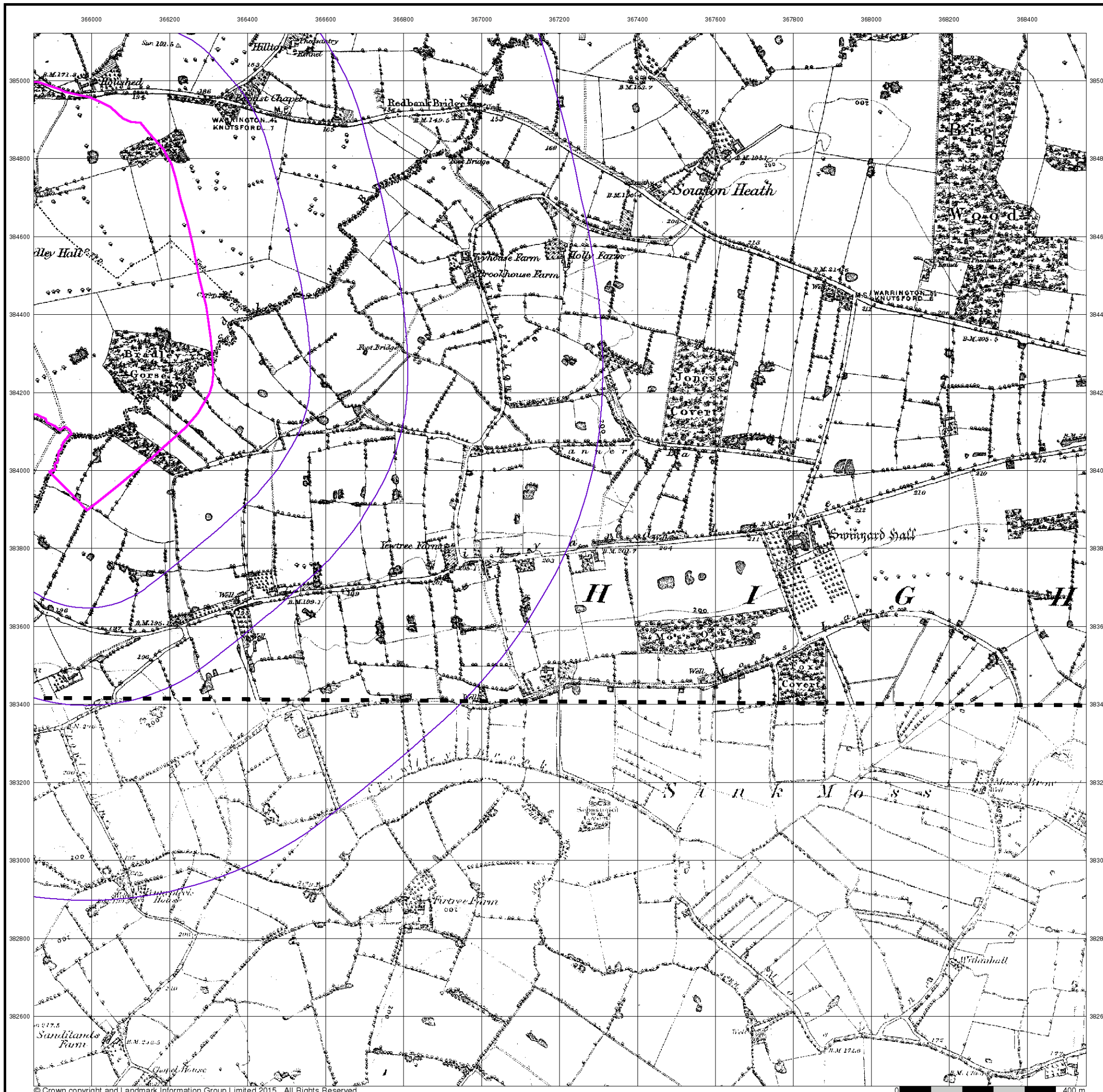


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

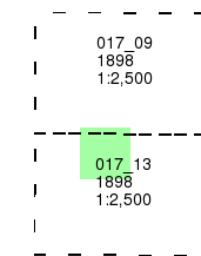
### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

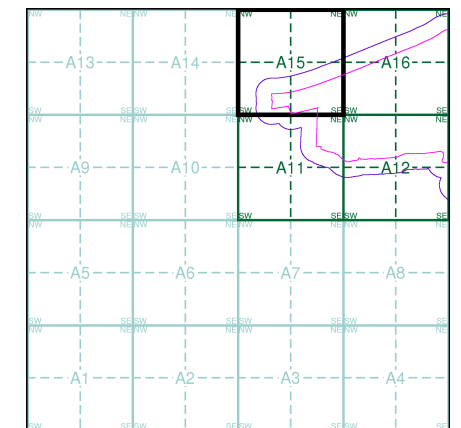


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

**Map Name(s) and Date(s)**



**Historical Map - Segment A15**

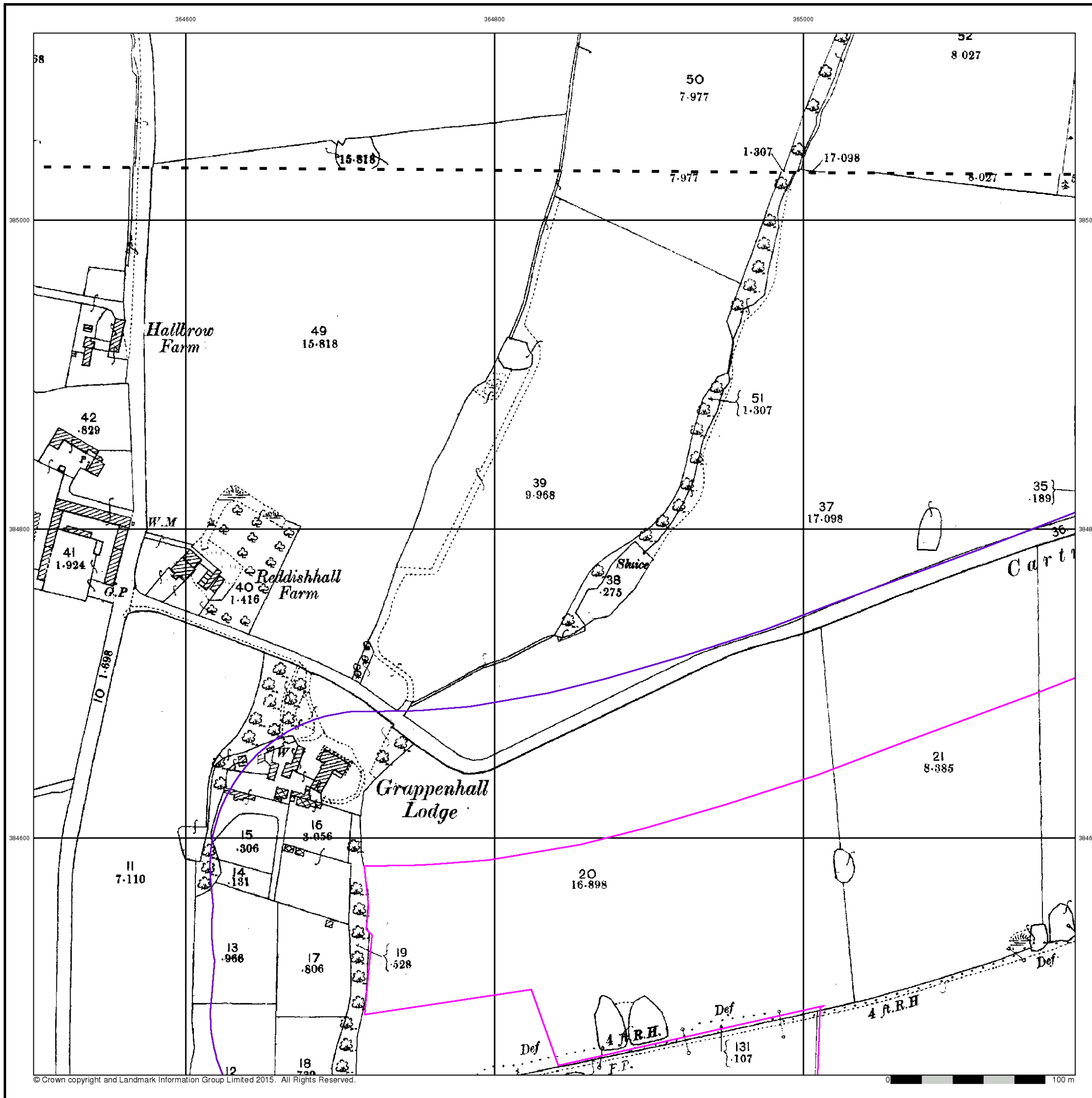


**Order Details**

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

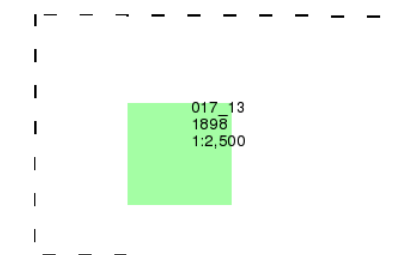
**Site Details**

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

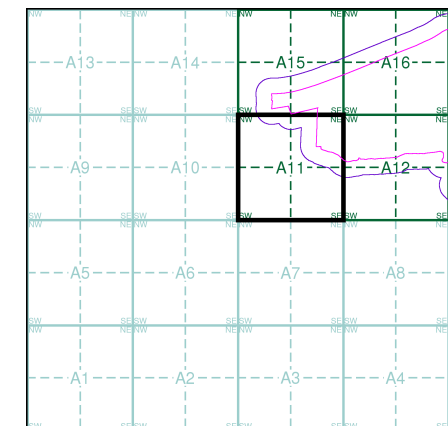


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)



### Historical Map - Segment A11

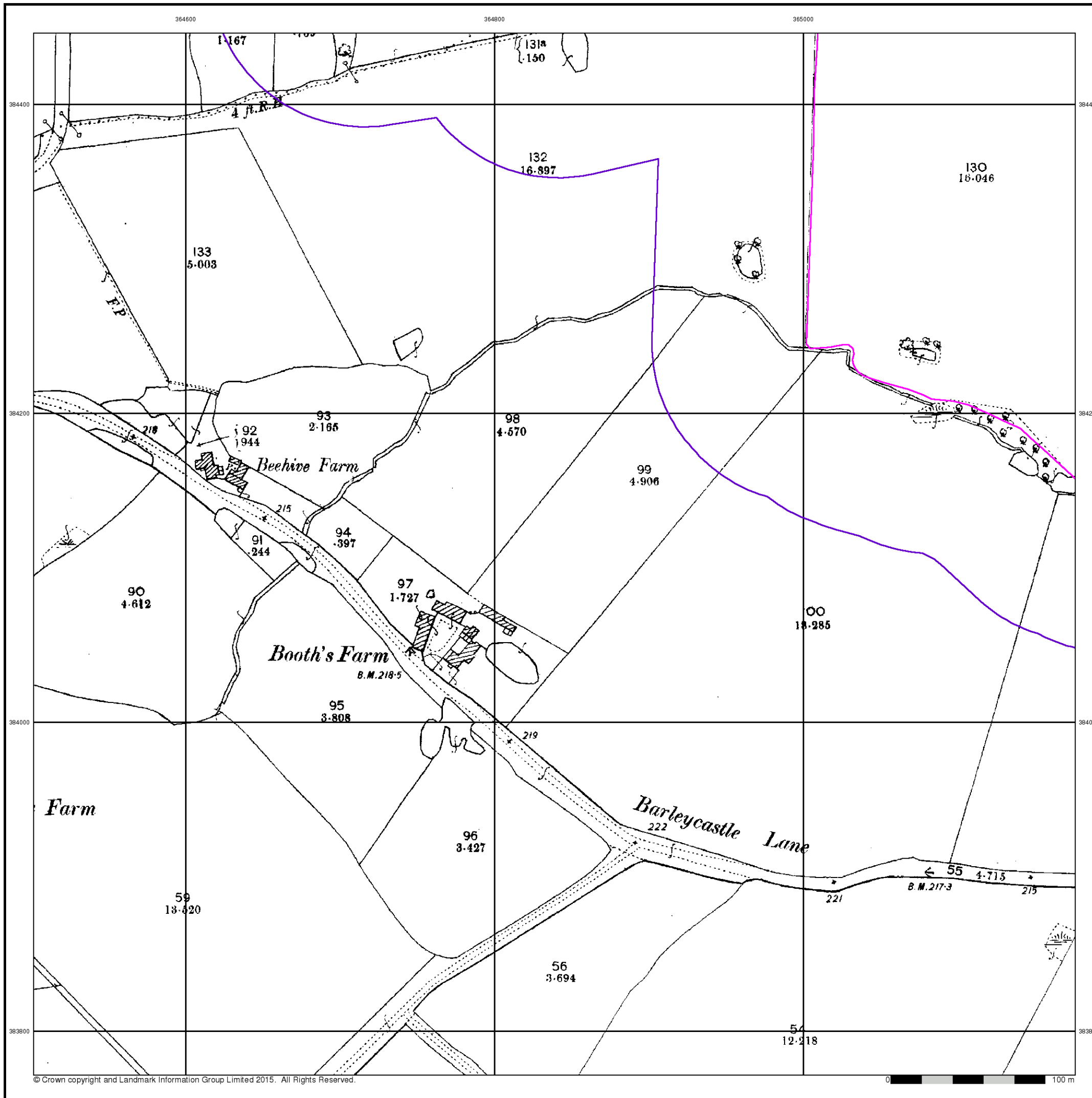


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





Cheshire

Published 1898

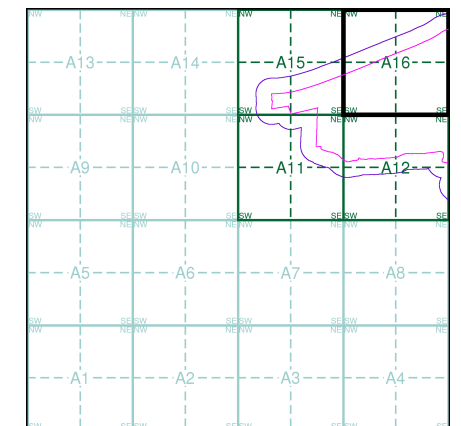
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|         |
|---------|
| 017_09  |
| 1898    |
| 1:2,500 |
| 017_13  |
| 1898    |
| 1:2,500 |

### Historical Map - Segment A16

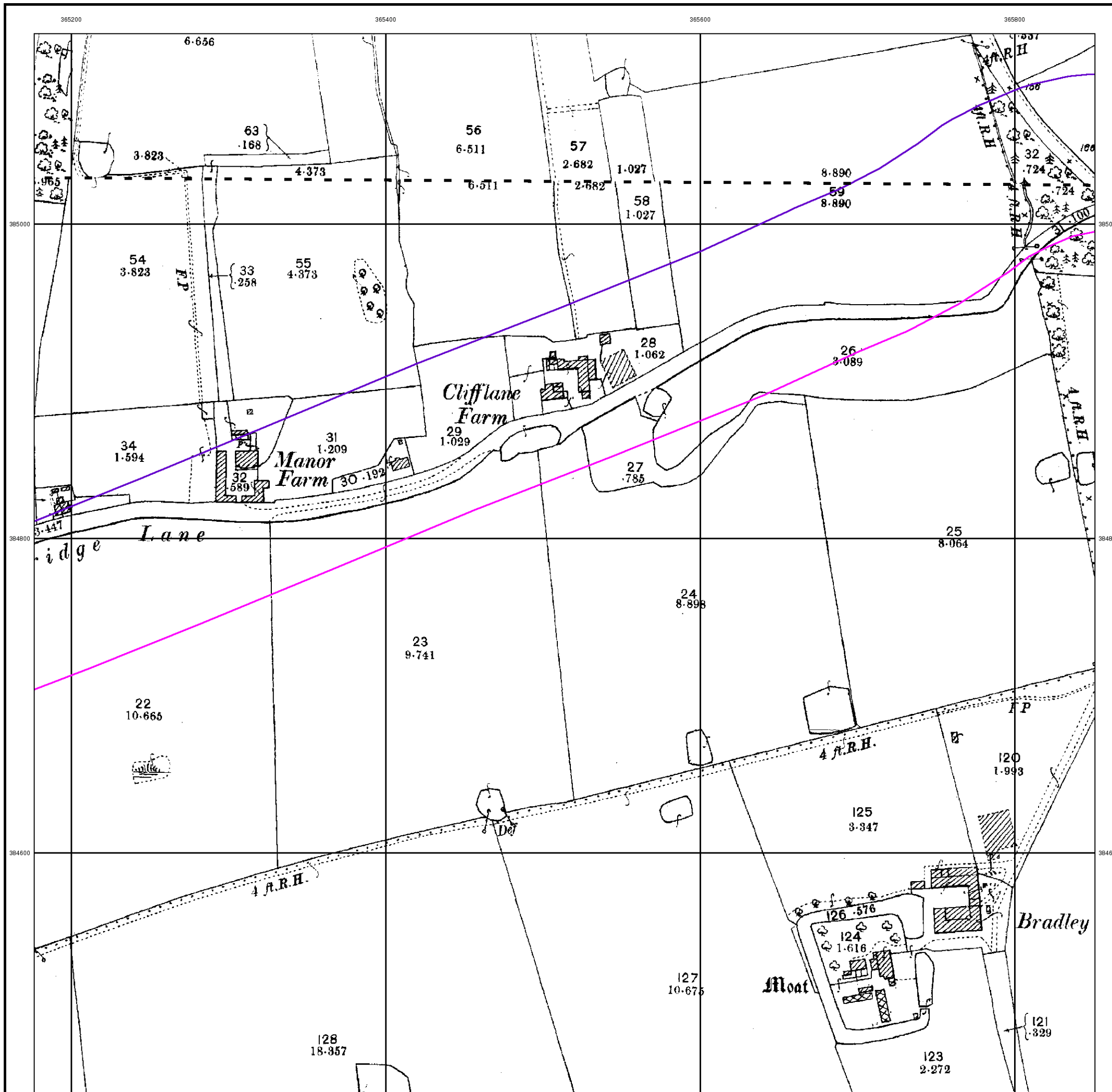


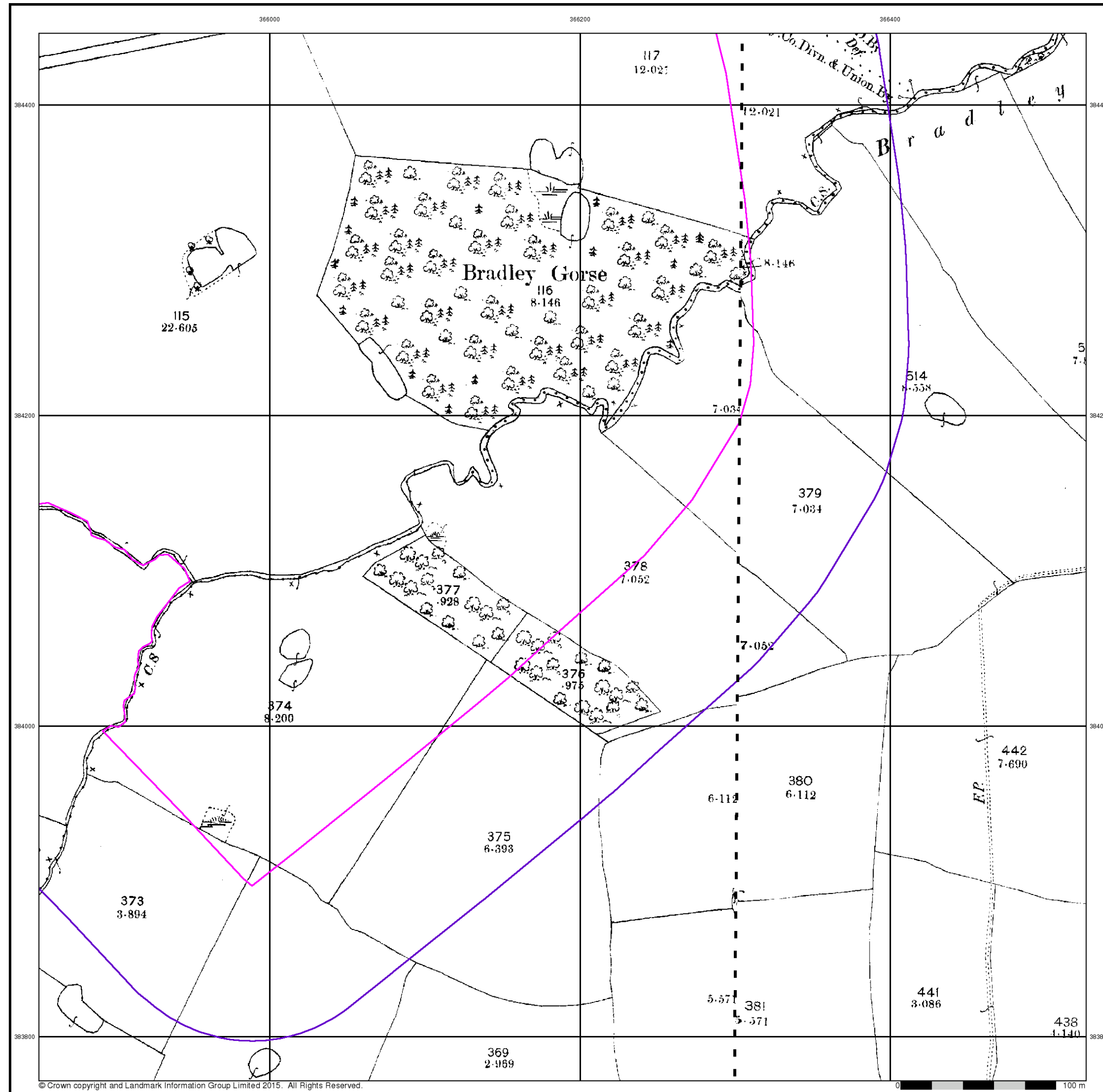
### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

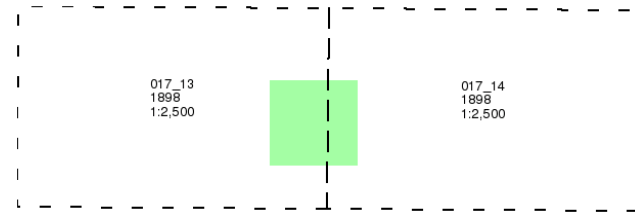




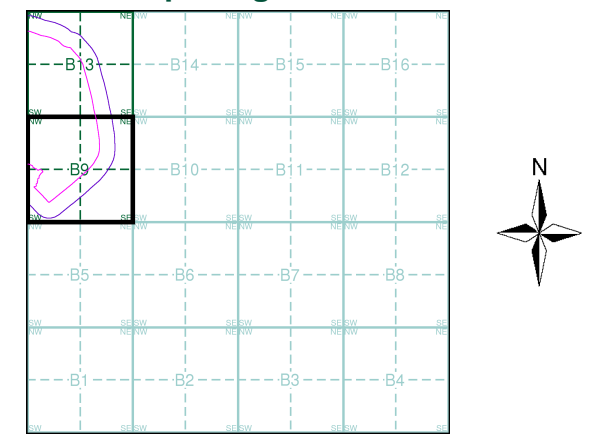
**Cheshire**  
**Published 1898**  
**Source map scale - 1:2,500**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

**Map Name(s) and Date(s)**



**Historical Map - Segment B9**



**Order Details**  
 Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

**Site Details**  
 Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

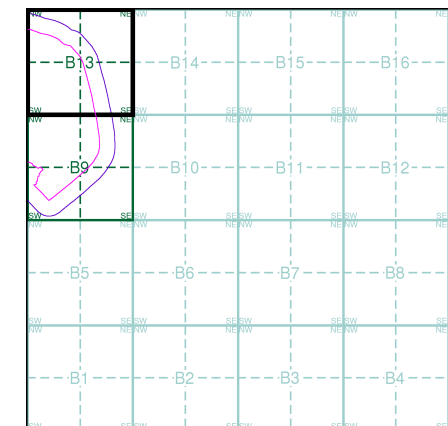
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| 017_09<br>1898<br>1:2,500 | 017_10<br>1898<br>1:2,500 |
| 017_13<br>1898<br>1:2,500 | 017_14<br>1898<br>1:2,500 |

### Historical Map - Segment B13

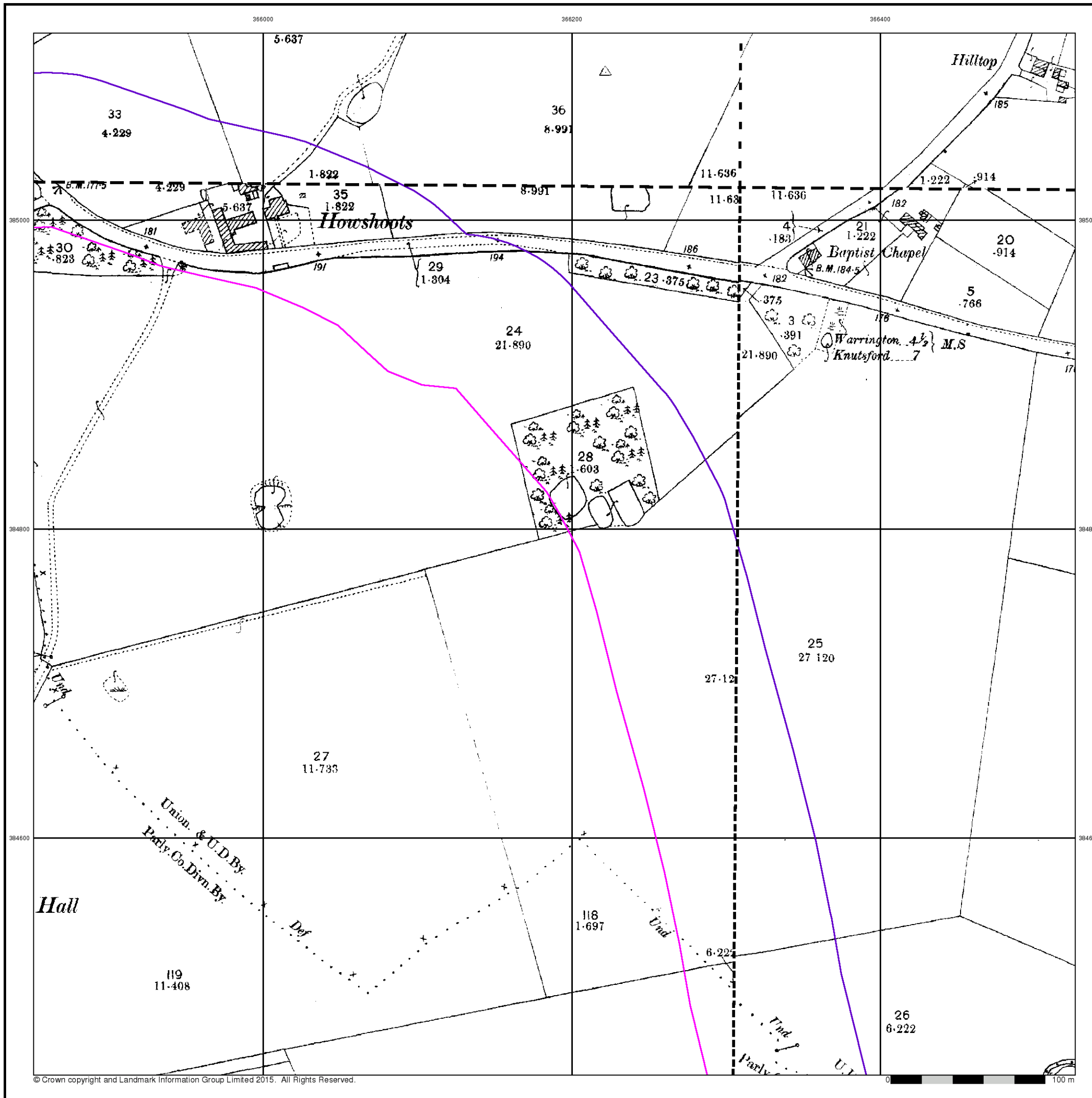


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

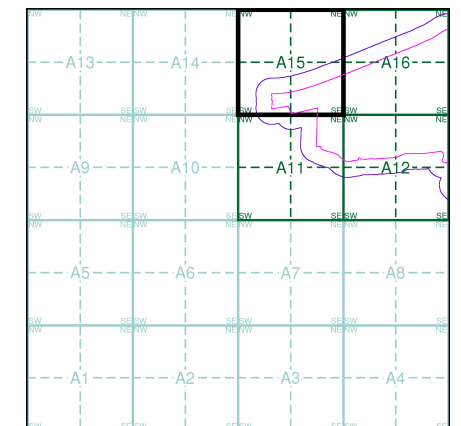


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|         |
|---------|
| 017_09  |
| 1910    |
| 1:2,500 |
| 017_13  |
| 1910    |
| 1:2,500 |

### Historical Map - Segment A15

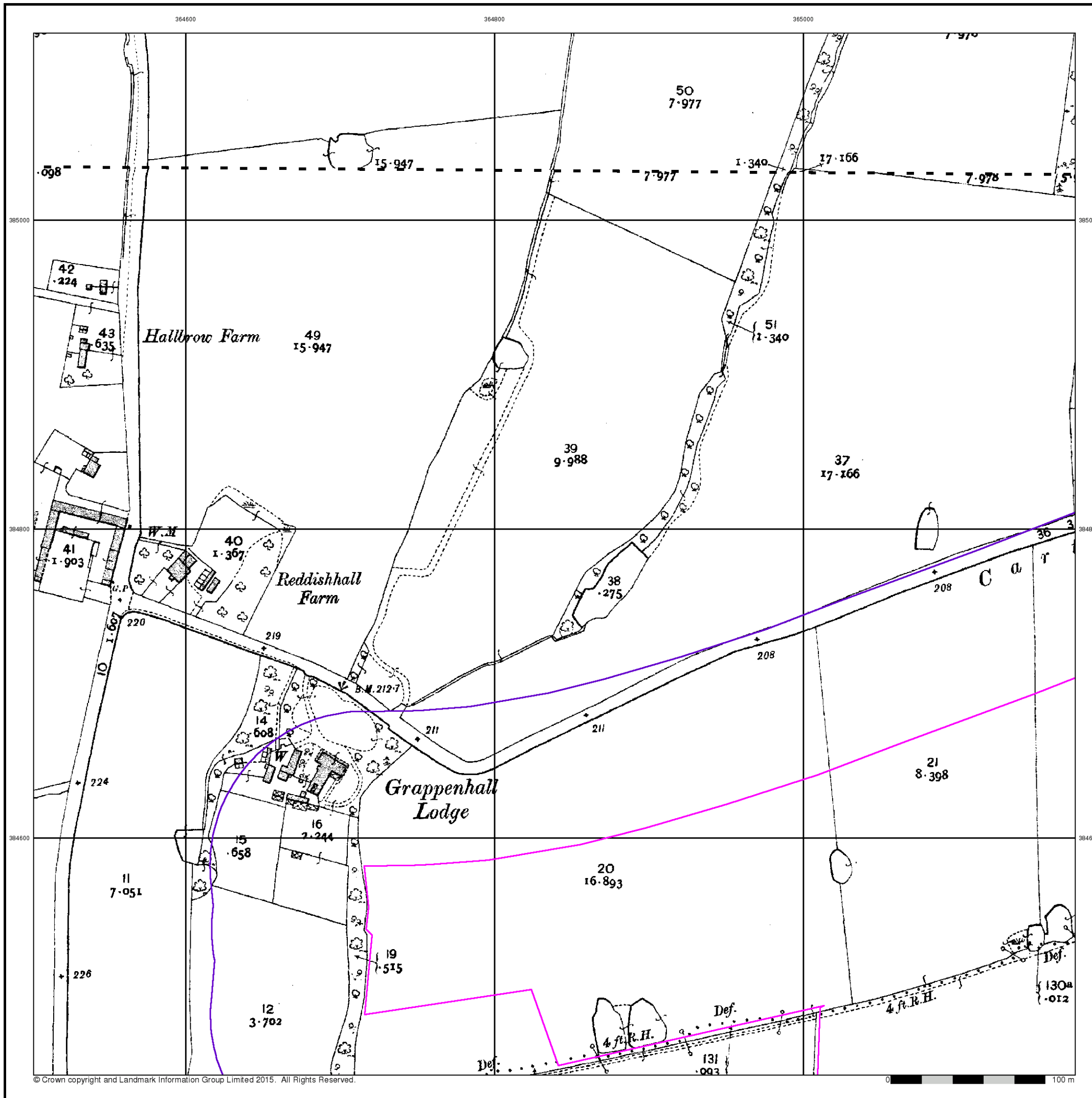


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



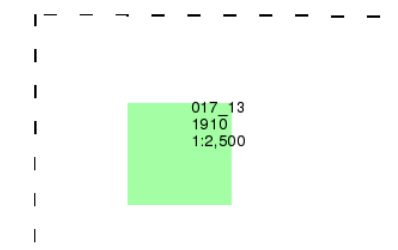
Cheshire

Published 1910

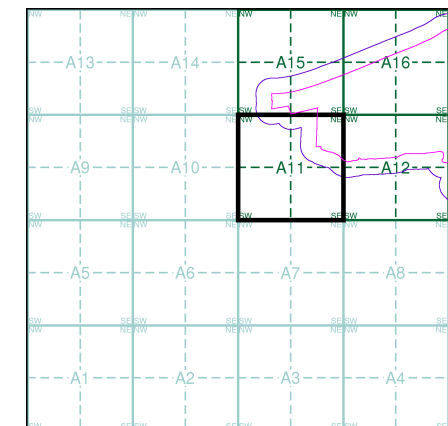
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)



### Historical Map - Segment A11

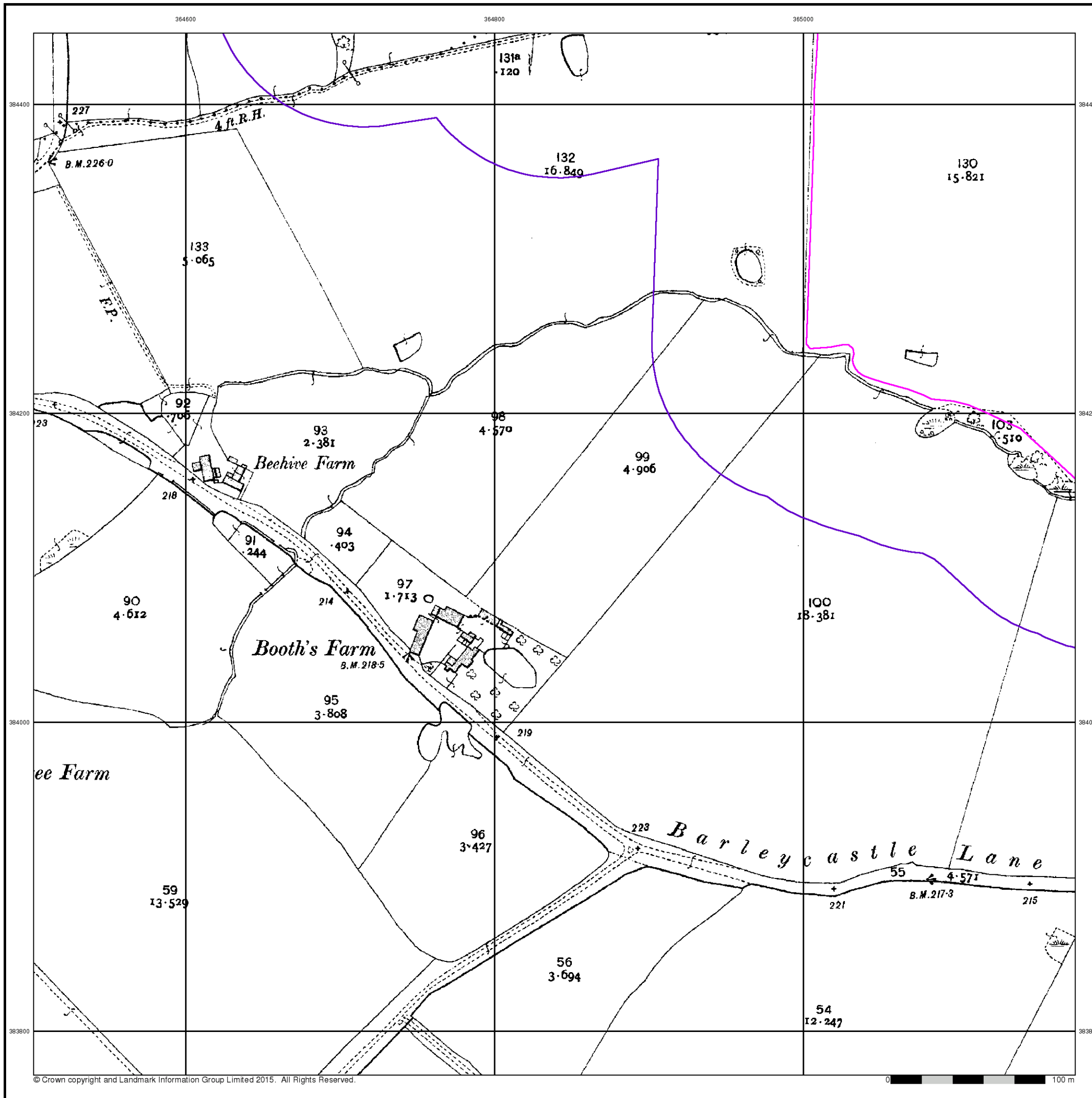


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

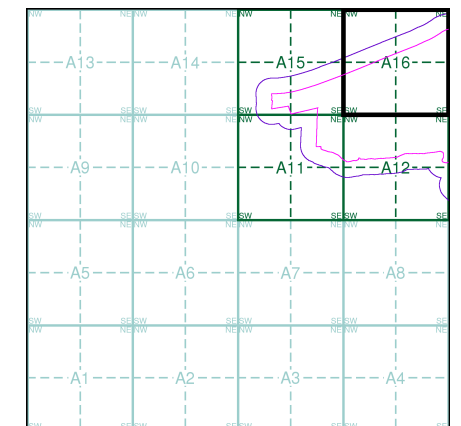


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|         |
|---------|
| 017_09  |
| 1910    |
| 1:2,500 |
| 017_13  |
| 1910    |
| 1:2,500 |

### Historical Map - Segment A16

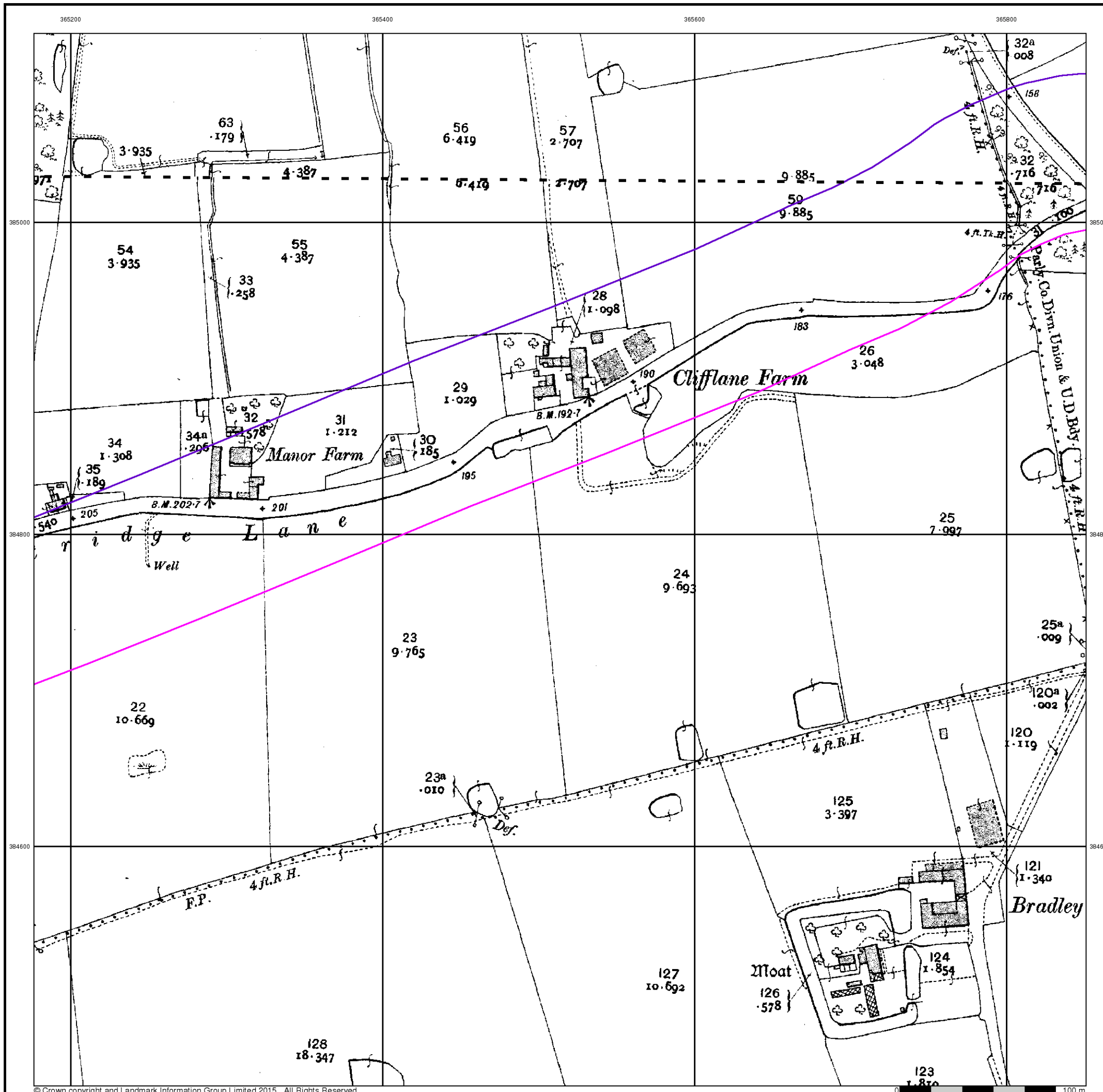


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

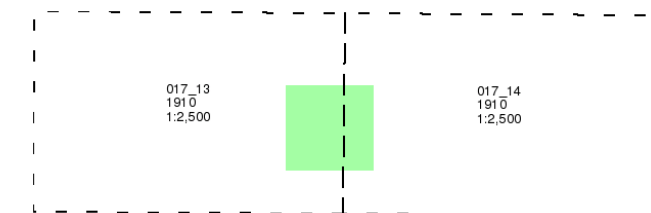
### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

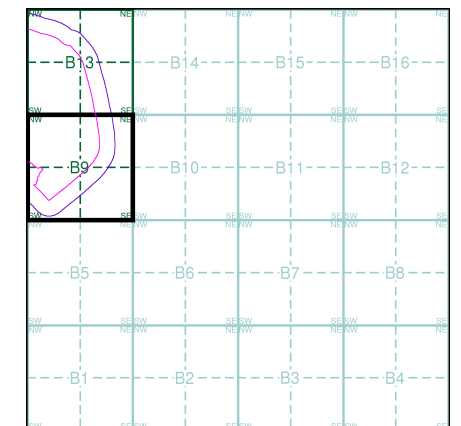


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)



### Historical Map - Segment B9

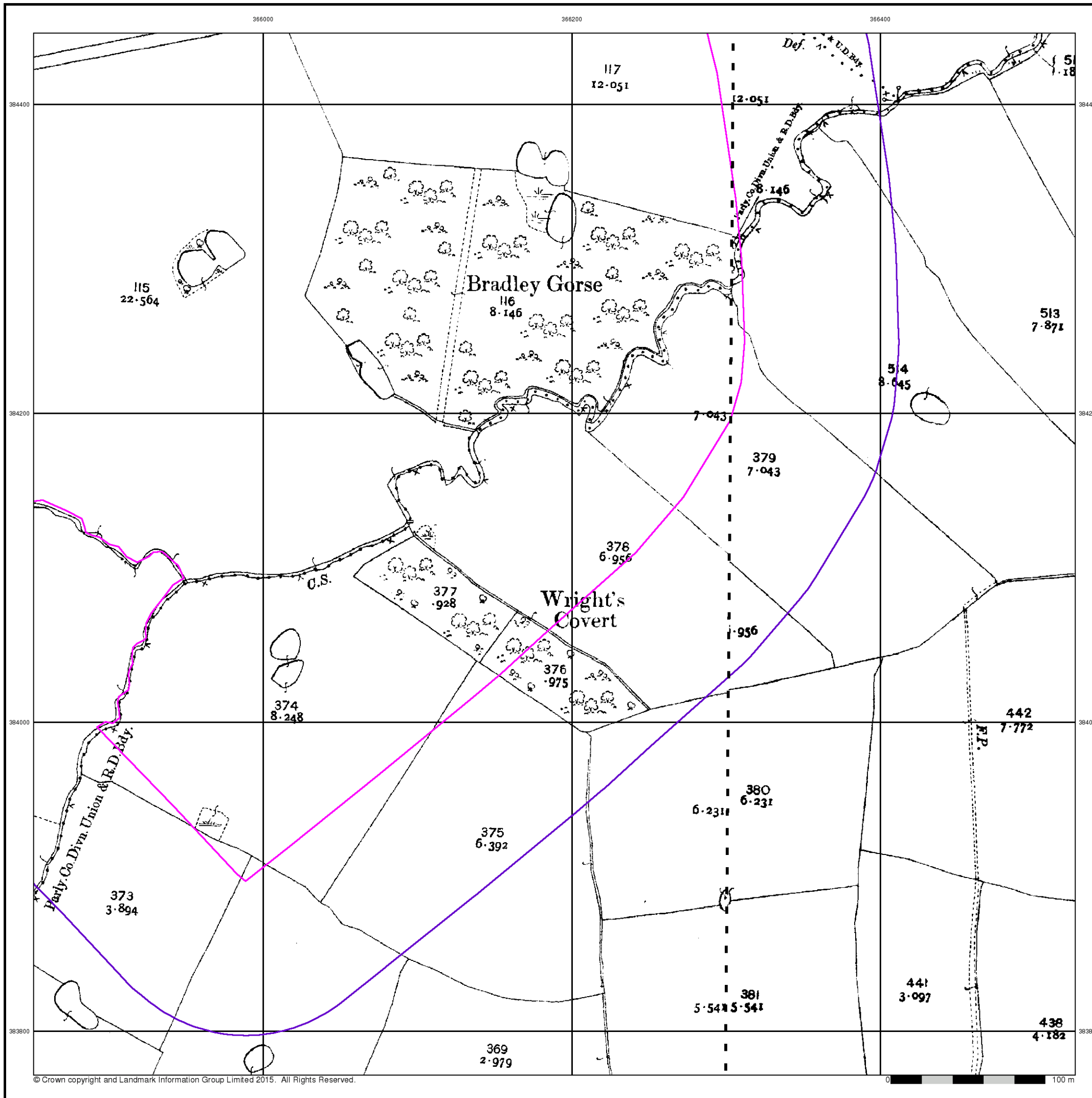


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

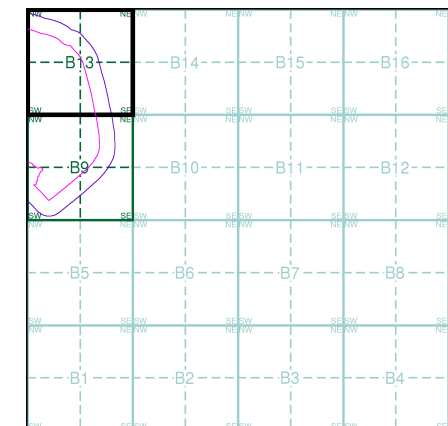


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| 017_09<br>1910<br>1:2,500 | 017_10<br>1910<br>1:2,500 |
| 017_13<br>1910<br>1:2,500 | 017_14<br>1910<br>1:2,500 |

### Historical Map - Segment B13

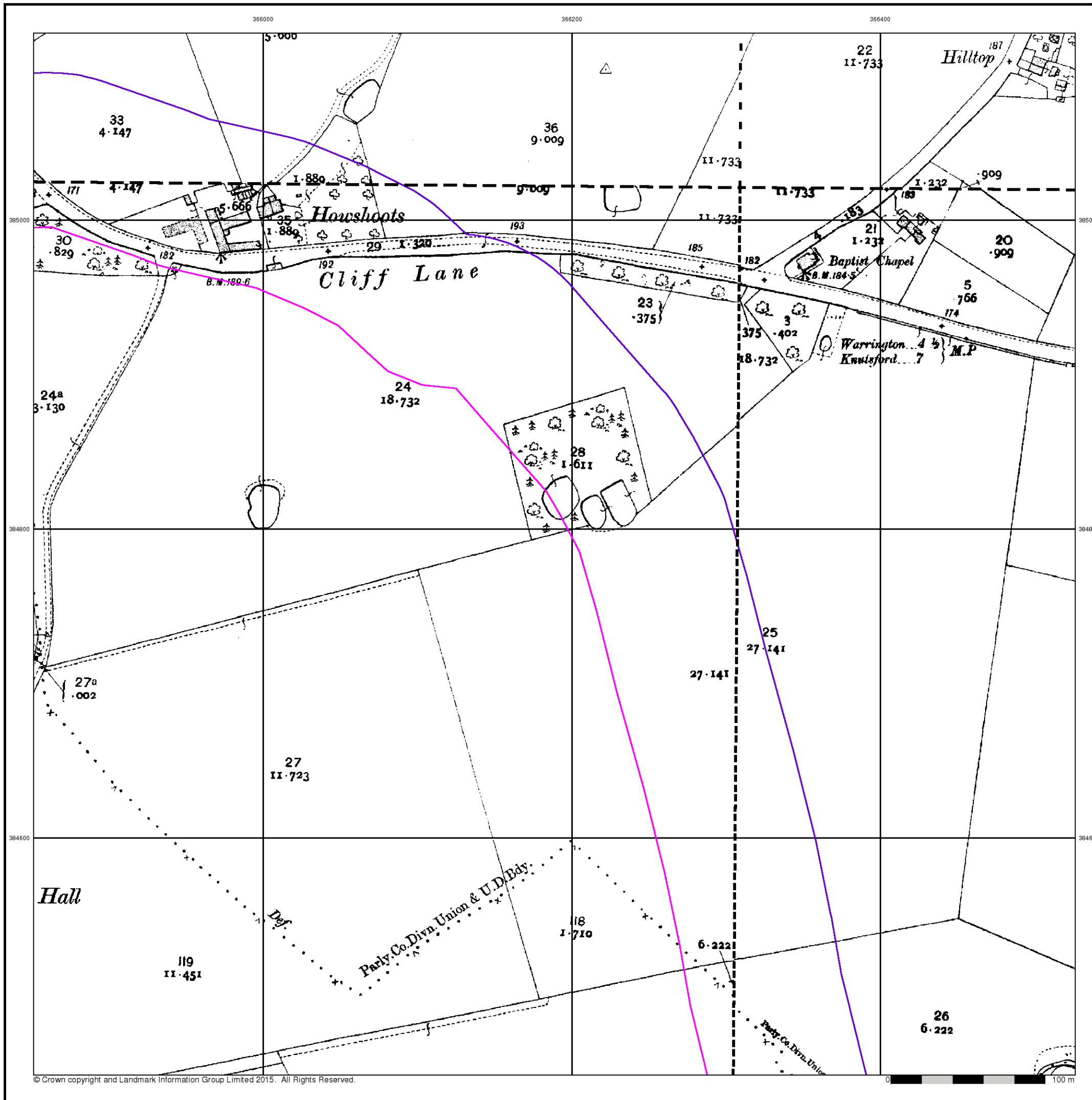


### Order Details

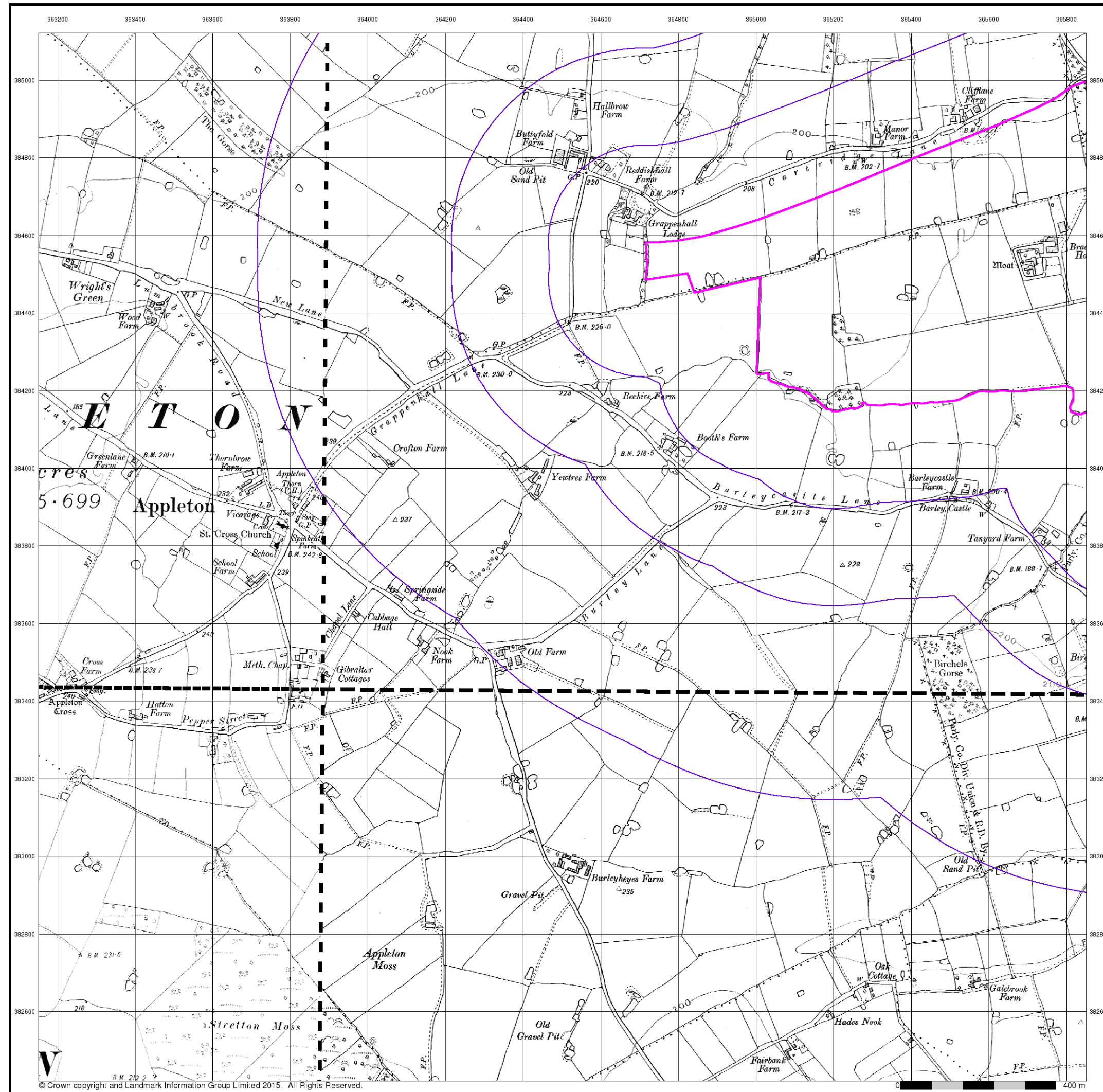
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR







# Envirocheck®

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**Cheshire**

**Published 1910 - 1911**

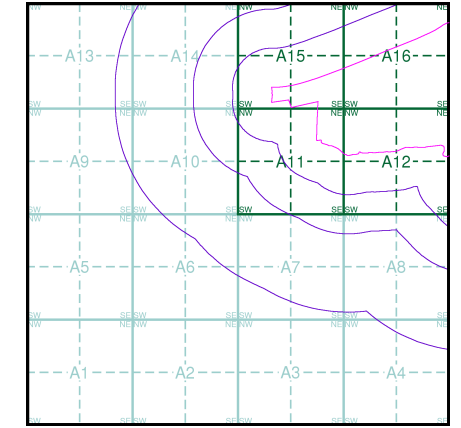
**Source map scale - 1:10,560**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| 016SE<br>1911<br>1:10,560 | 017SW<br>1910<br>1:10,560 |
| 025NE<br>1911<br>1:10,560 | 026NW<br>1910<br>1:10,560 |

### Historical Map - Slice A



### Order Details

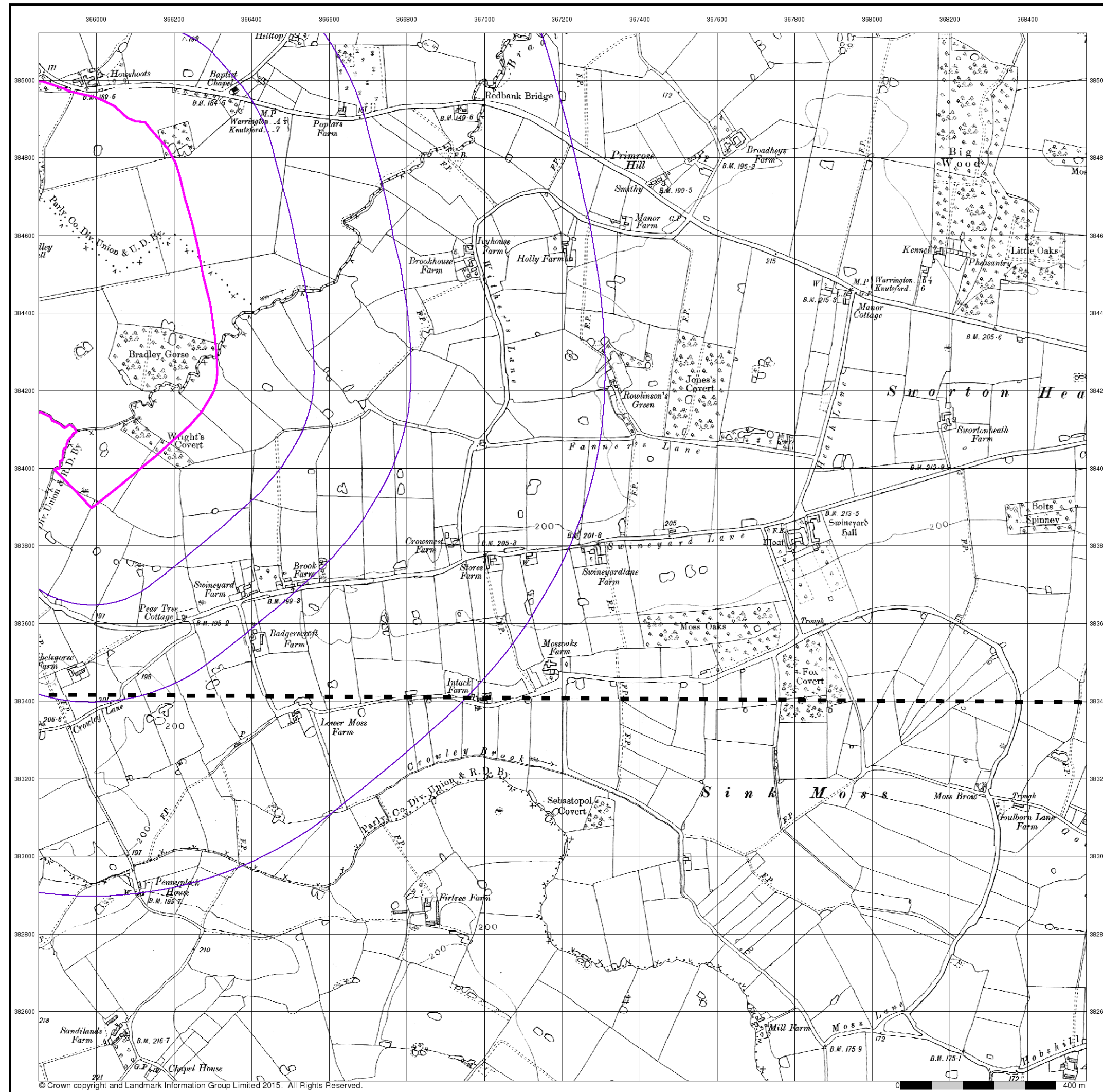
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

**Landmark**  
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Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

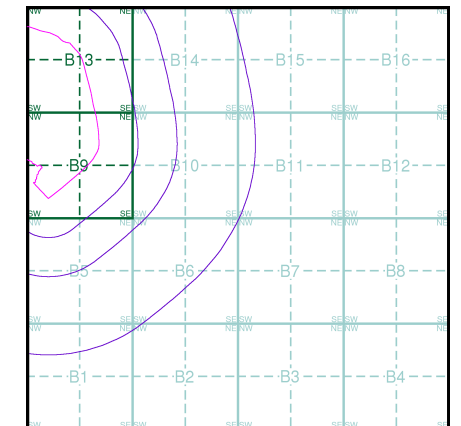


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|       |      |          |
|-------|------|----------|
| 017SW | 1910 | 1:10,560 |
| 026NW | 1910 | 1:10,560 |

### Historical Map - Slice B

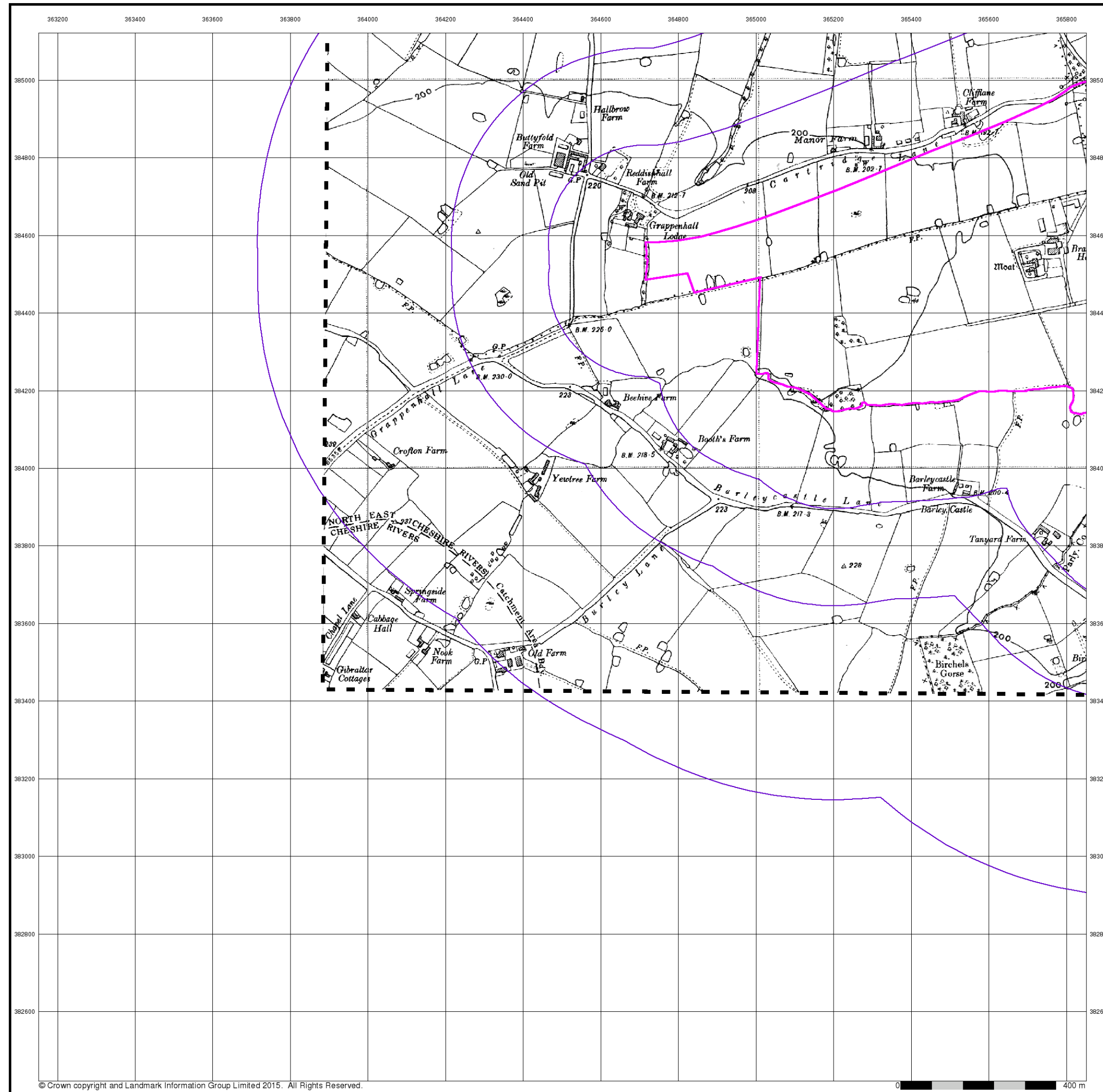


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



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0 400 m

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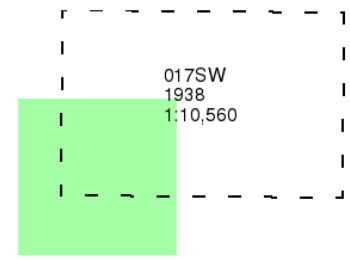
Cheshire

Published 1938

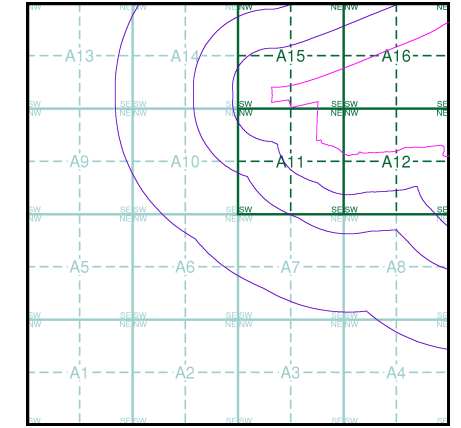
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

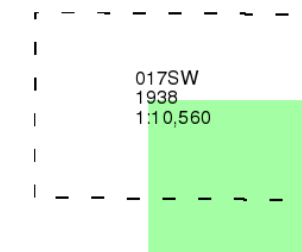
## Cheshire

Published 1938

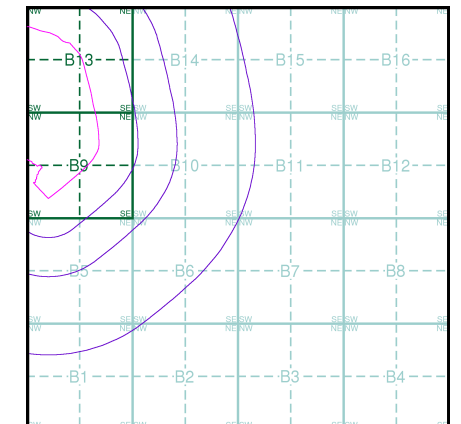
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)



### Historical Map - Slice B

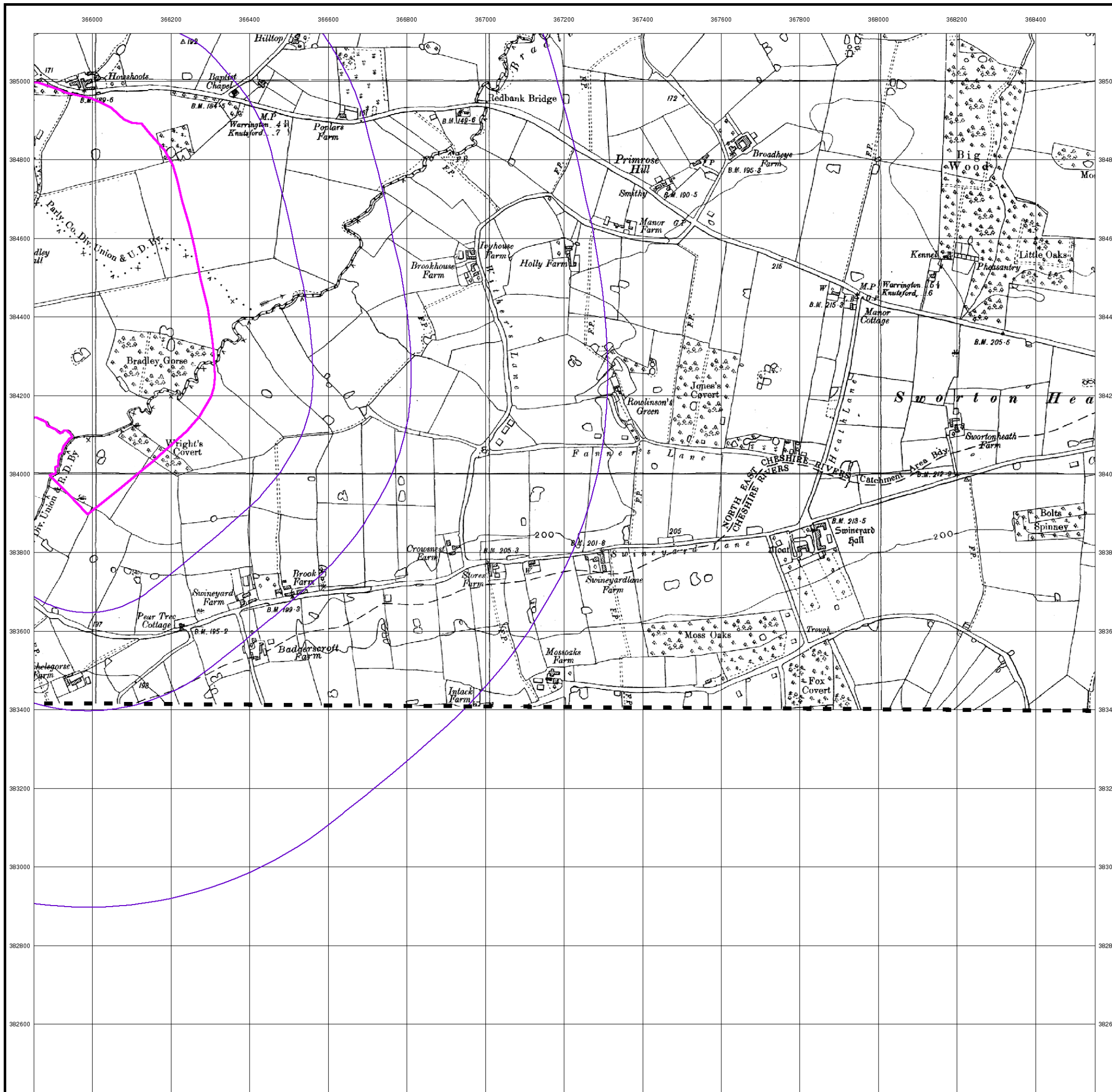


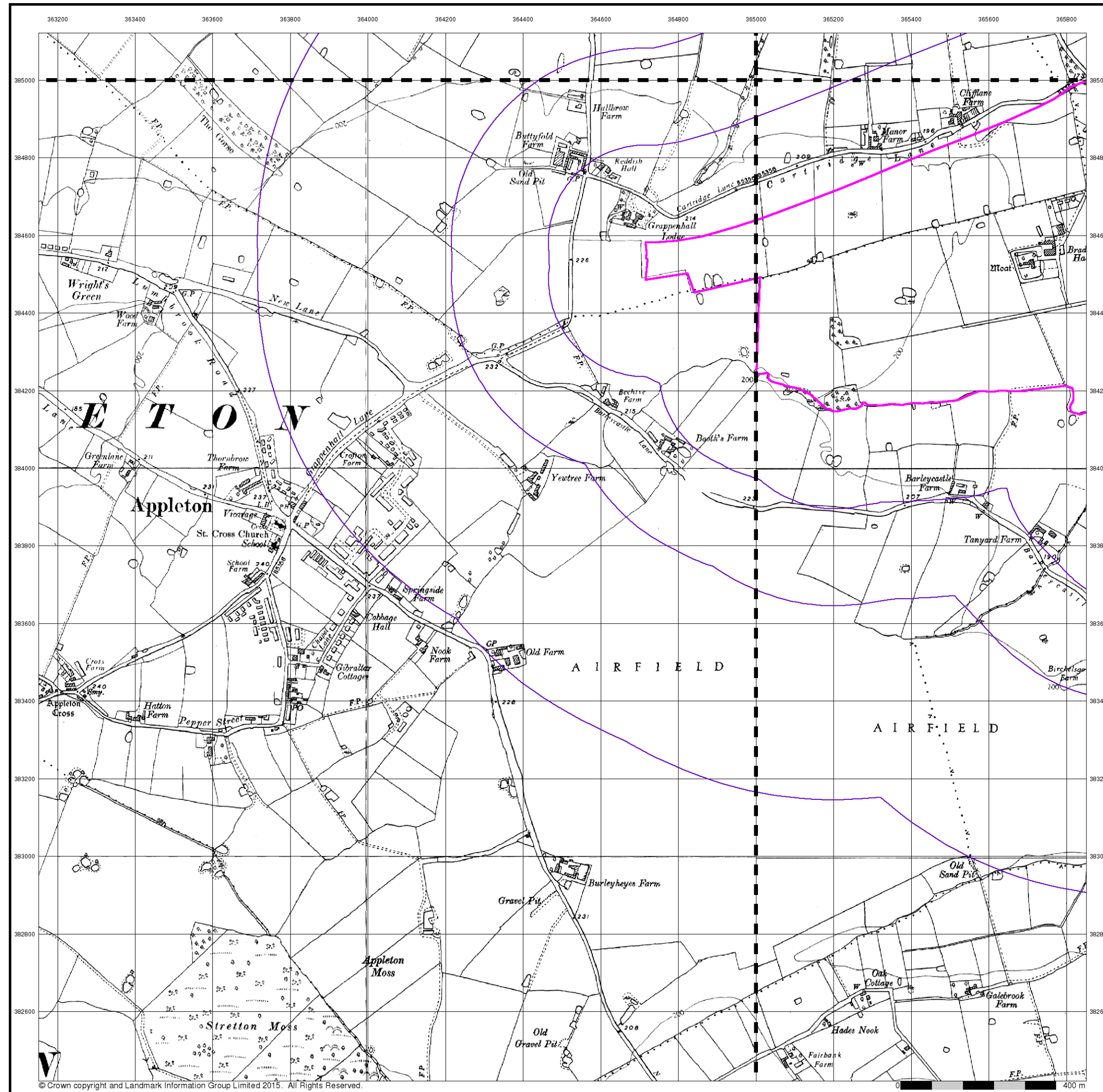
### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





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## Ordnance Survey Plan

Published 1954

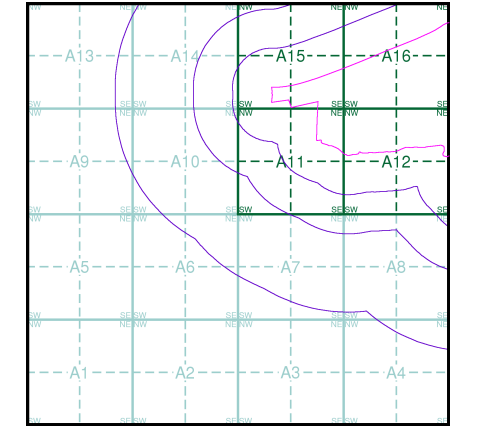
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|          |          |
|----------|----------|
| SJ68NW   | SJ68NE   |
| 1954     | 1954     |
| 1:10,560 | 1:10,560 |
| SJ68SW   | SJ68SE   |
| 1954     | 1954     |
| 1:10,560 | 1:10,560 |

### Historical Map - Slice A



### Order Details

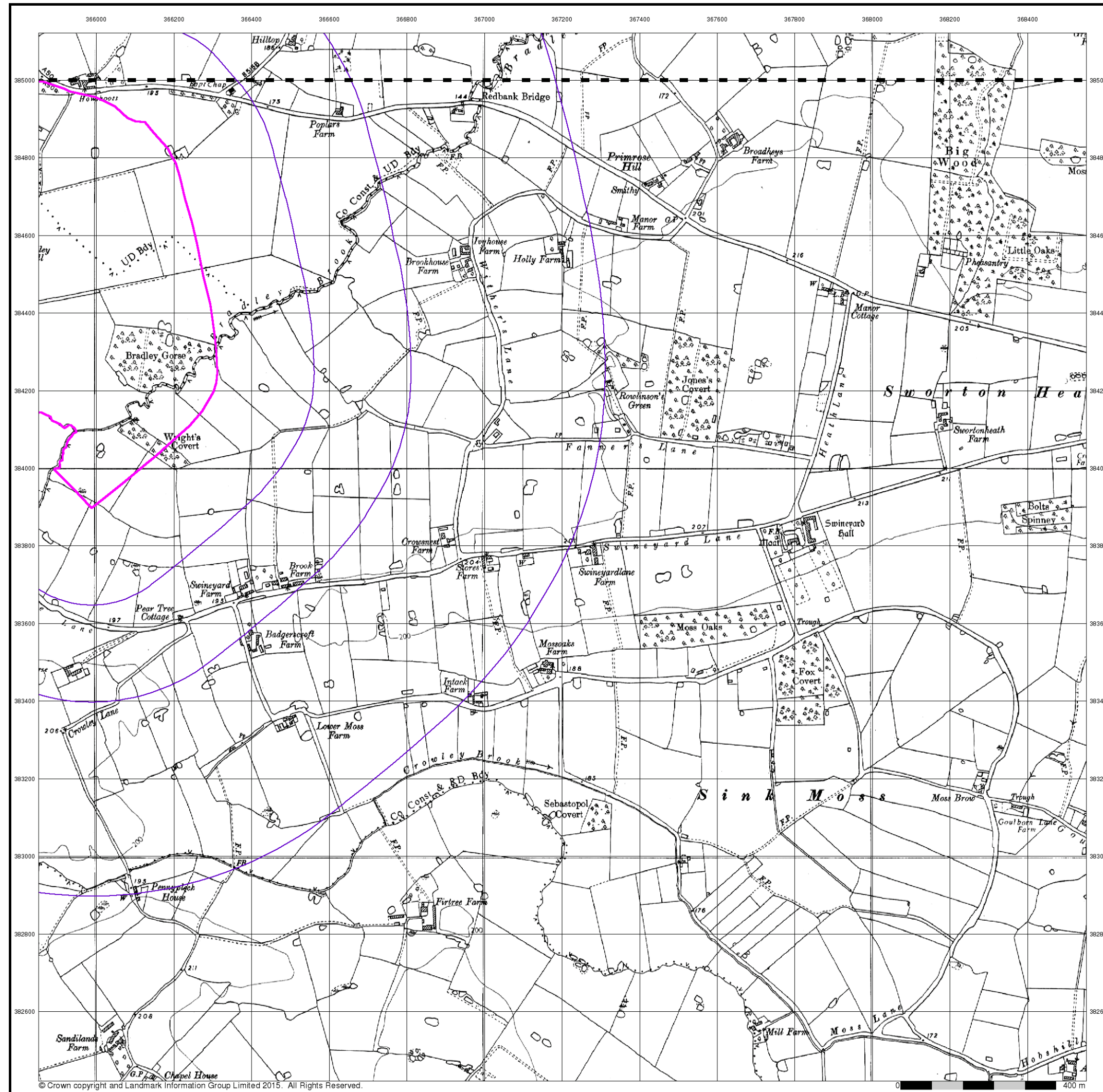
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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## Ordnance Survey Plan

Published 1954

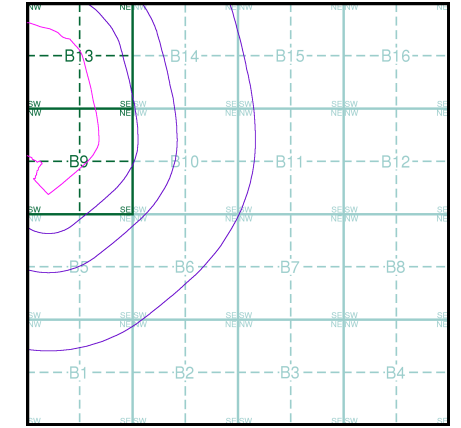
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|        |      |          |
|--------|------|----------|
| SJ68NE | 1954 | 1:10,560 |
| SJ68SE | 1954 | 1:10,560 |

### Historical Map - Slice B



### Order Details

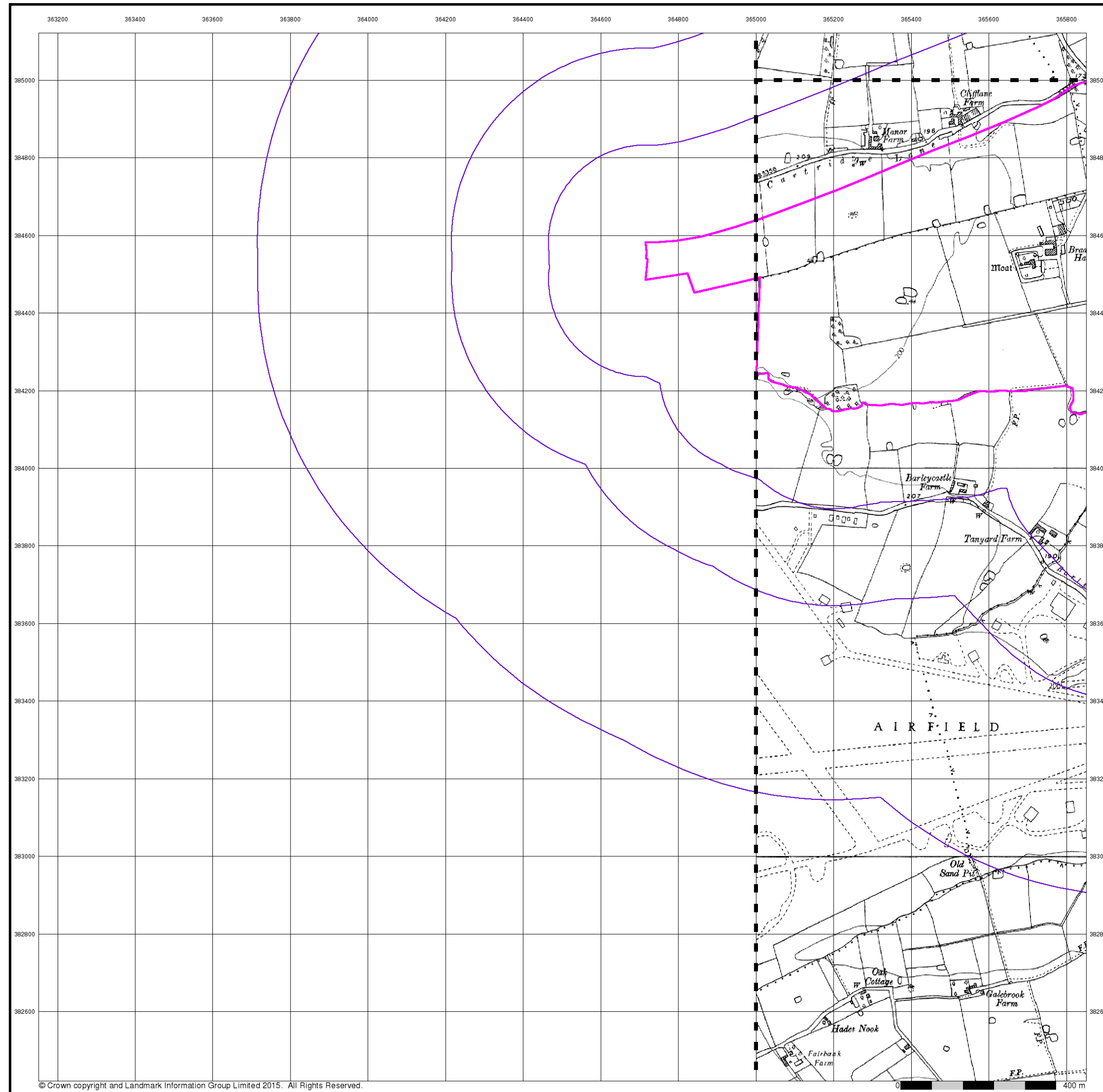
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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## Ordnance Survey Plan

Published 1964 - 1966

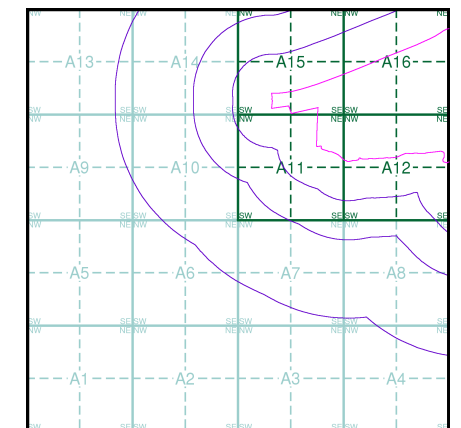
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|        |      |          |
|--------|------|----------|
| SJ68NE | 1966 | 1:10,560 |
| SJ68SE | 1964 | 1:10,560 |

### Historical Map - Slice A



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

## Ordnance Survey Plan

Published 1964 - 1966

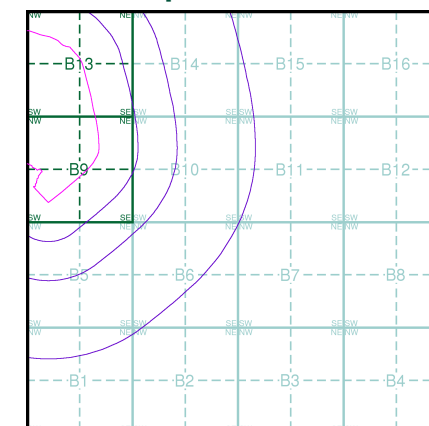
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|     |        |      |          |
|-----|--------|------|----------|
| --- | SJ68NE | 1966 | 1:10,560 |
| --- | SJ68SE | 1964 | 1:10,560 |

### Historical Map - Slice B

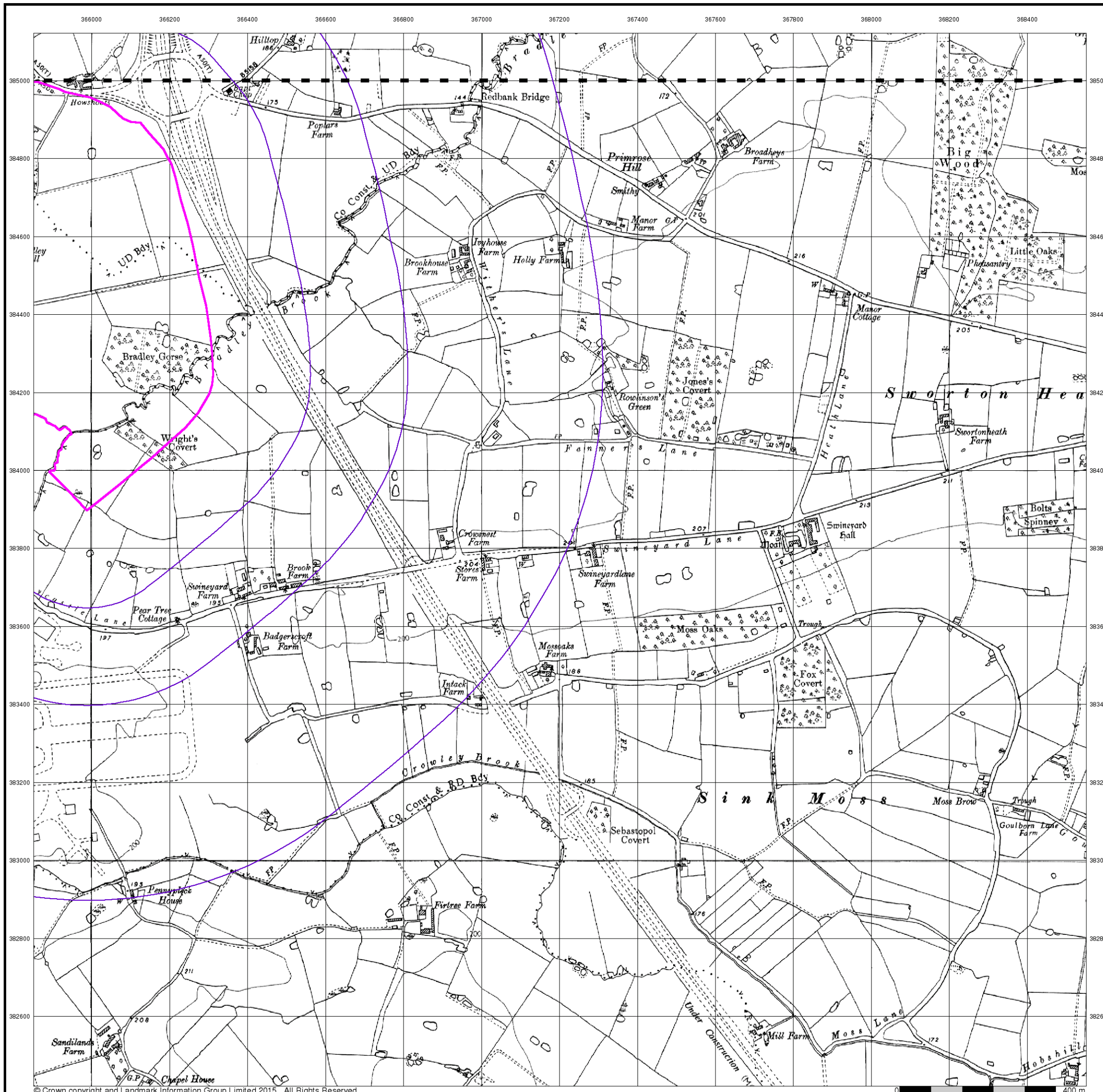


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





## Ordnance Survey Plan

Published 1967

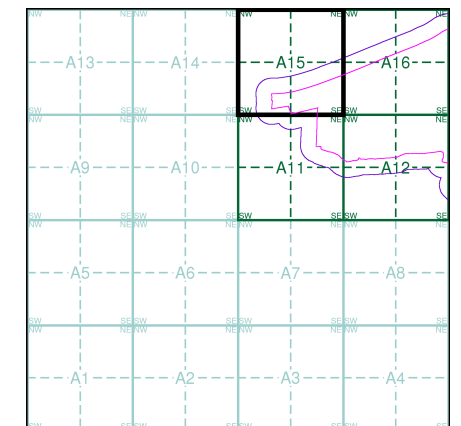
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|                          |                          |
|--------------------------|--------------------------|
| SJ6485<br>1967<br>12,500 | SJ6585<br>1967<br>12,500 |
| SJ6484<br>1967<br>12,500 | SJ6584<br>1967<br>12,500 |

### Historical Map - Segment A15

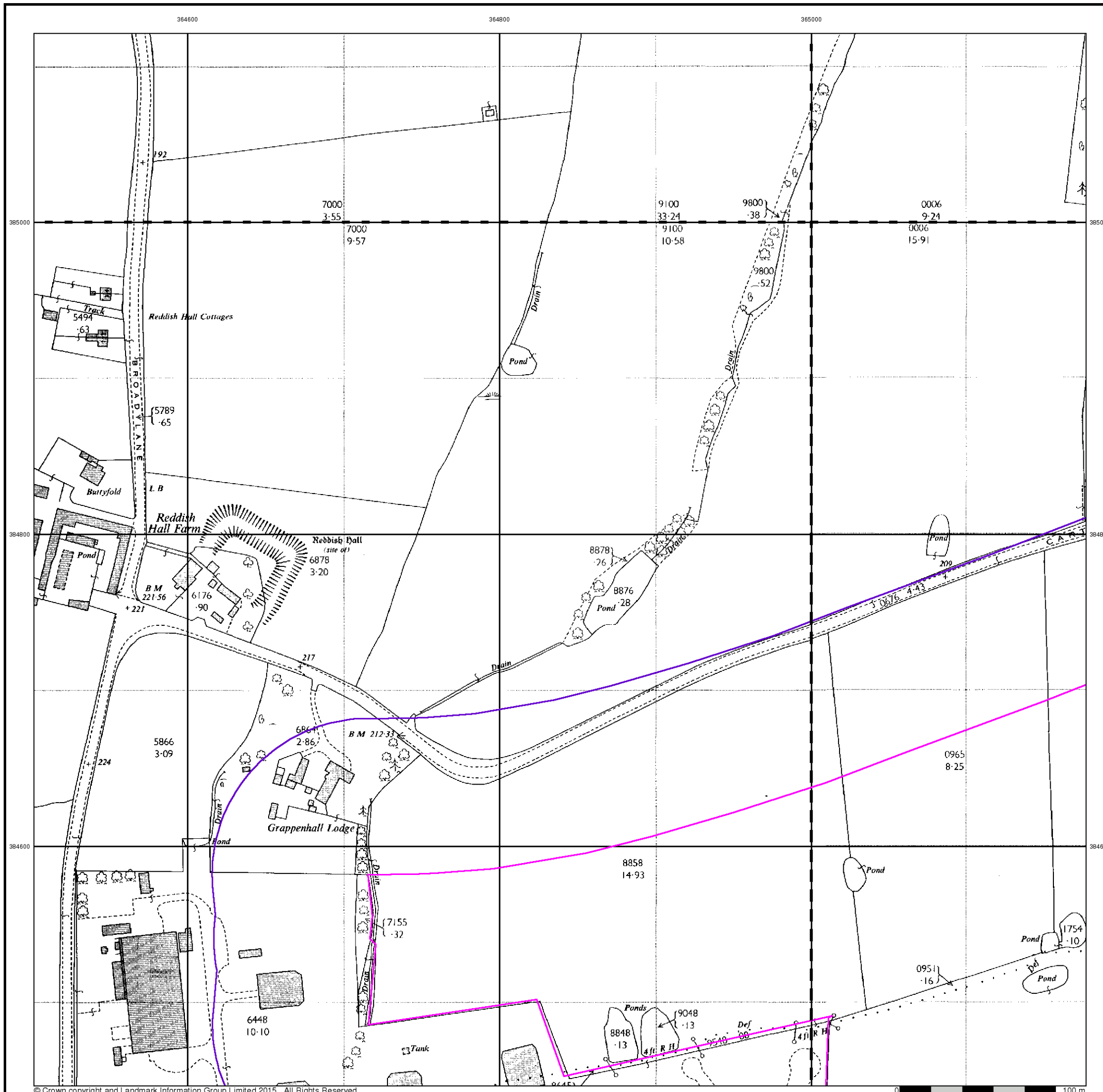


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## Ordnance Survey Plan

Published 1967

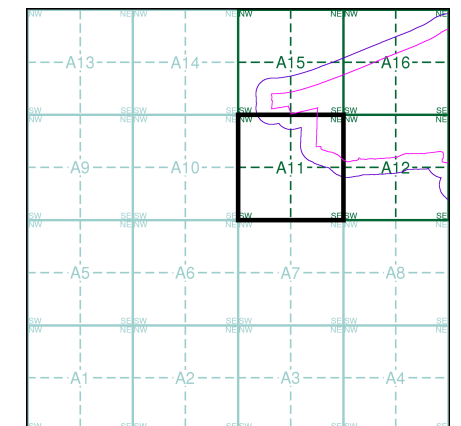
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|                          |                          |
|--------------------------|--------------------------|
| SJ6484<br>1967<br>12,500 | SJ6584<br>1967<br>12,500 |
| SJ6483<br>1967<br>12,500 | SJ6583<br>1967<br>12,500 |

### Historical Map - Segment A11

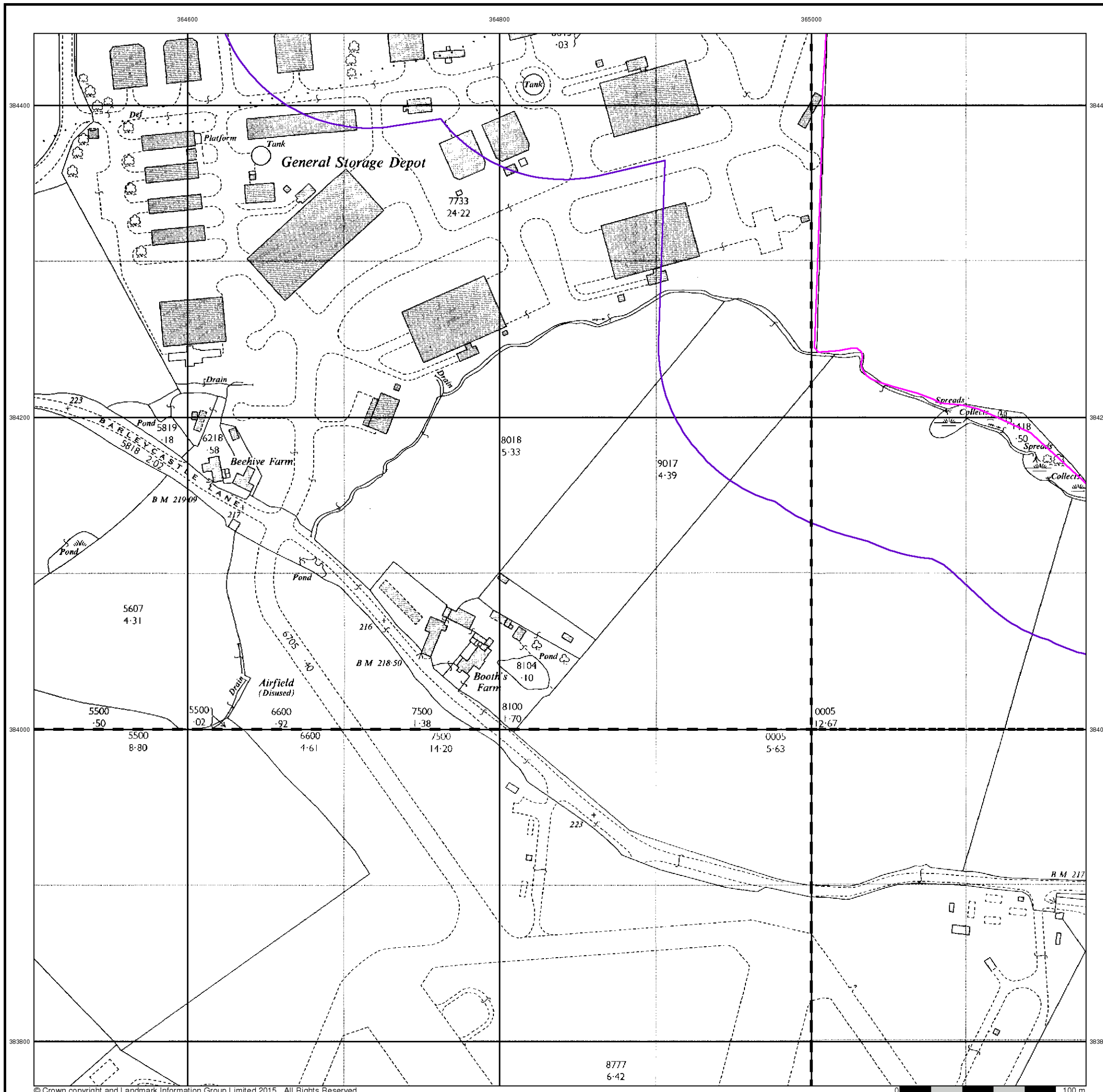


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## Ordnance Survey Plan

Published 1967

Source map scale - 1:2,500

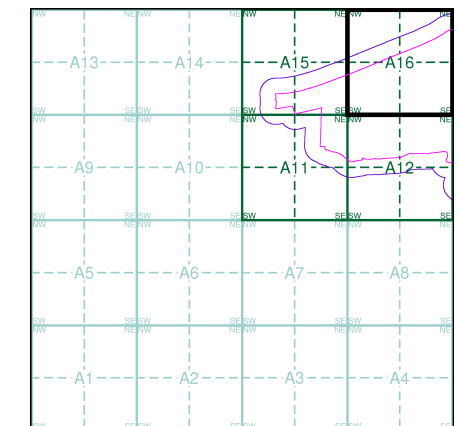
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

SJ6585  
1967  
1:2,500

SJ6584  
1967  
1:2,500

### Historical Map - Segment A16

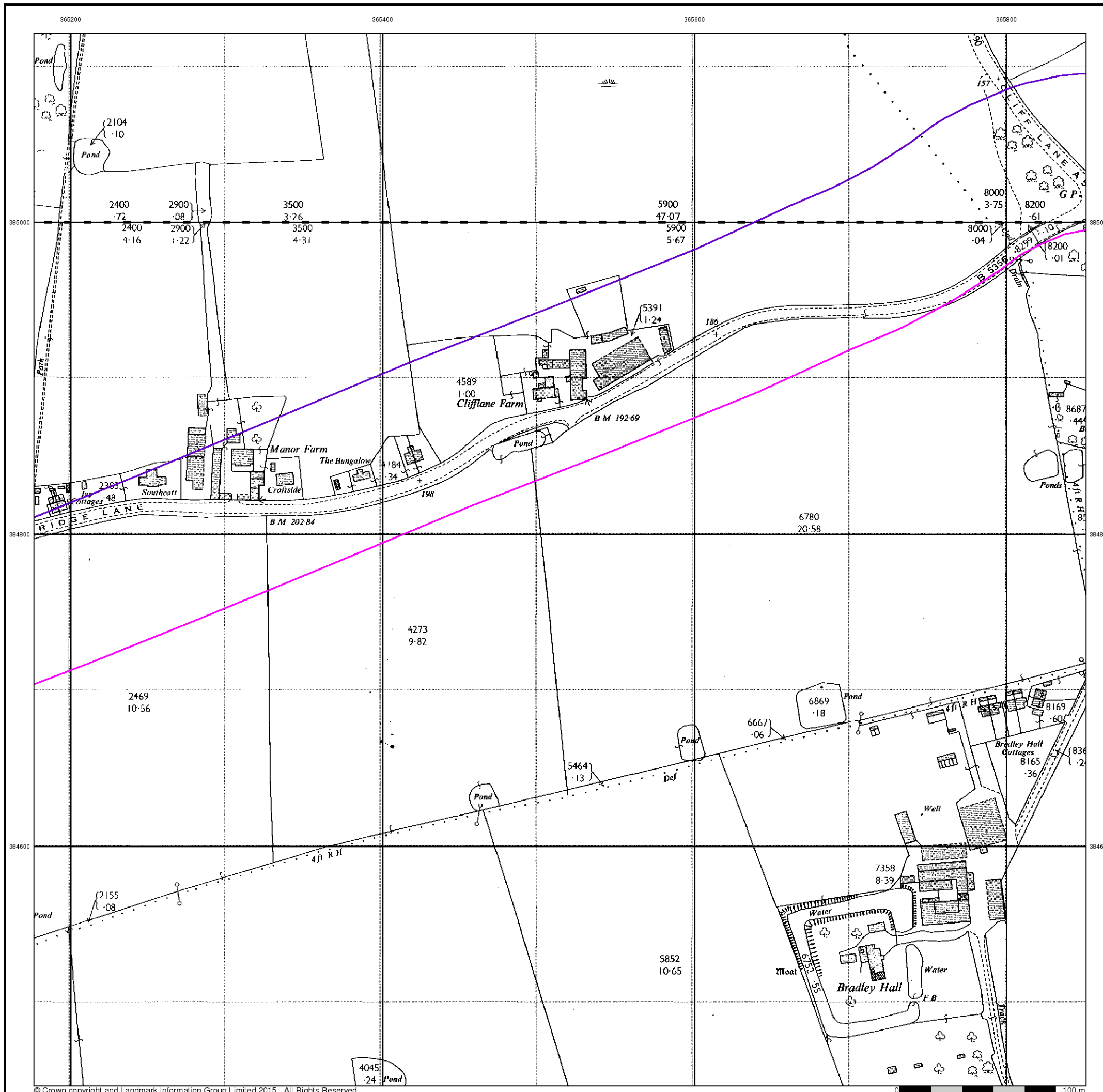


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

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## Ordnance Survey Plan

Published 1967

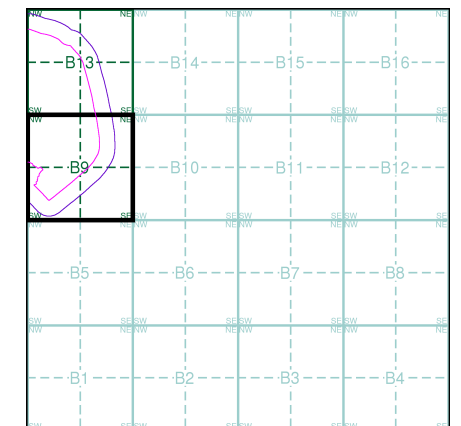
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|                           |                           |
|---------------------------|---------------------------|
| SJ6584<br>1967<br>1:2,500 | SJ6684<br>1967<br>1:2,500 |
| SJ6583<br>1967<br>1:2,500 | SJ6683<br>1967<br>1:2,500 |

### Historical Map - Segment B9

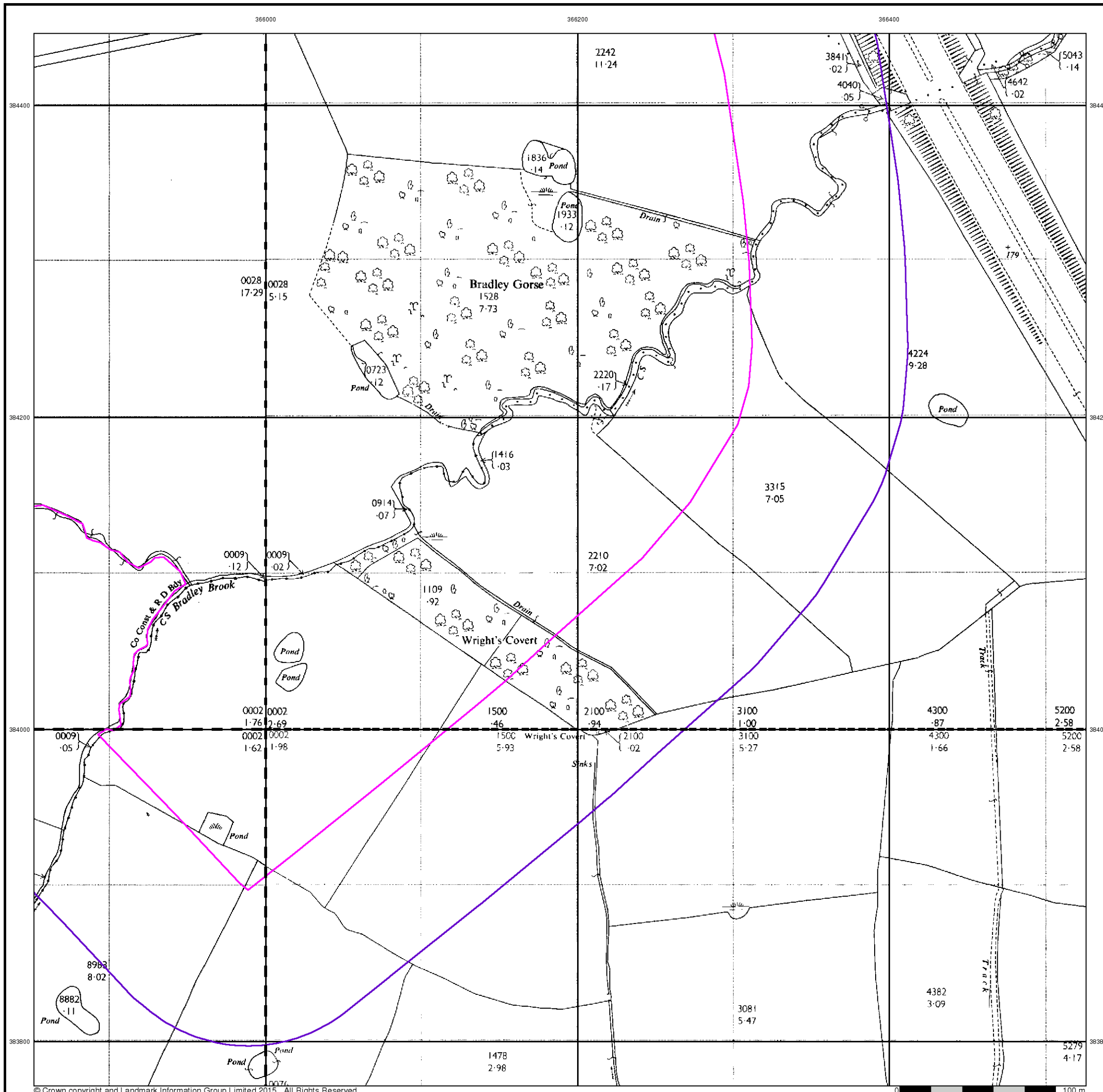


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## Ordnance Survey Plan

Published 1967

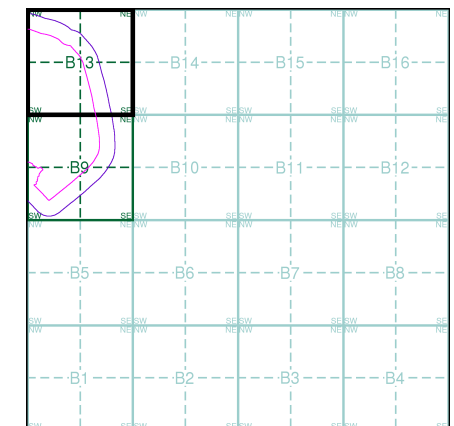
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

|        |        |
|--------|--------|
| SJ6585 | SJ6685 |
| 1967   | 1967   |
| 12,500 | 12,500 |
| SJ6584 | SJ6684 |
| 1967   | 1967   |
| 12,500 | 12,500 |

### Historical Map - Segment B13

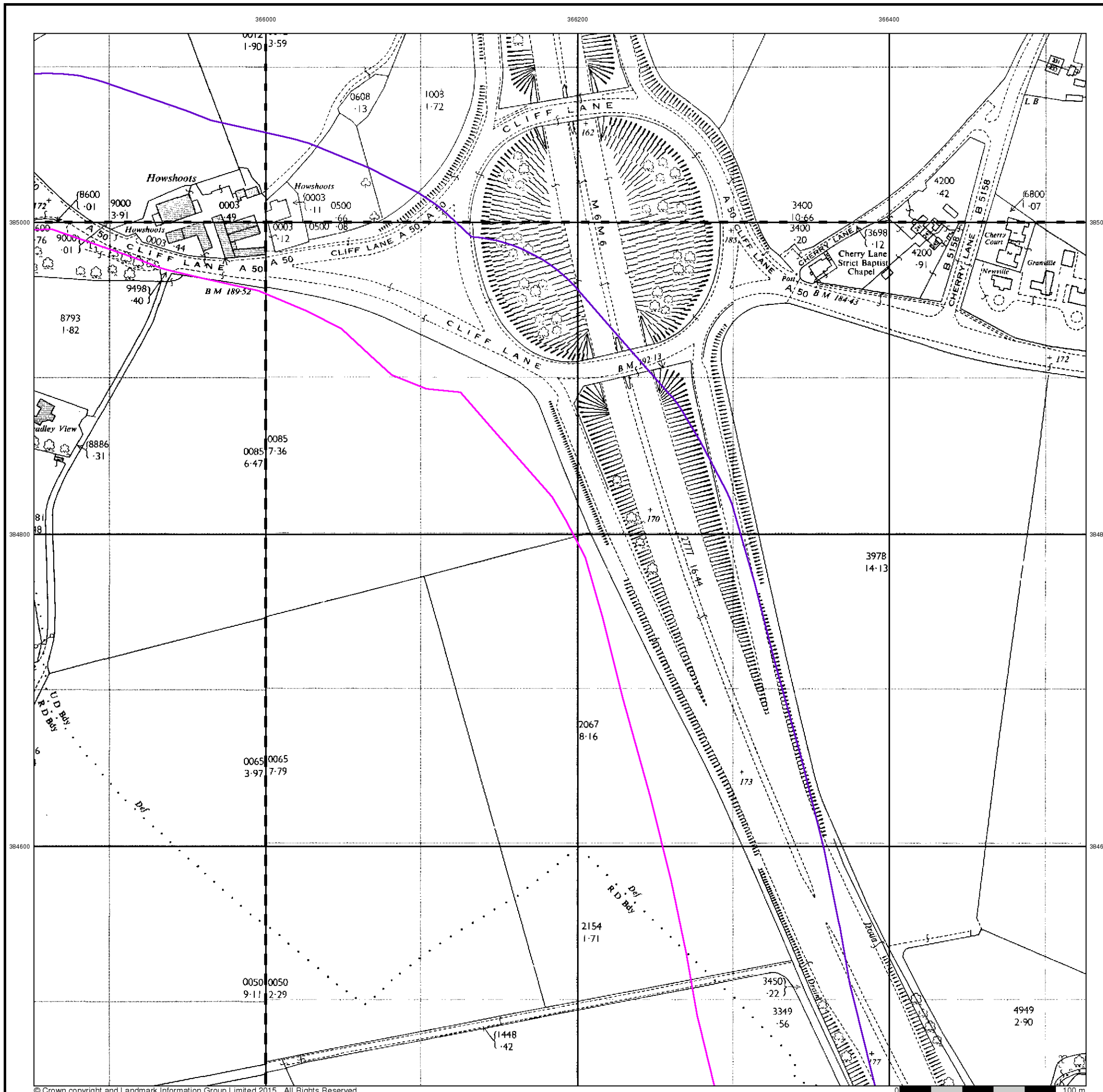


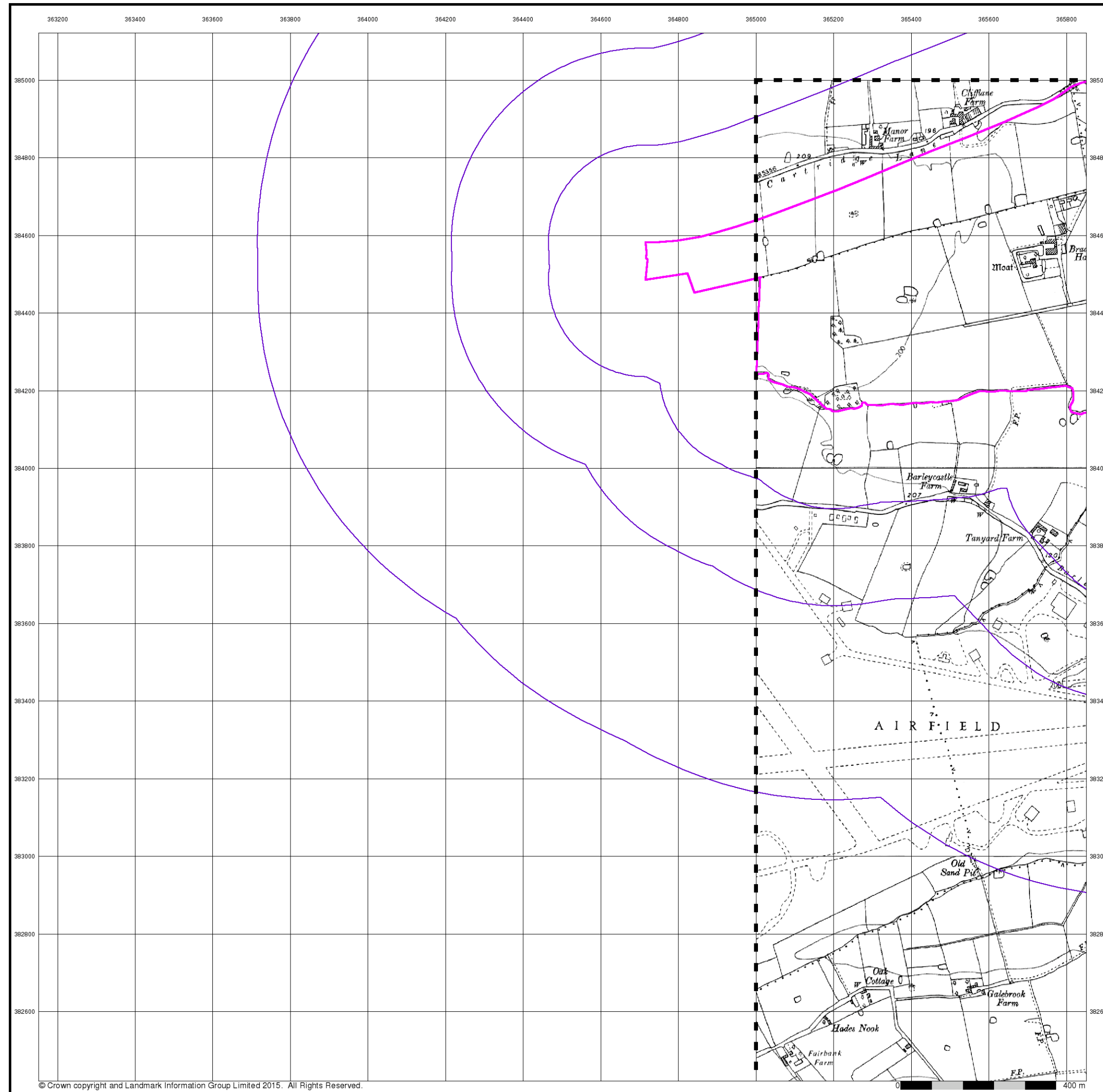
### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





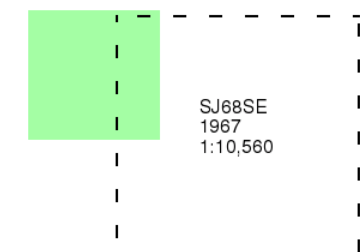
## Ordnance Survey Plan

Published 1967

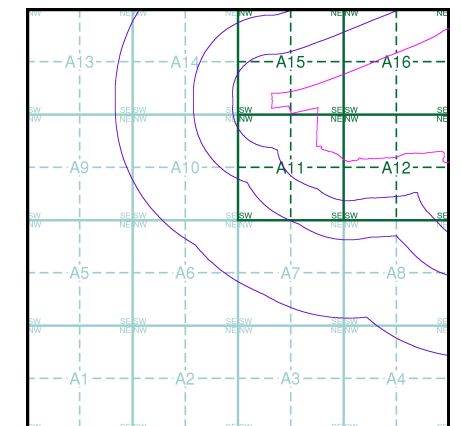
Source map scale - 1:10,000

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### Map Name(s) and Date(s)



### Historical Map - Slice A

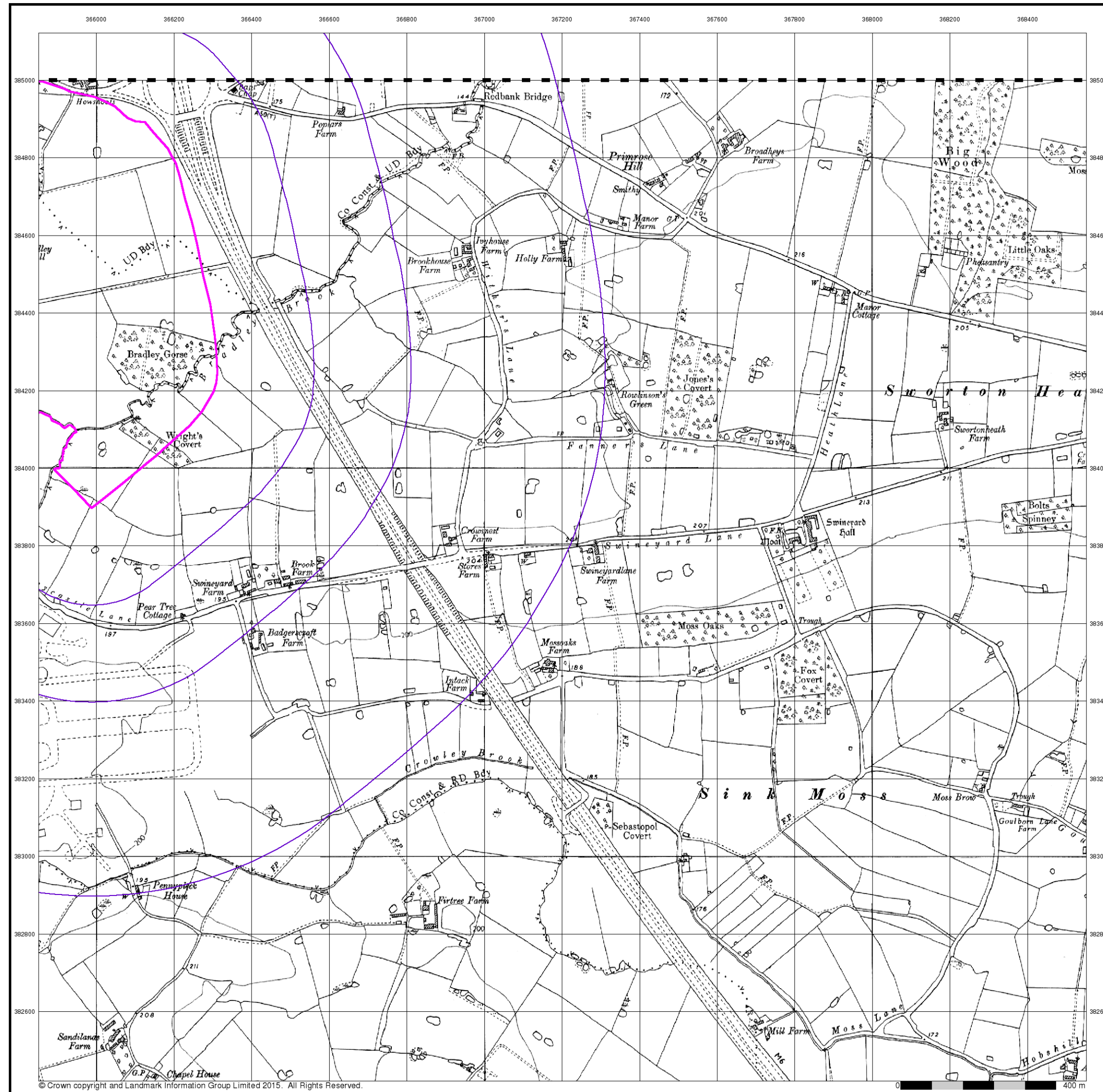


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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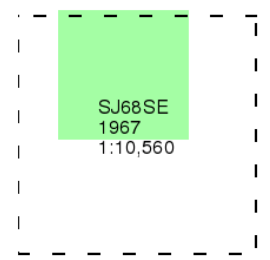
## Ordnance Survey Plan

Published 1967

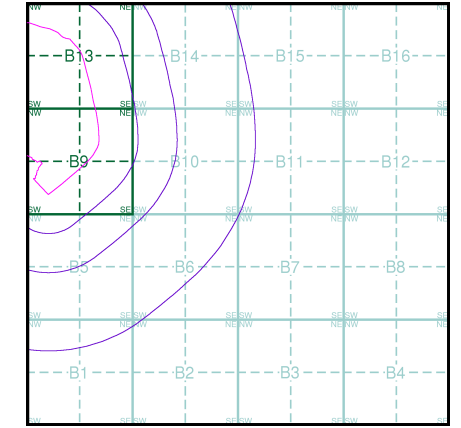
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)



### Historical Map - Slice B



### Order Details

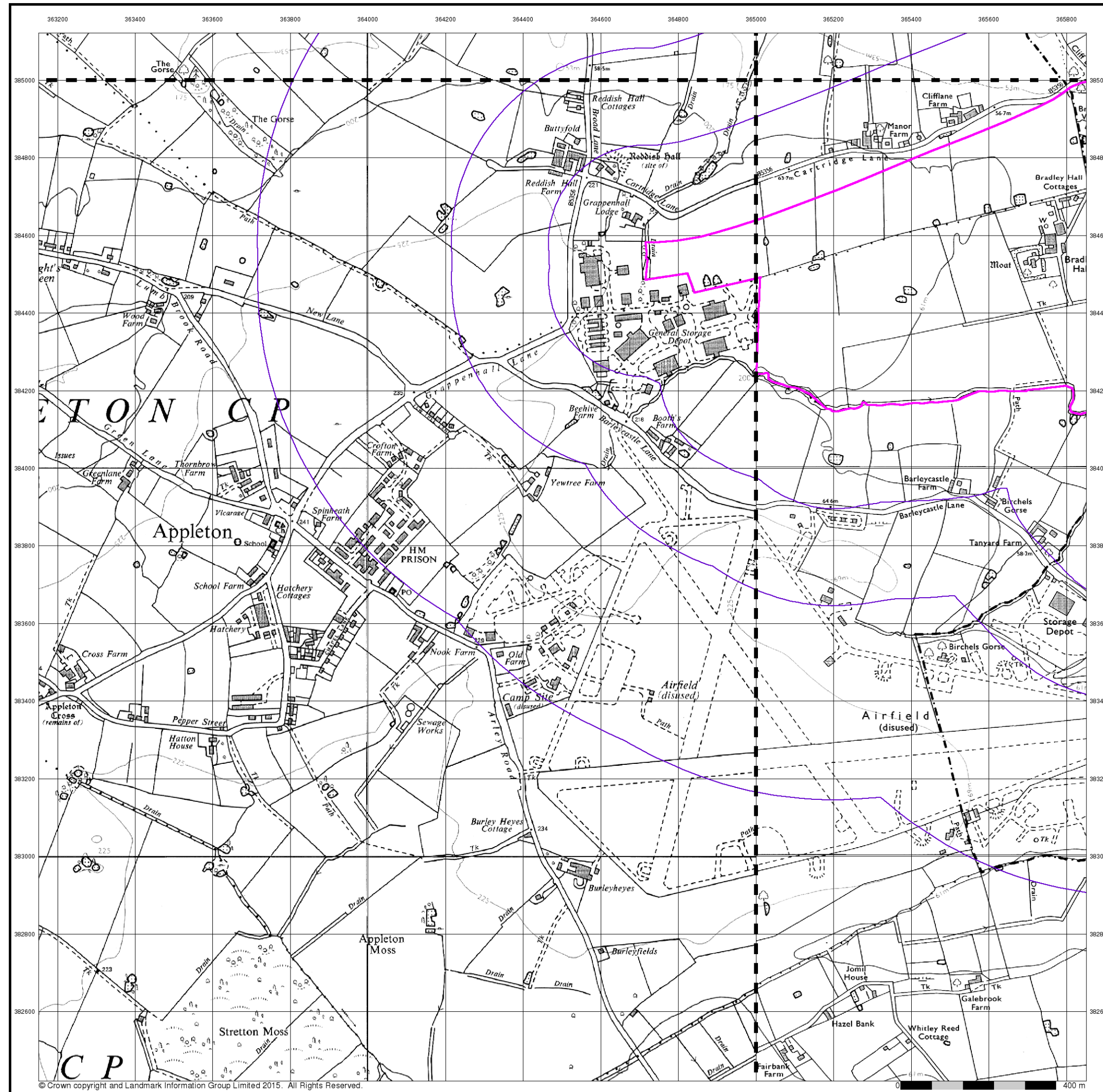
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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## Ordnance Survey Plan

Published 1970 - 1971

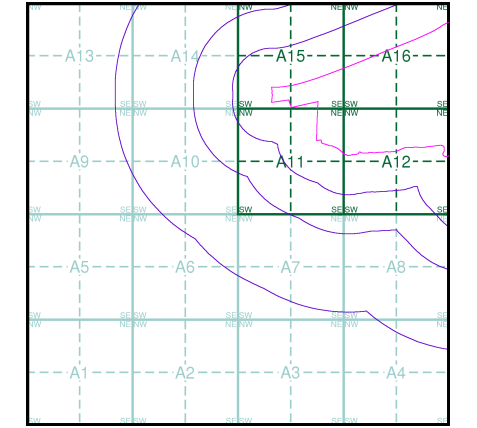
Source map scale - 1:10,000

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### Map Name(s) and Date(s)

|          |          |
|----------|----------|
| SJ68NW   | SJ68NE   |
| 1970     | 1971     |
| 1:10,000 | 1:10,000 |
| SJ68SW   | SJ68SE   |
| 1970     | 1970     |
| 1:10,560 | 1:10,000 |

### Historical Map - Slice A



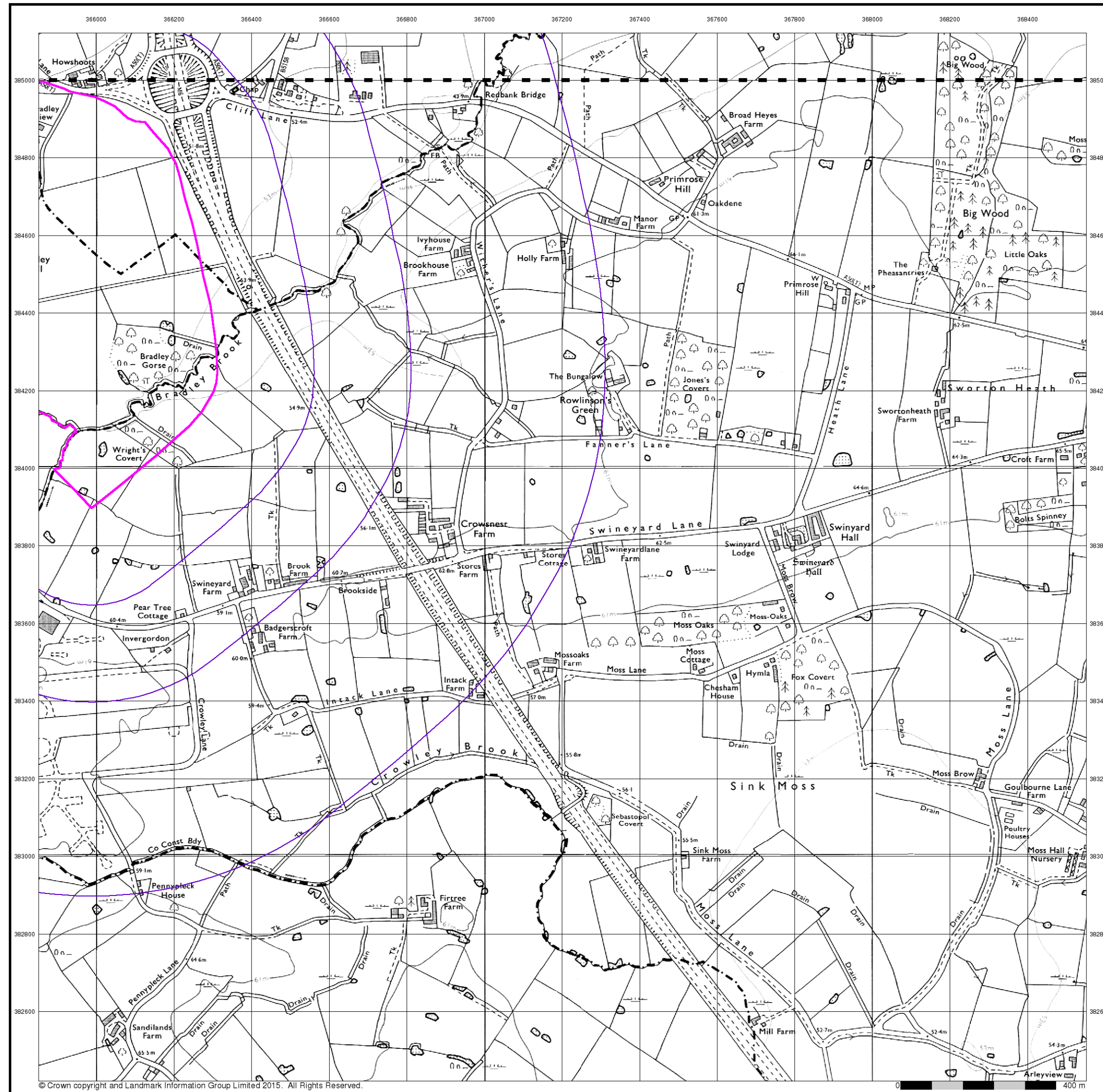
### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





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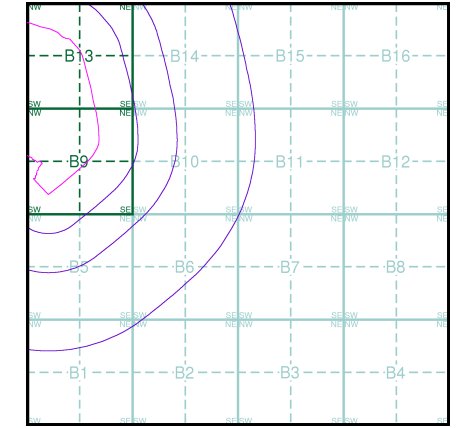
**Ordnance Survey Plan**  
**Published 1970 - 1971**  
**Source map scale - 1:10,000**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|     |        |      |          |
|-----|--------|------|----------|
| --- | SJ68NE | 1971 | 1:10,000 |
| --- | SJ68SE | 1970 | 1:10,000 |

### Historical Map - Slice B



### Order Details

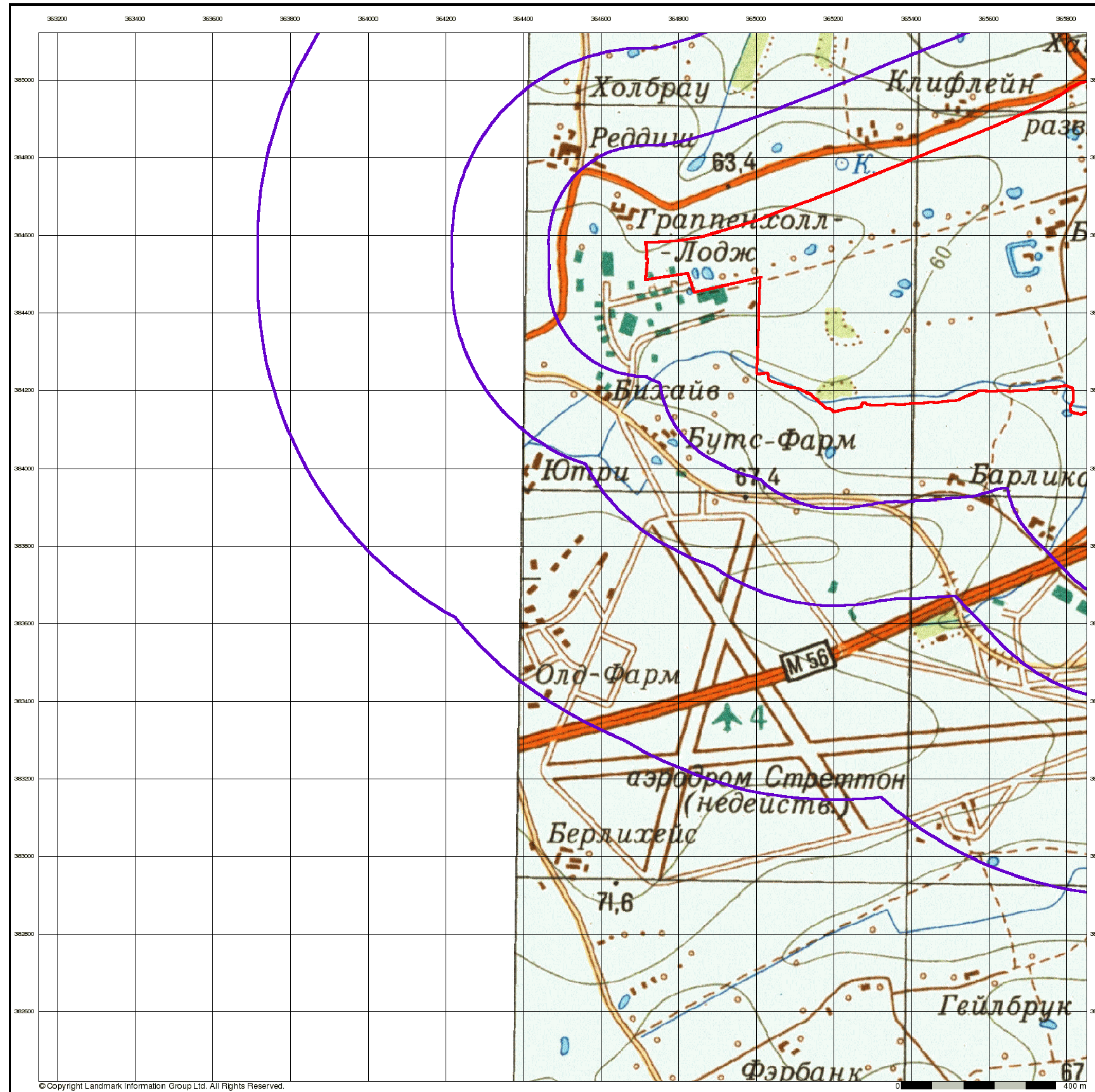
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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# Envirocheck®

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**Manchester**

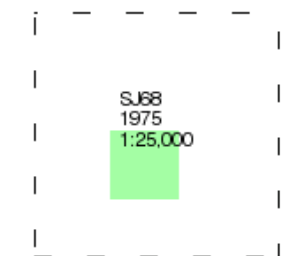
**Published 1975**

**Source map scale - 1:25,000**

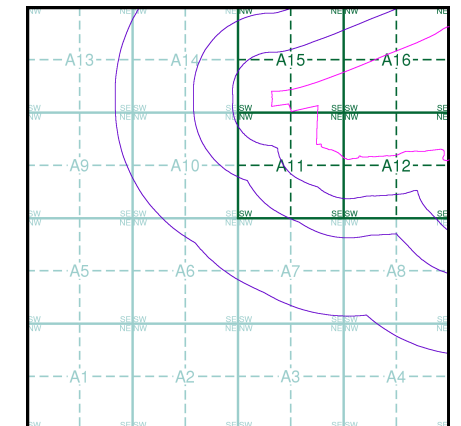
These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.

They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

## Map Name(s) and Date(s)



## Russian Map - Slice A



## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

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## Manchester

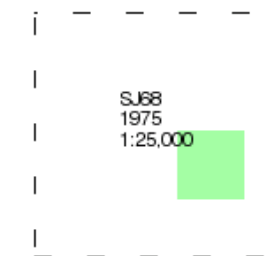
Published 1975

Source map scale - 1:25,000

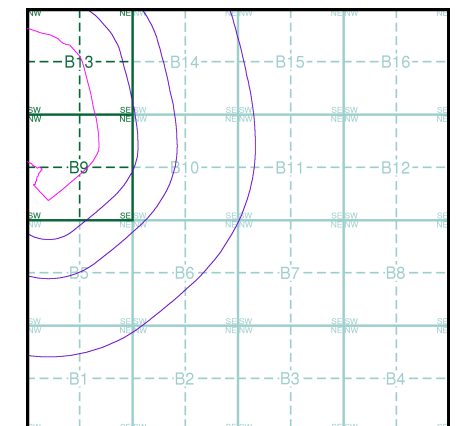
These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.

They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

### Map Name(s) and Date(s)



### Russian Map - Slice B

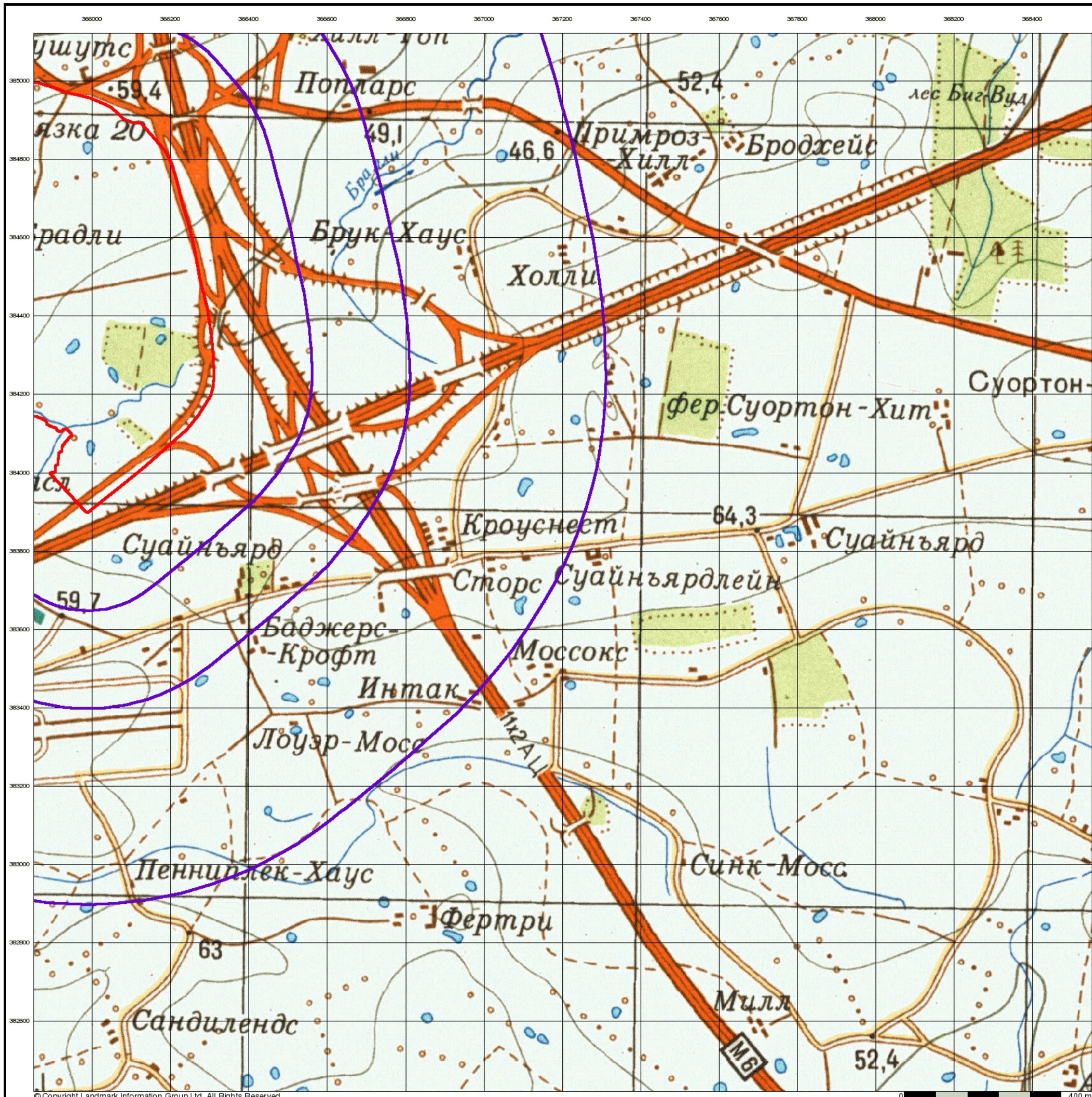


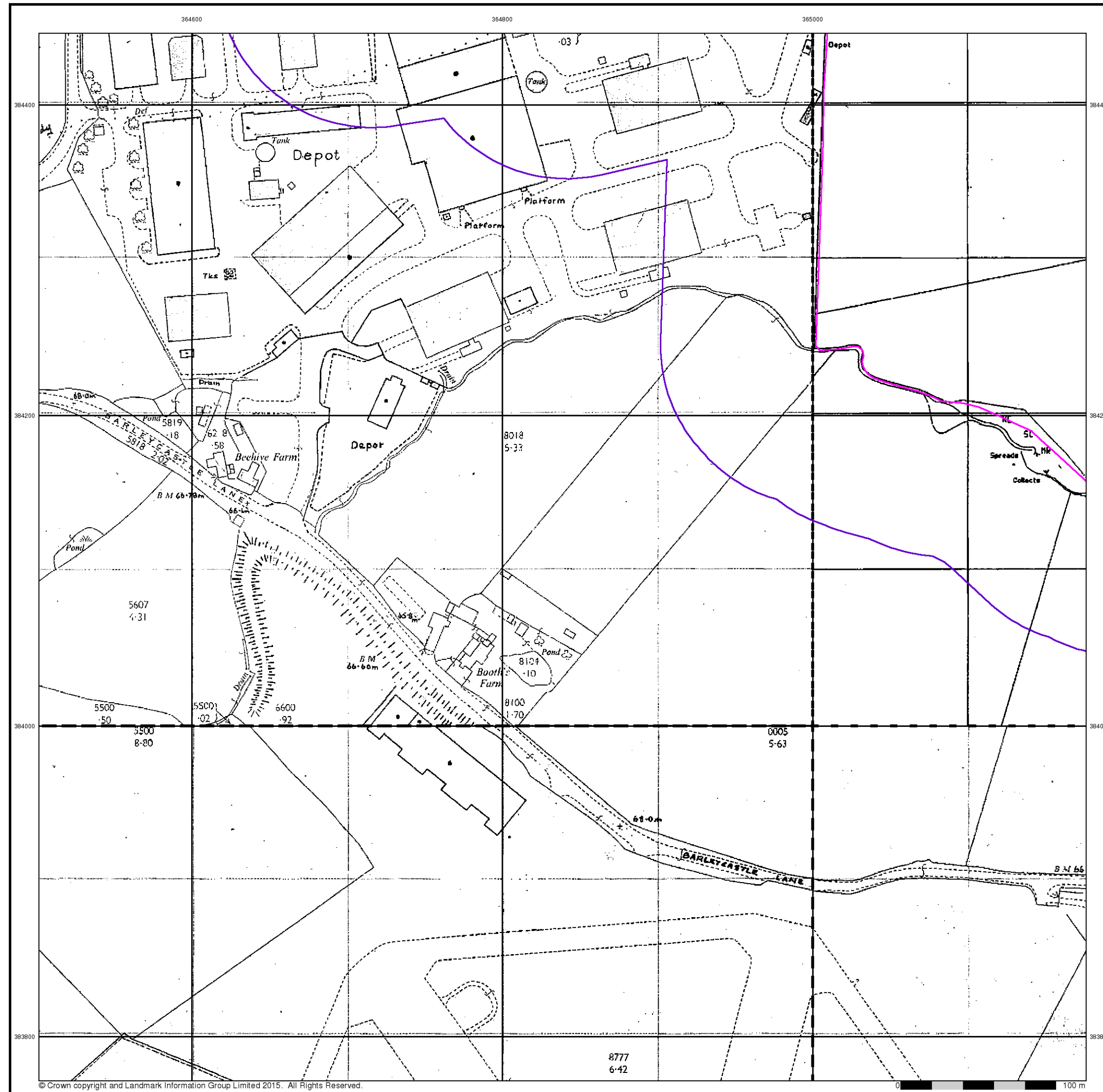
### Order Details

Order Number: 135773225\_1\_1  
Customer Ref: 1015524 - Warrington Interchange MP  
National Grid Reference: 366500, 384120  
Slice: B  
Site Area (Ha): 93.66  
Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





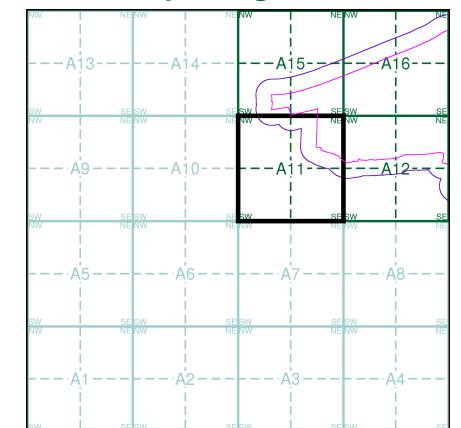
**Additional SIMs**  
**Published 1978 - 1991**  
**Source map scale - 1:2,500**

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

|        |        |
|--------|--------|
| SJ6484 | SJ6584 |
| 1984   | 1991   |
| 12,500 | 12,500 |
| ■      |        |
| SJ6483 | SJ6583 |
| 1978   | 1978   |
| 12,500 | 12,500 |

### Historical Map - Segment A11



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

## Additional SIMs

Published 1978 - 1992

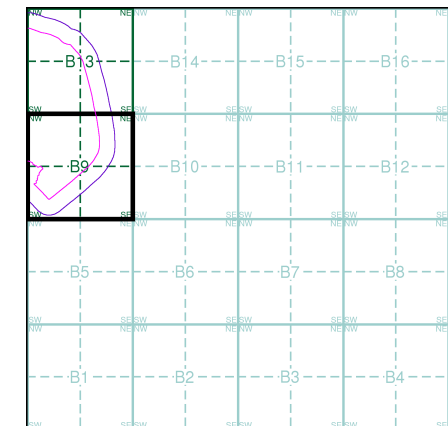
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

## Map Name(s) and Date(s)

|        |        |
|--------|--------|
| SJ6584 | SJ6684 |
| 1991   | 1992   |
| 12,500 | 12,500 |
| ■      |        |
| SJ6583 | SJ6683 |
| 1978   | 1979   |
| 12,500 | 12,500 |

## Historical Map - Segment B9

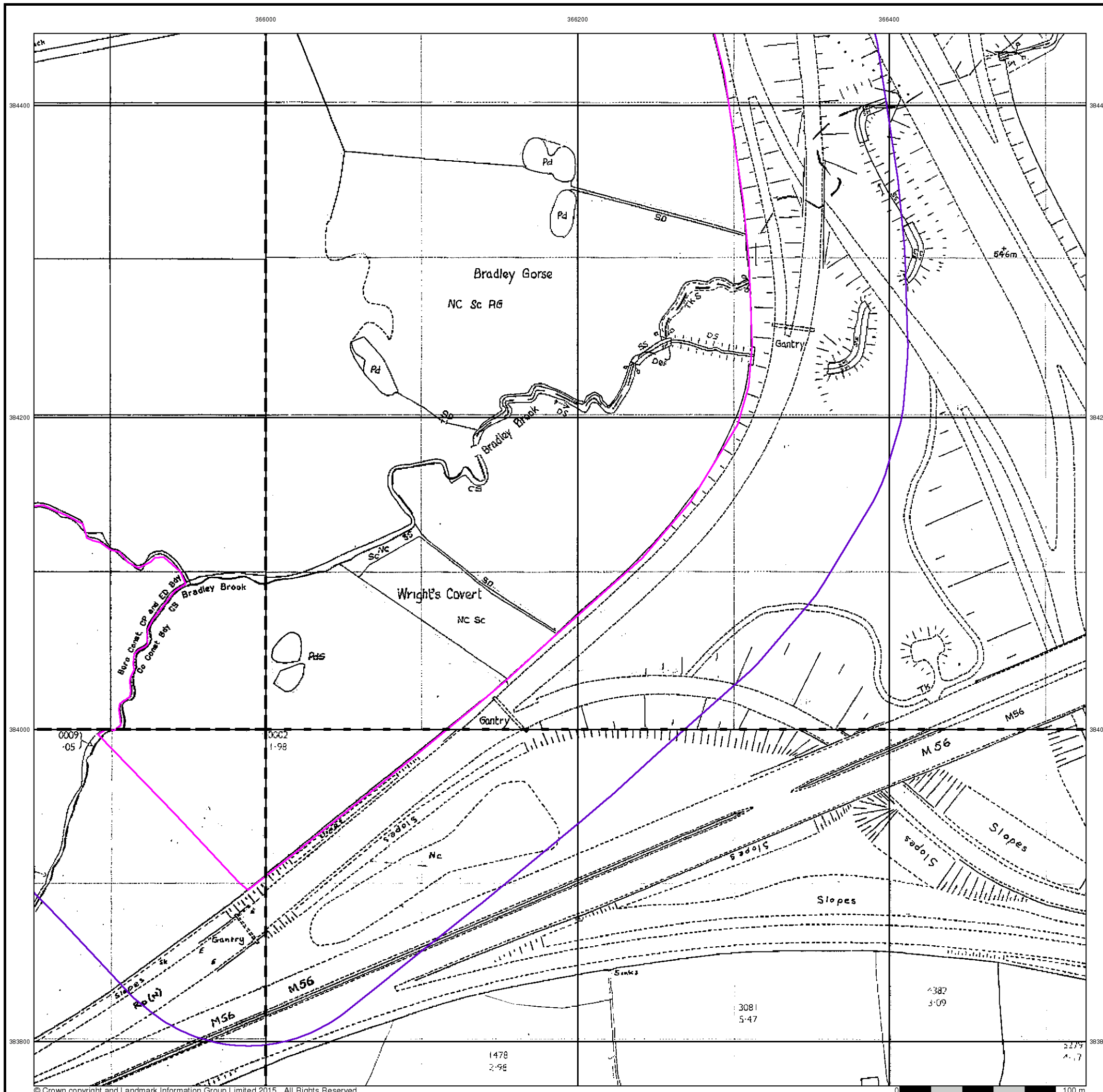


## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## Warrington

Published 1984

Source map scale - 1:10,000

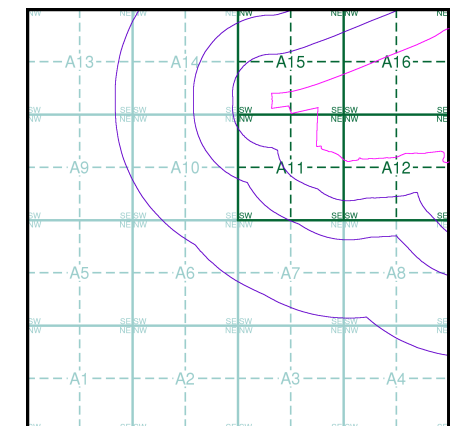
These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.

They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

### Map Name(s) and Date(s)

|                            |                            |
|----------------------------|----------------------------|
| SJ68NW<br>1984<br>1:10,000 | SJ68NE<br>1984<br>1:10,000 |
| SJ68SW<br>1984<br>1:10,000 | SJ68SE<br>1984<br>1:10,000 |

### Russian Map - Slice A



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## Warrington

Published 1984

Source map scale - 1:10,000

These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.

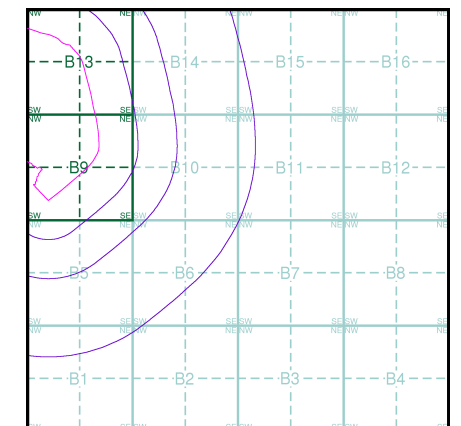
They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

### Map Name(s) and Date(s)

SJ68NE  
1984  
1:10,000

SJ68SE  
1984  
1:10,000

### Russian Map - Slice B



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



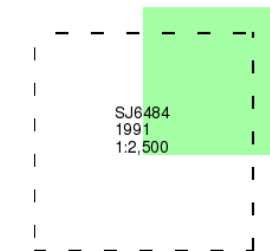
## Additional SIMs

Published 1991

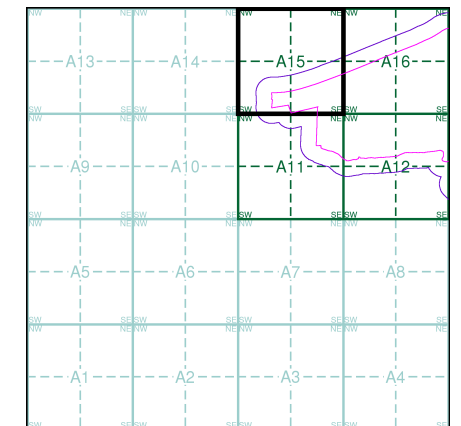
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

## Map Name(s) and Date(s)



## Historical Map - Segment A15



## Order Details

Order Number: 135773225\_1\_1  
Customer Ref: 1015524 - Warrington Interchange MP  
National Grid Reference: 364910, 384200  
Slice: A  
Site Area (Ha): 93.66  
Search Buffer (m): 100

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR







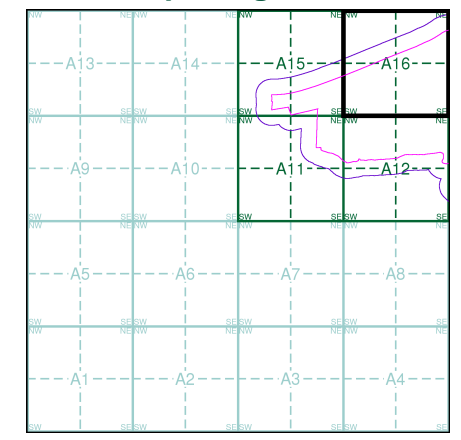
**Additional SIMs**  
**Published 1991**  
**Source map scale - 1:2,500**

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

|        |      |         |
|--------|------|---------|
| SJ6585 | 1991 | 1:2,500 |
| SJ6584 | 1991 | 1:2,500 |

### Historical Map - Segment A16

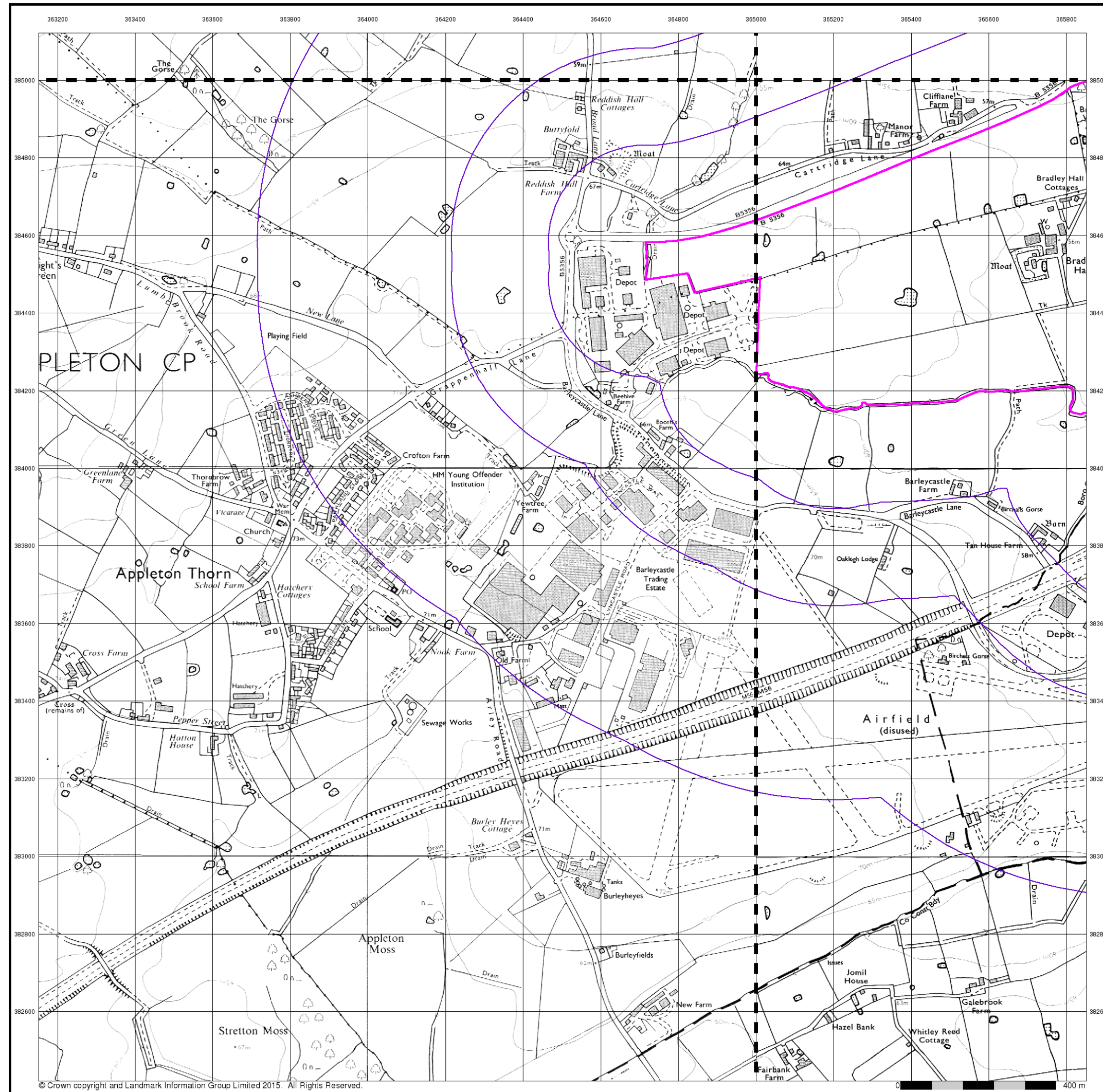


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

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## Ordnance Survey Plan

Published 1992 - 1993

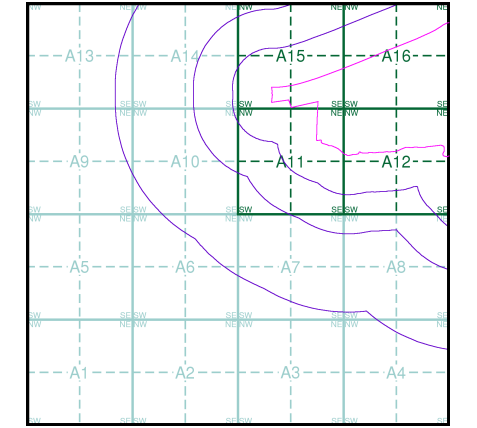
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

|        |      |          |
|--------|------|----------|
| SJ68NW | 1993 | 1:10,000 |
| SJ68SW | 1992 | 1:10,000 |
| SJ68SE | 1992 | 1:10,000 |

### Historical Map - Slice A



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

**Landmark**  
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 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

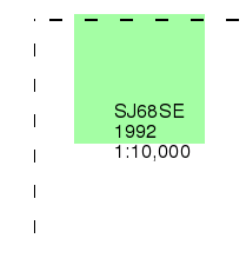
## Ordnance Survey Plan

Published 1992

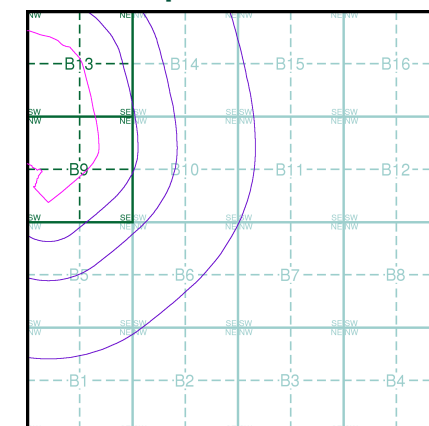
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)



### Historical Map - Slice B

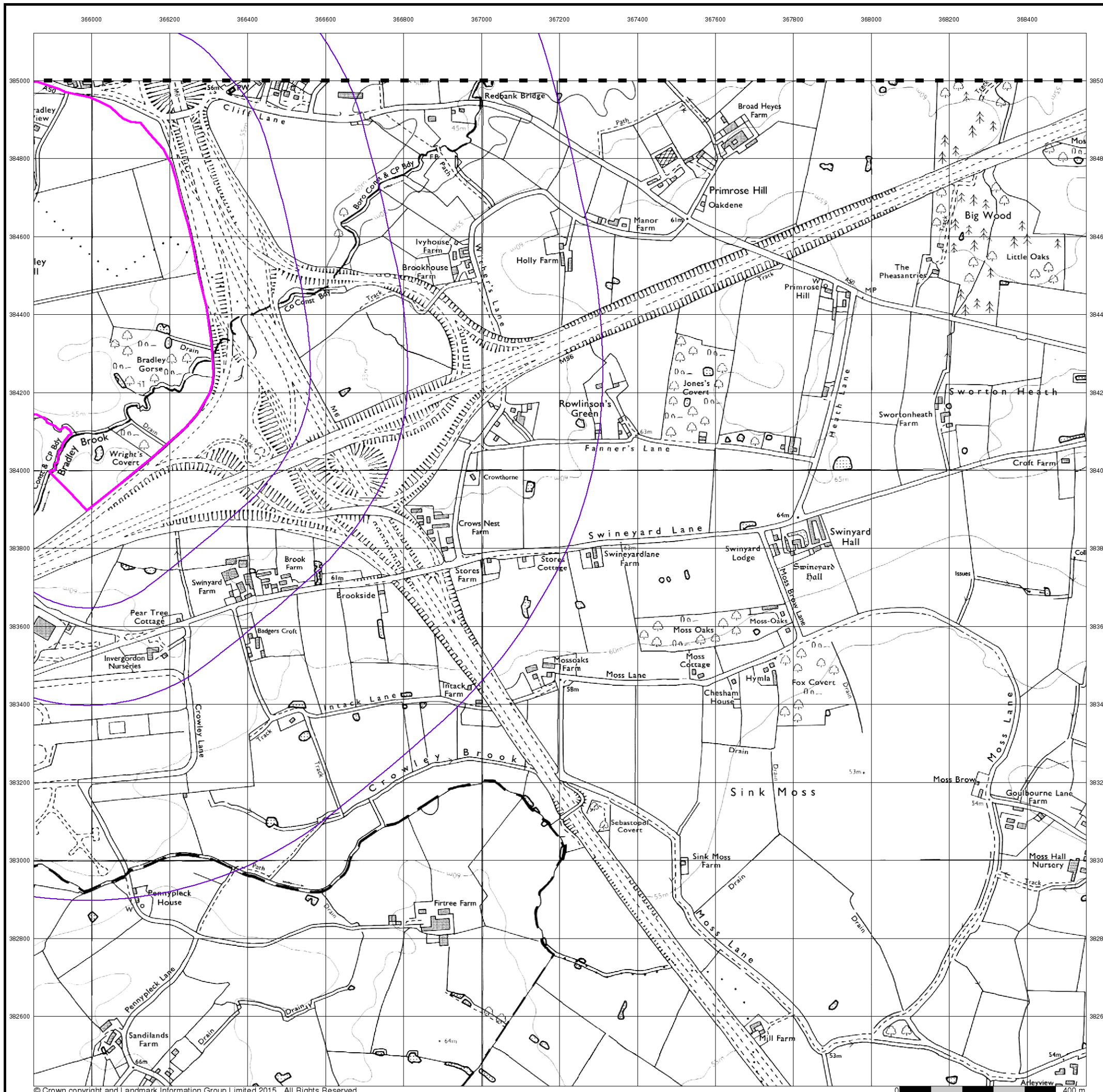


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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## Large-Scale National Grid Data

Published 1993

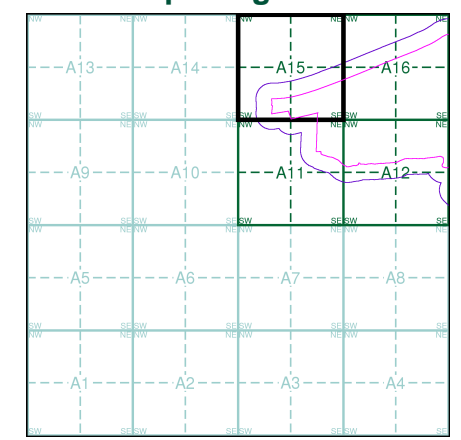
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

|        |        |
|--------|--------|
| SJ6485 | SJ6585 |
| 1993   | 1993   |
| 12,500 | 12,500 |
| SJ6484 | SJ6584 |
| 1993   | 1993   |
| 12,500 | 12,500 |

### Historical Map - Segment A15



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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## Large-Scale National Grid Data

Published 1993

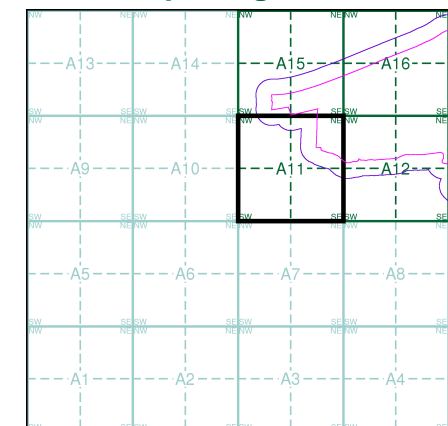
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

|         |         |
|---------|---------|
| SJ6484  | SJ6584  |
| 1993    | 1993    |
| 1:2,500 | 1:2,500 |
| ■       |         |
| SJ6483  | SJ6583  |
| 1993    | 1993    |
| 1:2,500 | 1:2,500 |

### Historical Map - Segment A11

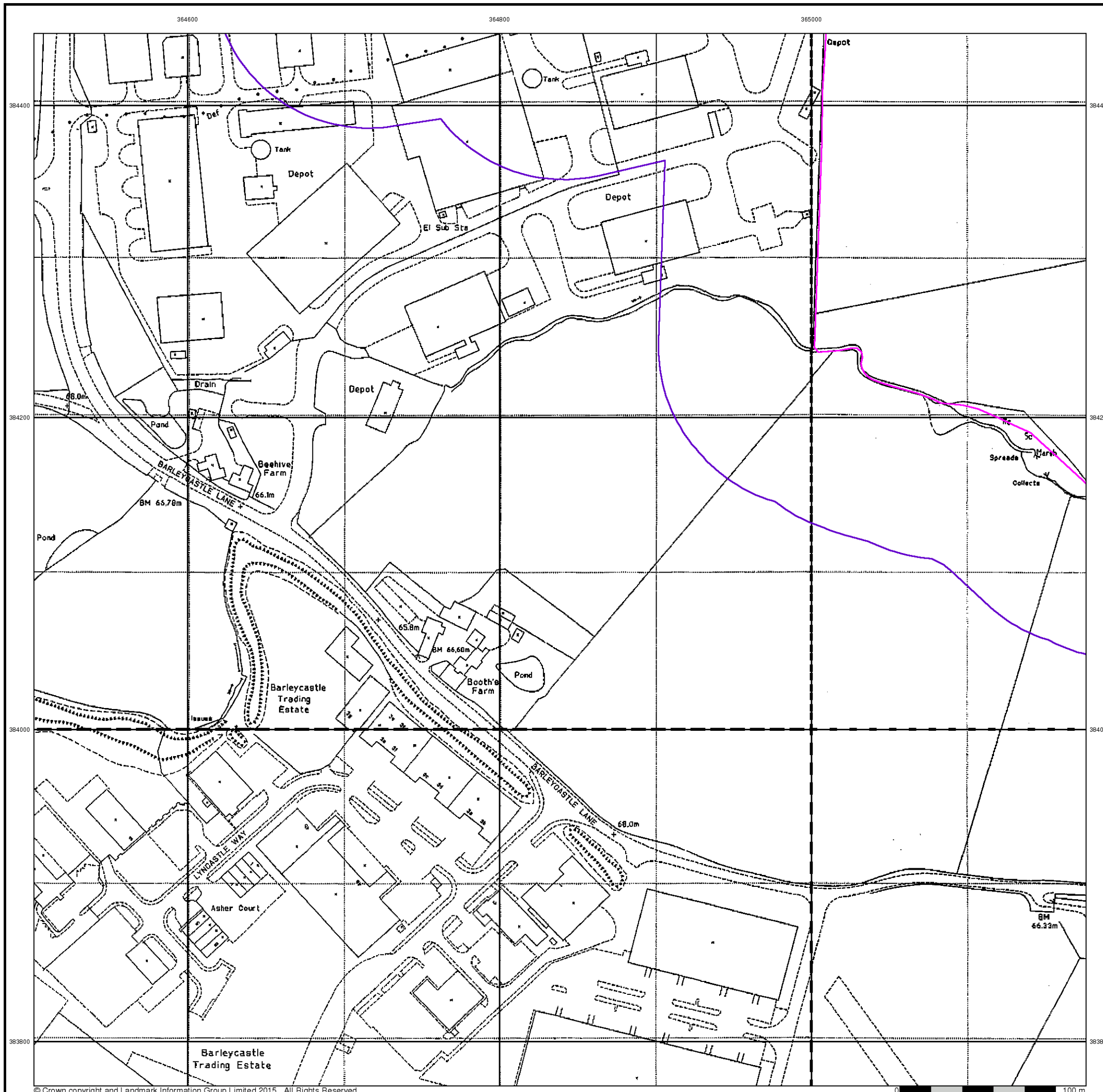


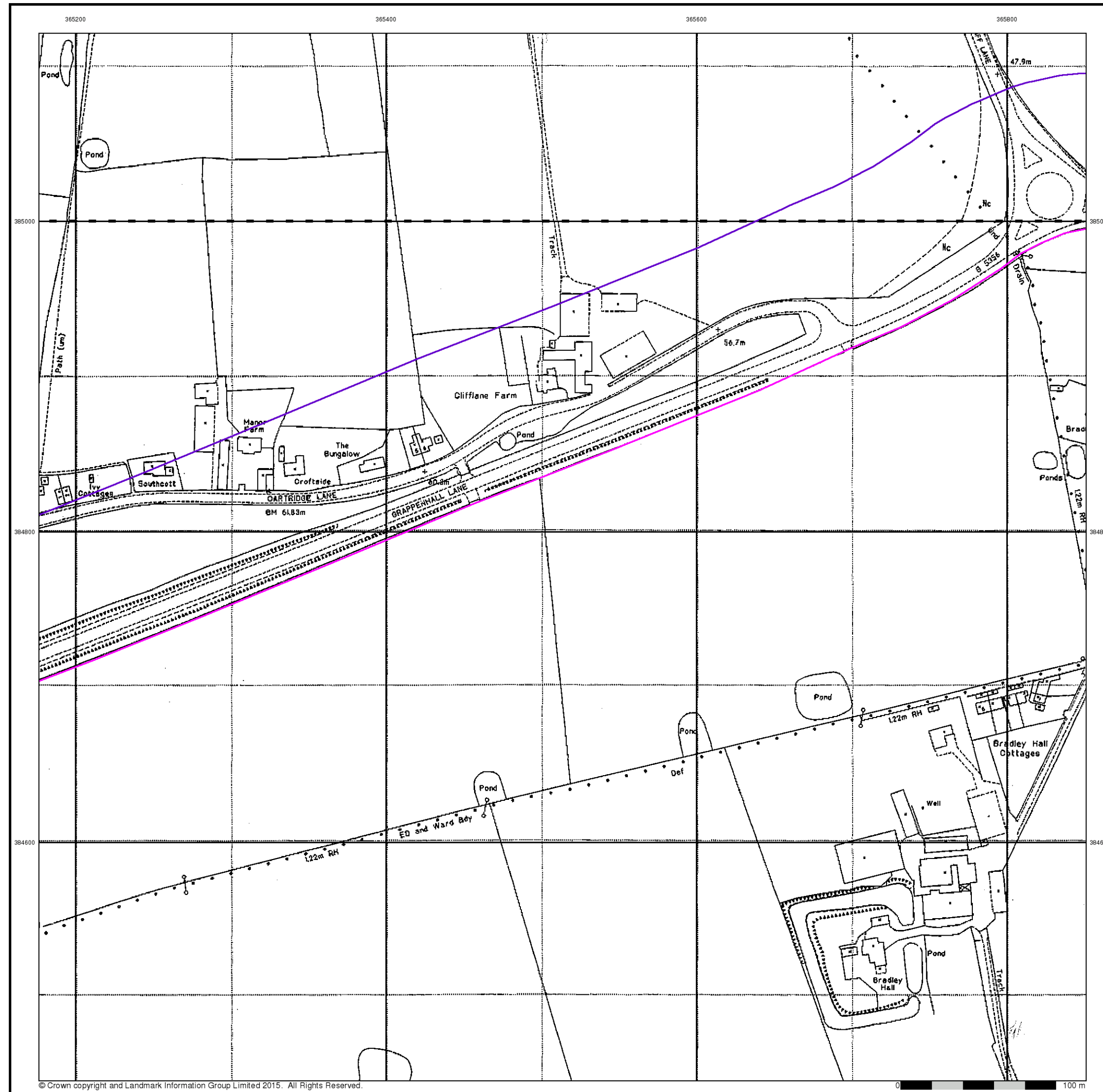
### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





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## Large-Scale National Grid Data

Published 1993

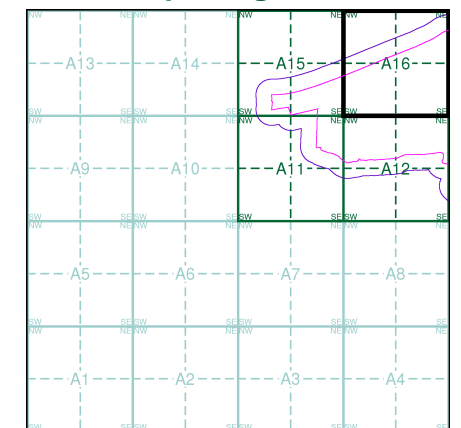
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

|        |      |         |
|--------|------|---------|
| SJ6585 | 1993 | 1:2,500 |
| SJ6584 | 1993 | 1:2,500 |

### Historical Map - Segment A16



### Order Details

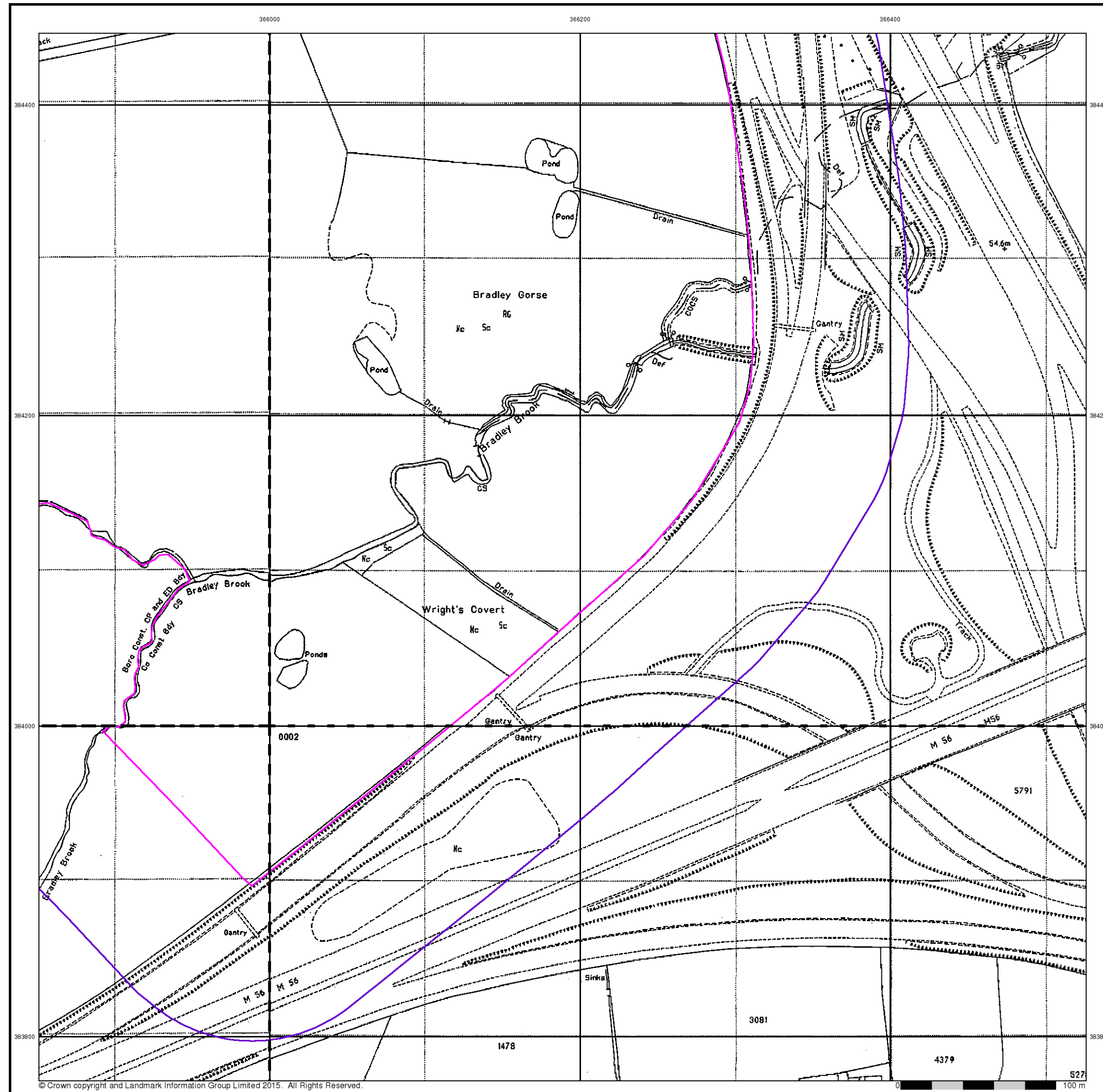
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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## Large-Scale National Grid Data

Published 1993

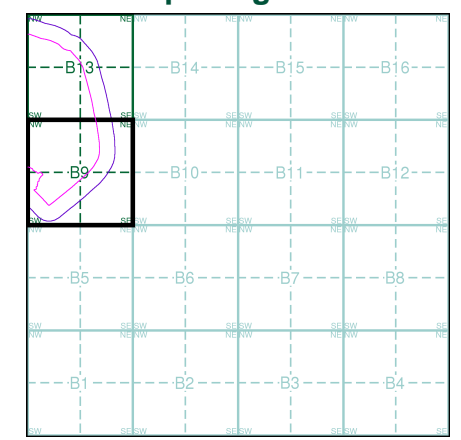
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

|         |         |
|---------|---------|
| SJ6584  | SJ6684  |
| 1993    | 1993    |
| 1:2,500 | 1:2,500 |
| ■       |         |
| SJ6583  | SJ6683  |
| 1993    | 1993    |
| 1:2,500 | 1:2,500 |

### Historical Map - Segment B9



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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## Large-Scale National Grid Data

Published 1993

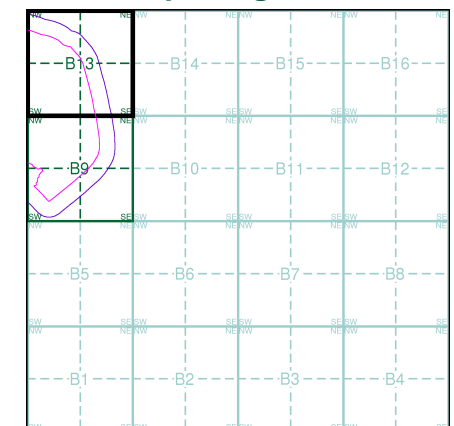
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

|         |         |
|---------|---------|
| SJ6585  | SJ6685  |
| 1993    | 1993    |
| 1:2,500 | 1:2,500 |
| SJ6584  | SJ6684  |
| 1993    | 1993    |
| 1:2,500 | 1:2,500 |

### Historical Map - Segment B13

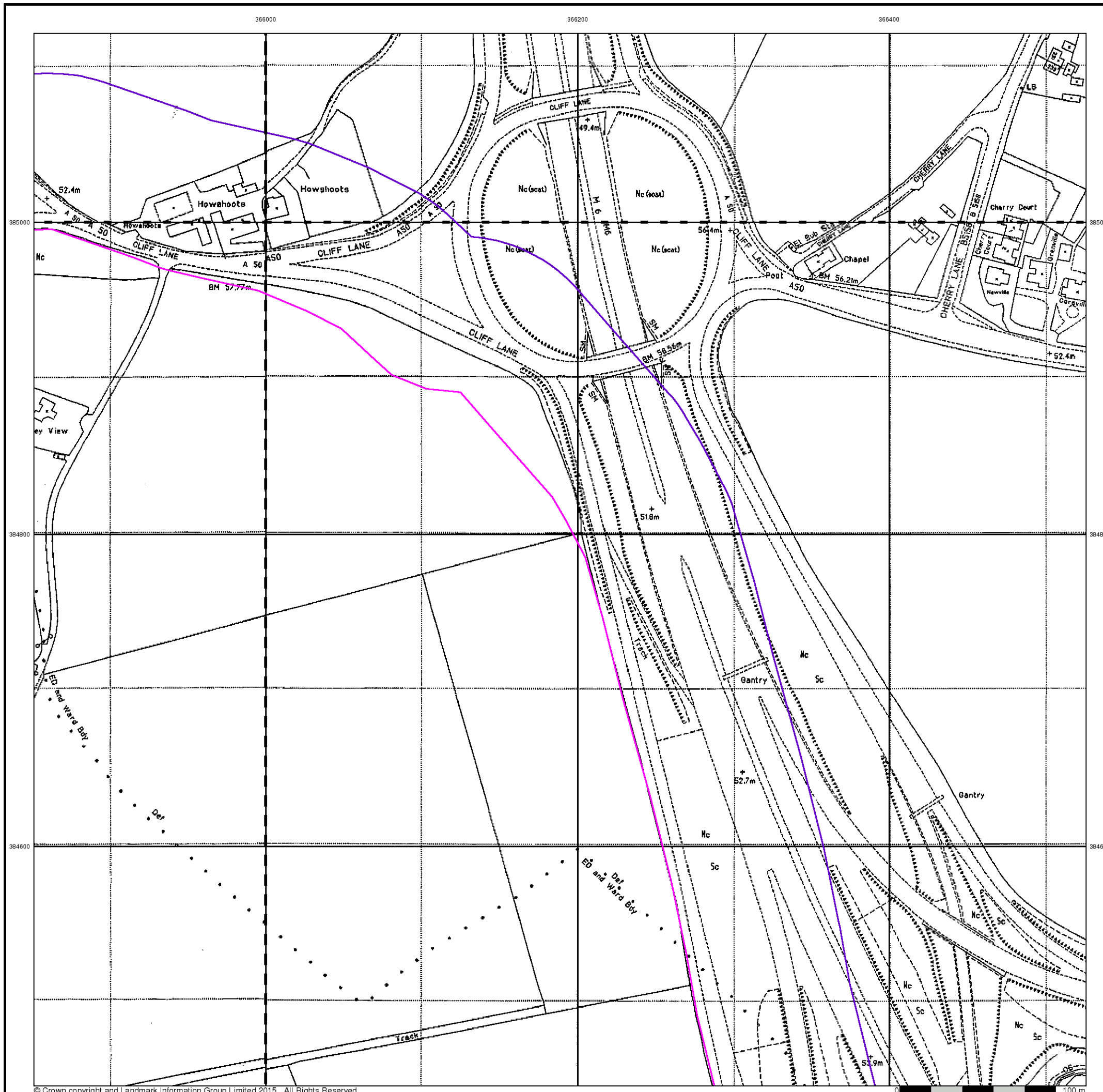


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR







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## 10k Raster Mapping

Published 1999

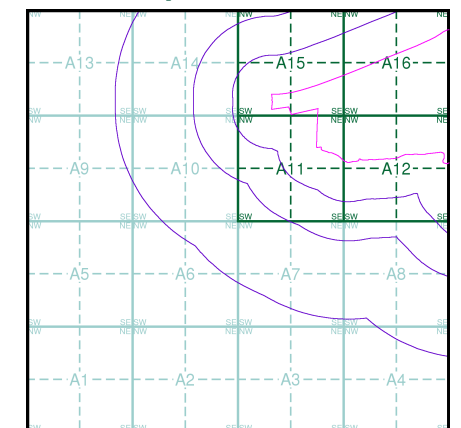
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

### Map Name(s) and Date(s)

|          |          |
|----------|----------|
| SJ68NW   | SJ68NE   |
| 1999     | 1999     |
| 1:10,000 | 1:10,000 |
| SJ68SW   | SJ68SE   |
| 1999     | 1999     |
| 1:10,000 | 1:10,000 |

### Historical Map - Slice A



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

**Landmark**  
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 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

## 10k Raster Mapping

Published 1999

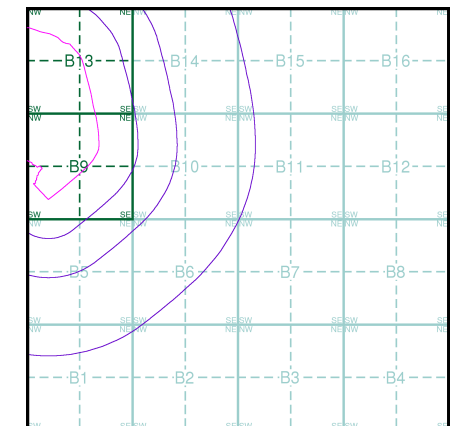
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

### Map Name(s) and Date(s)

|     |          |  |
|-----|----------|--|
| --- | SJ68NE   |  |
| --- | 1999     |  |
| --- | 1:10,000 |  |
| --- |          |  |
| --- | SJ68SE   |  |
| --- | 1999     |  |
| --- | 1:10,000 |  |

### Historical Map - Slice B

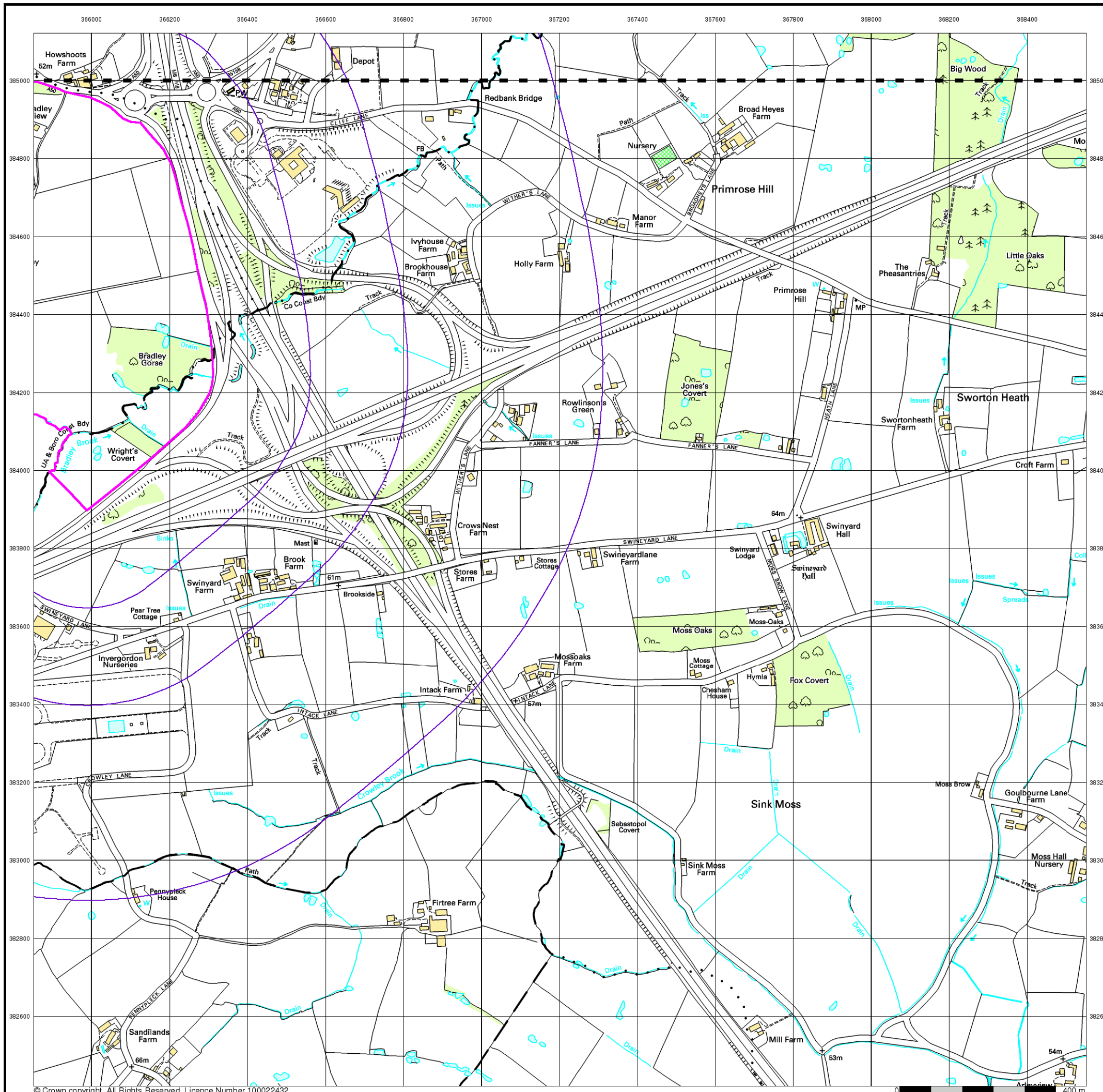


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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364600

364800

365000

385000

385000

384800

384800

384600

384600



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0 100 m

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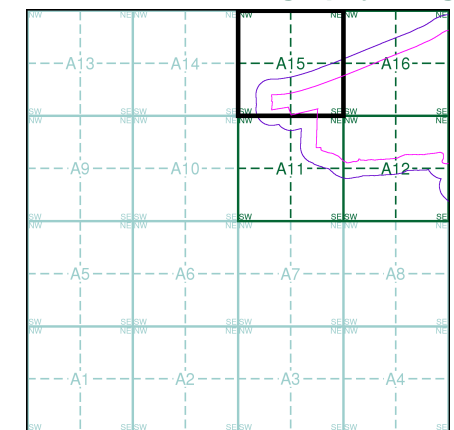
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## Historical Aerial Photography

**Published 2000**

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

### Historical Aerial Photography - Segment A15



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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● INFORMATION GROUP

Tel: 0844 844 9952  
Fax: 0844 844 9951  
Web: www.envirocheck.co.uk

364600

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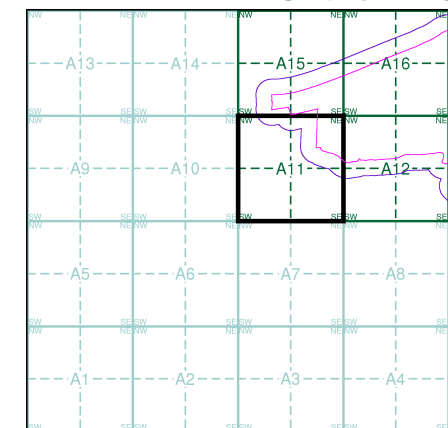
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## Historical Aerial Photography

**Published 2000**

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### Historical Aerial Photography - Segment A11



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

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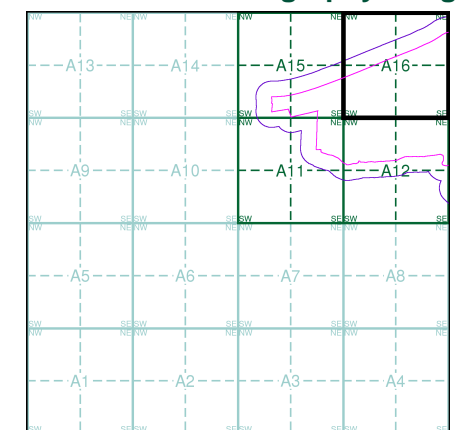
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## Historical Aerial Photography

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### Historical Aerial Photography - Segment A16



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

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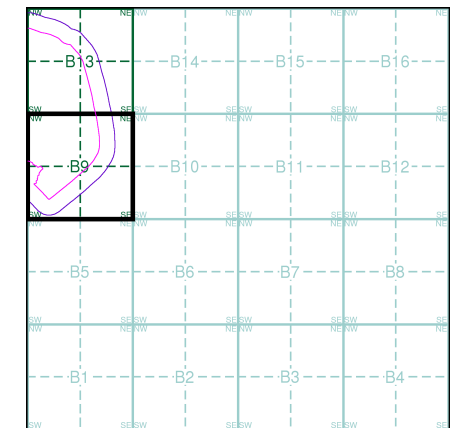
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## Historical Aerial Photography

**Published 2000**

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### Historical Aerial Photography - Segment B9



### Order Details

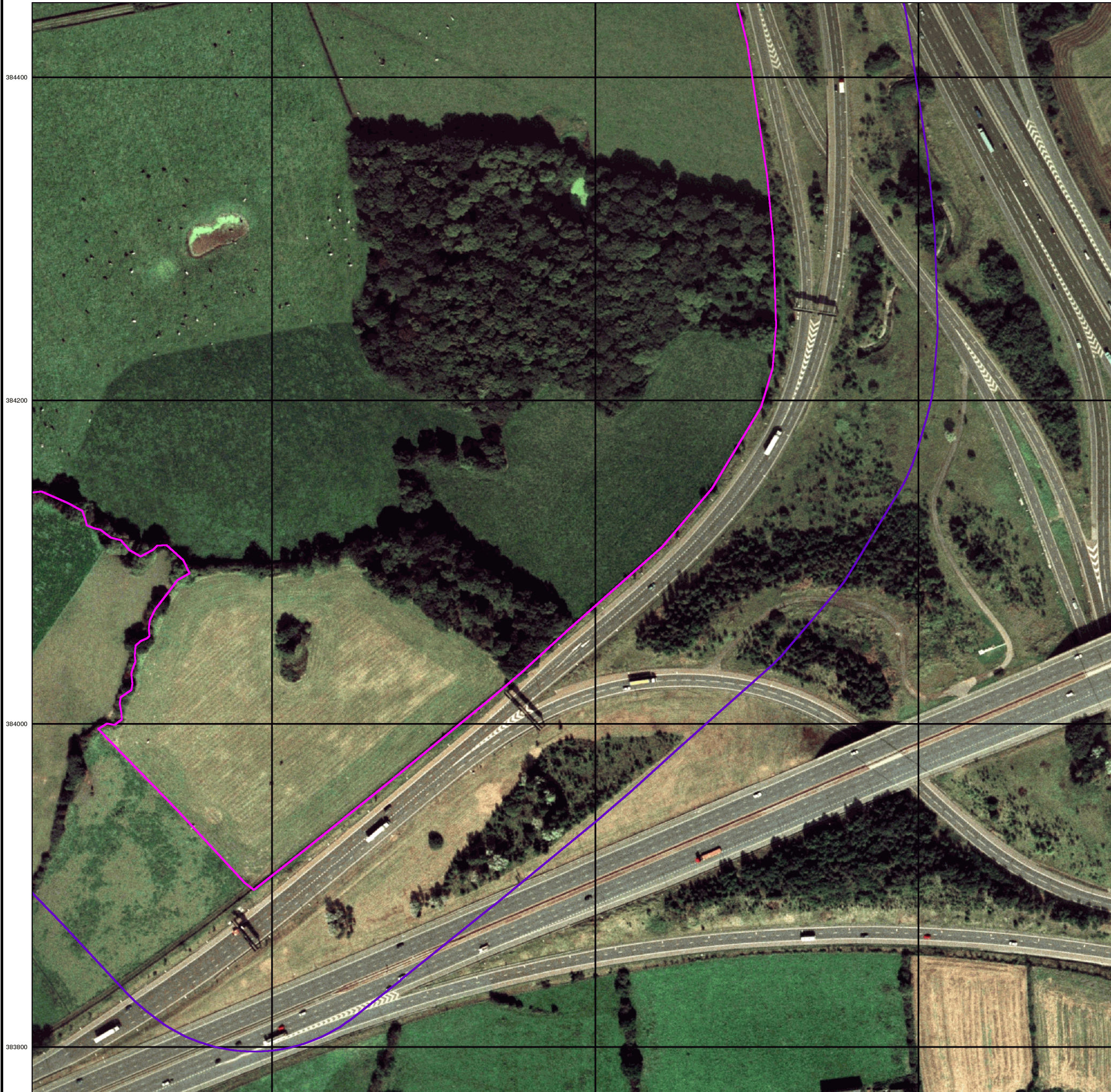
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

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## Historical Aerial Photography

Published 2000

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385000

385000

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384800

384600

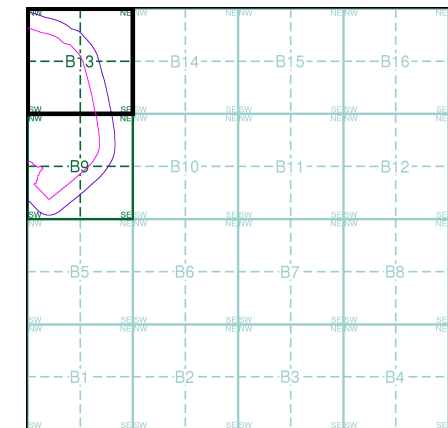
384600



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### Historical Aerial Photography - Segment B13



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 100

### Site Details

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Web: www.envirocheck.co.uk

## 10k Raster Mapping

Published 2006

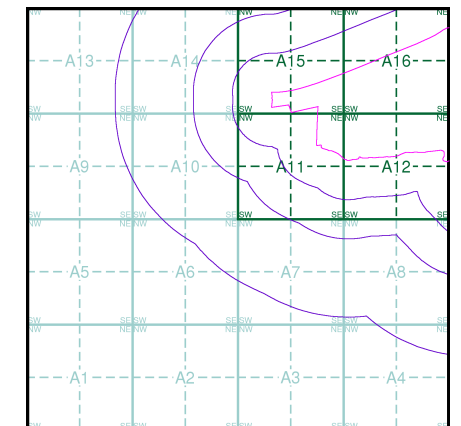
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

### Map Name(s) and Date(s)

|          |          |
|----------|----------|
| SJ68NW   | SJ68NE   |
| 2006     | 2006     |
| 1:10,000 | 1:10,000 |
| SJ68SW   | SJ68SE   |
| 2006     | 2006     |
| 1:10,000 | 1:10,000 |

### Historical Map - Slice A

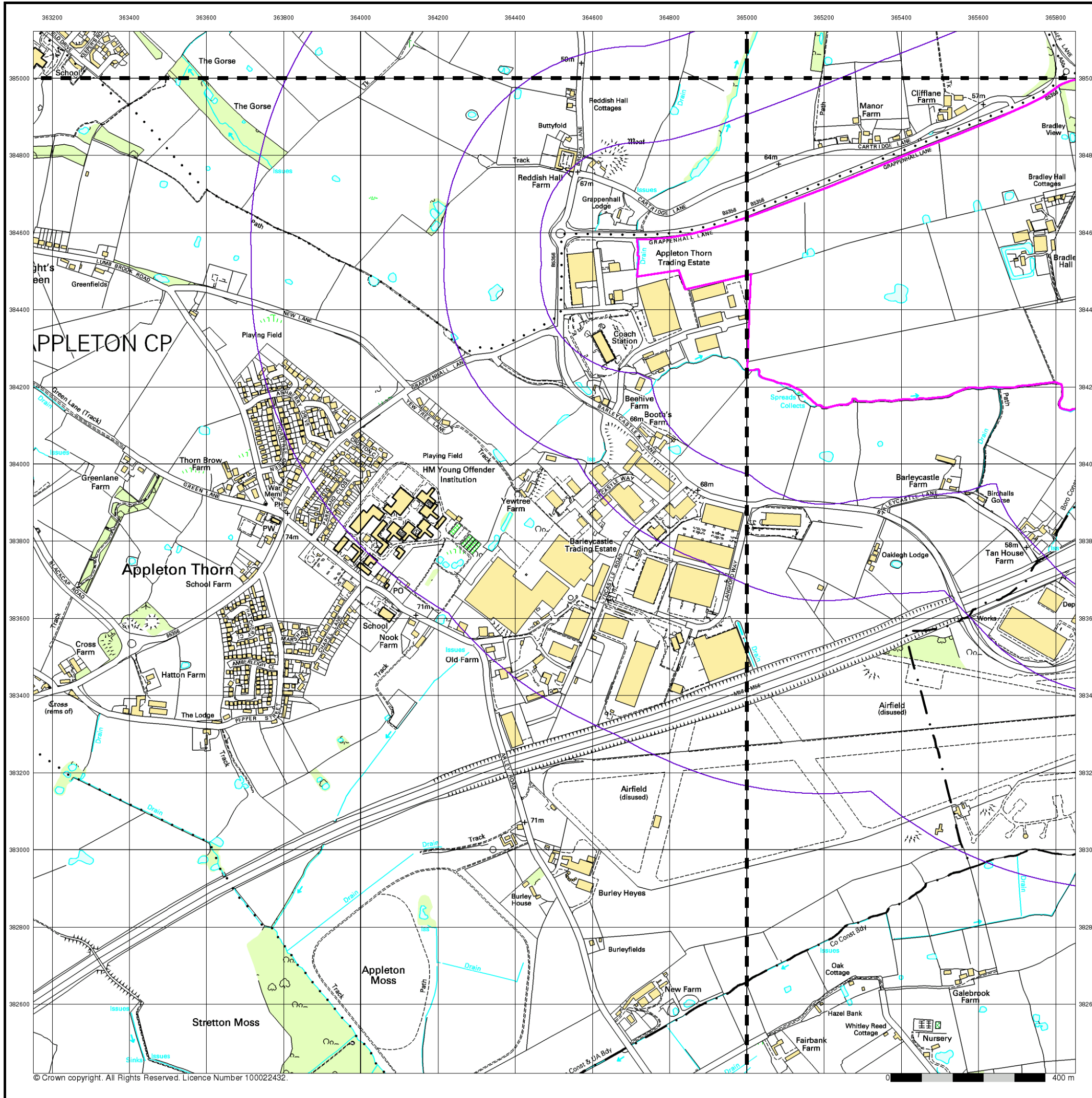


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





## 10k Raster Mapping

Published 2006

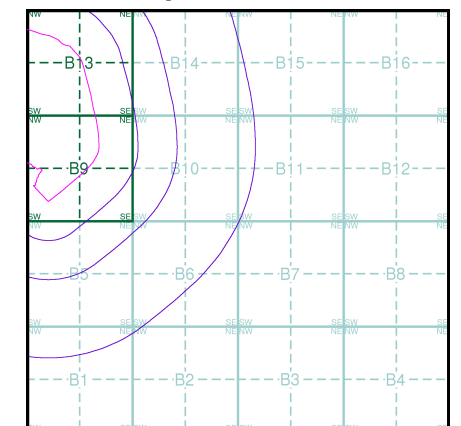
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

### Map Name(s) and Date(s)

|        |      |          |
|--------|------|----------|
| SJ68NE | 2006 | 1:10,000 |
| SJ68SE | 2006 | 1:10,000 |

### Historical Map - Slice B

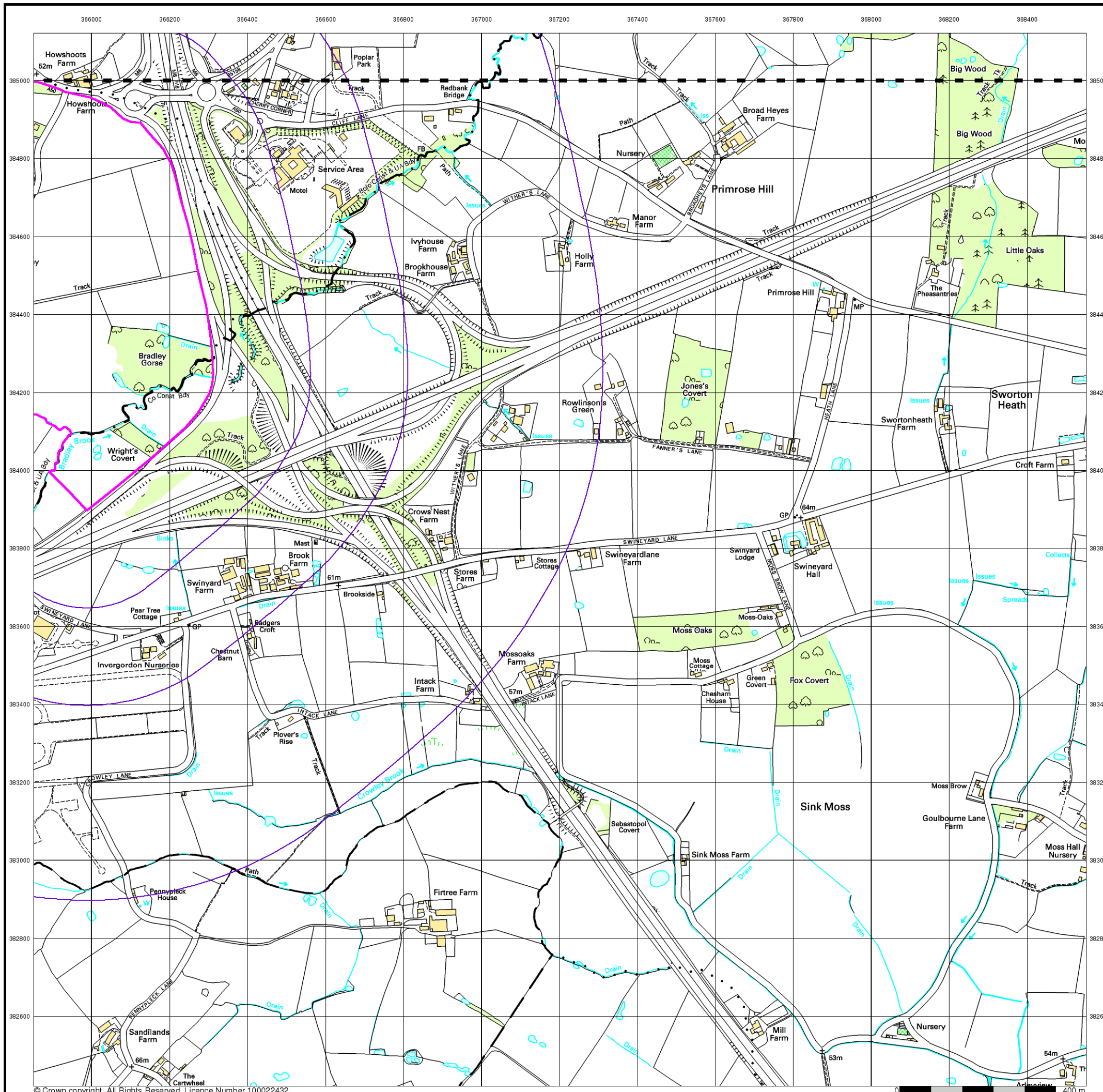


### Order Details

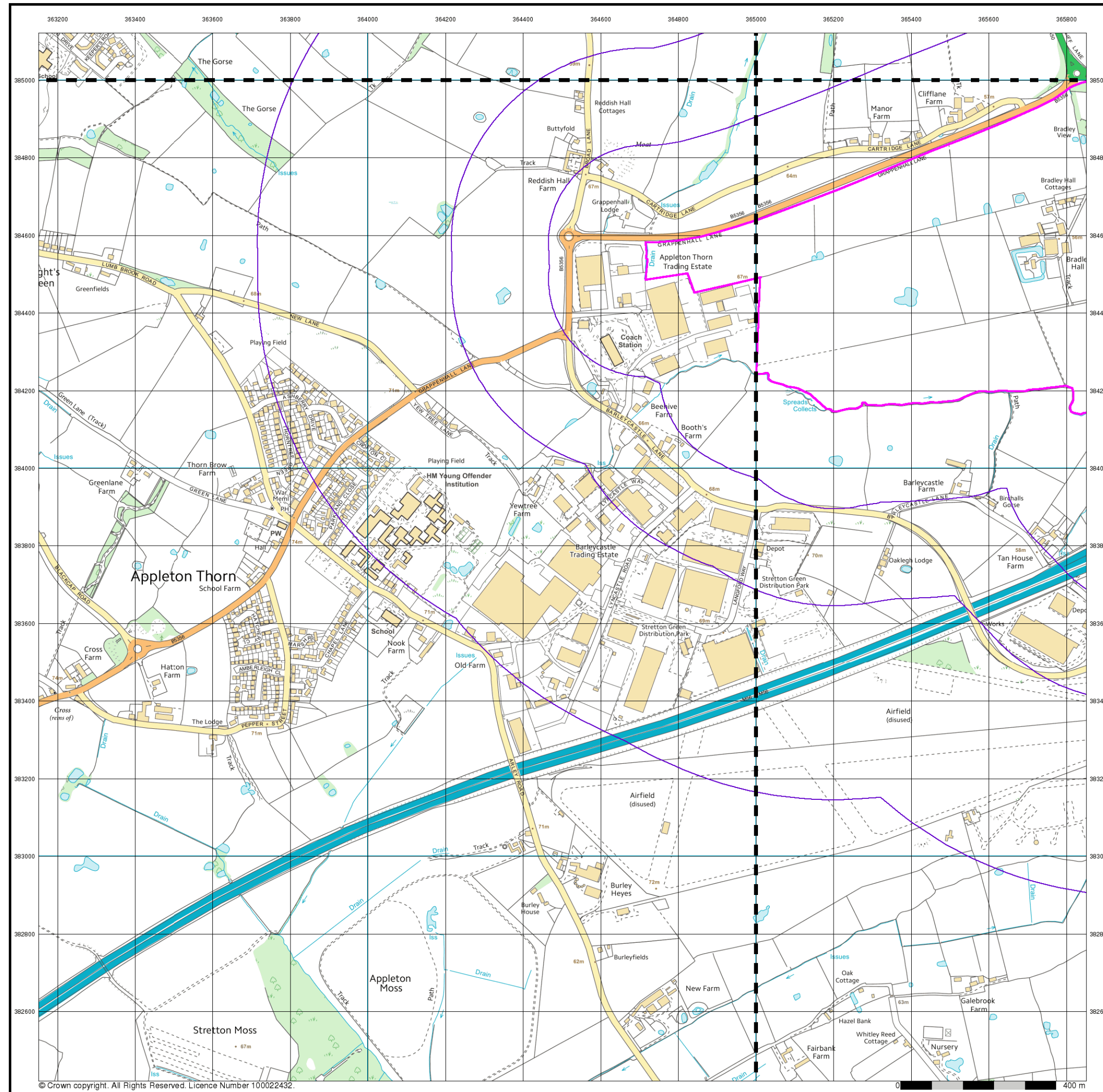
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



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## VectorMap Local

Published 2017

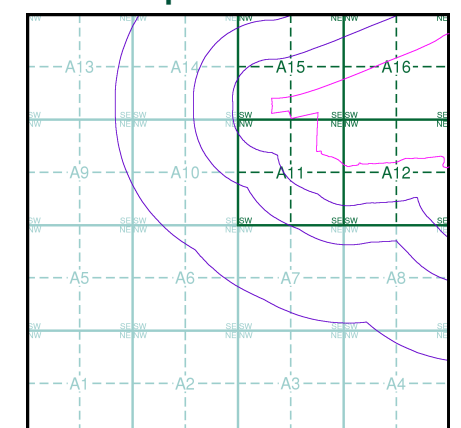
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

### Map Name(s) and Date(s)

|                            |                            |
|----------------------------|----------------------------|
| SJ68NW<br>2017<br>Variable | SJ68NE<br>2017<br>Variable |
| SJ68SW<br>2017<br>Variable | SJ68SE<br>2017<br>Variable |

### Historical Map - Slice A



### Order Details

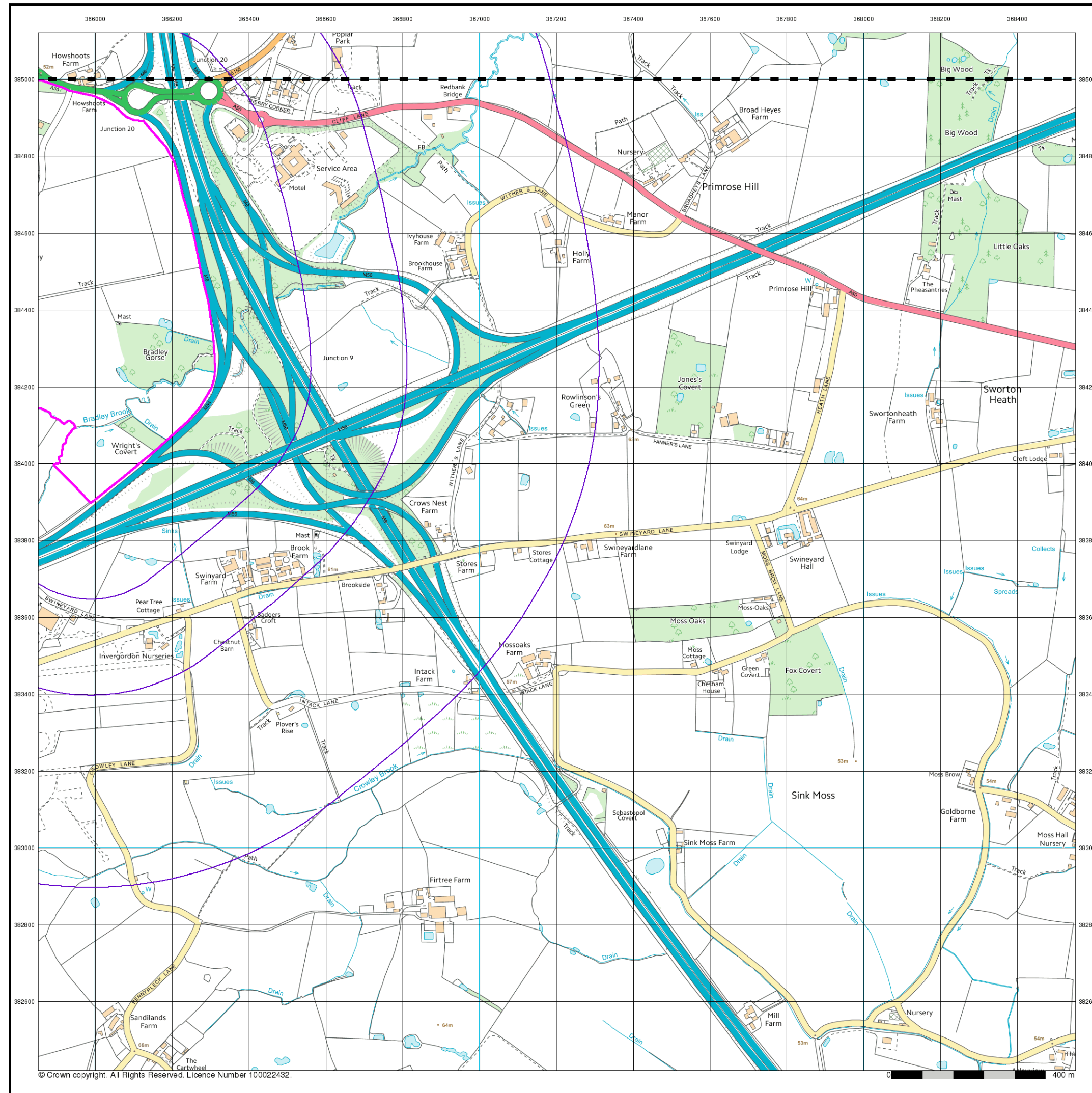
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 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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## VectorMap Local

Published 2017

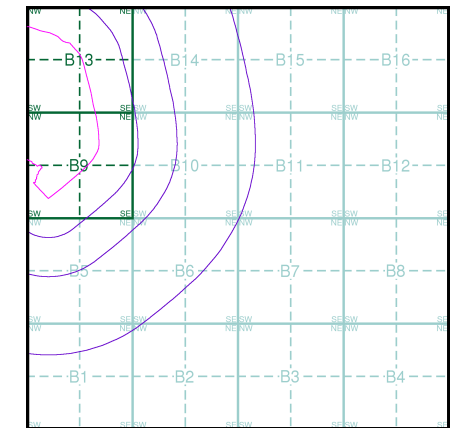
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

### Map Name(s) and Date(s)

- - - - -
- SJ68NE
- 2017
- Variable
- - - - -
- SJ68SE
- 2017
- Variable
- - - - -

### Historical Map - Slice B



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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 Fax: 0844 844 9951  
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# Appendix B: Envirocheck Report

---

## Envirocheck<sup>®</sup> Report:

### Datasheet

#### Order Details:

**Order Number:**

135773225\_1\_1

**Customer Reference:**

1015524 - Warrington Interchange MP

**National Grid Reference:**

364910, 384200

**Slice:**

A

**Site Area (Ha):**

93.66

**Search Buffer (m):**

1000

#### Site Details:

Warrington Interchange Masterplan

WARRINGTON

WA4 4SR

#### Client Details:

Mr J Allen

Cundall

Partnership House

4th Floor

Regents Farm Road, Gosforth

Newcastle Upon Tyne

NE3 3AF

| Report Section        | Page Number |
|-----------------------|-------------|
| Summary               | -           |
| Agency & Hydrological | 1           |
| Waste                 | 11          |
| Hazardous Substances  | 13          |
| Geological            | 14          |
| Industrial Land Use   | 17          |
| Sensitive Land Use    | 29          |
| Data Currency         | 30          |
| Data Suppliers        | 36          |
| Useful Contacts       | 37          |

### Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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### Peter Brett Associates Copyright Notice

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### Radon Potential dataset Copyright Notice

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### Report Version v53.0

| Data Type   | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|---|-------------|---------|-----------|-------------|-----------------------------|
| <b>Agency &amp; Hydrological</b>                              |             |         |           |             |                             |
| BGS Groundwater Flooding Susceptibility                       | pg 1        | Yes     | Yes       | Yes         | n/a                         |
| Contaminated Land Register Entries and Notices                |             |         |           |             |                             |
| Discharge Consents  | pg 3        |         | 3         | 1           |                             |
| Prosecutions Relating to Controlled Waters                    |             |         | n/a       | n/a         | n/a                         |
| Enforcement and Prohibition Notices                           |             |         |           |             |                             |
| Integrated Pollution Controls                                 |             |         |           |             |                             |
| Integrated Pollution Prevention And Control                   |             |         |           |             |                             |
| Local Authority Integrated Pollution Prevention And Control   |             |         |           |             |                             |
| Local Authority Pollution Prevention and Controls             | pg 4        |         | 1         | 1           |                             |
| Local Authority Pollution Prevention and Control Enforcements |             |         |           |             |                             |
| Nearest Surface Water Feature                                 | pg 4        | Yes     |           |             |                             |
| Pollution Incidents to Controlled Waters                      | pg 4        |         | 3         | 4           | 2                           |
| Prosecutions Relating to Authorised Processes                 |             |         |           |             |                             |
| Registered Radioactive Substances                             |             |         |           |             |                             |
| River Quality   |             |         |           |             |                             |
| River Quality Biology Sampling Points                         |             |         |           |             |                             |
| Substantiated Pollution Incident Register                     |             |         |           |             |                             |
| River Quality Chemistry Sampling Points                       |             |         |           |             |                             |
| Water Abstractions  |             |         |           |             |                             |
| Water Industry Act Referrals                                  |             |         |           |             |                             |
| Groundwater Vulnerability                                     | pg 6        | Yes     | n/a       | n/a         | n/a                         |
| Drift Deposits  |             |         | n/a       | n/a         | n/a                         |
| Bedrock Aquifer Designations                                  | pg 6        | Yes     | n/a       | n/a         | n/a                         |
| Superficial Aquifer Designations                              | pg 6        | Yes     | n/a       | n/a         | n/a                         |
| Source Protection Zones                                       |             |         |           |             |                             |
| Extreme Flooding from Rivers or Sea without Defences          |             |         |           | n/a         | n/a                         |
| Flooding from Rivers or Sea without Defences                  |             |         |           | n/a         | n/a                         |
| Areas Benefiting from Flood Defences                          |             |         |           | n/a         | n/a                         |
| Flood Water Storage Areas                                     |             |         |           | n/a         | n/a                         |
| Flood Defences  |             |         |           | n/a         | n/a                         |
| OS Water Network Lines  | pg 6        | 5       | 13        | 6           | 6                           |

| Data Type   | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|---|-------------|---------|-----------|-------------|-----------------------------|
| <b>Waste</b>  |             |         |           |             |                             |
| BGS Recorded Landfill Sites   |             |         |           |             |                             |
| Historical Landfill Sites   |             |         |           |             |                             |
| Integrated Pollution Control Registered Waste Sites                 |             |         |           |             |                             |
| Licensed Waste Management Facilities (Landfill Boundaries)          |             |         |           |             |                             |
| Licensed Waste Management Facilities (Locations)                    |             |         |           |             |                             |
| Local Authority Landfill Coverage                                   | pg 11       | 3       | n/a       | n/a         | n/a                         |
| Local Authority Recorded Landfill Sites                             |             |         |           |             |                             |
| Potentially Infilled Land (Non-Water)                               | pg 11       |         |           | 1           |                             |
| Potentially Infilled Land (Water)                                   | pg 11       |         | 5         | 10          | 20                          |
| Registered Landfill Sites   |             |         |           |             |                             |
| Registered Waste Transfer Sites                                     |             |         |           |             |                             |
| Registered Waste Treatment or Disposal Sites                        |             |         |           |             |                             |
| <b>Hazardous Substances</b>   |             |         |           |             |                             |
| Control of Major Accident Hazards Sites (COMAH)                     | pg 13       |         |           | 1           |                             |
| Explosive Sites   |             |         |           |             |                             |
| Notification of Installations Handling Hazardous Substances (NIHHS) |             |         |           |             |                             |
| Planning Hazardous Substance Consents                               | pg 13       |         |           | 1           |                             |
| Planning Hazardous Substance Enforcements                           |             |         |           |             |                             |



| Data Type   | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|---|-------------|---------|-----------|-------------|-----------------------------|
| <b>Geological</b>   |             |         |           |             |                             |
| BGS 1:625,000 Solid Geology                                       | pg 14       | Yes     | n/a       | n/a         | n/a                         |
| BGS Estimated Soil Chemistry                                      | pg 14       | Yes     | Yes       |             | Yes                         |
| BGS Recorded Mineral Sites  | pg 15       |         |           | 1           |                             |
| BGS Urban Soil Chemistry  |             |         |           |             |                             |
| BGS Urban Soil Chemistry Averages                                 |             |         |           |             |                             |
| CBSCB Compensation District                                       | pg 15       | Yes     | n/a       | n/a         | n/a                         |
| Coal Mining Affected Areas  |             |         | n/a       | n/a         | n/a                         |
| Mining Instability  |             |         | n/a       | n/a         | n/a                         |
| Man-Made Mining Cavities  |             |         |           |             |                             |
| Natural Cavities  |             |         |           |             |                             |
| Non Coal Mining Areas of Great Britain                            |             |         |           | n/a         | n/a                         |
| Potential for Collapsible Ground Stability Hazards                | pg 15       | Yes     | Yes       | n/a         | n/a                         |
| Potential for Compressible Ground Stability Hazards               |             |         |           | n/a         | n/a                         |
| Potential for Ground Dissolution Stability Hazards                |             |         |           | n/a         | n/a                         |
| Potential for Landslide Ground Stability Hazards                  | pg 15       | Yes     | Yes       | n/a         | n/a                         |
| Potential for Running Sand Ground Stability Hazards               | pg 16       | Yes     | Yes       | n/a         | n/a                         |
| Potential for Shrinking or Swelling Clay Ground Stability Hazards | pg 16       | Yes     | Yes       | n/a         | n/a                         |
| Radon Potential - Radon Affected Areas                            |             |         | n/a       | n/a         | n/a                         |
| Radon Potential - Radon Protection Measures                       |             |         | n/a       | n/a         | n/a                         |
| <b>Industrial Land Use</b>  |             |         |           |             |                             |
| Contemporary Trade Directory Entries                              | pg 17       |         | 10        | 34          | 40                          |
| Fuel Station Entries  |             |         |           |             |                             |
| Points of Interest - Commercial Services                          | pg 24       |         | 10        | 14          | 12                          |
| Points of Interest - Education and Health                         |             |         |           |             |                             |
| Points of Interest - Manufacturing and Production                 | pg 27       | 1       | 3         | 2           | 2                           |
| Points of Interest - Public Infrastructure                        | pg 28       | 1       | 1         |             | 1                           |
| Points of Interest - Recreational and Environmental               |             |         |           |             |                             |
| Gas Pipelines   |             |         |           |             |                             |
| Underground Electrical Cables                                     |             |         |           |             |                             |

| Data Type                            | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|--------------------------------------|-------------|---------|-----------|-------------|-----------------------------|
| <b>Sensitive Land Use</b>            |             |         |           |             |                             |
| Ancient Woodland                     |             |         |           |             |                             |
| Areas of Adopted Green Belt          | pg 29       | 2       |           |             | 1                           |
| Areas of Unadopted Green Belt        | pg 29       | 1       |           |             |                             |
| Areas of Outstanding Natural Beauty  |             |         |           |             |                             |
| Environmentally Sensitive Areas      |             |         |           |             |                             |
| Forest Parks                         |             |         |           |             |                             |
| Local Nature Reserves                |             |         |           |             |                             |
| Marine Nature Reserves               |             |         |           |             |                             |
| National Nature Reserves             |             |         |           |             |                             |
| National Parks                       |             |         |           |             |                             |
| Nitrate Sensitive Areas              |             |         |           |             |                             |
| Nitrate Vulnerable Zones             | pg 29       |         |           | 1           |                             |
| Ramsar Sites                         |             |         |           |             |                             |
| Sites of Special Scientific Interest |             |         |           |             |                             |
| Special Areas of Conservation        |             |         |           |             |                             |
| Special Protection Areas             |             |         |           |             |                             |
| World Heritage Sites                 |             |         |           |             |                             |

| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|---|--|------------------------------|---------|------------------|
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | A11NE (E)                              | 0                            | 1       | 365050<br>384250 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A11NE (NE)                             | 0                            | 1       | 364950<br>384300 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A11NE (NE)                             | 0                            | 1       | 365000<br>384300 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A16SE (NE)                             | 0                            | 1       | 365800<br>384650 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | A15SW (NW)                             | 0                            | 1       | 364800<br>384450 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur                        | A16SW (NE)                             | 0                            | 1       | 365250<br>384600 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | A15SW (NW)                             | 0                            | 1       | 364750<br>384550 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (E)                                    | 0                            | 1       | 366300<br>384198 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A16NE (NE)                             | 0                            | 1       | 365700<br>384950 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A15SE (N)                              | 0                            | 1       | 364905<br>384500 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A11NE (NE)                             | 0                            | 1       | 365050<br>384400 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur                        | A15SE (NE)                             | 0                            | 1       | 365050<br>384500 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | A11NE (N)                              | 3                            | 1       | 364900<br>384400 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A16NW (NE)                             | 5                            | 1       | 365250<br>385000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NE)                                   | 17                           | 1       | 365900<br>385000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (E)                                    | 25                           | 1       | 366300<br>384500 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | A11NE (NE)                             | 43                           | 1       | 364905<br>384198 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | A15NE (N)                              | 55                           | 1       | 365000<br>385000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | A11NE (N)                              | 56                           | 1       | 364905<br>384350 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (E)                                    | 60                           | 1       | 366150<br>383950 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A11NE (SE)                             | 62                           | 1       | 365000<br>384150 |

| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A16NW (NE)                             | 75                           | 1       | 365500<br>385000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A15SE (N)                              | 88                           | 1       | 365000<br>384750 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NE)                                   | 96                           | 1       | 366300<br>384800 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A16NW (NE)                             | 98                           | 1       | 365250<br>384900 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A16NW (NE)                             | 107                          | 1       | 365400<br>384950 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NE)                                   | 115                          | 1       | 366300<br>384850 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A15SW (N)                              | 119                          | 1       | 364700<br>384700 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (E)                                    | 121                          | 1       | 366300<br>384000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A11SE (S)                              | 131                          | 1       | 364905<br>384100 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A8NW (SE)                              | 148                          | 1       | 365500<br>383600 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (E)                                    | 160                          | 1       | 366400<br>384050 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (E)                                    | 181                          | 1       | 366450<br>384550 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NE)                                   | 182                          | 1       | 366350<br>384900 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (E)                                    | 202                          | 1       | 366450<br>384050 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NE)                                   | 220                          | 1       | 366100<br>385150 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (E)                                    | 220                          | 1       | 366500<br>384500 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | A11SE (SE)                             | 246                          | 1       | 365050<br>383900 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NE)                                   | 266                          | 1       | 366200<br>385150 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | A15NE (N)                              | 276                          | 1       | 365000<br>384950 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur                        | (NE)                                   | 288                          | 1       | 366250<br>385150 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NE)                                   | 308                          | 1       | 366200<br>385200 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NE)                                   | 334                          | 1       | 366250<br>385200 |

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|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface  | A15NE (N)                              | 340                          | 1       | 364905<br>385000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur   | A12SW (SE)                             | 346                          | 1       | 365200<br>383800 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level  | A15NE (N)                              | 375                          | 1       | 364900<br>385000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level  | (N)                                    | 377                          | 1       | 365300<br>385200 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level  | (NE)                                   | 400                          | 1       | 366300<br>385250 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface  | A8NE (SE)                              | 450                          | 1       | 365600<br>383600 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface  | A8NW (SE)                              | 452                          | 1       | 365350<br>383600 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level  | A14NE (NW)                             | 485                          | 1       | 364350<br>384900 |
| 1      | <b>Discharge Consents</b><br>Operator: Mr G. Stokes<br>Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES)<br>Location: Three Properties(Tanhouse Cottage) Barleycastle Lane, Appleton, Warrington, Cheshire<br>Authority: Environment Agency, North West Region<br>Catchment Area: Not Given<br>Reference: 016992285<br>Permit Version: 1<br>Effective Date: 12th July 1991<br>Issued Date: Not Supplied<br>Revocation Date: Not Supplied<br>Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br>Discharge Environment: Freshwater Stream/River<br>Receiving Water: Bradley Brook<br><b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b><br>Positional Accuracy: Located by supplier to within 100m                     | A12SE (E)                              | 47                           | 2       | 365800<br>384100 |
| 1      | <b>Discharge Consents</b><br>Operator: Mr Paul And Mrs Lynda Johnson<br>Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES)<br>Location: Three Properties(Tanhouse Cottage) Barleycastle Lane, Appleton, Warrington, Cheshire<br>Authority: Environment Agency, North West Region<br>Catchment Area: Not Supplied<br>Reference: 016992285<br>Permit Version: 1<br>Effective Date: 12th July 1991<br>Issued Date: Not Supplied<br>Revocation Date: Not Supplied<br>Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br>Discharge Environment: Freshwater Stream/River<br>Receiving Water: Bradley Brook<br><b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b><br>Positional Accuracy: Located by supplier to within 100m | A12SE (E)                              | 47                           | 2       | 365800<br>384100 |

| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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| 1      | <p><b>Discharge Consents</b></p> <p>Operator: Barbara Woodward<br/> Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES)<br/> Location: Three Properties(Tanhouse Cottage) Barleycastle Lane, Appleton, Warrington, Cheshire<br/> Authority: Environment Agency, North West Region<br/> Catchment Area: Not Supplied<br/> Reference: 016992285<br/> Permit Version: 1<br/> Effective Date: 12th July 1991<br/> Issued Date: Not Supplied<br/> Revocation Date: Not Supplied<br/> Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br/> Discharge: Freshwater Stream/River<br/> Environment:<br/> Receiving Water: Bradley Brook<br/> <b>Status:</b> Post National Rivers Authority Legislation where issue date &gt; 31/08/1989<br/> Positional Accuracy: Located by supplier to within 100m</p>  | A12SE (E)                              | 47                           | 2       | 365800<br>384100 |
| 2      | <p><b>Discharge Consents</b></p> <p>Operator: Janvier Limited<br/> Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES)<br/> Location: Four Dwellings At Grappenhall Ridge, Broad Lane, Grappenhall, Warrington, Wa4 3hs<br/> Authority: Environment Agency, North West Region<br/> Catchment Area: River Mersey (Etherow)<br/> Reference: 016892237<br/> Permit Version: 1<br/> Effective Date: 30th January 2004<br/> Issued Date: 30th January 2004<br/> Revocation Date: Not Supplied<br/> Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br/> Discharge: Freshwater Stream/River<br/> Environment:<br/> Receiving Water: Tributary Of Morris Brook<br/> <b>Status:</b> New Consent (Water Resources Act 1991, Section 88 &amp; Schedule 10 as amended by Environment Act 1995)<br/> Positional Accuracy: Located by supplier to within 10m</p> | A15NW (NW)                             | 271                          | 2       | 364570<br>384810 |
| 3      | <p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Buildmix<br/> Location: Appleton Thorn Industrial Estate, Warrington, Wa4 4st<br/> Authority: Warrington Borough Council, Environmental Health Department<br/> Permit Reference: EP08/2<br/> Dated: 16th July 2008<br/> Process Type: Local Authority Pollution Prevention and Control<br/> Description: PG3/1Blending, packing, loading and use of bulk cement<br/> <b>Status:</b> Permitted<br/> Positional Accuracy: Manually positioned within the geographical locality</p>   | A11NW (NW)                             | 82                           | 3       | 364694<br>384407 |
| 4      | <p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Haulmark Equipment Ltd<br/> Location: Barley Castle Lane, Appleton Thorn, Warrington, Wa4 4rb<br/> Authority: Warrington Borough Council, Environmental Health Department<br/> Permit Reference: EP12/01<br/> Dated: Not Supplied<br/> Process Type: Local Authority Pollution Prevention and Control<br/> Description: PG3/16 Mobile screening and crushing processes<br/> <b>Status:</b> Application Not Yet Authorised<br/> Positional Accuracy: Manually positioned to the address or location</p>   | A11NW (W)                              | 301                          | 3       | 364712<br>384166 |
|        | <p><b>Nearest Surface Water Feature</b></p>   | A16NE (NE)                             | 0                            | -       | 365808<br>384976 |
| 5      | <p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Private Sewage: Sewage Works And Septic Tanks<br/> Location: Cheshire<br/> Authority: Environment Agency, North West Region<br/> Pollutant: Crude Sewage<br/> Note: Bradley Brook; Sewage<br/> Incident Date: 14th April 1996<br/> Incident Reference: 96710760<br/> Catchment Area: Manchester Ship Canal<br/> Receiving Water: Not Given<br/> Cause of Incident: Not Given<br/> Incident Severity: Category 3 - Minor Incident<br/> Positional Accuracy: Located by supplier to within 100m</p>  | A11NW (NW)                             | 88                           | 2       | 364700<br>384400 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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| 6      | <p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Pollution Found Source Not Determined<br/>           Location: Location Description Not Available<br/>           Authority: Environment Agency, North West Region<br/>           Pollutant: Miscellaneous - Unknown<br/>           Note: Morris Brook<br/>           Incident Date: 26th November 1993<br/>           Incident Reference: 93742190<br/>           Catchment Area: Manchester Ship Canal<br/>           Receiving Water: Not Given<br/>           Cause of Incident: Unknown<br/>           Incident Severity: Category 3 - Minor Incident<br/>           Positional Accuracy: Located by supplier to within 100m</p>    | A15SW (N)                              | 112                          | 2       | 364800<br>384700 |
| 7      | <p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Private Sewage (Non-PLC): Sewerage Systems<br/>           Location: Cheshire<br/>           Authority: Environment Agency, North West Region<br/>           Pollutant: Crude Sewage<br/>           Note: Bradley Brook; Sewage<br/>           Incident Date: 23rd September 1996<br/>           Incident Reference: 96712078<br/>           Catchment Area: Manchester Ship Canal<br/>           Receiving Water: Not Given<br/>           Cause of Incident: Not Given<br/>           Incident Severity: Category 2 - Significant Incident<br/>           Positional Accuracy: Located by supplier to within 100m</p>                  | A11NW (NW)                             | 145                          | 2       | 364600<br>384400 |
| 8      | <p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Not Given<br/>           Location: Location Description Not Available<br/>           Authority: Environment Agency, North West Region<br/>           Pollutant: Oils - Unknown<br/>           Note: Bradley Brook<br/>           Incident Date: 30th March 1995<br/>           Incident Reference: 95710651<br/>           Catchment Area: Manchester Ship Canal<br/>           Receiving Water: Not Given<br/>           Cause of Incident: Other Incident/Unknown<br/>           Incident Severity: Category 3 - Minor Incident<br/>           Positional Accuracy: Located by supplier to within 100m</p>                            | A8NE (SE)                              | 273                          | 2       | 365800<br>383700 |
| 9      | <p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Not Given<br/>           Location: Location Description Not Available<br/>           Authority: Environment Agency, North West Region<br/>           Pollutant: Oils - Diesel (Including Agricultural)<br/>           Note: Bradley Brook<br/>           Incident Date: 2nd September 1995<br/>           Incident Reference: 95712228<br/>           Catchment Area: Manchester Ship Canal<br/>           Receiving Water: Not Given<br/>           Cause of Incident: Other Incident/Unknown<br/>           Incident Severity: Category 3 - Minor Incident<br/>           Positional Accuracy: Located by supplier to within 100m</p> | A15NE (N)                              | 281                          | 2       | 364900<br>384900 |
| 10     | <p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Not Given<br/>           Location: Location Description Not Available<br/>           Authority: Environment Agency, North West Region<br/>           Pollutant: Oils - Other Oil<br/>           Note: Bradley Brook; White Diesel<br/>           Incident Date: 6th January 1993<br/>           Incident Reference: 93740021<br/>           Catchment Area: Manchester Ship Canal<br/>           Receiving Water: Not Given<br/>           Cause of Incident: Unknown<br/>           Incident Severity: Category 3 - Minor Incident<br/>           Positional Accuracy: Located by supplier to within 100m</p>                          | A11NW (W)                              | 287                          | 2       | 364700<br>384200 |
| 11     | <p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Not Given<br/>           Location: Location Description Not Available<br/>           Authority: Environment Agency, North West Region<br/>           Pollutant: Oils - Other Oil<br/>           Note: Booths Farm Stream; Oil Film<br/>           Incident Date: 14th December 1993<br/>           Incident Reference: 93742287<br/>           Catchment Area: Manchester Ship Canal<br/>           Receiving Water: Not Given<br/>           Cause of Incident: Unknown<br/>           Incident Severity: Category 3 - Minor Incident<br/>           Positional Accuracy: Located by supplier to within 100m</p>                       | A11SW (SW)                             | 335                          | 2       | 364700<br>384100 |

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| 12     | <b>Pollution Incidents to Controlled Waters</b><br>Property Type: Spillage; Accident In Transit<br>Location: Location Description Not Available<br>Authority: Environment Agency, North West Region<br>Pollutant: Other Chemicals<br>Note: Bradley Brook<br>Incident Date: 15th September 1995<br>Incident Reference: 95712370<br>Catchment Area: Manchester Ship Canal<br>Receiving Water: Not Given<br>Cause of Incident: Poor Operational Practice<br>Incident Severity: Category 3 - Minor Incident<br>Positional Accuracy: Located by supplier to within 100m | A8NW (SE)                              | 554                          | 2       | 365300<br>383600 |
| 13     | <b>Pollution Incidents to Controlled Waters</b><br>Property Type: Not Given<br>Location: Cheshire<br>Authority: Environment Agency, North West Region<br>Pollutant: Oils - Diesel (Including Agricultural)<br>Note: Bradley Brook; Oil<br>Incident Date: 19th November 1996<br>Incident Reference: 96712380<br>Catchment Area: Manchester Ship Canal<br>Receiving Water: Not Given<br>Cause of Incident: Not Given<br>Incident Severity: Category 2 - Significant Incident<br>Positional Accuracy: Located by supplier to within 100m                              | A7NW (SW)                              | 759                          | 2       | 364600<br>383600 |
|        | <b>Groundwater Vulnerability</b><br>Soil Classification: Not classified<br>Map Sheet: Sheet 16 West Cheshire<br>Scale: 1:100,000   | A11NE (NE)                             | 0                            | 2       | 364905<br>384198 |
|        | <b>Drift Deposits</b><br>None  |  |                              |         |                  |
|        | <b>Bedrock Aquifer Designations</b><br>Aquifer Designation: Secondary Aquifer - B  | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>Bedrock Aquifer Designations</b><br>Aquifer Designation: Secondary Aquifer - B  | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>Superficial Aquifer Designations</b><br>Aquifer Designation: Secondary Aquifer - Undifferentiated   | A11NE (NE)                             | 0                            | 1       | 364993<br>384310 |
|        | <b>Superficial Aquifer Designations</b><br>Aquifer Designation: Secondary Aquifer - Undifferentiated   | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>Extreme Flooding from Rivers or Sea without Defences</b><br>None  |  |                              |         |                  |
|        | <b>Flooding from Rivers or Sea without Defences</b><br>None  |  |                              |         |                  |
|        | <b>Areas Benefiting from Flood Defences</b><br>None  |  |                              |         |                  |
|        | <b>Flood Water Storage Areas</b><br>None   |  |                              |         |                  |
|        | <b>Flood Defences</b><br>None  |  |                              |         |                  |
| 14     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 15.7<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A16NE (NE)                             | 0                            | 4       | 365813<br>384962 |
| 15     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 52.6<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A15SW (NW)                             | 0                            | 4       | 364714<br>384487 |



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| 16     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 40.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A15SW (NW)                             | 0                            | 4       | 364719<br>384540 |
| 17     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 352.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | A12SE (SE)                             | 0                            | 4       | 365804<br>383824 |
| 18     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 408.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | A12NE (E)                              | 0                            | 4       | 365652<br>384193 |
| 19     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 530.5<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | A11NE (E)                              | 1                            | 4       | 365151<br>384161 |
| 20     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 577.9<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | A11NE (NW)                             | 2                            | 4       | 364872<br>384264 |
| 21     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 2.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1    | A12NE (E)                              | 5                            | 4       | 365651<br>384192 |
| 22     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 277.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | A12SE (E)                              | 7                            | 4       | 365615<br>384040 |
| 23     | <b>OS Water Network Lines</b><br>Watercourse Form: Marsh<br>Watercourse Length: 15.8<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1          | A11NE (E)                              | 10                           | 4       | 365144<br>384175 |
| 24     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 121.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | A15SW (N)                              | 105                          | 4       | 364751<br>384687 |

| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|---|--|------------------------------|---------|------------------|
| 25     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 35.6<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | A15SW (NW)                             | 107                          | 4       | 364610<br>384610 |
| 26     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 6.5<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A15SW (NW)                             | 110                          | 4       | 364608<br>384604 |
| 27     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 8.6<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A15SW (NW)                             | 115                          | 4       | 364619<br>384643 |
| 28     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 60.5<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1          | A15SE (N)                              | 138                          | 4       | 364859<br>384739 |
| 29     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 34.7<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | A15NE (N)                              | 173                          | 4       | 364897<br>384786 |
| 30     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 562.6<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1 | A15NE (N)                              | 187                          | 4       | 364927<br>384811 |
| 31     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 8.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A15NE (N)                              | 191                          | 4       | 364919<br>384812 |
| 32     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 13.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1          | A15NW (N)                              | 312                          | 4       | 364822<br>384909 |
| 33     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 8.6<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1           | A15NW (N)                              | 321                          | 4       | 364801<br>384912 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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| 34     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 9.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1            | A15NW (N)                              | 321                          | 4       | 364810<br>384915 |
| 35     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 61.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A15NW (N)                              | 330                          | 4       | 364810<br>384924 |
| 36     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 17.8<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A11SW (SW)                             | 419                          | 4       | 364629<br>384055 |
| 37     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 37.7<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A11SW (SW)                             | 426                          | 4       | 364632<br>384034 |
| 38     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 33.9<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A7NE (S)                               | 600                          | 4       | 364977<br>383589 |
| 39     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 81.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | A7NE (S)                               | 632                          | 4       | 364991<br>383550 |
| 40     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 16.0<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1           | A14SW (W)                              | 684                          | 4       | 364033<br>384474 |
| 41     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 994.0<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Crowley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | (SE)                                   | 910                          | 4       | 365853<br>382942 |
| 42     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 149.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | A4NE (SE)                              | 960                          | 4       | 365701<br>382982 |

| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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| 43     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 282.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1 | A13SE (NW)                             | 964                          | 4       | 363770<br>384765 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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|        | <b>Local Authority Landfill Coverage</b><br>Name: Macclesfield Borough Council<br>- Has not been able to supply Landfill data            |  | 0                            | 5       | 365412<br>383566 |
|        | <b>Local Authority Landfill Coverage</b><br>Name: Warrington Unitary Council<br>- Has not been able to supply Landfill data              |  | 0                            | 3       | 364905<br>384198 |
|        | <b>Local Authority Landfill Coverage</b><br>Name: Cheshire County Council<br>- Has supplied landfill data                                |  | 0                            | 6       | 365412<br>383566 |
|        | <b>Local Authority Landfill Coverage</b><br>Name: Vale Royal Borough Council<br>- Has supplied landfill data                             |  | 911                          | 7       | 365466<br>382911 |
| 44     | <b>Potentially Infilled Land (Non-Water)</b><br>Bearing Ref: NW<br>Use: Unknown Filled Ground (Pit, quarry etc)<br>Date of Mapping: 1992 | A14NE<br>(NW)                          | 371                          | -       | 364412<br>384793 |
| 45     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954   | A12NW<br>(E)                           | 4                            | -       | 365408<br>384164 |
| 46     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882   | A12NW<br>(E)                           | 11                           | -       | 365479<br>384160 |
| 47     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954   | A11NE<br>(E)                           | 20                           | -       | 365074<br>384192 |
| 48     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1938   | A15SW<br>(NW)                          | 113                          | -       | 364604<br>384593 |
| 49     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882   | A12SW<br>(E)                           | 115                          | -       | 365425<br>384052 |
| 50     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882   | A11SE<br>(SE)                          | 298                          | -       | 365160<br>383851 |
| 51     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954   | A12SW<br>(SE)                          | 303                          | -       | 365307<br>383855 |
| 52     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954   | A11SW<br>(SW)                          | 337                          | -       | 364778<br>383993 |
| 53     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910   | A8NE<br>(SE)                           | 351                          | -       | 365816<br>383592 |
| 54     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1899   | A11SW<br>(W)                           | 359                          | -       | 364673<br>384104 |
| 55     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1899   | A11NW<br>(W)                           | 371                          | -       | 364627<br>384126 |
| 56     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954   | A8NE<br>(SE)                           | 413                          | -       | 365741<br>383568 |
| 57     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954   | A8NE<br>(SE)                           | 415                          | -       | 365594<br>383709 |
| 58     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954   | A14NE<br>(NW)                          | 442                          | -       | 364324<br>384785 |
| 59     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910   | A8NE<br>(SE)                           | 454                          | -       | 365771<br>383500 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 60     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A8NW (SE)                              | 539                          | -       | 365201<br>383607 |
| 61     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1899 | A10NE (W)                              | 646                          | -       | 364173<br>384136 |
| 62     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7NW (SW)                              | 742                          | -       | 364651<br>383590 |
| 63     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7NW (S)                               | 744                          | -       | 364751<br>383539 |
| 64     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7NW (S)                               | 765                          | -       | 364763<br>383512 |
| 65     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7NW (SW)                              | 772                          | -       | 364639<br>383563 |
| 66     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7NW (S)                               | 798                          | -       | 364746<br>383483 |
| 67     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7SE (S)                               | 820                          | -       | 364931<br>383372 |
| 68     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7SE (S)                               | 822                          | -       | 365141<br>383326 |
| 69     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A8SW (SE)                              | 829                          | -       | 365329<br>383326 |
| 70     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7NW (S)                               | 832                          | -       | 364631<br>383499 |
| 71     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A8SE (SE)                              | 848                          | -       | 365635<br>383128 |
| 72     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | A10NW (W)                              | 866                          | -       | 363930<br>384122 |
| 73     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7NW (SW)                              | 924                          | -       | 364535<br>383447 |
| 74     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A8SW (S)                               | 946                          | -       | 365263<br>383202 |
| 75     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A7SW (S)                               | 948                          | -       | 364579<br>383395 |
| 76     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A8SW (SE)                              | 967                          | -       | 365425<br>383113 |
| 77     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A8SW (S)                               | 973                          | -       | 365221<br>383174 |
| 78     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | A6NE (SW)                              | 973                          | -       | 364243<br>383636 |
| 79     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | A4NW (SE)                              | 989                          | -       | 365459<br>383063 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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| 80     | <p><b>Control of Major Accident Hazards Sites (COMAH)</b></p> <p>Name: Wardel Services Group (Aka Wdcl)<br/>           Location: Appleton Thorn Trading Estate, Barley Castle Lane, APPLETON, WA4 4RD<br/>           Reference: Not Supplied<br/>           Type: Upper Tier<br/>           Status: <b>Record Ceased To Be Supplied Under COMAH Regulations</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>   | A11SE (S)                              | 338                          | 8       | 364863<br>383936 |
| 81     | <p><b>Planning Hazardous Substance Consents</b></p> <p>Name: P C Downing &amp; Sons (Haulage) Ltd<br/>           Location: Barley Gate Lane, Appleton, Warrington, Cheshire, WA4 6RB<br/>           Authority: Warrington Borough Council, Environmental and Regeneration<br/>           Application Ref: Not Given<br/>           Hazardous: Part C, Flammable Substance (Not in Parts A&amp;B), Substances flammable in air above their Bpt, as a liquid or with gas at &gt;1.4bar, amount held is &gt;=25t<br/>           Substance: air above their Bpt, as a liquid or with gas at &gt;1.4bar, amount held is &gt;=25t<br/>           Maximum Quantity: 1200<br/>           Application date: 29th June 1994<br/>           Decision: <b>Application revoked or cancelledCancelled</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p> | A11SE (S)                              | 329                          | 9       | 364844<br>383955 |

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|        | <b>BGS 1:625,000 Solid Geology</b><br>Description: Triassic Rocks (Undifferentiated)  | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>BGS Estimated Soil Chemistry</b><br>Source: British Geological Survey, National Geoscience Information Service<br>Soil Sample Type: Rural Soil<br>Arsenic Concentration: <15 mg/kg<br>Cadmium Concentration: <1.8 mg/kg<br>Chromium Concentration: 60 - 90 mg/kg<br>Lead Concentration: <100 mg/kg<br>Nickel Concentration: 15 - 30 mg/kg  | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>BGS Estimated Soil Chemistry</b><br>Source: British Geological Survey, National Geoscience Information Service<br>Soil Sample Type: Rural Soil<br>Arsenic Concentration: <15 mg/kg<br>Cadmium Concentration: <1.8 mg/kg<br>Chromium Concentration: 90 - 120 mg/kg<br>Lead Concentration: <100 mg/kg<br>Nickel Concentration: 15 - 30 mg/kg | A11SE (S)                              | 0                            | 1       | 364876<br>384000 |
|        | <b>BGS Estimated Soil Chemistry</b><br>Source: British Geological Survey, National Geoscience Information Service<br>Soil Sample Type: Rural Soil<br>Arsenic Concentration: <15 mg/kg<br>Cadmium Concentration: <1.8 mg/kg<br>Chromium Concentration: 60 - 90 mg/kg<br>Lead Concentration: <100 mg/kg<br>Nickel Concentration: <15 mg/kg      | A11SE (S)                              | 183                          | 1       | 364928<br>384017 |
|        | <b>BGS Estimated Soil Chemistry</b><br>Source: British Geological Survey, National Geoscience Information Service<br>Soil Sample Type: Rural Soil<br>Arsenic Concentration: <15 mg/kg<br>Cadmium Concentration: <1.8 mg/kg<br>Chromium Concentration: 60 - 90 mg/kg<br>Lead Concentration: <100 mg/kg<br>Nickel Concentration: <15 mg/kg      | A15SW (NW)                             | 202                          | 1       | 364558<br>384707 |
|        | <b>BGS Estimated Soil Chemistry</b><br>Source: British Geological Survey, National Geoscience Information Service<br>Soil Sample Type: Rural Soil<br>Arsenic Concentration: <15 mg/kg<br>Cadmium Concentration: <1.8 mg/kg<br>Chromium Concentration: 90 - 120 mg/kg<br>Lead Concentration: <100 mg/kg<br>Nickel Concentration: 15 - 30 mg/kg | A14SW (W)                              | 728                          | 1       | 363949<br>384517 |
|        | <b>BGS Estimated Soil Chemistry</b><br>Source: British Geological Survey, National Geoscience Information Service<br>Soil Sample Type: Rural Soil<br>Arsenic Concentration: <15 mg/kg<br>Cadmium Concentration: <1.8 mg/kg<br>Chromium Concentration: 60 - 90 mg/kg<br>Lead Concentration: <100 mg/kg<br>Nickel Concentration: <15 mg/kg      | A6NW (SW)                              | 959                          | 1       | 364061<br>383715 |



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| 82     | <b>BGS Recorded Mineral Sites</b><br>Site Name: Buttyfold Farm<br>Location: , Appleton Thorn, Warrington, Cheshire<br>Source: British Geological Survey, National Geoscience Information Service<br>Reference: 95247<br>Type: Opencast<br><b>Status: Ceased</b><br>Operator: Not Supplied<br>Operator Location: Not Supplied<br>Periodic Type: Quaternary<br>Geology: Glaciofluvial Deposits, Devensian<br>Commodity: Sand<br>Positional Accuracy: Located by supplier to within 10m   | A14NE (NW)                             | 371                          | 1       | 364417<br>384801 |
|        | <b>BGS Measured Urban Soil Chemistry</b><br>No data available  |  |                              |         |                  |
|        | <b>BGS Urban Soil Chemistry Averages</b><br>No data available  |  |                              |         |                  |
|        | <b>CBSCB Compensation District</b><br>Description: In an area which may be affected by historic brine pumping (the Compensation District). The Law Society recommend that all property transactions should obtain a CON29M search. The CBSCB website: <a href="http://www.cheshirebrine.com/">http://www.cheshirebrine.com/</a> has information regarding how to obtain a search and other information regarding the continuing functions of the Board. Contact details are included in the Useful Contacts section.<br>Source: Cheshire Brine Subsidence Compensation Board (CBSCB) | A8NW (SE)                              | 0                            | 10      | 365410<br>383570 |
|        | <b>Coal Mining Affected Areas</b><br>In an area that might not be affected by coal mining  |  |                              |         |                  |
|        | <b>Non Coal Mining Areas of Great Britain</b><br>No Hazard   |  |                              |         |                  |
|        | <b>Potential for Collapsible Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>Potential for Collapsible Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>Potential for Collapsible Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A15NE (N)                              | 5                            | 1       | 365000<br>385000 |
|        | <b>Potential for Compressible Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>Potential for Compressible Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>Potential for Compressible Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service  | A15NE (N)                              | 5                            | 1       | 365000<br>385000 |
|        | <b>Potential for Ground Dissolution Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>Potential for Ground Dissolution Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>Potential for Ground Dissolution Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | A15NE (N)                              | 5                            | 1       | 365000<br>385000 |
|        | <b>Potential for Landslide Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>Potential for Landslide Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>Potential for Landslide Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A15NE (N)                              | 5                            | 1       | 365000<br>385000 |

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|--------|---|--|------------------------------|---------|------------------|
|        | <b>Potential for Running Sand Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | A11NE (N)                              | 0                            | 1       | 364907<br>384227 |
|        | <b>Potential for Running Sand Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | A11NE (E)                              | 0                            | 1       | 365000<br>384221 |
|        | <b>Potential for Running Sand Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>Potential for Running Sand Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>Potential for Running Sand Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A15NE (N)                              | 5                            | 1       | 365000<br>385000 |
|        | <b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | A15NE (N)                              | 5                            | 1       | 365000<br>385000 |
|        | <b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | A11SE (SE)                             | 183                          | 1       | 365000<br>384019 |
|        | <b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | A11SE (S)                              | 208                          | 1       | 364928<br>384017 |
|        | <b>Radon Potential - Radon Affected Areas</b><br>Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level).<br>Source: British Geological Survey, National Geoscience Information Service | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>Radon Potential - Radon Affected Areas</b><br>Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level).<br>Source: British Geological Survey, National Geoscience Information Service | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |
|        | <b>Radon Potential - Radon Protection Measures</b><br>Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions<br>Source: British Geological Survey, National Geoscience Information Service                     | A11NE (NE)                             | 0                            | 1       | 364905<br>384198 |
|        | <b>Radon Potential - Radon Protection Measures</b><br>Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions<br>Source: British Geological Survey, National Geoscience Information Service                     | A11NE (E)                              | 0                            | 1       | 365000<br>384198 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR           |
|--------|--|--|------------------------------|---------|---------------|
| 83     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Mark Thompson Transport Ltd<br/>           Location: Stretton Distribution Centre, Grappenhall Lane, Appleton, Warrington, WA4 4QT<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>           | A15SW (NW)                             | 47                           | -       | 364671 384531 |
| 83     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Chris Walley Transport Ltd<br/>           Location: Unit 1a, Stretton Distribution Centre, Grappenhall Lane, Appleton, Warrington, WA4 4QT<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p> | A15SW (NW)                             | 57                           | -       | 364661 384504 |
| 84     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: M Goundry Transport<br/>           Location: Cliff Lane Farm, Cartridge Lane, Grappenhall, Warrington, Cheshire, WA4 4SH<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned to the address or location</p>              | A16NW (NE)                             | 56                           | -       | 365503 384896 |
| 85     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: C &amp; L Autos<br/>           Location: Grappenhall Lane, Appleton, Warrington, WA4 4QT<br/>           Classification: Garage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | A11NW (NW)                             | 70                           | -       | 364671 384433 |
| 85     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Baldwins Crane Hire Ltd<br/>           Location: Grappenhall Lane, Appleton, Warrington, WA4 4QT<br/>           Classification: Crane Hire, Sales &amp; Service<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                                   | A11NW (NW)                             | 91                           | -       | 364653 384421 |
| 86     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Cargo Sped Ltd<br/>           Location: Grappenhall La, Appleton, Warrington, Cheshire, WA4 4QT<br/>           Classification: Freight Forwarders<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>                        | A15SW (NW)                             | 86                           | -       | 364631 384594 |
| 87     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: M &amp; S Transport<br/>           Location: Barleycastle Lane, Appleton, Warrington, WA4 4RG<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A11NE (N)                              | 108                          | -       | 364897 384312 |
| 88     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Star World<br/>           Location: Grappenhall Lane, Appleton, Warrington, WA4 4QT<br/>           Classification: Distribution Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A15SW (NW)                             | 115                          | -       | 364603 384511 |
| 89     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Howley Quay Motors<br/>           Location: 4, Grappenhall Lane, Appleton, WARRINGTON, WA4 4QT<br/>           Classification: Car Body Repairs<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A11NW (NW)                             | 164                          | -       | 364558 384444 |
| 90     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: M &amp; S Transport<br/>           Location: Barleycastle Lane, Appleton, Warrington, WA4 4RG<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A11NW (W)                              | 213                          | -       | 364760 384256 |
| 91     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Appleton Mot Centre<br/>           Location: Barleycastle La, Appleton, Warrington, Cheshire, WA4 4RG<br/>           Classification: Garage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>                     | A12SE (SE)                             | 271                          | -       | 365669 383844 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 92     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Bridgewater Contracts Ltd<br/>           Location: Broad La, Grappenhall, Warrington, Cheshire, WA4 3HU<br/>           Classification: Carpet, Curtain &amp; Upholstery Cleaners<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>       | A15NW (NW)                             | 284                          | -       | 364570<br>384825 |
| 93     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Haulmark Equipment Ltd<br/>           Location: Haulmark Equipment, Barleycastle Lane, Warrington, WA4 4RB<br/>           Classification: Machine Tools - Manufacturers &amp; Distributors<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                      | A11NW (W)                              | 293                          | -       | 364718<br>384172 |
| 94     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: T D G<br/>           Location: Barley Castle Lane, Appleton, Warrington, WA4 4RG<br/>           Classification: Distribution Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | A8NE (SE)                              | 318                          | -       | 365793<br>383647 |
| 94     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Tdg<br/>           Location: Barleycastle Lane, Appleton, Warrington, WA4 4RG<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A8NE (SE)                              | 318                          | -       | 365793<br>383647 |
| 95     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Beeline Transport (Northern) Ltd<br/>           Location: Lyncastle Rd, Barley Castle La, Appleton, Warrington, Cheshire, WA4 4RD<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p> | A11SE (S)                              | 333                          | -       | 364842<br>383952 |
| 95     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Tibbett &amp; Britten Ltd<br/>           Location: Lyncastle Rd, Barley Castle La, Appleton, Warrington, Cheshire, WA4 4RD<br/>           Classification: Distribution Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>        | A11SE (S)                              | 333                          | -       | 364842<br>383952 |
| 95     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Stoford Transport Ltd<br/>           Location: Lyncastle Rd, Barley Castle La, Appleton, Warrington, Cheshire, WA4 4RD<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>            | A11SE (S)                              | 333                          | -       | 364842<br>383952 |
| 95     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Taylors Of Martley Haulage Ltd<br/>           Location: Lyncastle Rd, Barley Castle La, Appleton, Warrington, Cheshire, WA4 4RD<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>   | A11SE (S)                              | 333                          | -       | 364842<br>383952 |
| 95     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Stoford Transport<br/>           Location: Lyncastle Rd, Barleycastle La, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>                 | A11SE (S)                              | 333                          | -       | 364842<br>383952 |
| 96     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Combined Chemical Services (Uk) Ltd<br/>           Location: Unit 3g, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Chemicals - Distributors &amp; Wholesalers<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p> | A11SW (SW)                             | 360                          | -       | 364702<br>384047 |
| 96     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Hewden Stuart Crane Hire Ltd<br/>           Location: Lyncastle Road, Barley Castle Lane, Appleton, Warrington, WA4 4RJ<br/>           Classification: Crane Hire, Sales &amp; Service<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                        | A11SW (SW)                             | 360                          | -       | 364702<br>384047 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 96     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Alpine Cleaning Services<br/>           Location: Unit 3E, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, Cheshire, WA4 4ST<br/>           Classification: Commercial Cleaning Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                                      | A11SW (SW)                             | 370                          | -       | 364722<br>384003 |
| 96     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: G T Cars Ltd<br/>           Location: Unit 3ga, Lyncastle Way, Barleycastle Lane, Appleton, WARRINGTON, WA4 4ST<br/>           Classification: Garage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A11SW (SW)                             | 373                          | -       | 364710<br>384013 |
| 96     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: T R Bitz<br/>           Location: Unit 3g, Lyncastle Way, Barleycastle Lane, Appleton, WARRINGTON, WA4 4ST<br/>           Classification: Classic Car Specialists<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | A11SW (SW)                             | 373                          | -       | 364710<br>384013 |
| 96     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Appleton Vehicle Restorations<br/>           Location: Unit 3g, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Car Body Repairs<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | A11SW (SW)                             | 382                          | -       | 364704<br>384006 |
| 96     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Print My Tablecloth<br/>           Location: Unit 3ga, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Printers Textile<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A11SW (SW)                             | 382                          | -       | 364704<br>384006 |
| 97     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Cheshire Commercial Vehicle Repairs Ltd<br/>           Location: Unit 3c, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Commercial Vehicle Servicing, Repairs, Parts &amp; Accessories<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p> | A11SW (SW)                             | 363                          | -       | 364767<br>383969 |
| 97     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Light Freight Commercials Ltd<br/>           Location: Unit 3c, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A11SW (SW)                             | 363                          | -       | 364767<br>383969 |
| 97     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Appleton Commercial Engineering Ltd<br/>           Location: Unit 3C, Lyncastle Way, Barley Castle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Commercial Vehicle Bodybuilders &amp; Repairers<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                 | A11SW (SW)                             | 363                          | -       | 364767<br>383969 |
| 97     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Appleton Commercial Engineering<br/>           Location: Unit 3c, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Commercial Vehicle Bodybuilders &amp; Repairers<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                      | A11SW (SW)                             | 363                          | -       | 364767<br>383969 |
| 97     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Appleton Commercial Engineering Ltd<br/>           Location: Unit 3c, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Commercial Vehicle Servicing, Repairs, Parts &amp; Accessories<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | A11SW (SW)                             | 363                          | -       | 364767<br>383969 |
| 98     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Warrington Commercials Ltd<br/>           Location: Lyncastle Road, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br/>           Classification: Commercial Vehicle Bodybuilders &amp; Repairers<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                                     | A11SE (S)                              | 388                          | -       | 364847<br>383887 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 98     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: C M S Danskin Acoustics<br/>           Location: Unit 2 Lyncastle Road, Barleycastle Lane, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Insulation Materials<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned to the address or location</p>                           | A11SW (S)                              | 411                          | -       | 364805<br>383883 |
| 99     | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Maxi Haulage Ltd<br/>           Location: Stretton Green Distribution Park, Langford Way, Appleton, Warrington, WA4 4TQ<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A11SE (S)                              | 416                          | -       | 364997<br>383780 |
| 100    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Appleton<br/>           Location: Stretton Green Distribution Park, Langford Way, Appleton, Warrington, Cheshire, WA4 4TQ<br/>           Classification: Freight Forwarders<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | A11SE (S)                              | 427                          | -       | 364919<br>383815 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Fast Cash 4 Scrap Cars Warrington Aeg<br/>           Location: Lyncastle Way, Warrington, Cheshire, WA4 4ST<br/>           Classification: Car Breakers &amp; Dismantlers<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>                                | A11SW (SW)                             | 463                          | -       | 364669<br>383924 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Zenith Logistics Services Uk Ltd<br/>           Location: Lyncastle Way, Barleycastle Lane, Appleton, Warrington, Cheshire, WA4 4ST<br/>           Classification: Distribution Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>                   | A11SW (SW)                             | 463                          | -       | 364669<br>383924 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: All Seasons Groundcare<br/>           Location: Unit 4d, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, Cheshire, WA4 4ST<br/>           Classification: Agricultural Machinery - Sales &amp; Service<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the address or location</p> | A11SW (SW)                             | 463                          | -       | 364669<br>383924 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Specialist Waste Recycling<br/>           Location: 1, Asher Court, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Reclaiming - Waste Products<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                        | A11SW (SW)                             | 489                          | -       | 364644<br>383912 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Bowman Specialised Liquids Ltd<br/>           Location: 1 Asher Court, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                             | A11SW (SW)                             | 490                          | -       | 364642<br>383912 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Branded Tablecloths<br/>           Location: Unit 3g, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Printers Textile<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned to the address or location</p>  | A11SW (SW)                             | 501                          | -       | 364636<br>383904 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Caldwell Filtration Ltd<br/>           Location: 3d, Asher Court, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, Cheshire, WA4 4ST<br/>           Classification: Wire Products - Manufacturers<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                | A11SW (SW)                             | 501                          | -       | 364636<br>383904 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Clean Print<br/>           Location: Unit 3g, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Printers<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned to the address or location</p>  | A11SW (SW)                             | 501                          | -       | 364636<br>383904 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Acrypol Products Ltd<br/>           Location: 4, Asher Court, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Waterproof Material Manufacturers<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                      | A11SW (SW)                             | 508                          | -       | 364631<br>383899 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Y2k Coatings Ltd<br/>           Location: 4, Asher Court, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, Cheshire, WA4 4ST<br/>           Classification: Aviation Engineers<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                               | A11SW (SW)                             | 508                          | -       | 364631<br>383899 |
| 101    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Fairbrothers Ltd<br/>           Location: Asher Court, Lyncastle Way, Barleycastle La, Appleton, Warrington, Cheshire, WA4 4ST<br/>           Classification: Bus &amp; Coach Operators &amp; Stations<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p> | A11SW (SW)                             | 508                          | -       | 364644<br>383885 |
| 102    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Curtis Holt Tool Bank<br/>           Location: Toolbank House, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Builders' Tools &amp; Equipment Manufacturers<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>         | A11SW (SW)                             | 474                          | -       | 364620<br>383966 |
| 102    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Toolbank<br/>           Location: Toolbank House, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Builders' Tools &amp; Equipment Manufacturers<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                        | A11SW (SW)                             | 474                          | -       | 364620<br>383966 |
| 103    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Express Cargo Forwarding Ltd<br/>           Location: Unit 6/9, Stretton Green Distribution Park, Langford Way, Appleton, Warrington, WA4 4TQ<br/>           Classification: Freight Forwarders<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                     | A11SE (S)                              | 475                          | -       | 364888<br>383774 |
| 104    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Skelton Transport Group Ltd<br/>           Location: Lyncastle Rd, Barley Castle La, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>            | A11SW (SW)                             | 502                          | -       | 364713<br>383834 |
| 105    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Chemi Clean<br/>           Location: Unit 3g, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Cleaning Materials &amp; Equipment<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>                          | A11SW (SW)                             | 540                          | -       | 364561<br>383934 |
| 106    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Appleton<br/>           Location: Eddie Stobart, Stretton Green Distribution Park, Langford Way, Warrington, WA4 4TQ<br/>           Classification: Freight Forwarders<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A7NE (S)                               | 580                          | -       | 365007<br>383599 |
| 106    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Eddie Stobart Ltd<br/>           Location: Eddie Stobart, Stretton Green Distribution Park, Langford Way, Warrington, WA4 4TQ<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                                    | A7NE (S)                               | 580                          | -       | 365007<br>383599 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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| 106    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Eddie Stobart Ltd<br/>           Location: Eddie Stobart, Stretton Green Distribution Park, Langford Way, Warrington, WA4 4TQ<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                          | A7NE (S)                               | 580                          | -       | 365007<br>383599 |
| 107    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Cape Industrial Services Ltd<br/>           Location: Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Commercial Cleaning Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                             | A11SW (SW)                             | 583                          | -       | 364573<br>383850 |
| 107    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Cape Plant Ltd<br/>           Location: Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Classification: Industrial Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>  | A11SW (SW)                             | 583                          | -       | 364573<br>383850 |
| 108    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Rentokil Pest Control<br/>           Location: Barleycastle Trad Est, Warrington, Cheshire, WA4 4RD<br/>           Classification: Pest &amp; Vermin Control<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>                                   | A11SW (SW)                             | 591                          | -       | 364619<br>383795 |
| 109    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Ryder Ltd<br/>           Location: Carlin Buildings, Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4TG<br/>           Classification: Garage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | A11SW (SW)                             | 603                          | -       | 364501<br>383909 |
| 110    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Eddie Stobart Ltd<br/>           Location: Lyncastle Road, Barleycastle Lane, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Freight Forwarders<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>                | A7NW (SW)                              | 655                          | -       | 364644<br>383696 |
| 110    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Greenalls Services<br/>           Location: Lyncastle Rd, Barley Castle La, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Distribution Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p>             | A7NW (SW)                              | 681                          | -       | 364636<br>383670 |
| 111    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Wincanton Logistics<br/>           Location: Lyncastle Road, Barley Castle Lane, Appleton, Warrington, WA4 4SN<br/>           Classification: Distribution Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | A7NW (S)                               | 721                          | -       | 364817<br>383532 |
| 112    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Baldwins Industrial Services Plc<br/>           Location: Lyncastle Road, Barley Castle Lane, Appleton, Warrington, WA4 4SN<br/>           Classification: Crane Hire, Sales &amp; Service<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned in the proximity of the address</p> | A7NW (SW)                              | 731                          | -       | 364613<br>383625 |
| 113    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: S J Tabner Ltd<br/>           Location: Unit 10 Appleton Thorn Trading Estate, Lyncastle Road, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                   | A6NE (SW)                              | 774                          | -       | 364439<br>383714 |
| 114    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Able Installation &amp; Service Ltd<br/>           Location: Lyncastle Road, Barleycastle Lane, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Electrical Engineers<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>    | A7NW (SW)                              | 797                          | -       | 364559<br>383582 |



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| 114    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: S I G Construction Accessories<br/>           Location: Unit 2,Warrington South Distribution Park, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Builders' Merchants<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>   | A7NW (SW)                              | 797                          | -       | 364559<br>383582 |
| 115    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Kuehne + Nagel Ltd<br/>           Location: Whitehouse Industrial E,Lyncastle Road, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned to the address or location</p>                        | A7NW (SW)                              | 800                          | -       | 364605<br>383550 |
| 115    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: S I G Geotechnical<br/>           Location: Lyncastle Rd,Barleycastle La, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Builders' Merchants<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>                            | A7NW (SW)                              | 811                          | -       | 364608<br>383535 |
| 115    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Rentokil Specialist Hygiene<br/>           Location: Lyncastle Rd,Barleycastle La, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Commercial Cleaning Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>          | A7NW (SW)                              | 811                          | -       | 364608<br>383535 |
| 115    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Currie European Transport<br/>           Location: Lyncastle Road, Barleycastle Lane, Appleton, WARRINGTON, WA4 4SN<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                                       | A7NW (SW)                              | 811                          | -       | 364608<br>383535 |
| 115    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Mark Thompson<br/>           Location: Lyncastle Rd,Barleycastle La, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>                               | A7NW (SW)                              | 811                          | -       | 364608<br>383535 |
| 115    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Rentokil Property Care<br/>           Location: Lyncastle rd Barleycastle la, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Damp &amp; Dry Rot Control<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>                   | A7NW (SW)                              | 811                          | -       | 364608<br>383535 |
| 115    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Rentokil Pest Control<br/>           Location: Lyncastle Rd,Barleycastle La, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Pest &amp; Vermin Control<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>                   | A7NW (SW)                              | 811                          | -       | 364608<br>383535 |
| 116    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Bluegroup<br/>           Location: Unit 3c, Appleton Thorn Trading Estate, Lyncastle Road, Warrington, WA4 4SN<br/>           Classification: Recycling Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | A6NE (SW)                              | 841                          | -       | 364427<br>383631 |
| 116    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: R J Edwards &amp; Sons Ltd<br/>           Location: Lyncastle Road, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br/>           Classification: Road Haulage Services<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                                      | A6NE (SW)                              | 849                          | -       | 364393<br>383654 |
| 117    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Lowndes &amp; Sons Transport Ltd<br/>           Location: Lyncastle Rd,Barley Castle La, Appleton, Warrington, Cheshire, WA4 4SN<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the road within the address or location</p> | A7NW (SW)                              | 918                          | -       | 364544<br>383448 |

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| 117    | <b>Contemporary Trade Directory Entries</b><br>Name: F B Atkins & Sons Ltd<br>Location: Lyncastle Road, Barley Castle Lane, Appleton, Warrington, WA4 4SN<br>Classification: Road Haulage Services<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address                                  | A7NW (SW)                              | 920                          | -       | 364559<br>383438 |
| 118    | <b>Contemporary Trade Directory Entries</b><br>Name: Cheaper Utilities<br>Location: 30a, Ashberry Drive, Appleton Thorn, Warrington, WA4 4QS<br>Classification: Gas Suppliers<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address   | A10SW (W)                              | 937                          | -       | 363890<br>384044 |
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Elebert Bros Ltd<br>Location: 16, Ashberry Drive, Appleton Thorn, Warrington, WA4 4QS<br>Classification: Pest & Vermin Control<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address   | A10NW (W)                              | 951                          | -       | 363827<br>384150 |
| 120    | <b>Contemporary Trade Directory Entries</b><br>Name: Euroform Products Ltd<br>Location: Unit 2 Lyncastle Road, Barleycastle Lane, Appleton, Warrington, Cheshire, WA4 4SN<br>Classification: Plaster Manufacturers & Suppliers<br>Status: <b>Active</b><br>Positional Accuracy: Manually positioned to the address or location | A6NE (SW)                              | 956                          | -       | 364339<br>383557 |
| 120    | <b>Contemporary Trade Directory Entries</b><br>Name: Recycling Systems (Europe) Ltd<br>Location: Lyncastle Rd, Barley Castle La, Appleton, Warrington, Cheshire, WA4 4SN<br>Classification: Recycling Centres<br>Status: <b>Inactive</b><br>Positional Accuracy: Manually positioned within the geographical locality          | A6NE (SW)                              | 967                          | -       | 364338<br>383542 |
| 120    | <b>Contemporary Trade Directory Entries</b><br>Name: Arleys Angels<br>Location: 2, Old Farm, Burley Lane, Appleton, Warrington, WA4 4RP<br>Classification: Cleaning Services - Domestic<br>Status: <b>Active</b><br>Positional Accuracy: Automatically positioned to the address   | A6NE (SW)                              | 972                          | -       | 364347<br>383527 |
| 120    | <b>Contemporary Trade Directory Entries</b><br>Name: Arleys Angels Ltd<br>Location: 2, Old Farm, Burley Lane, Appleton, Warrington, Cheshire, WA4 4RP<br>Classification: Cleaning Services - Domestic<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address                               | A6NE (SW)                              | 972                          | -       | 364347<br>383527 |
| 121    | <b>Contemporary Trade Directory Entries</b><br>Name: Maxi Haulage<br>Location: Plot B, Priory Works, Lyncastle Rd, Barleycastle La, Appleton, Warrington, Cheshire, WA4 4RE<br>Classification: Road Haulage Services<br>Status: <b>Inactive</b><br>Positional Accuracy: Manually positioned to the address or location         | A6SE (SW)                              | 995                          | -       | 364468<br>383405 |
| 122    | <b>Points of Interest - Commercial Services</b><br>Name: R J Edwards & Sons Ltd<br>Location: Barleycastle Lane, Appleton, Warrington, WA4 4RG<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location                                   | A15SE (N)                              | 19                           | 11      | 364900<br>384447 |
| 123    | <b>Points of Interest - Commercial Services</b><br>Name: Mark Thompson Transport Ltd<br>Location: Stretton Distribution Centre, Grappenhall Lane, Appleton, Warrington, WA4 4QT<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location | A15SW (NW)                             | 47                           | 11      | 364671<br>384531 |
| 123    | <b>Points of Interest - Commercial Services</b><br>Name: Star World<br>Location: Unit 4a Stretton Distribution Centre, Grappenhall Lane, Appleton, Warrington, WA4 4QT<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location          | A15SW (NW)                             | 114                          | 11      | 364604<br>384506 |

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| 124    | <b>Points of Interest - Commercial Services</b><br>Name: M Goundry Transport<br>Location: Cliff Lane Farm, Cartridge Lane, Grappenhall, Warrington, WA4 4SH<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location                             | A16NW (NE)                             | 56                           | 11      | 365503<br>384896 |
| 125    | <b>Points of Interest - Commercial Services</b><br>Name: Mark Thompson Transport<br>Location: Stretton Distribution Centre, Grappenhall Lane, Appleton, Warrington, WA4 4QT<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location             | A11NW (NW)                             | 70                           | 11      | 364671<br>384433 |
| 125    | <b>Points of Interest - Commercial Services</b><br>Name: C & L Autos<br>Location: Grappenhall Lane, Appleton, Warrington, WA4 4QT<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location   | A11NW (NW)                             | 70                           | 11      | 364671<br>384433 |
| 126    | <b>Points of Interest - Commercial Services</b><br>Name: M & S Transport<br>Location: Barleycastle Lane, Appleton, Warrington, WA4 4RG<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location  | A11NE (N)                              | 108                          | 11      | 364897<br>384311 |
| 127    | <b>Points of Interest - Commercial Services</b><br>Name: Appleton MOT Centre<br>Location: Airfield House, Barleycastle Lane, Appleton, Warrington, WA4 4RG<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location                            | A11NW (NW)                             | 198                          | 11      | 364744<br>384281 |
| 127    | <b>Points of Interest - Commercial Services</b><br>Name: M & S Transport<br>Location: Barleycastle Lane, Appleton, Warrington, WA4 4RG<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location  | A11NW (W)                              | 213                          | 11      | 364760<br>384256 |
| 127    | <b>Points of Interest - Commercial Services</b><br>Name: M & S<br>Location: Barleycastle Lane, Appleton, Warrington, WA4 4RG<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location  | A11NW (W)                              | 214                          | 11      | 364759<br>384256 |
| 128    | <b>Points of Interest - Commercial Services</b><br>Name: Norbert Dentressangle<br>Location: Barleycastle Lane, Appleton, Warrington, WA4 4RG<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location  | A8NE (SE)                              | 318                          | 11      | 365793<br>383647 |
| 129    | <b>Points of Interest - Commercial Services</b><br>Name: Grappenhall Motor Services<br>Location: Unit 3b Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location              | A11SW (SW)                             | 362                          | 11      | 364786<br>383955 |
| 129    | <b>Points of Interest - Commercial Services</b><br>Name: Grappenhall Motor Company<br>Location: Unit 3b Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location               | A11SW (SW)                             | 363                          | 11      | 364785<br>383954 |
| 130    | <b>Points of Interest - Commercial Services</b><br>Name: Appleton Commercial Engineering Ltd<br>Location: Unit 3c Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location     | A11SW (SW)                             | 363                          | 11      | 364767<br>383969 |
| 130    | <b>Points of Interest - Commercial Services</b><br>Name: Cheshire Commercial Vehicle Repairs Ltd<br>Location: Unit 3c Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location | A11SW (SW)                             | 363                          | 11      | 364767<br>383968 |

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| 130    | <b>Points of Interest - Commercial Services</b><br>Name: T R Bitz<br>Location: Unit 3g Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location                      | A11SW (SW)                             | 373                          | 11      | 364710<br>384013 |
| 130    | <b>Points of Interest - Commercial Services</b><br>Name: T R Bitz<br>Location: Unit 3g Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location                      | A11SW (SW)                             | 373                          | 11      | 364710<br>384013 |
| 130    | <b>Points of Interest - Commercial Services</b><br>Name: Appleton Vehicle Restorations<br>Location: Unit 3g Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location | A11SW (SW)                             | 374                          | 11      | 364710<br>384012 |
| 130    | <b>Points of Interest - Commercial Services</b><br>Name: G T Cars Ltd<br>Location: Unit 3ga Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location                 | A11SW (SW)                             | 374                          | 11      | 364710<br>384012 |
| 130    | <b>Points of Interest - Commercial Services</b><br>Name: Barley Castle Salvage<br>Location: Unit 3g Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Recycling Services<br>Class Code: Scrap Metal Merchants<br>Positional Accuracy: Positioned to address or location                           | A11SW (SW)                             | 374                          | 11      | 364710<br>384012 |
| 130    | <b>Points of Interest - Commercial Services</b><br>Name: Light Freight Commercials Ltd<br>Location: Unit 3g Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location   | A11SW (SW)                             | 400                          | 11      | 364693<br>383993 |
| 131    | <b>Points of Interest - Commercial Services</b><br>Name: Warrington Commercials Ltd<br>Location: Lyncastle Road, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location           | A11SE (S)                              | 389                          | 11      | 364847<br>383887 |
| 132    | <b>Points of Interest - Commercial Services</b><br>Name: Maxi Haulage Ltd<br>Location: Stretton Green Distribution Park, Langford Way, Appleton, Warrington, WA4 4TQ<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location          | A11SE (S)                              | 417                          | 11      | 364997<br>383780 |
| 133    | <b>Points of Interest - Commercial Services</b><br>Name: Express Cargo Forwarding Ltd<br>Location: Unit 3-9, Stretton Green Distrbion Park, Warrington, Cheshire, WA4 4TQ<br>Category: Transport, Storage and Delivery<br>Class Code: Distribution and Haulage<br>Positional Accuracy: Positioned to address or location     | A11SE (S)                              | 475                          | 11      | 364888<br>383774 |
| 134    | <b>Points of Interest - Commercial Services</b><br>Name: Rhodar Ltd<br>Location: 7 Asher Court Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Recycling Services<br>Class Code: Recycling, Reclamation and Disposal<br>Positional Accuracy: Positioned to address or location                  | A11SW (SW)                             | 537                          | 11      | 364618<br>383870 |
| 134    | <b>Points of Interest - Commercial Services</b><br>Name: Bagnall (UK) Ltd<br>Location: 8 Asher Court Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br>Category: Recycling Services<br>Class Code: Recycling, Reclamation and Disposal<br>Positional Accuracy: Positioned to address or location            | A11SW (SW)                             | 537                          | 11      | 364622<br>383866 |

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| 134    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: Bagnall UK Ltd<br/>           Location: 7 Asher Court Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Category: Recycling Services<br/>           Class Code: Recycling, Reclamation and Disposal<br/>           Positional Accuracy: Positioned to address or location</p>                | A11SW (SW)                             | 537                          | 11      | 364618<br>383870 |
| 134    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: Bagnall UK Ltd<br/>           Location: 7 Asher Court Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Category: Recycling Services<br/>           Class Code: Recycling, Reclamation and Disposal<br/>           Positional Accuracy: Positioned to address or location</p>                | A11SW (SW)                             | 537                          | 11      | 364618<br>383870 |
| 134    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: Thermac<br/>           Location: Lexia House Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4ST<br/>           Category: Recycling Services<br/>           Class Code: Recycling, Reclamation and Disposal<br/>           Positional Accuracy: Positioned to address or location</p>                         | A11SW (SW)                             | 612                          | 11      | 364594<br>383789 |
| 135    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: Eddie Stobart Ltd<br/>           Location: Stretton Green Distribution Park, Langford Way, Appleton, Warrington, WA4 4TQ<br/>           Category: Transport, Storage and Delivery<br/>           Class Code: Distribution and Haulage<br/>           Positional Accuracy: Positioned to address or location</p>           | A7NE (S)                               | 577                          | 11      | 365011<br>383600 |
| 135    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: Appleton<br/>           Location: Stretton Green Distribution Park, Langford Way, Appleton, Warrington, WA4 4TQ<br/>           Category: Transport, Storage and Delivery<br/>           Class Code: Distribution and Haulage<br/>           Positional Accuracy: Positioned to address or location</p>                    | A7NE (S)                               | 578                          | 11      | 365011<br>383600 |
| 136    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: Currie European Transport<br/>           Location: Lyncastle Road, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br/>           Category: Transport, Storage and Delivery<br/>           Class Code: Distribution and Haulage<br/>           Positional Accuracy: Positioned to address or location</p>                | A7NW (SW)                              | 811                          | 11      | 364608<br>383535 |
| 136    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: Currie European Transport<br/>           Location: Lyncastle Road, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br/>           Category: Transport, Storage and Delivery<br/>           Class Code: Distribution and Haulage<br/>           Positional Accuracy: Positioned to address or location</p>                | A7NW (SW)                              | 812                          | 11      | 364607<br>383534 |
| 137    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: R J Edwards &amp; Sons Ltd<br/>           Location: Lyncastle Road, Barleycastle Lane, Appleton, Warrington, WA4 4SN<br/>           Category: Transport, Storage and Delivery<br/>           Class Code: Distribution and Haulage<br/>           Positional Accuracy: Positioned to address or location</p>               | A6NE (SW)                              | 850                          | 11      | 364392<br>383654 |
| 138    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: Bluegroup<br/>           Location: Appleton Thorn Trading Estate, Appleton, Warrington, WA4 4SN<br/>           Category: Recycling Services<br/>           Class Code: Recycling, Reclamation and Disposal<br/>           Positional Accuracy: Positioned to address or location</p>                                      | A6NE (SW)                              | 966                          | 11      | 364319<br>383562 |
| 139    | <p><b>Points of Interest - Commercial Services</b></p> <p>Name: Maxi Haulage<br/>           Location: Plot B, Priory Works, Lyncastle Rd, Barleycastle La, Appleton, Warrington, Cheshire, WA4 4RE<br/>           Category: Transport, Storage and Delivery<br/>           Class Code: Distribution and Haulage<br/>           Positional Accuracy: Positioned to address or location</p> | A6SE (SW)                              | 995                          | 11      | 364468<br>383405 |
| 140    | <p><b>Points of Interest - Manufacturing and Production</b></p> <p>Name: H Sinker &amp; Sons<br/>           Location: Bradley Hall Farm, Cliff Lane, Grappenhall, Warrington, WA4 4SL<br/>           Category: Farming<br/>           Class Code: Livestock Farming<br/>           Positional Accuracy: Positioned to address or location</p>   | A16SE (E)                              | 0                            | 11      | 365713<br>384532 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 141    | <b>Points of Interest - Manufacturing and Production</b><br>Name: Tank<br>Location: WA4<br>Category: Industrial Features<br>Class Code: Tanks (Generic)<br>Positional Accuracy: Positioned to an adjacent address or location  | A11NW (N)                              | 39                           | 11      | 364833<br>384415 |
| 142    | <b>Points of Interest - Manufacturing and Production</b><br>Name: J M Cross & Partners<br>Location: Cliff Lane Farm, Cartridge Lane, Grappenhall, Warrington, WA4 4SH<br>Category: Farming<br>Class Code: Arable Farming<br>Positional Accuracy: Positioned to address or location     | A16NW (NE)                             | 55                           | 11      | 365503<br>384895 |
| 142    | <b>Points of Interest - Manufacturing and Production</b><br>Name: J M Cross & Partners<br>Location: Cliff Lane Farm, Cartridge Lane, Grappenhall, Warrington, WA4 4SH<br>Category: Farming<br>Class Code: Arable Farming<br>Positional Accuracy: Positioned to address or location     | A16NW (NE)                             | 56                           | 11      | 365503<br>384896 |
| 143    | <b>Points of Interest - Manufacturing and Production</b><br>Name: Works<br>Location: Not Supplied<br>Category: Industrial Features<br>Class Code: Unspecified Works Or Factories<br>Positional Accuracy: Positioned to an adjacent address or location                                 | A8NE (SE)                              | 371                          | 11      | 365778<br>383592 |
| 143    | <b>Points of Interest - Manufacturing and Production</b><br>Name: Works<br>Location: WA4<br>Category: Industrial Features<br>Class Code: Unspecified Works Or Factories<br>Positional Accuracy: Positioned to an adjacent address or location  | A8NE (SE)                              | 381                          | 11      | 365765<br>383589 |
| 144    | <b>Points of Interest - Manufacturing and Production</b><br>Name: Tank<br>Location: WA4<br>Category: Industrial Features<br>Class Code: Tanks (Generic)<br>Positional Accuracy: Positioned to address or location  | A7NW (S)                               | 774                          | 11      | 364822<br>383468 |
| 145    | <b>Points of Interest - Manufacturing and Production</b><br>Name: Tank<br>Location: CW9<br>Category: Industrial Features<br>Class Code: Tanks (Generic)<br>Positional Accuracy: Positioned to address or location  | A4NE (SE)                              | 903                          | 11      | 365723<br>383035 |
| 146    | <b>Points of Interest - Public Infrastructure</b><br>Name: Slurry Lagoon<br>Location: WA4<br>Category: Infrastructure and Facilities<br>Class Code: Waste Storage, Processing and Disposal<br>Positional Accuracy: Positioned to address or location                                   | A16SE (NE)                             | 0                            | 11      | 365758<br>384600 |
| 147    | <b>Points of Interest - Public Infrastructure</b><br>Name: Coach Station<br>Location: WA4<br>Category: Public Transport, Stations and Infrastructure<br>Class Code: Bus and Coach Stations, Depots and Companies<br>Positional Accuracy: Positioned to an adjacent address or location | A11NW (NW)                             | 168                          | 11      | 364650<br>384332 |
| 148    | <b>Points of Interest - Public Infrastructure</b><br>Name: Stretton Airfield (Disused)<br>Location: WA4<br>Category: Air<br>Class Code: Airports and Landing Strips<br>Positional Accuracy: Positioned to address or location  | A7SE (S)                               | 896                          | 11      | 365146<br>383252 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 149    | <b>Areas of Adopted Green Belt</b><br>Authority: Warrington Borough Council<br>Plan Name: Core Strategy<br>Status: <b>Adopted</b><br>Plan Date: 21st July 2014   | A11NE (NE)                             | 0                            | 14      | 364905<br>384198 |
| 150    | <b>Areas of Adopted Green Belt</b><br>Authority: Macclesfield Borough Council (now part of Cheshire East Council)<br>Plan Name: Macclesfield Borough Local Plan<br>Status: <b>Adopted</b><br>Plan Date: 8th January 2004   | A8NW (SE)                              | 0                            | 13      | 365413<br>383564 |
| 151    | <b>Areas of Adopted Green Belt</b><br>Authority: Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Plan Name: Vale Royal Borough Council Local Plan - First Review Alteration<br>Status: <b>Adopted</b><br>Plan Date: 16th June 2006 | A4NW (SE)                              | 909                          | 15      | 365468<br>382914 |
| 152    | <b>Areas of Unadopted Green Belt</b><br>Authority: Cheshire East Council, Planning Department<br>Plan Name: Cheshire East Local Plan Strategy<br>Status: <b>Submission Draft</b><br>Plan Date: 20th May 2014   | A8NW (SE)                              | 0                            | 16      | 365413<br>383564 |
| 153    | <b>Nitrate Vulnerable Zones</b><br>Name: River Weaver (Dane To Frodsham) Nvz<br>Description: Surface Water<br>Source: Environment Agency, Head Office  | A6NE (SW)                              | 385                          | 17      | 364350<br>383650 |

| Agency & Hydrological  | Version  | Update Cycle  |
|--|--|---|
| <b>Contaminated Land Register Entries and Notices</b><br>Cheshire East Council - Environmental Health Department<br>Macclesfield Borough Council (now part of Cheshire East Council) - Health and Public Safety<br>Warrington Borough Council - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Community Services Directorate<br>Cheshire West and Chester Council - Environmental Health Department                        | April 2014<br>July 2008<br>March 2015<br>November 2008<br>November 2013    | Annually<br>Not Applicable<br>Annually<br>Not Applicable<br>Annually              |
| <b>Discharge Consents</b><br>Environment Agency - North West Region  | April 2017   | Quarterly   |
| <b>Enforcement and Prohibition Notices</b><br>Environment Agency - North West Region   | March 2013   | As notified   |
| <b>Integrated Pollution Controls</b><br>Environment Agency - North West Region   | October 2008   | Not Applicable  |
| <b>Integrated Pollution Prevention And Control</b><br>Environment Agency - North West Region   | April 2017   | Quarterly   |
| <b>Local Authority Integrated Pollution Prevention And Control</b><br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department<br>Cheshire West and Chester Council - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Cheshire East Council - Environmental Health Department   | February 2009<br>February 2015<br>July 2015<br>June 2009<br>September 2014 | Not Applicable<br>Annual Rolling Update<br>Annually<br>Not Applicable<br>Annually |
| <b>Local Authority Pollution Prevention and Controls</b><br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department<br>Cheshire West and Chester Council - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Cheshire East Council - Environmental Health Department             | February 2009<br>February 2015<br>July 2015<br>June 2009<br>September 2014 | Not Applicable<br>Annual Rolling Update<br>Annually<br>Not Applicable<br>Annually |
| <b>Local Authority Pollution Prevention and Control Enforcements</b><br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department<br>Cheshire West and Chester Council - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Cheshire East Council - Environmental Health Department | February 2009<br>February 2015<br>July 2015<br>June 2009<br>September 2014 | Not Applicable<br>Annual Rolling Update<br>Annually<br>Not Applicable<br>Annually |
| <b>Nearest Surface Water Feature</b><br>Ordnance Survey  | May 2017   |   |
| <b>Pollution Incidents to Controlled Waters</b><br>Environment Agency - North West Region  | January 2000   | Not Applicable  |
| <b>Prosecutions Relating to Authorised Processes</b><br>Environment Agency - North West Region   | March 2013   | As notified   |
| <b>Prosecutions Relating to Controlled Waters</b><br>Environment Agency - North West Region  | March 2013   | As notified   |
| <b>Registered Radioactive Substances</b><br>Environment Agency - North West Region   | January 2015   |   |
| <b>River Quality</b><br>Environment Agency - Head Office   | November 2001  | Not Applicable  |
| <b>River Quality Biology Sampling Points</b><br>Environment Agency - Head Office   | July 2012  | Annually  |



| Agency & Hydrological   | Version      | Update Cycle   |
|---|--------------|----------------|
| <b>River Quality Chemistry Sampling Points</b><br>Environment Agency - Head Office                                    | July 2012    | Annually       |
| <b>Substantiated Pollution Incident Register</b><br>Environment Agency - North West Region - South Area               | April 2017   | Quarterly      |
| <b>Water Abstractions</b><br>Environment Agency - North West Region   | April 2017   | Quarterly      |
| <b>Water Industry Act Referrals</b><br>Environment Agency - North West Region   | April 2017   | Quarterly      |
| <b>Groundwater Vulnerability</b><br>Environment Agency - Head Office  | April 2015   | Not Applicable |
| <b>Drift Deposits</b><br>Environment Agency - Head Office   | January 1999 | Not Applicable |
| <b>Bedrock Aquifer Designations</b><br>British Geological Survey - National Geoscience Information Service            | August 2015  | As notified    |
| <b>Superficial Aquifer Designations</b><br>British Geological Survey - National Geoscience Information Service        | August 2015  | As notified    |
| <b>Source Protection Zones</b><br>Environment Agency - Head Office  | July 2017    | Quarterly      |
| <b>Extreme Flooding from Rivers or Sea without Defences</b><br>Environment Agency - Head Office                       | August 2017  | Quarterly      |
| <b>Flooding from Rivers or Sea without Defences</b><br>Environment Agency - Head Office                               | August 2017  | Quarterly      |
| <b>Areas Benefiting from Flood Defences</b><br>Environment Agency - Head Office                                       | August 2017  | Quarterly      |
| <b>Flood Water Storage Areas</b><br>Environment Agency - Head Office  | August 2017  | Quarterly      |
| <b>Flood Defences</b><br>Environment Agency - Head Office   | August 2017  | Quarterly      |
| <b>OS Water Network Lines</b><br>Ordnance Survey  | April 2017   | 6 Weekly       |
| <b>Surface Water 1 in 30 year Flood Extent</b><br>Environment Agency - Head Office                                    | October 2013 | As notified    |
| <b>Surface Water 1 in 100 year Flood Extent</b><br>Environment Agency - Head Office                                   | October 2013 | As notified    |
| <b>Surface Water 1 in 1000 year Flood Extent</b><br>Environment Agency - Head Office                                  | October 2013 | As notified    |
| <b>Surface Water Suitability</b><br>Environment Agency - Head Office  | October 2013 | As notified    |
| <b>BGS Groundwater Flooding Susceptibility</b><br>British Geological Survey - National Geoscience Information Service | May 2013     | Annually       |

| Waste   | Version   | Update Cycle   |
|---|---|--|
| <b>BGS Recorded Landfill Sites</b><br>British Geological Survey - National Geoscience Information Service   | June 1996   | Not Applicable   |
| <b>Historical Landfill Sites</b><br>Environment Agency - Head Office  | May 2017  | Quarterly  |
| <b>Integrated Pollution Control Registered Waste Sites</b><br>Environment Agency - North West Region  | October 2008                                      | Not Applicable   |
| <b>Licensed Waste Management Facilities (Landfill Boundaries)</b><br>Environment Agency - North West Region - South Area  | May 2017  | Quarterly  |
| <b>Licensed Waste Management Facilities (Locations)</b><br>Environment Agency - North West Region - South Area  | May 2017  | Quarterly  |
| <b>Local Authority Landfill Coverage</b><br>Cheshire County Council (now part of Cheshire East Council) - Environmental Planning Department<br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department       | May 2000<br>May 2000<br>May 2000<br>May 2000      | Not Applicable<br>Not Applicable<br>Not Applicable<br>Not Applicable |
| <b>Local Authority Recorded Landfill Sites</b><br>Cheshire County Council (now part of Cheshire East Council) - Environmental Planning Department<br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department | February 2005<br>May 2000<br>May 2000<br>May 2000 | Not Applicable<br>Not Applicable<br>Not Applicable<br>Not Applicable |
| <b>Potentially Infilled Land (Non-Water)</b><br>Landmark Information Group Limited  | December 1999                                     | Not Applicable   |
| <b>Potentially Infilled Land (Water)</b><br>Landmark Information Group Limited  | December 1999                                     | Not Applicable   |
| <b>Registered Landfill Sites</b><br>Environment Agency - North West Region - South Area   | March 2003  | Not Applicable   |
| <b>Registered Waste Transfer Sites</b><br>Environment Agency - North West Region - South Area   | March 2003  | Not Applicable   |
| <b>Registered Waste Treatment or Disposal Sites</b><br>Environment Agency - North West Region - South Area  | March 2003  | Not Applicable   |

| Hazardous Substances   | Version   | Update Cycle   |
|--|---|--|
| <b>Control of Major Accident Hazards Sites (COMAH)</b><br>Health and Safety Executive  | March 2017  | Bi-Annually  |
| <b>Explosive Sites</b><br>Health and Safety Executive  | March 2017  | Bi-Annually  |
| <b>Notification of Installations Handling Hazardous Substances (NIHHS)</b><br>Health and Safety Executive  | November 2000   | Not Applicable   |
| <b>Planning Hazardous Substance Enforcements</b><br>Cheshire West and Chester Council - Planning Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Macclesfield Borough Council (now part of Cheshire East Council) - Planning Department<br>Cheshire East Council - Planning Department<br>Cheshire County Council (now part of Cheshire East Council) - Planning Department<br>Warrington Borough Council - Environmental and Regeneration | April 2016<br>August 2009<br>December 2008<br>February 2016<br>July 2008<br>June 2016 | Annually<br>Not Applicable<br>Not Applicable<br>Annually<br>Annual Rolling Update<br>Annual Rolling Update |
| <b>Planning Hazardous Substance Consents</b><br>Cheshire West and Chester Council - Planning Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Macclesfield Borough Council (now part of Cheshire East Council) - Planning Department<br>Cheshire East Council - Planning Department<br>Cheshire County Council (now part of Cheshire East Council) - Planning Department<br>Warrington Borough Council - Environmental and Regeneration     | April 2016<br>August 2009<br>December 2008<br>February 2016<br>July 2008<br>June 2016 | Annually<br>Not Applicable<br>Not Applicable<br>Annually<br>Annual Rolling Update<br>Annual Rolling Update |
| Geological   | Version   | Update Cycle   |
| <b>BGS 1:625,000 Solid Geology</b><br>British Geological Survey - National Geoscience Information Service  | January 2009  | Not Applicable   |
| <b>BGS Estimated Soil Chemistry</b><br>British Geological Survey - National Geoscience Information Service   | October 2015  | As notified  |
| <b>BGS Recorded Mineral Sites</b><br>British Geological Survey - National Geoscience Information Service   | April 2017  | Bi-Annually  |
| <b>CBSCB Compensation District</b><br>Cheshire Brine Subsidence Compensation Board (CBSCB)   | August 2011   | Not Applicable   |
| <b>Coal Mining Affected Areas</b><br>The Coal Authority - Property Searches  | March 2014  | As notified  |
| <b>Mining Instability</b><br>Ove Arup & Partners   | October 2000  | Not Applicable   |
| <b>Non Coal Mining Areas of Great Britain</b><br>British Geological Survey - National Geoscience Information Service   | May 2015  | Not Applicable   |
| <b>Potential for Collapsible Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service   | June 2015   | Annually   |
| <b>Potential for Compressible Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service  | June 2015   | Annually   |
| <b>Potential for Ground Dissolution Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service   | June 2015   | Annually   |
| <b>Potential for Landslide Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service   | June 2015   | Annually   |
| <b>Potential for Running Sand Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service  | June 2015   | Annually   |
| <b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service  | June 2015   | Annually   |
| <b>Radon Potential - Radon Affected Areas</b><br>British Geological Survey - National Geoscience Information Service   | July 2011   | As notified  |
| <b>Radon Potential - Radon Protection Measures</b><br>British Geological Survey - National Geoscience Information Service  | July 2011   | As notified  |

| Industrial Land Use  | Version       | Update Cycle |
|--|---------------|--------------|
| <b>Contemporary Trade Directory Entries</b><br>Thomson Directories   | June 2017     | Quarterly    |
| <b>Fuel Station Entries</b><br>Catalist Ltd - Experian               | May 2017      | Quarterly    |
| <b>Gas Pipelines</b><br>National Grid                                | July 2014     | Quarterly    |
| <b>Points of Interest - Commercial Services</b><br>PointX            | December 2016 | Quarterly    |
| <b>Points of Interest - Education and Health</b><br>PointX           | December 2016 | Quarterly    |
| <b>Points of Interest - Manufacturing and Production</b><br>PointX   | December 2016 | Quarterly    |
| <b>Points of Interest - Public Infrastructure</b><br>PointX          | December 2016 | Quarterly    |
| <b>Points of Interest - Recreational and Environmental</b><br>PointX | December 2016 | Quarterly    |
| <b>Underground Electrical Cables</b><br>National Grid                | December 2015 | Bi-Annually  |

| Sensitive Land Use  | Version                                      | Update Cycle   |
|---|--|--|
| <b>Ancient Woodland</b><br>Natural England  | May 2017                                     | Bi-Annually  |
| <b>Areas of Adopted Green Belt</b><br>Macclesfield Borough Council (now part of Cheshire East Council)<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Warrington Borough Council  | May 2017<br>May 2017<br>May 2017             | As notified<br>As notified<br>As notified                |
| <b>Areas of Unadopted Green Belt</b><br>Cheshire East Council - Planning Department<br>Macclesfield Borough Council (now part of Cheshire East Council)<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Warrington Borough Council | May 2017<br>May 2017<br>May 2017<br>May 2017 | As notified<br>As notified<br>As notified<br>As notified |
| <b>Areas of Outstanding Natural Beauty</b><br>Natural England   | January 2017                                 | Bi-Annually  |
| <b>Environmentally Sensitive Areas</b><br>Natural England   | January 2017                                 | Annually   |
| <b>Forest Parks</b><br>Forestry Commission  | April 1997                                   | Not Applicable   |
| <b>Local Nature Reserves</b><br>Natural England   | June 2017                                    | Bi-Annually  |
| <b>Marine Nature Reserves</b><br>Natural England  | January 2017                                 | Bi-Annually  |
| <b>National Nature Reserves</b><br>Natural England  | January 2017                                 | Bi-Annually  |
| <b>National Parks</b><br>Natural England  | February 2017                                | Bi-Annually  |
| <b>Nitrate Vulnerable Zones</b><br>Environment Agency - Head Office<br>Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)   | June 2017<br>October 2015                    | Bi-Annually<br>Annually                                  |
| <b>Ramsar Sites</b><br>Natural England  | January 2017                                 | Bi-Annually  |
| <b>Sites of Special Scientific Interest</b><br>Natural England  | January 2017                                 | Bi-Annually  |
| <b>Special Areas of Conservation</b><br>Natural England   | January 2017                                 | Bi-Annually  |
| <b>Special Protection Areas</b><br>Natural England  | January 2017                                 | Bi-Annually  |

A selection of organisations who provide data within this report

| Data Supplier                          | Data Supplier Logo  |
|--|---|
| Ordnance Survey                        |    |
| Environment Agency                     |    |
| Scottish Environment Protection Agency |    |
| The Coal Authority                     |    |
| British Geological Survey              |  <b>British Geological Survey</b><br>NATURAL ENVIRONMENT RESEARCH COUNCIL          |
| Centre for Ecology and Hydrology       |  <b>Centre for Ecology &amp; Hydrology</b><br>NATURAL ENVIRONMENT RESEARCH COUNCIL |
| Natural Resources Wales                |   |
| Scottish Natural Heritage              |    |
| Natural England                        |    |
| Public Health England                  |    |
| Ove Arup                               |    |
| Peter Brett Associates                 |    |

| Contact | Name and Address   | Contact Details  |
|---------|--|--|
| 1       | <b>British Geological Survey - Enquiry Service</b><br>British Geological Survey, Kingsley Dunham Centre, Keyworth,<br>Nottingham, Nottinghamshire, NG12 5GG            | Telephone: 0115 936 3143<br>Fax: 0115 936 3276<br>Email: enquiries@bgs.ac.uk<br>Website: www.bgs.ac.uk                   |
| 2       | <b>Environment Agency - National Customer Contact Centre (NCCC)</b><br>PO Box 544, Templeborough, Rotherham, S60 1BY   | Telephone: 03708 506 506<br>Email: enquiries@environment-agency.gov.uk   |
| 3       | <b>Warrington Borough Council - Environmental Health Department</b><br>Technical Services, Palmyra House, Palmyra Square North, North<br>Warrington, Cheshire, WA1 1JN | Telephone: 01925 444400<br>Fax: 01925 442024<br>Website: www.warrington.gov.uk   |
| 4       | <b>Ordnance Survey</b><br>Adanac Drive, Southampton, Hampshire, SO16 0AS   | Telephone: 023 8079 2000<br>Email: customerservices@ordnancesurvey.co.uk<br>Website: www.ordnancesurvey.gov.uk           |
| 5       | <b>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department</b><br>Westfields, Middlewich Road, Sandbach, Cheshire, CW11 1HZ | Telephone: 0300 123 55 00<br>Website: www.cheshireeast.gov.uk  |
| 6       | <b>Cheshire County Council (now part of Cheshire East Council) - Environmental Planning Department</b><br>Westfields, Middlewich Road, Sandbach, Cheshire, CW11 1HZ    | Telephone: 0300 123 5015<br>Website: www.cheshireeast.gov.uk   |
| 7       | <b>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department</b><br>58 Nicholas Street, Chester, Cheshire, CH1 2NP  | Telephone: 0300 123 8123<br>Email: enquiries@cheshirewestandchester.gov.uk<br>Website: www.cheshirewestandchester.gov.uk |
| 8       | <b>Health and Safety Executive</b><br>5S.2 Redgrave Court, Merton Road, Bootle, L20 7HS  | Website: www.hse.gov.uk  |
| 9       | <b>Warrington Borough Council - Environmental and Regeneration</b><br>2nd Floor, New Town House, Buttermarket Street, WARRINGTON,<br>Cheshire, WA1 2NH                 | Telephone: 01925 442503<br>Fax: 01925 442024<br>Website: www.warrington.gov.uk   |
| 10      | <b>Cheshire Brine Subsidence Compensation Board (CBSCB)</b><br>Sir Henry Doulton House, Forge Lane, Etruria, Stoke on Trent,<br>Staffordshire, ST1 5BD                 | Telephone: 0845 002 0562<br>Fax: 0845 111 8888<br>Email: info@cheshirebrine.com<br>Website: www.cheshirebrine.com        |
| 11      | <b>PointX</b><br>7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY  | Website: www.pointx.co.uk  |
| 12      | <b>Natural England</b><br>County Hall, Spetchley Road, Worcester, WR5 2NP  | Telephone: 0300 060 3900<br>Email: enquiries@naturalengland.org.uk<br>Website: www.naturalengland.org.uk                 |
| 13      | <b>Macclesfield Borough Council (now part of Cheshire East Council)</b><br>Westfields, Middlewich Road, Sandbach, Cheshire, CW11 1HZ                                   | Telephone: 0300 123 55 00<br>Website: www.cheshireeast.gov.uk  |
| 14      | <b>Warrington Borough Council</b><br>Town Hall, Warrington, Cheshire, WA1 1UH  | Telephone: 01925 442140<br>Fax: 01925 442024<br>Website: www.warrington.gov.uk   |

| Contact | Name and Address  | Contact Details   |
|---------|---|---|
| 15      | <b>Vale Royal Borough Council (now part of Cheshire West and Chester Council)</b><br>58 Nicholas Street, Chester, Cheshire, CH1 2NP             | Telephone: 0300 1238123<br>Email: enquiries@cheshirewestandchester.gov.uk<br>Website: www.cheshirewestandchester.gov.uk         |
| 16      | <b>Cheshire East Council - Planning Department</b><br>Westfields, Middlewich Road, Sandbach, Cheshire, CW11 1HZ                                 | Telephone: 0300 123 5500<br>Email: info@cheshireeast.gov.uk<br>Website: www.cheshireeast.gov.uk                                 |
| 17      | <b>Environment Agency - Head Office</b><br>Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD                         | Telephone: 01454 624400<br>Fax: 01454 624409  |
| -       | <b>Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards</b><br>Chilton, Didcot, Oxfordshire, OX11 0RQ | Telephone: 01235 822622<br>Fax: 01235 833891<br>Email: radon@phe.gov.uk<br>Website: www.ukradon.org                             |
| -       | <b>Landmark Information Group Limited</b><br>Imperium, Imperial Way, Reading, Berkshire, RG2 0TD  | Telephone: 0844 844 9952<br>Fax: 0844 844 9951<br>Email: customerservices@landmarkinfo.co.uk<br>Website: www.landmarkinfo.co.uk |

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



## Envirocheck<sup>®</sup> Report:

### Datasheet

#### Order Details:

**Order Number:**

135773225\_1\_1

**Customer Reference:**

1015524 - Warrington Interchange MP

**National Grid Reference:**

366500, 384120

**Slice:**

B

**Site Area (Ha):**

93.66

**Search Buffer (m):**

1000

#### Site Details:

Warrington Interchange Masterplan

WARRINGTON

WA4 4SR

#### Client Details:

Mr J Allen

Cundall

Partnership House

4th Floor

Regents Farm Road, Gosforth

Newcastle Upon Tyne

NE3 3AF

| Report Section        | Page Number |
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| Summary               | -           |
| Agency & Hydrological | 1           |
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| Hazardous Substances  | -           |
| Geological            | 16          |
| Industrial Land Use   | 18          |
| Sensitive Land Use    | 22          |
| Data Currency         | 23          |
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| Useful Contacts       | 30          |

### Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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### Report Version v53.0

| Data Type   | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|---|-------------|---------|-----------|-------------|-----------------------------|
| <b>Agency &amp; Hydrological</b>                              |             |         |           |             |                             |
| BGS Groundwater Flooding Susceptibility                       | pg 1        | Yes     | Yes       | Yes         | n/a                         |
| Contaminated Land Register Entries and Notices                |             |         |           |             |                             |
| Discharge Consents  | pg 3        |         |           | 2           | 4                           |
| Prosecutions Relating to Controlled Waters                    |             |         | n/a       | n/a         | n/a                         |
| Enforcement and Prohibition Notices                           |             |         |           |             |                             |
| Integrated Pollution Controls                                 |             |         |           |             |                             |
| Integrated Pollution Prevention And Control                   |             |         |           |             |                             |
| Local Authority Integrated Pollution Prevention And Control   |             |         |           |             |                             |
| Local Authority Pollution Prevention and Controls             | pg 4        |         | 1         |             |                             |
| Local Authority Pollution Prevention and Control Enforcements |             |         |           |             |                             |
| Nearest Surface Water Feature                                 | pg 4        | Yes     |           |             |                             |
| Pollution Incidents to Controlled Waters                      | pg 4        |         |           | 1           | 3                           |
| Prosecutions Relating to Authorised Processes                 |             |         |           |             |                             |
| Registered Radioactive Substances                             |             |         |           |             |                             |
| River Quality   |             |         |           |             |                             |
| River Quality Biology Sampling Points                         |             |         |           |             |                             |
| Substantiated Pollution Incident Register                     | pg 5        |         |           | 1           |                             |
| River Quality Chemistry Sampling Points                       |             |         |           |             |                             |
| Water Abstractions  | pg 5        |         |           | 1           |                             |
| Water Industry Act Referrals                                  |             |         |           |             |                             |
| Groundwater Vulnerability                                     | pg 5        | Yes     | n/a       | n/a         | n/a                         |
| Drift Deposits  |             |         | n/a       | n/a         | n/a                         |
| Bedrock Aquifer Designations                                  | pg 5        | Yes     | n/a       | n/a         | n/a                         |
| Superficial Aquifer Designations                              | pg 5        | Yes     | n/a       | n/a         | n/a                         |
| Source Protection Zones                                       |             |         |           |             |                             |
| Extreme Flooding from Rivers or Sea without Defences          |             |         |           | n/a         | n/a                         |
| Flooding from Rivers or Sea without Defences                  |             |         |           | n/a         | n/a                         |
| Areas Benefiting from Flood Defences                          |             |         |           | n/a         | n/a                         |
| Flood Water Storage Areas                                     |             |         |           | n/a         | n/a                         |
| Flood Defences  |             |         |           | n/a         | n/a                         |
| OS Water Network Lines  | pg 6        | 18      | 5         | 12          | 18                          |

| Data Type   | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|---|-------------|---------|-----------|-------------|-----------------------------|
| <b>Waste</b>  |             |         |           |             |                             |
| BGS Recorded Landfill Sites   |             |         |           |             |                             |
| Historical Landfill Sites   |             |         |           |             |                             |
| Integrated Pollution Control Registered Waste Sites                 |             |         |           |             |                             |
| Licensed Waste Management Facilities (Landfill Boundaries)          |             |         |           |             |                             |
| Licensed Waste Management Facilities (Locations)                    |             |         |           |             |                             |
| Local Authority Landfill Coverage                                   | pg 13       | 3       | n/a       | n/a         | n/a                         |
| Local Authority Recorded Landfill Sites                             |             |         |           |             |                             |
| Potentially Infilled Land (Non-Water)                               |             |         |           |             |                             |
| Potentially Infilled Land (Water)                                   | pg 13       | 1       | 7         | 10          | 28                          |
| Registered Landfill Sites   |             |         |           |             |                             |
| Registered Waste Transfer Sites                                     |             |         |           |             |                             |
| Registered Waste Treatment or Disposal Sites                        |             |         |           |             |                             |
| <b>Hazardous Substances</b>   |             |         |           |             |                             |
| Control of Major Accident Hazards Sites (COMAH)                     |             |         |           |             |                             |
| Explosive Sites   |             |         |           |             |                             |
| Notification of Installations Handling Hazardous Substances (NIHHS) |             |         |           |             |                             |
| Planning Hazardous Substance Consents                               |             |         |           |             |                             |
| Planning Hazardous Substance Enforcements                           |             |         |           |             |                             |

| Data Type   | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|---|-------------|---------|-----------|-------------|-----------------------------|
| <b>Geological</b>   |             |         |           |             |                             |
| BGS 1:625,000 Solid Geology                                       | pg 16       | Yes     | n/a       | n/a         | n/a                         |
| BGS Estimated Soil Chemistry                                      | pg 16       | Yes     |           |             |                             |
| BGS Recorded Mineral Sites  |             |         |           |             |                             |
| BGS Urban Soil Chemistry  |             |         |           |             |                             |
| BGS Urban Soil Chemistry Averages                                 |             |         |           |             |                             |
| CBSCB Compensation District                                       | pg 16       | Yes     | n/a       | n/a         | n/a                         |
| Coal Mining Affected Areas  |             |         | n/a       | n/a         | n/a                         |
| Mining Instability  |             |         | n/a       | n/a         | n/a                         |
| Man-Made Mining Cavities  |             |         |           |             |                             |
| Natural Cavities  |             |         |           |             |                             |
| Non Coal Mining Areas of Great Britain                            |             |         |           | n/a         | n/a                         |
| Potential for Collapsible Ground Stability Hazards                | pg 16       | Yes     | Yes       | n/a         | n/a                         |
| Potential for Compressible Ground Stability Hazards               |             |         |           | n/a         | n/a                         |
| Potential for Ground Dissolution Stability Hazards                |             |         |           | n/a         | n/a                         |
| Potential for Landslide Ground Stability Hazards                  | pg 16       | Yes     | Yes       | n/a         | n/a                         |
| Potential for Running Sand Ground Stability Hazards               | pg 17       | Yes     | Yes       | n/a         | n/a                         |
| Potential for Shrinking or Swelling Clay Ground Stability Hazards | pg 17       | Yes     | Yes       | n/a         | n/a                         |
| Radon Potential - Radon Affected Areas                            |             |         | n/a       | n/a         | n/a                         |
| Radon Potential - Radon Protection Measures                       |             |         | n/a       | n/a         | n/a                         |
| <b>Industrial Land Use</b>  |             |         |           |             |                             |
| Contemporary Trade Directory Entries                              | pg 18       |         | 1         | 17          | 3                           |
| Fuel Station Entries  | pg 19       |         | 2         |             |                             |
| Points of Interest - Commercial Services                          | pg 20       |         | 2         | 8           |                             |
| Points of Interest - Education and Health                         |             |         |           |             |                             |
| Points of Interest - Manufacturing and Production                 | pg 20       |         |           | 1           |                             |
| Points of Interest - Public Infrastructure                        | pg 20       |         | 3         | 1           |                             |
| Points of Interest - Recreational and Environmental               |             |         |           |             |                             |
| Gas Pipelines   |             |         |           |             |                             |
| Underground Electrical Cables                                     |             |         |           |             |                             |

| Data Type                            | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|--------------------------------------|-------------|---------|-----------|-------------|-----------------------------|
| <b>Sensitive Land Use</b>            |             |         |           |             |                             |
| Ancient Woodland                     |             |         |           |             |                             |
| Areas of Adopted Green Belt          | pg 22       | 2       |           |             | 1                           |
| Areas of Unadopted Green Belt        | pg 22       | 1       |           |             |                             |
| Areas of Outstanding Natural Beauty  |             |         |           |             |                             |
| Environmentally Sensitive Areas      |             |         |           |             |                             |
| Forest Parks                         |             |         |           |             |                             |
| Local Nature Reserves                |             |         |           |             |                             |
| Marine Nature Reserves               |             |         |           |             |                             |
| National Nature Reserves             |             |         |           |             |                             |
| National Parks                       |             |         |           |             |                             |
| Nitrate Sensitive Areas              |             |         |           |             |                             |
| Nitrate Vulnerable Zones             | pg 22       |         |           | 1           |                             |
| Ramsar Sites                         |             |         |           |             |                             |
| Sites of Special Scientific Interest |             |         |           |             |                             |
| Special Areas of Conservation        |             |         |           |             |                             |
| Special Protection Areas             |             |         |           |             |                             |
| World Heritage Sites                 |             |         |           |             |                             |

| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|---|--|------------------------------|---------|------------------|
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B9NW (NW)                              | 0                            | 1       | 366100<br>384400 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B13SW (NW)                             | 0                            | 1       | 366100<br>384750 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur                        | (NW)                                   | 0                            | 1       | 365650<br>384600 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B9NE (NW)                              | 0                            | 1       | 366450<br>384150 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B13NW (NW)                             | 0                            | 1       | 365950<br>384950 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NW)                                   | 0                            | 1       | 365750<br>384450 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur                        | B13NW (NW)                             | 0                            | 1       | 366100<br>384850 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B13NW (NW)                             | 5                            | 1       | 366000<br>385050 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B13NW (NW)                             | 17                           | 1       | 365950<br>385000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B13SE (N)                              | 25                           | 1       | 366350<br>384500 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface                     | (N)                                    | 55                           | 1       | 366200<br>385150 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B9SE (SW)                              | 60                           | 1       | 366300<br>383950 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (W)                                    | 62                           | 1       | 365700<br>383900 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NW)                                   | 75                           | 1       | 365700<br>385000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NW)                                   | 88                           | 1       | 365400<br>384950 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B14SW (N)                              | 96                           | 1       | 366650<br>384750 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NW)                                   | 98                           | 1       | 365400<br>384900 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NW)                                   | 107                          | 1       | 365500<br>384950 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B13NE (N)                              | 115                          | 1       | 366350<br>384850 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B9SE (SW)                              | 121                          | 1       | 366350<br>384000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B9SE (S)                               | 148                          | 1       | 366502<br>383900 |

| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|---|--|------------------------------|---------|------------------|
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B9SE (SW)                              | 160                          | 1       | 366450<br>384050 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B13SE (N)                              | 181                          | 1       | 366500<br>384550 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B13NE (N)                              | 182                          | 1       | 366502<br>384900 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B9SE (S)                               | 202                          | 1       | 366500<br>384050 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (N)                                    | 220                          | 1       | 366150<br>385150 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B13SE (N)                              | 220                          | 1       | 366502<br>384500 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B10NW (N)                              | 244                          | 1       | 366550<br>384350 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (W)                                    | 246                          | 1       | 365600<br>383850 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (N)                                    | 266                          | 1       | 366250<br>385150 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B10SW (SE)                             | 266                          | 1       | 366550<br>384100 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur                        | B14NW (N)                              | 288                          | 1       | 366550<br>385050 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (N)                                    | 308                          | 1       | 366250<br>385200 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (N)                                    | 334                          | 1       | 366300<br>385200 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur                        | (W)                                    | 346                          | 1       | 365400<br>383800 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur                        | B10NW (E)                              | 348                          | 1       | 366650<br>384121 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (NW)                                   | 377                          | 1       | 365800<br>385450 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B10SW (SE)                             | 382                          | 1       | 366600<br>383950 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B10NW (E)                              | 391                          | 1       | 366700<br>384150 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | (N)                                    | 400                          | 1       | 366400<br>385250 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B14NW (N)                              | 406                          | 1       | 366550<br>385000 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level | B14SW (NE)                             | 414                          | 1       | 366700<br>384500 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur                        | B10SW (SE)                             | 425                          | 1       | 366650<br>383950 |



| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface  | (SW)                                   | 450                          | 1       | 365650<br>383600 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface  | (SW)                                   | 452                          | 1       | 365600<br>383650 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Potential for Groundwater Flooding to Occur at Surface  | B14SW (N)                              | 469                          | 1       | 366700<br>384750 |
|        | <b>BGS Groundwater Flooding Susceptibility</b><br>Flooding Type: Limited Potential for Groundwater Flooding to Occur   | B10NW (E)                              | 491                          | 1       | 366800<br>384150 |
| 1      | <b>Discharge Consents</b><br>Operator: Beck & Pollitzer<br>Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES)<br>Location: Office Block Adj Swineyard Lane, High Legh, Cheshire<br>Authority: Environment Agency, North West Region<br>Catchment Area: Not Given<br>Reference: 016891620<br>Permit Version: 1<br>Effective Date: 5th July 1991<br>Issued Date: Not Supplied<br>Revocation Date: 1st October 1996<br>Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br>Discharge: Freshwater Stream/River<br>Environment:<br>Receiving Water: Bradley Brook<br><b>Status: Lapsed (under Environment Act 1995, Schedule 23)</b><br>Positional Accuracy: Located by supplier to within 100m   | B14SW (N)                              | 317                          | 2       | 366600<br>384500 |
| 2      | <b>Discharge Consents</b><br>Operator: Mathew Sutton<br>Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE)<br>Location: Swinyard Farm, High Legh, Knutsford, Cheshire, Wa16 0sd<br>Authority: Environment Agency, North West Region<br>Catchment Area: River Mersey (Etherow)<br>Reference: 016892368<br>Permit Version: 1<br>Effective Date: 21st March 2005<br>Issued Date: 16th March 2005<br>Revocation Date: Not Supplied<br>Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br>Discharge: Onto Land/Into Watercourse<br>Environment:<br>Receiving Water: Wet Running Ditch<br><b>Status: New Consent (Water Resources Act 1991, Section 88 &amp; Schedule 10 as amended by Environment Act 1995)</b><br>Positional Accuracy: Located by supplier to within 10m | B5NE (S)                               | 438                          | 2       | 366380<br>383650 |
| 3      | <b>Discharge Consents</b><br>Operator: D A Dickinson Esquire<br>Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES)<br>Location: Badgers Croft (Barn A) Intack Lane, High Legh, Knutsford, Cheshire<br>Authority: Environment Agency, North West Region<br>Catchment Area: Not Given<br>Reference: 016891794<br>Permit Version: 1<br>Effective Date: 28th September 1995<br>Issued Date: Not Supplied<br>Revocation Date: Not Supplied<br>Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br>Discharge: Freshwater Stream/River<br>Environment:<br>Receiving Water: Trib Crowley Brook<br><b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b><br>Positional Accuracy: Located by supplier to within 100m                | B5NE (S)                               | 521                          | 2       | 366450<br>383600 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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| 4      | <p><b>Discharge Consents</b></p> <p>Operator: Cortech Developments Limited<br/> Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE)<br/> Location: Brook House Farm Withers Lane, High Legh, Knutsford, Cheshire, Wa16 0sg<br/> Authority: Environment Agency, North West Region<br/> Catchment Area: River Mersey (Etherow)<br/> Reference: Npswqd008246<br/> Permit Version: 1<br/> Effective Date: 19th June 2009<br/> Issued Date: 19th June 2009<br/> Revocation Date: Not Supplied<br/> Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br/> Discharge: Freshwater Stream/River<br/> Environment:<br/> Receiving Water: Ditch Ldng To Bradley Brook<br/> <b>Status:</b> <b>New Consent (Water Resources Act 1991, Section 88 &amp; Schedule 10 as amended by Environment Act 1995)</b><br/> Positional Accuracy: Located by supplier to within 10m</p>    | B14SE (NE)                             | 635                          | 2       | 366921<br>384517 |
| 5      | <p><b>Discharge Consents</b></p> <p>Operator: Gareth Clarke &amp; David Clarke<br/> Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES)<br/> Location: Unit 1 &amp; 2, Holly Farm, Withers Farm, High Legh, Wa16 0sg<br/> Authority: Environment Agency, North West Region<br/> Catchment Area: River Mersey (Etherow)<br/> Reference: 016892409<br/> Permit Version: 1<br/> Effective Date: 17th October 2005<br/> Issued Date: 17th October 2005<br/> Revocation Date: Not Supplied<br/> Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br/> Discharge: Freshwater Stream/River<br/> Environment:<br/> Receiving Water: Culvert Leading To Bradley Brk<br/> <b>Status:</b> <b>New Consent (Water Resources Act 1991, Section 88 &amp; Schedule 10 as amended by Environment Act 1995)</b><br/> Positional Accuracy: Located by supplier to within 10m</p> | B15SW (NE)                             | 937                          | 2       | 367220<br>384560 |
| 6      | <p><b>Discharge Consents</b></p> <p>Operator: Mr Peter Westwood<br/> Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES)<br/> Location: Fern Bank Stp Fanners Lane, High Legh, Knutsford, Cheshire<br/> Authority: Environment Agency, North West Region<br/> Catchment Area: Not Given<br/> Reference: 016990540<br/> Permit Version: 1<br/> Effective Date: 28th November 1984<br/> Issued Date: Not Supplied<br/> Revocation Date: Not Supplied<br/> Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company<br/> Discharge: Freshwater Stream/River<br/> Environment:<br/> Receiving Water: Trib Bradley Brook<br/> <b>Status:</b> <b>Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b><br/> Positional Accuracy: Located by supplier to within 100m</p>  | B11SW (E)                              | 972                          | 2       | 367270<br>384070 |
| 7      | <p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Total Convenience Store Poplar<br/> Location: Cliffe Lane, WARRINGTON, Cheshire, WA13 0TE<br/> Authority: Warrington Borough Council, Environmental Health Department<br/> Permit Reference: Ep98/14<br/> Dated: 24th December 1998<br/> Process Type: Local Authority Pollution Prevention and Control<br/> Description: PG1/14 Petrol filling station<br/> <b>Status:</b> <b>Permitted</b><br/> Positional Accuracy: Manually positioned to the address or location</p>   | B13NE (N)                              | 192                          | 3       | 366385<br>384851 |
|        | <p><b>Nearest Surface Water Feature</b></p>  | B9NW (W)                               | 0                            | -       | 366116<br>384195 |
| 8      | <p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Farm Drainage<br/> Location: Cheshire<br/> Authority: Environment Agency, North West Region<br/> Pollutant: Organic Wastes: Pig Slurry<br/> Note: Bradley Brook; Slurry<br/> Incident Date: 1st March 1996<br/> Incident Reference: 96710386<br/> Catchment Area: Manchester Ship Canal<br/> Receiving Water: Not Given<br/> Cause of Incident: Not Given<br/> Incident Severity: Category 2 - Significant Incident<br/> Positional Accuracy: Located by supplier to within 100m</p>  | B5NE (S)                               | 412                          | 2       | 366400<br>383700 |

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| 9      | <b>Pollution Incidents to Controlled Waters</b><br>Property Type: Not Given<br>Location: Below Services , Jun 21; M6<br>Authority: Environment Agency, North West Region<br>Pollutant: Oils - Diesel (Including Agricultural)<br>Note: Diesel In Bradley Brook<br>Incident Date: 24th September 1998<br>Incident Reference: SO981720<br>Catchment Area: Mersey - Tidal<br>Receiving Water: Freshwater Stream/River<br>Cause of Incident: Unknown<br>Incident Severity: Category 3 - Minor Incident<br>Positional Accuracy: Located by supplier to within 100m  | B14NW (NE)                             | 579                          | 2       | 366800<br>384800 |
| 10     | <b>Pollution Incidents to Controlled Waters</b><br>Property Type: Wholesale & Retail Trade: Garages & Vehicle Sales<br>Location: Bradley Brook, Rear of Redbank, Clifton Lane, LYMM, Cheshire<br>Authority: Environment Agency, North West Region<br>Pollutant: Organic Chemicals : Diesel Fuels<br>Note: Not Supplied<br>Incident Date: 29th October 1999<br>Incident Reference: 33633<br>Catchment Area: Bridgewater Canal<br>Receiving Water: Canal<br>Cause of Incident: Plant / Machinery Failure : Pump / Machine Failure / Breakdown<br>Incident Severity: Category 3 - Minor Incident<br>Positional Accuracy: Located by supplier to within 10m              | B14NE (NE)                             | 701                          | 2       | 366900<br>384900 |
| 11     | <b>Pollution Incidents to Controlled Waters</b><br>Property Type: Pollution Found Source Not Determined<br>Location: Location Description Not Available<br>Authority: Environment Agency, North West Region<br>Pollutant: Oils - Diesel (Including Agricultural)<br>Note: Bradley Brook<br>Incident Date: 6th September 1995<br>Incident Reference: 95712261<br>Catchment Area: Manchester Ship Canal<br>Receiving Water: Not Given<br>Cause of Incident: Other Incident/Unknown<br>Incident Severity: Category 3 - Minor Incident<br>Positional Accuracy: Located by supplier to within 100m  | B14NE (NE)                             | 895                          | 2       | 367100<br>384900 |
| 12     | <b>Substantiated Pollution Incident Register</b><br>Authority: Environment Agency - North West Region, South Area<br>Incident Date: 30th September 2003<br>Incident Reference: 193389<br>Water Impact: Category 2 - Significant Incident<br>Air Impact: Category 4 - No Impact<br>Land Impact: Category 4 - No Impact<br>Positional Accuracy: Located by supplier to within 10m<br>Pollutant: Agricultural Materials And Wastes: Other Agricultural Material Or Waste  | B14SW (N)                              | 373                          | 2       | 366647<br>384547 |
| 13     | <b>Water Abstractions</b><br>Operator: Lymm Truckwash Limited<br>Licence Number: 2569021023<br>Permit Version: 1<br>Location: Underground Strata: Mercia Mudstone<br>Authority: Environment Agency, North West Region<br>Abstraction: Transport: General Washing/Process Washing<br>Abstraction Type: Water may be abstracted from a single point<br>Source: Groundwater<br>Daily Rate (m3): Not Supplied<br>Yearly Rate (m3): Not Supplied<br>Details: Not Supplied<br>Authorised Start: 01 January<br>Authorised End: 31 December<br>Permit Start Date: 27th March 2002<br>Permit End Date: Not Supplied<br>Positional Accuracy: Located by supplier to within 10m | B14NW (N)                              | 417                          | 2       | 366630<br>384810 |
|        | <b>Groundwater Vulnerability</b><br>Soil Classification: Not classified<br>Map Sheet: Sheet 16 West Cheshire<br>Scale: 1:100,000   | B9NE (E)                               | 0                            | 2       | 366502<br>384121 |
|        | <b>Drift Deposits</b><br>None  |  |                              |         |                  |
|        | <b>Bedrock Aquifer Designations</b><br>Aquifer Designation: Secondary Aquifer - B  | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>Superficial Aquifer Designations</b><br>Aquifer Designation: Secondary Aquifer - Undifferentiated   | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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|        | <b>Extreme Flooding from Rivers or Sea without Defences</b><br>None  |  |                              |         |                  |
|        | <b>Flooding from Rivers or Sea without Defences</b><br>None  |  |                              |         |                  |
|        | <b>Areas Benefiting from Flood Defences</b><br>None  |  |                              |         |                  |
|        | <b>Flood Water Storage Areas</b><br>None   |  |                              |         |                  |
|        | <b>Flood Defences</b><br>None  |  |                              |         |                  |
| 14     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 221.8<br>Watercourse Level: Not Supplied<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1       | B9SW (W)                               | 0                            | 4       | 366185<br>384062 |
| 15     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 27.5<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1  | B9NE (NW)                              | 0                            | 4       | 366260<br>384247 |
| 16     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 54.6<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1  | B9NE (NW)                              | 0                            | 4       | 366313<br>384237 |
| 17     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 352.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B9SW (W)                               | 0                            | 4       | 365952<br>384091 |
| 18     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 105.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | B9SW (W)                               | 0                            | 4       | 366185<br>384062 |
| 19     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 156.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B9NW (W)                               | 0                            | 4       | 366096<br>384130 |
| 20     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 408.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | B9SW (W)                               | 0                            | 4       | 365952<br>384091 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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| 21     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 7.7<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1    | B9NW (W)                               | 0                            | 4       | 366100<br>384124 |
| 22     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 137.3<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B9NW (W)                               | 0                            | 4       | 366141<br>384159 |
| 23     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 8.0<br>Watercourse Level: Underground<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1         | B9NW (W)                               | 0                            | 4       | 366135<br>384173 |
| 24     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 5.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1   | B9NW (W)                               | 0                            | 4       | 366133<br>384182 |
| 25     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 3.9<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1   | B9NW (W)                               | 0                            | 4       | 366136<br>384189 |
| 26     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 1.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1    | B9NW (W)                               | 0                            | 4       | 366136<br>384189 |
| 27     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 8.7<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1            | B9NE (NW)                              | 0                            | 4       | 366194<br>384335 |
| 28     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 113.8<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | B9NE (NW)                              | 0                            | 4       | 366306<br>384315 |
| 29     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 21.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1           | B9NW (W)                               | 0                            | 4       | 366084<br>384214 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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| 30     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 58.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | B9NW (W)                               | 0                            | 4       | 366136<br>384190 |
| 31     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 137.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B9NE (W)                               | 0                            | 4       | 366232<br>384218 |
| 32     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 48.4<br>Watercourse Level: Underground<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1        | B9NE (NW)                              | 3                            | 4       | 366361<br>384229 |
| 33     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 220.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B9NE (NW)                              | 51                           | 4       | 366377<br>384235 |
| 34     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 78.0<br>Watercourse Level: Underground<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1        | B9NE (N)                               | 101                          | 4       | 366399<br>384401 |
| 35     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 154.3<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B9NE (N)                               | 177                          | 4       | 366471<br>384429 |
| 36     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 205.7<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | B9SE (SW)                              | 185                          | 4       | 366216<br>383843 |
| 37     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 28.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1  | B14SW (N)                              | 322                          | 4       | 366612<br>384463 |
| 38     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 40.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1           | B14SW (N)                              | 346                          | 4       | 366615<br>384561 |

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| 39     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 50.5<br>Watercourse Level: Not Supplied<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1       | B14SW (N)                              | 349                          | 4       | 366639<br>384468 |
| 40     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 1.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1   | B14SW (N)                              | 349                          | 4       | 366640<br>384467 |
| 41     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 6.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1    | B14SW (N)                              | 349                          | 4       | 366641<br>384465 |
| 42     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 71.0<br>Watercourse Level: Not Supplied<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1        | B10NW (NE)                             | 354                          | 4       | 366694<br>384412 |
| 43     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 139.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B14SW (N)                              | 361                          | 4       | 366641<br>384518 |
| 44     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 34.9<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | B14SW (N)                              | 362                          | 4       | 366624<br>384599 |
| 45     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 390.0<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B14SW (N)                              | 379                          | 4       | 366635<br>384631 |
| 46     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 286.7<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | B10NW (NE)                             | 395                          | 4       | 366721<br>384364 |
| 47     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 143.0<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | B5NE (S)                               | 434                          | 4       | 366517<br>383685 |

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| 48     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 48.3<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1    | B6NW (S)                               | 485                          | 4       | 366548<br>383698 |
| 49     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 119.3<br>Watercourse Level: Underground<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1         | B10NE (E)                              | 609                          | 4       | 366920<br>384261 |
| 50     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 107.0<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | B5SE (S)                               | 682                          | 4       | 366270<br>383276 |
| 51     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 160.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | B10NE (E)                              | 699                          | 4       | 367007<br>384180 |
| 52     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 182.3<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1   | B14SE (NE)                             | 699                          | 4       | 367027<br>384676 |
| 53     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 1099.6<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Bradley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B14NE (NE)                             | 701                          | 4       | 366923<br>384815 |
| 54     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 32.7<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1    | B5SE (S)                               | 707                          | 4       | 366455<br>383361 |
| 55     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 15.0<br>Watercourse Level: Underground<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1          | B5SE (S)                               | 709                          | 4       | 366465<br>383371 |
| 56     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 44.9<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1    | B5SE (S)                               | 709                          | 4       | 366504<br>383393 |



| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 57     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 16.9<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 0           | B6NW (SE)                              | 709                          | 4       | 366736<br>383602 |
| 58     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 48.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1           | B6SW (S)                               | 716                          | 4       | 366529<br>383404 |
| 59     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 5.3<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 0    | B6NW (SE)                              | 719                          | 4       | 366733<br>383586 |
| 60     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 9.8<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 0            | B6NW (SE)                              | 723                          | 4       | 366733<br>383580 |
| 61     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 176.1<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1  | B5SE (S)                               | 782                          | 4       | 366300<br>383180 |
| 62     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 994.0<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Crowley Brook<br>Catchment Name: Mersey<br>Primacy: 1 | B1NE (S)                               | 910                          | 4       | 366297<br>383009 |
| 63     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 10.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1           | B5SE (S)                               | 913                          | 4       | 366445<br>383107 |
| 64     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 16.9<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1           | B5SE (S)                               | 920                          | 4       | 366455<br>383104 |
| 65     | <b>OS Water Network Lines</b><br>Watercourse Form: Lake<br>Watercourse Length: 23.4<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1           | B5SE (S)                               | 920                          | 4       | 366455<br>383104 |

| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|---|--|------------------------------|---------|------------------|
| 66     | <b>OS Water Network Lines</b><br>Watercourse Form: Inland river<br>Watercourse Length: 257.2<br>Watercourse Level: On ground surface<br>Permanent: True<br>Watercourse Name: Not Supplied<br>Catchment Name: Mersey<br>Primacy: 1 | B6SW (S)                               | 942                          | 4       | 366715<br>383153 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
|        | <b>Local Authority Landfill Coverage</b><br>Name: Macclesfield Borough Council<br>- Has not been able to supply Landfill data          |  | 0                            | 5       | 366502<br>384121 |
|        | <b>Local Authority Landfill Coverage</b><br>Name: Warrington Unitary Council<br>- Has not been able to supply Landfill data            |  | 0                            | 3       | 366313<br>384287 |
|        | <b>Local Authority Landfill Coverage</b><br>Name: Cheshire County Council<br>- Has supplied landfill data                              |  | 0                            | 6       | 366502<br>384121 |
|        | <b>Local Authority Landfill Coverage</b><br>Name: Vale Royal Borough Council<br>- Has supplied landfill data                           |  | 911                          | 7       | 366912<br>383182 |
| 67     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B9SW<br>(W)                            | 0                            | -       | 365972<br>383935 |
| 68     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B9SE<br>(W)                            | 31                           | -       | 366277<br>384105 |
| 69     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B9SE<br>(SW)                           | 98                           | -       | 366202<br>383945 |
| 70     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B9SW<br>(SW)                           | 108                          | -       | 365992<br>383790 |
| 71     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B9SE<br>(W)                            | 112                          | -       | 366378<br>384105 |
| 72     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B9NE<br>(NW)                           | 126                          | -       | 366435<br>384207 |
| 73     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B9SW<br>(SW)                           | 129                          | -       | 365877<br>383826 |
| 74     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B5NW<br>(SW)                           | 141                          | -       | 366040<br>383766 |
| 75     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B5NW<br>(SW)                           | 256                          | -       | 365902<br>383657 |
| 76     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10NW<br>(NE)                          | 281                          | -       | 366592<br>384243 |
| 77     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | B10NW<br>(NE)                          | 287                          | -       | 366597<br>384222 |
| 78     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10NW<br>(E)                           | 289                          | -       | 366587<br>384139 |
| 79     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10SW<br>(S)                           | 315                          | -       | 366548<br>383993 |
| 80     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B5NE<br>(SW)                           | 362                          | -       | 366261<br>383651 |
| 81     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B5NW<br>(SW)                           | 372                          | -       | 366030<br>383528 |
| 82     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B10NW<br>(E)                           | 376                          | -       | 366681<br>384160 |
| 83     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10SW<br>(SE)                          | 407                          | -       | 366628<br>383949 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 84     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B10SW (SE)                             | 464                          | -       | 366695<br>383949 |
| 85     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10SW (SE)                             | 517                          | -       | 366775<br>383988 |
| 86     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B5NE (S)                               | 522                          | -       | 366377<br>383540 |
| 87     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10SW (SE)                             | 537                          | -       | 366777<br>383946 |
| 88     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B5NE (S)                               | 538                          | -       | 366311<br>383467 |
| 89     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10NW (NE)                             | 541                          | -       | 366848<br>384350 |
| 90     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B5SW (SW)                              | 554                          | -       | 366167<br>383373 |
| 91     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B6NW (S)                               | 558                          | -       | 366556<br>383644 |
| 92     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B5SW (SW)                              | 567                          | -       | 366130<br>383348 |
| 93     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B5NE (S)                               | 584                          | -       | 366415<br>383491 |
| 94     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | B5SW (SW)                              | 598                          | -       | 365854<br>383316 |
| 95     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B6NW (SE)                              | 637                          | -       | 366775<br>383756 |
| 96     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B5SE (S)                               | 696                          | -       | 366218<br>383241 |
| 97     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B10SE (E)                              | 696                          | -       | 366969<br>383995 |
| 98     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B5SW (SW)                              | 705                          | -       | 366082<br>383199 |
| 99     | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B5SE (S)                               | 719                          | -       | 366204<br>383211 |
| 100    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B6NW (S)                               | 733                          | -       | 366595<br>383446 |
| 101    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B6NW (SE)                              | 759                          | -       | 366818<br>383617 |
| 102    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B6NE (SE)                              | 816                          | -       | 366958<br>383704 |
| 103    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B14NE (NE)                             | 826                          | -       | 367057<br>384797 |
| 104    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10NE (E)                              | 826                          | -       | 367134<br>384347 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 105    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10SE (E)                              | 847                          | -       | 367089<br>383882 |
| 106    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1882 | B6NE (SE)                              | 860                          | -       | 366942<br>383607 |
| 107    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B10SE (SE)                             | 869                          | -       | 367074<br>383795 |
| 108    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B11NW (E)                              | 908                          | -       | 367218<br>384291 |
| 109    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1910 | B1NW (S)                               | 923                          | -       | 366038<br>382976 |
| 110    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B15SW (NE)                             | 945                          | -       | 367223<br>384588 |
| 111    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B11NW (E)                              | 959                          | -       | 367268<br>384329 |
| 112    | <b>Potentially Infilled Land (Water)</b><br>Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc)<br>Date of Mapping: 1954 | B11NW (E)                              | 995                          | -       | 367304<br>384329 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
|        | <b>BGS 1:625,000 Solid Geology</b><br>Description: Triassic Rocks (Undifferentiated)   | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>BGS Estimated Soil Chemistry</b><br>Source: British Geological Survey, National Geoscience Information Service<br>Soil Sample Type: Rural Soil<br>Arsenic Concentration: <15 mg/kg<br>Cadmium Concentration: <1.8 mg/kg<br>Chromium Concentration: 60 - 90 mg/kg<br>Lead Concentration: <100 mg/kg<br>Nickel Concentration: 15 - 30 mg/kg   | B14SW (N)                              | 0                            | 1       | 366620<br>384541 |
|        | <b>BGS Estimated Soil Chemistry</b><br>Source: British Geological Survey, National Geoscience Information Service<br>Soil Sample Type: Rural Soil<br>Arsenic Concentration: <15 mg/kg<br>Cadmium Concentration: <1.8 mg/kg<br>Chromium Concentration: 90 - 120 mg/kg<br>Lead Concentration: <100 mg/kg<br>Nickel Concentration: 15 - 30 mg/kg  | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>BGS Measured Urban Soil Chemistry</b><br>No data available  |  |                              |         |                  |
|        | <b>BGS Urban Soil Chemistry Averages</b><br>No data available  |  |                              |         |                  |
|        | <b>CBSCB Compensation District</b><br>Description: In an area which may be affected by historic brine pumping (the Compensation District). The Law Society recommend that all property transactions should obtain a CON29M search. The CBSCB website: <a href="http://www.cheshirebrine.com/">http://www.cheshirebrine.com/</a> has information regarding how to obtain a search and other information regarding the continuing functions of the Board. Contact details are included in the Useful Contacts section.<br>Source: Cheshire Brine Subsidence Compensation Board (CBSCB) | B9NE (E)                               | 0                            | 8       | 366502<br>384121 |
|        | <b>Coal Mining Affected Areas</b><br>In an area that might not be affected by coal mining  |  |                              |         |                  |
|        | <b>Non Coal Mining Areas of Great Britain</b><br>No Hazard   |  |                              |         |                  |
|        | <b>Potential for Collapsible Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>Potential for Collapsible Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | B13NE (N)                              | 5                            | 1       | 366502<br>385000 |
|        | <b>Potential for Compressible Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service  | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>Potential for Compressible Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service  | B13NE (N)                              | 5                            | 1       | 366502<br>385000 |
|        | <b>Potential for Ground Dissolution Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>Potential for Ground Dissolution Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | B13NE (N)                              | 5                            | 1       | 366502<br>385000 |
|        | <b>Potential for Landslide Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>Potential for Landslide Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | B13NE (N)                              | 5                            | 1       | 366502<br>385000 |

| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
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|        | <b>Potential for Landslide Ground Stability Hazards</b><br>Hazard Potential: Low<br>Source: British Geological Survey, National Geoscience Information Service  | B13NE (N)                              | 45                           | 1       | 366207<br>384891 |
|        | <b>Potential for Landslide Ground Stability Hazards</b><br>Hazard Potential: Low<br>Source: British Geological Survey, National Geoscience Information Service  | B13NW (N)                              | 115                          | 1       | 366186<br>385000 |
|        | <b>Potential for Landslide Ground Stability Hazards</b><br>Hazard Potential: Low<br>Source: British Geological Survey, National Geoscience Information Service  | B13NE (N)                              | 151                          | 1       | 366248<br>384984 |
|        | <b>Potential for Landslide Ground Stability Hazards</b><br>Hazard Potential: Low<br>Source: British Geological Survey, National Geoscience Information Service  | B13NE (N)                              | 156                          | 1       | 366256<br>385000 |
|        | <b>Potential for Running Sand Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | B13NE (N)                              | 0                            | 1       | 366316<br>384901 |
|        | <b>Potential for Running Sand Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>Potential for Running Sand Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | B13NE (N)                              | 5                            | 1       | 366502<br>385000 |
|        | <b>Potential for Running Sand Ground Stability Hazards</b><br>Hazard Potential: No Hazard<br>Source: British Geological Survey, National Geoscience Information Service   | B13NE (N)                              | 34                           | 1       | 366485<br>385000 |
|        | <b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b><br>Hazard Potential: Very Low<br>Source: British Geological Survey, National Geoscience Information Service  | B13NE (N)                              | 5                            | 1       | 366502<br>385000 |
|        | <b>Radon Potential - Radon Affected Areas</b><br>Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level).<br>Source: British Geological Survey, National Geoscience Information Service | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |
|        | <b>Radon Potential - Radon Protection Measures</b><br>Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions<br>Source: British Geological Survey, National Geoscience Information Service                     | B9NE (E)                               | 0                            | 1       | 366502<br>384121 |

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| 113    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Lymm Service Station<br/>           Location: Junction 20 M6-A50,Cliff Lane, Lymm, Cheshire, WA13 0SP<br/>           Classification: Petrol Filling Stations<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned to the address or location</p>                | B13NE (N)                              | 191                          | -       | 366383<br>384852 |
| 114    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Total<br/>           Location: Poplar 2000 Services Area,Cliffe La, Lymm, Cheshire, WA13 0TE<br/>           Classification: Petrol Filling Stations<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Manually positioned to the address or location</p>                       | B13SE (N)                              | 296                          | -       | 366516<br>384768 |
| 114    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: The C B Shack<br/>           Location: Unit 1, Poplar 2000 Services, Cliff Lane, Lymm, Cheshire, WA13 0SP<br/>           Classification: Radio Communication Equipment<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>             | B13SE (N)                              | 300                          | -       | 366521<br>384762 |
| 114    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Egertons Recovery Ltd<br/>           Location: Poplar 2000 Services, Cliff Lane, Lymm, WA13 0SP<br/>           Classification: Car Body Repairs<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                                    | B13NE (N)                              | 315                          | -       | 366524<br>384812 |
| 115    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: T R Bitz<br/>           Location: Swineyard Lane, High Legh, Knutsford, Cheshire, WA16 0SD<br/>           Classification: Car Body Repairs<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | B5NW (SW)                              | 398                          | -       | 366118<br>383521 |
| 116    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Vantrunk<br/>           Location: Swineyard Lane, High Legh, Knutsford, Cheshire, WA16 0SD<br/>           Classification: Stainless Steel Manufacturers<br/> <b>Status: Active</b><br/>           Positional Accuracy: Manually positioned within the geographical locality</p>               | B5NE (S)                               | 418                          | -       | 366378<br>383674 |
| 117    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Lymm Engine Components Ltd<br/>           Location: 233, Cherry Corner, Lymm, WA13 0TB<br/>           Classification: Engines - Sales &amp; Service<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                              | B13NE (N)                              | 425                          | -       | 366508<br>385098 |
| 118    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: W E Massey<br/>           Location: Brook Villa, Swineyard Lane, High Legh, Knutsford, Cheshire, WA16 0SD<br/>           Classification: Road Haulage Services<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                   | B5NE (S)                               | 445                          | -       | 366447<br>383697 |
| 118    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Atherton Engineering Ltd<br/>           Location: Brook Farm, Swineyard Lane, High Legh, Knutsford, WA16 0SD<br/>           Classification: Engineers - General<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p>                    | B5NE (S)                               | 454                          | -       | 366466<br>383702 |
| 118    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: D B S Solutions<br/>           Location: Brook Farm, Swineyard Lane, High Legh, Knutsford, Cheshire, WA16 0SD<br/>           Classification: Sound Equipment Systems Manufacturers<br/> <b>Status: Active</b><br/>           Positional Accuracy: Automatically positioned to the address</p> | B5NE (S)                               | 455                          | -       | 366469<br>383703 |
| 118    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Taylor &amp; Sons Campers<br/>           Location: Brook Farm, Swineyard Lane, High Legh, Knutsford, Cheshire, WA16 0SD<br/>           Classification: Car Body Repairs<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>          | B5NE (S)                               | 455                          | -       | 366469<br>383703 |
| 119    | <p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Elebert Pest Force Ltd<br/>           Location: Eleberts Pestforce Ltd, Poplar Park, Cliff Lane, Warrington, WA13 0TD<br/>           Classification: Pest &amp; Vermin Control<br/> <b>Status: Inactive</b><br/>           Positional Accuracy: Automatically positioned to the address</p>   | B14NW (N)                              | 495                          | -       | 366631<br>385037 |



| Map ID | Details   | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|---|--|------------------------------|---------|------------------|
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Sports Equipment<br>Location: Poplar Park, Cliff La, Lymm, Cheshire, WA13 0TD<br>Classification: Sports Equipment Manufacturers & Distributors<br>Status: <b>Inactive</b><br>Positional Accuracy: Manually positioned to the address or location | B14NW (N)                              | 496                          | -       | 366632<br>385038 |
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Elebert Pest Force Ltd<br>Location: Poplar Park, Cliff Lane, LYMM, Cheshire, WA13 0TD<br>Classification: Pest & Vermin Control<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address                        | B14NW (N)                              | 497                          | -       | 366633<br>385038 |
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Elebert'S Pestforce Ltd<br>Location: Poplar Park, Cliff Lane, Lymm, Cheshire, WA13 0TD<br>Classification: Fumigation Services<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address                         | B14NW (N)                              | 497                          | -       | 366633<br>385038 |
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Sports-E-Quipment<br>Location: Poplar Park, Cliff Lane, Lymm, Cheshire, WA13 0TD<br>Classification: Sports Equipment Manufacturers & Distributors<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address     | B14NW (N)                              | 497                          | -       | 366633<br>385038 |
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Explorer (Uk)<br>Location: Poplar Park, Cliff Lane, Lymm, Cheshire, WA13 0TD<br>Classification: Car Component Manufacturers<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address                           | B14NW (N)                              | 497                          | -       | 366633<br>385038 |
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Gary Worrall<br>Location: Poplar Park, Cliff Lane, Lymm, Cheshire, WA13 0TD<br>Classification: Sports Equipment Manufacturers & Distributors<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address          | B14NW (N)                              | 497                          | -       | 366633<br>385038 |
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Direct (North West)<br>Location: Poplar Park, Cliff La, Lymm, Cheshire, WA13 0TD<br>Classification: Road Haulage Services<br>Status: <b>Inactive</b><br>Positional Accuracy: Manually positioned to the address or location                      | B14NW (N)                              | 503                          | -       | 366626<br>385064 |
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Alpha Amenity Ltd<br>Location: Poplar Park, Cliff Lane, Lymm, Cheshire, WA13 0TD<br>Classification: Fertilisers<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address                                       | B14NW (N)                              | 505                          | -       | 366627<br>385065 |
| 119    | <b>Contemporary Trade Directory Entries</b><br>Name: Alpha Amenity<br>Location: Poplar Park, Cliff Lane, Lymm, Cheshire, WA13 0TD<br>Classification: Chemicals - Distributors & Wholesalers<br>Status: <b>Inactive</b><br>Positional Accuracy: Automatically positioned to the address                | B14NW (N)                              | 505                          | -       | 366627<br>385065 |
| 120    | <b>Fuel Station Entries</b><br>Name: A50/M6 Lymm Service Area (Poplar 2000)<br>Location: Cliffe Lane, M6, Lymm, Cheshire, WA13 0SP<br>Brand: Bp<br>Premises Type: Service Area<br>Status: <b>Open</b><br>Positional Accuracy: Manually positioned to the address or location                          | B13NE (N)                              | 191                          | -       | 366384<br>384849 |
| 120    | <b>Fuel Station Entries</b><br>Name: Lymm Hgv Service Area<br>Location: Cliffe Lane, M6, LYMM, Cheshire, WA13 0TE<br>Brand: Unbranded<br>Premises Type: Service Area<br>Status: <b>Non-Retail</b><br>Positional Accuracy: Manually positioned to the address or location                              | B13NE (N)                              | 192                          | -       | 366385<br>384851 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 121    | <b>Points of Interest - Commercial Services</b><br>Name: Cheshire Coachtrimmers Ltd<br>Location: Caravan Howshoots Farm, Cliff Lane, Grappenhall, Warrington, WA4 4SJ<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location | B13NW (NW)                             | 55                           | 9       | 366008<br>385009 |
| 121    | <b>Points of Interest - Commercial Services</b><br>Name: Cheshire Coachtrimmers Ltd<br>Location: Howshoots Farm, Cliff Lane, Grappenhall, Warrington, WA4 4SJ<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location         | B13NW (NW)                             | 55                           | 9       | 366007<br>385009 |
| 122    | <b>Points of Interest - Commercial Services</b><br>Name: Lymm Truckwash Ltd<br>Location: Poplar 2000 Services, Cliffe Lane, Lymm, WA13 0SP<br>Category: Personal, Consumer and other Services<br>Class Code: Vehicle Cleaning Services<br>Positional Accuracy: Positioned to address or location                       | B13NE (N)                              | 314                          | 9       | 366525<br>384802 |
| 123    | <b>Points of Interest - Commercial Services</b><br>Name: T R Bitz<br>Location: Swineyard Lane, High Legh, Knutsford, WA16 0SD<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location   | B5NW (SW)                              | 398                          | 9       | 366117<br>383521 |
| 124    | <b>Points of Interest - Commercial Services</b><br>Name: Lymm Truckwash Ltd<br>Location: Poplar Services 2000, Cliff Lane, Lymm, WA13 0SP<br>Category: Personal, Consumer and other Services<br>Class Code: Vehicle Cleaning Services<br>Positional Accuracy: Positioned to address or location                        | B14NW (N)                              | 409                          | 9       | 366618<br>384822 |
| 125    | <b>Points of Interest - Commercial Services</b><br>Name: Bespoke Car Interiors Ltd<br>Location: Brook Farm, Swineyard Lane, High Legh, Knutsford, WA16 0SD<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location            | B5NE (S)                               | 455                          | 9       | 366468<br>383702 |
| 125    | <b>Points of Interest - Commercial Services</b><br>Name: Motor Agents<br>Location: Brook Farm, Swineyard Lane, High Legh, Knutsford, WA16 0SD<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location                         | B5NE (S)                               | 455                          | 9       | 366469<br>383703 |
| 125    | <b>Points of Interest - Commercial Services</b><br>Name: Taylor & Sons Campers<br>Location: Brook Farm, Swineyard Lane, High Legh, Knutsford, WA16 0SD<br>Category: Repair and Servicing<br>Class Code: Vehicle Repair, Testing and Servicing<br>Positional Accuracy: Positioned to address or location                | B5NE (S)                               | 455                          | 9       | 366469<br>383703 |
| 126    | <b>Points of Interest - Commercial Services</b><br>Name: Elebert's Pestforce Ltd<br>Location: Poplar Park, Cliff Lane, Lymm, WA13 0TD<br>Category: Contract Services<br>Class Code: Pest and Vermin Control<br>Positional Accuracy: Positioned to address or location  | B14NW (N)                              | 497                          | 9       | 366633<br>385038 |
| 126    | <b>Points of Interest - Commercial Services</b><br>Name: Elebert's Pestforce Ltd<br>Location: Poplar Park, Cliff Lane, Lymm, WA13 0TD<br>Category: Contract Services<br>Class Code: Pest and Vermin Control<br>Positional Accuracy: Positioned to address or location  | B14NW (N)                              | 497                          | 9       | 366633<br>385038 |
| 127    | <b>Points of Interest - Manufacturing and Production</b><br>Name: Tank<br>Location: WA16<br>Category: Industrial Features<br>Class Code: Tanks (Generic)<br>Positional Accuracy: Positioned to an adjacent address or location   | B5NE (S)                               | 442                          | 9       | 366511<br>383758 |
| 128    | <b>Points of Interest - Public Infrastructure</b><br>Name: Lymm Service Station<br>Location: Junction 21 M6-A50, Cliff Lane, Lymm, WA13 0SP<br>Category: Road And Rail<br>Class Code: Petrol and Fuel Stations<br>Positional Accuracy: Positioned to address or location   | B13NE (N)                              | 191                          | 9       | 366383<br>384853 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 128    | <b>Points of Interest - Public Infrastructure</b><br>Name: A50/M6 Lymm Service Area (Poplar 2000)<br>Location: Cliffe Lane, M6 , Lymm, Cheshire, WA13 0SP<br>Category: Road And Rail<br>Class Code: Petrol and Fuel Stations<br>Positional Accuracy: Positioned to address or location | B13NE (N)                              | 191                          | 9       | 366384<br>384849 |
| 128    | <b>Points of Interest - Public Infrastructure</b><br>Name: Shell (UK) Ltd<br>Location: Cliffe Lane, Lymm, WA13 0SP<br>Category: Road And Rail<br>Class Code: Petrol and Fuel Stations<br>Positional Accuracy: Positioned to address or location  | B13NE (N)                              | 194                          | 9       | 366386<br>384853 |
| 129    | <b>Points of Interest - Public Infrastructure</b><br>Name: Lymm Service Station<br>Location: Poplar Services 2000, Cliffe Lane, Lymm, WA13 0SP<br>Category: Road And Rail<br>Class Code: Petrol and Fuel Stations<br>Positional Accuracy: Positioned to address or location            | B13NE (N)                              | 314                          | 9       | 366525<br>384802 |

| Map ID | Details  | Quadrant Reference (Compass Direction) | Estimated Distance From Site | Contact | NGR              |
|--------|--|--|------------------------------|---------|------------------|
| 130    | <b>Areas of Adopted Green Belt</b><br>Authority: Warrington Borough Council<br>Plan Name: Core Strategy<br>Status: <b>Adopted</b><br>Plan Date: 21st July 2014   | B9NE (NW)                              | 0                            | 12      | 366312<br>384286 |
| 131    | <b>Areas of Adopted Green Belt</b><br>Authority: Macclesfield Borough Council (now part of Cheshire East Council)<br>Plan Name: Macclesfield Borough Local Plan<br>Status: <b>Adopted</b><br>Plan Date: 8th January 2004   | B9NE (E)                               | 0                            | 11      | 366502<br>384121 |
| 132    | <b>Areas of Adopted Green Belt</b><br>Authority: Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Plan Name: Vale Royal Borough Council Local Plan - First Review Alteration<br>Status: <b>Adopted</b><br>Plan Date: 16th June 2006 | B6SE (SE)                              | 909                          | 13      | 366912<br>383183 |
| 133    | <b>Areas of Unadopted Green Belt</b><br>Authority: Cheshire East Council, Planning Department<br>Plan Name: Cheshire East Local Plan Strategy<br>Status: <b>Submission Draft</b><br>Plan Date: 20th May 2014   | B9NE (E)                               | 0                            | 14      | 366502<br>384121 |
| 134    | <b>Nitrate Vulnerable Zones</b><br>Name: River Weaver (Dane To Frodsham) Nvz<br>Description: Surface Water<br>Source: Environment Agency, Head Office  | B5NE (S)                               | 385                          | 15      | 366356<br>383643 |

| Agency & Hydrological  | Version  | Update Cycle  |
|--|--|---|
| <b>Contaminated Land Register Entries and Notices</b><br>Cheshire East Council - Environmental Health Department<br>Macclesfield Borough Council (now part of Cheshire East Council) - Health and Public Safety<br>Warrington Borough Council - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Community Services Directorate<br>Cheshire West and Chester Council - Environmental Health Department                        | April 2014<br>July 2008<br>March 2015<br>November 2008<br>November 2013    | Annually<br>Not Applicable<br>Annually<br>Not Applicable<br>Annually              |
| <b>Discharge Consents</b><br>Environment Agency - North West Region  | April 2017   | Quarterly   |
| <b>Enforcement and Prohibition Notices</b><br>Environment Agency - North West Region   | March 2013   | As notified   |
| <b>Integrated Pollution Controls</b><br>Environment Agency - North West Region   | October 2008   | Not Applicable  |
| <b>Integrated Pollution Prevention And Control</b><br>Environment Agency - North West Region   | April 2017   | Quarterly   |
| <b>Local Authority Integrated Pollution Prevention And Control</b><br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department<br>Cheshire West and Chester Council - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Cheshire East Council - Environmental Health Department   | February 2009<br>February 2015<br>July 2015<br>June 2009<br>September 2014 | Not Applicable<br>Annual Rolling Update<br>Annually<br>Not Applicable<br>Annually |
| <b>Local Authority Pollution Prevention and Controls</b><br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department<br>Cheshire West and Chester Council - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Cheshire East Council - Environmental Health Department             | February 2009<br>February 2015<br>July 2015<br>June 2009<br>September 2014 | Not Applicable<br>Annual Rolling Update<br>Annually<br>Not Applicable<br>Annually |
| <b>Local Authority Pollution Prevention and Control Enforcements</b><br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department<br>Cheshire West and Chester Council - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Cheshire East Council - Environmental Health Department | February 2009<br>February 2015<br>July 2015<br>June 2009<br>September 2014 | Not Applicable<br>Annual Rolling Update<br>Annually<br>Not Applicable<br>Annually |
| <b>Nearest Surface Water Feature</b><br>Ordnance Survey  | May 2017   |   |
| <b>Pollution Incidents to Controlled Waters</b><br>Environment Agency - North West Region  | January 2000   | Not Applicable  |
| <b>Prosecutions Relating to Authorised Processes</b><br>Environment Agency - North West Region   | March 2013   | As notified   |
| <b>Prosecutions Relating to Controlled Waters</b><br>Environment Agency - North West Region  | March 2013   | As notified   |
| <b>Registered Radioactive Substances</b><br>Environment Agency - North West Region   | January 2015   |   |
| <b>River Quality</b><br>Environment Agency - Head Office   | November 2001  | Not Applicable  |
| <b>River Quality Biology Sampling Points</b><br>Environment Agency - Head Office   | July 2012  | Annually  |

| Agency & Hydrological   | Version      | Update Cycle   |
|---|--------------|----------------|
| <b>River Quality Chemistry Sampling Points</b><br>Environment Agency - Head Office                                    | July 2012    | Annually       |
| <b>Substantiated Pollution Incident Register</b><br>Environment Agency - North West Region - South Area               | April 2017   | Quarterly      |
| <b>Water Abstractions</b><br>Environment Agency - North West Region   | April 2017   | Quarterly      |
| <b>Water Industry Act Referrals</b><br>Environment Agency - North West Region   | April 2017   | Quarterly      |
| <b>Groundwater Vulnerability</b><br>Environment Agency - Head Office  | April 2015   | Not Applicable |
| <b>Drift Deposits</b><br>Environment Agency - Head Office   | January 1999 | Not Applicable |
| <b>Bedrock Aquifer Designations</b><br>British Geological Survey - National Geoscience Information Service            | August 2015  | As notified    |
| <b>Superficial Aquifer Designations</b><br>British Geological Survey - National Geoscience Information Service        | August 2015  | As notified    |
| <b>Source Protection Zones</b><br>Environment Agency - Head Office  | July 2017    | Quarterly      |
| <b>Extreme Flooding from Rivers or Sea without Defences</b><br>Environment Agency - Head Office                       | August 2017  | Quarterly      |
| <b>Flooding from Rivers or Sea without Defences</b><br>Environment Agency - Head Office                               | August 2017  | Quarterly      |
| <b>Areas Benefiting from Flood Defences</b><br>Environment Agency - Head Office                                       | August 2017  | Quarterly      |
| <b>Flood Water Storage Areas</b><br>Environment Agency - Head Office  | August 2017  | Quarterly      |
| <b>Flood Defences</b><br>Environment Agency - Head Office   | August 2017  | Quarterly      |
| <b>OS Water Network Lines</b><br>Ordnance Survey  | April 2017   | 6 Weekly       |
| <b>Surface Water 1 in 30 year Flood Extent</b><br>Environment Agency - Head Office                                    | October 2013 | As notified    |
| <b>Surface Water 1 in 100 year Flood Extent</b><br>Environment Agency - Head Office                                   | October 2013 | As notified    |
| <b>Surface Water 1 in 1000 year Flood Extent</b><br>Environment Agency - Head Office                                  | October 2013 | As notified    |
| <b>Surface Water Suitability</b><br>Environment Agency - Head Office  | October 2013 | As notified    |
| <b>BGS Groundwater Flooding Susceptibility</b><br>British Geological Survey - National Geoscience Information Service | May 2013     | Annually       |

| Waste   | Version   | Update Cycle   |
|---|---|--|
| <b>BGS Recorded Landfill Sites</b><br>British Geological Survey - National Geoscience Information Service   | June 1996   | Not Applicable   |
| <b>Historical Landfill Sites</b><br>Environment Agency - Head Office  | May 2017  | Quarterly  |
| <b>Integrated Pollution Control Registered Waste Sites</b><br>Environment Agency - North West Region  | October 2008                                      | Not Applicable   |
| <b>Licensed Waste Management Facilities (Landfill Boundaries)</b><br>Environment Agency - North West Region - South Area  | May 2017  | Quarterly  |
| <b>Licensed Waste Management Facilities (Locations)</b><br>Environment Agency - North West Region - South Area  | May 2017  | Quarterly  |
| <b>Local Authority Landfill Coverage</b><br>Cheshire County Council (now part of Cheshire East Council) - Environmental Planning Department<br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department       | May 2000<br>May 2000<br>May 2000<br>May 2000      | Not Applicable<br>Not Applicable<br>Not Applicable<br>Not Applicable |
| <b>Local Authority Recorded Landfill Sites</b><br>Cheshire County Council (now part of Cheshire East Council) - Environmental Planning Department<br>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department<br>Warrington Borough Council - Environmental Health Department | February 2005<br>May 2000<br>May 2000<br>May 2000 | Not Applicable<br>Not Applicable<br>Not Applicable<br>Not Applicable |
| <b>Potentially Infilled Land (Non-Water)</b><br>Landmark Information Group Limited  | December 1999                                     | Not Applicable   |
| <b>Potentially Infilled Land (Water)</b><br>Landmark Information Group Limited  | December 1999                                     | Not Applicable   |
| <b>Registered Landfill Sites</b><br>Environment Agency - North West Region - South Area   | March 2003  | Not Applicable   |
| <b>Registered Waste Transfer Sites</b><br>Environment Agency - North West Region - South Area   | March 2003  | Not Applicable   |
| <b>Registered Waste Treatment or Disposal Sites</b><br>Environment Agency - North West Region - South Area  | March 2003  | Not Applicable   |

| Hazardous Substances   | Version   | Update Cycle   |
|--|---|--|
| <b>Control of Major Accident Hazards Sites (COMAH)</b><br>Health and Safety Executive  | March 2017  | Bi-Annually  |
| <b>Explosive Sites</b><br>Health and Safety Executive  | March 2017  | Bi-Annually  |
| <b>Notification of Installations Handling Hazardous Substances (NIHHS)</b><br>Health and Safety Executive  | November 2000   | Not Applicable   |
| <b>Planning Hazardous Substance Enforcements</b><br>Cheshire West and Chester Council - Planning Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Macclesfield Borough Council (now part of Cheshire East Council) - Planning Department<br>Cheshire East Council - Planning Department<br>Cheshire County Council (now part of Cheshire East Council) - Planning Department<br>Warrington Borough Council - Environmental and Regeneration | April 2016<br>August 2009<br>December 2008<br>February 2016<br>July 2008<br>June 2016 | Annually<br>Not Applicable<br>Not Applicable<br>Annually<br>Annual Rolling Update<br>Annual Rolling Update |
| <b>Planning Hazardous Substance Consents</b><br>Cheshire West and Chester Council - Planning Department<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Macclesfield Borough Council (now part of Cheshire East Council) - Planning Department<br>Cheshire East Council - Planning Department<br>Cheshire County Council (now part of Cheshire East Council) - Planning Department<br>Warrington Borough Council - Environmental and Regeneration     | April 2016<br>August 2009<br>December 2008<br>February 2016<br>July 2008<br>June 2016 | Annually<br>Not Applicable<br>Not Applicable<br>Annually<br>Annual Rolling Update<br>Annual Rolling Update |
| Geological   | Version   | Update Cycle   |
| <b>BGS 1:625,000 Solid Geology</b><br>British Geological Survey - National Geoscience Information Service  | January 2009  | Not Applicable   |
| <b>BGS Estimated Soil Chemistry</b><br>British Geological Survey - National Geoscience Information Service   | October 2015  | As notified  |
| <b>BGS Recorded Mineral Sites</b><br>British Geological Survey - National Geoscience Information Service   | April 2017  | Bi-Annually  |
| <b>CBSCB Compensation District</b><br>Cheshire Brine Subsidence Compensation Board (CBSCB)   | August 2011   | Not Applicable   |
| <b>Coal Mining Affected Areas</b><br>The Coal Authority - Property Searches  | March 2014  | As notified  |
| <b>Mining Instability</b><br>Ove Arup & Partners   | October 2000  | Not Applicable   |
| <b>Non Coal Mining Areas of Great Britain</b><br>British Geological Survey - National Geoscience Information Service   | May 2015  | Not Applicable   |
| <b>Potential for Collapsible Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service   | June 2015   | Annually   |
| <b>Potential for Compressible Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service  | June 2015   | Annually   |
| <b>Potential for Ground Dissolution Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service   | June 2015   | Annually   |
| <b>Potential for Landslide Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service   | June 2015   | Annually   |
| <b>Potential for Running Sand Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service  | June 2015   | Annually   |
| <b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b><br>British Geological Survey - National Geoscience Information Service  | June 2015   | Annually   |
| <b>Radon Potential - Radon Affected Areas</b><br>British Geological Survey - National Geoscience Information Service   | July 2011   | As notified  |
| <b>Radon Potential - Radon Protection Measures</b><br>British Geological Survey - National Geoscience Information Service  | July 2011   | As notified  |



| Industrial Land Use  | Version       | Update Cycle |
|--|---------------|--------------|
| <b>Contemporary Trade Directory Entries</b><br>Thomson Directories   | June 2017     | Quarterly    |
| <b>Fuel Station Entries</b><br>Catalist Ltd - Experian               | May 2017      | Quarterly    |
| <b>Gas Pipelines</b><br>National Grid                                | July 2014     | Quarterly    |
| <b>Points of Interest - Commercial Services</b><br>PointX            | December 2016 | Quarterly    |
| <b>Points of Interest - Education and Health</b><br>PointX           | December 2016 | Quarterly    |
| <b>Points of Interest - Manufacturing and Production</b><br>PointX   | December 2016 | Quarterly    |
| <b>Points of Interest - Public Infrastructure</b><br>PointX          | December 2016 | Quarterly    |
| <b>Points of Interest - Recreational and Environmental</b><br>PointX | December 2016 | Quarterly    |
| <b>Underground Electrical Cables</b><br>National Grid                | December 2015 | Bi-Annually  |

| Sensitive Land Use  | Version                                      | Update Cycle   |
|---|--|--|
| <b>Ancient Woodland</b><br>Natural England  | May 2017                                     | Bi-Annually  |
| <b>Areas of Adopted Green Belt</b><br>Macclesfield Borough Council (now part of Cheshire East Council)<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Warrington Borough Council  | May 2017<br>May 2017<br>May 2017             | As notified<br>As notified<br>As notified                |
| <b>Areas of Unadopted Green Belt</b><br>Cheshire East Council - Planning Department<br>Macclesfield Borough Council (now part of Cheshire East Council)<br>Vale Royal Borough Council (now part of Cheshire West and Chester Council)<br>Warrington Borough Council | May 2017<br>May 2017<br>May 2017<br>May 2017 | As notified<br>As notified<br>As notified<br>As notified |
| <b>Areas of Outstanding Natural Beauty</b><br>Natural England   | January 2017                                 | Bi-Annually  |
| <b>Environmentally Sensitive Areas</b><br>Natural England   | January 2017                                 | Annually   |
| <b>Forest Parks</b><br>Forestry Commission  | April 1997                                   | Not Applicable   |
| <b>Local Nature Reserves</b><br>Natural England   | June 2017                                    | Bi-Annually  |
| <b>Marine Nature Reserves</b><br>Natural England  | January 2017                                 | Bi-Annually  |
| <b>National Nature Reserves</b><br>Natural England  | January 2017                                 | Bi-Annually  |
| <b>National Parks</b><br>Natural England  | February 2017                                | Bi-Annually  |
| <b>Nitrate Vulnerable Zones</b><br>Environment Agency - Head Office<br>Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)   | June 2017<br>October 2015                    | Bi-Annually<br>Annually                                  |
| <b>Ramsar Sites</b><br>Natural England  | January 2017                                 | Bi-Annually  |
| <b>Sites of Special Scientific Interest</b><br>Natural England  | January 2017                                 | Bi-Annually  |
| <b>Special Areas of Conservation</b><br>Natural England   | January 2017                                 | Bi-Annually  |
| <b>Special Protection Areas</b><br>Natural England  | January 2017                                 | Bi-Annually  |

A selection of organisations who provide data within this report

| Data Supplier                          | Data Supplier Logo   |
|--|--|
| Ordnance Survey                        |   |
| Environment Agency                     |   |
| Scottish Environment Protection Agency |   |
| The Coal Authority                     |   |
| British Geological Survey              |  <b>British Geological Survey</b><br><small>NATURAL ENVIRONMENT RESEARCH COUNCIL</small>          |
| Centre for Ecology and Hydrology       |  <b>Centre for Ecology &amp; Hydrology</b><br><small>NATURAL ENVIRONMENT RESEARCH COUNCIL</small> |
| Natural Resources Wales                |    |
| Scottish Natural Heritage              |   |
| Natural England                        |   |
| Public Health England                  |   |
| Ove Arup                               |   |
| Peter Brett Associates                 |   |





| Contact | Name and Address   | Contact Details  |
|---------|--|--|
| 1       | <b>British Geological Survey - Enquiry Service</b><br>British Geological Survey, Kingsley Dunham Centre, Keyworth,<br>Nottingham, Nottinghamshire, NG12 5GG            | Telephone: 0115 936 3143<br>Fax: 0115 936 3276<br>Email: enquiries@bgs.ac.uk<br>Website: www.bgs.ac.uk                   |
| 2       | <b>Environment Agency - National Customer Contact Centre (NCCC)</b><br>PO Box 544, Templeborough, Rotherham, S60 1BY   | Telephone: 03708 506 506<br>Email: enquiries@environment-agency.gov.uk   |
| 3       | <b>Warrington Borough Council - Environmental Health Department</b><br>Technical Services, Palmyra House, Palmyra Square North, North<br>Warrington, Cheshire, WA1 1JN | Telephone: 01925 444400<br>Fax: 01925 442024<br>Website: www.warrington.gov.uk   |
| 4       | <b>Ordnance Survey</b><br>Adanac Drive, Southampton, Hampshire, SO16 0AS   | Telephone: 023 8079 2000<br>Email: customerservices@ordnancesurvey.co.uk<br>Website: www.ordnancesurvey.gov.uk           |
| 5       | <b>Macclesfield Borough Council (now part of Cheshire East Council) - Environmental Health Department</b><br>Westfields, Middlewich Road, Sandbach, Cheshire, CW11 1HZ | Telephone: 0300 123 55 00<br>Website: www.cheshireeast.gov.uk  |
| 6       | <b>Cheshire County Council (now part of Cheshire East Council) - Environmental Planning Department</b><br>Westfields, Middlewich Road, Sandbach, Cheshire, CW11 1HZ    | Telephone: 0300 123 5015<br>Website: www.cheshireeast.gov.uk   |
| 7       | <b>Vale Royal Borough Council (now part of Cheshire West and Chester Council) - Environmental Health Department</b><br>58 Nicholas Street, Chester, Cheshire, CH1 2NP  | Telephone: 0300 123 8123<br>Email: enquiries@cheshirewestandchester.gov.uk<br>Website: www.cheshirewestandchester.gov.uk |
| 8       | <b>Cheshire Brine Subsidence Compensation Board (CBSCB)</b><br>Sir Henry Doulton House, Forge Lane, Etruria, Stoke on Trent,<br>Staffordshire, ST1 5BD                 | Telephone: 0845 002 0562<br>Fax: 0845 111 8888<br>Email: info@cheshirebrine.com<br>Website: www.cheshirebrine.com        |
| 9       | <b>PointX</b><br>7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY  | Website: www.pointx.co.uk  |
| 10      | <b>Natural England</b><br>County Hall, Spetchley Road, Worcester, WR5 2NP  | Telephone: 0300 060 3900<br>Email: enquiries@naturalengland.org.uk<br>Website: www.naturalengland.org.uk                 |
| 11      | <b>Macclesfield Borough Council (now part of Cheshire East Council)</b><br>Westfields, Middlewich Road, Sandbach, Cheshire, CW11 1HZ                                   | Telephone: 0300 123 55 00<br>Website: www.cheshireeast.gov.uk  |
| 12      | <b>Warrington Borough Council</b><br>Town Hall, Warrington, Cheshire, WA1 1UH  | Telephone: 01925 442140<br>Fax: 01925 442024<br>Website: www.warrington.gov.uk   |
| 13      | <b>Vale Royal Borough Council (now part of Cheshire West and Chester Council)</b><br>58 Nicholas Street, Chester, Cheshire, CH1 2NP                                    | Telephone: 0300 1238123<br>Email: enquiries@cheshirewestandchester.gov.uk<br>Website: www.cheshirewestandchester.gov.uk  |
| 14      | <b>Cheshire East Council - Planning Department</b><br>Westfields, Middlewich Road, Sandbach, Cheshire, CW11 1HZ  | Telephone: 0300 123 5500<br>Email: info@cheshireeast.gov.uk<br>Website: www.cheshireeast.gov.uk                          |

| Contact | Name and Address  | Contact Details   |
|---------|---|---|
| 15      | <b>Environment Agency - Head Office</b><br>Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon,<br>BS32 4UD                      | Telephone: 01454 624400<br>Fax: 01454 624409  |
| -       | <b>Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards</b><br>Chilton, Didcot, Oxfordshire, OX11 0RQ | Telephone: 01235 822622<br>Fax: 01235 833891<br>Email: radon@phe.gov.uk<br>Website: www.ukradon.org                             |
| -       | <b>Landmark Information Group Limited</b><br>Imperium, Imperial Way, Reading, Berkshire, RG2 0TD  | Telephone: 0844 844 9952<br>Fax: 0844 844 9951<br>Email: customerservices@landmarkinfo.co.uk<br>Website: www.landmarkinfo.co.uk |





Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

## Geology 1:50,000 Maps Legends

### Superficial Geology

| Map Colour  | Lex Code | Rock Name                         | Rock Type                                 | Min and Max Age         |
|---|----------|-----------------------------------|---|-------------------------|
|  | ALV      | Alluvium                          | Clay, Silt, Sand and Gravel               | Flandrian - Flandrian   |
|  | TILLD    | Till, Devensian                   | Diamicton                                 | Devensian - Devensian   |
|  | GFDUD    | Glaciofluvial Deposits, Devensian | Sand and Gravel                           | Devensian - Devensian   |
|  | PEAT     | Peat                              | Peat [Unlithified Deposits Coding Scheme] | Quaternary - Quaternary |

### Bedrock and Faults

| Map Colour  | Lex Code | Rock Name                     | Rock Type                         | Min and Max Age          |
|---|----------|-------------------------------|-----------------------------------|--------------------------|
|  | BOM      | Bollin Mudstone Member        | Mudstone                          | Anisian - Anisian        |
|  | TPSF     | Tarporley Siltstone Formation | Siltstone, Mudstone and Sandstone | Anisian - Olenekian      |
|  | HEY      | Helsby Sandstone Formation    | Sandstone, Pebbly (Gravelly)      | Anisian - Early Triassic |
|  |          | Faults                        |                                   |                          |

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### Geology 1:50,000 Maps

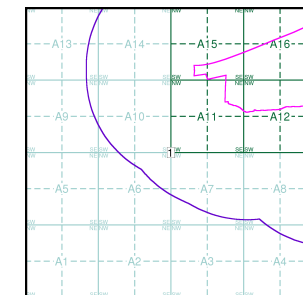
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

### Geology 1:50,000 Maps Coverage

Map ID: 1  
 Map Sheet No: 097  
 Map Name: Runcorn  
 Map Date: 1980  
 Bedrock Geology: Available  
 Superficial Geology: Available  
 Artificial Geology: Not Available  
 Faults: Not Supplied  
 Landslip: Not Available  
 Rock Segments: Not Supplied

### Geology 1:50,000 Maps - Slice A



### Order Details:

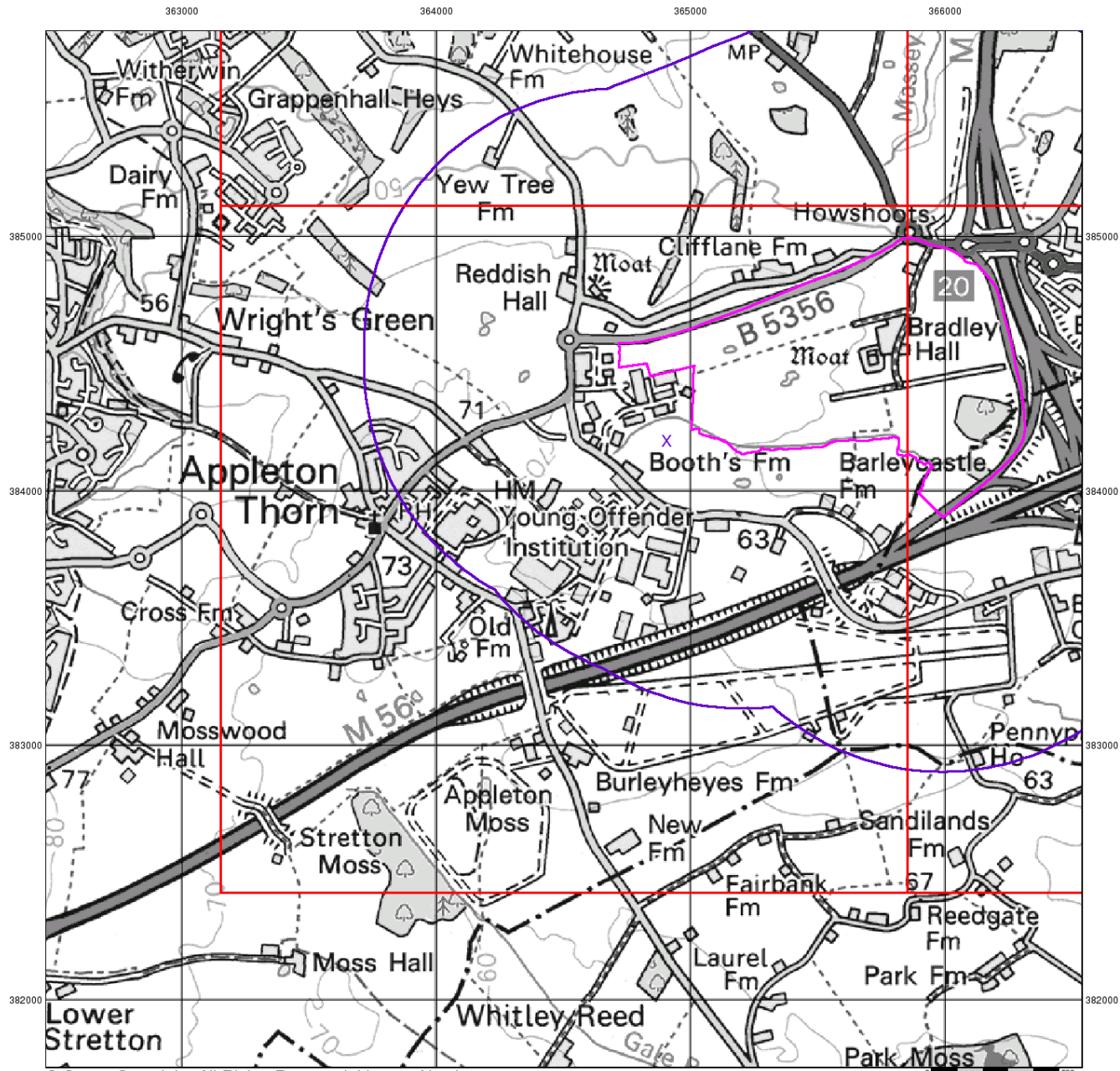
Order Number: 135773225\_1\_1  
 Customer Reference: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details:

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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## Artificial Ground and Landslip

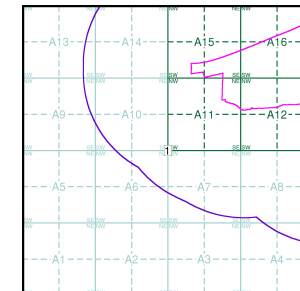
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

## Artificial Ground and Landslip Map - Slice A



### Order Details:

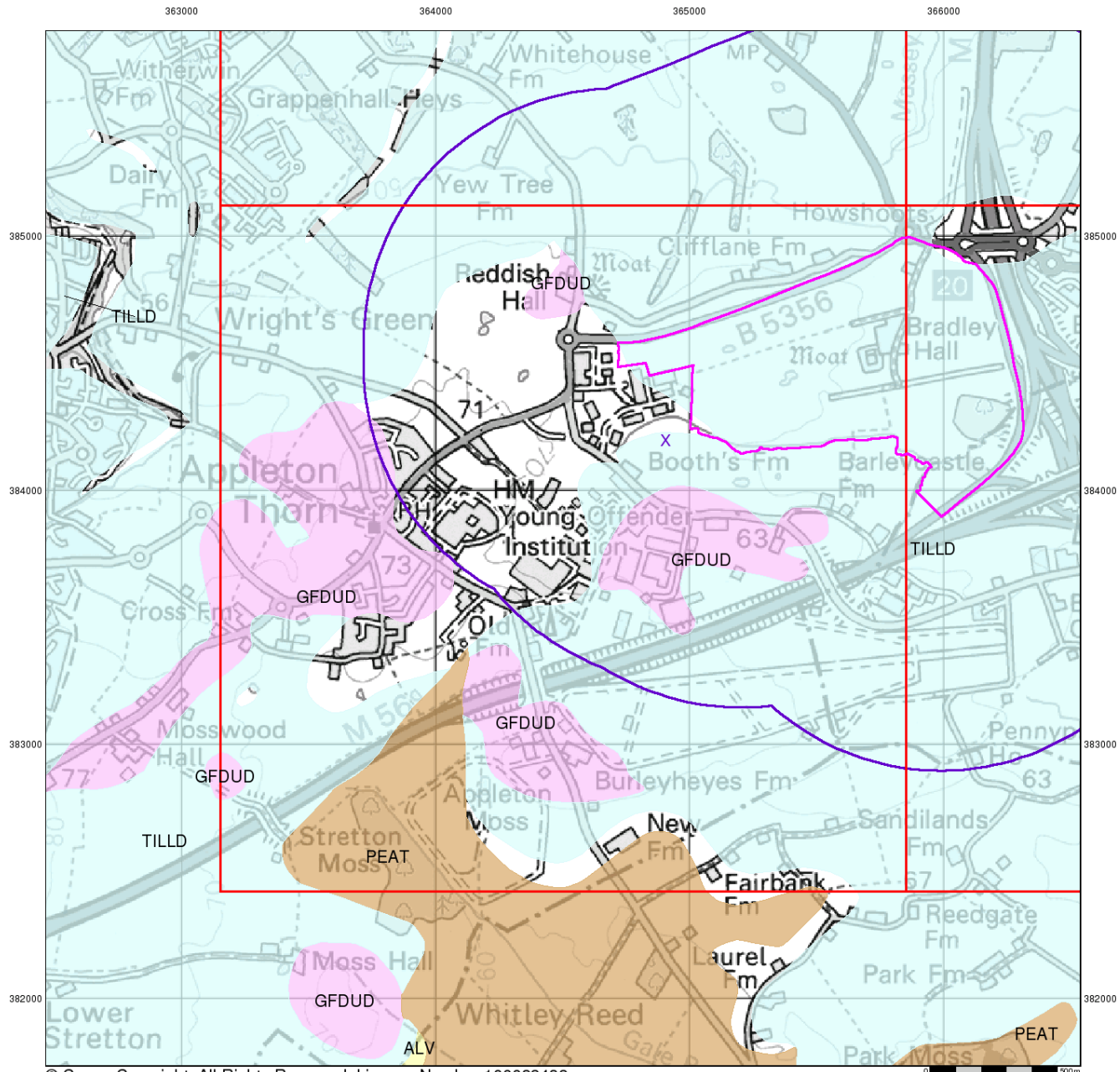
Order Number: 135773225\_1\_1  
 Customer Reference: 1015524 - Warrington Interchange MP  
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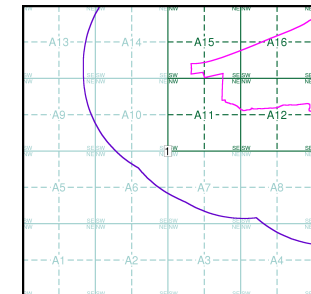
## Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

## Superficial Geology Map - Slice A



### Order Details:

|                          |                                     |
|--------------------------|-------------------------------------|
| Order Number:            | 135773225_1_1                       |
| Customer Reference:      | 1015524 - Warrington Interchange MP |
| National Grid Reference: | 364910, 384200                      |
| Slice:                   | A                                   |
| Site Area (Ha):          | 93.66                               |
| Search Buffer (m):       | 1000                                |

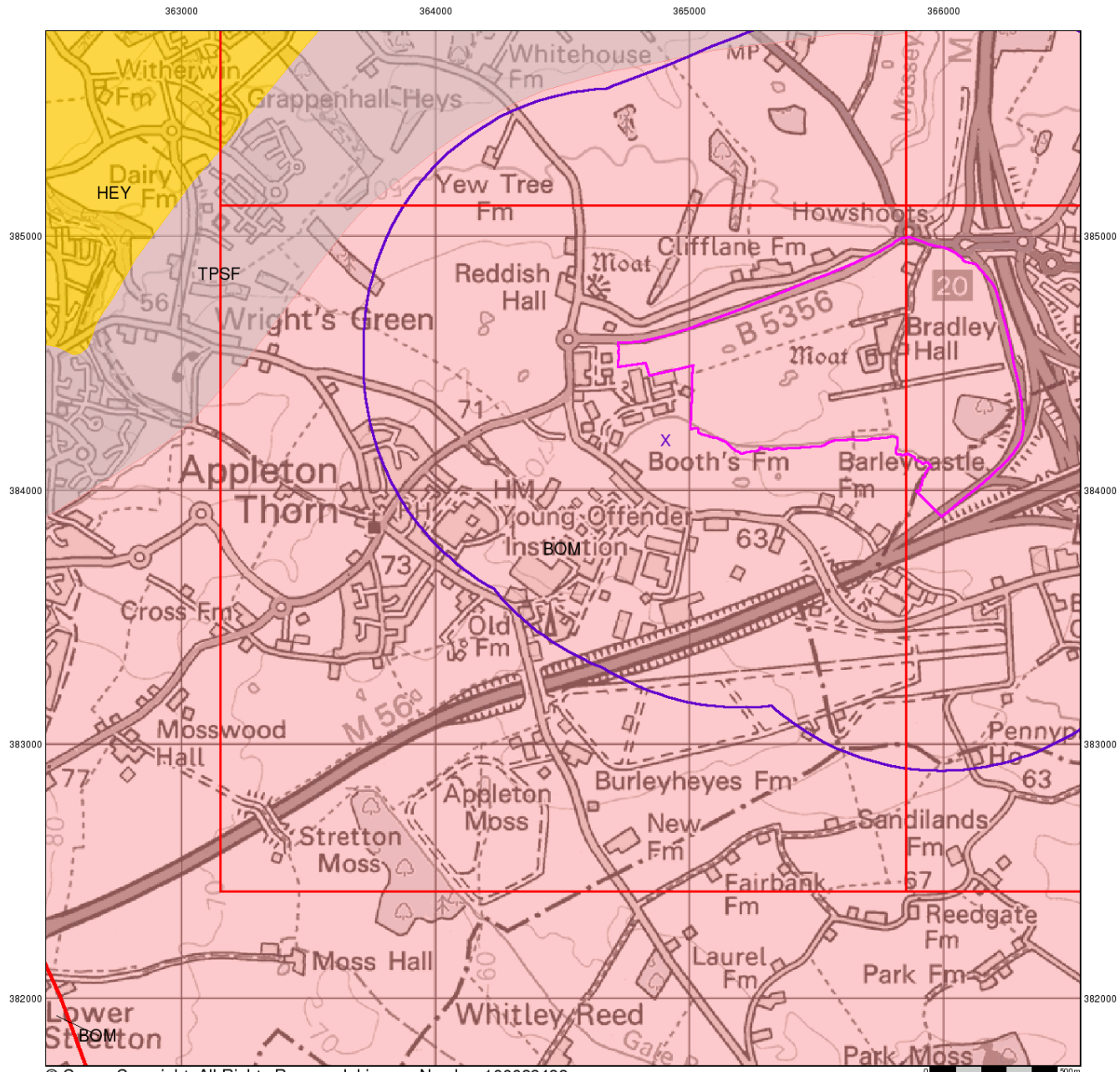
### Site Details:

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## Bedrock and Faults

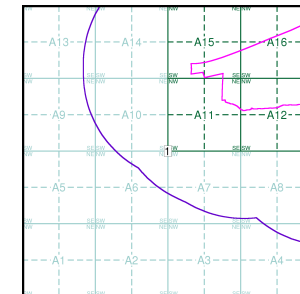
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

## Bedrock and Faults Map - Slice A



## Order Details:

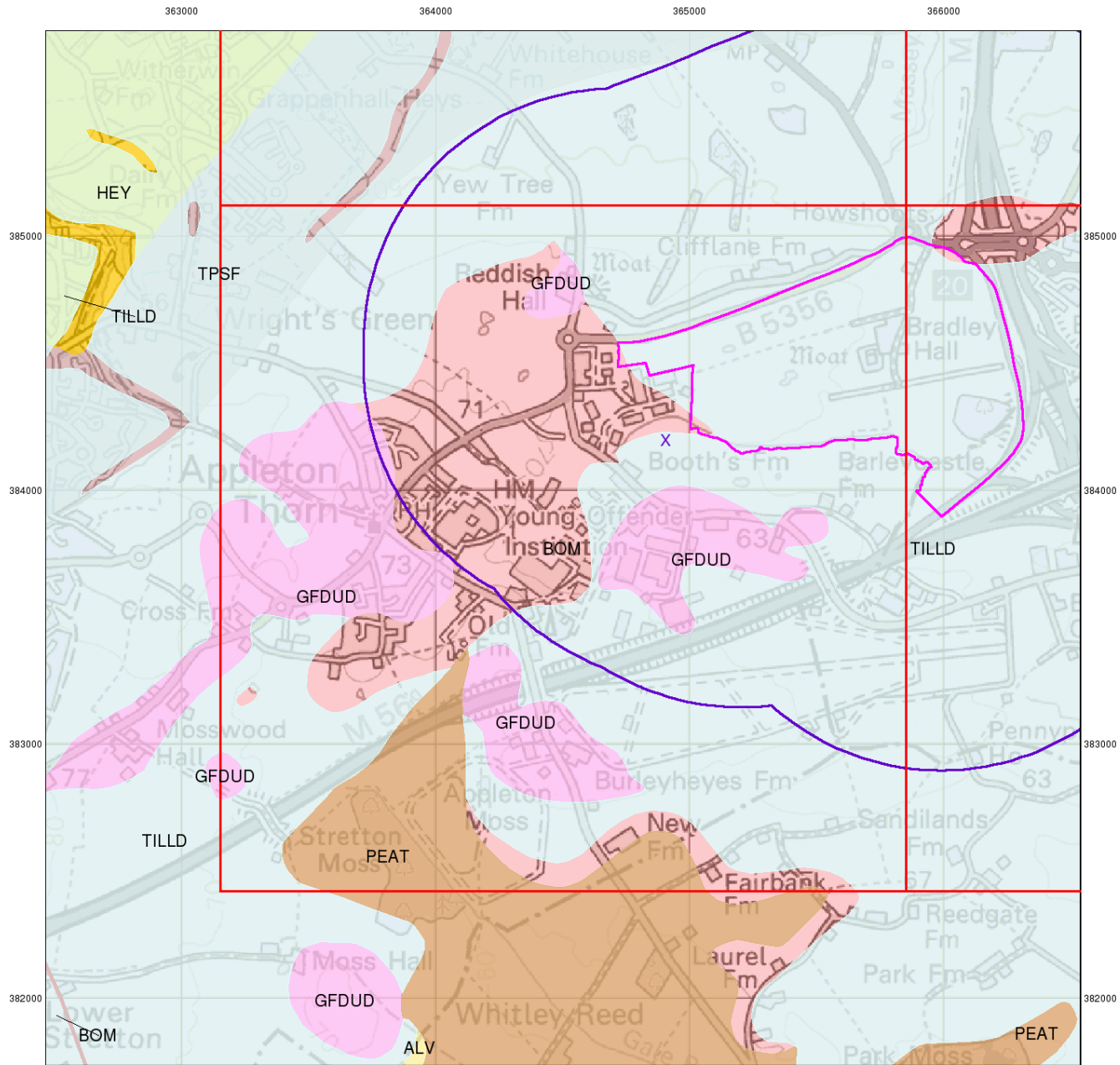
Order Number: 135773225\_1\_1  
 Customer Reference: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

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## Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

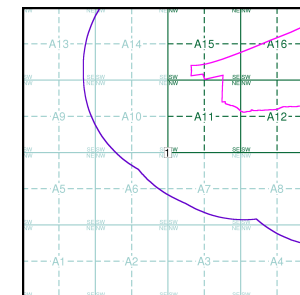
## Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

## Contact

British Geological Survey  
 Kingsley Dunham Centre  
 Keyworth  
 Nottingham  
 NG12 5GG  
 Telephone: 0115 936 3143  
 Fax: 0115 936 3276  
 email: enquiries@bgs.ac.uk  
 website: www.bgs.ac.uk

## Combined Geology Map - Slice A



## Order Details:

|                          |                                     |
|--------------------------|-------------------------------------|
| Order Number:            | 135773225_1_1                       |
| Customer Reference:      | 1015524 - Warrington Interchange MP |
| National Grid Reference: | 364910, 384200                      |
| Site:                    | A                                   |
| Site Area (Ha):          | 93.66                               |
| Search Buffer (m):       | 1000                                |

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

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 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

# Geology 1:10,000 Maps Legends

## Superficial Geology

| Map Colour  | Lex Code | Rock Name                         | Rock Type                                 | Min and Max Age         |
|---|----------|-----------------------------------|---|-------------------------|
|  | ALV      | Alluvium                          | Clay, Silt, Sand and Gravel               | Flandrian - Pleistocene |
|  | TILLD    | Till, Devensian                   | Diamicton                                 | Devensian - Ipswichian  |
|  | GFDUD    | Glaciofluvial Deposits, Devensian | Sand and Gravel                           | Devensian - Ipswichian  |
|  | SSA      | Shirdley Hill Sand Formation      | Sand                                      | Flandrian - Ipswichian  |
|  | PEAT     | Peat                              | Peat [Unlithified Deposits Coding Scheme] | Quaternary - Ryazanian  |

## Bedrock and Faults

| Map Colour  | Lex Code | Rock Name                     | Rock Type               | Min and Max Age     |
|---|----------|-------------------------------|-------------------------|---------------------|
|  | BOM      | Bollin Mudstone Member        | Mudstone                | Anisian - Anisian   |
|  | TPSF     | Tarporley Siltstone Formation | Siltstone and Sandstone | Anisian - Olenekian |

## Geology 1:10,000 Maps

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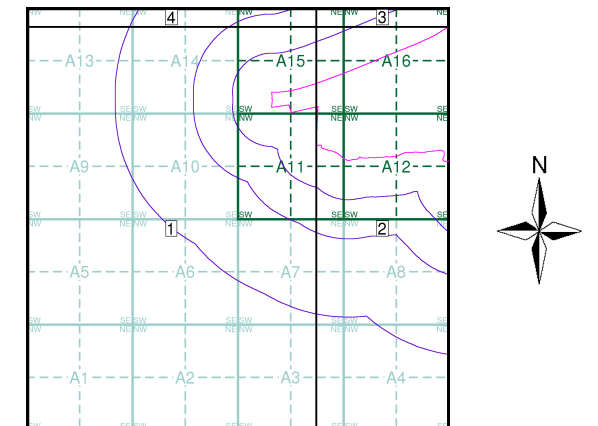
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Please Note: Not all of the layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

## Geology 1:10,000 Maps Coverage

|  |  |
|--|--|
| <b>Map ID:</b> 3                         | <b>Map ID:</b> 2                         |
| <b>Map Name:</b> SJ68NE                  | <b>Map Name:</b> SJ68SE                  |
| <b>Map Date:</b> 1960                    | <b>Map Date:</b> 1960                    |
| <b>Bedrock Geology:</b> Available        | <b>Bedrock Geology:</b> Available        |
| <b>Superficial Geology:</b> Available    | <b>Superficial Geology:</b> Available    |
| <b>Artificial Geology:</b> Not Available | <b>Artificial Geology:</b> Not Available |
| <b>Faults:</b> Available                 | <b>Faults:</b> Not Available             |
| <b>Landslip:</b> Not Available           | <b>Landslip:</b> Not Available           |
| <b>Rock Segments:</b> Not Available      | <b>Rock Segments:</b> Not Available      |
| <b>Map ID:</b> 4                         | <b>Map ID:</b> 1                         |
| <b>Map Name:</b> SJ68NW                  | <b>Map Name:</b> SJ68SW                  |
| <b>Map Date:</b> 1946                    | <b>Map Date:</b> 1945                    |
| <b>Bedrock Geology:</b> Available        | <b>Bedrock Geology:</b> Available        |
| <b>Superficial Geology:</b> Available    | <b>Superficial Geology:</b> Available    |
| <b>Artificial Geology:</b> Not Available | <b>Artificial Geology:</b> Not Available |
| <b>Faults:</b> Not Supplied              | <b>Faults:</b> Not Supplied              |
| <b>Landslip:</b> Not Available           | <b>Landslip:</b> Not Available           |
| <b>Rock Segments:</b> Not Supplied       | <b>Rock Segments:</b> Not Supplied       |

## Geology 1:10,000 Maps - Slice A



## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

## Artificial Ground and Landslip

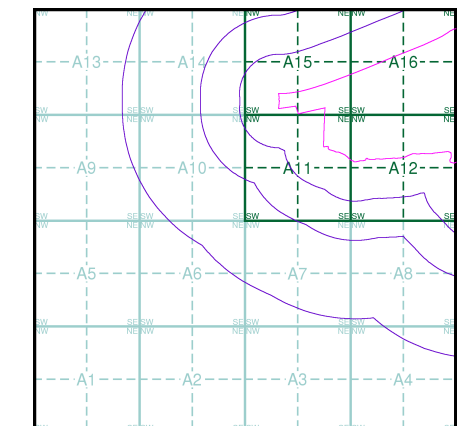
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- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

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## Artificial Ground and Landslip Map - Slice A

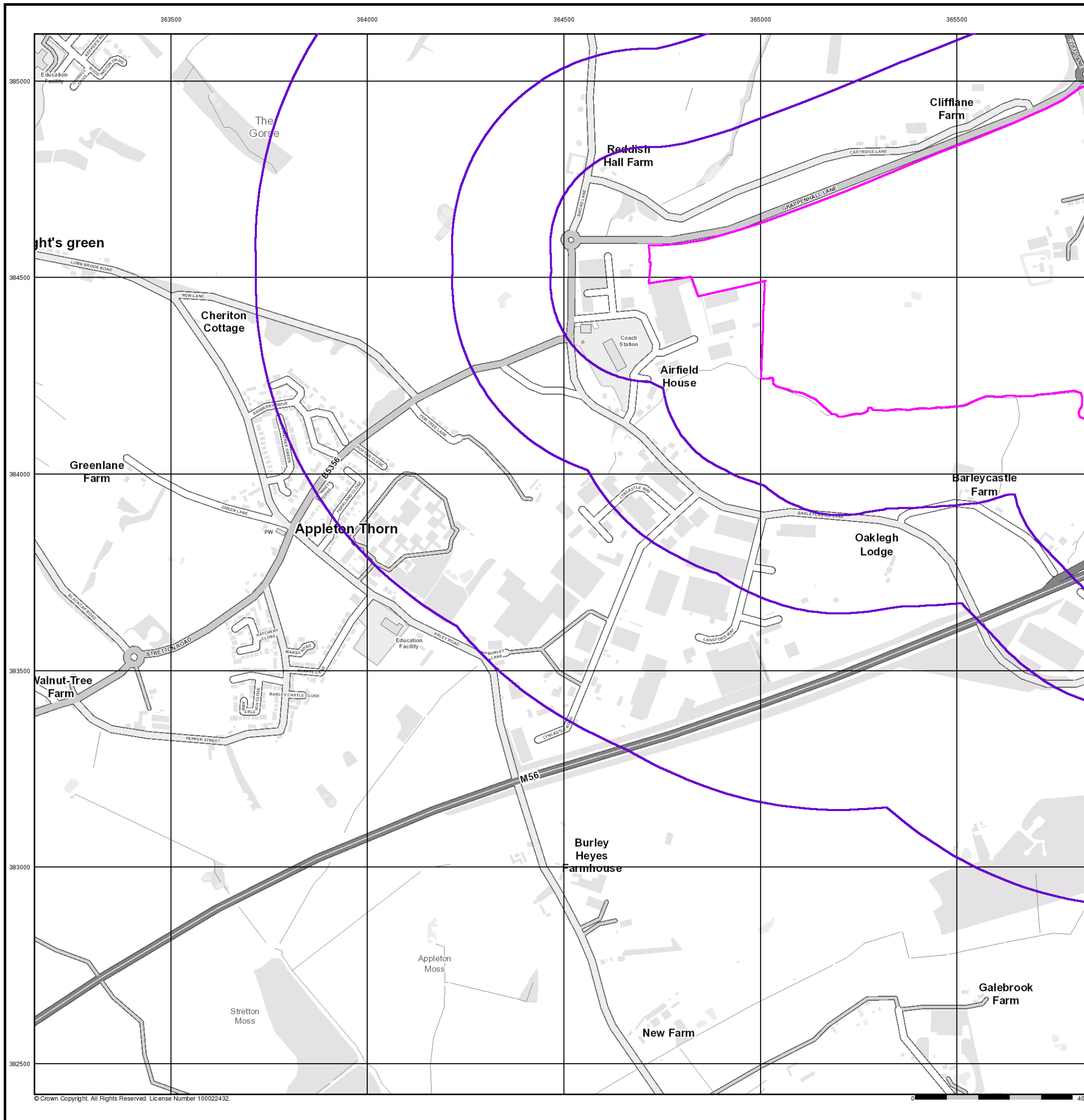


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



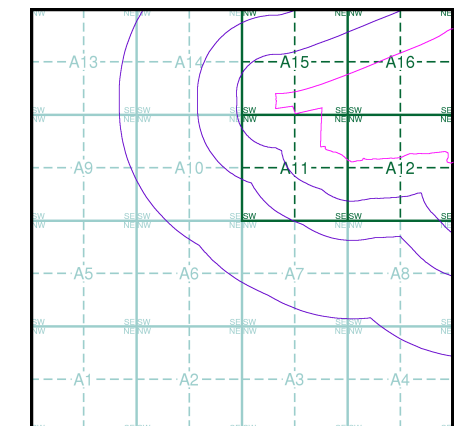
## Superficial Geology

BGS 1:10,000 Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

## Superficial Geology Map - Slice A

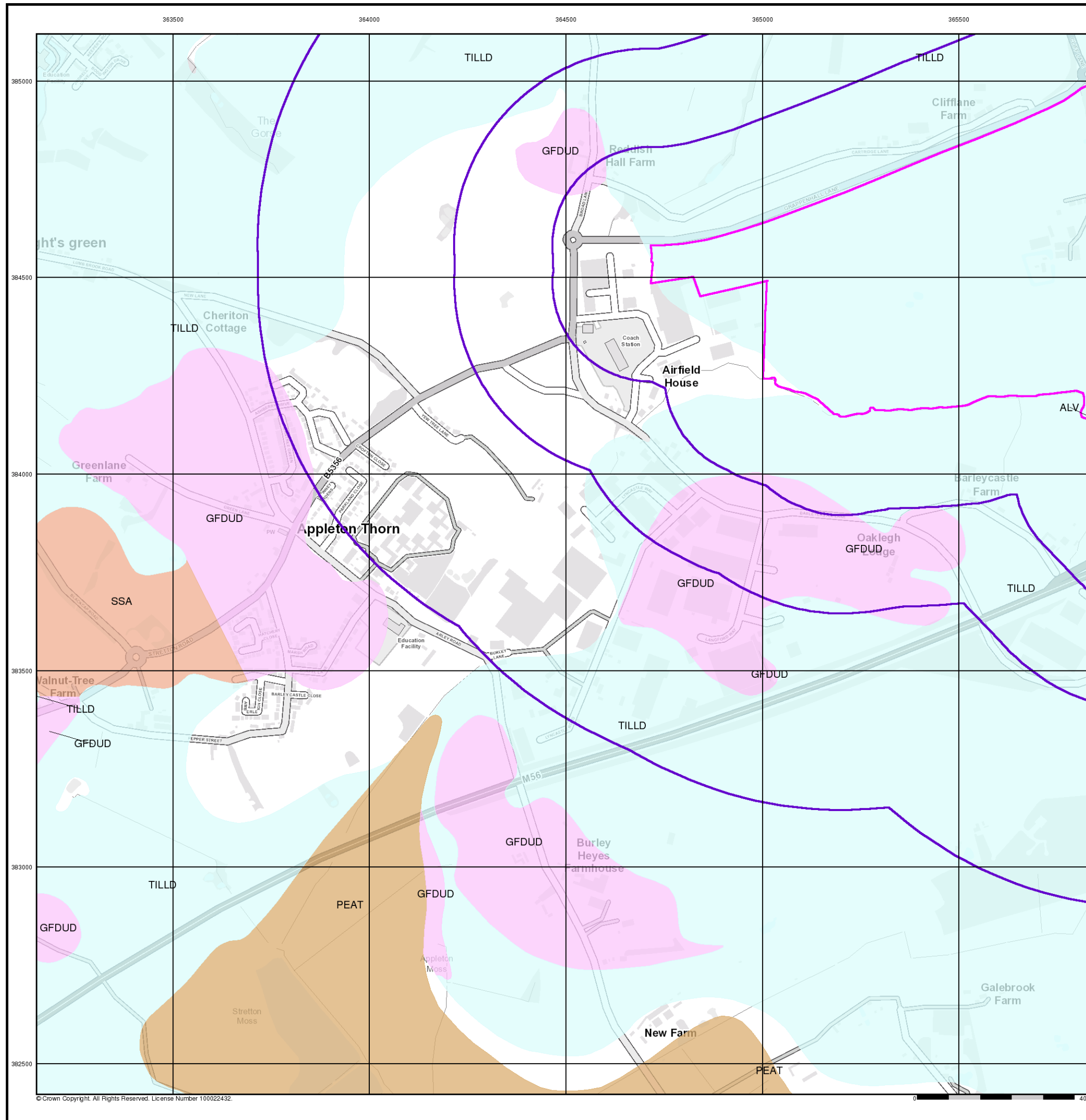


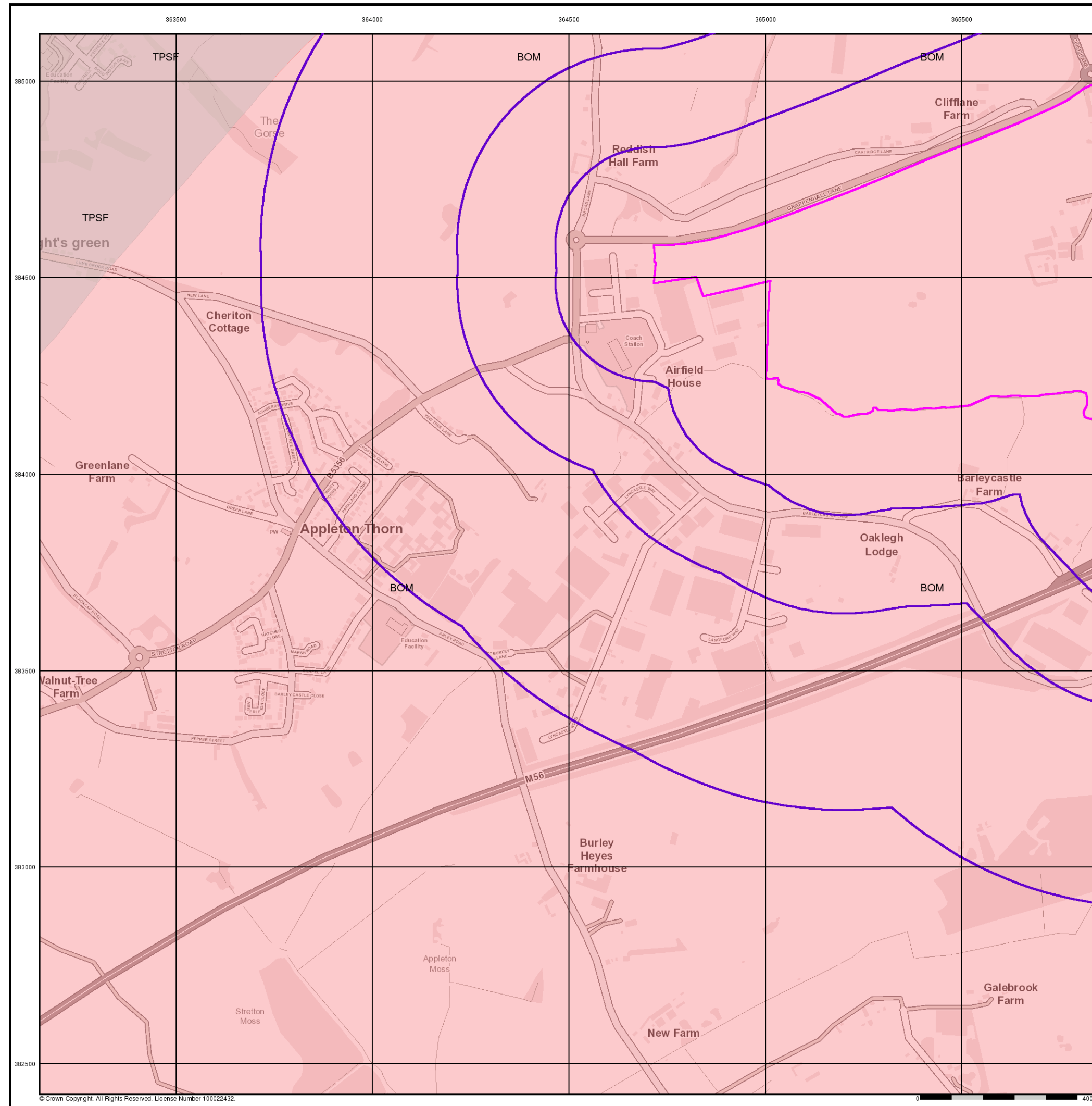
## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

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## Bedrock and Faults

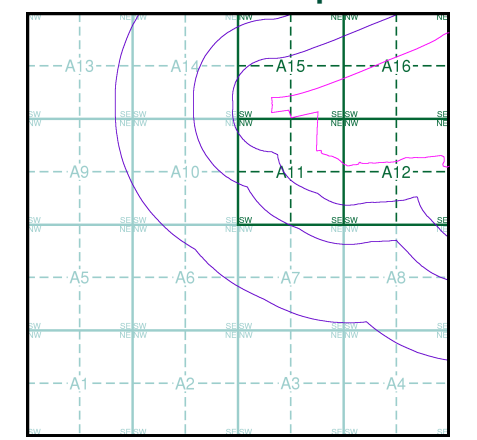
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults and thin beds mapped as lines such as coal seams and mineral veins. These are not restricted by age and could relate to features of any of the 1:10,000 geology datasets.

## Bedrock and Faults Map - Slice A

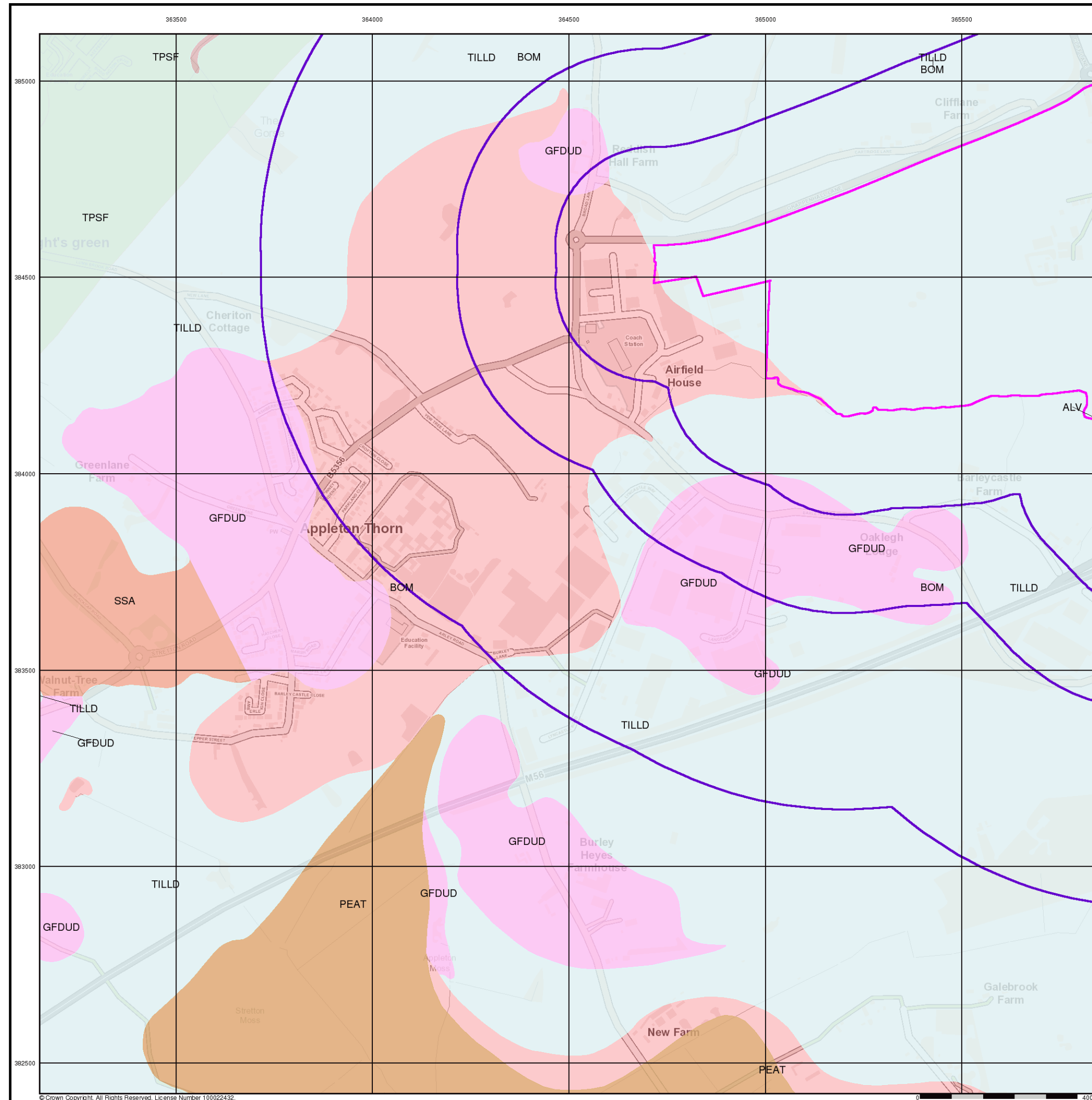


## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

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## Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

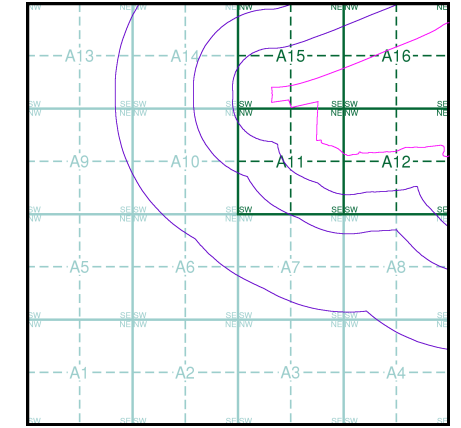
### Additional Information

More information on 1:10,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

### Contact

British Geological Survey  
 Kingsley Dunham Centre  
 Keyworth  
 Nottingham  
 NG12 5GG  
 Telephone: 0115 936 3143  
 Fax: 0115 936 3276  
 email: enquiries@bgs.ac.uk  
 website: www.bgs.ac.uk

## Combined Geology Map - Slice A



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

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# Geology 1:10,000 Maps Legends

## Superficial Geology

| Map Colour  | Lex Code | Rock Name   | Rock Type                                 | Min and Max Age             |
|---|----------|---|---|-----------------------------|
|  | SUPNM    | Superficial Theme Not Mapped [For Digital Map Use Only] | Unknown/Unclassified Entry                | Not Supplied - Not Supplied |
|  | ALV      | Alluvium  | Clay, Silt, Sand and Gravel               | Flandrian - Pleistocene     |
|  | TILLD    | Till, Devensian   | Diamicton                                 | Devensian - Ipswichian      |
|  | GFDUD    | Glaciofluvial Deposits, Devensian                       | Sand and Gravel                           | Devensian - Ipswichian      |
|  | SSA      | Shirdley Hill Sand Formation                            | Sand                                      | Flandrian - Ipswichian      |
|  | PEAT     | Peat  | Peat [Unlithified Deposits Coding Scheme] | Quaternary - Ryazanian      |

## Bedrock and Faults

| Map Colour  | Lex Code | Rock Name              | Rock Type | Min and Max Age   |
|---|----------|------------------------|-----------|-------------------|
|  | BOM      | Bollin Mudstone Member | Mudstone  | Anisian - Anisian |

## Geology 1:10,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:10,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around a site. This mapping may be more up to date than previously published paper maps.

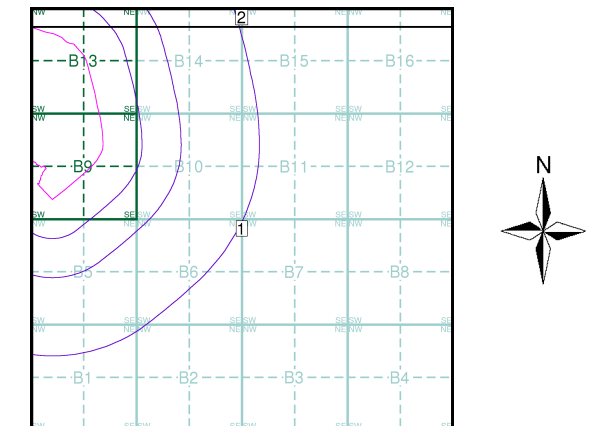
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page.

Please Note: Not all of the layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

## Geology 1:10,000 Maps Coverage

|                             |               |                             |               |
|-----------------------------|---------------|-----------------------------|---------------|
| <b>Map ID:</b>              | 2             | <b>Map ID:</b>              | 1             |
| <b>Map Name:</b>            | SJ68NE        | <b>Map Name:</b>            | SJ68SE        |
| <b>Map Date:</b>            | 1960          | <b>Map Date:</b>            | 1960          |
| <b>Bedrock Geology:</b>     | Available     | <b>Bedrock Geology:</b>     | Available     |
| <b>Superficial Geology:</b> | Available     | <b>Superficial Geology:</b> | Available     |
| <b>Artificial Geology:</b>  | Not Available | <b>Artificial Geology:</b>  | Not Available |
| <b>Faults:</b>              | Available     | <b>Faults:</b>              | Not Available |
| <b>Landslip:</b>            | Not Available | <b>Landslip:</b>            | Not Available |
| <b>Rock Segments:</b>       | Not Available | <b>Rock Segments:</b>       | Not Available |

## Geology 1:10,000 Maps - Slice B



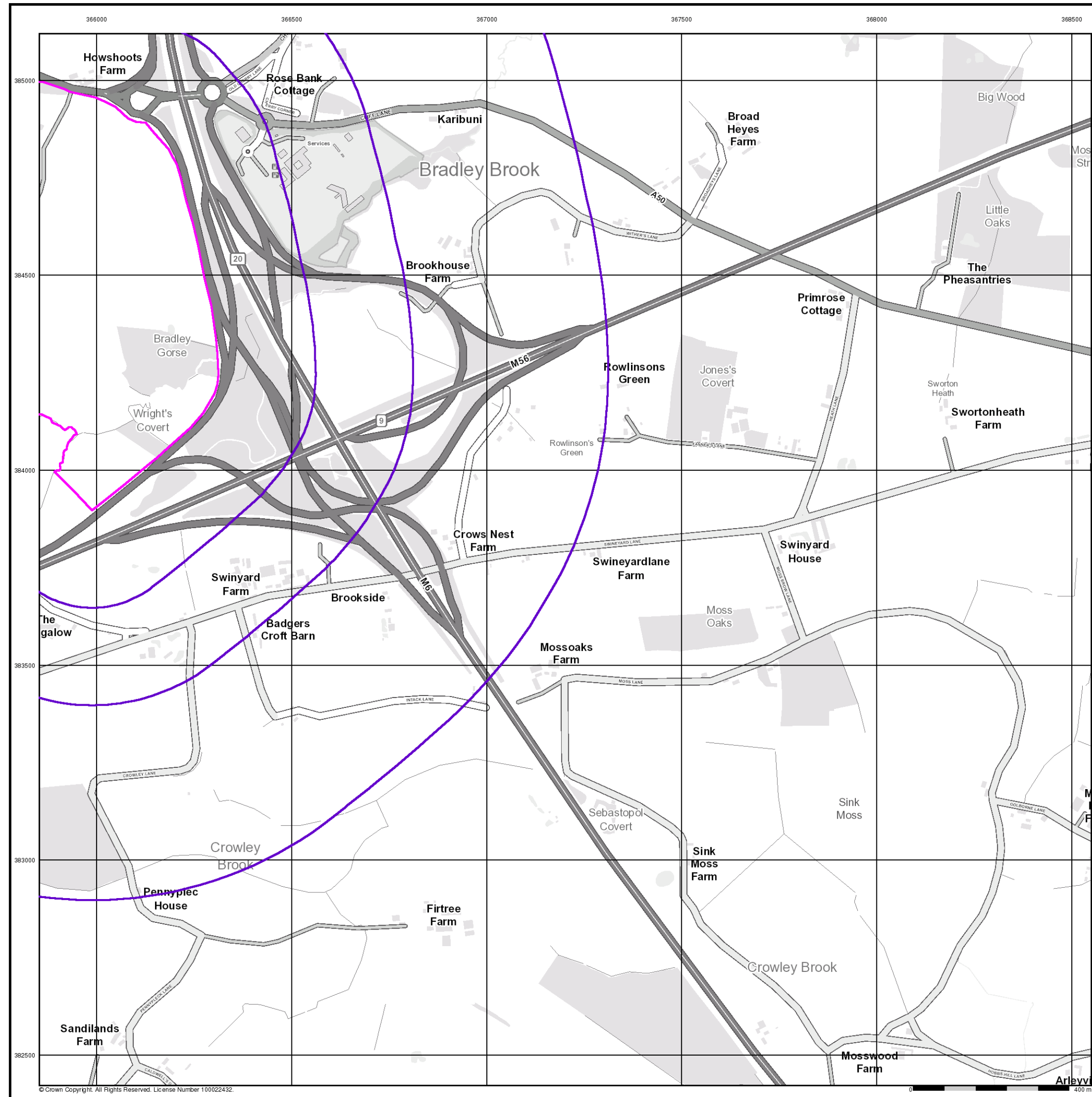
## Order Details

|                          |                                     |
|--------------------------|-------------------------------------|
| Order Number:            | 135773225_1_1                       |
| Customer Ref:            | 1015524 - Warrington Interchange MP |
| National Grid Reference: | 366500, 384120                      |
| Slice:                   | B                                   |
| Site Area (Ha):          | 93.66                               |
| Search Buffer (m):       | 1000                                |

## Site Details

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## Artificial Ground and Landslip

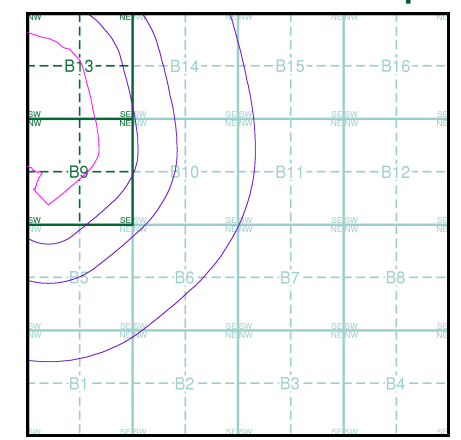
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

## Artificial Ground and Landslip Map - Slice B

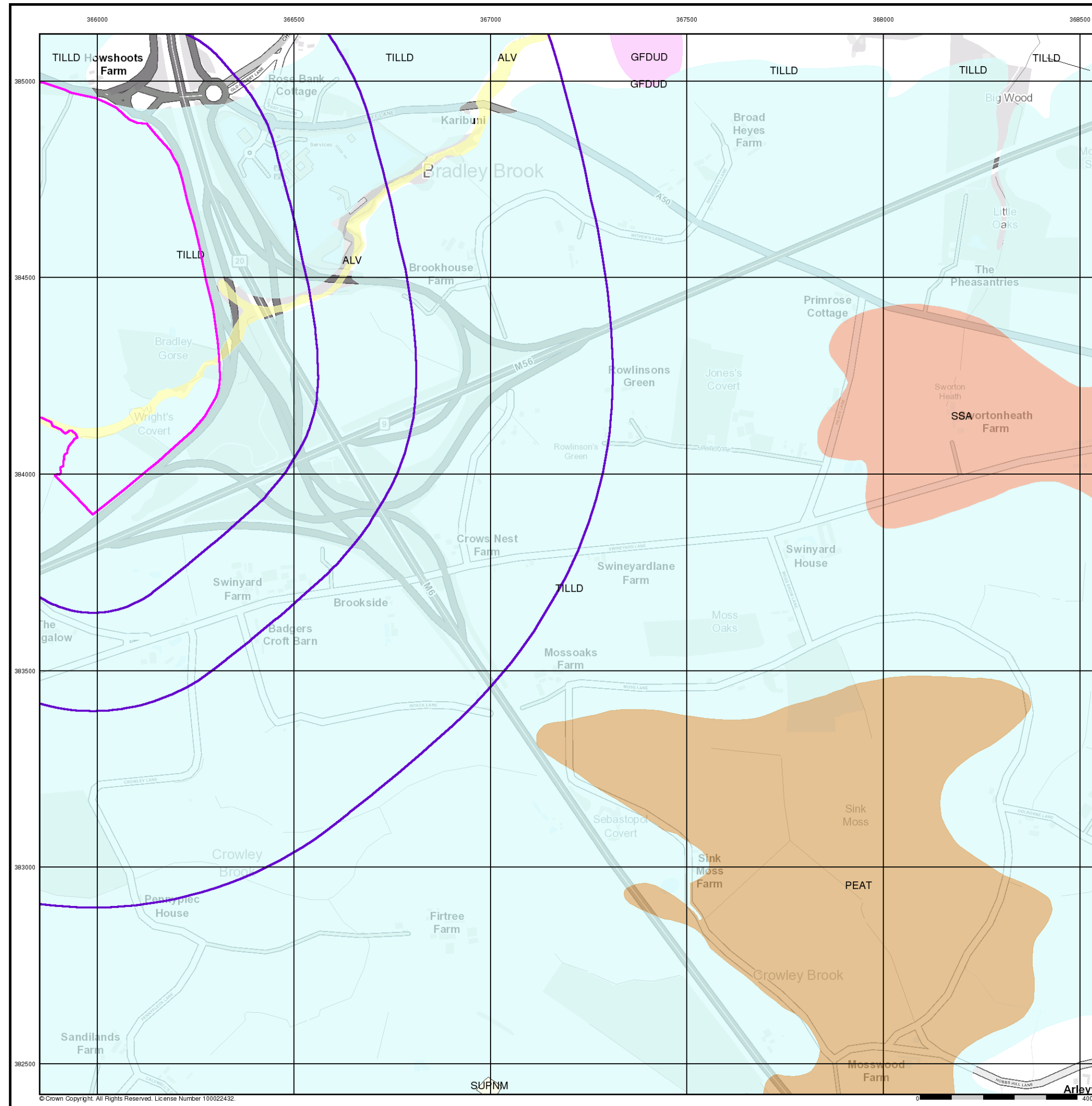


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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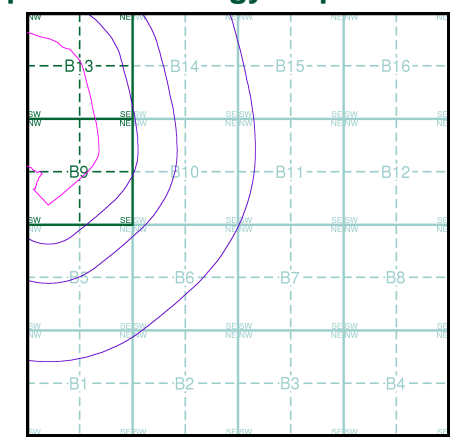
## Superficial Geology

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Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

### Superficial Geology Map - Slice B

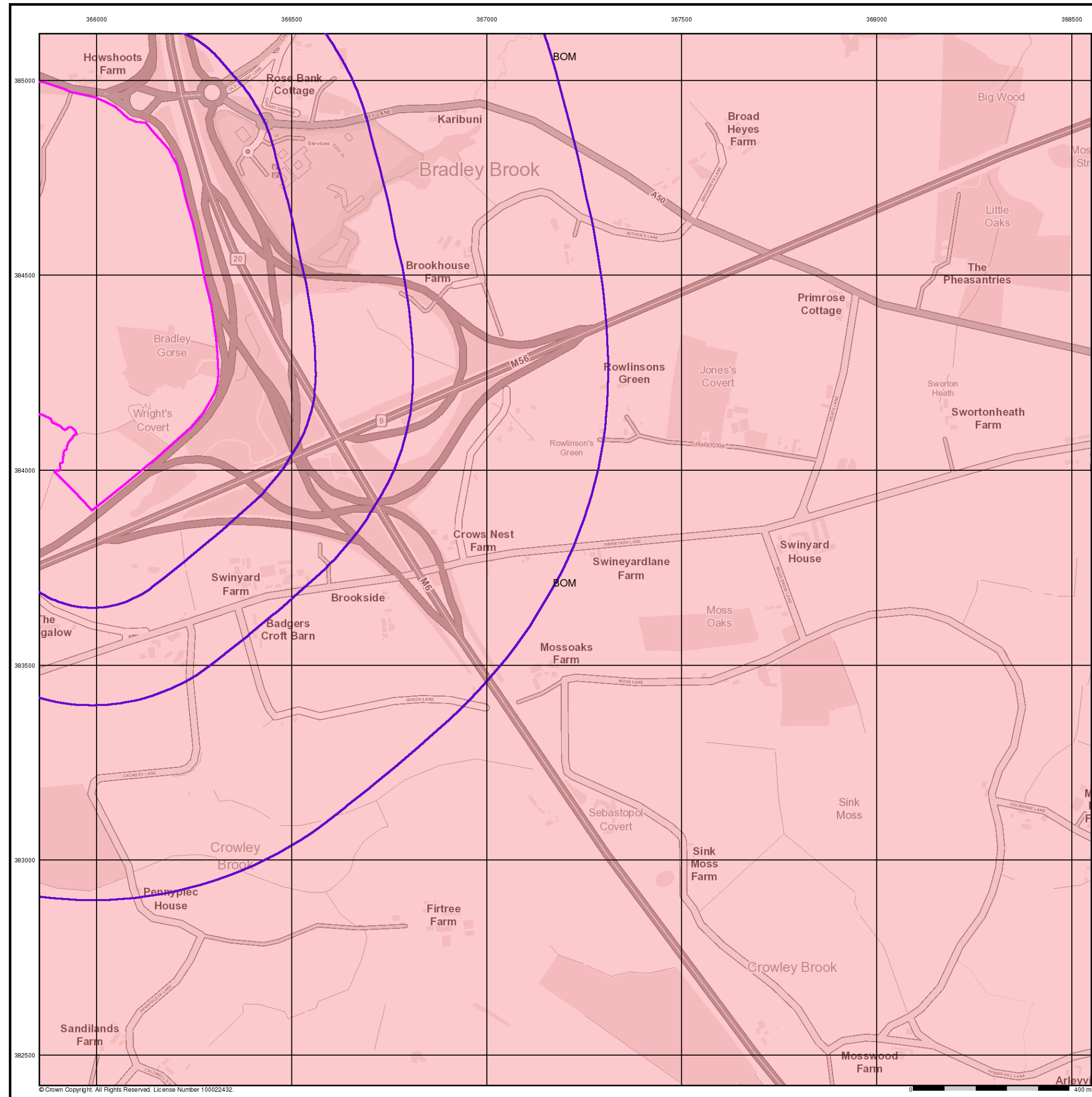


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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## Bedrock and Faults

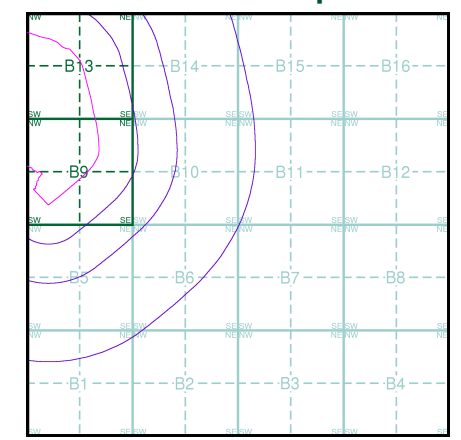
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

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### Bedrock and Faults Map - Slice B

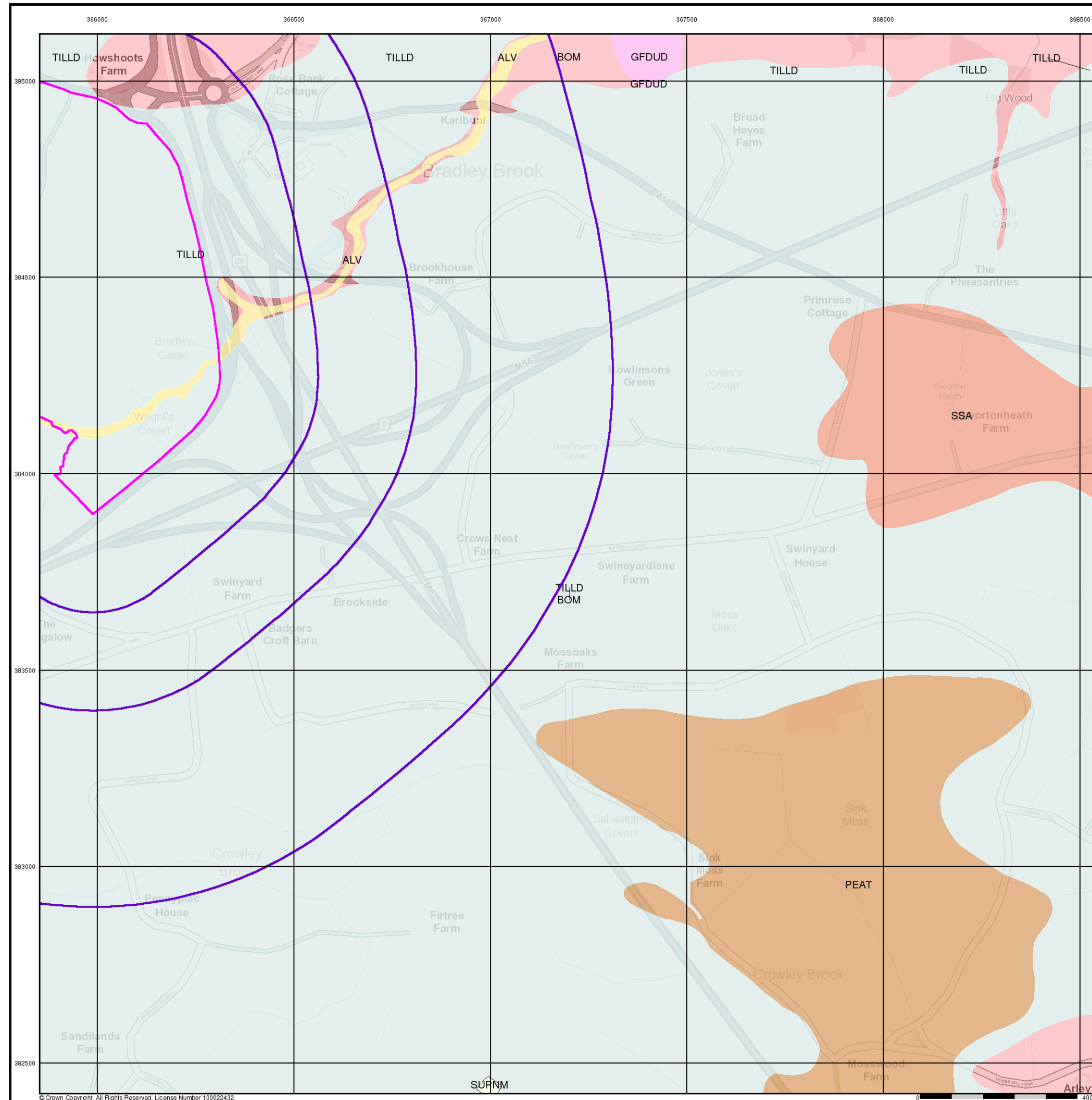


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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## Combined Surface Geology

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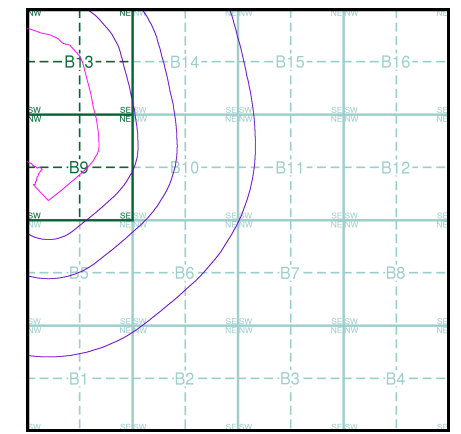
### Additional Information

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 Fax: 0115 936 3276  
 email: enquiries@bgs.ac.uk  
 website: www.bgs.ac.uk

## Combined Geology Map - Slice B



### Order Details

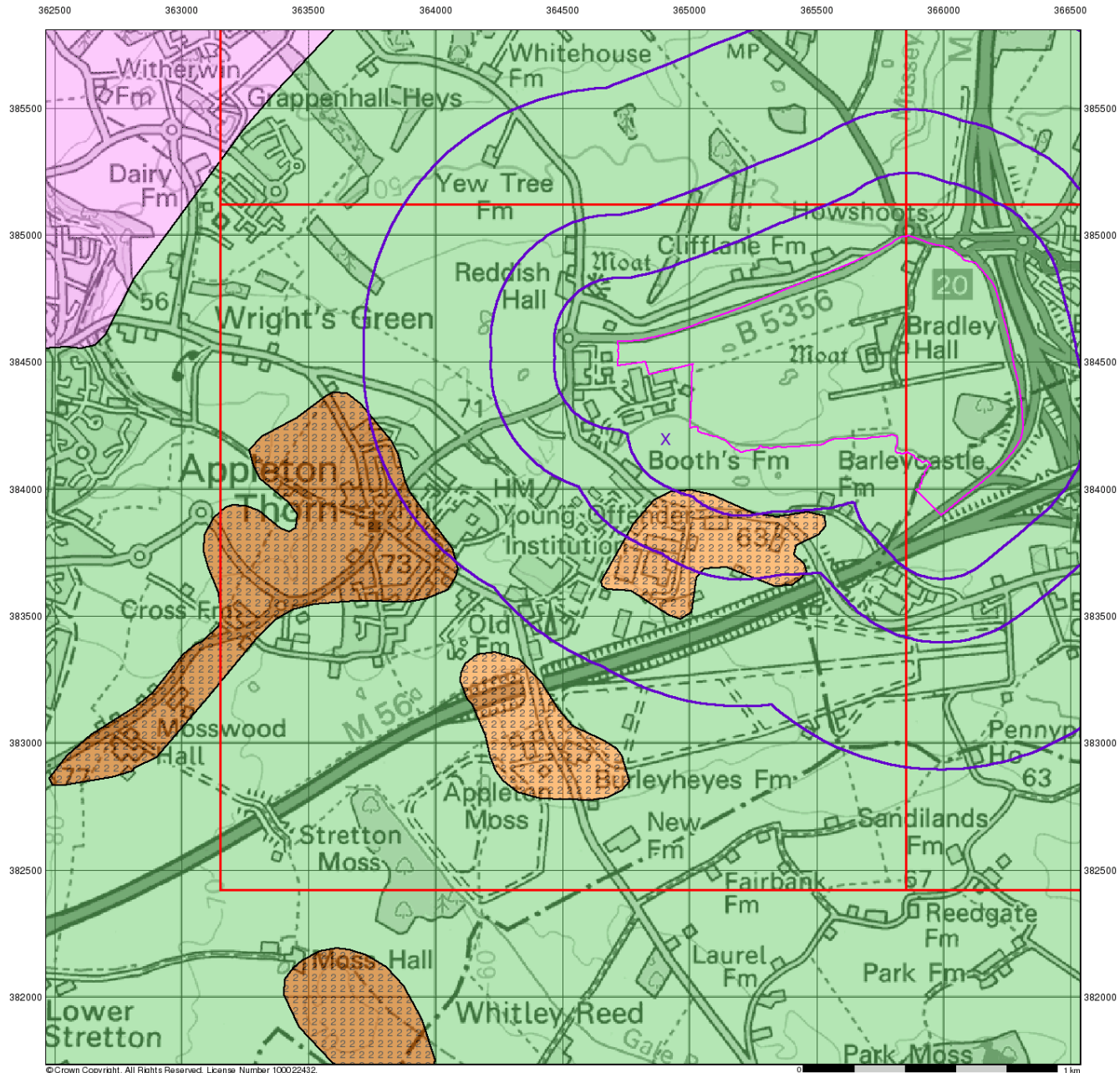
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

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0 1 km

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## Groundwater Vulnerability

### General

- Specified Site
- Slice
- Specified Buffer(s)
- Map ID
- Bearing Reference Point

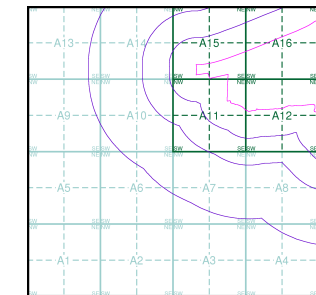
### Agency and Hydrological

#### Geological Classes

- Major Aquifer (Highly Permeable)**
  - High (H) 1, 2, 3, U
  - Intermediate (I) 1, 2
  - Low
- Minor Aquifer (Variably Permeable)**
  - High (H) 1, 2, 3, U
  - Intermediate (I) 1, 2
  - Low
- Non Aquifer (Negligibly Permeable)**
  - High (H) 1, 2, 3, U
  - Intermediate (I) 1, 2
  - Low
- Water or Sea**
  -
- Drift Deposit**
  -

#### Soil Classes

### Site Sensitivity Context Map - Slice A



### Order Details

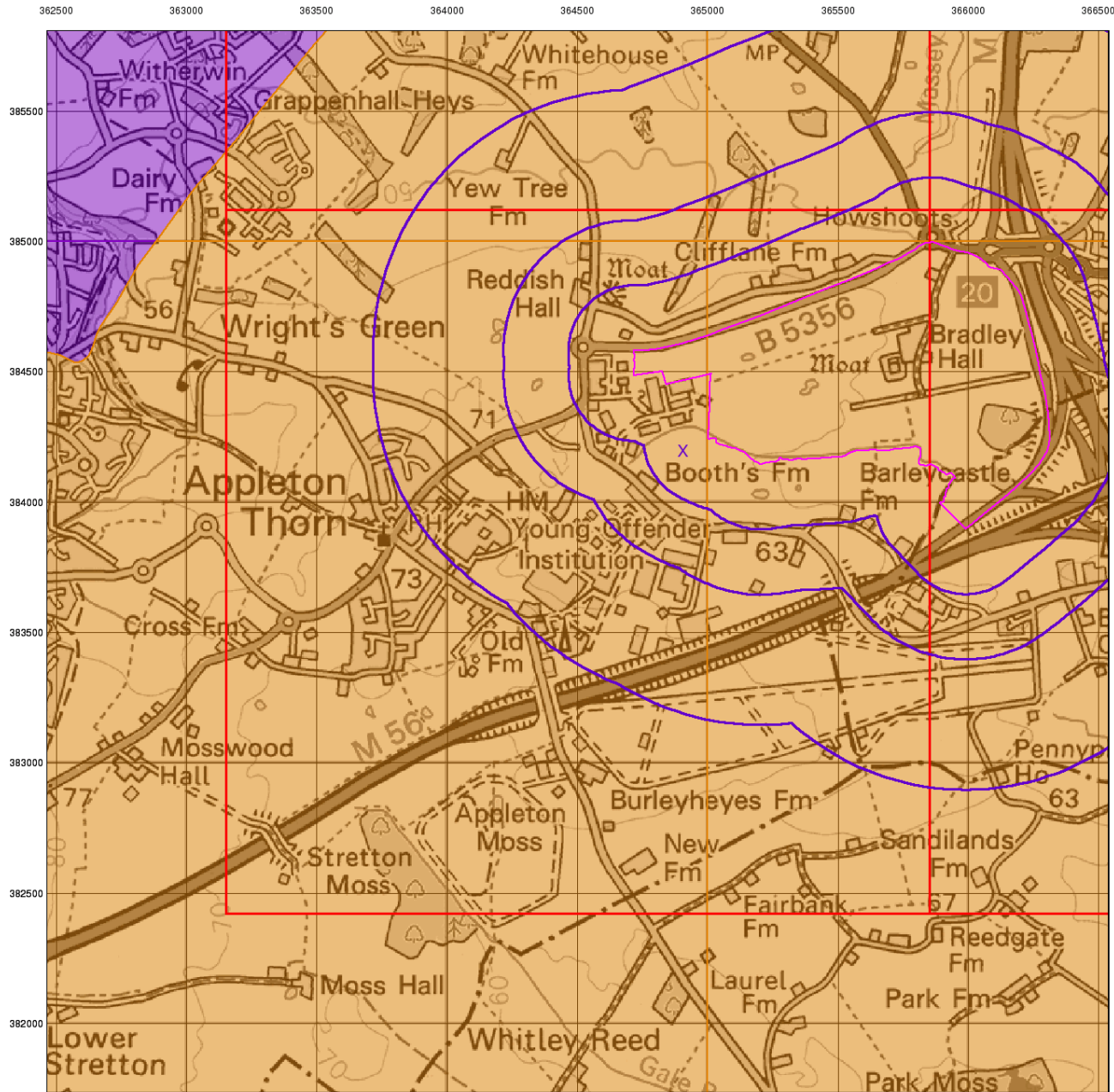
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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## Bedrock Aquifer Designation

### General

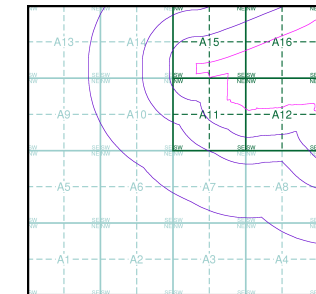
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

#### Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

### Site Sensitivity Context Map - Slice A



### Order Details

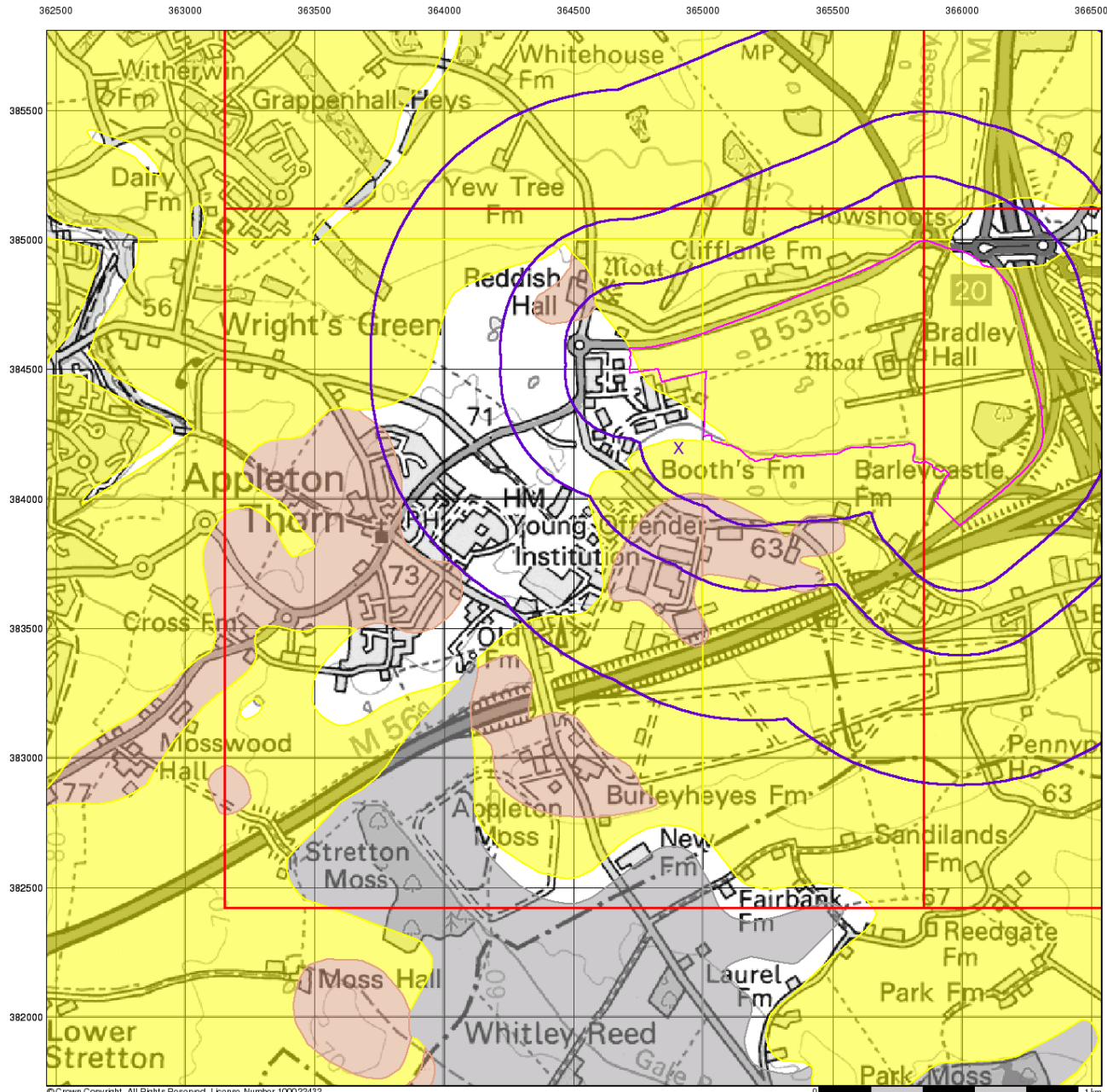
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

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## Superficial Aquifer Designation

### General

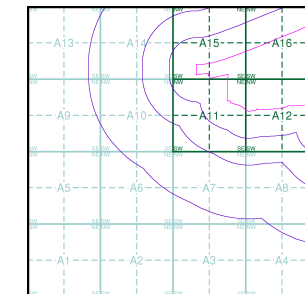
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

#### Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

### Site Sensitivity Context Map - Slice A



### Order Details

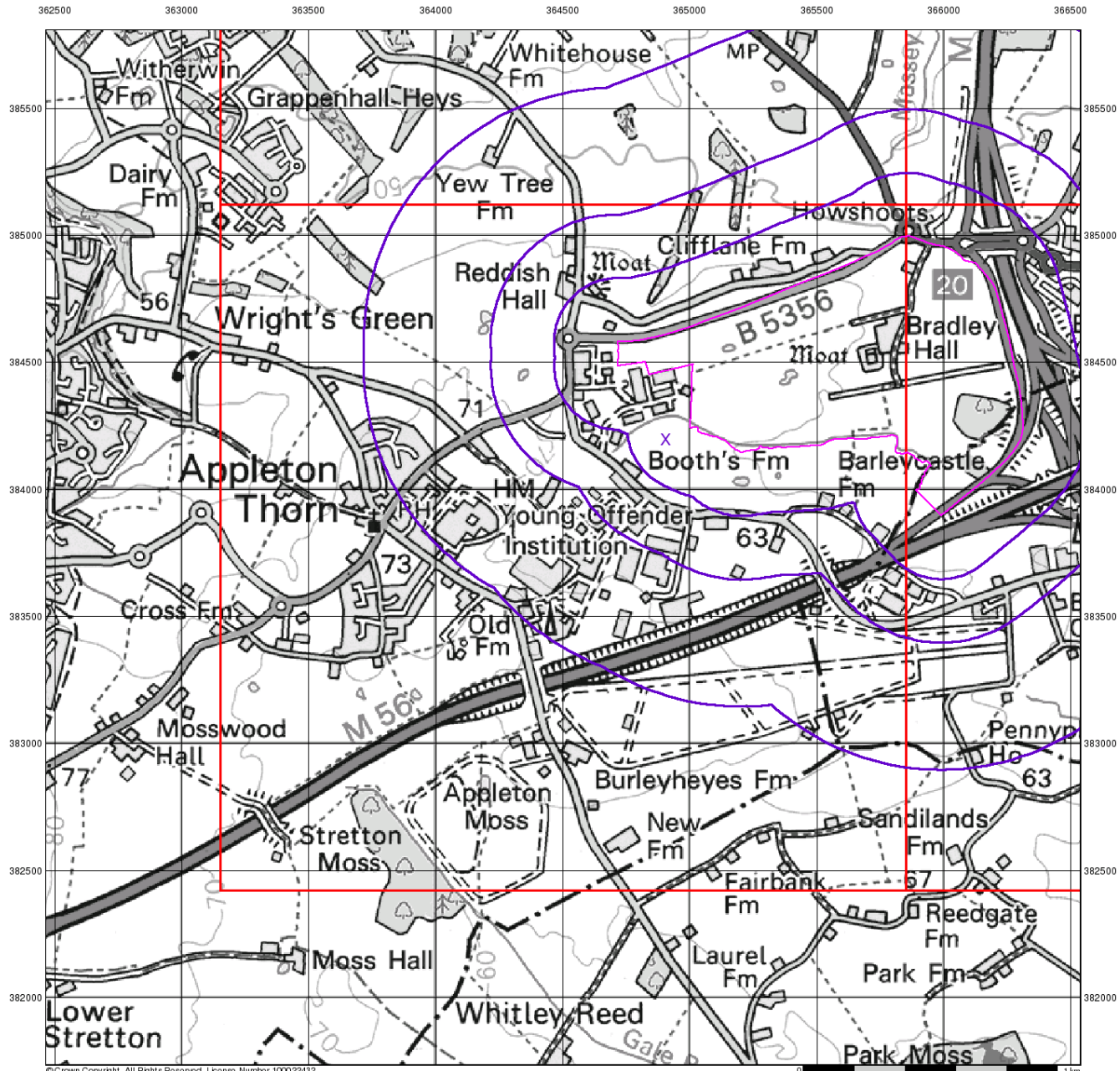
|                          |                                     |
|--------------------------|-------------------------------------|
| Order Number:            | 135773225_1_1                       |
| Customer Ref:            | 1015524 - Warrington Interchange MP |
| National Grid Reference: | 364910, 384200                      |
| Slice:                   | A                                   |
| Site Area (Ha):          | 93.66                               |
| Search Buffer (m):       | 1000                                |

### Site Details

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## Source Protection Zones

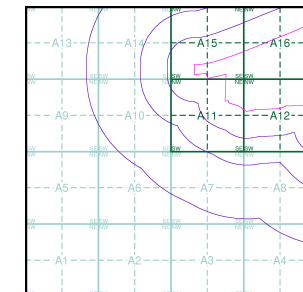
### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)
- Source Protection Zone Borehole

### Site Sensitivity Context Map - Slice A



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

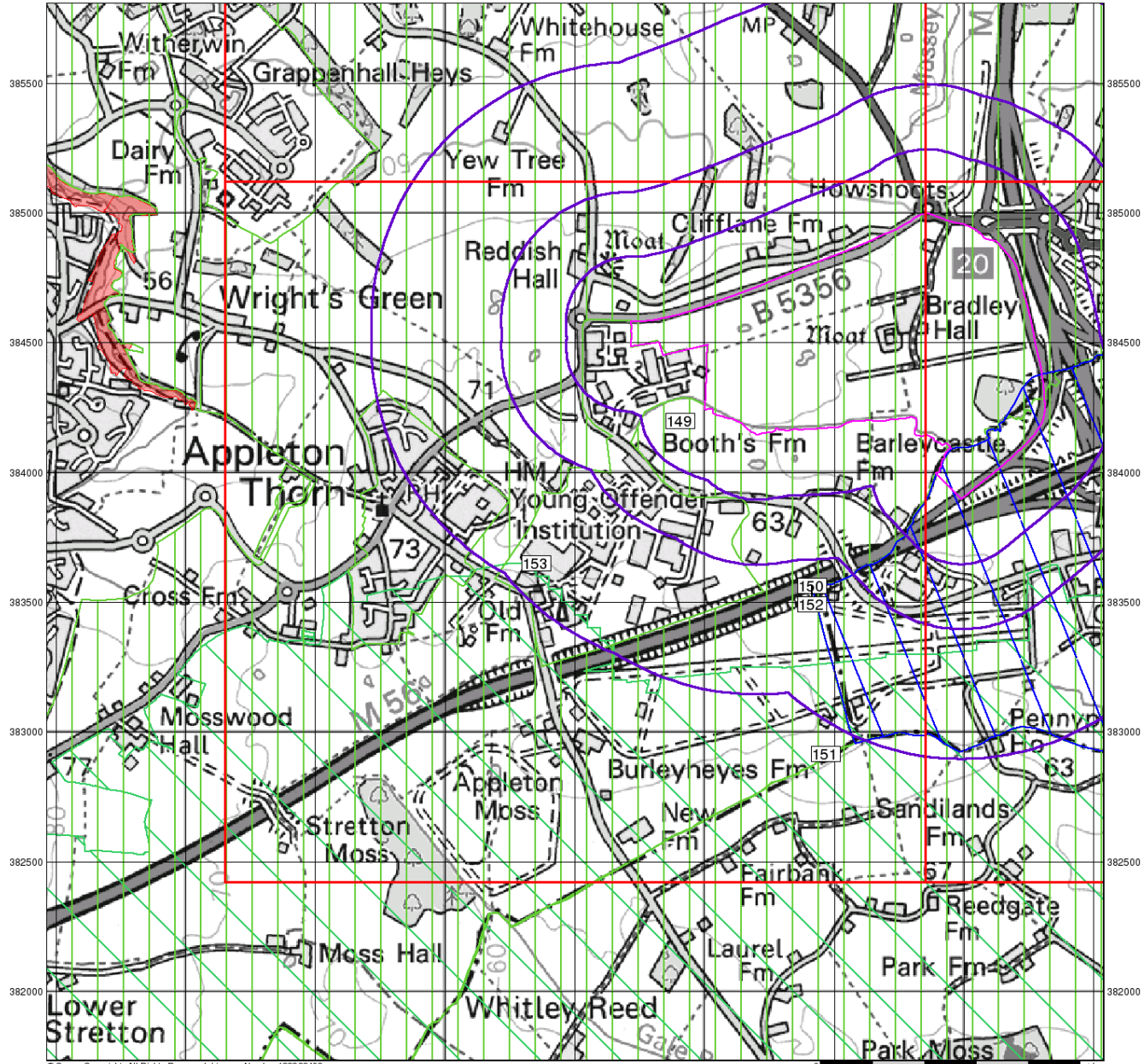
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## Sensitive Land Uses

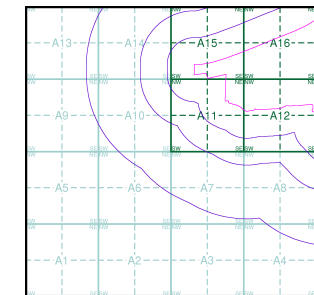
### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

### Site Sensitivity Context Map - Slice A



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

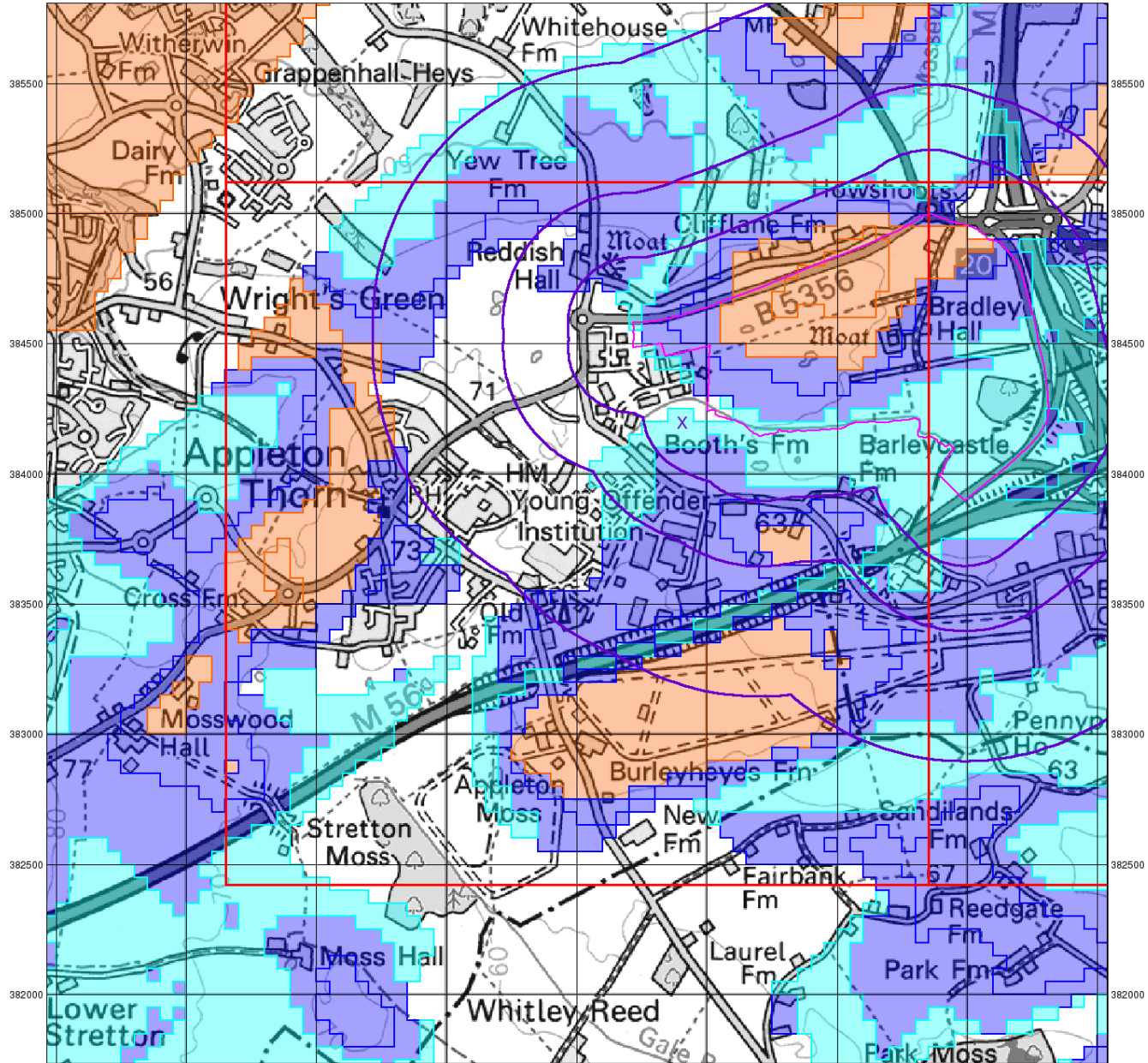
### Site Details

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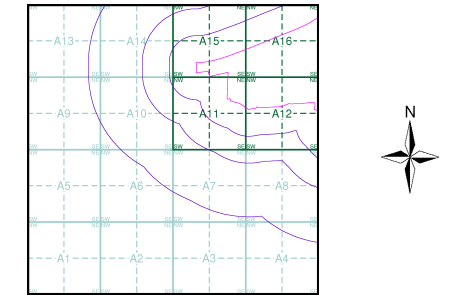
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## BGS Flood GFS Data

- General**
- Specified Site
  - Specified Buffer(s)
  - Bearing Reference Point
  - Slice

- Agency and Hydrological (Flood)**
- Limited Potential for Groundwater Flooding to Occur
  - Potential for Groundwater Flooding of Property Situated Below Ground Level
  - Potential for Groundwater Flooding to Occur at Surface

## Site Sensitivity Context Map - Slice A



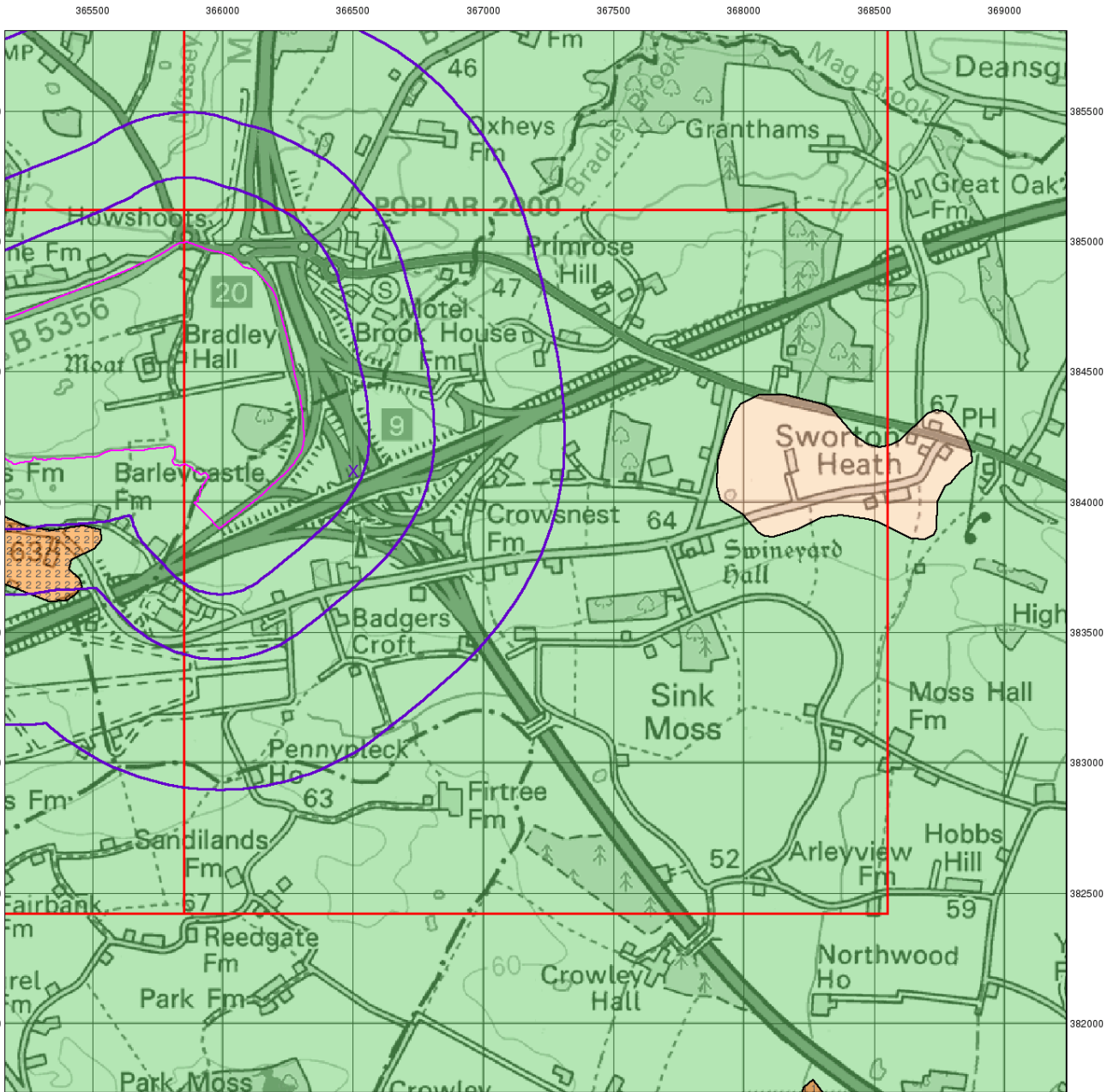
**Order Details**

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
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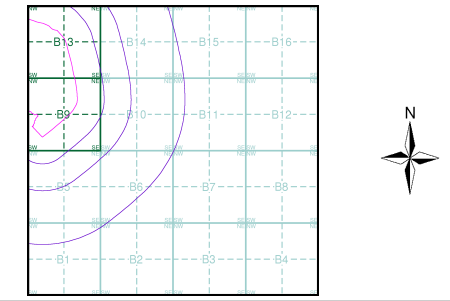
## Groundwater Vulnerability

- General**
- ◆ Specified Site
  - Specified Buffer(s)
  - ✕ Bearing Reference Point
  - Slice
  - B Map ID

### Agency and Hydrological

- |                                    |                       |
|------------------------------------|-----------------------|
| <b>Geological Classes</b>          | <b>Soil Classes</b>   |
| Major Aquifer (Highly Permeable)   | High (H) 1, 2, 3, U   |
|                                    | Intermediate (I) 1, 2 |
|                                    | Low                   |
| Minor Aquifer (Variably Permeable) | High (H) 1, 2, 3, U   |
|                                    | Intermediate (I) 1, 2 |
|                                    | Low                   |
| Non Aquifer (Negligibly Permeable) |                       |
| Water or Sea                       |                       |
| Drift Deposit                      |                       |

### Site Sensitivity Context Map - Slice B



### Order Details

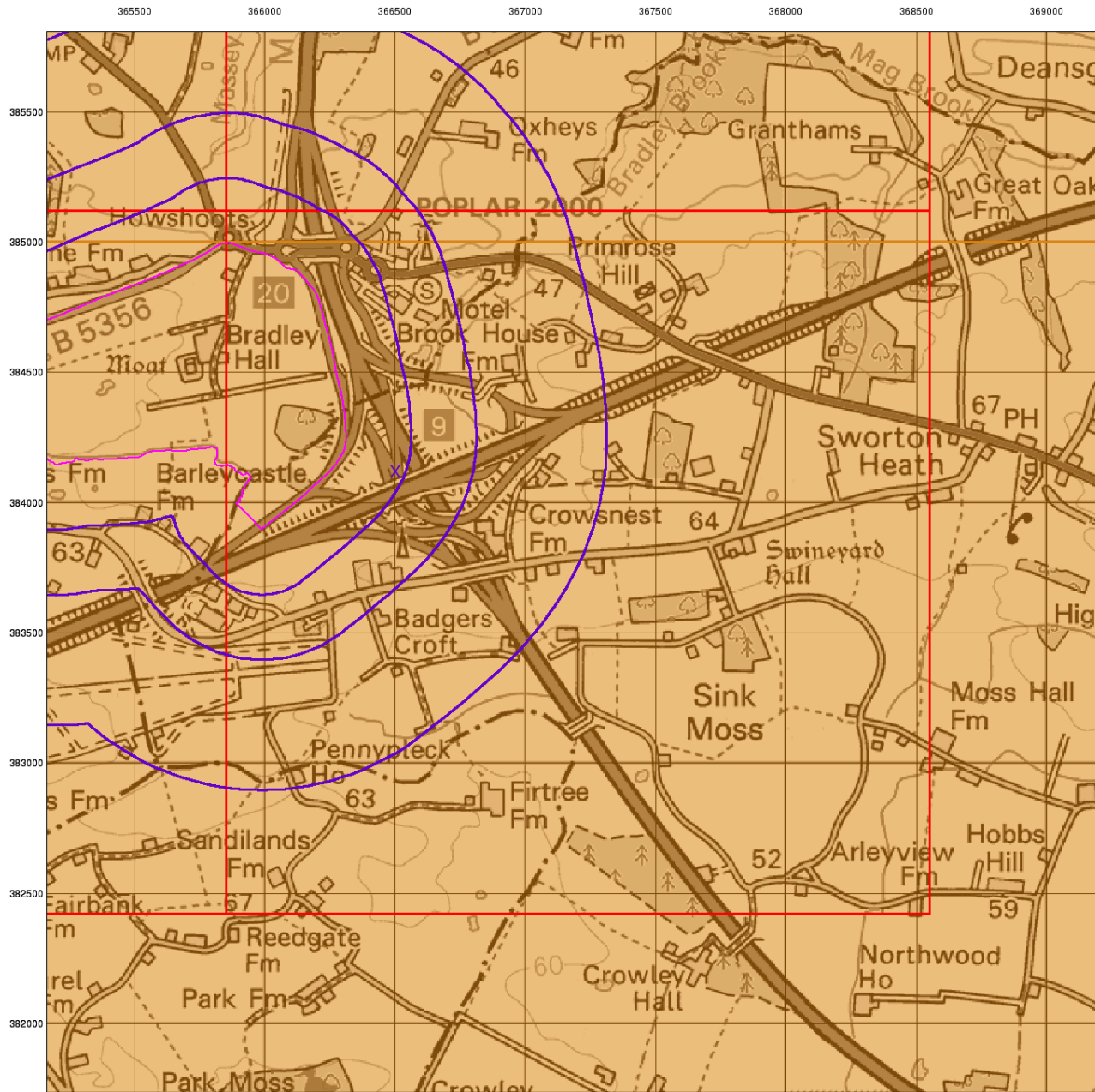
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

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## Bedrock Aquifer Designation

### General

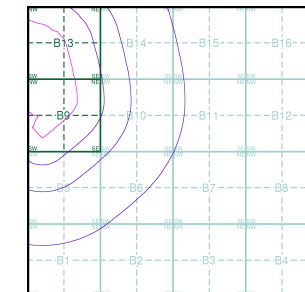
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

#### Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

### Site Sensitivity Context Map - Slice B



### Order Details

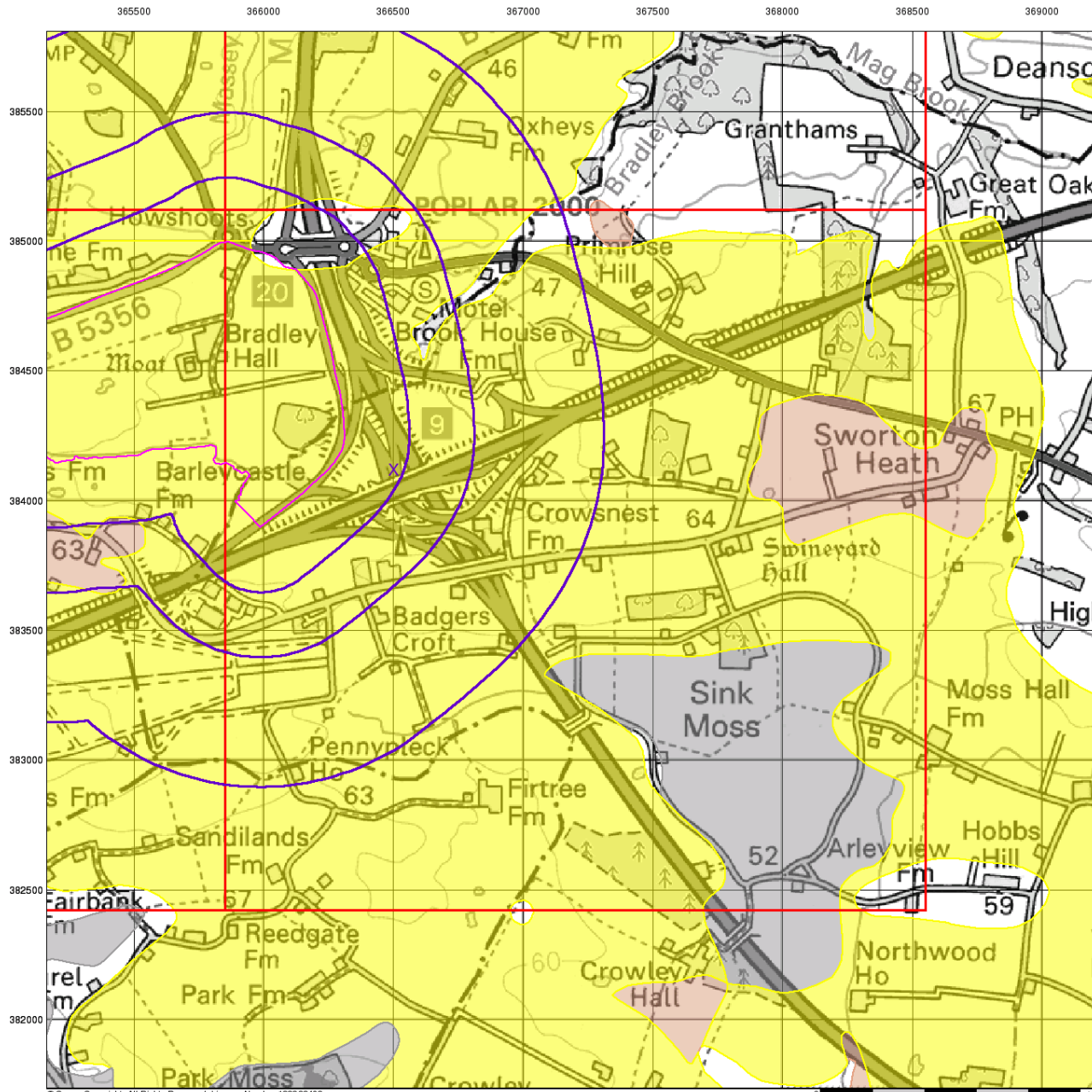
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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## Superficial Aquifer Designation

### General

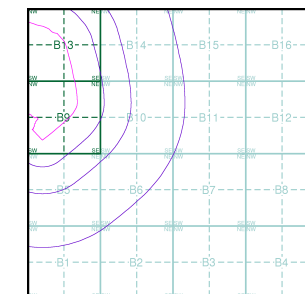
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

#### Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

### Site Sensitivity Context Map - Slice B



### Order Details

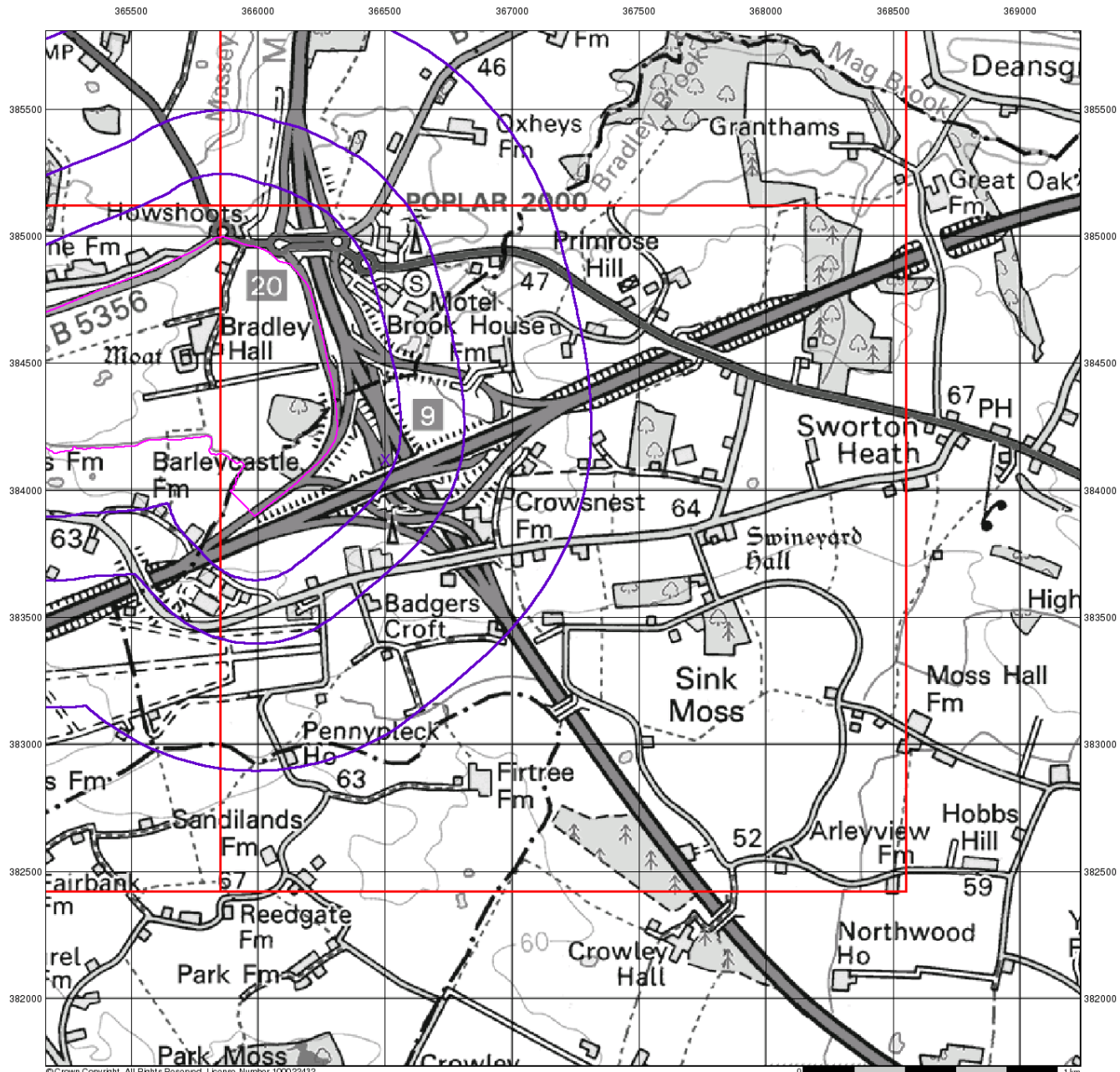
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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## Source Protection Zones

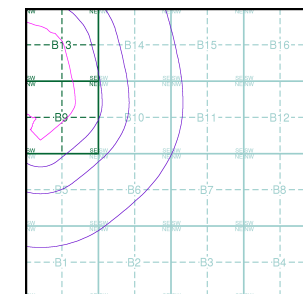
### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)
- Source Protection Zone Borehole

### Site Sensitivity Context Map - Slice B



### Order Details

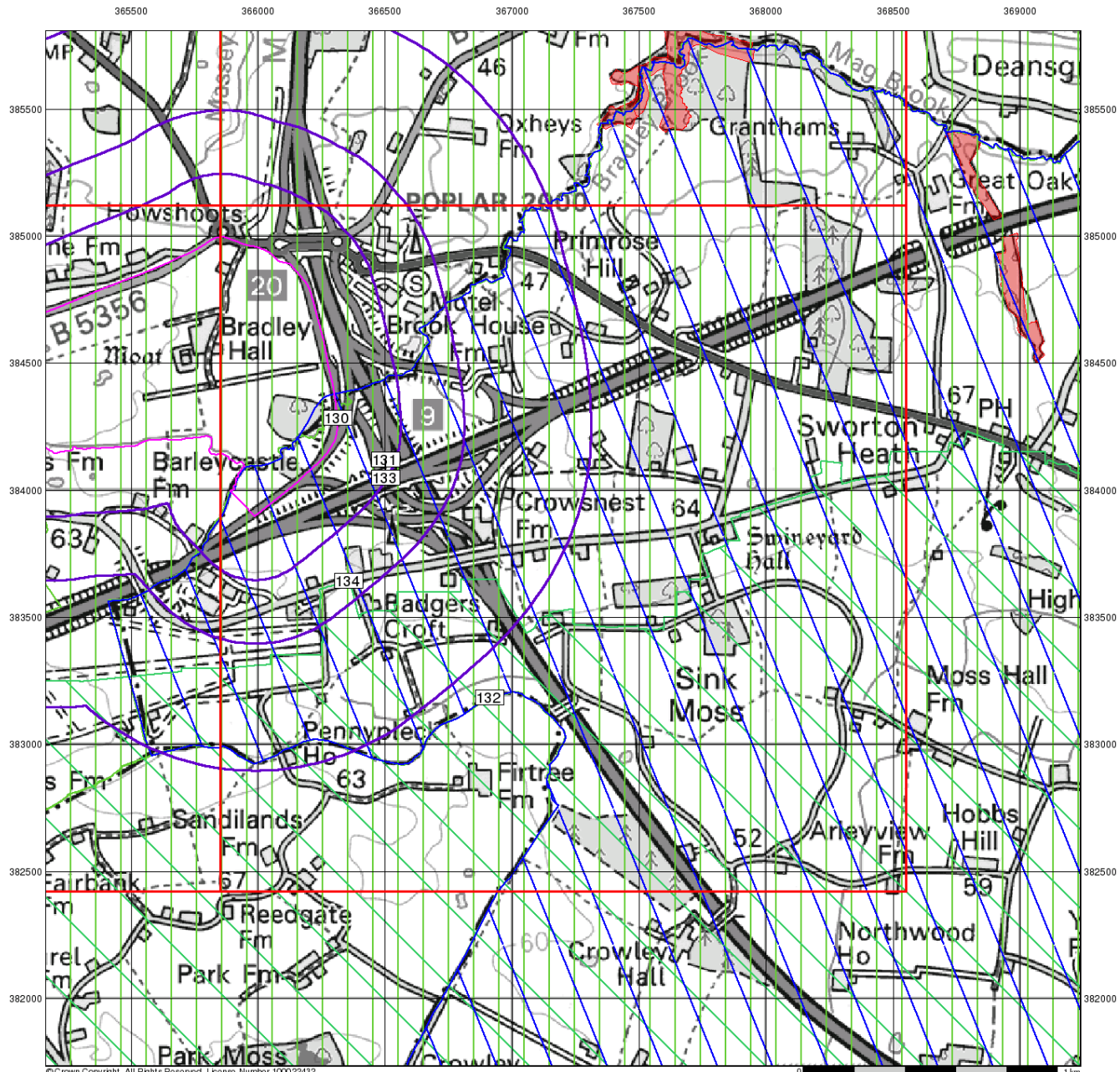
|                          |                                     |
|--------------------------|-------------------------------------|
| Order Number:            | 135773225_1_1                       |
| Customer Ref:            | 1015524 - Warrington Interchange MP |
| National Grid Reference: | 366500, 384120                      |
| Slice:                   | B                                   |
| Site Area (Ha):          | 93.66                               |
| Search Buffer (m):       | 1000                                |

### Site Details

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## Sensitive Land Uses

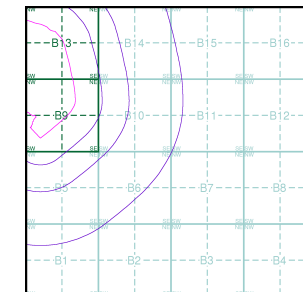
### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

### Site Sensitivity Context Map - Slice B



### Order Details

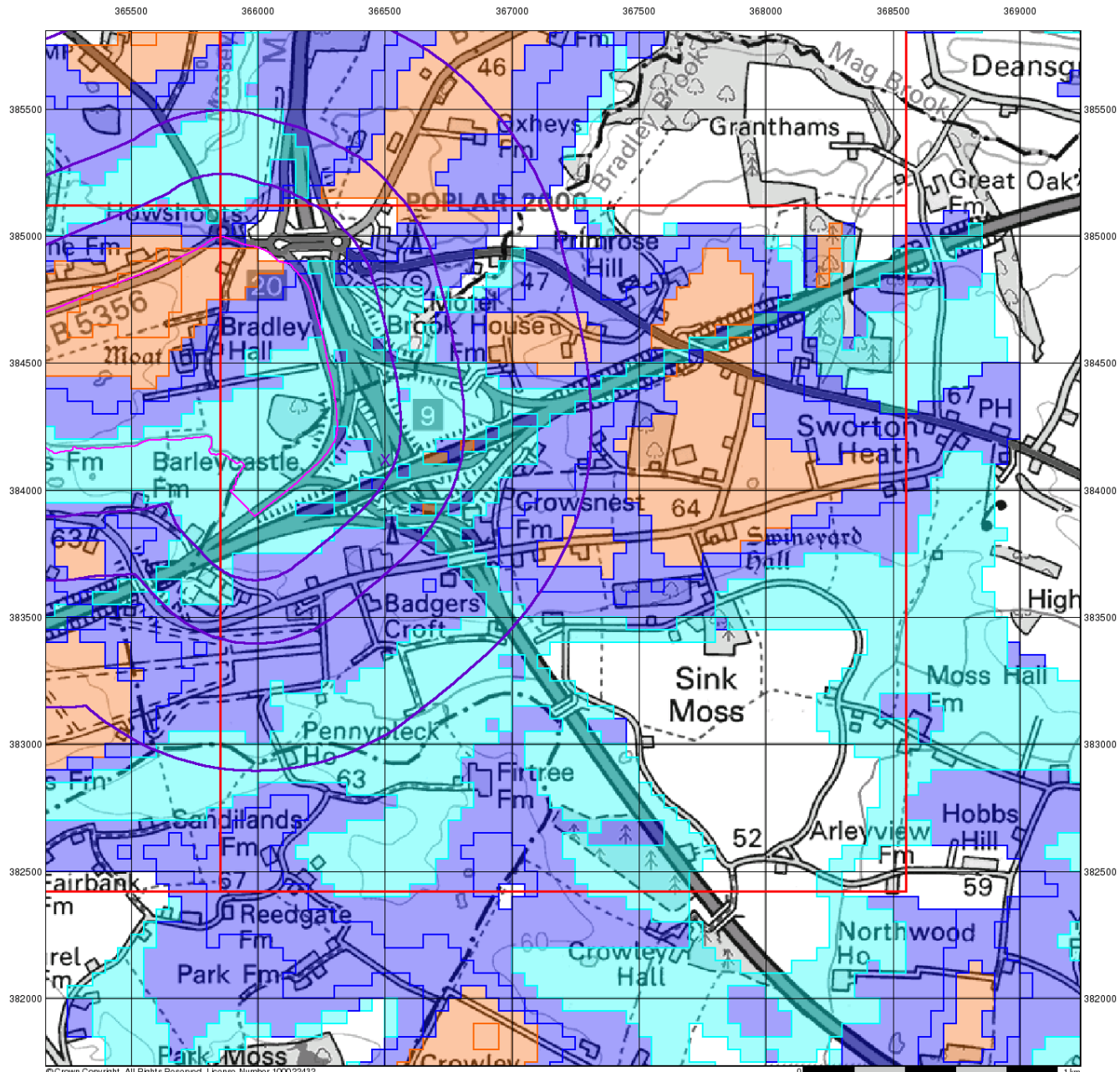
Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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## BGS Flood GFS Data

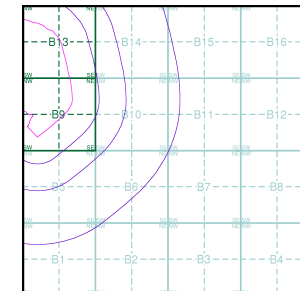
### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice

### Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

## Site Sensitivity Context Map - Slice B



## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

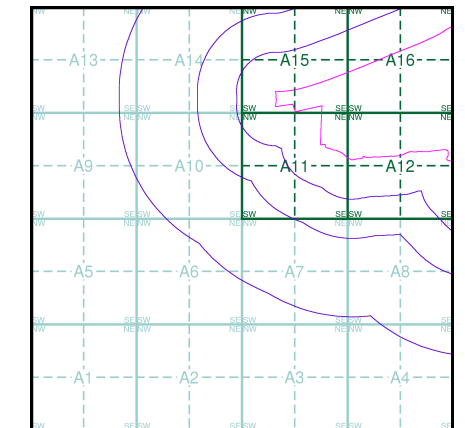
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- |                                |   |   |   |  |
|--------------------------------|---|---|---|--|
| <b>General</b>                 | Specified Site  | Specified Buffer(s)   | X Bearing Reference Point                         | Map ID   |
|                                | Several of Type at Location                           |   |   |  |
| <b>Agency and Hydrological</b> | Contaminated Land Register Entry or Notice (Location) | Discharge Consent   | Enforcement or Prohibition Notice                 | Integrated Pollution Control                                 |
|                                | Contaminated Land Register Entry or Notice            | Local Authority Integrated Pollution Prevention and Control | Local Authority Pollution Prevention and Control  | Local Authority Pollution Prevention and Control Enforcement |
|                                | Pollution Incident to Controlled Waters               | Prosecution Relating to Authorised Processes                | Prosecution Relating to Controlled Waters         | Registered Radioactive Substance                             |
|                                | River Network or Water Feature                        | River Quality Sampling Point                                | Substantiated Pollution Incident Register         | Water Abstraction  |
|                                | Water Industry Act Referral                           |   |   |  |
| <b>Hazardous Substances</b>    | COMAH Site  | Explosive Site  | NIHHS Site  | Planning Hazardous Substance Consent                         |
|                                | Planning Hazardous Substance Enforcement              |   |   |  |
| <b>Geological</b>              | BGS Recorded Mineral Site                             |   |   |  |
| <b>Waste</b>                   | BGS Recorded Landfill Site (Location)                 | BGS Recorded Landfill Site                                  | EA Historic Landfill (Buffered Point)             | EA Historic Landfill (Polygon)                               |
|                                | Integrated Pollution Control Registered Waste Site    | Licensed Waste Management Facility (Landfill Boundary)      | Licensed Waste Management Facility (Location)     | Local Authority Recorded Landfill Site (Location)            |
|                                | Local Authority Recorded Landfill Site                | Potentially Infilled Land (Non-water)                       | Potentially Infilled Land (Non-water)             | Potentially Infilled Land (Non-water)                        |
|                                | Potentially Infilled Land (Water)                     | Potentially Infilled Land (Water)                           | Potentially Infilled Land (Water)                 | Potentially Infilled Land (Water)                            |
|                                | Registered Landfill Site (Location)                   | Registered Landfill Site (Point Buffered to 100m)           | Registered Landfill Site (Point Buffered to 250m) | Registered Waste Transfer Site (Location)                    |
|                                | Registered Waste Transfer Site                        | Registered Waste Treatment or Disposal Site (Location)      | Registered Waste Treatment or Disposal Site       |  |

## Site Sensitivity Map - Slice A

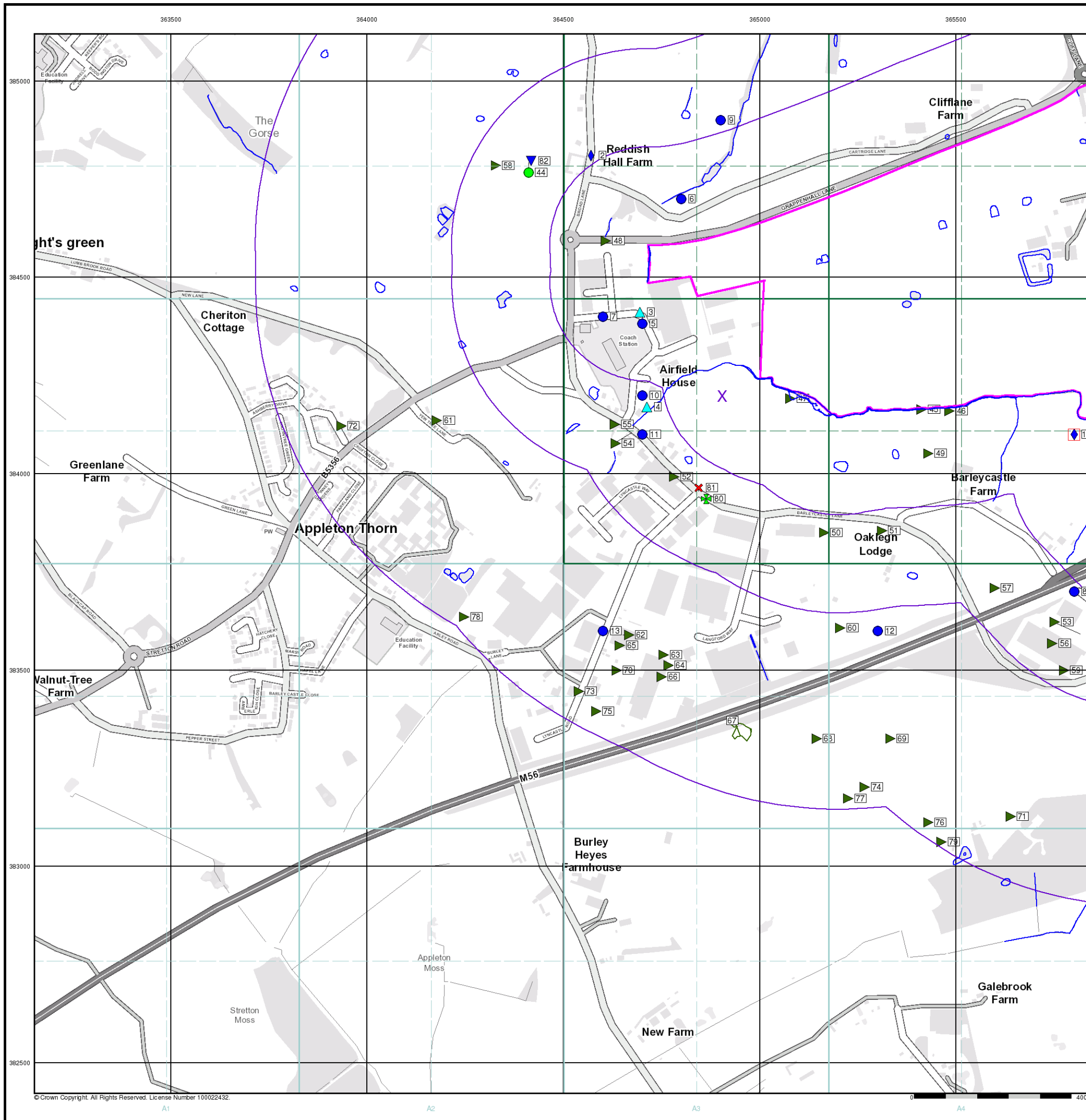


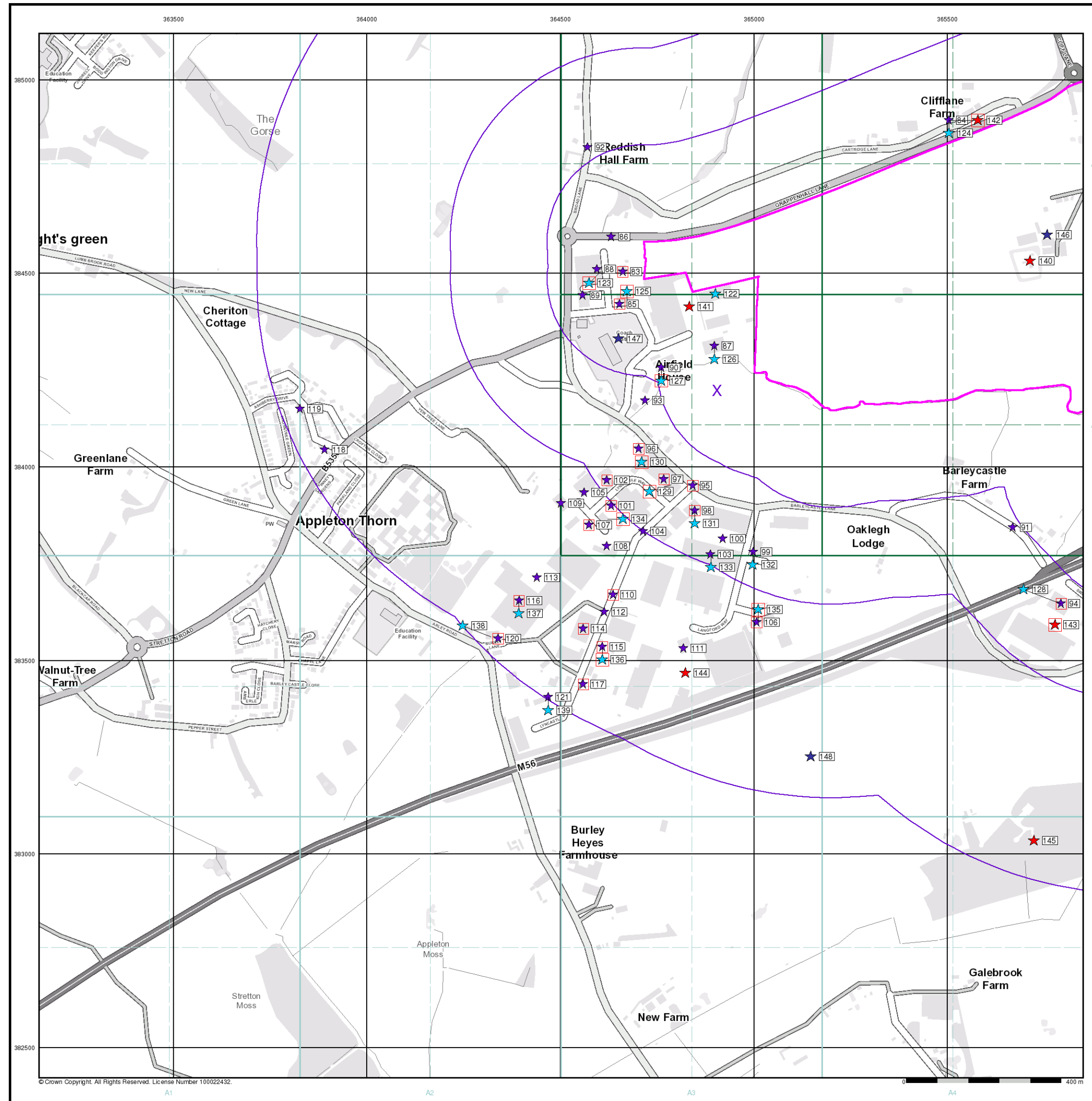
## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





## Industrial Land Use Map

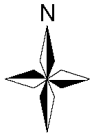
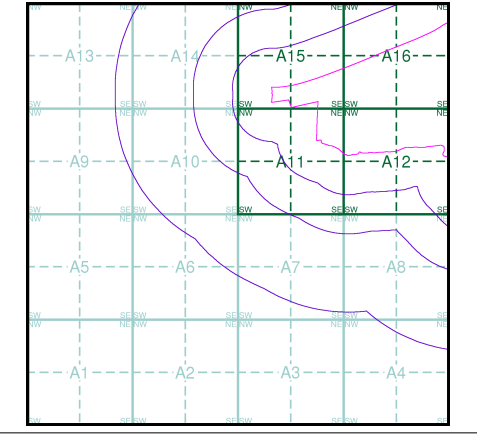
### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

### Industrial Land Use Map - Slice A






### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000






### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

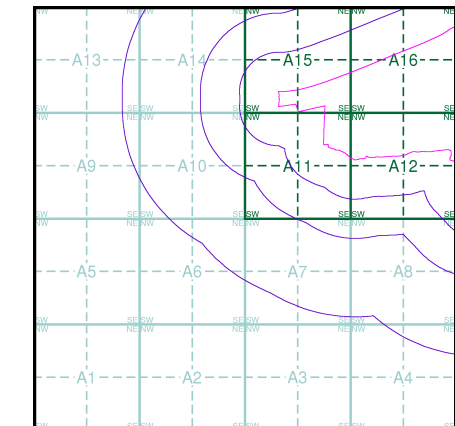
### General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point

### Agency and Hydrological (Flood)

-  Extreme Flooding from Rivers or Sea without Defences (Zone 2)
-  Flooding from Rivers or Sea without Defences (Zone 3)
-  Area Benefiting from Flood Defence
-  Flood Water Storage Areas
-  Flood Defence

### Flood Map - Slice A

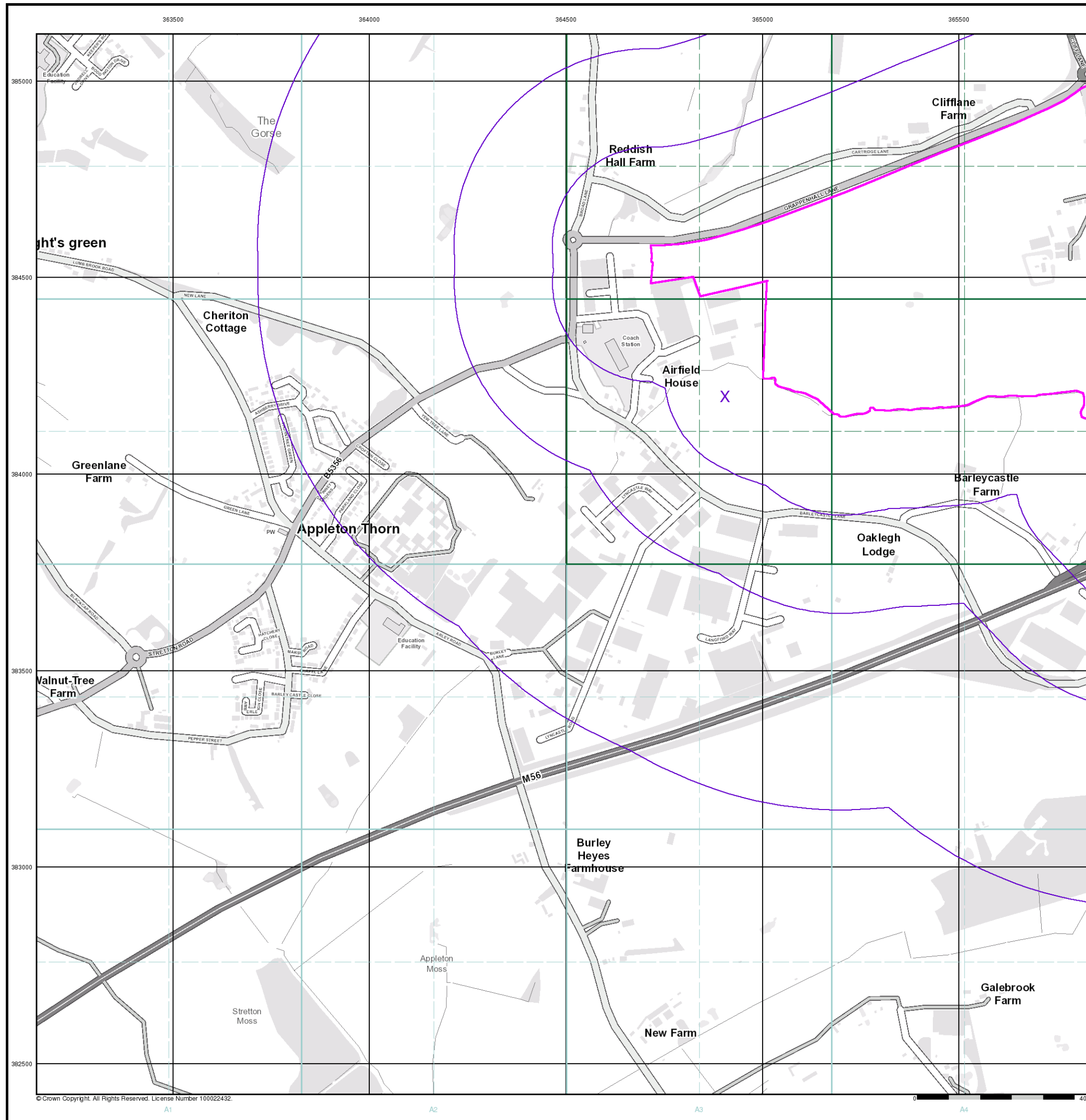


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

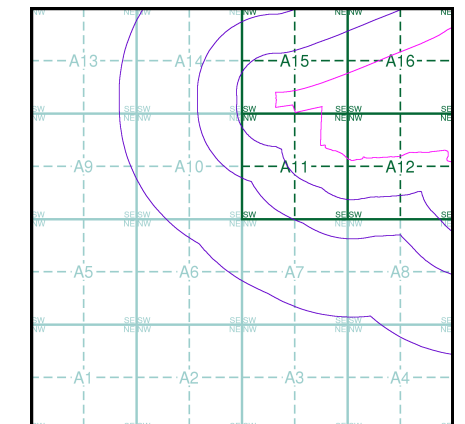
### Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of [www.envirocheck.co.uk](http://www.envirocheck.co.uk).

### Borehole Map - Slice A

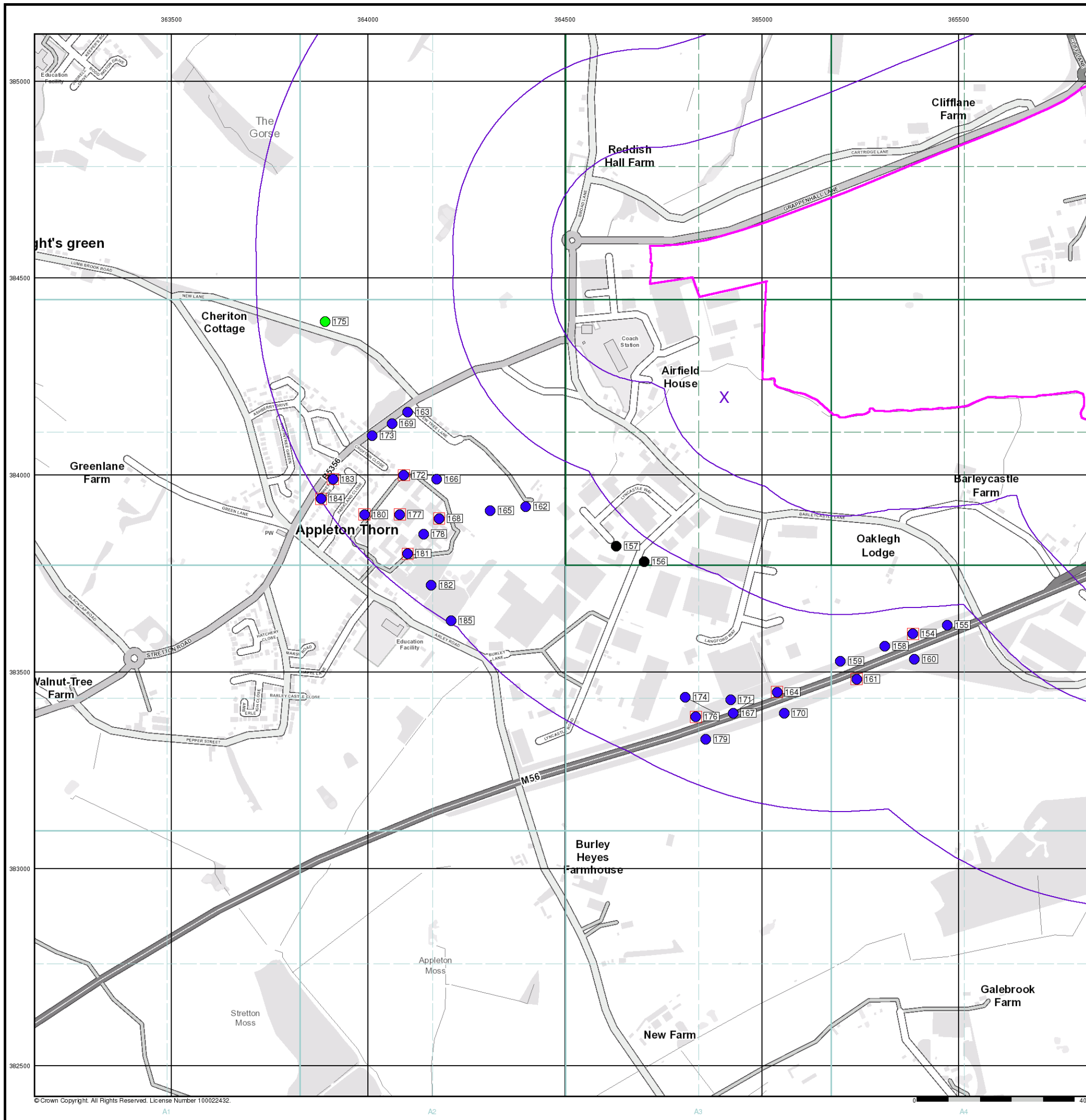


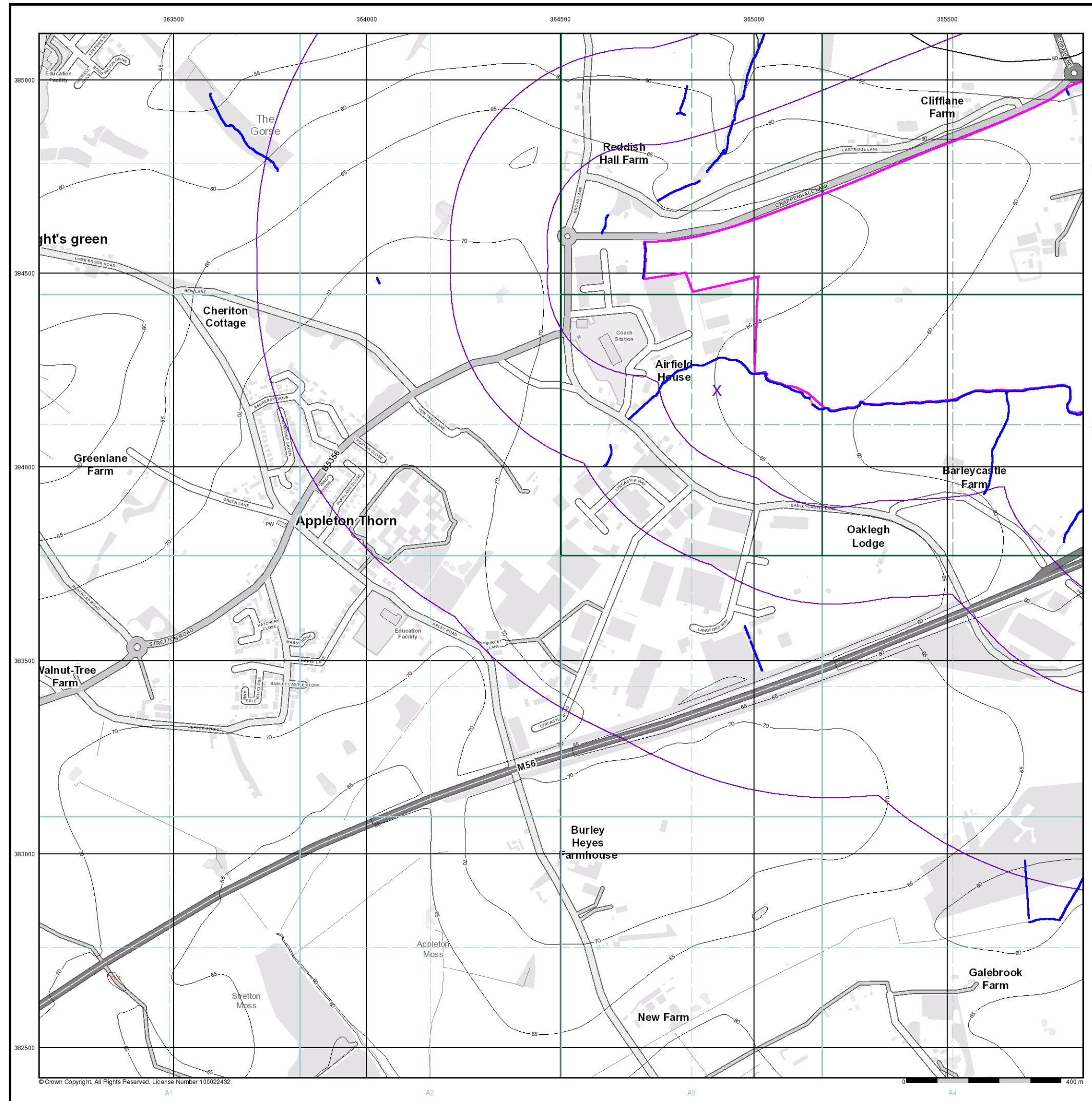
### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

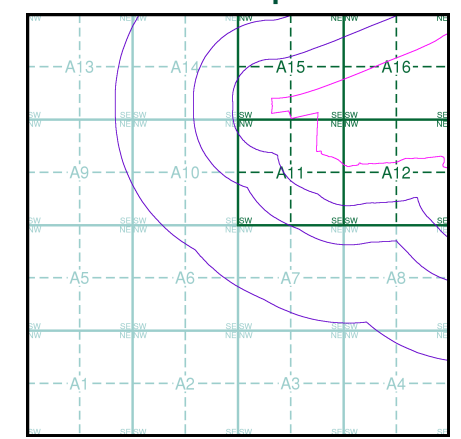
### OS Water Network Data

- |  |              |  |                         |
|--|--------------|--|-------------------------|
|  | Canal        |  | Drain                   |
|  | Reservoir    |  | Other                   |
|  | Foreshore    |  | Lake                    |
|  | Marsh        |  | Transfer                |
|  | Tidal River  |  | Lock Or Flight Of Locks |
|  | Inland River |  | Sea                     |

### Contours (height in meters)

- Standard Contour
- Master Contour
- Spot Height
- Mean Low Water
  - Mean High Water

### OS Water Network Map - Slice A



### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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### General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

### Risk of Flooding from Surface Water

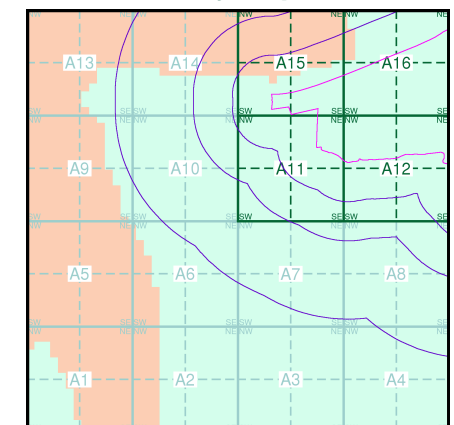
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

### Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

### EANRW Suitability Map - Slice A

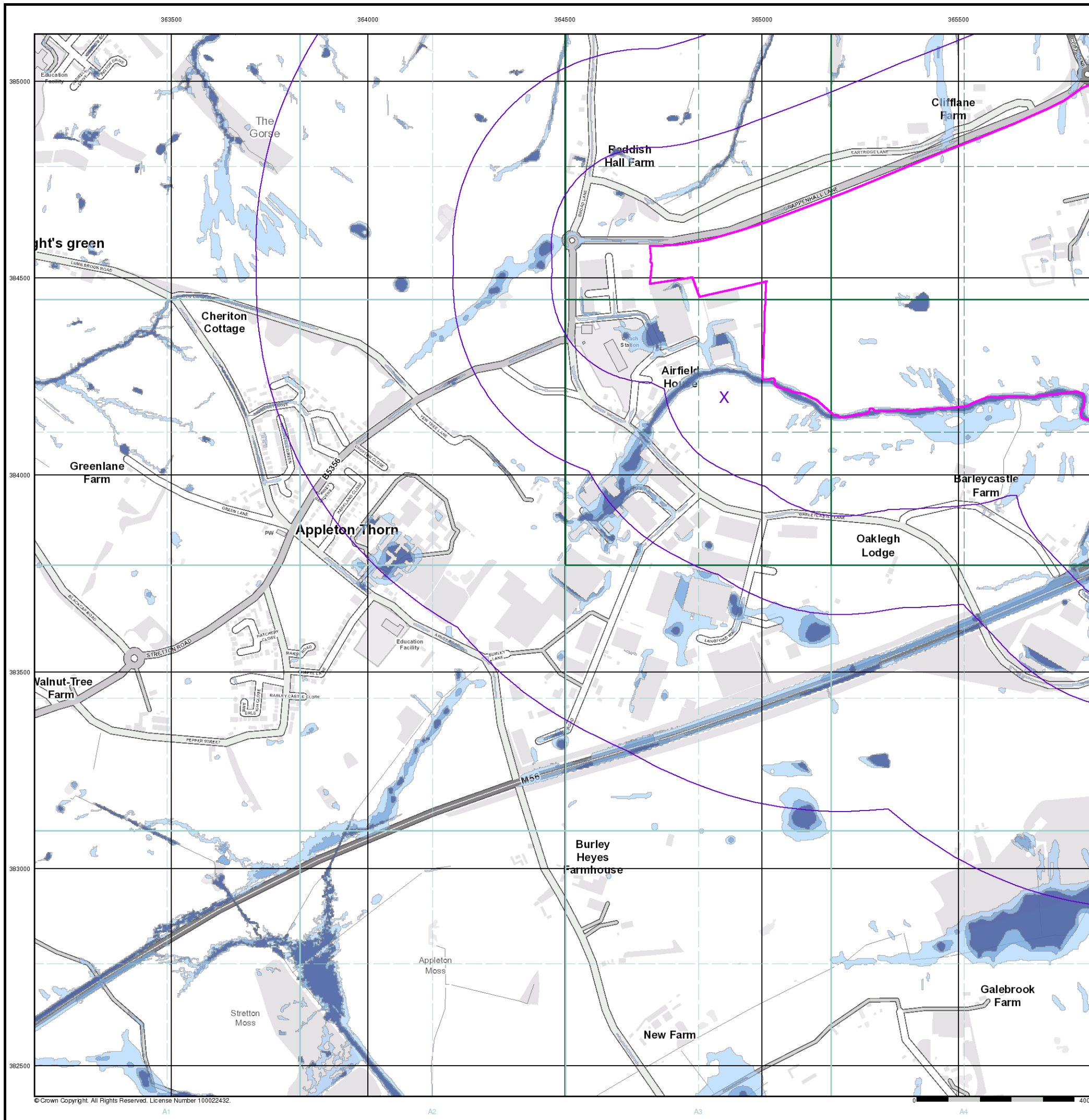


### Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

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## General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

## Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

## Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

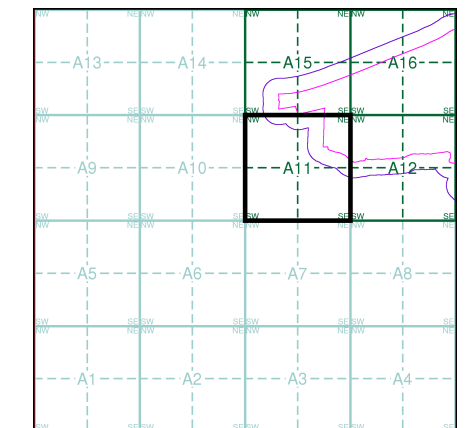
## Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

## Geological

- BGS Recorded Mineral Site

## Site Sensitivity Map - Segment A11

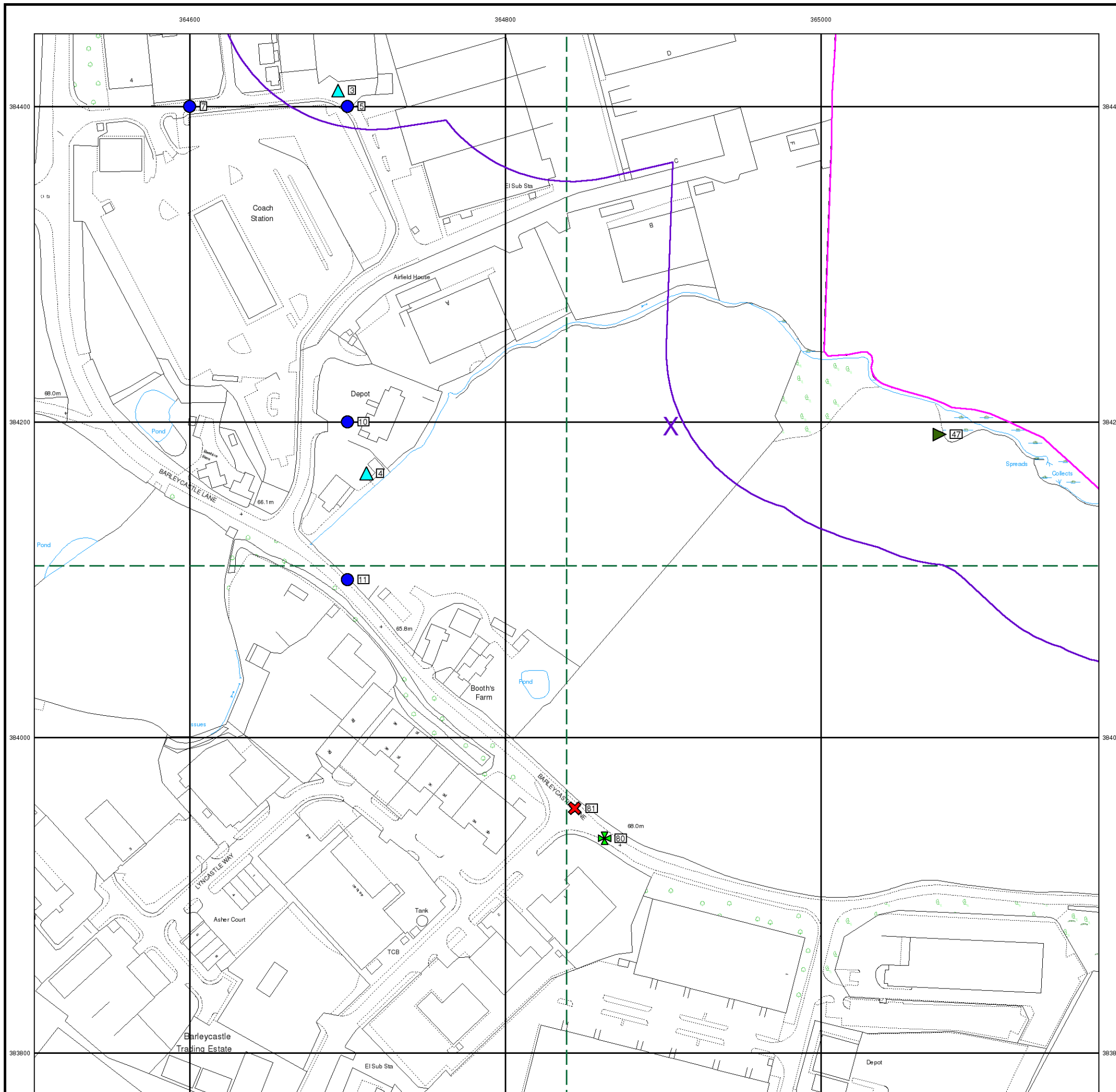


## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Plot Buffer (m): 100

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

## Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

## Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

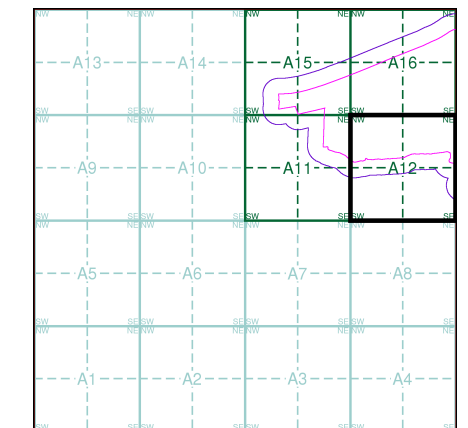
## Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

## Geological

- BGS Recorded Mineral Site

## Site Sensitivity Map - Segment A12

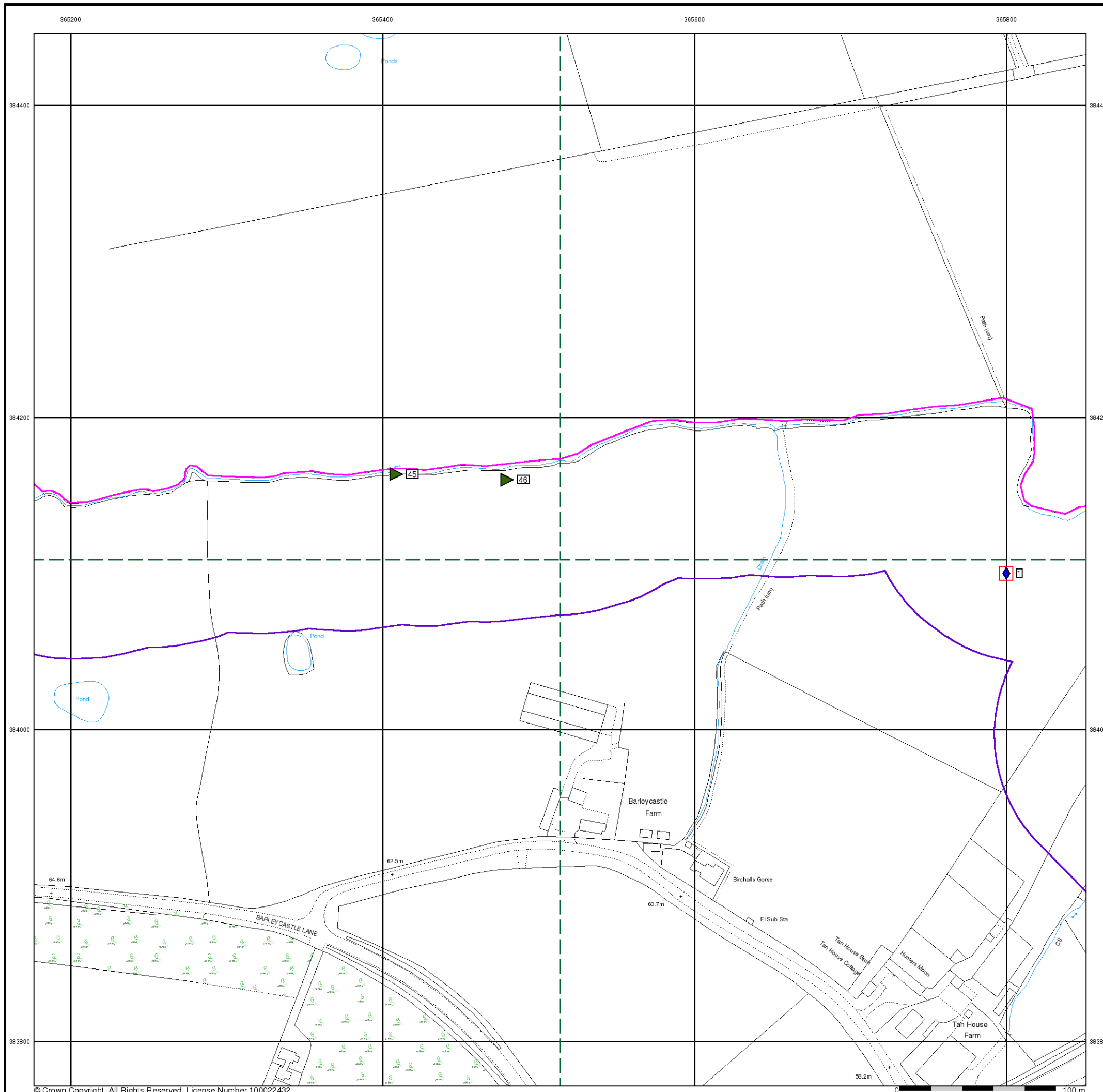


## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Plot Buffer (m): 100

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR





## General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

## Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

## Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

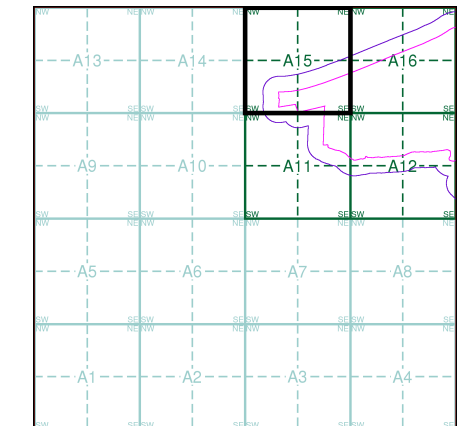
## Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

## Geological

- BGS Recorded Mineral Site

## Site Sensitivity Map - Segment A15



## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Plot Buffer (m): 100

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

## Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

## Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

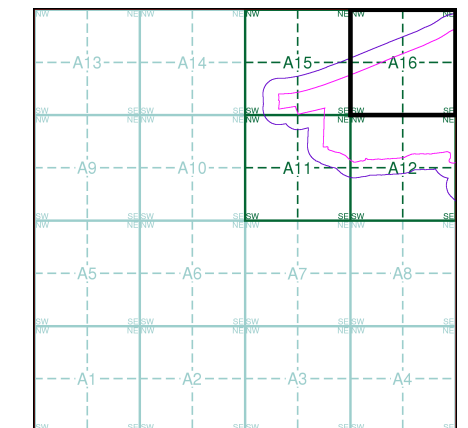
## Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement
- BGS Recorded Mineral Site

## Geological

- BGS Recorded Mineral Site

## Site Sensitivity Map - Segment A16



## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Plot Buffer (m): 100

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

## Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

## Waste

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- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
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- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

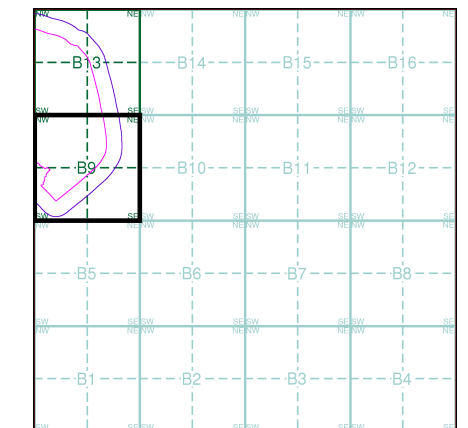
## Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

## Geological

- BGS Recorded Mineral Site

## Site Sensitivity Map - Segment B9

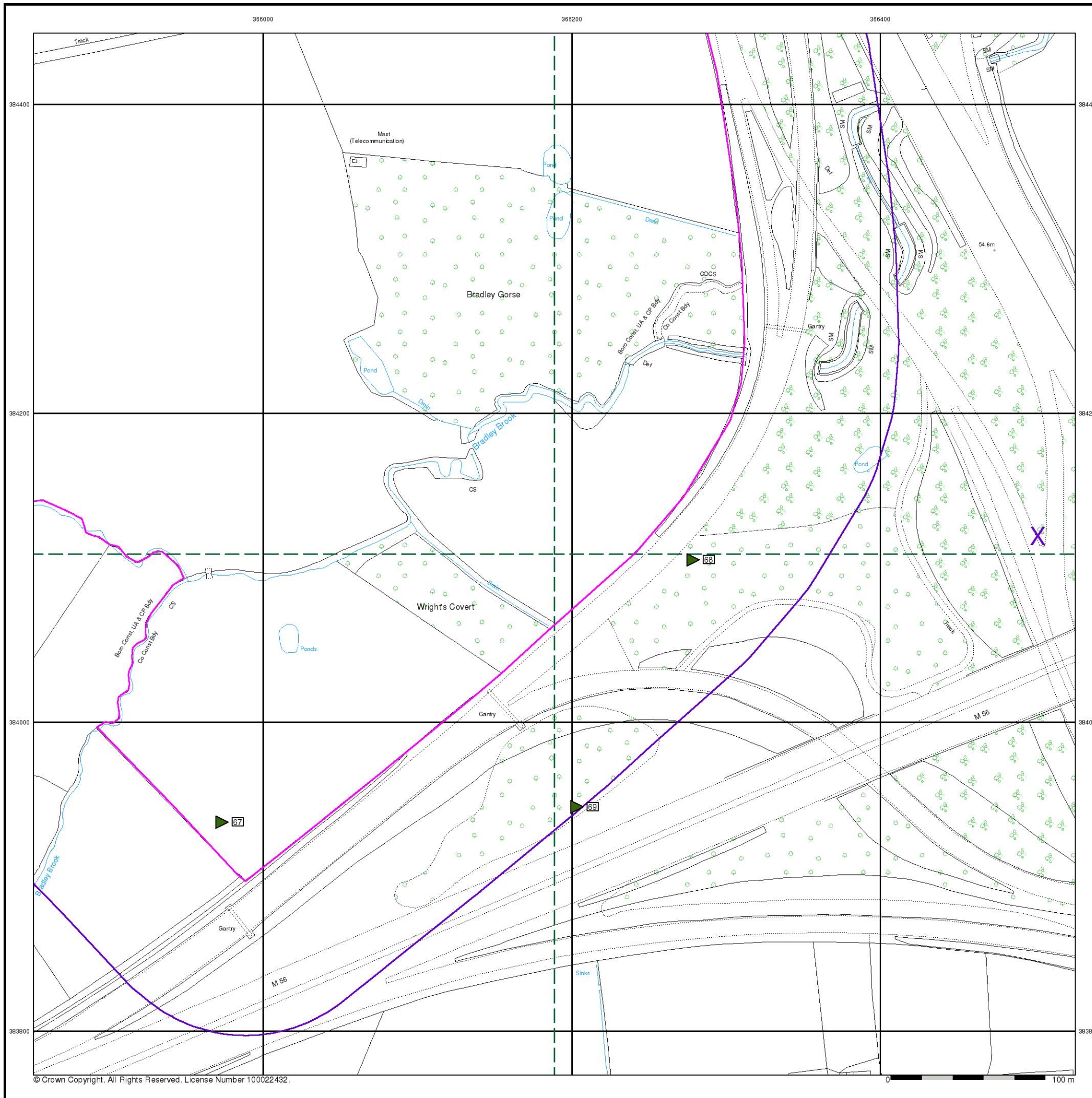


## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Plot Buffer (m): 100

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



## General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

## Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
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- Enforcement or Prohibition Notice
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- Water Industry Act Referral

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- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

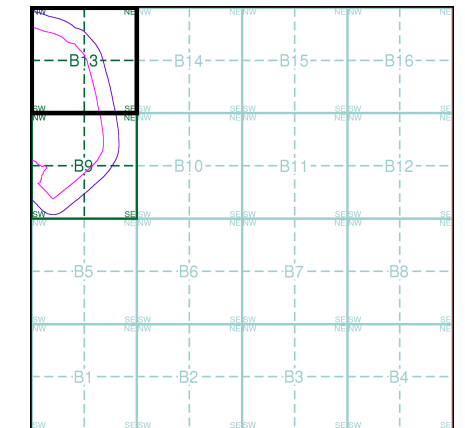
## Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

## Geological

- BGS Recorded Mineral Site

## Site Sensitivity Map - Segment B13

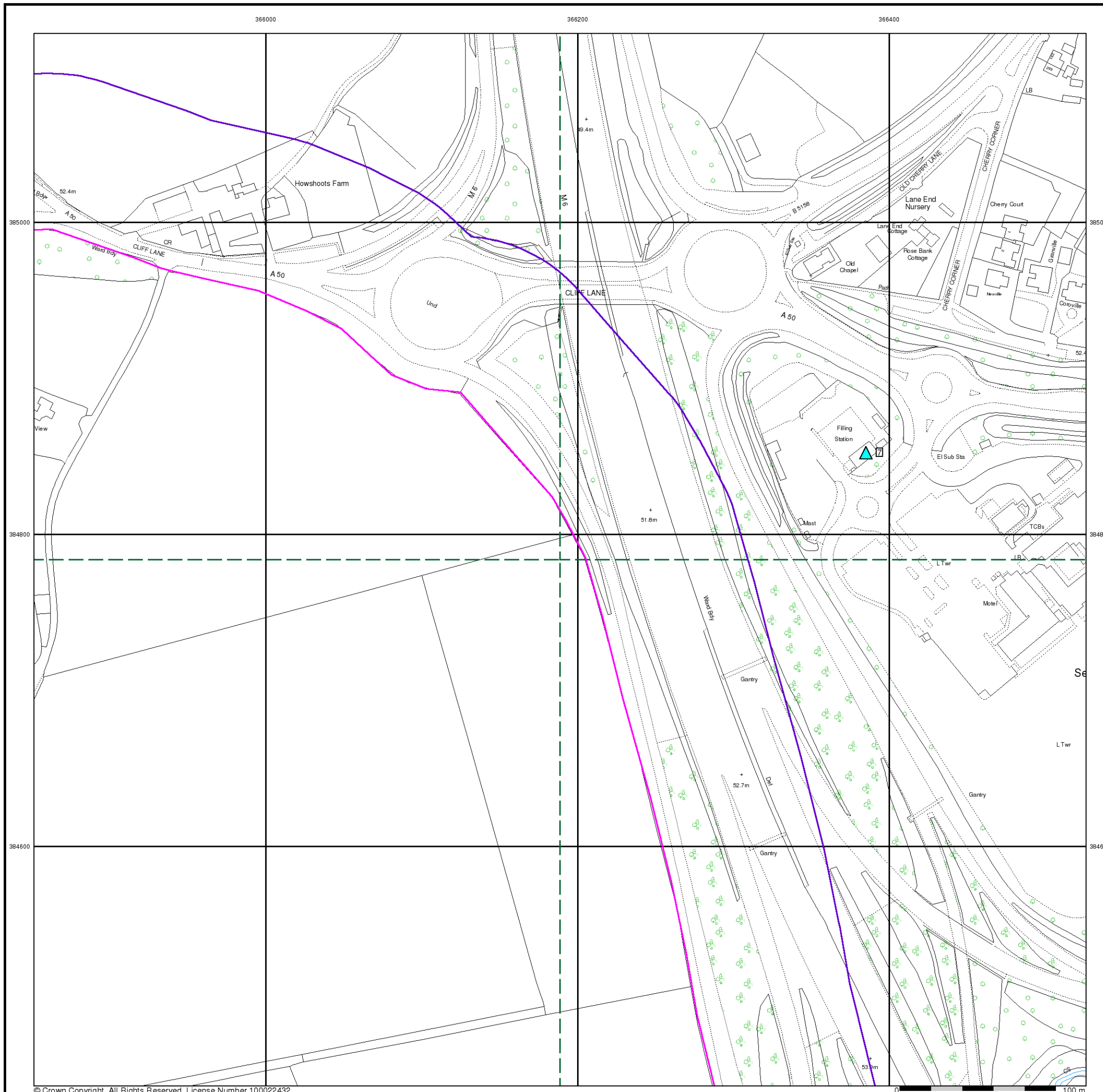


## Order Details

Order Number: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Plot Buffer (m): 100

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

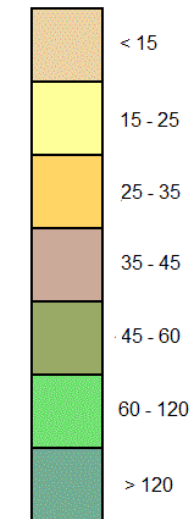


## General

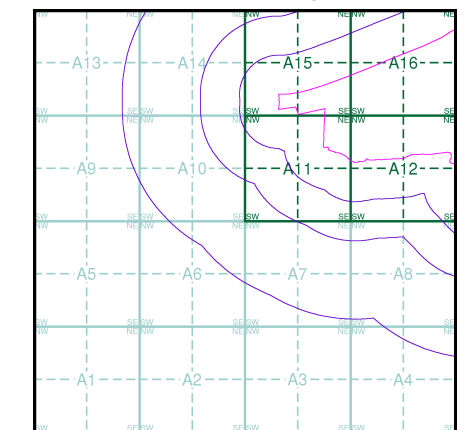
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

## Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg



## Estimated Soil Chemistry Arsenic - Slice A

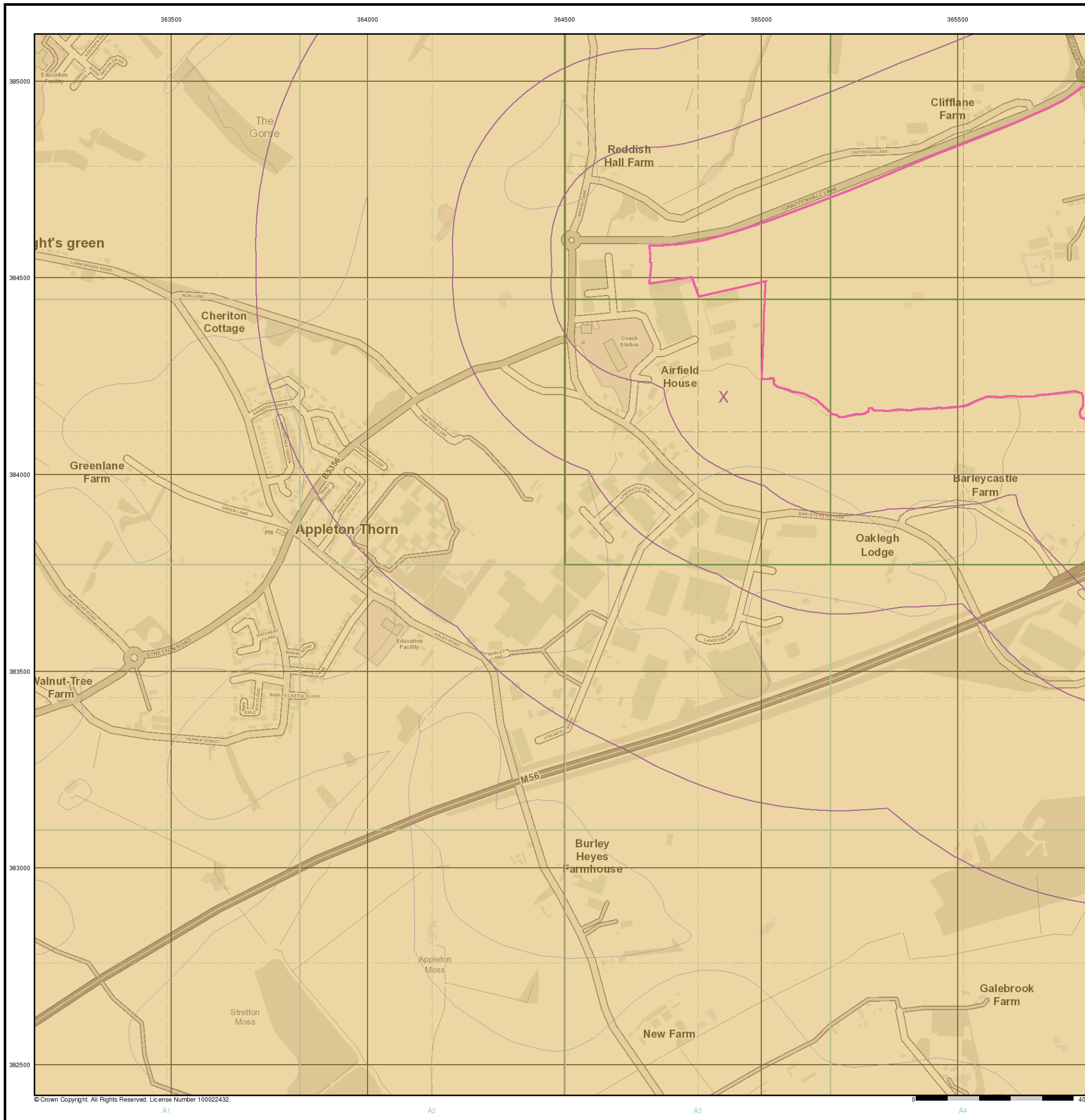


## Order Details

Order Details: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



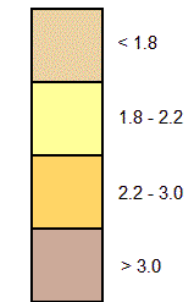
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## General

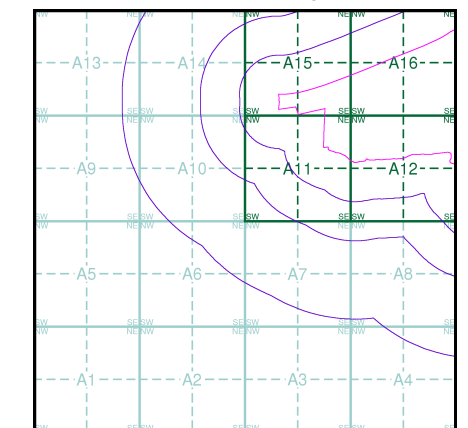
○ Specified Site    
 ○ Specified Buffer(s)    
 X Bearing Reference Point

## Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



## Estimated Soil Chemistry Cadmium - Slice A

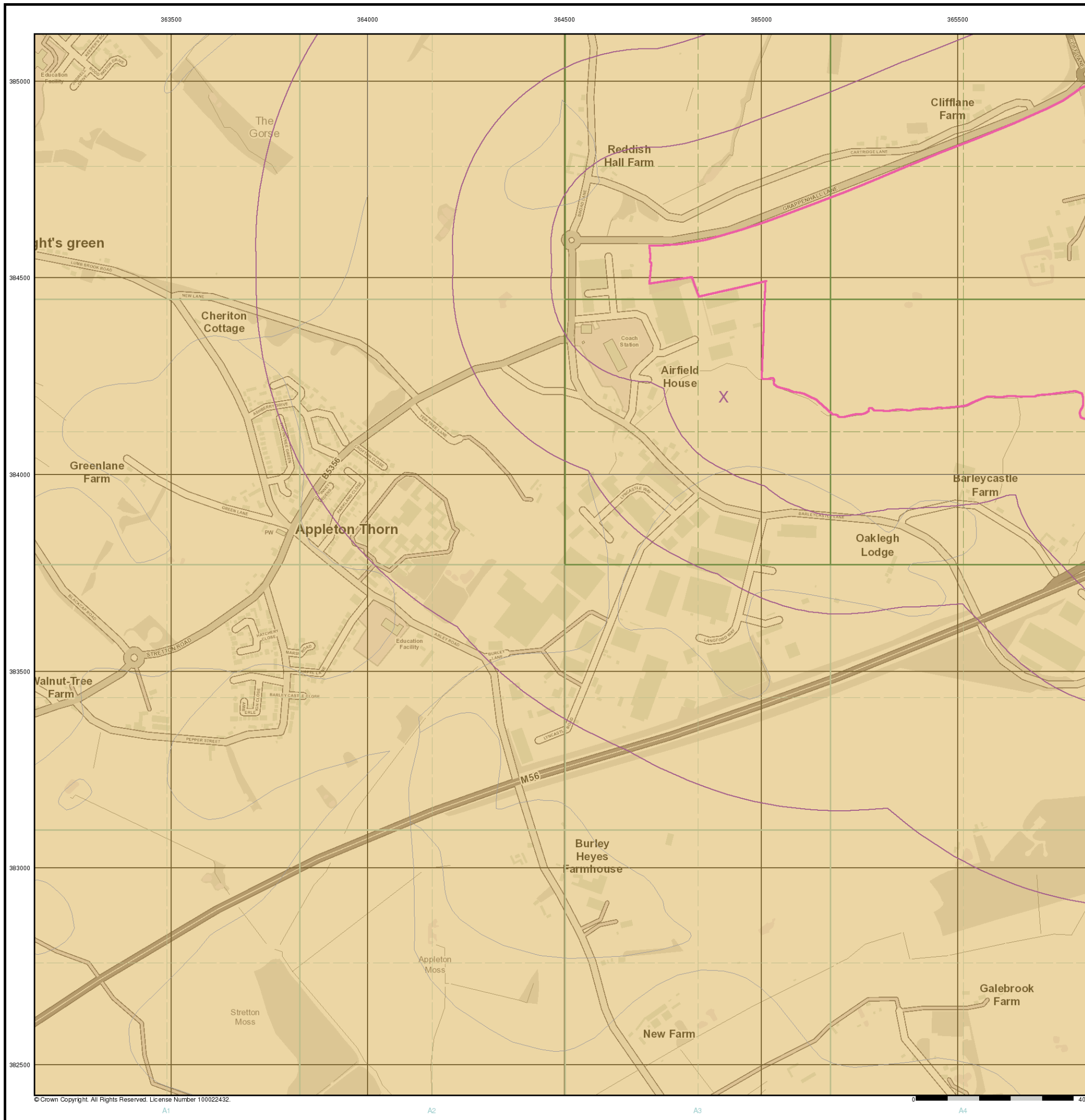


## Order Details

Order Details: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

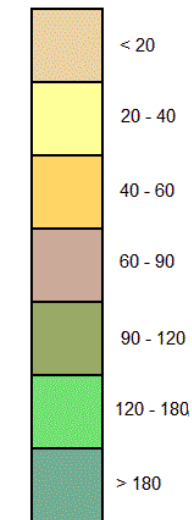


## General

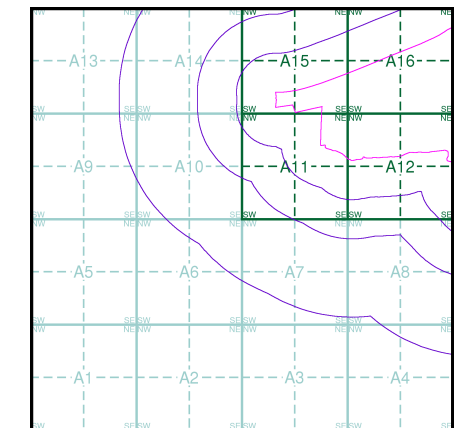
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

## Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg



## Estimated Soil Chemistry Chromium - Slice A



## Order Details

Order Details: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



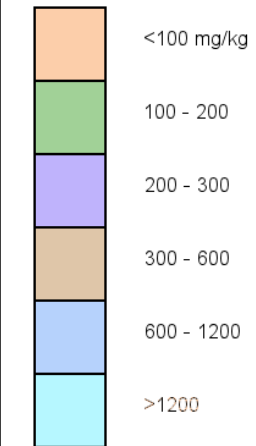
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## General

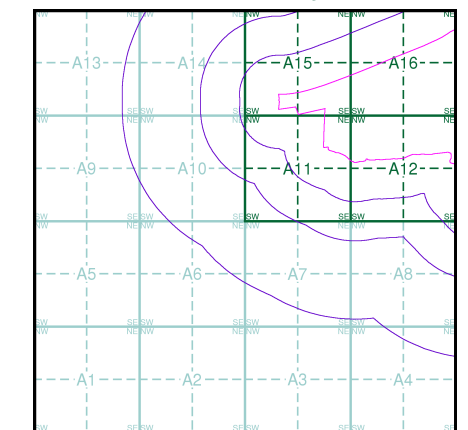
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

## Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



## Estimated Soil Chemistry Lead - Slice A

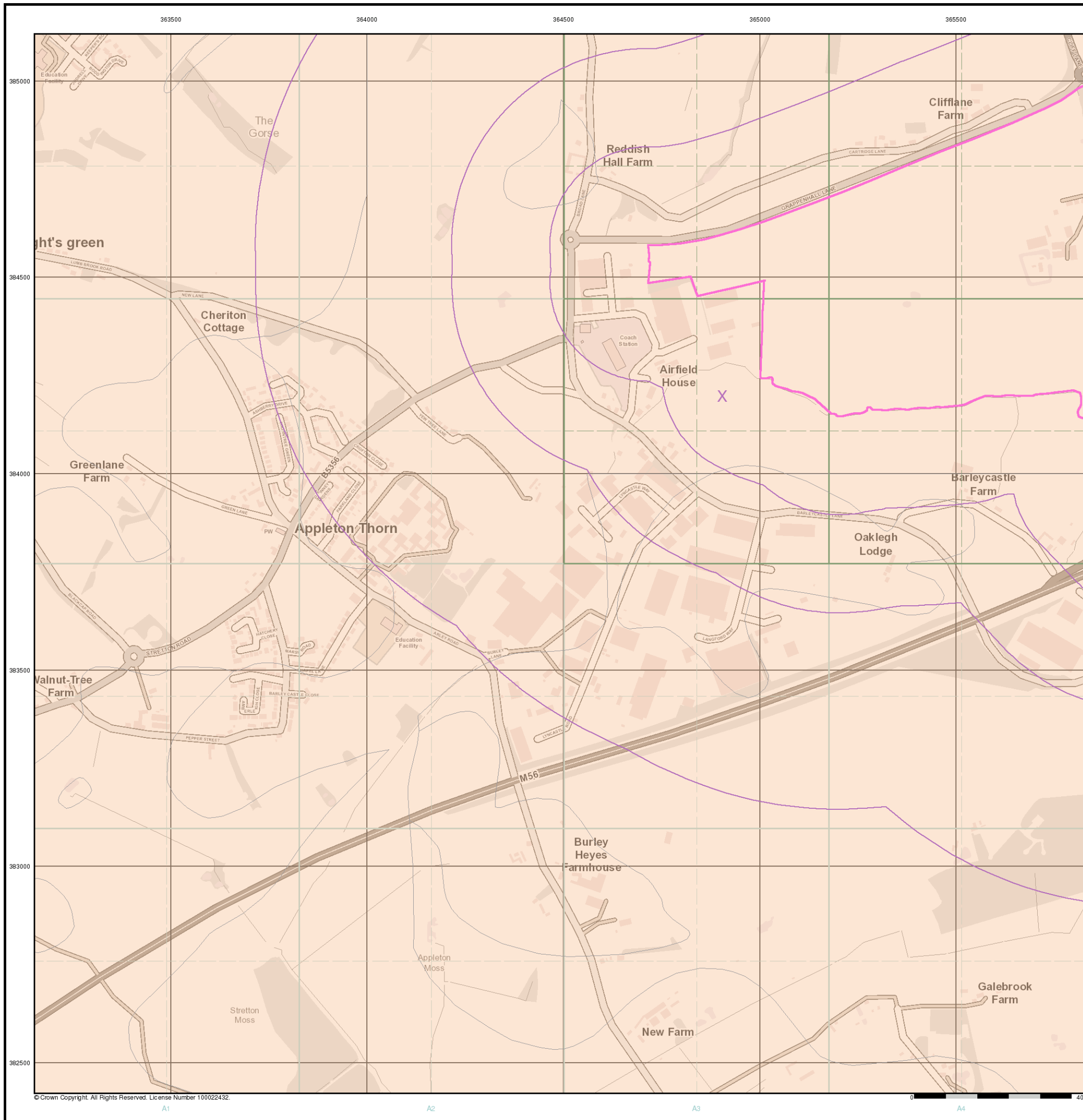


## Order Details

Order Details: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



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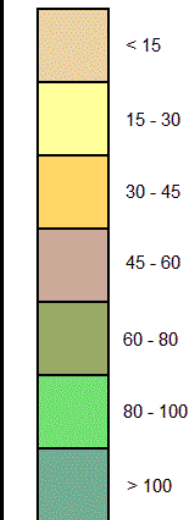


## General

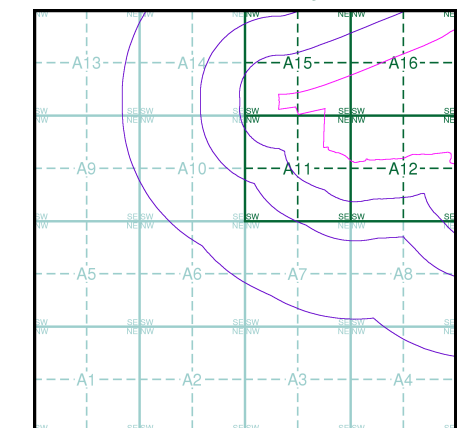
○ Specified Site    
 ○ Specified Buffer(s)    
 X Bearing Reference Point

## Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



## Estimated Soil Chemistry Nickel - Slice A

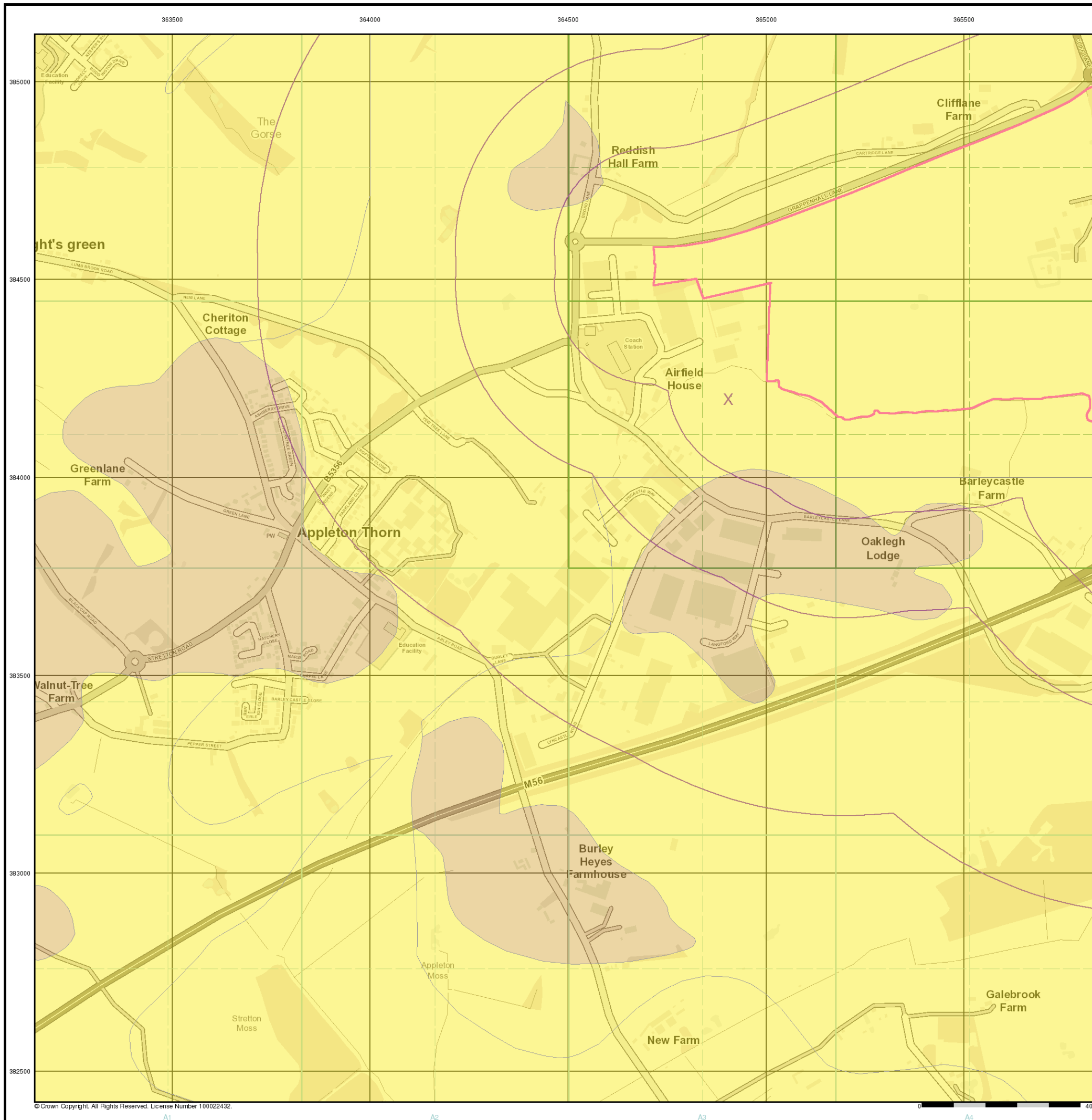


## Order Details

Order Details: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 364910, 384200  
 Slice: A  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



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# Envirocheck®

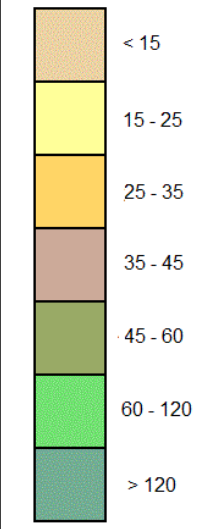
LANDMARK INFORMATION GROUP®

## General

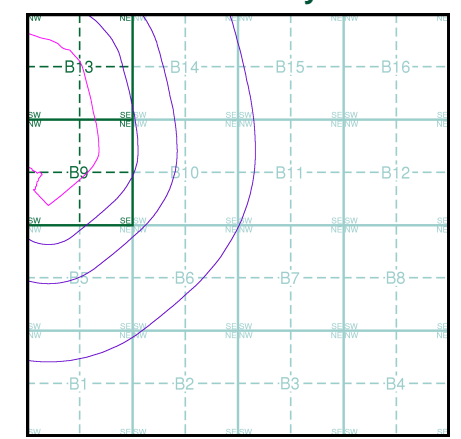
- Specified Site
- Specified Buffer(s)
- x Bearing Reference Point

## Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg



## Estimated Soil Chemistry Arsenic - Slice B



## Order Details

Order Details: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

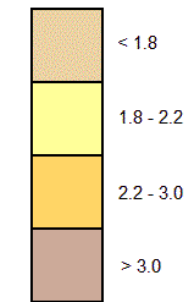
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## General

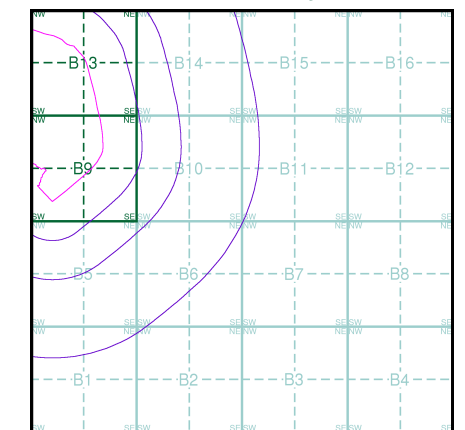
○ Specified Site    
 ○ Specified Buffer(s)    
 X Bearing Reference Point

## Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



## Estimated Soil Chemistry Cadmium - Slice B



## Order Details

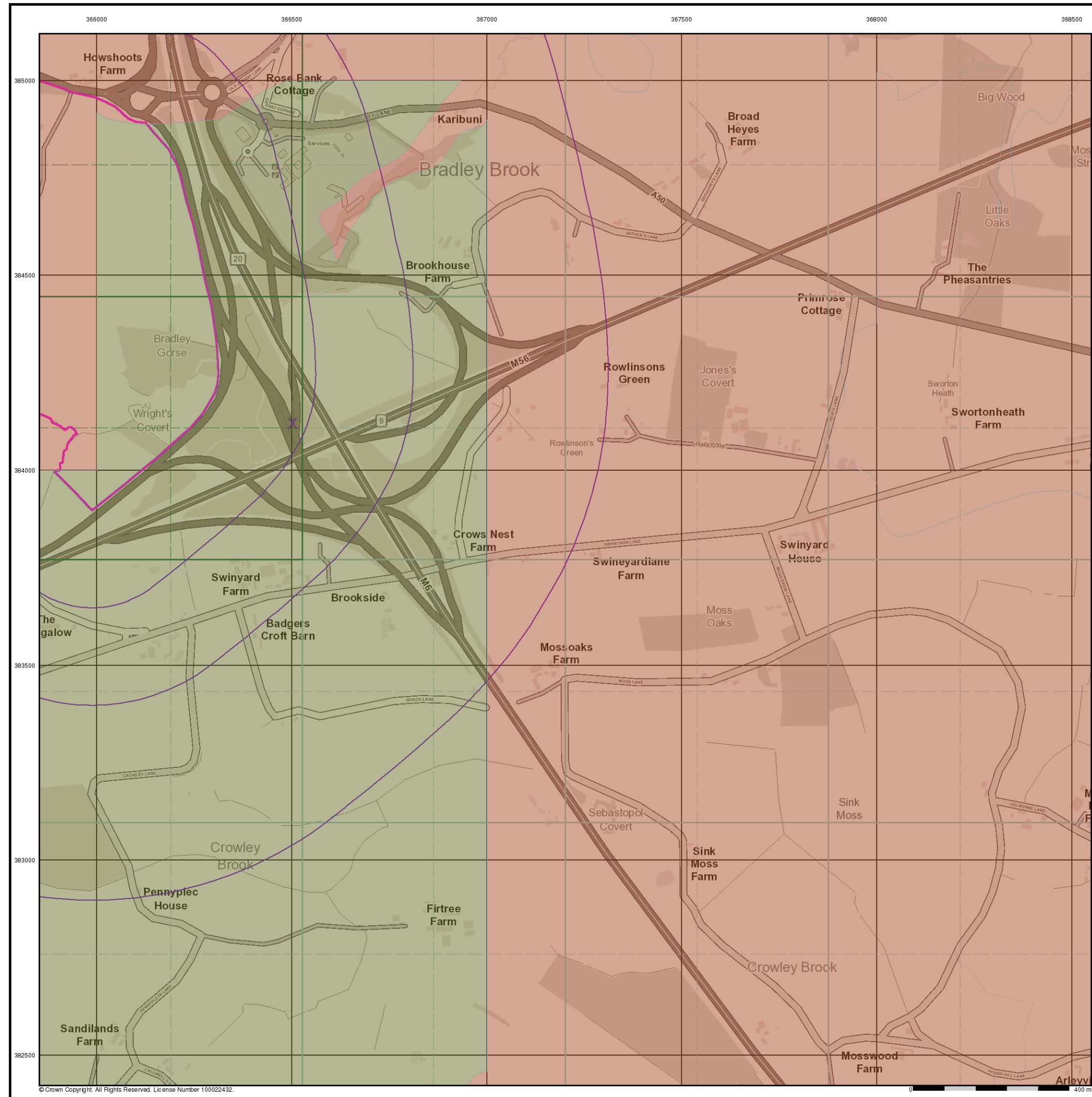
Order Details: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

## Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



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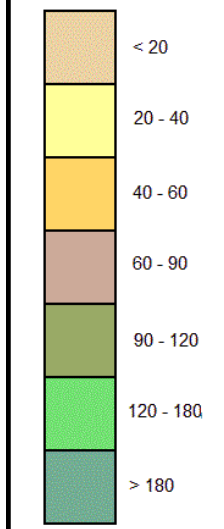


### General

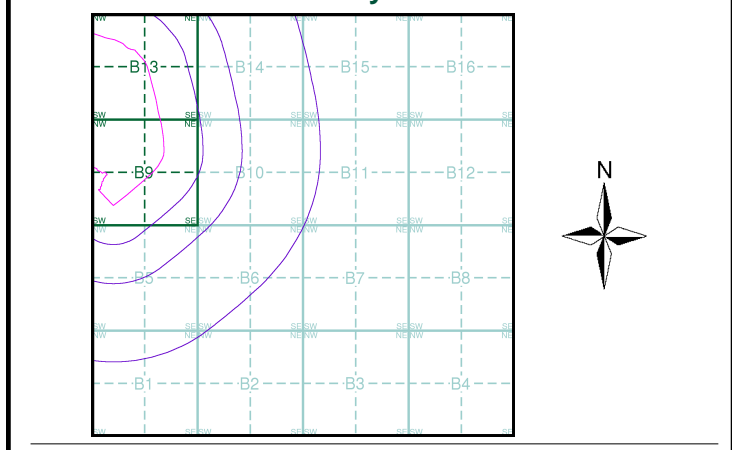
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

### Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg



### Estimated Soil Chemistry Chromium - Slice B



### Order Details

Order Details: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

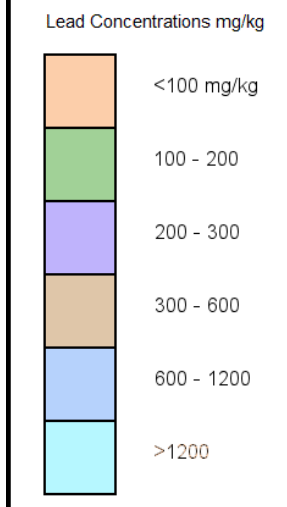
Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



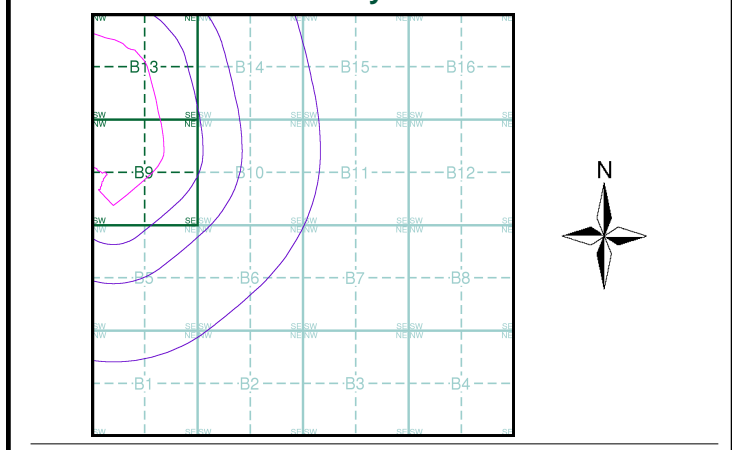
**General**

○ Specified Site    
 ○ Specified Buffer(s)    
 X Bearing Reference Point

### Estimated Soil Chemistry Lead



### Estimated Soil Chemistry Lead - Slice B



**Order Details**

Order Details: 135773225\_1\_1  
 Customer Ref: 1015524 - Warrington Interchange MP  
 National Grid Reference: 366500, 384120  
 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

**Site Details**

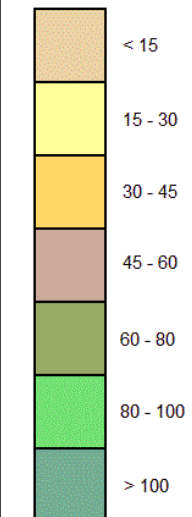
Warrington Interchange Masterplan, WARRINGTON, WA4 4SR

### General

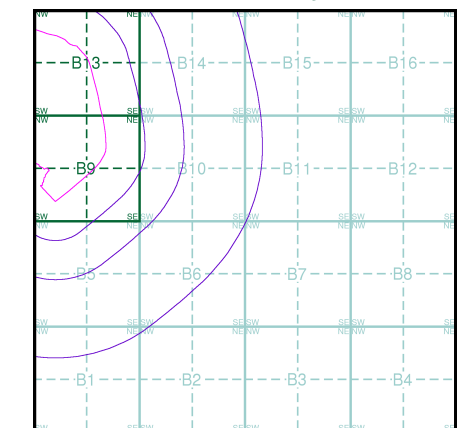
- ✱ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point

### Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



### Estimated Soil Chemistry Nickel - Slice B

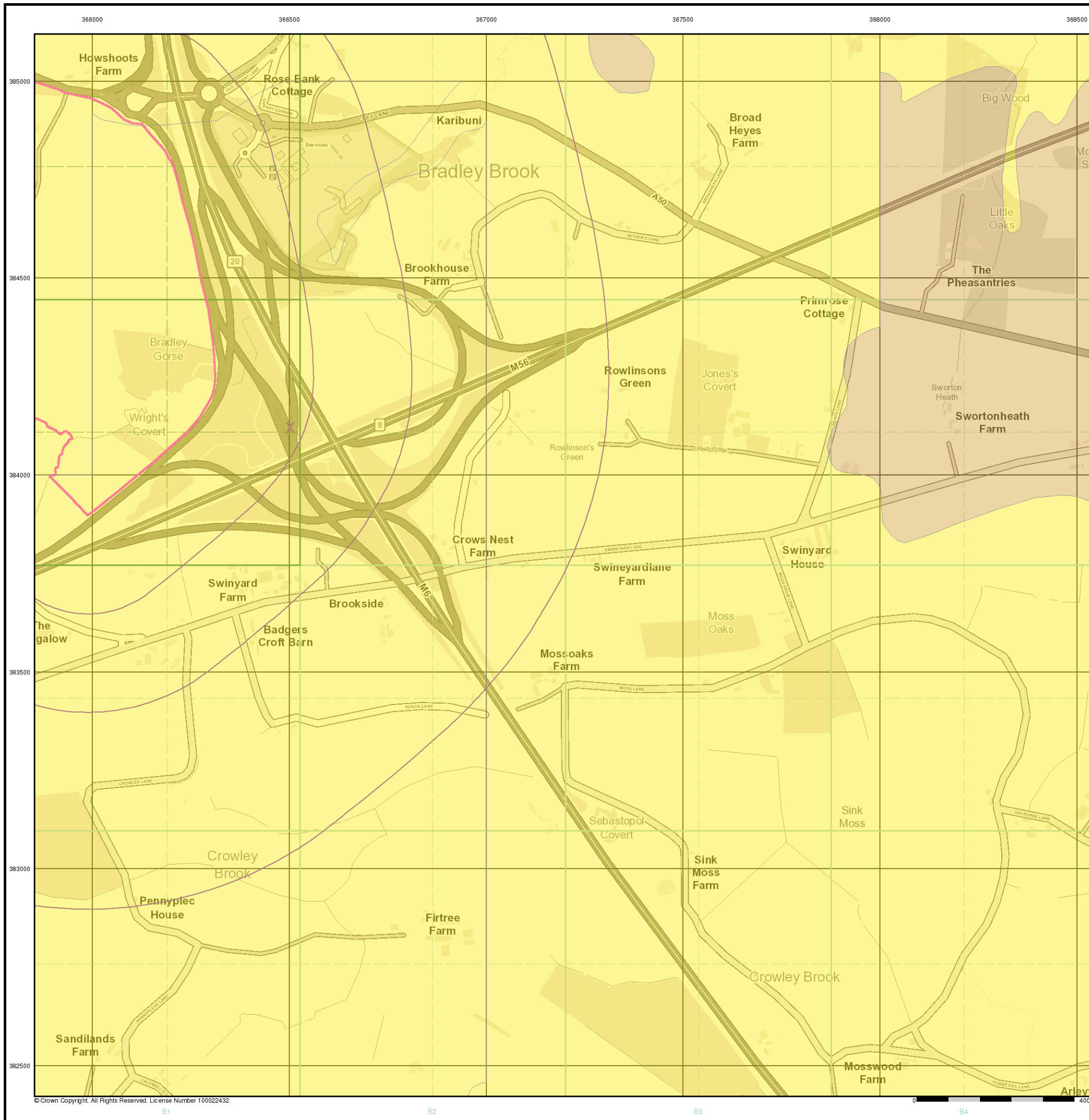


### Order Details

Order Details: 135773225\_1\_1  
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 Slice: B  
 Site Area (Ha): 93.66  
 Search Buffer (m): 1000

### Site Details

Warrington Interchange Masterplan, WARRINGTON, WA4 4SR



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# Appendix C: Historical Borehole Records

---

| Sampling  |        | Properties |     |       | Strata  |       | Depth | Level  | Legend |
|-----------|--------|------------|-----|-------|---|-------|-------|--------|--------|
| Depth     | Type   | Gr NPI     | w/L | SPT N | Description   | Depth | Level | Legend |        |
| 0.30-0.80 | B      |            |     |       | TURF and TOPSOIL **   | 0.30  | 58.60 |        |        |
| 1.70-1.65 | OB     |            |     | 12    | MADE GROUND: Grey silty fine to medium sand (Pulverised Fuel Ash) with occasional stiff brown sandy silty clay inclusions and some fine to coarse gravel. |       |       |        |        |
| 1.70-2.15 | OB     |            |     | 17    |   |       |       |        |        |
| 2.20-2.65 | U(40)  |            |     | 12    | Stiff red brown mottled grey silty CLAY with a little fine to medium sub-angular to sub-rounded gravel.   | 2.00  | 56.90 |        |        |
| 2.70-3.15 | U(60)  | 100        |     | 16    |   |       |       |        |        |
| 3.20-3.65 | U(50)  |            |     | 15    |   |       |       |        |        |
| 3.80-4.25 | U(51)  |            |     | 12    |   |       |       |        |        |
| 4.30-4.80 | U(100) |            |     | 12    |   |       |       |        |        |
| 4.80      | D      |            |     |       | Red brown slightly weathered SILTSTONE. Weak. With occasional grey green inclusions.  | 4.70  | 54.20 |        |        |
| 5.20-5.38 | D      |            |     | 20/25 | End of Borehole   | 5.38  | 53.52 |        |        |

## Drilling

## Groundwater

| Type       | From | To   | Size | Flow | Struck | Depth | Season | Date     | Flow | Case | Water |
|------------|------|------|------|------|--------|-------|--------|----------|------|------|-------|
| Pit        | 0.1  | 1.20 |      |      | NIL    |       |        | 15.11.88 | NIL  | NIL  | NIL   |
| Cable      | 1.20 | 5.38 | D.15 |      |        |       |        | 15.11.88 | 4.83 | 3.00 | NIL   |
| Percussion |      |      |      |      |        |       |        | 16.11.88 | 4.83 | 3.00 | NIL   |
| Remarks    |      |      |      |      |        |       |        | 16.11.88 | 5.38 | 3.00 | NIL   |

## Remarks

## Borehole Record

## Project

N6 Widening Junctions 20 - 71A  
Department of Transport

## Contract

E8330

## Borehole

B1 (1 of 1)

exploration associates







SJ 6856 II  
6366 8468

| Sampling    |       | Properties |     |       | Strata  |       | 6366 8468 |        |  |
|-------------|-------|------------|-----|-------|---|-------|-----------|--------|--|
| Depth       | Type  | Cu KPs     | w % | SPT N | Description   | Depth | Level     | Legend |  |
| 0.0 - 1.50  | 8     |            | 16  |       | MADE GROUND: Stiff brown very sandy silty clay with sandstone fragments and cobbles and some fine to coarse sub-rounded to sub-angular gravel | 0.0   | 54.10     |        |  |
| 1.50 - 2.50 | 8     |            |     | 27    | 1.50 - 2.50m: with some gravel size clay fragments.   |       |           |        |  |
| 2.50 - 2.95 | U(60) | 120        | 25  |       |   |       |           |        |  |
| 3.00        | 0     |            |     |       | Stiff brown gray silty CLAY.  | 3.00  | 51.10     |        |  |
| 3.25        | 0     |            |     |       |   |       |           |        |  |
| 3.50 - 3.95 | 50    |            |     | 25    |   |       |           |        |  |
| 4.20 - 4.25 | 50    |            |     | 50/50 | Green grey and brown angular SANDSTONE fragments with a little brown sandy silty clay.  | 4.20  | 47.80     |        |  |
|             |       |            |     |       | End of Borehole   | 4.25  | 49.80     |        |  |

| Drilling   |      |      |      |      | Groundwater |           |        |          |       |       |       |
|------------|------|------|------|------|-------------|-----------|--------|----------|-------|-------|-------|
| Type       | From | To   | Size | Flow | Struck      | Behaviour | Sealed | Date     | Yield | Coast | Water |
| Pit        | 0.0  | 1.50 |      |      |             |           |        | 21.10.88 | N/A   | N/A   | N/A   |
| Cable      | 1.50 | 4.25 | 0.15 |      |             |           |        | 21.10.88 | 4.25  | 1.60  | N/A   |
| Percussion |      |      |      |      |             |           |        |          |       |       |       |

|                        |  |   |
|------------------------|--|---|
| <b>Remarks</b>         |  |   |
| <b>Borehole Record</b> | <b>Project</b>   | <b>Contract</b>                         |
| exploration associates | M6 Widening Junctions 20 to 21A<br>Department of Transport | E0330<br><b>Borehole</b><br>RS 11 of 13 |

SJ 6856-12  
66310 84560

| Sampling    |      | Properties |    |       | Strata  |       | 66310 84560 |   |  |
|-------------|------|------------|----|-------|---|-------|-------------|---|--|
| Depth       | Type | Cu KPa     | wL | SPT N | Description   | Depth | Level       | Legend  |  |
| G.L. - 1.60 | B    |            |    |       | MADE GROUND: Red grey mottled grey brown fine to medium sand with a little fine to coarse sub-rounded gravel with a little silty clay and occasional cobbles. | G.L.  | 54.20       |   |  |
| 1.60-2.05   | 50   |            |    | 21    | Stiff red brown silty CLAY with occasional gray green sand lenses.  | 1.60  | 52.60       |  |  |
| 2.25        | D    |            |    |       |   | 2.50  | 51.70       |  |  |
| 2.50-2.95   | 50   |            |    | 93    | Red brown thinly to thickly laminated SILTSTONE and fine grained SANDSTONE. Weak. With occasional grey bands.   | 3.05  | 51.15       |  |  |
|             |      |            |    |       | End of Borehole   |       |             |   |  |

| Drilling  |      |      |      |      | Groundwater |          |        |          |      |       |       |
|-----------|------|------|------|------|-------------|----------|--------|----------|------|-------|-------|
| Type      | From | To   | Sec  | Feet | Stick       | Behavior | Static | Draw     | Head | Cased | Water |
| PIP       | G.L. | 1.60 |      |      |             |          |        | 16.10.88 | N11  | N11   | N11   |
| Cable     | 1.60 | 3.05 | 0.15 |      | N11         |          |        | 17.10.88 | 5.05 | 2.00  | N11   |
| Perussion |      |      |      |      |             |          |        |          |      |       |       |

|                        |  |                             |
|------------------------|--|-----------------------------|
| <b>Remarks</b>         |  |                             |
| <b>Borehole Record</b> | <b>Project</b>   | <b>Contract</b>             |
| exploration associates | N6 Widening Junctions 20 to 21A<br>Department of Transport | EB550                       |
|                        |  | <b>Borehole</b> BA (1 of 1) |

# Appendix D: CON29M Non-Residential Mining Report

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The Coal  
Authority

Resolving the **impacts** of mining

# CON29M Non-Residential Mining Report

WARRINGTON INTERCHANGE  
MASTERPLAN  
WARRINGTON  
GREATER MANCHESTER

Date of enquiry: 15 September 2017  
Date enquiry received: 15 September 2017  
Issue date: 15 September 2017

Our reference: 51001626421001  
Your reference: 139491618\_1 |



# CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

## Client name

LANDMARK INFORMATION GROUP LIMITED

## Enquiry address

WARRINGTON INTERCHANGE MASTERPLAN,  
WARRINGTON, GREATER MANCHESTER


## How to contact us


0345 762 6848 (UK)  
+44 (0)1623 637 000 (International)

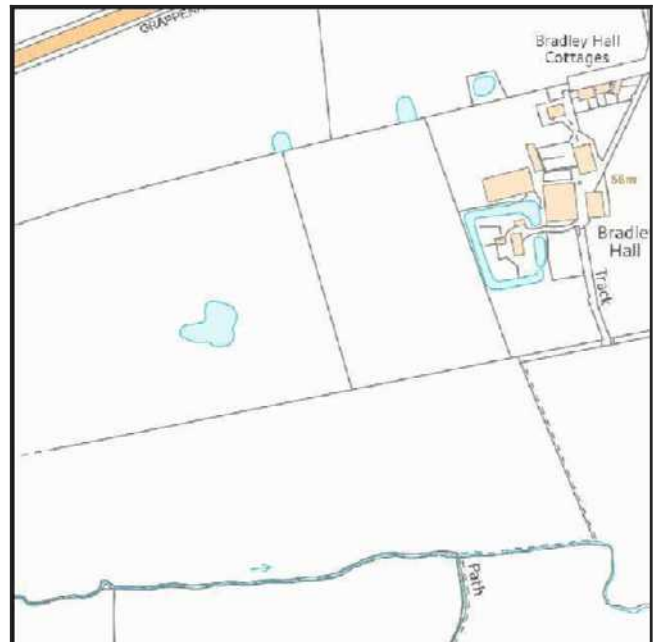
200 Lichfield Lane  
Mansfield  
Nottinghamshire  
NG18 4RG

[www.groundstability.com](http://www.groundstability.com)

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Approximate position of property



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# Summary

| Has the search report highlighted evidence or potential of |   |     |
|--|---|-----|
| 1  | Past underground coal mining                                      | No  |
| 2  | Present underground coal mining                                   | No  |
| 3  | Future underground coal mining                                    | No  |
| 4  | Mine entries  | No  |
| 5  | Coal mining geology   | No  |
| 6  | Past opencast coal mining   | No  |
| 7  | Present opencast coal mining                                      | No  |
| 8  | Future opencast coal mining                                       | No  |
| 9  | Coal mining subsidence  | No  |
| 10   | Mine gas  | No  |
| 11   | Hazards related to coal mining                                    | No  |
| 12   | Withdrawal of support   | No  |
| 13   | Working facilities order  | No  |
| 14   | Payments to owners of former copyhold land                        | No  |
| 15   | Information from the Cheshire Brine Subsidence Compensation Board | Yes |

**For detailed findings, please go to page 4.**

# Detailed findings

## 1. Past underground coal mining

The property is not within a surface area that could be affected by past underground mining.

## 2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

## 3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

## 4. Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

## 5. Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

## 6. Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

## **7. Present opencast coal mining**

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

## **8. Future opencast coal mining**

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

## **9. Coal mining subsidence**

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

## **10. Mine gas**

The Coal Authority has no record of a mine gas emission requiring action.

## **11. Hazards related to coal mining**

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

## **12. Withdrawal of support**

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

## **13. Working facilities order**

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

## **14. Payments to owners of former copyhold land**

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.



## **15. Information from the Cheshire Brine Subsidence Compensation Board**

The property is situated within the Cheshire Brine Subsidence Compensation District but is not within any consultation area prescribed by the Board under Section 38(1) of the Cheshire Brine Pumping (Compensation for Subsidence) Act 1952.

A Notice of Damage has not been filed in respect of the property and there has been no commutation of claims in connection therewith.

If claims in respect of the property have not been commuted, then should the property suffer damage at some future date through subsidence due to brine pumping, the compensation provisions of the Cheshire Brine Pumping (Compensation for Subsidence) Acts 1952 and 1964 would be expected to apply to the property. Should you wish to file a Prescribed Notice of Damage, please contact the Cheshire Brine Subsidence Compensation Board (tel: 0845 002 0562 or email [info@cheshirebrine.com](mailto:info@cheshirebrine.com)).

## Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

## Disclaimer

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## Alternative formats

If you would like this report in an alternative format, please contact our communications team.

# Enquiry boundary

**The map image is too large for this page and will be sent in a separate document**


## How to contact us


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+44 (0)1623 637 000 (International)

200 Lichfield Lane  
Mansfield  
Nottinghamshire  
NG18 4RG

[www.groundstability.com](http://www.groundstability.com)

 /company/the-coal-authority

 /thecoalauthority

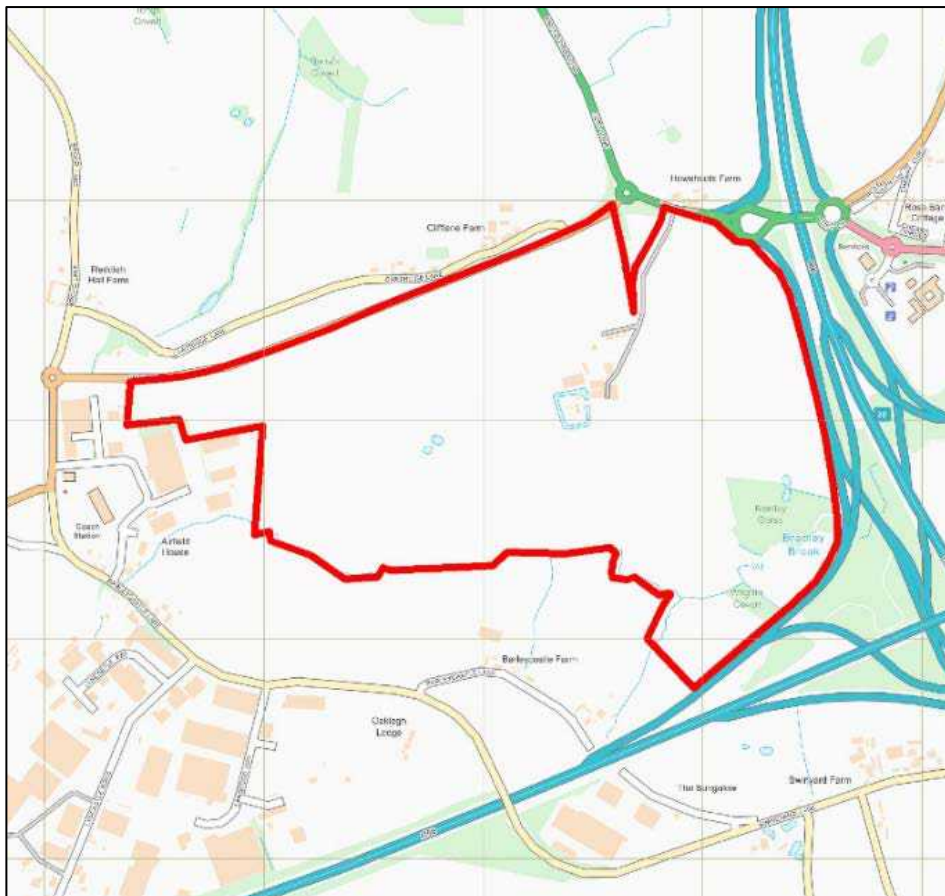
 /coalauthority

# Appendix E: Preliminary Unexploded Ordnance (UXO) Threat Assessment

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# PRELIMINARY UNEXPLODED ORDNANCE (UXO) THREAT ASSESSMENT

Meeting the requirements of CIRIA C681 'Unexploded Ordnance (UXO) – A guide for the Construction Industry' Risk Management Framework



|                               |  |                    |  |
|-------------------------------|--|--------------------|--|
| <b>6 ALPHA PROJECT NUMBER</b> | P6168  | <b>ORIGINATOR</b>  | S. Barratt                                     |
| <b>LANDMARK ORDER NUMBER</b>  | 139294091_2  | <b>REVIEWED BY</b> | R. Griffiths (15 <sup>th</sup> September 2017) |
| <b>CLIENT REFERENCE</b>       | 1015524 – Warrington Interchange MP (Boundary)   | <b>RELEASED BY</b> | L. Askham (15 <sup>th</sup> September 2017)    |
| <b>SITE</b>                   | Warrington Interchange Masterplan, Warrington, WA4 4SR                                       |                    |  |
| <b>RATING</b>                 | <b>HIGH</b> – This Site requires further action to establish and mitigate any UXO risk posed |                    |  |

## STUDY SITE

The Study Site is described as “Warrington Interchange Masterplan, Warrington, WA4 4SR”, and it is centred on National Grid Reference 365680, 384480.

## THREAT POTENTIAL AND RECOMMENDATIONS

### UXO PROBABILITY ASSESSMENT = 4 RATING, INDICATING A HIGH PROBABILITY OF UXO ENCOUNTER

The rating scale can be seen on *Figure 2* (Probability of UXO Encounter). In accordance with current guidelines (*CIRIA C681 Chapter 5*), the highest threat rating has been determined at this specific site for UXO threat consideration and has been used for the final assessment and recommendations.

In accordance with *CIRIA C681 Chapter 5* on managing UXO risks, *6 Alpha* recommends that the next stage in the risk management framework is:

### [DETAILED UXO THREAT & RISK ASSESSMENT](#)

We would be pleased to provide this service, please contact *Envirocheck* for further details:



## REPORT SUMMARY

During WWII, the Study Site was situated within *Runcorn Rural District* and *Bucklow Rural District*, which both recorded one High Explosive (HE) bomb strike per 100 hectares; a very low level of bombing. The Study Site was also situated within *Lymm Urban District*, which recorded three HE bomb strikes per 100 hectares; a very low level of bombing.

*Luftwaffe* aerial reconnaissance photography associated with the Site identified an airfield (located 285m to the south) as a primary bombing target. Further research found the airfield to be *Royal Naval Air Station (RNAS) Stretton*. However, there were no features in the vicinity which may have been considered secondary targets.

Neither *Air Raid Precaution (ARP)* records nor official bomb damage mapping associated with the Site were available. An analysis of post-war mapping and further research of historical records did not identify any bombing or bomb damage in close proximity to the Site boundary.

Given that *RNAS Stretton* was recorded in close proximity; it would suggest that further action is warranted to address the potential for UXO encounter.

## USING THIS REPORT

This Preliminary Assessment is designed to inform environmental and construction professionals of the potential threat of military related explosives and/or ordnance on, or in, the vicinity of the Study Site.

This assessment is designed to be employed as a site-screening tool to meet with the requirement of Phase One of the *CIRIA UXO Risk Management Framework*; there are two broad prospective outcomes; either the threat level requires a detailed threat & risk assessment; or no further action is required. In the former instance we can provide a report within 14 working days (or more quickly upon application).

Two figures accompany the report, the *Second World War (WWII)* High Explosive (HE) Bomb Density and the final Probability of UXO Encounter. The purpose of this approach is to demonstrate that whilst bomb density statistics give an indication for WWII bombing, they should not be relied upon exclusively to generate a holistic assessment.












For further information, please contact *Envirocheck*:

Telephone: +44 (0)844 844 9952

Website: <http://www.envirocheck.co.uk>

Email: [customerservice@envirocheck.co.uk](mailto:customerservice@envirocheck.co.uk)

## DATA FINDINGS

| Threat Source<br>(within 1,000m)   | Detail     |   |
|--|------------|---|
|  | Identified | Comments  |
|  Airfields/Military Facilities             | ✓          | Royal Naval Air Station (RNAS) Stretton (245m south).   |
|  Ordnance Manufacture/Storage              | ✗          | None recorded within 1,000m.  |
|  WWII Decoy Bombing Sites                  | ✓          | Starfish decoy (120m north).  |
|  WWII Defensive Features                   | ✓          | Aircraft dispersal pens (410m south, 690m south and 705m south), a battle HQ (420m south) and gun testing butts (470m south).   |
|  WWII Luftwaffe Designated Bombing Targets | ✓          | Luftwaffe aerial photography identified an airfield (located 285m south) as a primary bombing target.                           |
|  Secondary Bombing Targets                 | ✗          | None recorded within 1,000m.  |
|  WWII Bomb Strikes Within Site Boundary    | ✗          | ARP records associated with the Site were not available.  |
|  WWII Bomb Strikes Near Site Boundary     | ✗          | ARP records associated with the Site were not available.  |
|  WWII Bomb Damage                        | ✗          | Official bomb damage mapping associated with the Site was not available.  |
|  Abandoned Bomb Register                 | ✗          | The official abandoned bomb list did not identify any abandoned bombs within 1,000m.  |
|  WWII Bombing Density Per 100 Hectares   | ✓          | Runcorn and Bucklow Rural Districts and Lymm Urban District which recorded one, one and three HE bomb strikes per 100 hectares. |

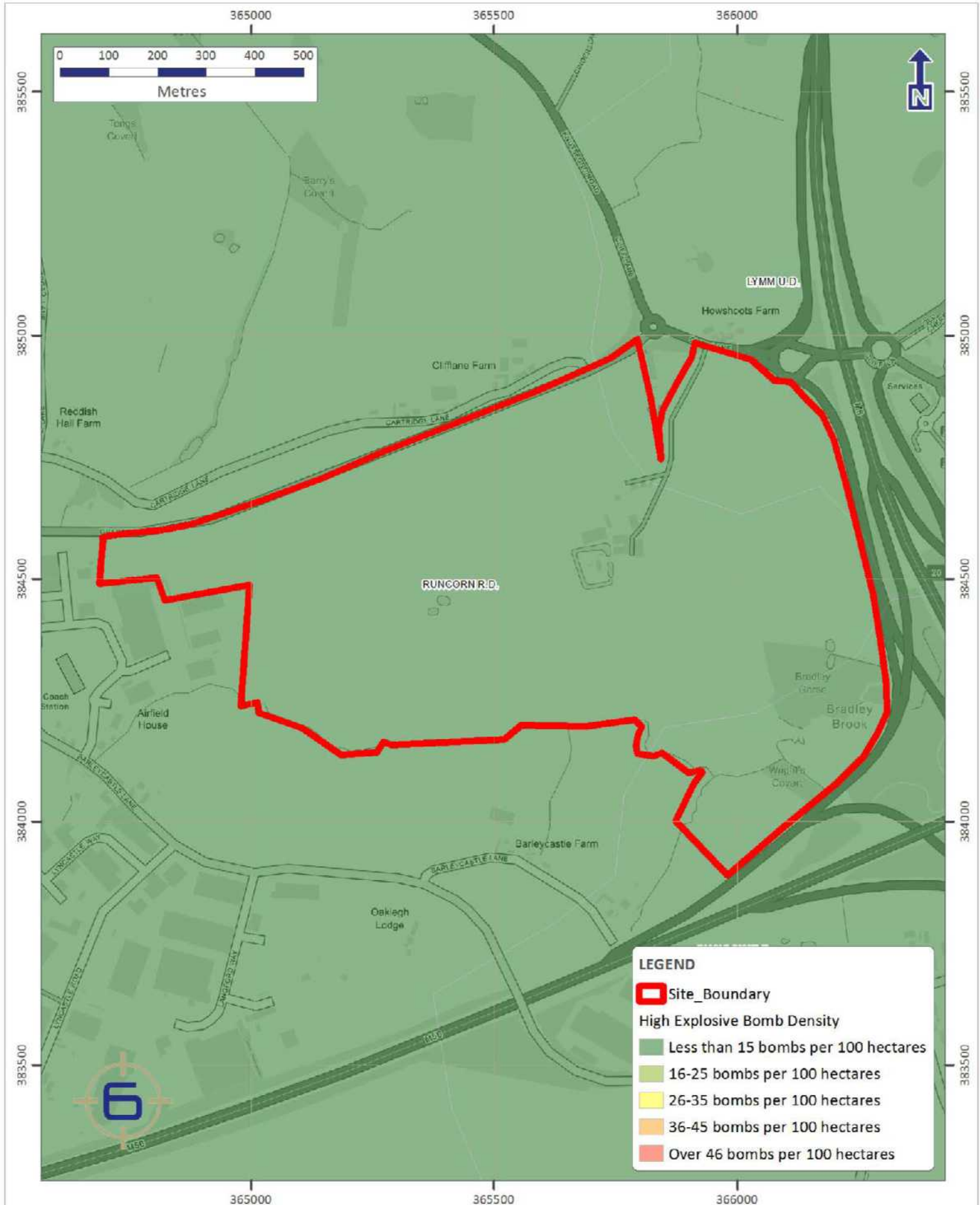
## IMPORTANT NOTES

1. The term 'Preliminary UXO Threat Assessment' has been used to describe this report, to fall in line with the CIRIA C681 guidelines. Whilst the term 'Risk' can be justifiably used at this stage, the reader should note that the 'Consequence' function of 'Risk' is not considered. Should it be required, this would be addressed in the 'Detailed UXO Threat & Risk Assessment' (Stages 2 and 3).
2. This report is accurate and up to date at the time of writing.
3. The assessment levels have been generated from historical data and third party sources. Where possible 6 Alpha have sought to verify the accuracy of such data, but cannot be held accountable for inherent errors that may be in third party data sets (e.g. National Archives or library sources).
4. 6 Alpha have exercised all reasonable care, skill and due diligence in producing this service.
5. Whilst every effort has been used to identify all potential UXO/explosive threats, there were a number of private facilities, which may not have released privately recorded information concerning UXO/explosive threats into the public domain. It is therefore possible that some of the aforementioned sites may not be included within the database.



# WARRINGTON INTERCHANGE MASTERPLAN, WARRINGTON, WA4 4SR

## WWII High Explosive Bomb Density



**LEGEND**

- Site\_Boundary
- High Explosive Bomb Density**
- Less than 15 bombs per 100 hectares
- 16-25 bombs per 100 hectares
- 26-35 bombs per 100 hectares
- 36-45 bombs per 100 hectares
- Over 46 bombs per 100 hectares

|                             |                    |                    |                      |                                  |  |  |  |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|--|
| PROJECT NO.<br><b>P6168</b> | FIGURE<br><b>1</b> | DRAWN<br><b>GC</b> | CHECKED<br><b>RG</b> | DATE<br><b>14 September 2017</b> | Contains Ordnance Survey data ©<br>Crown copyright and database right 2017 | Produced by and Copyright to 6 Alpha Associates<br>Ltd. Users noting any errors please notify 6 Alpha. |  |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|--|

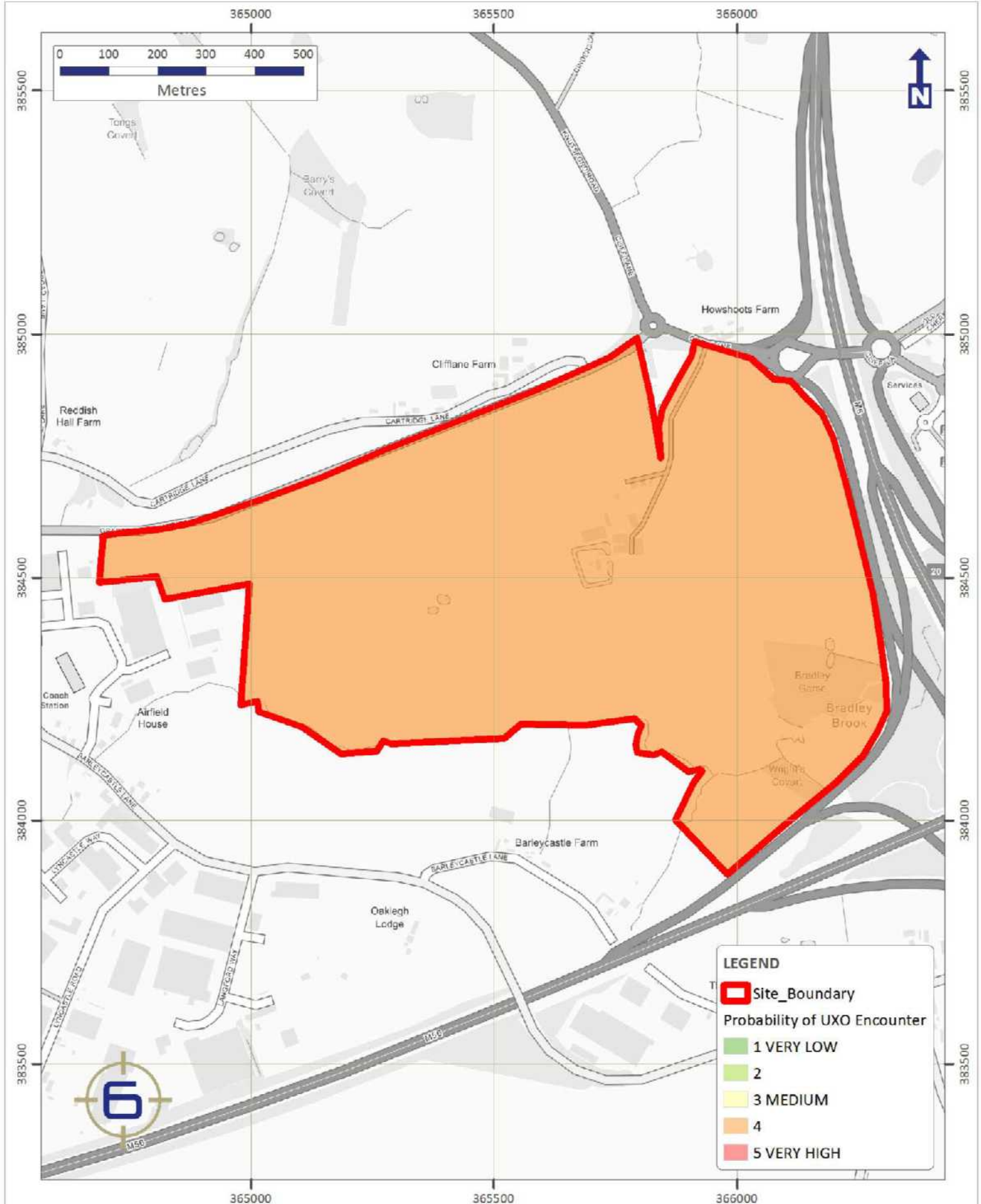




# WARRINGTON INTERCHANGE MASTERPLAN, WARRINGTON, WA4 4SR



## Probability of UXO Encounter



**LEGEND**

- Site\_Boundary
- Probability of UXO Encounter
- 1 VERY LOW
- 2
- 3 MEDIUM
- 4
- 5 VERY HIGH

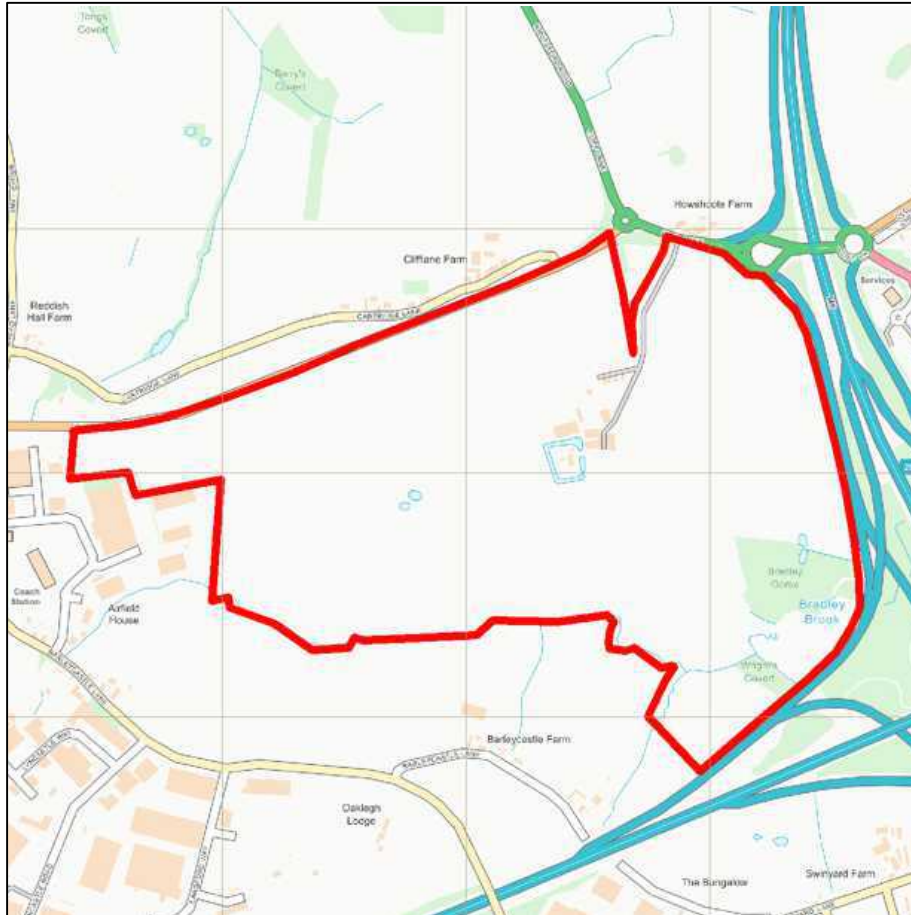
|                             |                    |                    |                      |                                  |  |  |                            |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|----------------------------|
| PROJECT NO.<br><b>P6168</b> | FIGURE<br><b>2</b> | DRAWN<br><b>GC</b> | CHECKED<br><b>RG</b> | DATE<br><b>14 September 2017</b> | Contains Ordnance Survey data ©<br>Crown copyright and database right 2017 | Produced by and Copyright to 6 Alpha Associates<br>Ltd. Users noting any errors please notify 6 Alpha. | <b>alpha</b><br>ASSOCIATES |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|----------------------------|

# Appendix F: Detailed Unexploded Ordnance (UXO) Threat & Risk Assessment

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# Detailed Unexploded Ordnance (UXO) Threat & Risk Assessment

Meeting the requirements of CIRIA C681 'Unexploded Ordnance (UXO) A guide for the Construction Industry' Risk Management Framework



|                       |  |                    |  |
|-----------------------|--|--------------------|--|
| <b>PROJECT NUMBER</b> | P6173  | <b>ORIGINATOR</b>  | G. Cooke                                     |
| <b>VERSION NUMBER</b> | 1.0  | <b>REVIEWED BY</b> | R. Rickard (22 <sup>nd</sup> September 2017) |
| <b>CLIENT</b>         | Cundall  | <b>RELEASED BY</b> | L. Askham (25 <sup>th</sup> September 2017)  |
| <b>SITE</b>           | Warrington Interchange Masterplan, Warrington, WA4 4SR   |                    |  |
| <b>RATING</b>         | <b>MEDIUM</b> - This Site requires limited further action to reduce risk to ALARP during intrusive activities. |                    |  |



# Contents

---

|   |    |
|---|----|
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- Figure Three – Aerial Photography (2017)
- Figure Four – Aerial Photography (1945)
- Figure Five – WWII Luftwaffe Bombing Targets
- Figure Six – Extent of RNAS Stretton
- Figure Seven – WWII High Explosive Bomb Density

# Acronyms and Abbreviations

---

|         |   |           |   |
|---------|---|-----------|---|
| AA      | Anti-Aircraft   | LAA       | Light Anti-Aircraft                         |
| AAA     | Anti-Aircraft Ammunition                                    | lb        | Pounds                                      |
| AAC     | Army Air Corps  | LCC       | London County Council                       |
| AFS     | Advanced Flying School                                      | LDV       | Local Defence Volunteers                    |
| ALARP   | As Low As Reasonably Practicable                            | LE        | Low Explosive                               |
| AOD     | Above Ordnance Datum  | LSA       | Land Service Ammunition                     |
| ARP     | Air Raid Precaution   | m         | Metres                                      |
| ATS     | Auxiliary Territorial Service                               | MACP      | Military Aid to the Civil Power             |
| AXO     | Abandoned Explosive Ordnance                                | MoD       | Ministry of Defence                         |
| BD      | Bomb Disposal   | mm        | Millimetres                                 |
| BDO     | Bomb Disposal Officer                                       | NATO      | North Atlantic Treaty Organisation          |
| bgl     | Below Ground Level  | NEQ       | Net Explosive Quantity                      |
| BGS     | British Geological Survey                                   | NFF       | National Filling Factory                    |
| BH      | Borehole  | NGR       | National Grid Reference                     |
| BPD     | Bomb Penetration Depth                                      | OD        | Ordnance Datum                              |
| CDP     | Cast Driven Piles   | OS        | Ordnance Survey                             |
| CFA     | Continuous Flight Auger                                     | OTU       | Operational Training Unit                   |
| CIRIA   | Construction Industry Research and Information Association  | PBG       | Polar Blasting Gelignite                    |
| CPT     | Cone Penetration Testing                                    | PM        | Parachute Mine                              |
| CS      | County Series   | PoW       | Prisoner of War                             |
| EFTS    | Elementary Flying Training School                           | RADAR     | Radio Detection And Ranging                 |
| ELG     | Emergency Landing Ground                                    | RAF       | Royal Air Force                             |
| EO      | Explosive Ordnance  | RBL       | Rifle Breach Loaded                         |
| EOC     | Explosive Ordnance Clearance                                | RDX       | Research Department Explosives              |
| EOD     | Explosive Ordnance Disposal                                 | RFC       | Royal Flying Corps                          |
| ERW     | Explosive Remnants of War                                   | RML       | Rifle Muzzle Loaded                         |
| FAA     | Fleet Air Arm   | RN        | Royal Navy                                  |
| FPP     | Flight Pilot Pool   | RNAS      | Royal Naval Air Service                     |
| FTS     | Flight Training School                                      | ROF       | Royal Ordnance Factory                      |
| GI      | Ground Investigation  | SAA       | Small Arms Ammunition                       |
| GIS     | Geographic Information Systems                              | Sqn       | Squadron                                    |
| GL      | Ground Level  | TA        | Territorial Army                            |
| GP      | General Purpose   | TNT       | Trinitrotoluene                             |
| GPS     | Global Positioning Systems                                  | UK        | United Kingdom                              |
| HAA     | Heavy Anti-Aircraft   | UN        | United Nations                              |
| HE      | High Explosive  | USAAF     | United States Army Air Force                |
| HO      | Home Office   | UXB       | Unexploded Bomb                             |
| HSE     | Health and Safety Executive                                 | UXO       | Unexploded Ordnance                         |
| IB      | Incendiary Bomb   | V Weapons | <i>Vergeltungswaffe</i> – Vengeance Weapons |
| IED     | Improvised Explosive Device                                 | WAAF      | Women's Auxiliary Air Force                 |
| JSEODOC | Joint Service Explosive Ordnance Disposal Operations Centre | WD        | War Department                              |
| kg      | Kilograms   | WWI       | World War One                               |
| km      | Kilometres  | WWII      | World War Two                               |

## EXECUTIVE SUMMARY

### Study Site

The Client has defined the Study Site as “Warrington Interchange Masterplan, Warrington, WA4 4SR”. The Site is located at NGR 365660, 384480.

### Risk Level

**MEDIUM**

### Potential Threat Sources

The most probable UXO threat is posed by WWII *German* HE bombs, whilst IBs and *British* AAA projectiles (which were used to defend against *German* bombing raids) pose a residual threat.

### Risk Pathway

Given the types of UXO that might be present on-site, all types of aggressive intrusive engineering activities may generate a significant risk pathway.

### Key Findings

During WWII, the Study Site was situated within the *Runcorn Rural District*, *Lymm Urban District* and *Bucklow Rural Districts*, which recorded one to three HE bombs per 100 hectares, very low levels of bombing. However, given that the Site was situated adjacent to an airfield which had been identified as a primary bombing target, the localised bombing density may in fact have been much greater.

*Luftwaffe* aerial reconnaissance photography associated with the Site identified an airfield (located 285m to the south) as a primary bombing target. However, there were no features in the vicinity which would have been considered secondary targets.

Further research found that *RNAS Stretton* was used by many Fleet Air Arm Squadrons throughout WWII. From 1944 the airfield was used as an Airfield Maintenance Yard, and continued to operate as such post-WWII. The airfield was closed on 4<sup>th</sup> November 1958.

ARP records associated with the Site were not available. Furthermore, whilst IBs may have fallen within the Study Site, they fell in such large numbers they were considered ubiquitous and accurate record keeping was either non-existent or perfunctory therefore, their prospective presence cannot be either corroborated or discounted. Nonetheless, due to the Site’s proximity to *RNAS Stretton* it is possible that information on bomb strikes was recorded and kept privately.

Official bomb damage mapping for the Site was not available. Further research and an analysis of post-war mapping did not identify any bomb damage on-site or in its immediate vicinity. Owing to the Site’s proximity to *RNAS Stretton* it is likely that any records may have been kept private as a matter of national security. Moreover, much of the Study Site was undeveloped during WWII and therefore post-war mapping would not ordinarily be expected to show bomb damage.

Pre-WWII mapping (1938) and aerial photography (1945) associated with the Site shows that it was located within a rural area and comprised of structures associated with *Bradley Hall* and undeveloped ground. As a result, it is plausible that a local civilian may have observed and reported a UXB entry holes, or that the Navy inspected the Site after raids, this is unlikely.

Some structures were built on-site by 1967, but not Site-wide. Consequently, it is considered likely that any UXO within the structural foundations of post-war buildings would have been discovered and removed, however, the potential for UXO to be present within remaining areas is assessed to be extant, although this is considered remote. Given that there is no evidence to suggest that the Site was subjected to bombing or bomb damage, the following risk mitigation measures are recommended as a minimum, in order to reduce risks ALARP, during all intrusive activities.

## EXECUTIVE SUMMARY (...continued)

### Recommended Risk Mitigation

#### All Groundworks in All Areas:

**1. Operational UXO Emergency Response Plan;** appropriate Site Management documentation should be held on-site to guide and plan for the actions which should be undertaken in the event of a suspected or real UXO discovery (this plan can be supplied by *6 Alpha*);

**2. UXO Safety & Awareness Briefings;** the briefings are essential when there is a possibility of explosive ordnance encounter and are a vital part of the general safety requirement. All personnel working on the Site should receive a briefing on the identification of a UXB, what actions they should take to keep people and equipment away from such a hazard and to alert Site management. Information concerning the nature of the UXB threat should be held in the Site office and displayed for general information on notice boards, both for reference and as a reminder for ground workers. The safety awareness briefing is an essential part of the *Health & Safety Plan* for the Site and helps to evidence conformity with the principles laid down in the *CDM regulations 2015* (this briefing can be delivered directly, or in some cases remotely, by *6 Alpha*).

**3. On-Call Engineer;** An on-call EOD Engineer will be able to identify and/or advise on the appropriate course of action in the event of any suspicious and/or real UXO finds. *6 Alpha* offer three tiers of immediate telephone and/or email response.

For further information, please contact *6 Alpha Associates*:

Website: <http://www.6alpha.com>

Telephone: +44 (0)2033 713 900

Email: [enquiry@6alpha.com](mailto:enquiry@6alpha.com)

## ASSESSMENT METHODOLOGY

### Approach

6 Alpha Associates is an independent, specialist risk management consultancy practice, which has assessed the risk of encountering UXO (as well as buried bulk high explosives) at this Site, by employing a process advocated for this purpose by CIRIA. The CIRIA guide for managing UXO risks in the construction industry (C681) not only represents best practice but has also been endorsed by the HSE. Any risk mitigation solution is recommended *only* because it delivers the Client a risk reduced to ALARP at best value.

UXO hazards can be identified through the investigation of local and national archives associated with the Site, MoD archives, local historical sources, historical mapping as well as contemporaneous aerial photography (if it is available). Hazards will have only been recorded if there is specific information that could reasonably place them within the boundaries of the Site. The amalgamation of information is then assessed to enable the researcher to provide relevant and accurate risk mitigation practices.

The assessment of UXO risk is a measure of *probability of encounter* and *consequence of encounter*; the former being a function of the identified hazard and proposed development methodology; the latter being a function of the type of hazard and the proximity of personnel (and/or other 'sensitive receptors', such as equipment) to the hazard, at the moment of encounter.

If UXO risks are identified, the methods of mitigation we have recommended are considered reasonably and sufficiently robust to reduce them to ALARP. We advocate the adoption of the legal ALARP principle because it is a key factor in efficiently and effectively ameliorating UXO risks. It also provides a ready means for assessing the Client's tolerability of UXO risk. In essence, the principle states that if the cost of reducing a risk significantly outweighs the benefit, then the risk may be considered tolerable. This does not mean that there is never a requirement for UXO risk mitigation, but that any mitigation must demonstrate that it is beneficial. Any additional mitigation that delivers diminishing benefits and that consume disproportionate time, money and effort are considered *de minimis* and thus unnecessary. Because of this principle, UXB and UXO risks will rarely be reduced to zero (nor need they be).

### Important Notes

Key source material is referenced within this document, whilst secondary/anecdotal information may be available upon request.

Although this report is up to date and accurate at the time of writing, our databases are continually being populated as and when additional information becomes available. Nonetheless, 6 Alpha have exercised all reasonable care, skill and due diligence in providing this service and producing this report.

The assessment levels are based upon our professional opinion and have been supported by our interpretation of historical records and third-party data sources. Wherever possible, 6 Alpha has sought to corroborate and to verify the accuracy of all data we have employed, but we are not accountable for any inherent errors that may be contained in third party data sets (e.g. *National Archive* or other library sources), and over which 6 Alpha cannot exercise control.



## STAGE ONE – SITE LOCATION AND DESCRIPTION

### Study Site

The Client has defined the Study Site as “Warrington Interchange Masterplan, Warrington, WA4 4SR”. The Site is located at NGR 365660, 384480. The Site location and Site boundary are presented at *Figures 1* and *2* respectively.

### Location Description

The Study Site is situated within *Runcorn* and *Bucklow Rural Districts* and *Lymm Urban District* and covers an area of approximately 95.66 hectares (ha).

Furthermore, the Site is bounded by:

- North: *Grappenhall Lane*;
- East: an unnamed road;
- South: undeveloped ground;
- West: industrial buildings.

### Aerial Photography (2017) (*Figure 3*)

Aerial photography (2017) corroborates the information above and shows that the Site is situated within a rural area with some industrial properties.

### Proposed Works

The Client has described the following:

- Hand auger pits to 1.2m
- Dynamic window sample hole to 5m

### Ground Conditions

It is important to establish the specific ground conditions in order to determine the maximum *German UXB* penetration depth as well as the potential for other types of munitions to be buried.

If the Site investigations and/or construction methodologies change, and/or if a specific methodology is to be employed, and/or if the scope of work is focused upon a specific part of the Site, then *6 Alpha* are to be informed so that the prospective UXO risks and the associated risk mitigation methodology might be re-assessed. Certain ground conditions may also constrain certain types of UXO risk mitigative works e.g. magnetometer survey is adversely affected in mineralised and made ground.

## STAGE ONE – SITE LOCATION AND DESCRIPTION (...continued)

### Ground Conditions

BGS borehole log “SJ68SE5 – M6 Widening Jct 20/21A B4A” (located 90m to the north-east of the Site), recorded the following strata:

| Depth bgl (m) | Strata    | Description   |
|---------------|-----------|---|
| 0-0.15m       | Sandstone | Red brown fine to medium grained highly to moderately weathered silty sandstone. Very weak to moderately strong. With occasional grey green fine to medium grained sandstone lenses. Very weak.                           |
| 0.15-2.7m     | Sandstone | Grey green fine grained thinly laminated silty highly weathered sandstone. Weak. With occasional mudstone inclusions. Fractures horizontal tight no discolouration (drill induced).                                       |
| 2.7-14.1m     | Siltstone | Red brown thinly laminated slightly weathered siltstone. Moderately strong. With occasional mudstone inclusions and gypsum inclusions and bands. Fractures sub-horizontal occasionally vertical. Tight no discolouration. |
| 14.1-14.62m   | Mudstone  | Red brown slightly weathered silty mudstone. Weak.  |
| 14.62-15.1m   | Sandstone | Red brown fine grained thinly laminated highly weathered sandstone. Very weak. With occasional grey green bands.  |
| 15.1-18m      | Siltstone | Red brown thickly bedded slightly weathered siltstone. Moderately strong. Fractures sub-horizontal tight no discolouration.   |

BGS borehole log “SJ68SW16 – Appleton Thorn FGE/1240, Geological/ Inves. 2” (located 640m west of the Site) recorded the following strata:

| Depth bgl (m) | Strata             | Description  |
|---------------|--------------------|--|
| 0-0.5m        | Topsoil            | Grass over brown clayey topsoil  |
| 0.5-1.6m      | Sandy Clay         | Firm reddish brown and tea green streaked sandy clay with fine lithorelics. Zone 4a.   |
| 1.6-2.05m     | Sandstone and marl | Reddish brown and tea green moderately hard, very thin bedded closely jointed, moderately weathered fine-grained sandstone and marl with traces of friable clay. Zone 2. |
| 2.05-3.5m     | Sandstone and marl | Reddish brown sandstone and marl. Zone 2.  |

## STAGE TWO – REVIEW OF HISTORICAL DATASETS

### Sources of Information Consulted

The following primary information sources have been used in order to establish the background UXO threat:

1. *6 Alpha's Azimuth* Database;
2. *Home Office* WWII Bomb Census Maps;
3. WWII and post-WWII aerial photography;
4. Official Abandoned Bomb Register;
5. Information gathered from the *National Archives* at *Kew*;
6. Historic UXO information provided by *33 Engineer Regiment* (Explosive Ordnance Disposal) at *Carver Barracks, Wimbish*.

### Potential Sources of UXO Contamination

In general, there are several activities that might contaminate a site with UXO but the three most common ways are: legacy munitions from military training/exercises; deliberate or accidental dumping (AXO) and ordnance resulting from war fighting activities (also known as the Explosive Remnants of War (ERW)).

During WWII, the *Luftwaffe* undertook bombing campaigns all over the *UK*. The most common type of UXO discovered today is the aerially delivered high explosive (HE) bomb, which are comparatively thick-skinned and dropped from enemy aircraft. If the bomb did not detonate when it was dropped, the force of impact enabled the UXO to penetrate the ground, often leaving behind it a UXB entry hole. These entry holes were not always apparent and some went unreported, leaving the bomb buried and unrecorded. More rarely, additional forms of *German* UXO are occasionally discovered including *inter alia* V1 and V2 rockets, Incendiary Bombs (IBs), and Anti-personnel (AP) bomblets.

Although the *Luftwaffe* had designated primary bombing targets across the *UK*, their high-altitude night bombing was not accurate. As a result, thousands of buildings were damaged and civilian fatalities were common. Bombs were also jettisoned over opportunistic targets and residential areas were sometimes struck.

As the threat of invasion lingered over *Britain* during WWII, defensive actions were undertaken. The *British* and *Allied Forces* requisitioned large areas of land for military training and bomb storage (including HE bombs, naval shells, artillery and tank projectiles, explosives, LSA and SAA). Thousands of tonnes of these munitions were used for the *Allied Forces* weapon testing and military training alone. It has been estimated that at least 20 per cent of the *UK's* land has been used for military training at some point.

*The best practice guide for dealing with your UXO risks on land* (CIRIA publication C681) suggests that approximately 10 per cent of all munitions deployed failed to function as designed. ERW are therefore, still commonly encountered, especially whilst undertaking construction and civil engineering groundwork.

Furthermore, in exceptional circumstances, UXO is discovered unexpectedly and without apparent rational explanation. There are several ways this might occur:

- When *Luftwaffe* aircraft wished to swiftly escape e.g. from an aerial attack, they would jettison some or all of their bombs and flee. This is commonly referred to as *tip and run* and it has resulted in bombs being found in unexpected locations;
- Transportation of aggregate containing munitions to an area that was previously free of UXO, usually related to construction activities employing material dredged from a contaminated offshore borrow site;
- Poor precision during targeting (due to high altitude night bombing and/or poor visibility) resulted in bombs landing off target, but within the surrounding area.
- *British* decoy sites were also constructed to deliberately cause incorrect targeting. For obvious reasons, such sites were often built in remote and uninhabited areas.

## STAGE TWO – REVIEW OF HISTORICAL DATASETS (...continued)

### Site History

From an analysis of the CS and OS historical mapping and aerial photography associated with the Site, the following Site history can be deduced:

| Year                           | On-site  | Vicinity   |
|--------------------------------|--|--|
| <b>1899 CS Map</b>             | The majority of the Site was undeveloped, but <i>Bradley Hall</i> was located in the central sector. | The site was situated in a rural area.   |
| <b>1910-11 CS Map</b>          | No changes were recorded on-site.  | No changes were recorded in the vicinity.  |
| <b>1938 CS Map</b>             | Some more structures were built near <i>Bradley Hall</i> .   | No changes were recorded in the vicinity.  |
| <b>1945 Aerial Photography</b> | No changes were recorded on-site.  | Buildings were recorded immediately west. An airfield was recorded to the south.                           |
| <b>1954 OS Map</b>             | No changes were recorded on-site.  | No changes were recorded in the vicinity.  |
| <b>1964-70 OS Map</b>          | No changes were recorded on-site.  | The buildings to the west were labeled 'General Storage Depot'. A road was constructed to the east.        |
| <b>1967 OS Map</b>             | Some structures were built on-site.  | No changes were recorded in the vicinity.  |
| <b>1970-81 OS Map</b>          | No changes were recorded on-site.  | No changes were recorded in the vicinity.  |
| <b>1984-93 OS Map</b>          | No changes were recorded on-site.  | The area became more developed. A road was constructed immediately to the north, and another to the south. |
| <b>2005 Aerial Photography</b> | No changes were recorded on-site.  | A new road junction was recorded to the north-east.  |
| <b>2009 Aerial Photography</b> | No changes were recorded on-site.  | No changes were recorded in the vicinity.  |

### WWII Site Use

The CS mapping prior to WWII (1938), shows that the Study Site was located within a rural area, and the Site comprised of buildings associated with *Bradley Hall*.

#### Aerial Photography (1945) (Figure 4)

The aerial photography (1945) associated with the Site shows that some structures were located in the central sector of the Site. Nonetheless, the resolution of the photograph is insufficient to be able to identify accurately, the precise local features and/or type of structures, then within the curtilage of the Site.

#### WWII Bombing of Cheshire

The county of *Cheshire* was not subjected to a vast amount of bombing as the city of *Liverpool*, located to the north, was a strategic bombing target for the *Luftwaffe* due to its port industry and facilities. Nevertheless, *Cheshire* was home to numerous targets of interest such as chemical works, army training camps, barracks, arms factories, port installations and a *Royal Ordnance Factory*. *Luftwaffe* aircraft often jettisoned their remaining cargo of bombs on towns and cities whilst flying back in order to make their aircraft lighter for the journey. As such, these sites in *Cheshire* would have been targeted with excess bombs on their return flight from *Liverpool*.

## STAGE TWO – REVIEW OF HISTORICAL DATASETS (...continued)

### WWII Luftwaffe Bombing Targets (*Figure 5*)

Prior to WWII, the *Luftwaffe* conducted numerous aerial photographic reconnaissance missions over *Britain*, recording key military, industrial and commercial facilities for attack, in the event of war. In addition, logistics infrastructure and public services, such as railways, canals, power stations, reservoirs, water and gas works were also considered viable bombing targets.

*Luftwaffe* aerial reconnaissance photography associated with the Site identified an airfield (located 285m to the south) as a primary bombing target. However, there were no features in the vicinity which would have been considered secondary targets.

### *RNAS Stretton (Figure 6)*

When construction began on *Stretton* airfield it was intended to be a base from which to defend *Manchester* and *Liverpool*. However, by the time the airfield was completed, the threat to *Manchester* and *Liverpool* had subsided. As a result, the airfield was commissioned as *RNAS Stretton/HMS Blackcap* in June 1942. The airfield was used by many Fleet Air Arm Squadrons throughout WWII. From 1944 the airfield was used as an Airfield Maintenance Yard, and continued to operate as such post-WWII. The airfield was closed on 4<sup>th</sup> November 1958.

### WWII HE Bomb Strikes

During WWII, ARP wardens compiled detailed logs of bomb strikes across their respective districts. However, ARP records associated with the Site were not available. Furthermore, whilst IBs may have fallen within the Study Site, they fell in such large numbers they were considered ubiquitous and accurate record keeping was either non-existent or perfunctory therefore, their prospective presence cannot be either corroborated or discounted.

In addition to IBs and HE bomb strikes, during the latter part of the war when aerial bombing had significantly declined, the main threat came from V type weapons. V1 and V2 rockets were thin-skinned, unmanned and inaccurate weapons. Despite this, there is no evidence to suggest that the Site (or its immediate vicinity) was subjected to rockets strikes during WWII.

### WWII Bomb Damage

Official bomb damage mapping for the Site was not available. Further research and an analysis of post-war mapping did not identify any bomb damage on-site or in its immediate vicinity.

### WWII HE Bomb Density (*Figure 7*)

The Study Site was located within the *Runcorn Rural District*, *Lymm Urban District* and *Bucklow Rural Districts*, which recorded one to three HE bombs per 100 hectares, very low levels of bombing. However, given that the Site was situated adjacent to an airfield which had been identified as a primary bombing target during WWII, the localised bombing density may in fact have been much greater.

### Abandoned Bombs

An examination of the official abandoned bomb records has not identified any abandoned bombs on-site or within 1,000m of it.

### Records of WWII UXB Disposal Tasks

Civil defence records listing UXBs dealt with in *Runcorn Rural District*, *Lymm Urban District* and *Bucklow Rural District* from 1940-45 was not available. Further research did not identify any WWII UXB disposal tasks on-site or in its vicinity.

### Records of Post-WWII UXB Disposal Tasks

An examination of the post-WWII BDO tasks associated with the area has not identified any BDO operations on-site or in its vicinity.

## STAGE THREE – DATA ANALYSIS

### Was the ground undeveloped during WWII?

Predominantly, yes; according to the CS mapping prior to WWII (1938), the Study Site comprised mostly undeveloped ground, but also contained some structures associated with *Bradley Hall*.

### Is there a reason to suspect that the immediate area was a bombing target during WWII?

Yes; *Luftwaffe* aerial reconnaissance photography associated with the Site identified an airfield (located 285m to the south) as a primary bombing target. However, there were no features in the vicinity which would have been considered secondary targets.

As WWII progressed, major towns and cities became targets within their own right as the *Luftwaffe* switched from specifically targeting industrial and military facilities to a more general method of *carpet bombing*, and as a result, suburban and residential areas were frequently bombed.

### Is there firm evidence that ordnance landed on-site?

No; ARP records associated with the Site were not available. Furthermore, whilst IBs may have fallen within the Study Site, they fell in such large numbers they were considered ubiquitous and accurate record keeping was either non-existent or perfunctory therefore, their prospective presence cannot be either corroborated or discounted.

Nonetheless, due to the Site's proximity to *RNAS Stretton* it is possible that information on bomb strikes was recorded and kept privately.

### Is there firm evidence of bomb damage on-site?

No; official bomb damage mapping for the Site was not available. Further research and an analysis of post-war mapping did not identify any bomb damage on-site or in its immediate vicinity. Owing to the Site's proximity to *RNAS Stretton* it is likely that any records may have been kept private as a matter of national security. Moreover, much of the Study Site was undeveloped during WWII and therefore post-war mapping would not ordinarily be expected to show bomb damage.

### Would a UXB entry hole have been observed and reported during WWII?

Unlikely; the Site was mostly undeveloped during WWII, and while it is possible that a local civilian may have observed and reported any UXB entry holes, or that the Navy inspected the Site after raids, this is unlikely.

### Is there any reason to suspect that live firing or military training may have occurred at this location?

No; there is no supporting evidence to suggest that military training, guns or associated artillery (or other types of) munitions were ever stored, manufactured, located and/or fired from this Site during WWII nor subsequently. That said, both munitions storage and live firing may have been undertaken at the airfield located 285m to the south.

### What is the expected level of UXO contamination?

The most likely source of UXO contamination is from *German* aerially delivered ordnance, which ranges from small IBs through to large HE bombs (the latter forms the principal threat). Additional residual contamination may be present from *British* AAA projectiles (which were used to defend the UK against *German* bombing raids).

## STAGE THREE – DATA ANALYSIS (...continued)

### Would previous earthwork have removed the potential for UXO to be present?

In some areas; possibly; from an analysis of the post-WWII mapping associated with the Site, the following phases of Site activity were evident:

**1967 OS Map** - Some structures were built on-site.

On this evidence, it is apparent that the Site has not been subject to any significant post-WWII redevelopment, although some small structures have been built. As a result, it is likely that any UXO within the structural foundations of post-war buildings would have been discovered and removed, however, the potential for UXO to be present within remaining areas is assessed to be extant.

### Does the probability of a UXO discovery vary across the Site?

Yes; the probability of discovering UXO within post-WWII foundations is considered to be remote, however, the probability of UXO discovery within remaining areas of the Site is extant, although this is considered unlikely.

## STAGE FOUR – RISK ASSESSMENT

### Threat Items

The most probable UXO threat items are *German* HE bombs, whilst IBs and *British* AAA projectiles pose a residual threat. The consequences of initiating *German* HE bombs are more severe than initiating IBs or AAA projectiles, and thus they pose the greatest prospective risk to intrusive works.

### Maximum Bomb Penetration Depth

Considering the ground conditions (highlighted in Stage 1), the average BPD for a 250kg *German* HE bomb is assessed to be approximately 5m bgl, with the maximum BPD considered to be approximately 10m bgl. Although it is possible that the *Luftwaffe* deployed larger bombs in the area, their deployment was infrequent, and to use such larger (or the largest) bombs for BPD calculations are not justifiable on either technical or risk management grounds.

WWII *German* bombs have a greater penetration depth when compared to IBs and AAA projectiles, which are unlikely to be encountered at depths greater than 1m bgl.

### Risk Pathway

Given the types of UXO that might be present on-site, all types of aggressive intrusive engineering activities (i.e. investigative groundworks) may generate a significant risk pathway. Whilst not all UXO encountered aggressively will initiate upon contact, such a discovery could lead to serious impact on the project especially in terms of critical injury to personnel, damage to equipment and project delay.

### Prospective Consequences

Consequences of UXO initiation include:

1. Fatally injure personnel;
2. Severe damage to plant and equipment;
3. Deliver blast and fragmentation damage to nearby buildings;
4. Rupture and damage underground utilities/services.

Consequences of UXO discovery include:

1. Delay to the project and blight;
2. Disruption to local community/infrastructure;
3. The expenditure of additional risk mitigation resources and EOD clearance;
4. Incurring additional time and cost.

## UXO RISK CALCULATION

### Site Activities

Although there is some variation in the probability of encountering and initiating items of UXO when conducting different types of intrusive activities, a number of investigative methodologies have been described for analysis at this Site. The consequences of initiating UXO vary greatly, depending upon, *inter alia* the mass of HE in the UXO and how aggressively it might be encountered. For this reason, *6 Alpha* has conducted separate risk rating calculations for each investigative methodology that might be employed.

### Risk Rating Calculation

*6 Alpha's* Semi-Quantitative Risk Assessment assesses and rates the risks posed by the most probable threat items when conducting a number of different activities on the Site. Risk Rating is determined by calculating the probability of encountering UXO and the consequences of initiating it.



## STAGE FOUR - RISK ASSESSMENT (...continued)

### UXO RISK CALCULATION TABLE – ALL AREAS

| Activity                             | Threat Item     | Probability<br>(SHxEM=P) | Consequence<br>(DxPSR=C) | Risk Rating<br>(Px C=RR) |
|--------------------------------------|-----------------|--------------------------|--------------------------|--------------------------|
| <b>Hand Auger Pits<br/>(to 1.2m)</b> | HE Bombs        | 1x2=2                    | 1x3=3                    | 2x3=6                    |
|                                      | AAA Projectiles | 1x2=2                    | 3x1=3                    | 2x3=6                    |
|                                      | IBs             | 1x2=2                    | 3x1=3                    | 2x3=6                    |
| <b>Window Sampling<br/>(to 5m)</b>   | HE Bombs        | 1x2=2                    | 3x2=6                    | 2x6=12                   |
|                                      | AAA Projectiles | 1x2=2                    | 3x1=3                    | 2x3=6                    |
|                                      | IBs             | 1x2=2                    | 3x1=3                    | 2x3=6                    |

Abbreviations – Site History (SH), Engineering Methodology (EM), Probability (P), Depth (D), Consequence (C), Proximity to Sensitive Receptors (PSR) and Risk Rating (RR).

## STAGE FIVE – RECOMMENDED RISK MITIGATION MEASURES

### If a geophysical survey is required are the ground conditions an issue?

**Non-Intrusive Methods of Mitigation** – Magnetometer results may be affected by ferro-magnetic contamination due to previous construction activities and made ground within the Site.

### MITIGATION MEASURES TO REDUCE RISK TO ‘ALARP’

| Activity/Area               | Risk Mitigation Measures  | Final Risk Rating |
|-----------------------------|---|-------------------|
| All Activities in All Areas | <p><b>1. Operational UXO Emergency Response Plan;</b> appropriate Site Management documentation should be held on Site to guide and plan for the actions which should be undertaken in the event of a suspected or real UXO discovery (this plan can be supplied by <i>6 Alpha</i>);</p> <p><b>2. UXO Safety &amp; Awareness Briefings;</b> the briefings are essential when there is a possibility of explosive ordnance encounter and are a vital part of the general safety requirement. All personnel working on the Site should receive a briefing on the identification of a UXB, what actions they should take to keep people and equipment away from such a hazard and to alert Site management. Information concerning the nature of the UXB threat should be held in the Site office and displayed for general information on notice boards, both for reference and as a reminder for ground workers. The safety awareness briefing is an essential part of the <i>Health &amp; Safety Plan</i> for the Site and helps to evidence conformity with the principles laid down in the <i>CDM</i> regulations 2015 (this brief can be delivered directly, or in some cases remotely, by <i>6 Alpha</i>).</p> <p><b>3. On-Call Engineer;</b> An on-call EOD Engineer will be able to identify and/or advise on the appropriate course of action in the event of any suspicious and/or real UXO finds. <i>6 Alpha</i> offer three tiers of immediate telephone and/or email response.</p> | ALARP             |

This assessment has been conducted based on the information provided by the Client, should the proposed works change then *6 Alpha* should be re-engaged to refine this risk assessment

# Report Figures

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# Figure One

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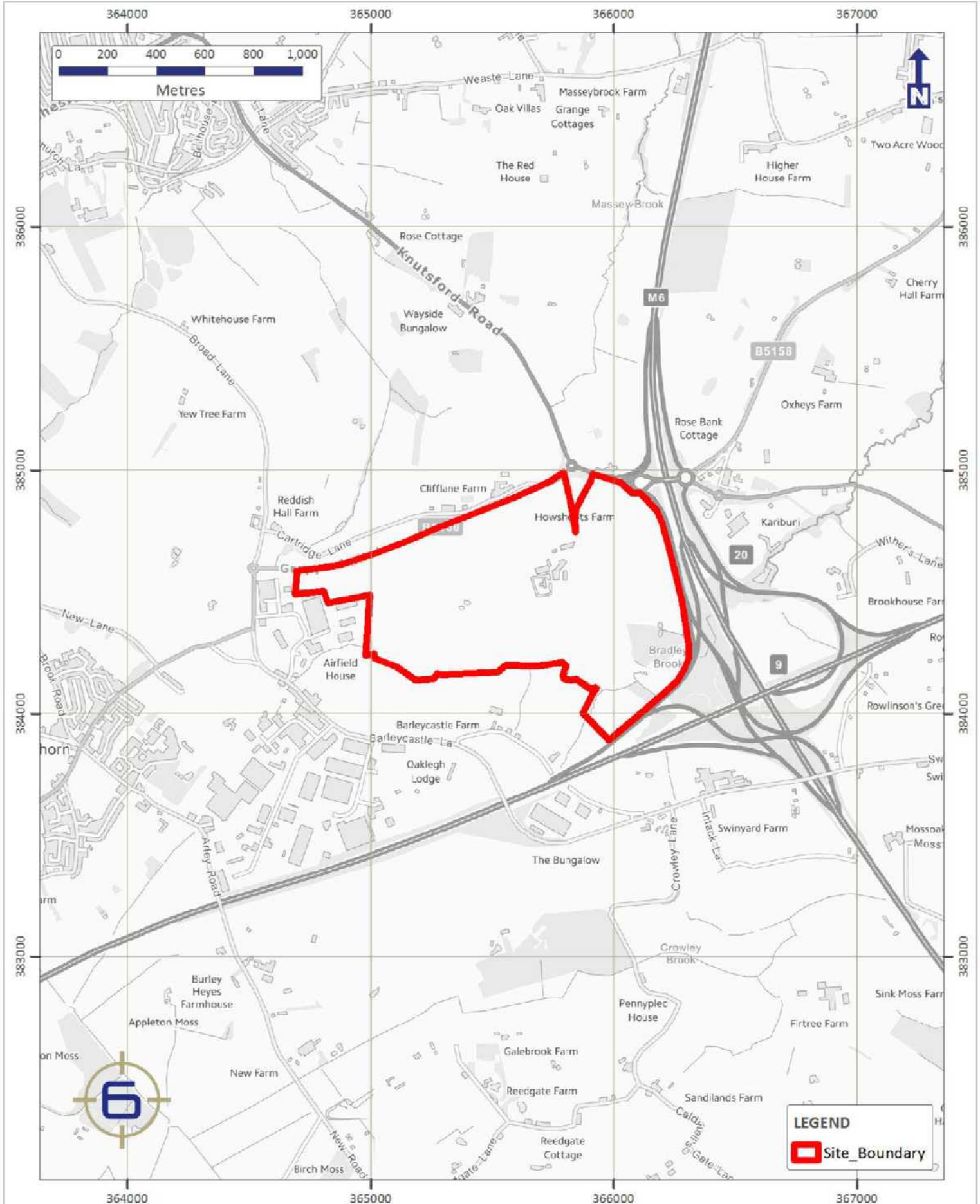
## Site Location



# WARRINGTON INTERCHANGE MASTERPLAN, WARRINGTON, WA4 4SR




## Site Location



**LEGEND**

 Site\_Boundary

|                             |                    |                    |                      |                                  |  |  |   |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|---|
| PROJECT NO.<br><b>P6173</b> | FIGURE<br><b>1</b> | DRAWN<br><b>GC</b> | CHECKED<br><b>RG</b> | DATE<br><b>18 September 2017</b> | Contains Ordnance Survey data ©<br>Crown copyright and database right 2017 | Produced by and Copyright to 6 Alpha Associates<br>Ltd. Users noting any errors please notify 6 Alpha. |  |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|---|

# Figure Two

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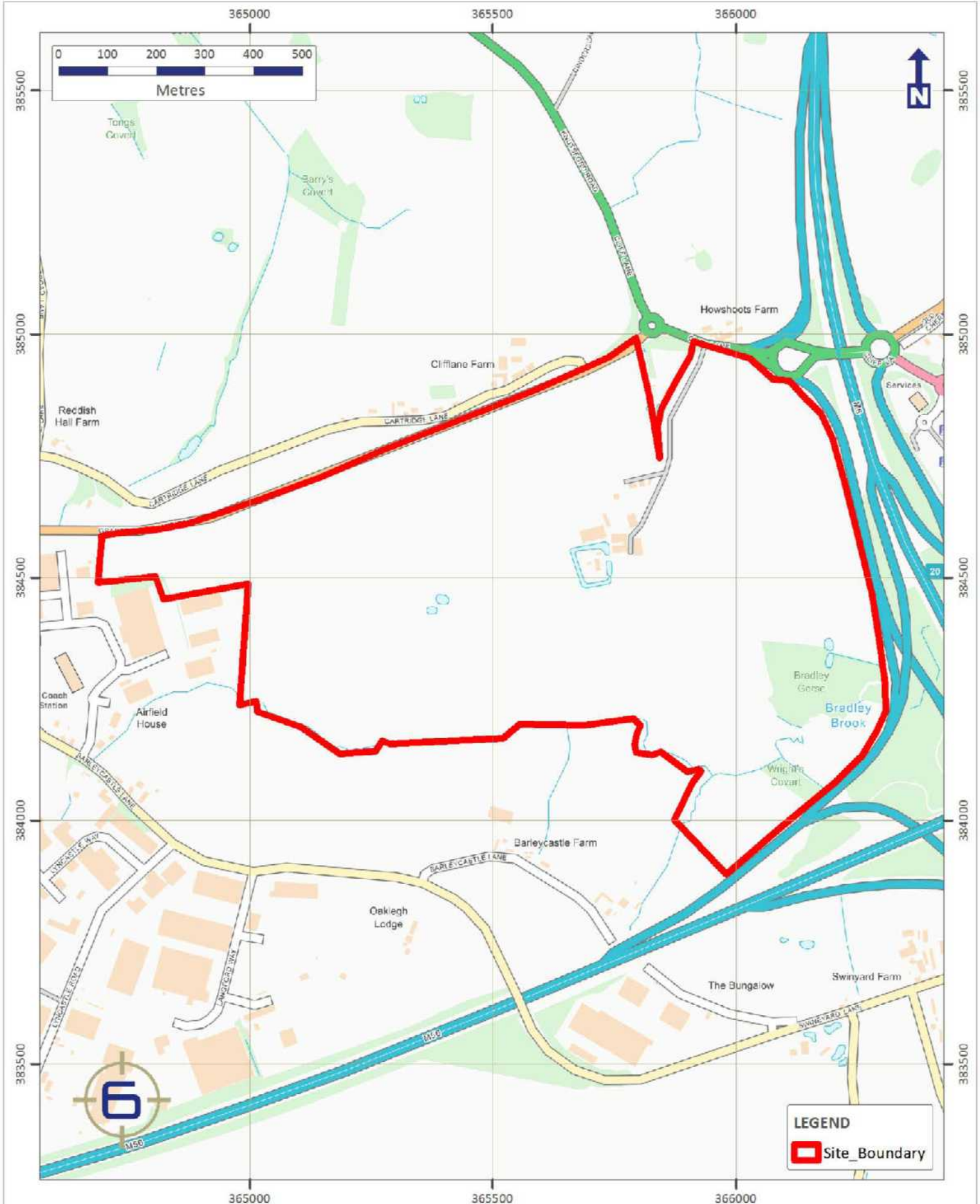
## Site Boundary



# WARRINGTON INTERCHANGE MASTERPLAN, WARRINGTON, WA4 4SR



## Site Boundary



|                             |                    |                    |                      |                                  |  |  |                            |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|----------------------------|
| PROJECT NO.<br><b>P6173</b> | FIGURE<br><b>2</b> | DRAWN<br><b>GC</b> | CHECKED<br><b>RG</b> | DATE<br><b>18 September 2017</b> | Contains Ordnance Survey data ©<br>Crown copyright and database right 2017 | Produced by and Copyright to 6 Alpha Associates<br>Ltd. Users noting any errors please notify 6 Alpha. | <b>alpha</b><br>ASSOCIATES |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|----------------------------|

## Figure Three

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### Aerial Photography (2017)





# WARRINGTON INTERCHANGE MASTERPLAN, WARRINGTON, WA4 4SR



## Aerial Photography (2017)



|                             |                    |             |               |                           |                  |   |                            |
|-----------------------------|--------------------|-------------|---------------|---------------------------|------------------|---|----------------------------|
| PROJECT NO.<br><b>P6173</b> | FIGURE<br><b>3</b> | DRAWN<br>GC | CHECKED<br>RG | DATE<br>18 September 2017 | Map data: Google | Produced by and Copyright to 6 Alpha Associates Ltd. Users noting any errors please notify 6 Alpha. | <b>alpha</b><br>ASSOCIATES |
|-----------------------------|--------------------|-------------|---------------|---------------------------|------------------|---|----------------------------|

## Figure Four

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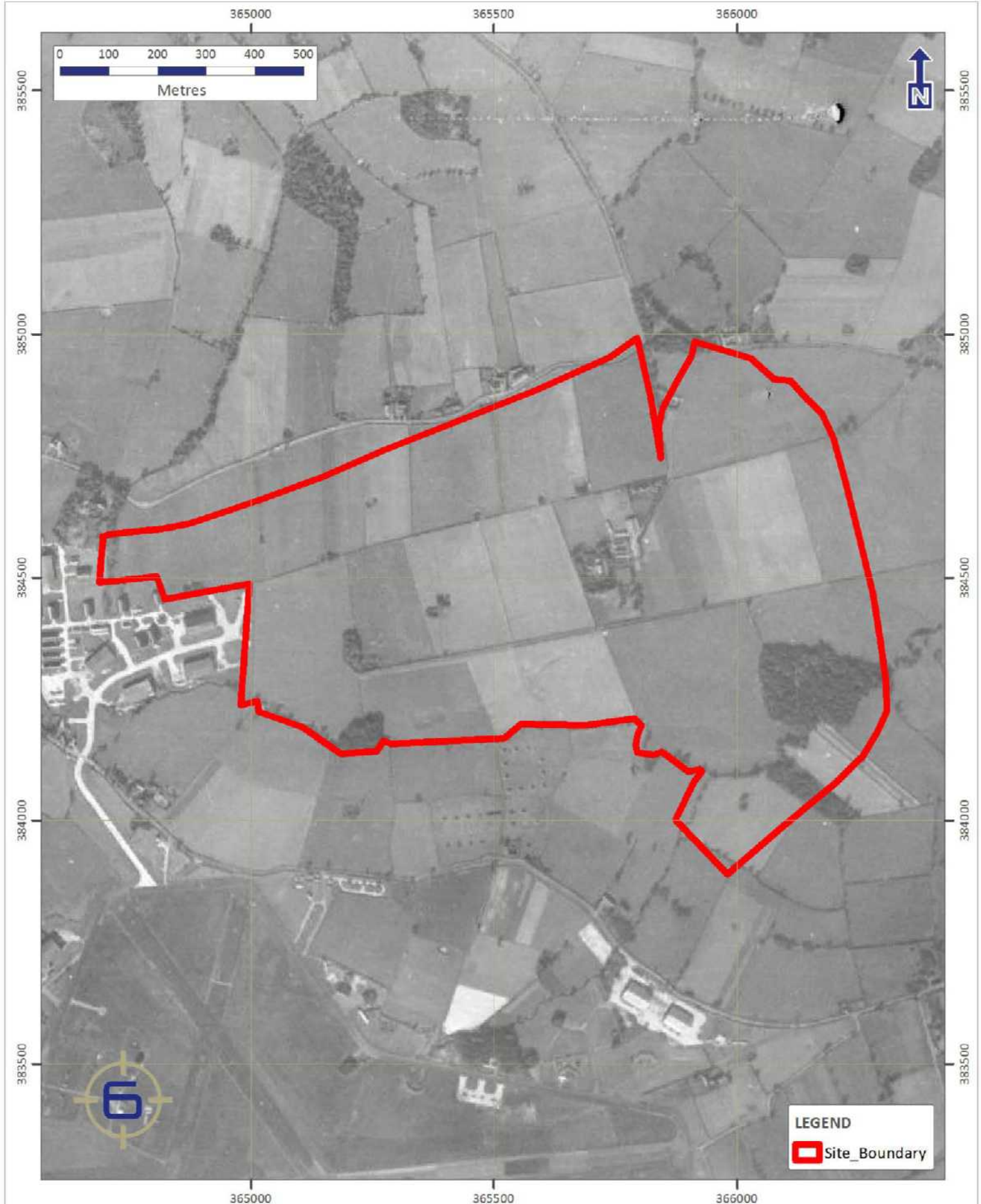
### Aerial Photography (1945)



# WARRINGTON INTERCHANGE MASTERPLAN, WARRINGTON, WA4 4SR



## Aerial Photography (1945)



|                             |                    |                    |                      |                                  |   |  |                            |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|---|--|----------------------------|
| PROJECT NO.<br><b>P6173</b> | FIGURE<br><b>4</b> | DRAWN<br><b>GC</b> | CHECKED<br><b>RG</b> | DATE<br><b>18 September 2017</b> | Map data: Google,<br>The GeoInformation Group | Produced by and Copyright to 6 Alpha Associates<br>Ltd. Users noting any errors please notify 6 Alpha. | <b>alpha</b><br>ASSOCIATES |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|---|--|----------------------------|

## Figure Five

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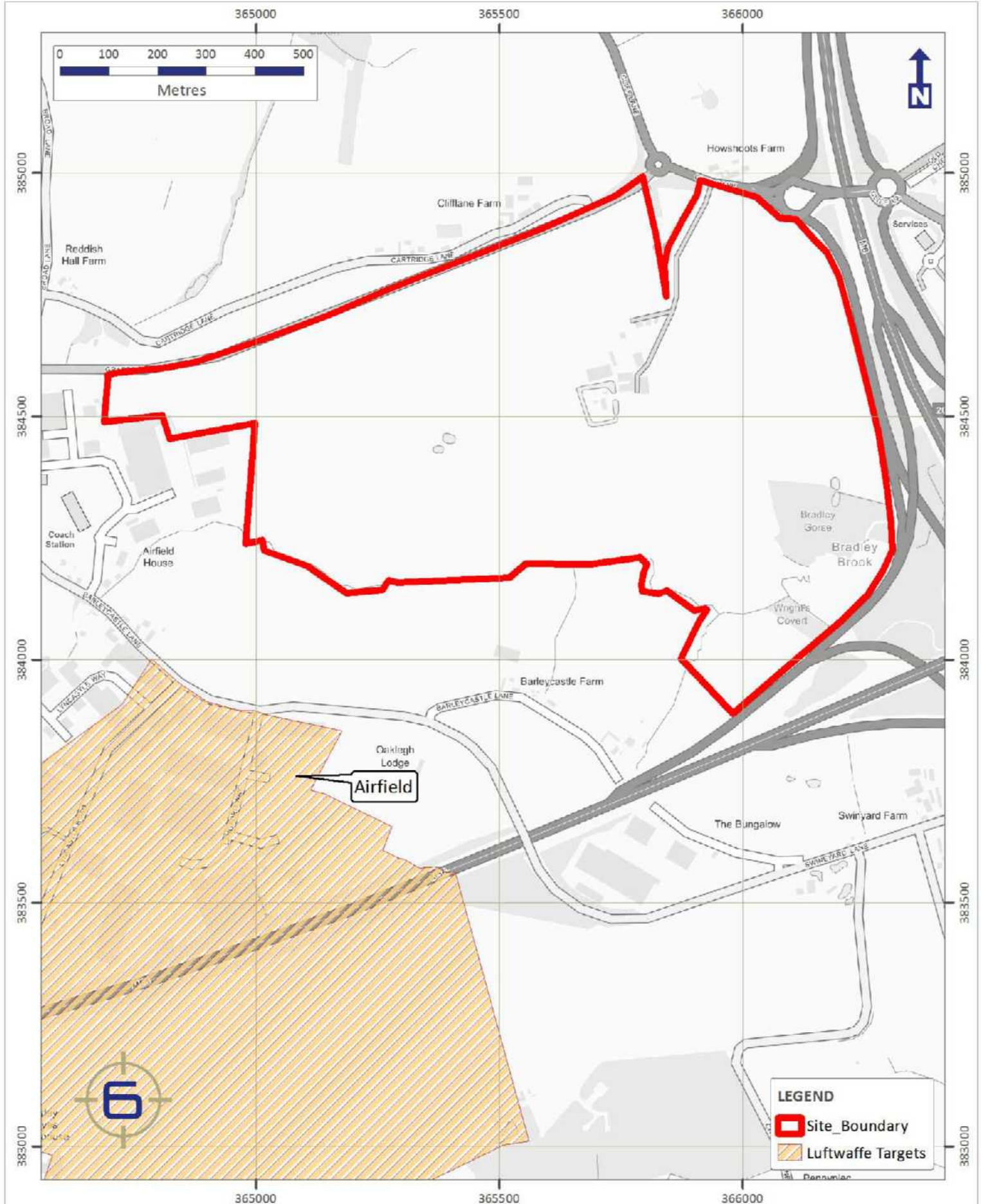
### WWII Luftwaffe Bombing Targets



# WARRINGTON INTERCHANGE MASTERPLAN, WARRINGTON, WA4 4SR



## WWII Luftwaffe Bombing Targets



**LEGEND**

- Site\_Boundary
- Luftwaffe Targets

|                             |                    |                    |                      |                                  |  |  |  |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|--|
| PROJECT NO.<br><b>P6173</b> | FIGURE<br><b>5</b> | DRAWN<br><b>GC</b> | CHECKED<br><b>RG</b> | DATE<br><b>18 September 2017</b> | Contains Ordnance Survey data ©<br>Crown copyright and database right 2017 | Produced by and Copyright to 6 Alpha Associates<br>Ltd. Users noting any errors please notify 6 Alpha. |  |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|--|

## Figure Six

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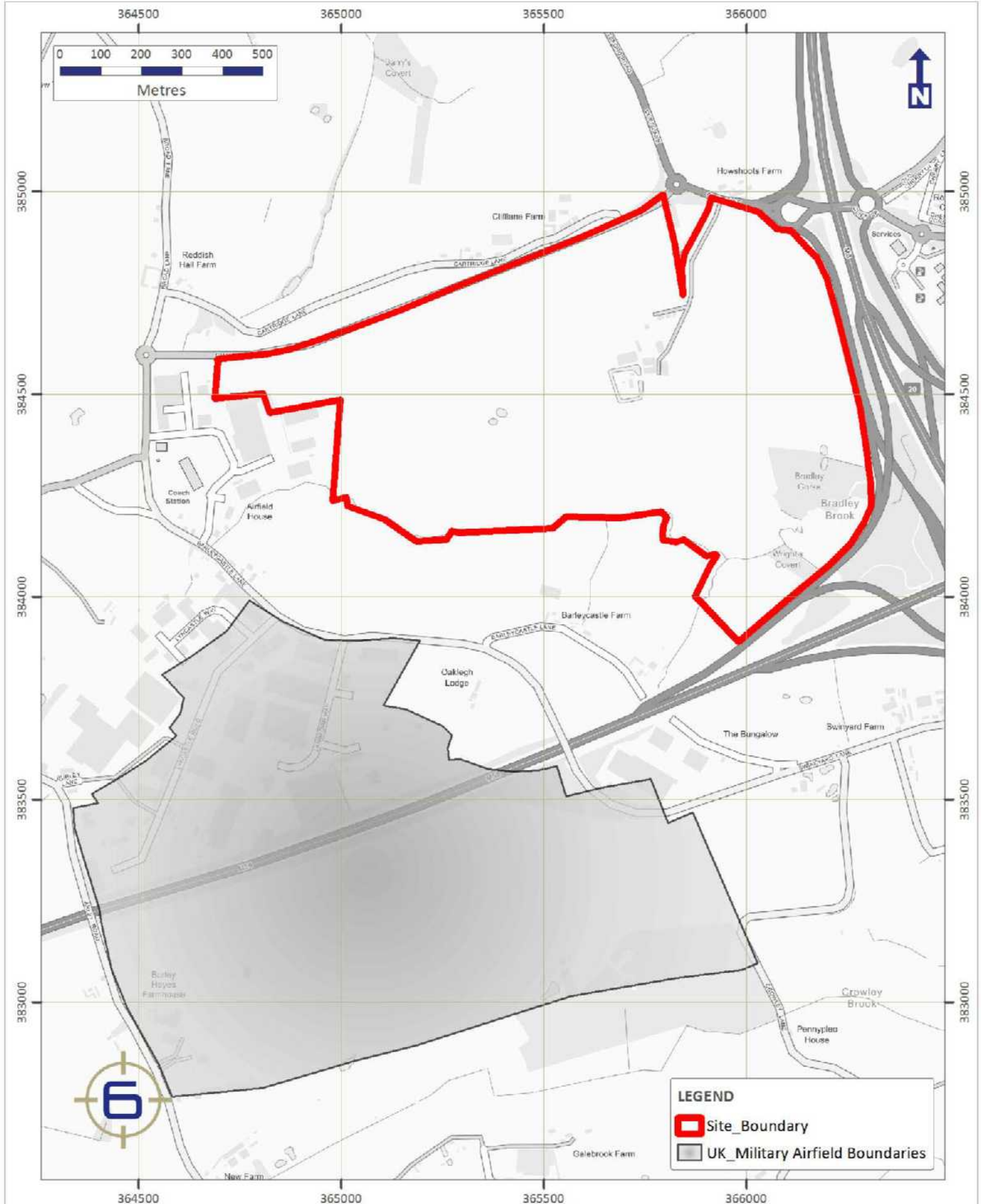
### Extent of RNAS Stretton



# WARRINGTON INTERCHANGE MASTERPLAN, WARRINGTON, WA4 4SR



## Extent of RNAS Stretton



|                             |                    |             |               |                           |  |  |  |
|-----------------------------|--------------------|-------------|---------------|---------------------------|--|--|--|
| PROJECT NO.<br><b>P6173</b> | FIGURE<br><b>6</b> | DRAWN<br>GC | CHECKED<br>RG | DATE<br>18 September 2017 | Contains Ordnance Survey data ©<br>Crown copyright and database right 2017 | Produced by and Copyright to 6 Alpha Associates<br>Ltd. Users noting any errors please notify 6 Alpha. |  |
|-----------------------------|--------------------|-------------|---------------|---------------------------|--|--|--|

# Figure Seven

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## WWII High Explosive Bomb Density





# WARRINGTON INTERCHANGE MASTERPLAN, WARRINGTON, WA4 4SR



## WWII High Explosive Bomb Density



|                             |                    |                    |                      |                                  |  |  |  |
|-----------------------------|--------------------|--------------------|----------------------|----------------------------------|--|--|--|
| PROJECT NO.<br><b>P6173</b> | FIGURE<br><b>7</b> | DRAWN<br><b>GC</b> | CHECKED<br><b>RG</b> | DATE<br><b>18 September 2017</b> | Contains Ordnance Survey data ©<br>Crown copyright and database right 2017 | Produced by and Copyright to 6 Alpha Associates<br>Ltd. Users noting any errors please notify 6 Alpha. |  |
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# Appendix G: Risk Assessment Framework and Methodology

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### Background Methodology

The contaminated land regime under Part II A of the Environmental Protection Act 1990 provides a risk based approach to the identification and remediation of land where contamination poses an unacceptable risk to human health or the environment. For 'contaminated land' to exist a valid contaminant linkage must be present; that is, there should be a source of contamination, a receptor where 'significant harm' or 'significant possibility of harm' may be caused; or pollution of controlled waters is being, or likely to be caused, and a pathway which connects the two. Should any element of this contaminant linkage not be present (or severed) then the land may not be regarded as contaminated land. The risk assessments undertaken in this report have been undertaken in accordance with current statutory guidance and good practice, including CIRIA C552. The following tables present the definitions of the risk terms used during risk assessment for the site based on CIRIA C552.

*Contamination Risk Rating Terminology - Consequence*

| <b>Potential Consequence of Hazard – Receptor Linkage (in accordance with CIRIA C552)</b> |   |
|---|---|
| <b>Severe</b>   | Short-term (acute) risk to human health likely to result in significant harm. Short-term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem. |
| <b>Medium</b>   | Long-term (chronic) damage to human health. Pollution of sensitive water resources. A significant in change in a particular ecosystem, or organism forming part of such ecosystem. Damage to sensitive buildings and structures.  |
| <b>Mild</b>   | Slight short term health effects to humans. Slight pollution of non-sensitive water resources. Some change to population densities but with no negative effects on the function of the ecosystem. Slight damage to sensitive buildings, structures and services.            |
| <b>Minor (Negligible)</b>   | Non-permanent effects to human health (easily prevented by means such as personal protective clothing etc.). Easily repairable effects of damage to buildings, structures and services (e.g. discolouration of concrete).   |

*Contamination Risk Rating Terminology – Probability*

| <b>Classification of Probability of Hazard – Receptor Linkage (in accordance with CIRIA C552)</b> |   |
|---|---|
| <b>High likelihood</b>  | There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.  |
| <b>Likely</b>   | There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely in the long term. |
| <b>Low likelihood</b>   | There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place, and is less likely in the shorter term.                               |
| <b>Unlikely</b>   | There is pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.   |

Matrix of Consequence versus Probability to determine Resultant Risk Classification

|             |                 | Consequence         |                     |                     |                     |
|-------------|-----------------|---------------------|---------------------|---------------------|---------------------|
|             |                 | Severe              | Medium              | Mild                | Minor               |
| Probability | High Likelihood | Very High Risk      | High Risk           | Moderate Risk       | Moderate / Low Risk |
|             | Likely          | High Risk           | Moderate Risk       | Moderate / Low Risk | Low Risk            |
|             | Low Likelihood  | Moderate Risk       | Moderate / Low Risk | Low Risk            | Very Low Risk       |
|             | Unlikely        | Moderate / Low Risk | Low Risk            | Very Low Risk       | Very Low Risk       |

Resultant Risk Classification Definitions

| Potential Significance: Risk Classification (in accordance with CIRIA C552) |  |
|---|--|
| <b>Very High Risk</b>   | There is a high probability that severe harm could arise to a designated receptor from an identified hazard, or, there is evidence that severe harm to a designated receptor is currently happening.   |
| <b>High Risk</b>  | Harm is likely to arise to a designated receptor from an identified hazard at the site. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.  |
| <b>Moderate Risk</b>  | It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not undertaken already) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the long term. |
| <b>Moderate / Low Risk</b>  | Not defined in context in CIRIA 552.   |
| <b>Low Risk</b>   | It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.  |
| <b>Very Low Risk</b>  | There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.  |

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# Warrington Interchange MP

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## Baseline Geotechnical & Geoenvironmental Assessment

### First Industrial / Langtree

Job No: 1015524  
Doc Ref: 1015524.RPT.GL.003  
Revision: —  
Revision Date: 14 September 2017

|                      |   |                   |
|----------------------|---|-------------------|
| <b>Project title</b> | Warrington Interchange MP                           | <b>Job Number</b> |
| <b>Report title</b>  | Baseline Geotechnical & Geoenvironmental Assessment | 1015524           |

**Document Revision History**

| Revision Ref | Issue Date | Purpose of issue / description of revision |
|--------------|------------|--|
| —            | 14/09/2017 | For information                            |
|              |            |  |
|              |            |  |
|              |            |  |
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**Document Validation (latest issue)**

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|---|---|---|
| <p>15/09/2017</p> <div style="text-align: center;">  </div> <hr style="border: 0.5px solid black;"/> <p>Principal author</p> <p>Signed by: Bee, Lily</p> | <p>15/09/2017</p> <div style="text-align: center;">  </div> <hr style="border: 0.5px solid black;"/> <p>Checked by</p> <p>Signed by: c.brady@cundall.com</p> | <p>15/09/2017</p> <div style="text-align: center;">  </div> <hr style="border: 0.5px solid black;"/> <p>Verified by</p> <p>Signed by: Allen, Jim</p> |
|---|---|---|

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# 1.0

## **Baseline Geotechnical & Geoenvironmental Assessment**

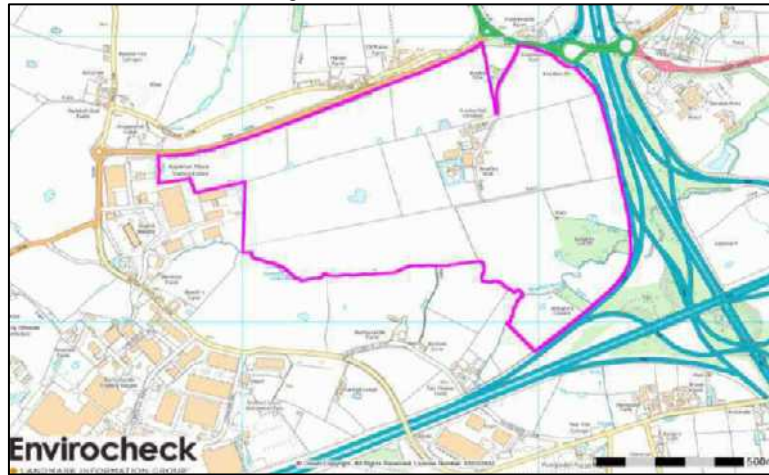
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# 1.0 Baseline Geotechnical & Geoenvironmental Assessment

## 1.1 Introduction

Langtree (the Client) are proposing to redevelop the site located approximately 6 km south east of the centre of Warrington, Cheshire. The site’s location and boundary is shown in Figure 1.

Figure 1: Site Location Plan



## 1.2 Objectives

This assessment of the site has been undertaken in the context of the proposed development in order to assess potential geoenvironmental and geotechnical risk and development constraints and provide outline recommendations for further work. The assessment is based upon the review of readily available information pertaining to the site and a site inspection visit.

## 1.3 The Scheme

The proposed development is understood to comprise nine warehouse units located across the site, surrounding the existing Bradley Hall and Bradley Gorse, including areas of soft landscaping and three large ponds.

## 1.4 Site Details

A summary of the site’s key features is given in Table 1.

Table 1: Site Details

|   |   |
|---|---|
| <b>Site Area and Shape</b>                    | The site comprises an irregular shaped parcel of land approximately 92 Ha in area.  |
| <b>Site Boundaries and Adjacent Land Uses</b> | <ul style="list-style-type: none"> <li>▪ The B5356 runs along the northern site boundary meeting the A50 to the north east of the site with farmland beyond. Bradley View house is located north of the site to the south of the B5356.</li> <li>▪ The M6 is located to the east of the site running along the site boundary.</li> <li>▪ Bradley Brook is located along the southern boundary to the east of the site with Barleycastle Farm beyond.</li> <li>▪ Appleton Thorn Trading Estate lies immediately west of the site.</li> </ul> |
| <b>Site Topography</b>                        | The site generally slopes ~10m from the north to the south / south east towards Bradley Brook.  |
| <b>Existing Land Uses/Features</b>            | <p>Bradley Hall Farm and Bradley Hall are located in the centre of the site with Bradley Hall Cottages directly north. Pastural fields cover the majority of the site.</p> <p>An area of woodland known as Bradley Gorse is located in the south east corner of the site and Bradley Brook runs through the south east corner of the site, south of Bradley Gorse.</p>  |

|                      |  |
|----------------------|--|
| <b>Surface Cover</b> | The majority of the site is covered by pastoral farmland, with dense woodland covering an area in the south east corner of the site. Hardstanding surrounds the buildings associated with Bradley Hall Farm in the centre of the site. |
|----------------------|--|

## 1.5 Historical Development

By 1877, the site was recorded as mainly agricultural in use with Bradley Hall, Bradley Hall Farm, Bradley Gorse, Bradley Brook and 21 ponds recorded on site. By 1970, the site has assumed its present-day layout, with Bradley Cottages also recorded on site. In 2017, only 12 ponds are recorded on site, the remainder having been potentially infilled.

## 1.6 Geological Setting

The entire site is anticipated to be covered by Glacial Till deposits which are typically firm to stiff clays with variable amounts of sands and gravels. In the north west edge of the site it is likely that rockhead will be shallow as geological mapping shows superficial deposits to be absent in this area, whilst deposits vary in thickness between 0.90 to 2.70m across the site.

The site is underlain by a bedrock of Bollin Mudstone Member consisting of red marl interbedded with evaporite deposits. Evaporite deposits may include gypsum, halite or other soluble / sulphate bearing strata.

Made ground is anticipated to be present proximal to Bradley Hall and Bradley Hall Farm in the centre of the site.

## 1.7 Unexploded Ordnance (UXO) Risk

A preliminary UXO risk assessment was obtained for the site due to the proximity of an airfield recorded on historical maps ~250m south of the site. The report indicates a high possibility of UXO encounter at the site and therefore, a detailed UXO risk assessment is currently being undertaken for the site.

The detailed UXO risk assessment will inform any risk mitigation measures that need to be employed during any subsequent intrusive ground investigation or construction phases.

## 1.8 Geoenvironmental Setting

The superficial Glacial Till is classified as a Secondary Aquifer – Undifferentiated and the underlying Bollin Mudstone Member bedrock is classified as a Secondary Aquifer – B by the Environment Agency and is therefore generally capable of storing limited amounts of groundwater.

The site is not located within an Environment Agency groundwater Source Protection Zone and the Envirocheck Report indicates there to be no groundwater abstractions within 250m of the site.

The whole site falls within an area of Adopted Green Belt and an area of Unadopted Green Belt is recorded in the south east of the site.

## 1.9 Preliminary Geoenvironmental Assessment

No potential sources of contamination were identified during the site inspection, although it is anticipated that fuel storage tanks associated with the agricultural land use may be located on site.

Potential sources identified as part of the desk based research are as follows;

- Contamination within shallow soils associated with the agricultural use of the site and/or the infilling of the former ponds with presently undetermined materials.
- The infilled ponds located on the site and in close proximity to the site are considered to be a potential source of hazardous ground gas.

## 1.10 Development Constraints

The following possible development constraints have been identified:

- The entire site is underlain by the Bollin Mudstone Member, a red marl interbedded with evaporite and is recorded to be within the Cheshire Brine Subsidence Compensation District. Therefore, there may be the potential for dissolution

features to exist within the evaporite deposits where in contact with groundwater beneath the site and where salt works may be present beneath the site. The potential will be further assessed as part of the Phase I Geotechnical & Geoenvironmental Assessment.

- High sulphate concentrations resulting from the weathering of the Bollin Mudstone Member bedrock beneath the site have the potential to attack buried concrete.
- Groundwater levels beneath the site are anticipated to be shallow due to the presence of Bradley Brook and several ponds and water features located across the site.
- A number of historical ponds are assumed to have been infilled based upon historical mapping of the site. The nature of this fill material is unknown and may contain contaminants and the ponds may have been infilled in an uncontrolled manner which may result in future uncontrolled settlements in these areas.
- Organic material may be present across the site due to the presence of both historical and existing water features located on site. This may be soft and compressible, representing a risk to buildings in terms of both absolute and differential settlements and may also represent a source of hazardous ground gas.

### **1.11 Recommendations for Further Works**

It is anticipated that an Environmental Impact Assessment will be required for planning purposes as well as a detailed assessment of the geotechnical and land quality (contamination) status of the site. Therefore, it is recommended that a Phase II intrusive ground investigation is undertaken at the site.

**Cundall Johnston & Partners LLP**

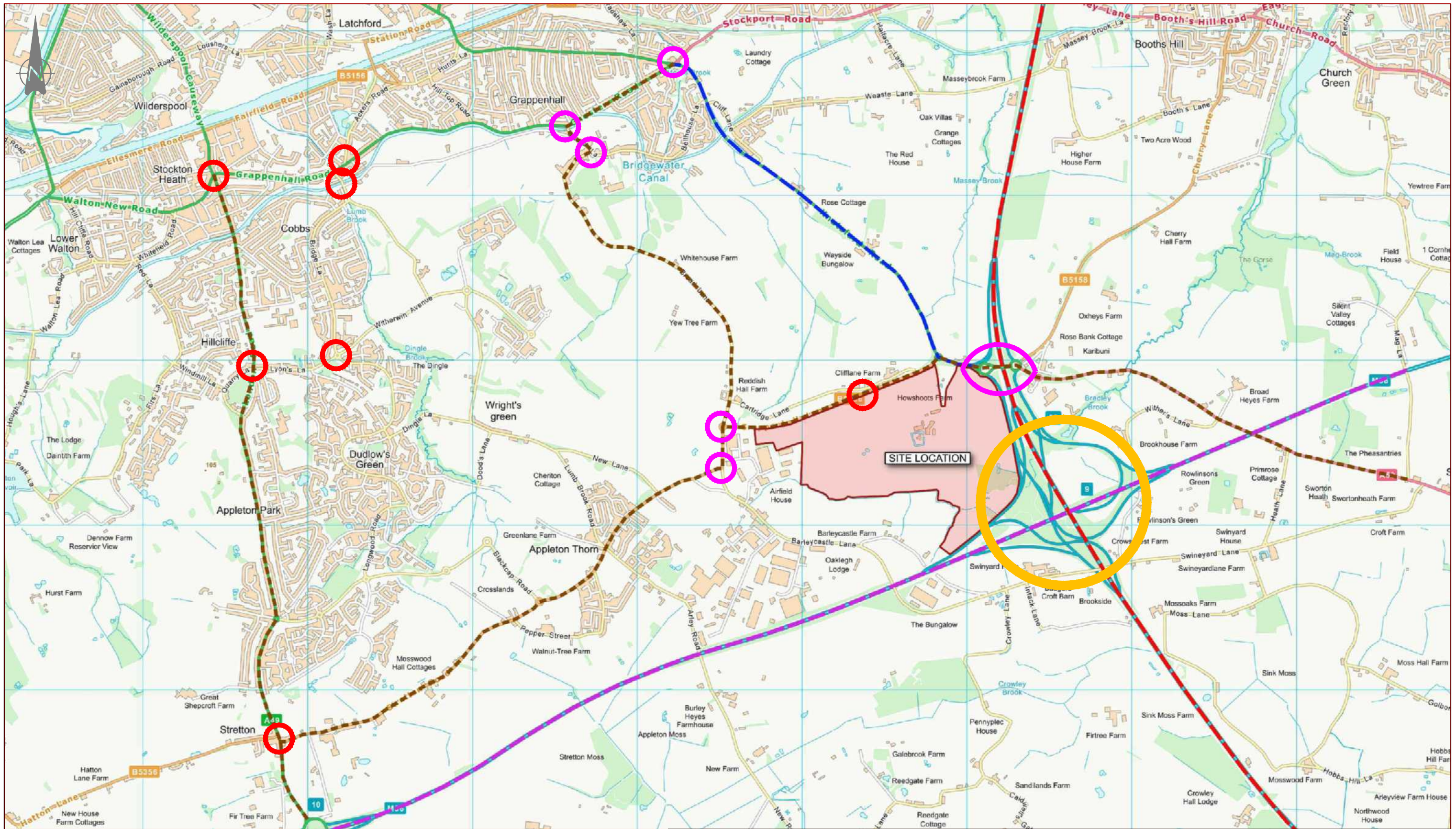
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## **ES Scoping Appendix 9 – Traffic and Transportation:**

- Plan of Junctions Assessed



- KEY:**
- Junction already surveyed in July 2017
  - Junction not surveyed yet
  - Data for the M56/ M6 Interchange collected from Data.gov.uk

|      |                                    |          |     |
|------|------------------------------------|----------|-----|
| P02  | Data collection area added to plan | 23/02/18 | JM  |
| Rev: | Description:                       | Date:    | By: |



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|             |   |         |             |       |             |                    |      |
|-------------|---|---------|-------------|-------|-------------|--------------------|------|
| Project:    | SIX : 56 WARRINGTON   | Status: | PRELIMINARY |       |             |                    |      |
| Drg Title:  | JUNCTIONS POTENTIALLY TO BE INCLUDED IN TRANSPORT ASSESSMENT STUDY AREA |         | Drawn By:   | LK    | Checked By: | AV                 |      |
| Project No: | Originator:   | Zone:   | Level:      | Type: | Discipline: | Category / Number: | Rev: |
| 64076       | - CUR   | - XX    | - 00        | - DR  | - TP        | - 04002            | -P02 |

GENERAL NOTES:

## **ES Scoping Appendix 10 – Flood Risk and Drainage:**

- Drainage and Flood Risk Baseline Assessment



# Warrington Interchange MP

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## Drainage and Flood Baseline Assessment

### First Industrial / Langtree

Job No: 1015524  
Doc Ref: 1015524-RPT-CL-001  
Revision: —  
Revision Date: 15 September 2017

|                      |  |                   |
|----------------------|--|-------------------|
| <b>Project title</b> | Warrington Interchange MP              | <b>Job Number</b> |
| <b>Report title</b>  | Drainage and Flood Baseline Assessment | 1015524           |

**Document Revision History**

| Revision Ref | Issue Date | Purpose of issue / description of revision |
|--------------|------------|--|
| —            | 15/09/2017 | First Issue                                |
|              |            |  |
|              |            |  |
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**Document Validation (latest issue)**

Recoverable Signature

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# 1.0

## Introduction

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## **1.0 Introduction**

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Cundall has been commissioned to undertake Environmental Impact Assessment in relation to drainage and flood risk for eventual inclusion in an Environmental Statement required for outline planning application for a new circa 100 hectare development site off Cliff Road, Warrington.

This baseline assessment has been undertaken to set the initial parameters for the Environmental Statement Scoping stage.

This report covers the following baseline in relation to drainage and flood risk in the context of the new development proposals:

- Site walkover findings
- Record information
- Initial liaison with statutory consultees



# 2.0

## Site Findings

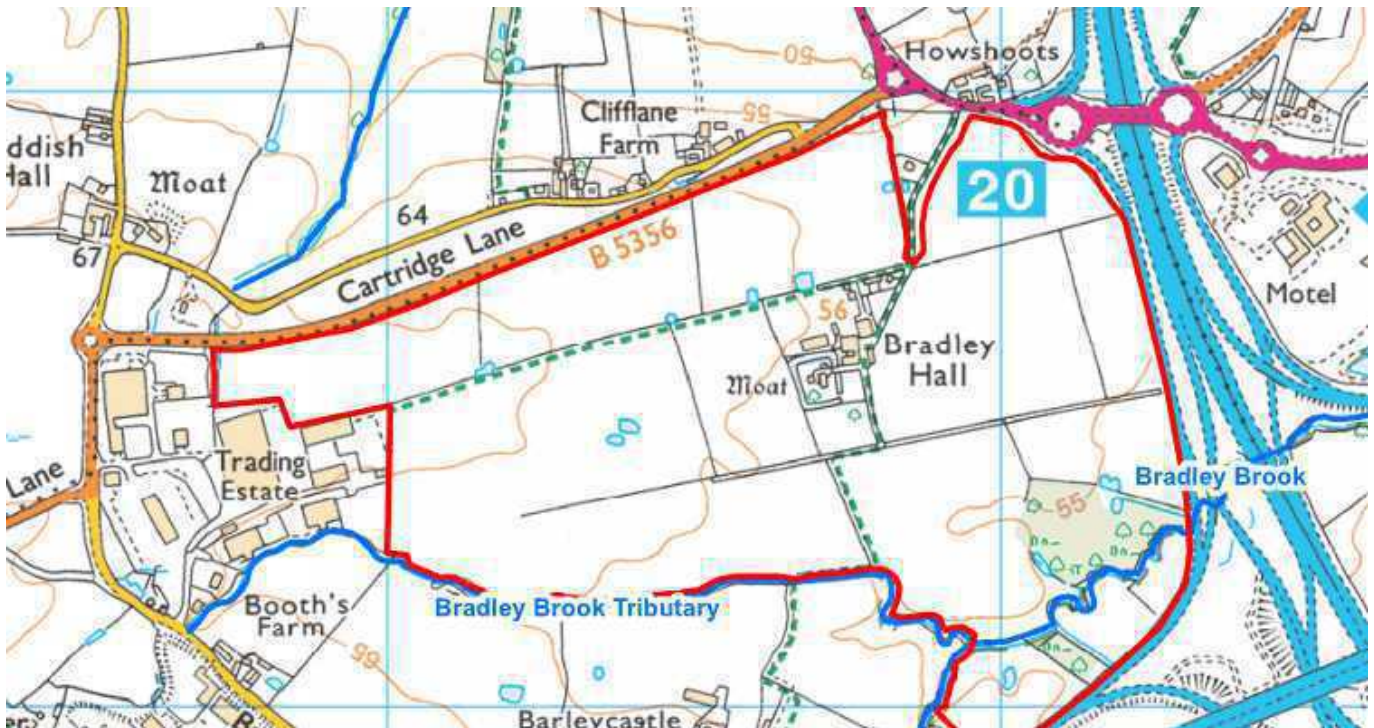
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## 2.0 Site Findings

A site visit was undertaken on Wednesday 30<sup>th</sup> September to investigate existing features relating to land, drainage and flood risk. The following items were observed during the walkover which will need to be considered in the Environmental Scoping and the Masterplanning of the scheme.

### 2.1 Bradley Brook (and tributary)

A watercourse (known as Bradley Brook to the east and a tributary of Bradley Brook to the west, see images below) is located to the southern boundary of the development. The watercourse originates from Barleycastle lane where it flows through the site conveying flows offsite to the east across the M6. The Brook was walked along its full length as part of the site walkover and no particular issues were encountered that require highlighting in the baseline although it will be considered in its entirety during scoping and impact.



Extract from Environment Agency Map





Photographs showing Bradley Brook (and tributary)

## 2.2 Water Bodies within the central site

A number of water bodies were encountered across the development during a site walkover. Most of the water bodies appear to be manmade (or historically occurring) depressions in the topography within the farming areas to aid in drainage, although these do not appear to have any positive outfalls. The water bodies will be assessed as part of the scoping in terms of amenity, ecology and drainage. Images of two of the site ponds are shown below:



Photographs of two central ponds

## 2.3 Water Bodies associated with Bradley Gorse

A number of water bodies were encountered in and around Bradley Gorse (dense woodland to the south east of the development site). These watercourses appear to be part of the natural drainage system which eventually connects to Bradley Brook.



*Photographs showing water bodies in and around Bradley Gorse*

## 2.4 Site Outfalls

Three site outfalls were identified in which surface water flows are disposed of offsite.

To the north east, a ditch was observed in which flows were being received from a piped connection in a direction originating onsite, source unknown. The photograph below shows this connection. The ditch flows to the north boundary prior to being culverted beneath the B5356. An additional connection appears to be discharging foul waste into the watercourse, from the direction of the adjacent property.



*Photograph showing surface water flow to the ditch (L) and additional connection from adjacent property appears to discharge waste to head of the ditch (R)*

A second ditch was also located on the northern section of the western boundary of the site bordering the industrial area behind. A piped connection was noted into the ditch however no flow was observed. It is assumed this is then culverted across the highway (B5356) to the north although this could not be identified. Photographs shown below:



*Photographs showing incoming connection to ditch (L) and ditch appearing to fall towards the northern boundary (R) but no culvert/outlet could be identified*

The third site outfall is present at the south-east corner of the site where Bradley Brook meets the M6. The Brook is culverted beneath the highway (M6) by a large diameter sewer which discharges flows offsite to the east. At the culvert location pipework was observed discharging into the watercourse. It is assumed these convey flows both from the highway drainage above (larger diameter from the south) and from the water bodies within Bradley Gorse (small diameter from the north). A photo of the outfall can be seen below.



*Photograph showing incoming connections to Bradley Brook*

## 2.5 Existing Site Drainage

As part of the site walkover, existing drainage networks were investigated to determine the site discharge strategy for the existing properties on site.

It was observed and informed that the foul drainage to the farm, cottages and hall, all drain to nearby septic tanks which are routinely emptied by an external party.

The surface water drainage however has not been identified to date due to access restrictions. At this time it is assumed that all storm drainage is contained within the site and infiltrated through soakaways or natural pathways with eventual discharge to one of the site outfalls. Further investigation is required to verify existing routing and strategy when access is possible although due to the isolated nature of the properties this should have no impact on the new strategy for the development.

# 3.0

## Records

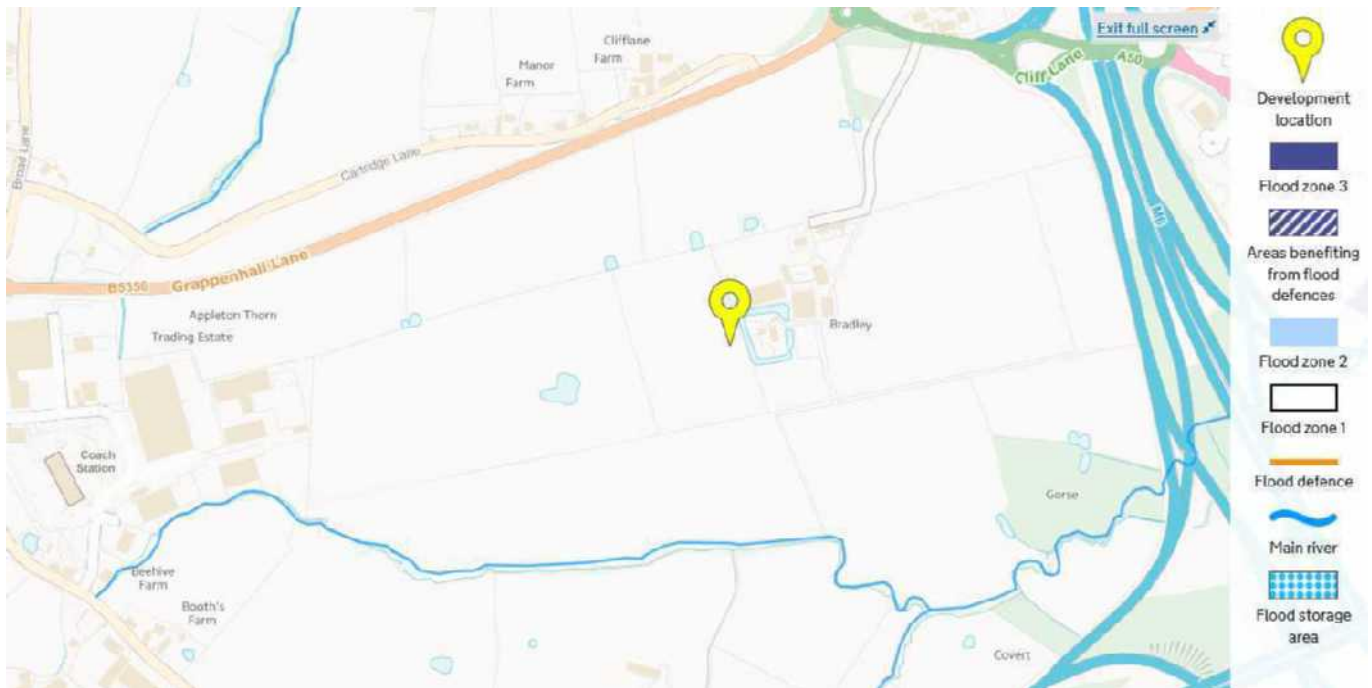
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## 3.0 Records

As part of the baseline assessment, records were requested from relevant local and statutory authorities.

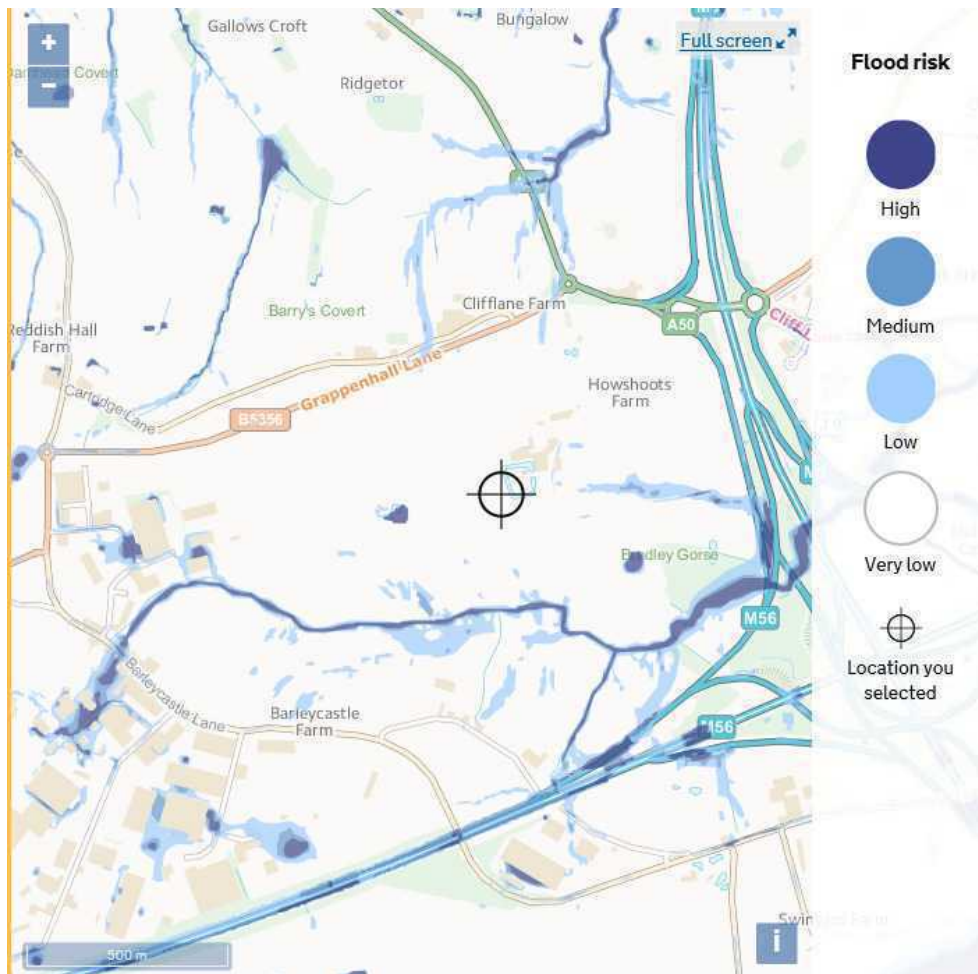
### 3.1 Environment Agency

The EA Flood Map shows that the site resides wholly within Flood Zone 1 land as shown from the map below.



*Environment Agency Flood Map showing the site in Flood Zone 1*

The EA Flood Risk from Surface Water map shows that there is high risk of overland flow paths originating within the site development although no flow paths originate offsite.



*EA Flood Map showing site originated flow paths*

### 3.2 United Utilities

Sewer records were requested from United Utilities. Combined and storm sewers serving the industrial area to the south west of the development site are identified on the plans. There are no records of any sewers within the site or to the immediate north, east or south of the boundaries. United Utilities did identify the combined sewer network to the east of the M6 as a potential interest to the site for waste discharge and the extract is shown below.





*Extract of UU Map showing combined sewers to the east of the M6*

# 4.0

## Statutory Consultee Liaison & Baseline Criteria

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## 4.0 Statutory Consultee Liaison & Baseline Criteria

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The Lead Local Flood Authority (LLFA of Warrington Borough Council), the Environment Agency and United Utilities were contacted to ascertain baseline assessment criteria and impact criteria for the proposed development. A copy of received relevant correspondence can be seen in Appendix A.

### 4.1 LLFA

Warrington Borough Council's flood team have provided pre-application advice regarding surface water discharge for the site. 5l/s/ha (or greenfield run off rate) is permitted to be discharged from the development to the book in accordance with the hierarchy outlined by United Utilities. Further coordination will be required with the LLFA to agree surface water design principles to be adopted across the site.

### 4.2 Environment Agency

The Environment Agency have provided outline pre-application advice regarding the site, surface water and watercourses located at the development.

The EA designates Bradley Brook and its tributary as a main river. Any works that are to occur within 8m of the watercourse (top of bank) or its structures will require flood defence consent to commence any activity.

The proposed development is to ensure that access to and along the banks of the watercourse is provided and maintained. In accordance with the permit requirement, a minimum of an 8m buffer will should be maintained for clear access.

Foul discharge possibilities are currently being discussed with the EA.

Additionally, the EA stated that part of the south-east corner of the site sits within the remit of Cheshire East Council and confirmation is required from the project management team on potential liaison or crossover prior to engagement.

### 4.3 United Utilities

United Utilities have provided pre-development response outlining available connection locations and discharge criteria for the site.

#### *Foul*

A connection unrestricted is available to utilise to UU sewers in Old Cherry Lane, which is located on the adjacent side of the M6, North of the service station. A connection from the development here would require major offsite infrastructure works to facilitate crossing the highway. Other possible locations and strategies are currently being pursued in conjunction with UU and the EA.

#### *Surface Water*

United Utilities have outlined the hierarchy for discharging surface water flows from the site. Infiltration in the first instance is preferred and site investigation studies will be required to identify infiltration potential across the development site. In the event that infiltration is deemed impractical, then discharge to Bradley Brook (or its tributary) will be acceptable in accordance with LLFA design criteria.

## **5.0 Appendix A – Correspondence**

---

## Appendix A – Correspondence

### United Utilities

**From:** Lunt, John [mailto:John.Lunt@uuplc.co.uk]  
**Sent:** 05 September 2017 13:41  
**To:** French, Andrew <a.french@cundall.com>  
**Cc:** Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>  
**Subject:** (UU Ref: PDE 4200018154) Warrington Interchange, Grappenhall Lane

Hi Andrew,

We have carried out an assessment of your application which is based on the information provided; this wastewater pre development advice will be valid for 12 months.

#### Foul

The foul water flows emanating from this site will be allowed to drain in to the 300mm public foul water sewerage system located within Old Cherry Lane.

#### Surface Water

The surface water flows generated from the site should drain to soak away wherever practicable and or via direct means with the adjacent watercourse. Discharge rates and consents must be discussed and agreed with all interested parties.

#### Connection Application

Although we may discuss and agree discharge points & rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below

<http://www.unitedutilities.com/connecting-public-sewer.aspx>

Please be aware that on site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.

*Please note, if you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meets the requirements of Sewers for adoption and United Utilities Asset Standards. The proposed design should give consideration to long term operability and give United Utilities a cost effective proposal for the life of the assets. Therefore, further to this enquiry should you wish to progress a Section 104 agreement, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 agreement, has been assessed and accepted in writing by United Utilities. Any works carried out prior to the technical assessment being approved is done entirely at the developers own risk and could be subject to change.*

Regards,

John

**Environment Agency**

**Cundall**  
Partnership House  
Gosford  
Regent Farm Road  
Newcastle upon Tyne  
NE3 3AF

**Our ref:** SO/2017/117420/01-L01  
**Your ref:** 170803/RD12

**Date:** 21 August 2017

**FAO Lee French**

Dear Mr French

**PROPOSED DEVELOPMENT  
WARRINGTON INTERCHANGE, BRADLEY BROOK**

Thank you for your preliminary request which was received in this office 18<sup>th</sup> August 2017.

**Environment Agency comments**

The watercourse that flows along the southern boundary of the site is Bradley Brook Tributary, which is designated "main river". The watercourse that crosses the south-eastern part of the site is Bradley Brook, which is also designated "main river".

The Environment Agency has discretionary powers, within the Water Resources Act 1991, to carry out works to these watercourses for which access is required to and along the banks of the watercourses.

The layout for the proposed development is to ensure that access is provided to and along the banks of these watercourses.

Under the Environmental Permitting (England and Wales) Regulations 2016, a permit may be required from the Environment Agency for any proposed works or structures, in, under, over or within eight metres of the top of the banks of these watercourses. This was formerly called a Flood Defence Consent. Some activities are also now excluded or exempt. A permit is separate to and in addition to any planning permission granted. Further details and guidance are available on the GOV.UK website: <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>

A permit is unlikely to be granted for any proposals within the 8 metres wide strip that would affect access, to and along these watercourses.

Environment Agency  
Richard Fairclough House Knutsford Road, Warrington, WA4 1HT.  
Customer services line: 03708 506 506  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

The Lead Local Flood Authority, which for the majority of this site is Warrington Borough Council (with Cheshire East Council who cover a relatively small part of the site in the south-eastern corner), will be able to advise/comment on the discharge of surface water (including storm water) from any proposed development.

Yours sincerely

**Mr Stephen Sayce**  
Sustainable Places Planning Advisor

Direct e-mail [stephen.sayce@environment-agency.gov.uk](mailto:stephen.sayce@environment-agency.gov.uk)

## Lead Local Flood Authority (LLFA)

**From:** Flood Risk [<mailto:floodrisk@warrington.gov.uk>]  
**Sent:** 04 August 2017 15:14  
**To:** French, Lee <[l.french@cundall.com](mailto:l.french@cundall.com)>  
**Subject:** RE: Outline Planning Submission Reqs - LLFA

Hi Lee

If you are intending to discharge the surface water to the main river then greenfield run-off rates would apply to this site which is 5l/s per hectare and the surface water system & attenuation would need to be designed to cope with the different storm events. Below is a link to their guidelines.

[http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM\\_Project\\_Documents/Rainfall\\_Runoff\\_Management\\_for\\_Developments\\_-\\_Revision\\_E.sflb.ashx](http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/Rainfall_Runoff_Management_for_Developments_-_Revision_E.sflb.ashx)

Regards

Colin A Ludden  
Asset Design Engineer

Economic Regeneration, Growth & Environment, Warrington Borough Council,  
New Town House, Buttermarket Street, Warrington, WA1 2NH  
Tel: 01925 442540  
Mobile 07740 075778  
Email: [cludden@warrington.gov.uk](mailto:cludden@warrington.gov.uk)  
Web: [www.warrington.gov.uk](http://www.warrington.gov.uk)

**Cundall Johnston & Partners LLP**

Click down arrow to select CUNDALL Office address

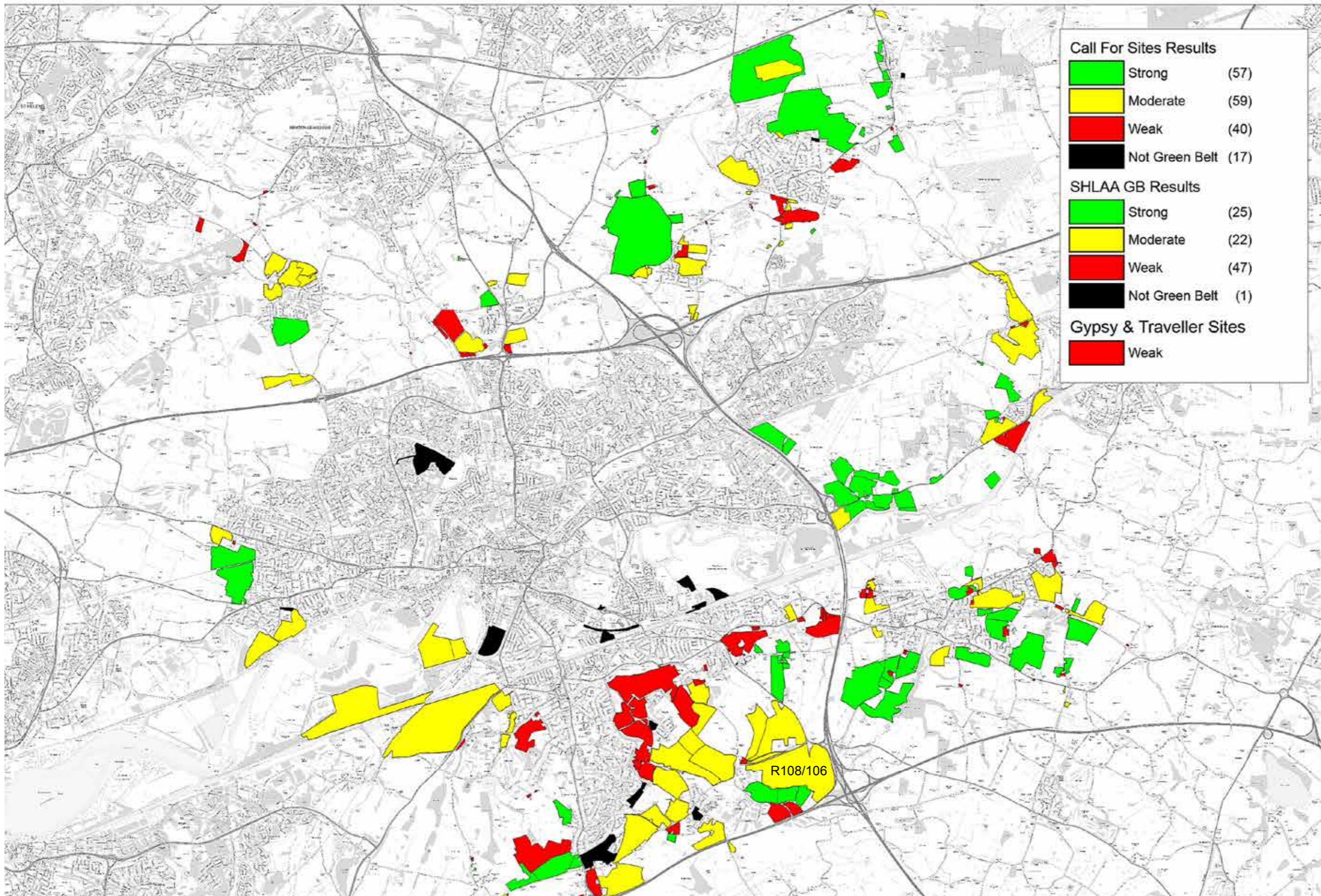
Asia Australia Europe MENA UK and Ireland  
[www.cundall.com](http://www.cundall.com)



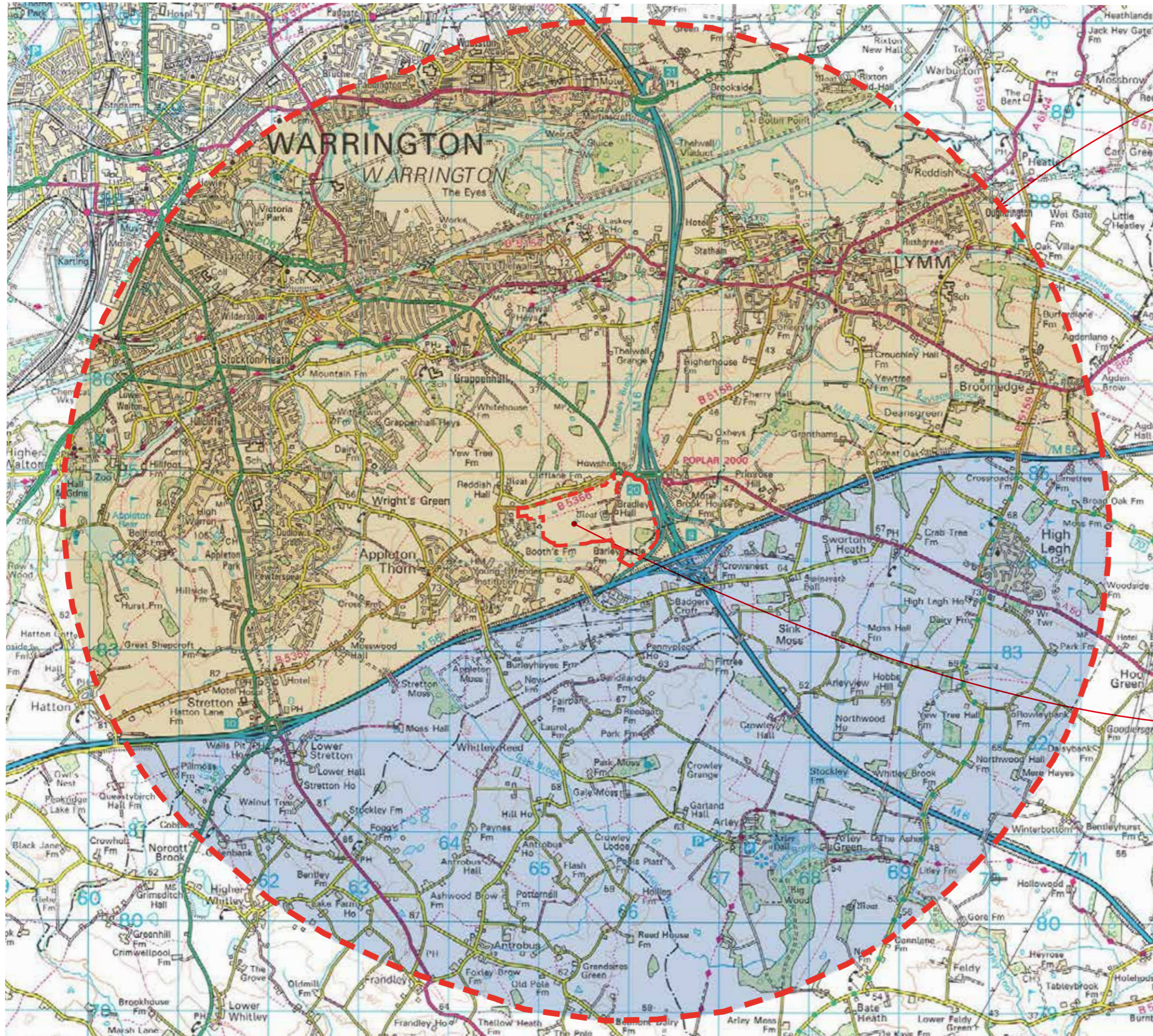


## **ES Scoping Appendix II – Landscape and Visual Impact:**

- LVI - Extract of plan from the Warrington Borough Council Green Belt Assessment 2017
- LV 2-3 - National Character Areas Plan and Local Character Areas Plan
- LV 4-6 - Zone of Theoretical Visibility Plans
- LV 7 - Field Work Zones Plans
- LV 8-26 - Photographs from the Landscape and Visual Baseline Fieldwork
- LV27-33 - Arboricultural Assessment Report and Plans



Warrington Borough Council: Green Belt Assessment 2017



5km radius of study

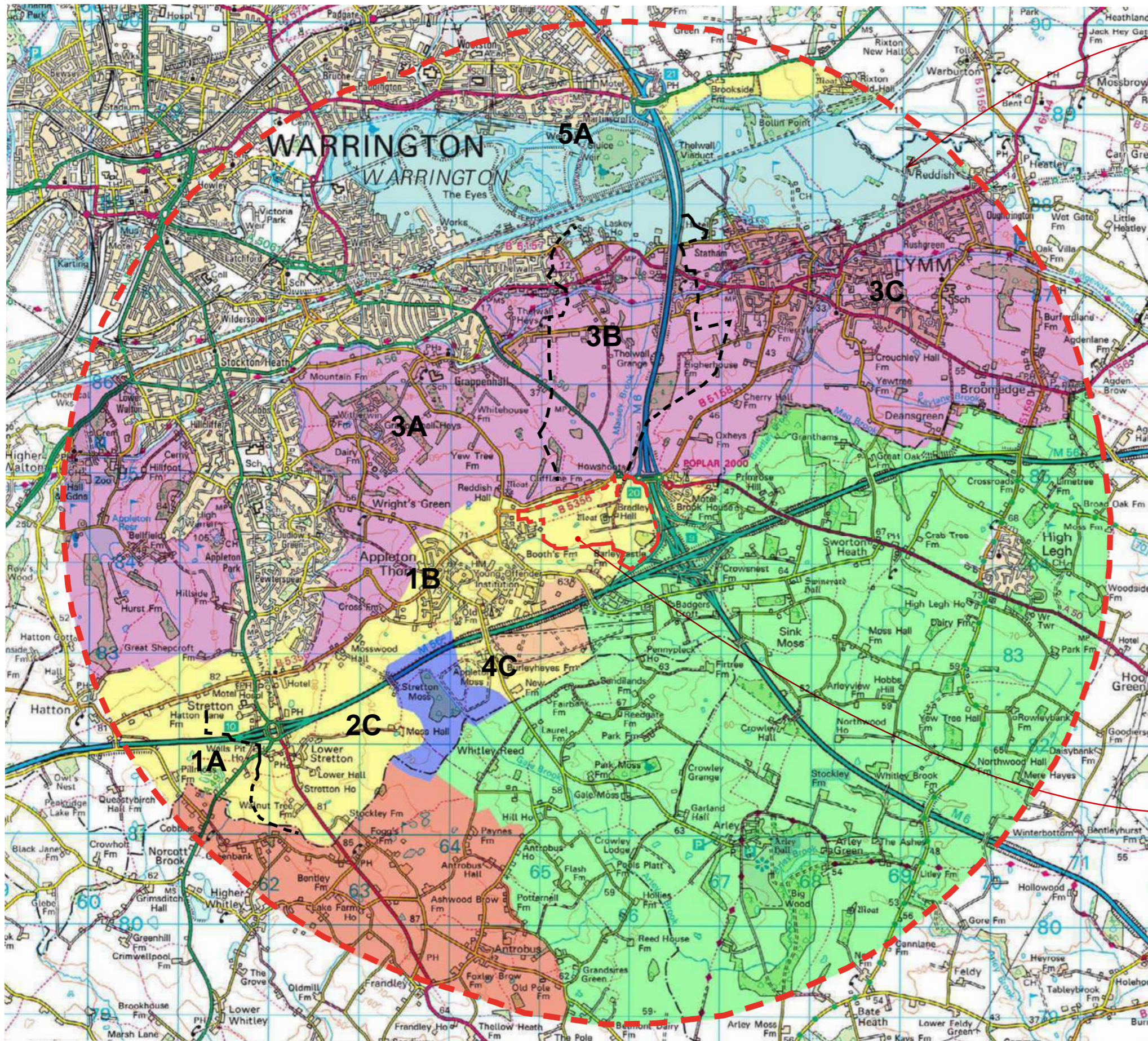
National Landscape Character Area 60-  
Mersey Valley



National Landscape Character Area 61-  
Shropshire, Cheshire and Staffordshire Plain



SITE LOCATION



5km radius of study

**Warrington Borough Council LCA**

Undulating Enclosed Farmland

- 1A: Stretton & Hatton
- 1B: Appleton Thorn

Mossland Landscape

- 2C: Stretton & Appleton Moss

Red Sandstone Escarpment

- 3A: Appleton Park & Grappenhall
- 3B: Massey Brook
- 3C: Lymm

Level Areas of Farmland and Former Airfield

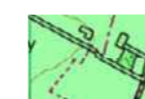
- 4C: Former Stretton Airfield

River Flood Plain

- 5A: River Mersey/Bollin

**Cheshire East Council LCA**

Lower Farms and Woodlands

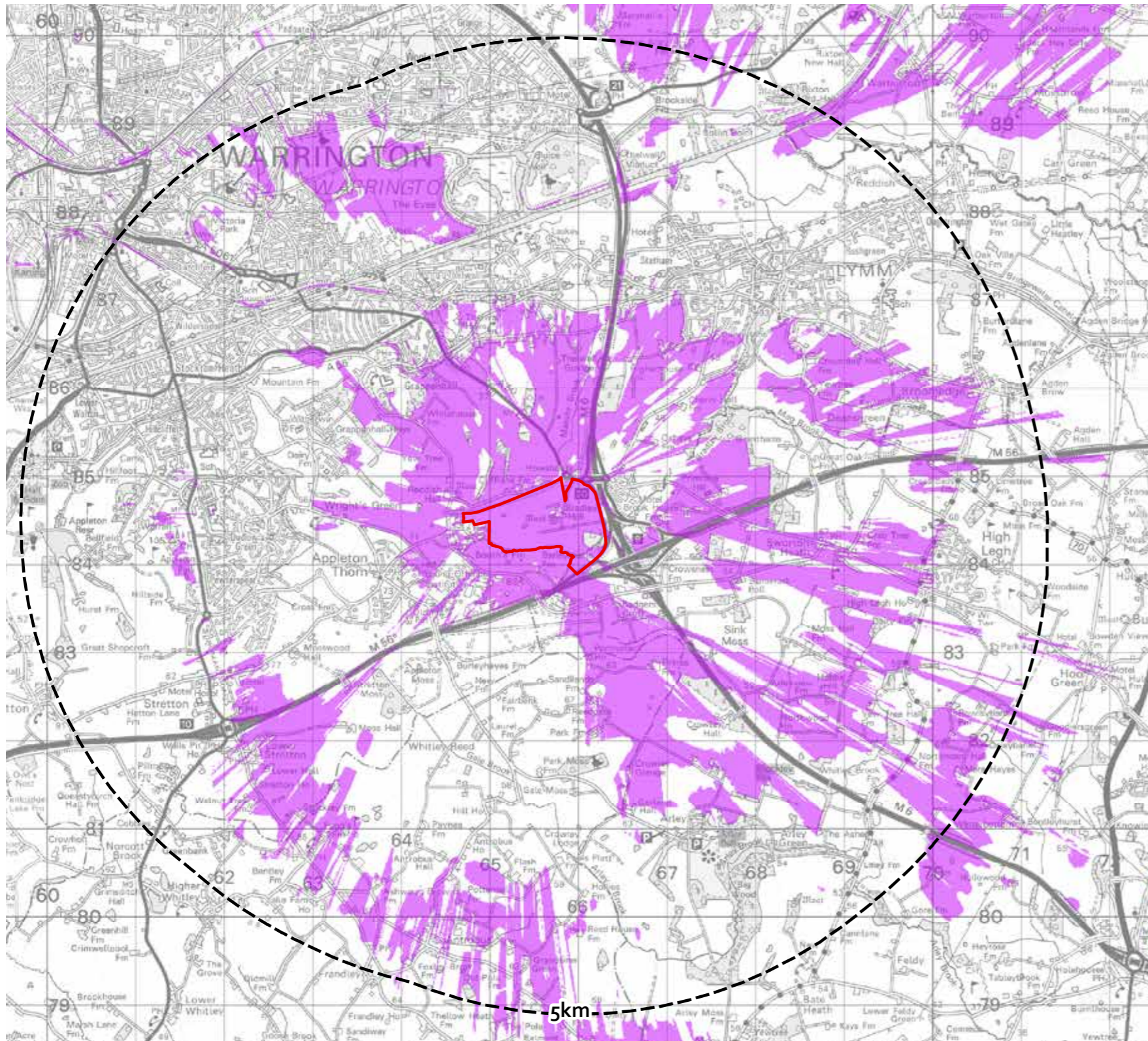


Rolling Farmland



SITE LOCATION

0 1km



Zone of Theoretical Visibility 14-17m High Units

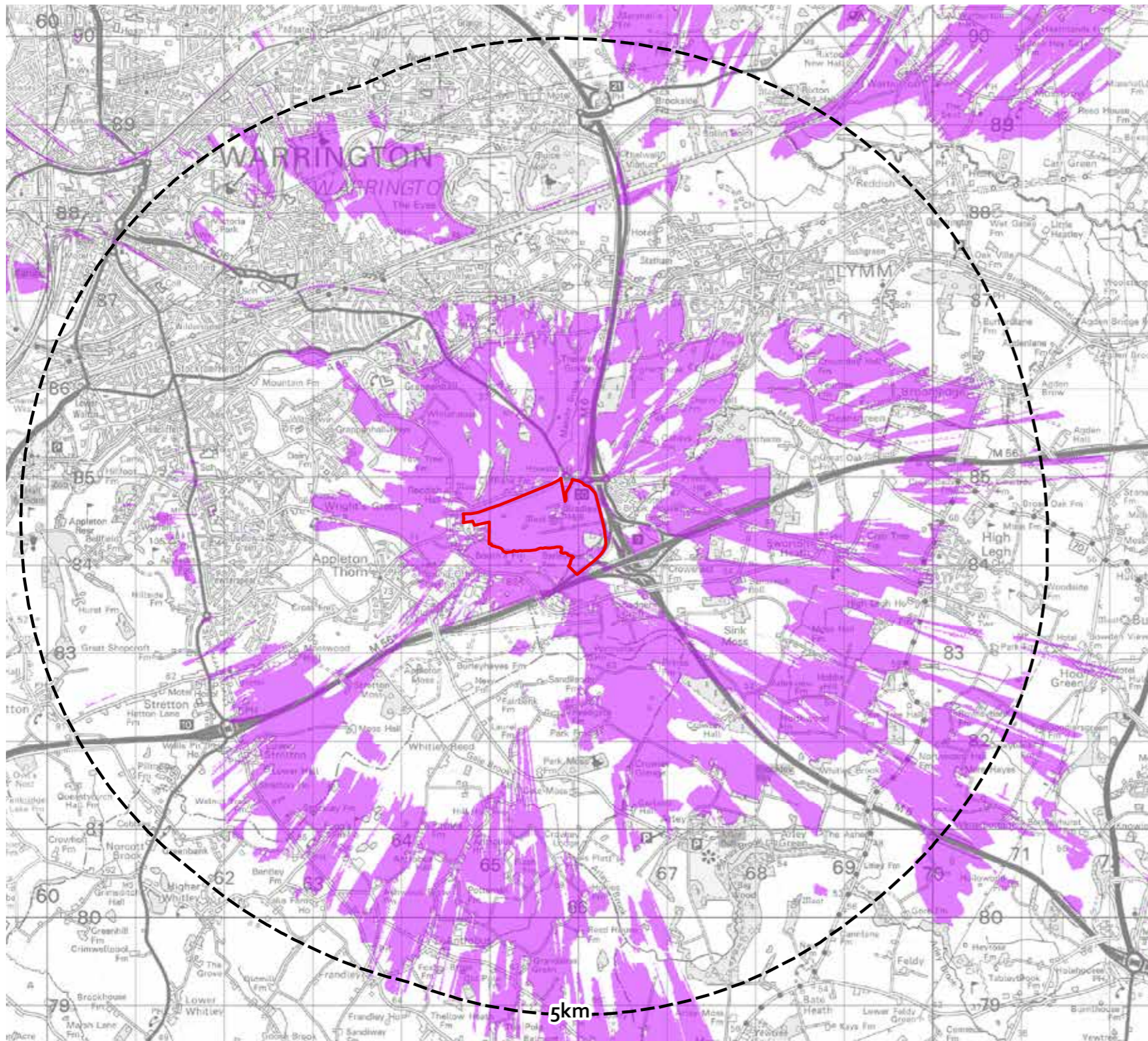
### Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals.
3. The analysis does take into account intervening screening by woodland (nominal 10m height) and buildings (nominal 7.5m height) as shown on OS Vectormap District.
4. Reproduced from 1:50,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.

### ZTV Run Data

|                  |                               |
|------------------|-------------------------------|
| Site centre:     | 365667, 384480                |
| Resolution:      | 10m                           |
| Calculation:     | Single development            |
| Counting method: | 1 for each point visible      |
| Visible points:  | Ridgeline heights (14m / 17m) |

**% of 5km study area with theoretical visibility: 23.68%**



Zone of Theoretical Visibility 14-22m High Units

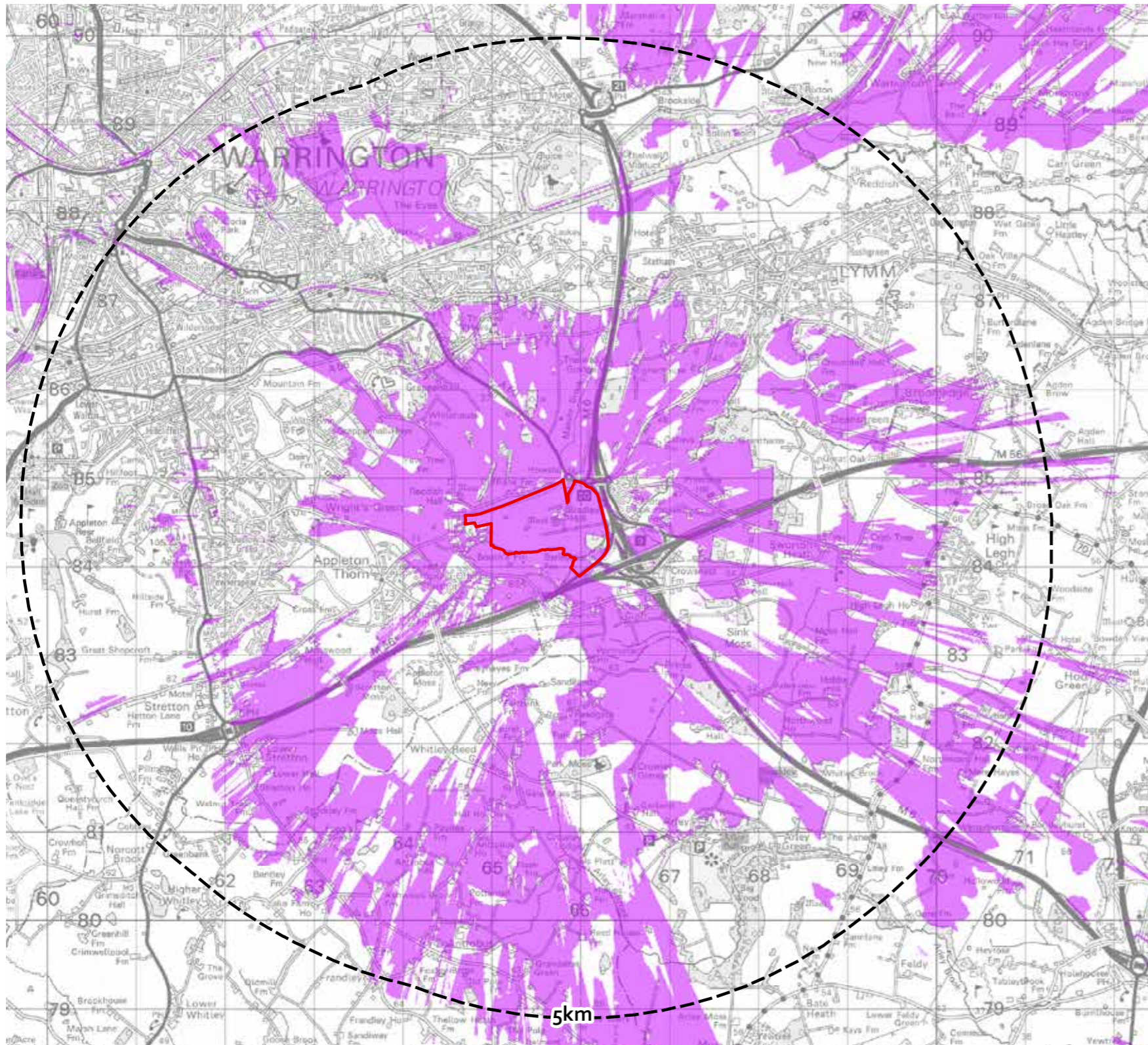
### Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals.
3. The analysis does take into account intervening screening by woodland (nominal 10m height) and buildings (nominal 7.5m height) as shown on OS Vectormap District.
4. Reproduced from 1:50,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.

### ZTV Run Data

|                  |                                     |
|------------------|-------------------------------------|
| Site centre:     | 365667, 384480                      |
| Resolution:      | 10m                                 |
| Calculation:     | Single development                  |
| Counting method: | 1 for each point visible            |
| Visible points:  | Ridgeline heights (14m / 17m / 22m) |

**% of 5km study area with theoretical visibility: 29.66%**



Zone of Theoretical Visibility 14-22m Plus 40m High Units

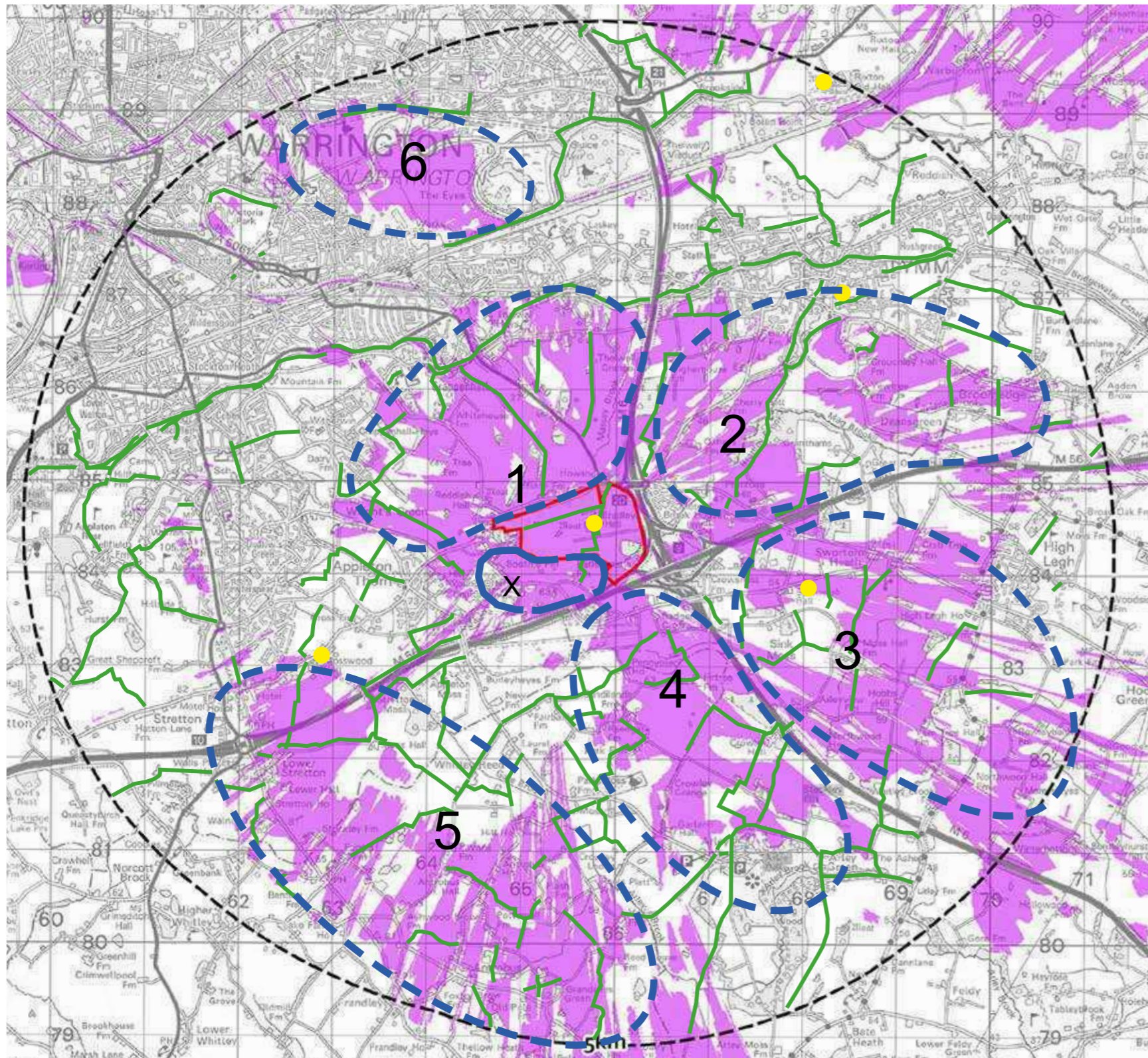
#### Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals.
3. The analysis does take into account intervening screening by woodland (nominal 10m height) and buildings (nominal 7.5m height) as shown on OS Vectormap District.
4. Reproduced from 1:50,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.

#### ZTV Run Data

|                  |                          |
|------------------|--------------------------|
| Site centre:     | 365667, 384480           |
| Resolution:      | 10m                      |
| Calculation:     | Single development       |
| Counting method: | 1 for each point visible |
| Visible points:  | Ridgeline height (40m)   |

**% of 5km study area with theoretical visibility: 35.29%**



Identified field work zones to confirm typical views of the proposed development identified by the ZTV.

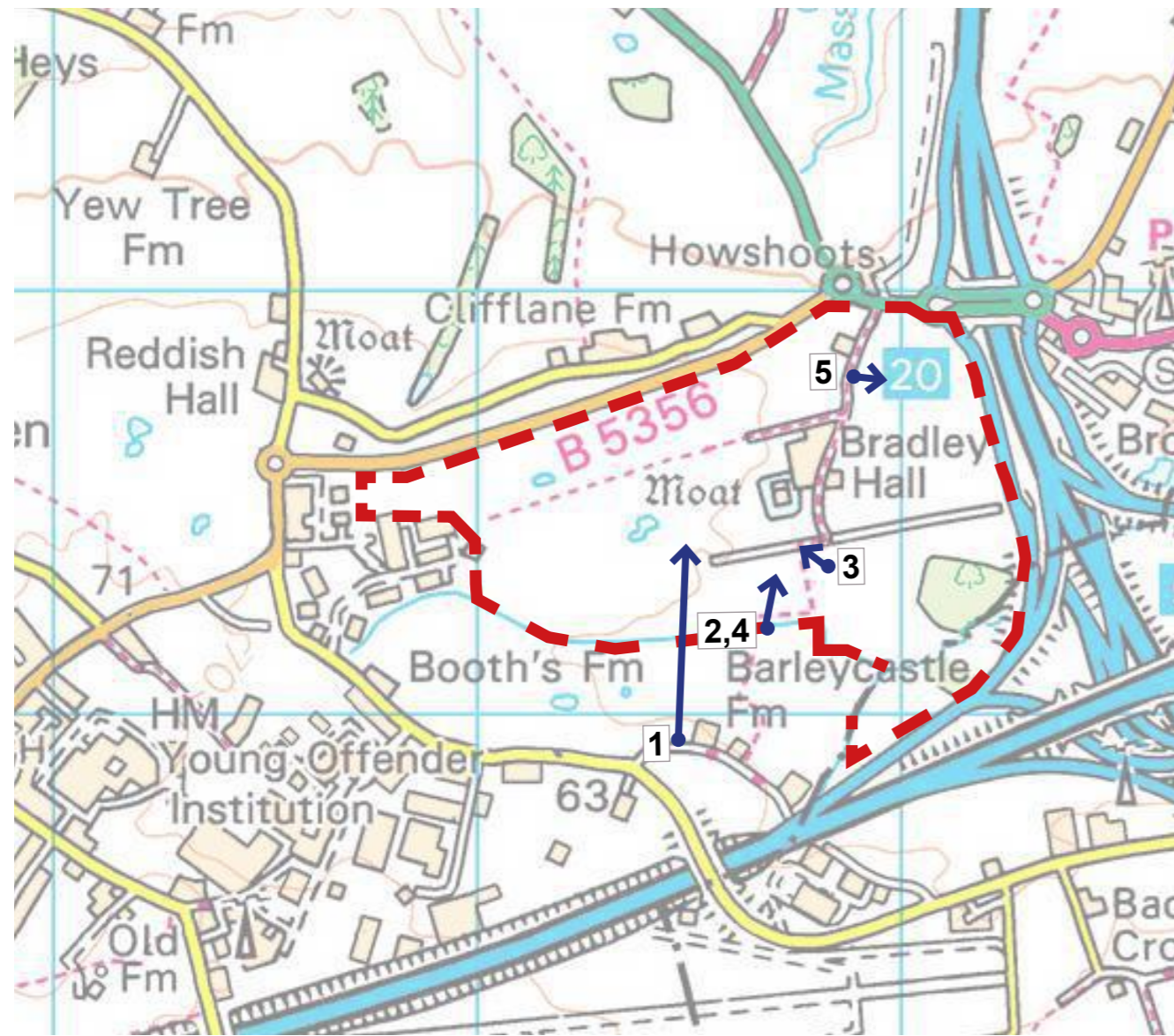
- 1 Grappenhall South (area for allocated SUE)
- 2 M6 East
- 3 M6 South East
- 4 M56 South
- 5 A533 North East
- 6 Manchester Ship Canal

X Area of future employment considered to be lower sensitivity

Field Work Zones 14-22m Plus 40m High Units ZTV



Views from within and adjacent to the site



0 1km



Picture 1 Barleycastle Lane Distance 0.25km Looking north



Picture 2 Blocked footpath FP00015/23/1



Picture 3 Blocked footpath FP00015/23/1

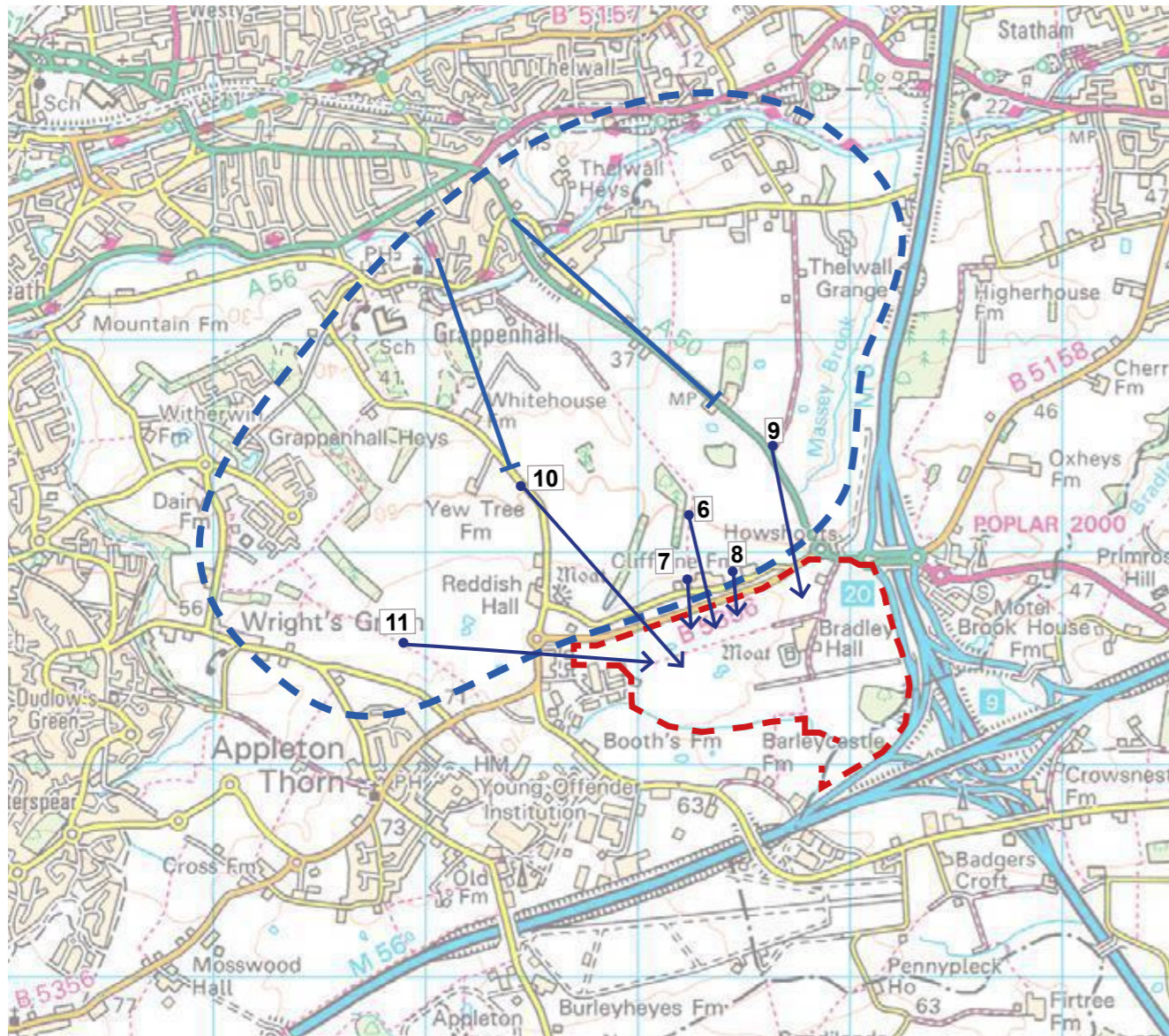


Picture 4 FP00015/23/1 Looking north



Picture 5 FP00015/23/1 Looking east

## Zone 1: Grappenhall South



0 1km



Picture 6 FP00129/5/1 Distance 0.2km Looking south



Picture 7 Cartridge Lane Distance 0.1km Looking south



Picture 8 Cartridge Lane Distance 0.02km Looking south

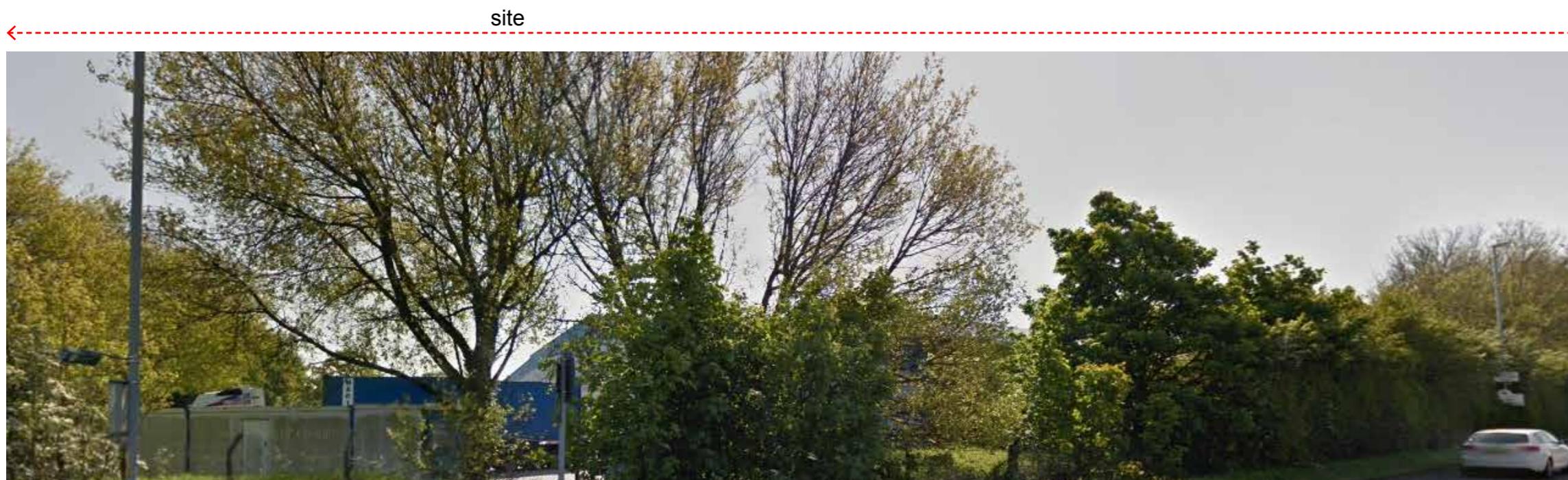


Picture 9 Bridleway 00129/17/1 Distance 0.6km Looking south



Picture 10 Broad Lane Distance 1km Looking south

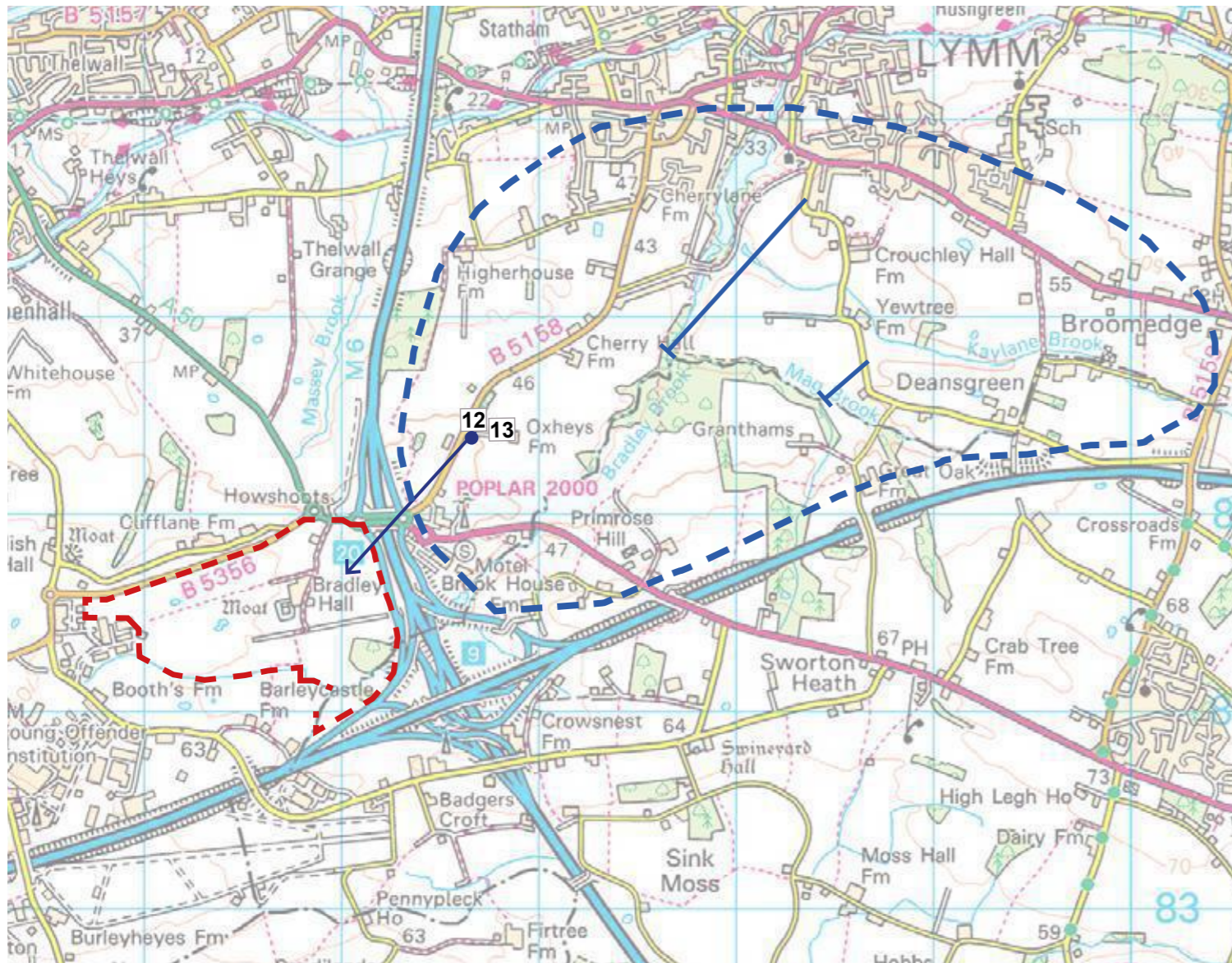
Source Google



Picture 11 Grappenhall Lane Distance 0.22km Looking east towards site over the edge of Barleycastle Industrial Estate

Source Google

Zone 2: M6 East



0 1km



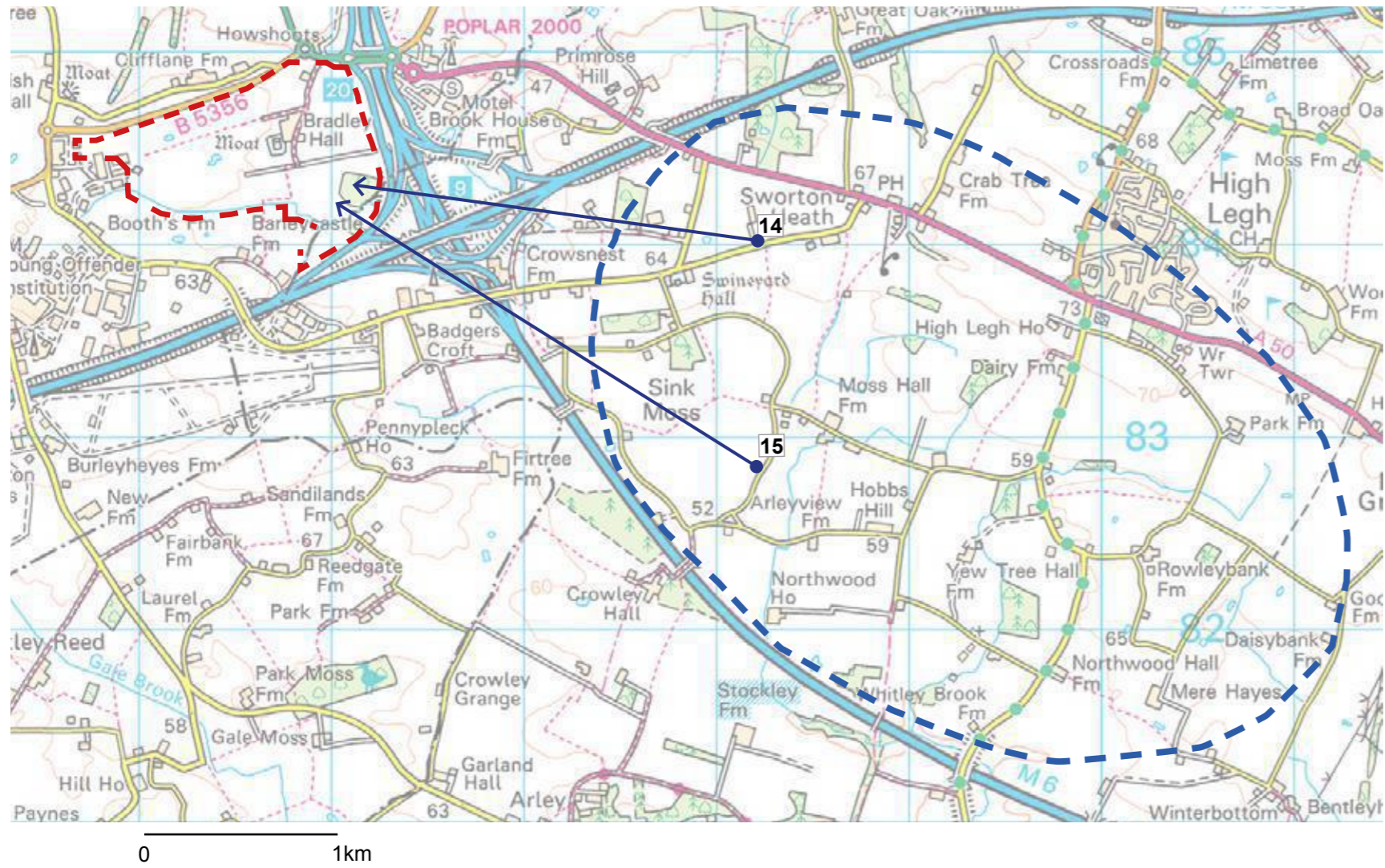


Picture 12 Cherry Lane Distance 0.75km Looking south-west



Picture 13 Cherry Lane Distance 0.75km Source Google

Zone 3: M6 West



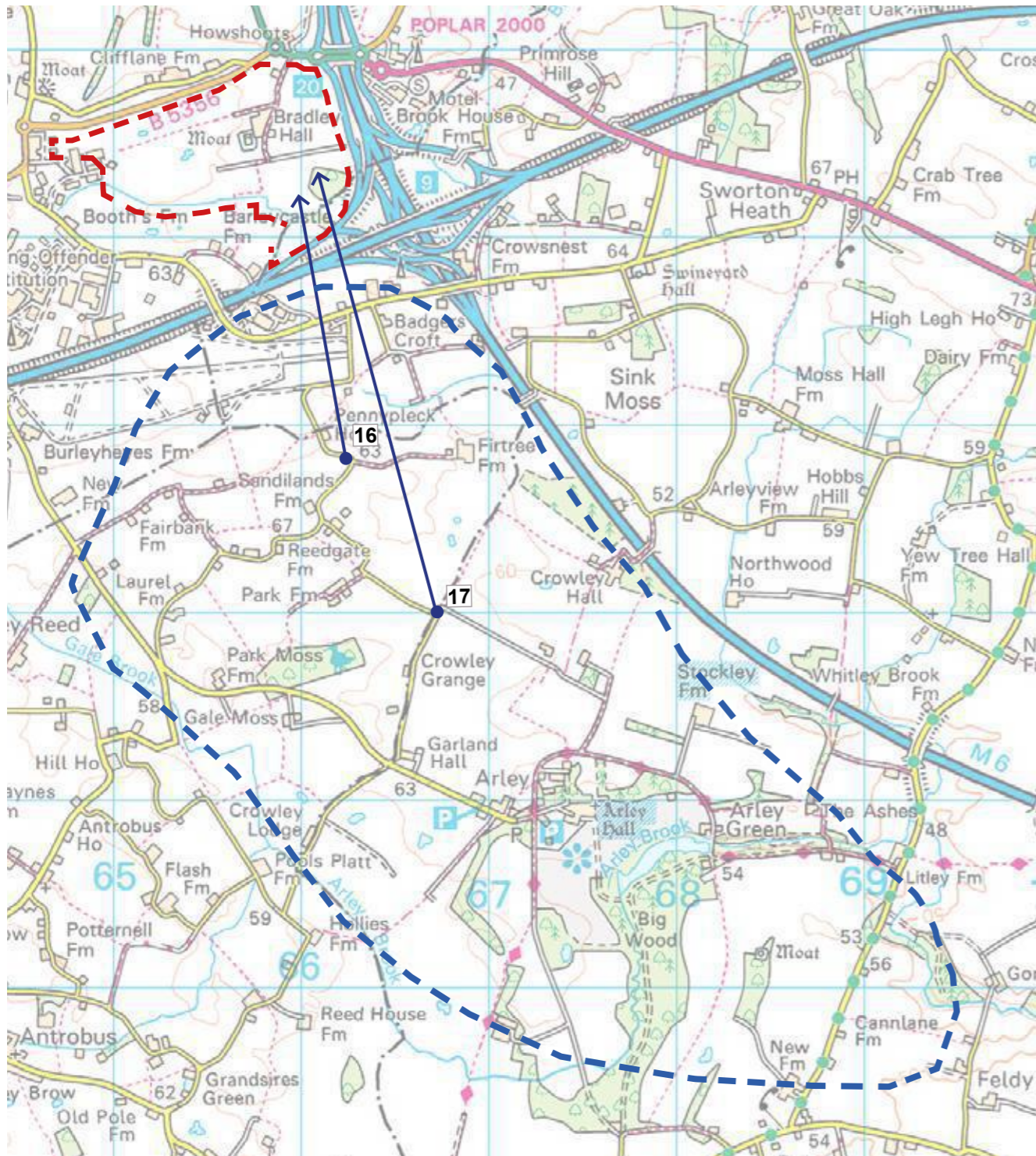


Picture 14 Swineyard Lane Distance 2.1km Looking north-west



Picture 15 Moss Lane Distance 2.6km Looking north-west

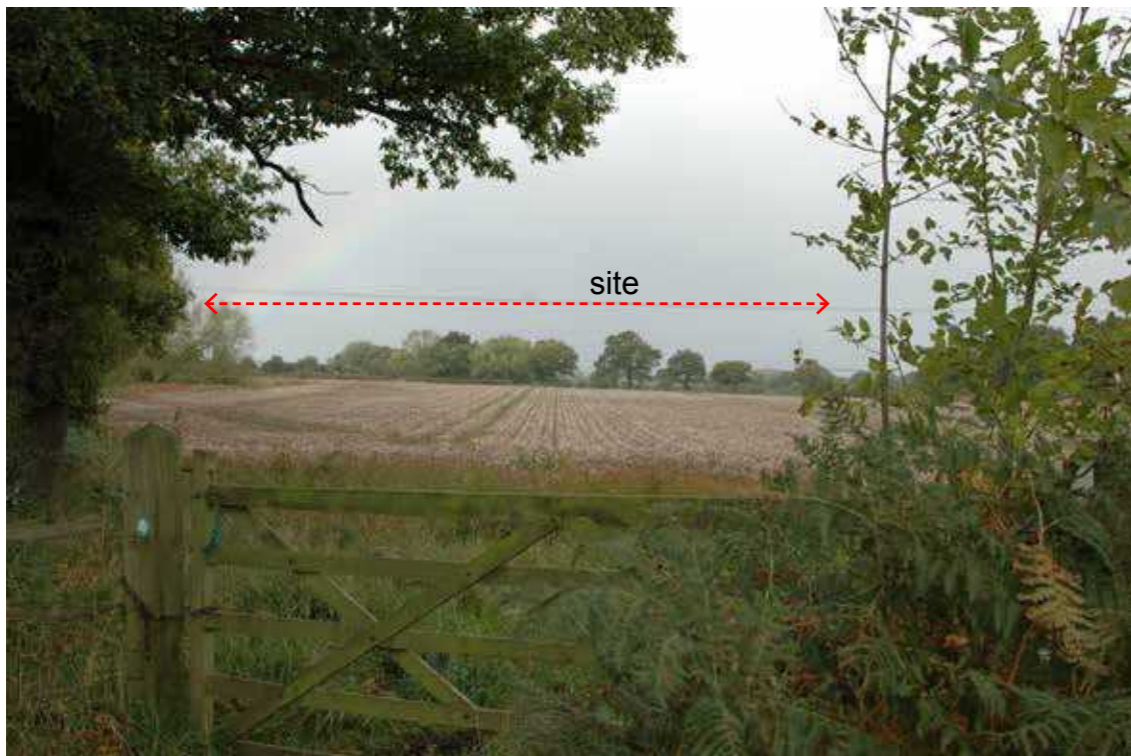
Zone 4: M56 South



0 1km

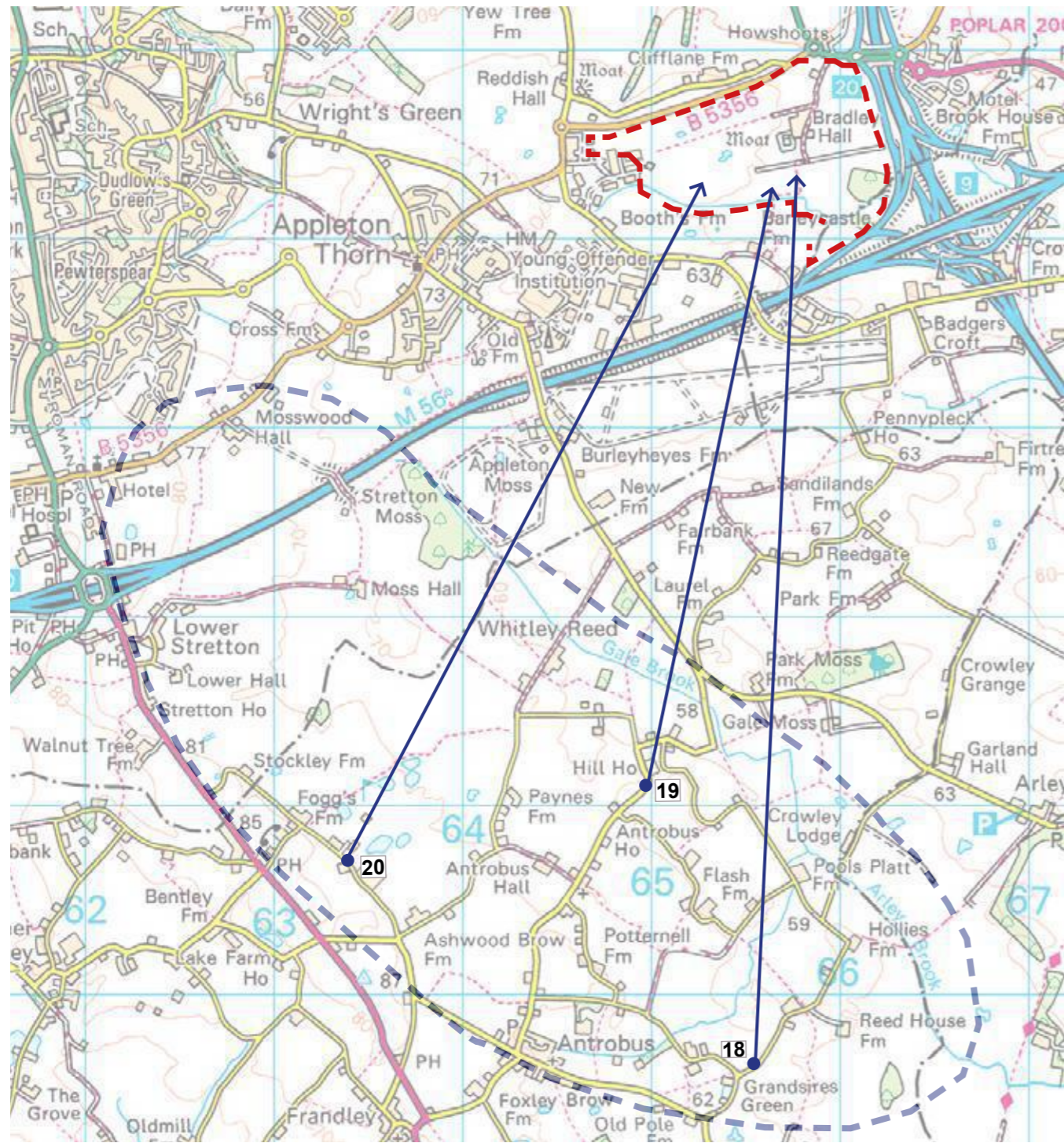


Picture 16 Moss Lane Distance 2.6km Looking north-west



Picture 17 Cadwells Gate Lane Distance 2.3km Looking north-west

Zone 5: A533 North East



0 1km



Picture 18 Hollins Lane Distance 4.8km Looking north-east

Source Google



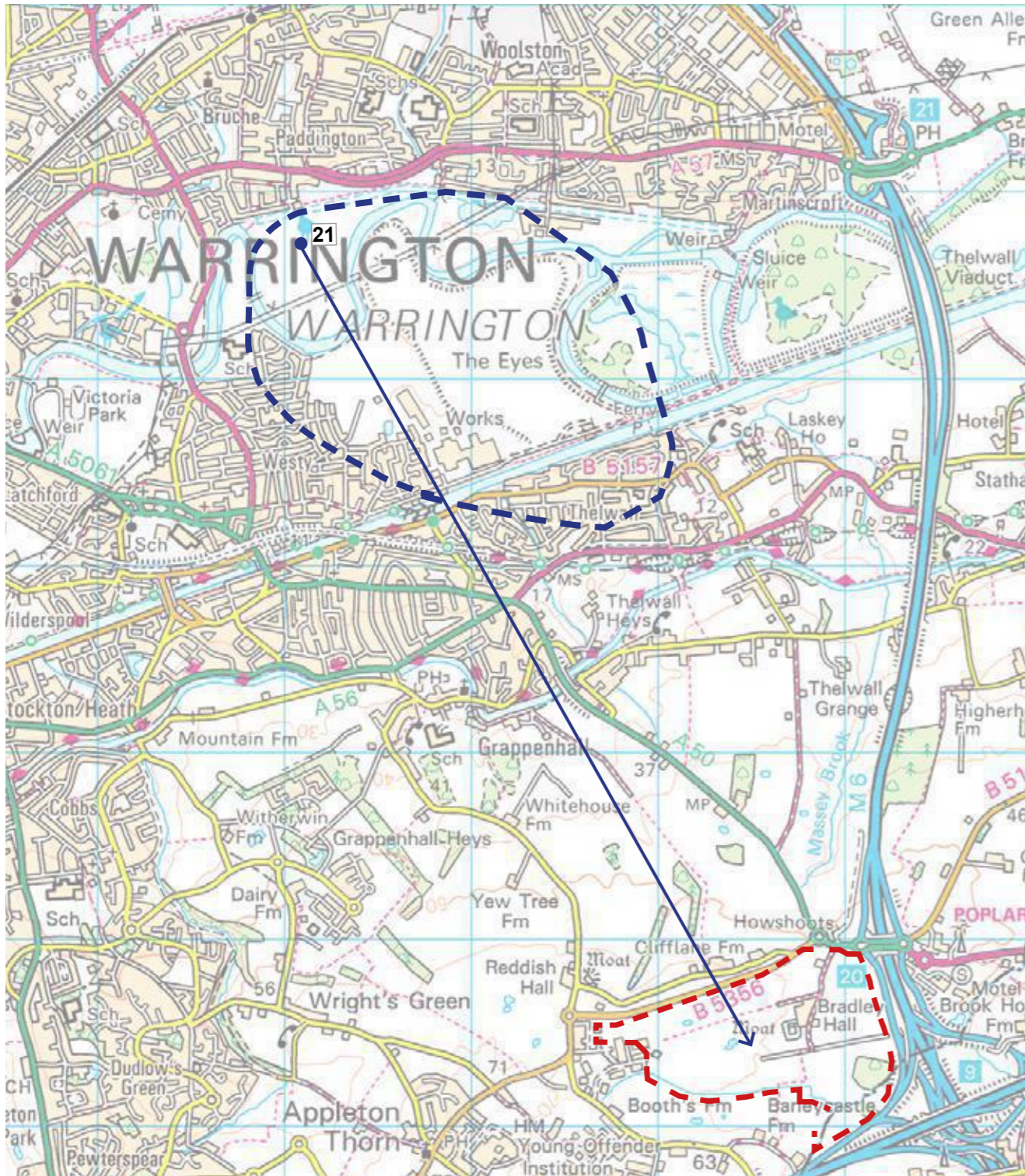
Picture 19 Barber's Lane Distance 3.2km Looking north-east



Picture 20 Frogg's Lane Distance 4.1km Looking north-east

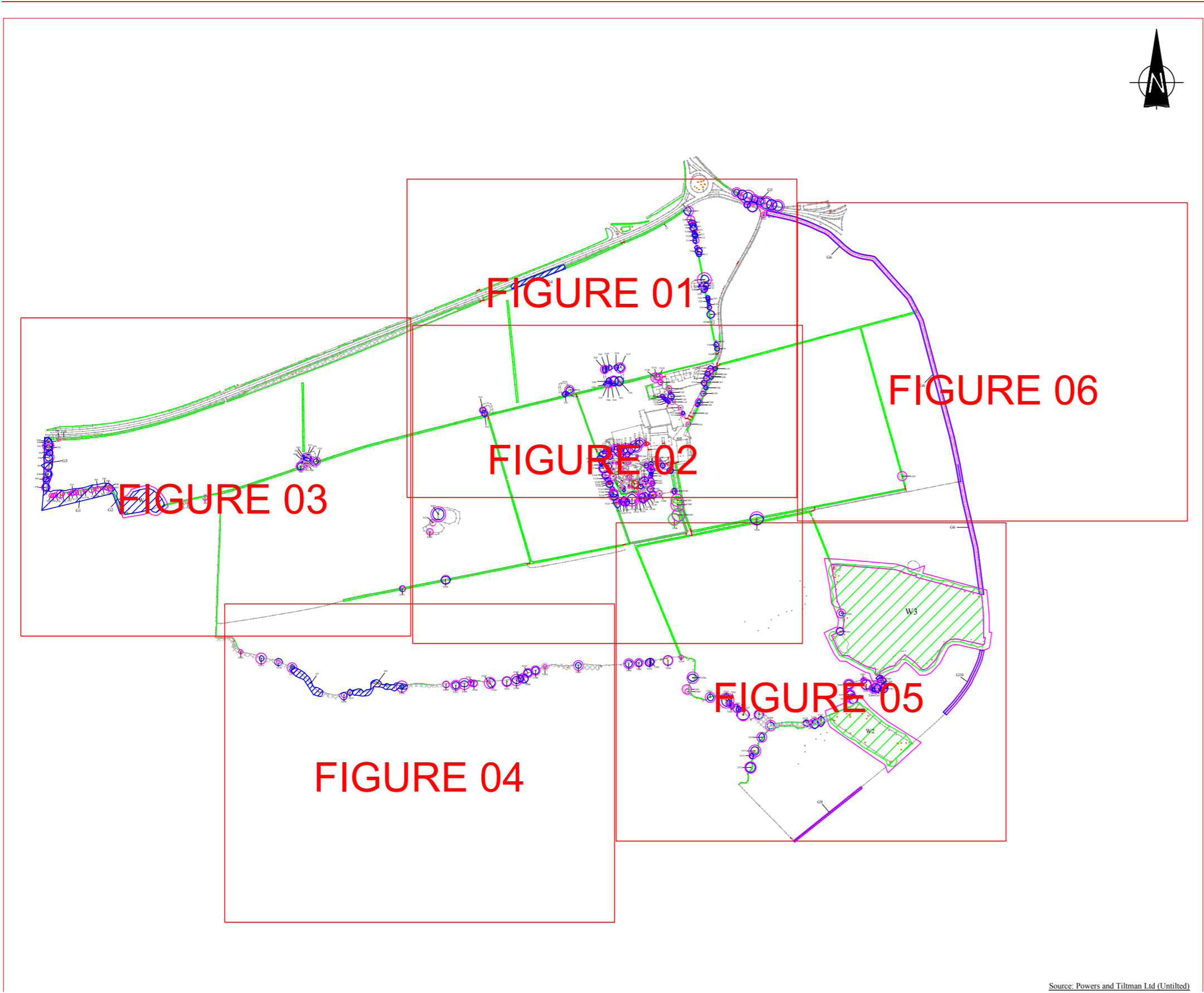


Zone 6: River Mersey



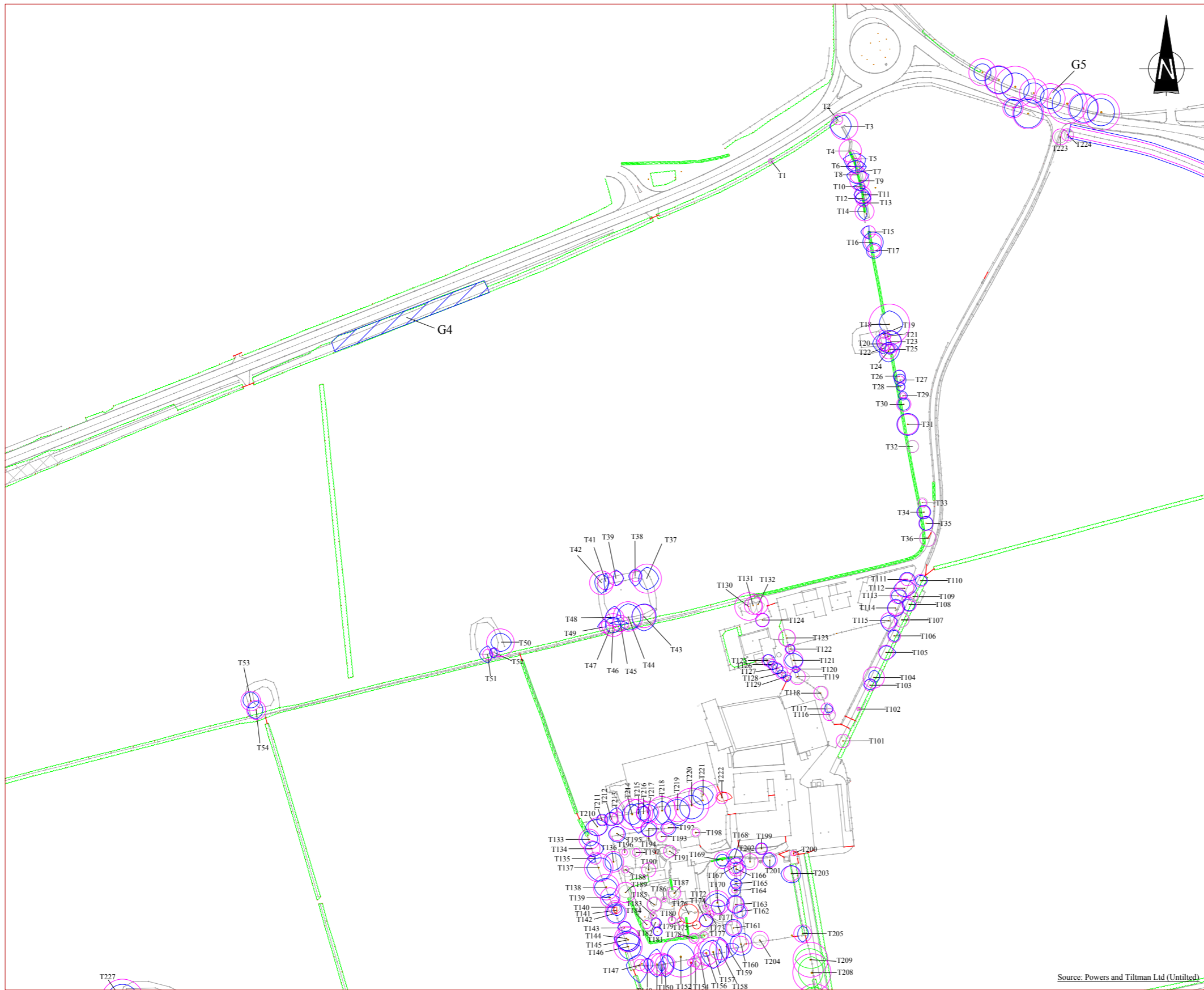


Picture 21 Paddington Meadows Distance 4.5km Looking south-east



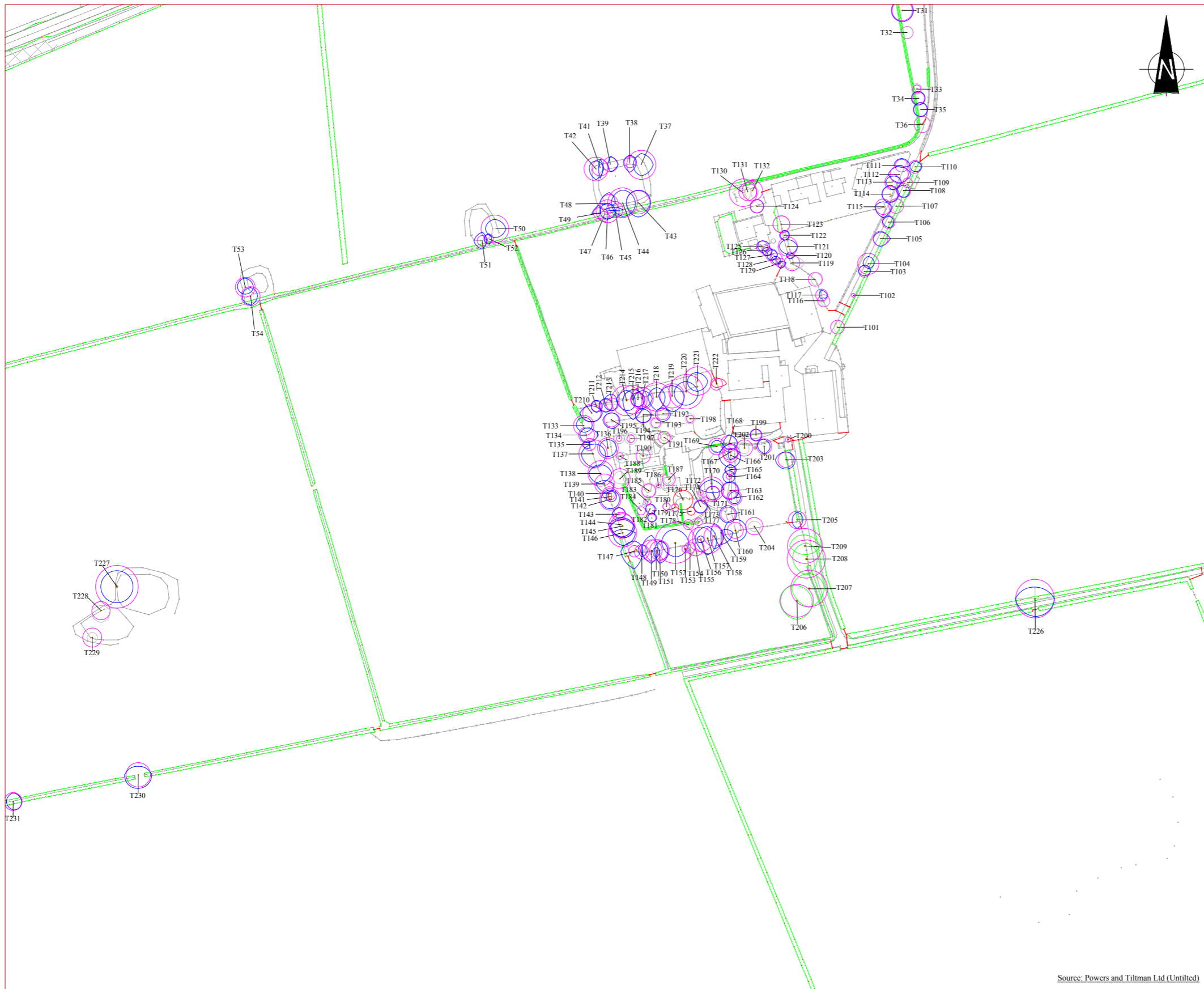
- Key**
- Tree of high landscape value (A2)
  - Tree of moderate landscape value (B2)
  - Tree of low landscape value (C2)
  - Tree of negligible arboricultural merit (R)
  - Tree group of high landscape value (A2)
  - Tree group of moderate landscape value (B2)
  - Shrub masses
  - Root Protection Area (RPA)

Source: Powers and Tiltman Ltd (Untitled)



**Key**

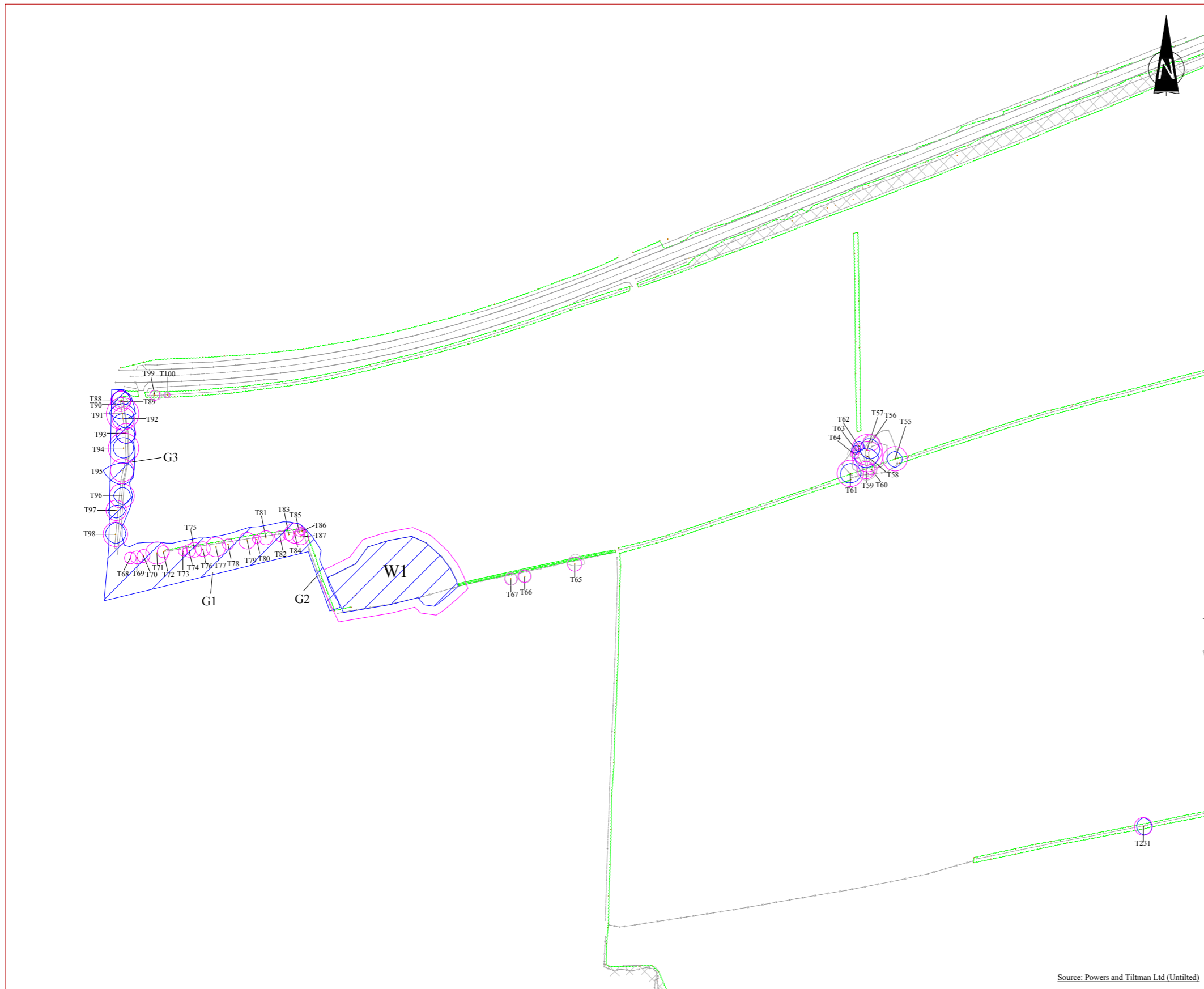
- Tree of high landscape value (A2)
- Tree of moderate landscape value (B2)
- Tree of low landscape value (C2)
- Tree of negligible arboricultural merit (R)
- Tree group of high landscape value (A2)
- Tree group of moderate landscape value (B2)
- Shrub masses
- Root Protection Area (RPA)



**Key**

- Tree of high landscape value (A2)
- Tree of moderate landscape value (B2)
- Tree of low landscape value (C2)
- Tree of negligible arboricultural merit (R)
- Tree group of high landscape value (A2)
- Tree group of moderate landscape value (B2)
- Shrub masses
- Root Protection Area (RPA)

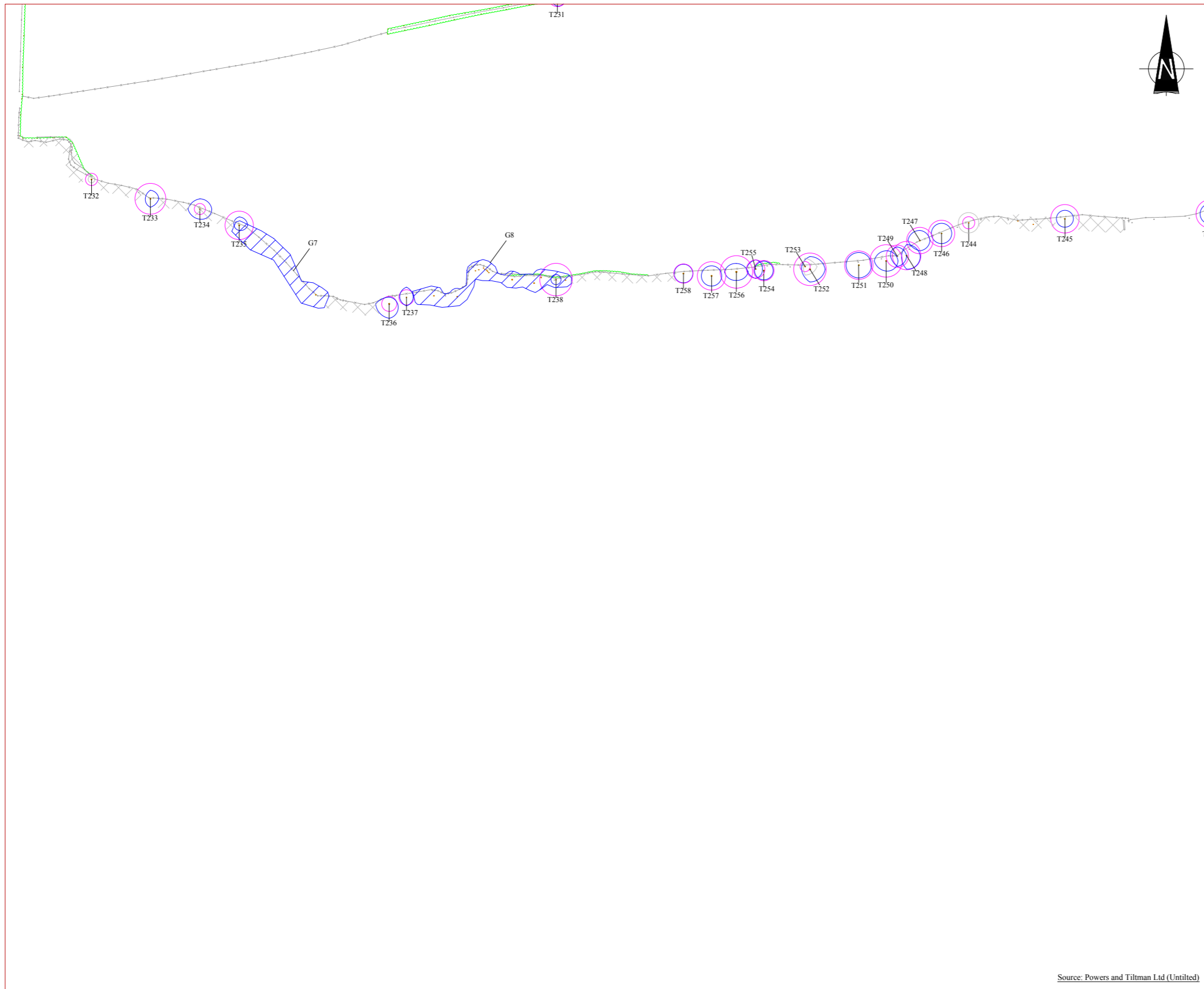
Source: Powers and Tiltman Ltd (Untitled)



**Key**

- Tree of high landscape value (A2)
- Tree of moderate landscape value (B2)
- Tree of low landscape value (C2)
- Tree of negligible arboricultural merit (R)
- Tree group of high landscape value (A2)
- Tree group of moderate landscape value (B2)
- Shrub masses
- Root Protection Area (RPA)

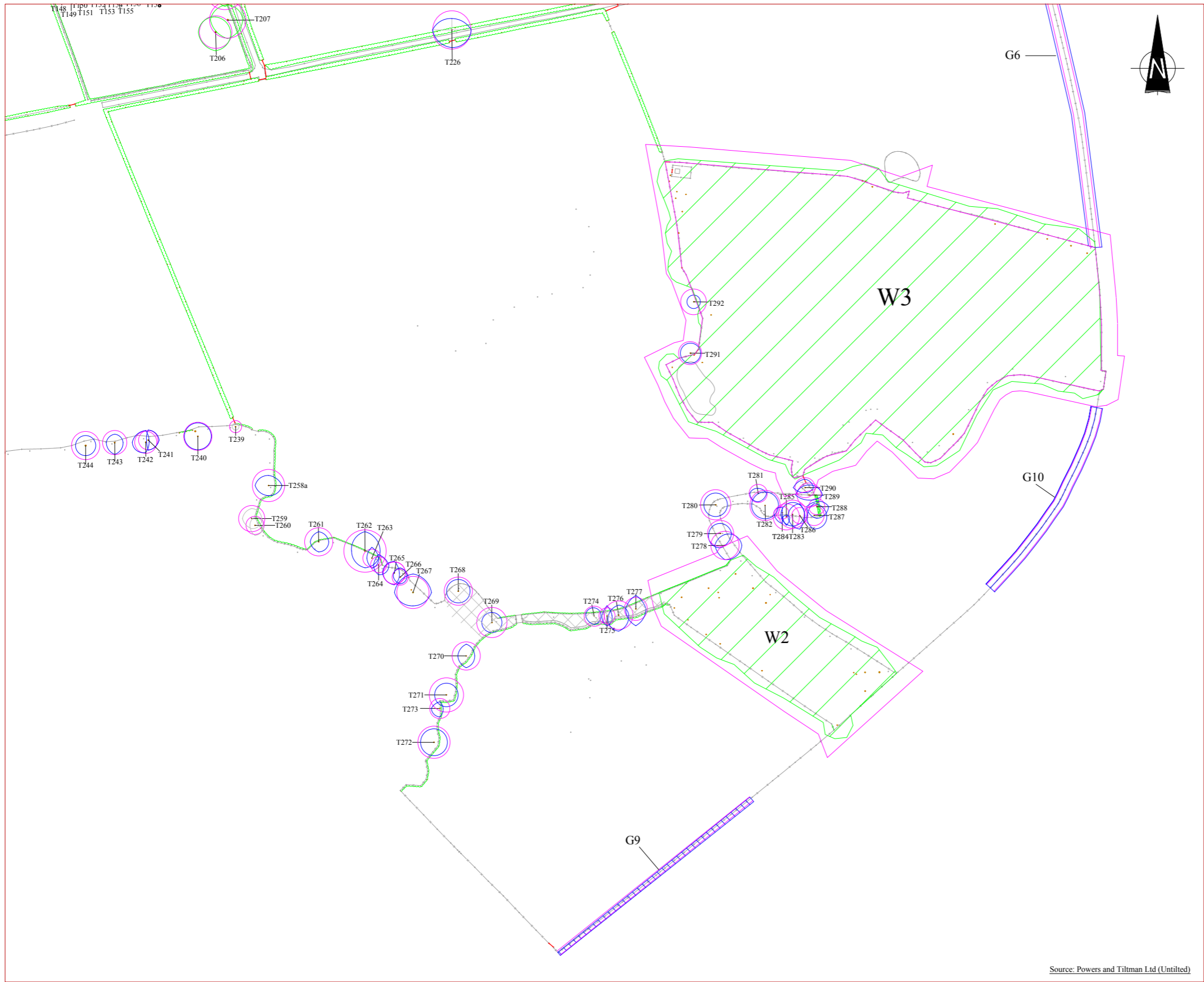
Source: Powers and Tiltman Ltd (Untitled)



**Key**

- Tree of high landscape value (A2)
- Tree of moderate landscape value (B2)
- Tree of low landscape value (C2)
- Tree of negligible arboricultural merit (R)
- Tree group of high landscape value (A2)
- Tree group of moderate landscape value (B2)
- Shrub masses
- Root Protection Area (RPA)

Source: Powers and Tiltman Ltd (Untitled)

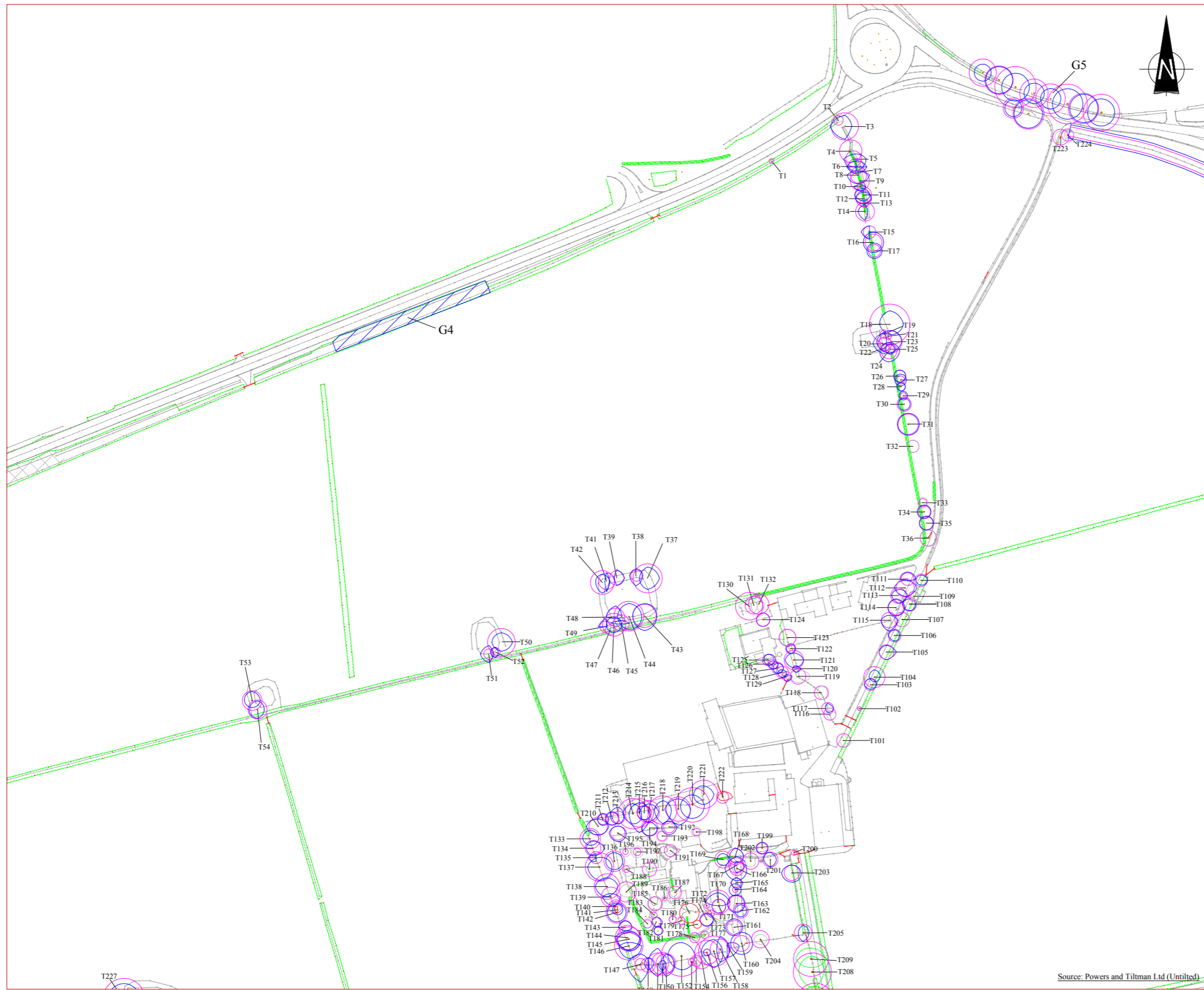


**Key**









- Tree of high landscape value (A2)
- Tree of moderate landscape value (B2)
- Tree of low landscape value (C2)
- Tree of negligible arboricultural merit (R)
- Tree group of high landscape value (A2)
- Tree group of moderate landscape value (B2)
- Shrub masses
- Root Protection Area (RPA)

Source: Powers and Tiltman Ltd (Untitled)





**Key**

-  Tree of high landscape value (A2)
-  Tree of moderate landscape value (B2)
-  Tree of low landscape value (C2)
-  Tree of negligible arboricultural merit (R)
-  Tree group of high landscape value (A2)
-  Tree group of moderate landscape value (B2)
-  Shrub masses
-  Root Protection Area (RPA)

## **ES Scoping Appendix 12 – Ecology and Nature Conservation:**

- Preliminary Ecological Appraisal

---

17 November 2017

Land at Junction 20 of  
M6/M56 Interchange,  
Grappenhall, Cheshire

Preliminary Ecological  
Appraisal

Report Number: 10682\_R01a\_PM\_LP

Author: Paul Moody BSc MCIEEM

Revision: Laura Dennis BSc (Hons) MSc  
GCIEEM

Checked: John Moorcroft MSc MCIEEM, CEnv



Tyler Grange

# Contents

Summary

Section 1: Introduction, Context and Purpose..... 1

Section 2: Methodology .....2

Section 3: Ecological Features and Evaluation .....4

Section 4: Considerations in Respect of Future Development .....15

Section 5: Conclusions .....19

References

# Appendices / Appendix

- Appendix 1: Legislation and Planning Policy
- Appendix 2: Great Crested Newt Habitat Suitability Indices
- Appendix 3: Parameters Plan
- Appendix 4: Ecology Survey Planner

# Plans

Habitat Features Plan  
10682\_P01a October 2017 LRD/HC

The contents of this report are valid at the time of writing. Tyler Grange shall not be liable for any use of this report other than for the purposes for which it was produced. Owing to the dynamic nature of ecological, landscape, and arboricultural resources, if more than twelve months have elapsed since the date of this report, further advice must be taken before you rely on the contents of this report. Notwithstanding any provision of the Tyler Grange LLP Terms & Conditions, Tyler Grange LLP shall not be liable for any losses (howsoever incurred) arising incurred as a result of reliance by the client or any third party on this report more than twelve months after the date of this report.



# Summary

- S.1. This report has been prepared by Tyler Grange LLP on behalf of Langtree PP and First Panattoni. It sets out the findings of a Preliminary Ecological Appraisal (PEA) of a parcel of land at Junction 20 of M6/M56 Interchange, Grappenhall, Cheshire (OS Grid Reference SJ 66027 84669), hereinafter referred to as the 'site' to inform the site's promotion for future development as a distribution centre.
- S.2. The hedgerows, ponds, woodland, ditches and brook which are present within the site are considered to be of ecological importance. These features should be retained by the development proposals wherever possible and compensation should be given, within the green infrastructure of the site, for any losses that do occur.
- S.3. Further surveys will be required for the following species / faunal groups prior to a planning application:
- Badger survey of site and within 30m of its boundary;
  - Bat activity surveys across the site;
  - Preliminary Roost Assessment of buildings and mature trees which may have potential for roosting bats (where these are affected by development proposals);
  - Breeding bird surveys of the site;
  - Great crested newt surveys of ponds within the site and within 250m of the site; and
  - Otter survey along Bradley Brook, if it is to be affected by the development.
- S.4. Great crested newt is likely to be the biggest constraint on the quantum of development achievable, if they are found to be present within the site. However, it is possible that the great crested newt population present within the site could be accommodated within areas of the site to the south, which will remain undeveloped. The exact amount of mitigation required will depend on the population size and the location of the population in relation to the development area.
- S.5. It is considered that this report is adequate to inform the allocation of the site and that the development could proceed in conformity with relevant legislation and policy, assuming mitigation (informed by detailed surveys for protected species where necessary) can be implemented successfully.



# Section 1: Introduction, Context and Purpose

## Introduction

- 1.1. This report has been prepared by Tyler Grange LLP on behalf of Langtree PP and First Panattoni. It sets out the findings of a Preliminary Ecological Appraisal (PEA) of a parcel of land at the Junction 20 of M6/M56 Interchange, Grappenhall (OS Grid Reference SJ 66027 84669), hereinafter referred to as the 'site' to inform the site's promotion for future development as a distribution centre.

## Context

- 1.2. Plans are being drawn up to develop the site to provide a large distribution centre. A parameters plan for the site has been produced, which will form the basis for an outline planning application.

## Purpose

- 1.3. This report:
- Uses available background data and results of field surveys, to describe and evaluate the ecological features present within the likely 'zone of influence' (Zol)<sup>1</sup> of the proposed development;
  - Describes the actual or potential ecological issues and opportunities that might arise as a result of the site's future development for employment use;
  - Where appropriate, makes recommendations for mitigation of adverse effects and ecological enhancement, to ensure conformity with policy and legislation listed in **Appendix 1**; and
  - Assuming site allocation, identifies further work required to inform a future planning application.
- 1.4. It is not intended that this report should be submitted with a planning application for development of the site, unless supported by the results of further surveys and a detailed assessment of the effects of the proposed development.
- 1.5. This assessment and the terminology used are consistent with the 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (CIEEM, 2016).

---

<sup>1</sup> Defined as the area over which ecological features may be subject to significant effects as a result of activities associated with a project and associated activities (CIEEM 2016).



# Section 2: Methodology

## Data Search

- 2.1. The aim of the data search is to collate existing ecological records for the site and adjacent areas. Obtaining existing records is an important part of the assessment process as it provides information on issues that may not be apparent during a single survey, which by its nature provides only a 'snapshot' of the ecology of a given site.
- 2.2. The data search has been undertaken for a 10km radius around the site for international statutory sites, a 2km radius for national statutory and non-statutory sites and a 1km radius for protected and priority<sup>2</sup> species records.
- 2.3. The following organisations and individuals have been contacted and, where relevant, the information provided has been incorporated with acknowledgement within this report:
  - rECOrd (Cheshire Biological Records Centre), for protected and priority species records and locations of non-statutory designated sites;
  - Multi-Agency Geographic Information for the Countryside (MAGIC) website, for locations of European and national statutory sites;
  - Section 41 of the Natural Environment and Rural Communities (NERC) Act for priority species and habitats in England, subject to conservation action, to assist with the evaluation of ecological resources and to inform site enhancement strategies;
  - The Local Biodiversity Action Plan (LBAP) known as 'Cheshire Region Biodiversity Partnership', for local priority habitats and species subject to conservation action, to assist with the evaluation of ecological resources and to inform site enhancement strategies; and
  - The Warrington Metropolitan Borough Council website was consulted for details of relevant local planning policies and supplementary planning guidance; and
  - As a small section of the site is within High Leigh Parish which is in within Cheshire East Council (CEC), CEC website was also consulted for details of relevant local planning policies.

### *Extended Phase I Habitat Survey*

- 2.4. An 'extended' Phase I habitat survey was undertaken on 17<sup>th</sup> November 2016, by Paul Moody and Hayley Care both experienced field ecologists and members of the Chartered Institute of Ecology and Environmental Management (CIEEM). The technique was based upon Phase I survey methodology (JNCC, 2010). This 'extended' Phase I technique provides an inventory of the habitat types present and dominant species.
- 2.5. Additionally, incidental records of fauna were also made during the survey and the habitats identified were evaluated for their potential to support legally protected and priority species.
- 2.6. The weather conditions for the survey were cold (5°C), with blustery winds and heavy rain for a portion of the survey.

---

<sup>2</sup> UK priority species and habitats are those subject to conservation action and referred to as Species of Principal Importance (SoPIs) or Habitats of Principal Importance (HoPIs). They are listed at Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act states that local planning authorities must have regard for the conservation of both SoPIs and HoPIs.



## Evaluation

- 2.7. The evaluation of habitats and species is defined in accordance with published guidance (CIEEM, 2016). The level of importance of specific ecological features is assigned using a geographic frame of reference, with international being most important, then national, regional, county, local and lastly, within the site boundary only.
- 2.8. Evaluation is based on various characteristics that can be used to identify ecological features likely to be important in terms of biodiversity. These include site designations (such as SSSIs), or for undesignated features, the size, conservation status (locally, nationally or internationally), and the quality of the ecological feature. In terms of the latter, quality can refer to habitats (for instance if they are particularly diverse, or a good example of a specific habitat type), other features (such as wildlife corridors or mosaics of habitats) or species populations or assemblages.
- 2.9. No evaluation of protected or priority species groups has been made as no detailed surveys have been conducted.

## Limitations

- 2.10. Owing to the timing of the surveys, some plant species may not have been visible. That said, given the nature of the habitats present, this is not considered likely to affect the conclusions of this report.

## Quality Control

- 2.11. All ecologists at Tyler Grange LLP are members of CIEEM and abide by the Institute's Code of Professional Conduct.





# Section 3: Ecological Features and Evaluation

## Context

- 3.1. The site predominantly consists of a series of arable and cattle and sheep-grazed pastoral fields. It covers approximately 90 ha and is largely flat in the north, with a slight slope to the south. Hedgerows, woodland, trees, watercourses and ponds are all also present within the site.
- 3.2. The site is present within a predominantly rural environment but is bound to the south and east by the M6 and M56 motorways respectively. An industrial estate is also present immediately west of the site

## Protected Sites

### *Statutory Sites*

- 3.3. There are no statutory designated sites within the site boundary, but four such sites are located within the study area, see **Table 3.1**.

**Table 3.1:** Statutory designated sites within the study area.

| Site Name                        | Designation | Distance / Direction from Site | Reason for Designation   |
|----------------------------------|-------------|--------------------------------|--|
| Midland Meres and Mosses Phase I | Ramsar      | 7.2km East                     | A series of lowland open water and peatland sites supporting a number of rare species associated with wetlands including five nationally scarce plants and an assemblage of rare wetland invertebrates.  |
| Rostherne Mere                   | Ramsar      | 7.4km East                     | One of the deepest and largest meres of the Shropshire-Cheshire Plain which supports overwintering cormorant <i>Phalacrocorax carbo carbo</i> , bittern <i>Botaurus stellaris</i> , and water rail <i>Rallus aquaticus</i> , occurring at nationally important levels. |
| Rixton Clay Pits                 | SAC         | 5.5km Northeast                | Disused brickworks with many ponds which support great crested newt <i>Triturus cristatus</i> .  |
| Manchester Mosses                | SAC         | 6.3km North                    | Degraded raised bog habitat which is still capable of natural regeneration.  |

### *Non-Statutory (Local) Sites*

- 3.4. The site is not covered by any no-statutory designations, but there are several such sites within the study area, see **Table 3.2**.

**Table 3.2:** Non-statutory designated sites within the study area.



| Site Name                   | Designation | Distance / Direction from Site | Reason for Designation   |
|-----------------------------|-------------|--------------------------------|--|
| The Bongs and the Gorse     | LWS         | 1.3km NE                       | Designated for its area of broad-leaved semi-natural woodland. |
| The Dingle and Ford's Rough | LWS         | 1.7km NW                       | Designated for its area of broad-leaved semi-natural woodland. |
| Grappenhall Heys            | LWS         | 1.7km NNW                      | Designated for its area of broad-leaved semi-natural woodland. |
| Stretton Moss               | LWS         | 2km SW                         | Designated for its moss land which is being colonised by scrub |

3.5. LWSs are selected in accordance with criteria set out in 'Local Wildlife Site Selection criteria for the Cheshire Region' (Giles (ed.) 2012). They are therefore of **county importance**.

## Habitats and Flora

3.6. The site supports the following habitats:

- Arable land;
- Buildings and hardstanding;
- Hedgerows;
- Improved grassland;
- Ponds;
- Scattered Trees and Scrub;
- Tall Ruderal;
- Watercourses; and
- Woodland (semi-natural broad-leaved).

3.7. For ease of reference, habitat types have been described alphabetically, below. All the features described are shown on the Habitat Features **Plan 10682/P01a**.

### *Arable Land*

3.8. The northern most fields (fields F1 to F3) are currently used for arable crop production (see **Photograph 1**). At the time of survey, the fields were drilled with a winter crop thought to be a winter silage crop.

3.9. Arable fields are monocultures and are of generally little ecological value and are of **negligible ecological importance**, although they can provide foraging habitat for wintering birds. This is evaluated separately under the protected species heading below.





**Photograph 1:** view of arable fields looking east.

### *Buildings and Hardstanding*

- 3.10. A farm complex is present at the centre of the site, which comprises various dwellings and agricultural buildings, with associated hardstanding and small private gardens.
- 3.11. The building and hardstanding have no inherent value and are of **negligible ecological importance**. However, they may have importance in relation to bats and barn owl, and are considered separately in relation to these species below.

### *Grassland (improved pasture)*

- 3.12. Most of the site consists of fields of improved pasture (see **Photograph 2**). A range of common grasses are present including, perennial-rye grass *Lolium perenne*, Yorkshire fog *Holcus lanatus*, red fescue *Festuca rubra*, cock's foot *Dactylis glomerata* and red fescue *Festuca rubra*. Common agricultural weeds were present, particularly around the sites margins, species present common nettle *Urtica dioica*, common cleavers *Gallium aparine*, curly-leaved dock *Rumex crispus*, cow parsley *Anthriscus sylvestris*, stitchwort *Stellaria* sp and creeping thistle *Cirsium arvense*.
- 3.13. The fields are used both for cattle and sheep grazing. The species composition of the swards is similar in fields grazed by cattle and sheep, however the sward within cattle grazed fields was longer with an increased dominance of perennial-rye grass. The sward in sheep grazed fields is shorter with a reduced dominance of perennial-rye grass and an increase in species such as red fescue.
- 3.14. The improved pasture is generally species poor and is a common and widespread resource of little intrinsic ecological value. For this reason, it is considered to be of **negligible ecological importance** only.



**Photograph 2:** Improved pasture present within the site.

### *Hedgerows and Scattered Trees*

- 3.13. The site and field units are predominantly bound by hedges, some with mature and semi-mature trees. The hedgerows are predominantly species poor hawthorn *Crataegus monogyna* hedgerows which are flail cut. Ground flora at the time of survey was limited to common agricultural weeds present within the fields margins; however, this is expected due to the time of year that the survey was conducted, and the ground flora could be notably more diverse during late spring and summer.
- 3.14. Hedgerows present in the north east of the site, as well as along Bradley Brook are considerably more species diverse and may be classed as being important if assessed against the Hedgerows Regulations 1997.
- 3.15. The hedgerows provide a network of habitat around the site and to and from the wider area. The majority of hedgerows are considered to be of **local ecological importance**.

### *Ponds*

- 3.16. A total of 12 ponds are present within the site, these are predominantly field ponds with associated scrub, but 2 woodland ponds are also present within the site. Further information about the ponds, including descriptions, is given in **Appendix 2**.
- 3.17. Ponds present within the site are considered to be of **local ecological importance** as they provide habitat diversity and potentially habitat for amphibians, including great Crested Newt (GCN) *Triturus cristatus*. If during future surveys the ponds are found to contain important species (such as GCN) or important species assemblages, this value may need to be reassessed and increased.

### *Scattered Trees and Scrub*

- 3.18. Two tree lines are present within the north west of the site these consisted of semi-mature to mature specimens of pedunculate oak, hawthorn, ash and horse chestnut *Aesculus hippocastanum*.

- 3.19. Several mature trees are present within the site; these are mostly associated with hedgerows or the Bradley Brook Corridor. Species present were predominantly pedunculate oak *Quercus robur* but other species including ash *Fraxinus excelsior* and alder *Alnus glutinosa* were also present.
- 3.20. Some small areas of scrub are present within the site, these are associated with ponds and other unmanaged areas of the site, such as meanders in Bradley Brook. Species present included hawthorn, alder and willow *Salix* sp.
- 3.21. The dense scrub and scattered trees cannot be reproduced in the short-medium term and are considered to be of **site ecological importance**.

#### *Tall Ruderal*

- 3.22. Small unmanaged areas within fields are dominated by ruderal species such as common nettle *Urtica dioica*, greater willow herb *Epilobium hirsutum*, cow parsley *Anthriscus sylvestris*, red campion *Silene dioica* and other species such as male fern *Dryopteris filix-mas* and reed canary grass *Phalaris arundinacea*.
- 3.23. The areas of ruderal are small in area and consist of common and widespread species they are considered to be of **site ecological importance**.

#### *Watercourses*

- 3.24. Bradley Brook flows in a west – east direction along the southern boundary of the site, before entering in the south-eastern corner of the site. Bradley Brook is a small stream as it runs adjacent to and through the site (see **Photograph 3**).
- 3.25. The channel of Bradley Brook is approximately 1m wide and 0.5 m deep, with a water depth of approximately 10 – 20 cm. The brook was fast flowing at the time of survey and has a silt a pebble substrate. This section of the Brook is heavily shaded either by adjacent hedgerows or by trees.
- 3.26. Bradley Brook, provides habitat connectivity along the south of the site as well as habitat for a range of faunal groups, potentially including: aquatic invertebrates, feeding opportunities for birds (potentially including kingfisher) and may also provide a food resource for bats. As such it is considered to be of **local ecological importance**.
- 3.27. Three ditches (D1 – D3 on **Plan 10682/P01a**) are present within the site, these are field drains which were heavily shaded by trees or hedgerows, these channels were approximately 1m wide and 0.8m deep and held little water at the time of survey, with only small puddles being present (see **Photograph 4**).
- 3.28. The ditches present within the site are heavily shaded and were almost dry at the time of survey and do not provide the same level of habitat diversity or extent as Bradley Brook They do however contribute (together with their associated features such as hedgerows and trees) towards providing a network of habitats around the site. They are therefore considered to be of **site ecological importance**.





**Photograph 3:** Bradley Brook as it flows through the site.



**Photograph 4:** Ditch (D3) present to the north west of the site.

#### *Woodland (semi-natural broad-leaved)*

- 3.29. Two areas of semi-natural broad-leaved woodland are present within the site, Bradley Gorse and Wright's Covert.
- 3.30. The woodland consisted predominantly of semi-mature specimens included pedunculate oak *Quercus robur*, sycamore *Acer pseudoplatanus*, silver birch *Betula pendula*, willow *Salix* sp, alder *Alnus glutinosa*.
- 3.31. The understory was underdeveloped but species such as holly *Ilex aquifolium*, hawthorn, and dog rose *Rosa canina* were present. Large areas of the understory of Bradley Gorse are dominated by Rhododendron *Rhododendron ponticum* (see **Photograph 5**). This species is listed as an invasive species within schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and it is illegal to cause its spread in the wild.



**Photo 5:** Bradley Gorse showing Rhododendron colonisation

- 3.32. Ground flora was limited at the time of survey and predominantly consisted of cleavers *Gallium aparine*, common nettle, bramble *Rubus fruticosus* and red campion.
- 3.33. The woodland is an important ecological resource which cannot be replaced in the short term; it provides structural diversity and habitat for a range of species including birds, invertebrates, amphibians including GCN and mammals including badger.
- 3.34. Taking into account the above, the woodlands on site are considered collectively to be of **local ecological importance**.

## Habitats on Adjacent Land

- 3.35. Habitats on adjacent land were not accessible, however based on what can be viewed from aerial photography and what could be seen from public rights of way a brief description is provided below:
- 3.36. The site is bound to the north B5356 (considered to be of negligible ecological importance) beyond which lies further arable fields. To the east the site is bound by the M6. To the south of the site are areas of arable fields (considered to be of negligible ecological importance) and hedgerows. The west of the site is bounded by an industrial estate.
- 3.37. There are also nine ponds on adjacent land which lie within 250m of the site.

## Fauna

- 3.38. For ease of reference, descriptions of the fauna have been described alphabetically, below.

### *Amphibians*

- 3.39. No amphibian records were provided by rECOrd within 1km of the site.
- 3.40. A total of 12 ponds are present within the site and a further nine ponds are present within 250m of the site.

- 3.41. Habitat Suitability Indices in relation to Great Crested Newt (GCN) were calculated for ponds within the site and are presented in **Appendix 2**. The ponds within the site range from 'poor' to 'excellent' for their suitability to support GCN.
- 3.42. Most of the site provides suboptimal terrestrial habitat for GCN and other amphibians, as it consists of pastoral and arable fields. However, the presence of ponds both within and around the site means that there is the potential for GCN and other amphibians to be present. Particularly within the hedgerows, tree lines, areas of scrub and woodland.

### *Badgers*

- 3.43. Thirty-two badger records were provided by rECOrd from within 1km of the site.
- 3.44. Potential foraging and sett building habitat is present within the site; particularly within areas of woodland and within hedgerows.
- 3.45. Evidence of badger was found within the site in the form of one badger latrine, which was present towards the south of the site (see **Target Note 1** on Habitat Features **Plan 10682/P01a**).

### *Bats*

- 3.46. No bat records were provided by rECOrd from within 2km of the site.
- 3.47. Common and widespread species of bats, such as pipistrelle and myotis species are likely to use the field margins, hedgerows, Bradley Brook and woodland for commuting and foraging.
- 3.48. The buildings and mature trees present within the site could provide roosting opportunities for bats.

### *Birds*

- 3.49. Notable bird records received from rECOrd are presented in **Table 3.3**.

| Species Common Name | Species Scientific Name    | Number of records from last 20 years | Conservation Status    |
|---------------------|----------------------------|--------------------------------------|------------------------|
| Gadwall             | <i>Anas strepera</i>       | 1                                    | LBAP, BoCC Amber, WCA9 |
| Short-eared Owl     | <i>Asio flammeus</i>       | 1                                    | BoCC Amber             |
| Snipe               | <i>Gallinago gallinago</i> | 2                                    | BoCC Amber             |
| Kestrel             | <i>Falco tinnunculus</i>   | 5                                    | BoCC Amber             |
| Mallard             | <i>Anas platyrhynchos</i>  | 1                                    | BoCC Amber             |
| Swift               | <i>Apus apus</i>           | 1                                    | BoCC Amber             |
| Common Gull         | <i>Larus canus</i>         | 1                                    | BoCC Amber             |





| Species Common Name   | Species Scientific Name           | Number of records from last 20 years | Conservation Status               |
|---|-----------------------------------|--------------------------------------|-----------------------------------|
| Black-headed Gull   | <i>Chroicocephalus ridibundus</i> | 1                                    | BoCC Amber                        |
| Mistle Thrush   | <i>Turdus viscivorus</i>          | 1                                    | BoCC Red                          |
| Willow Warbler  | <i>Phylloscopus trochilus</i>     | 2                                    | BoCC Amber                        |
| Pochard   | <i>Aythya ferina</i>              | 2                                    | BoCC Red                          |
| Tufted Duck   | <i>Aythya fuligula</i>            | 1                                    | BoCC Amber                        |
| Shoveler  | <i>Anas clypeata</i>              | 1                                    | BoCC Amber                        |
| Pink-footed Goose   | <i>Anser brachyrhynchus</i>       | 1                                    | BoCC Amber                        |
| Reed Bunting  | <i>Emberiza schoeniclus</i>       | 1                                    | BoCC Amber                        |
| Song Thrush   | <i>Turdus philomelos</i>          | 1                                    | LBAP, BoCC Amber, S41, UKBAP      |
| Starling  | <i>Sturnus vulgaris</i>           | 1                                    | LBAP, BoCC Red                    |
| Skylark   | <i>Alauda arvensis</i>            | 4                                    | LBAP, BoCC Red, S41               |
| Grey Partridge  | <i>Perdix perdix</i>              | 1                                    | LBAP, BoCC Red, S41               |
| Yellowhammer  | <i>Emberiza citrinella</i>        | 1                                    | LBAP, BoCC Red, S41, UKBAP        |
| House Sparrow   | <i>Passer domesticus</i>          | 1                                    | LBAP, BoCC Red, S41, UKBAP        |
| Lapwing   | <i>Vanellus vanellus</i>          | 3                                    | LBAP, BoCC Red, S41, UKBAP        |
| Barn Owl  | <i>Tyto alba</i>                  | 1                                    | LBAP, S41, UKBAP, WCA 1           |
| Scaup   | <i>Aythya marila</i>              | 2                                    | LBAP, BoCC Red, S41, UKBAP, WCA 1 |
| <b>Abbreviations:</b>   |                                   |                                      |                                   |
| BoCC – RSPB/BTO Birds of Conservation Concern (red, amber)  |                                   |                                      |                                   |
| LBAP – Local Biodiversity Action Plan   |                                   |                                      |                                   |
| WCA 1 – Wildlife and Countryside Act (1981) Schedule 1: Species protected against disturbance at or |                                   |                                      |                                   |



| Species Common Name  | Species Scientific Name | Number of records from last 20 years | Conservation Status |
|--|-------------------------|--------------------------------------|---------------------|
| <p>near an 'active' nest.<br/> WCA 9 - Wildlife and Countryside Act (1981) Schedule 9: animals and plants for which release into the wild is prohibited.<br/> S41 - Section 41 (S41) of the 2006 Natural Environment and Rural Communities (NERC) Act.</p> |                         |                                      |                     |

- 3.50. The hedgerows, mature trees and woodland within the site, are likely to provide nesting habitat for a range of passerine and other woodland bird species. The grassland may provide habitat for ground nesting species such as lapwings, and foraging barn owl, although its species poor short grazed nature means that it is sub-optimal.
- 3.51. Skylark, starling, and redwing *Turdus iliacus* (All BoCC Red listed species and in the case of starling and skylark NERC priority species) were observed during the survey.
- 3.52. The farm buildings and mature trees may also provide suitable roosting and nesting habitat for barn owl *Tyto alba*.
- 3.53. Based on the habitats present, the site potentially provides nesting and / or foraging habitat for several species for which records were provided including; swallow, swift, kestrel, snipe, barn owl, mallard, yellowhammer, house sparrow, song thrush, starling, skylark and mistle thrush), as well as over wintering habitat for species such as pink-footed goose and lapwing. Ponds may also support small numbers of wildfowl.

### *Invertebrates*

- 3.54. One record of emperor dragonfly *Anax imperator* was received from rECOrd. This species could potential breed within water bodies within the site.
- 3.55. The majority of habitats present within the site are considered likely to support an assemblage of common and widespread invertebrate species, with no areas of species rich grassland, deadwood or standing water being present within the majority of the site.
- 3.56. The species rich hedgerows and woodland are likely to provide the greatest species diversity for invertebrates.
- 3.57. The ditches ponds, and Bradley Brook also provide habitat for a range of aquatic invertebrate species.

### *Reptiles*

- 3.58. No reptile records were provided by rECOrd from within the search area.
- 3.59. The areas of grassland and hedgerow habitat within the site could provide some suitable habitat for common reptile species such as slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara* and grass snake *Natrix natrix*, particularly around areas of woodland edge. However, these areas are generally considered to be suboptimal due to a lack of high quality habitat, for example



areas of heath, scrub and tussocky grassland. It is therefore unlikely that reptiles occur within the site.

### *Water Vole*

- 3.60. No water vole *Arvicola amphibius* records were provided by rECOrd.
- 3.61. Bradley Brook is considered to provide suboptimal due to heavy shading, which has led to a lack of suitable vegetation used for both foraging and cover by the species.
- 3.62. It is considered that given the very small areas of potential habitat available and the lack of water depth within the brook, it is unlikely that water vole would be present within the site.

### *Other Species*

- 3.63. Although no records of otter were provided by rECOrd, Bradley Brook could potentially be used by otter for commuting purposes. As a small stream it is unlikely to provide a significant food resource, but this would not necessarily rule out the possibility of a holt or other resting place being present.
- 3.64. Two records of brown hare *Lepus europaeus* were provided by rECOrd from within the search area. Suitable habitat for brown hare is present within the grassland and arable fields within the site, particularly close to the areas of woodland edge.
- 3.65. Although no records of hedgehog *Erinaceus europaeus* were provided by rECOrd the hedgerows, scrub, woodland areas and fields are would potentially be used by hedgehog for nesting, foraging and hibernation.



# Section 4: Considerations in Respect of Future Development

## Proposed Development

- 4.1. Proposals for the site include its development as a distribution hub. A parameters plan has been produced which is presented in **Appendix 3**.
- 4.2. The potential consequences with respect to development of the site are set out below, with reference to relevant legislation and planning policy, which is summarised in **Appendix 1**.
- 4.3. The development will lead to the loss of the majority of internal hedgerows within the site as well as approximately 80 Ha of improved pasture and arable fields.

## Protected Sites

- 4.4. Owing to the distances between the site, a lack of any direct habitat connections, and a lack of public accessibility to the closest LWSs, it is not thought that the development would have any direct major impact to any statutory or non-statutory protected sites. The non-residential nature of the development also means that it would not lead to an increase in recreation pressure on local sites. It is therefore thought that the development would be in accordance with Warrington's Local Plan Core Strategy Policy QE 5 and Cheshire East Local Plan Policy SE 3.

## Habitats and Flora

- 4.5. The hedgerows, trees, ponds, brook and woodland within the site are considered to be an ecological resource of local importance. These habitats are likely to provide habitat for amphibians, small mammals, birds and potentially foraging habitat for bats.
- 4.6. Therefore, these habitats should be retained as far as reasonably practical within any future development, ideally as part of a green infrastructure which should form continuous corridors for wildlife movement. These areas should additionally include areas of other habitat such as ditches which are currently present within the site, together with newly created ones, which should seek to augment habitats retained within the development.
- 4.7. The provision of compensatory habitats within the site would ensure the development remains in accordance with the NPPF as well as Warrington's policy Policy QE 5 and Cheshire East's policy SE 3.
- 4.8. Ponds within the site as well as any new ponds could be included and be multi-functional, delivering biodiversity, amenity, aesthetic and drainage benefits. It is understood that some losses of these habitats are unavoidable, and suitable mitigation or compensation should be incorporated into the design. This could be achieved in the undeveloped area towards the south of the site, as well as between buildings within the site to create habitat linkages to areas of land outside of the site.
- 4.9. Although the Bradley Brook is a small watercourse with little aquatic vegetation as it crosses the site, it is still considered to be a resource of local value for wildlife and provides a corridor linking to the habitats on adjacent land. It could provide suitable habitat for otter, birds (potentially including kingfisher) and foraging bats. It is recommended that the brook and its surrounding corridor habitat are protected and retained within any future development. A minimum 8m - but preferably 15m



buffer should be created along the brook corridor to preserve riparian habitat and maintain habitat connectivity along the brook. Depending on the proximity of construction works to the brook and the short sections of ditch present within the site, measures may be required to prevent pollution or contamination of these watercourses (and surrounding lands) from both waterborne and airborne sources. These will need to take place in accordance with pollution prevention best practice.

## **Fauna**

### *Badgers*

- 4.10. One badger latrine was recorded to towards the south of the site during the Phase I survey. Although no other evidence of badger (such as setts) was recorded during the survey, a more detailed badger survey would be required to ascertain exactly how badgers are using the site. It is thought that if badger setts are present within the site, they are likely to be within the blocks of woodland which are already to be retained. Nevertheless, if setts are present within 30m of areas affected by development if mitigation for badgers might be necessary in respect of future development.

### *Bats*

- 4.11. The buildings and mature trees within the site boundary may have potential for roosting bats. Therefore, buildings and trees identified for removal should be subject to preliminary roost assessment (PRA) surveys, and follow-up survey work if required.
- 4.12. The hedges, tree lines, woodland edge and brook running across the site are likely to provide suitable foraging and commuting habitat for bats. Given the number of potential roosts and the presence of features likely to be used for foraging and commuting by bats, a bat activity within and adjacent to the site is recommended. Where development affects mature trees (or lies within close proximity) surveys to ascertain the presence of bat roosts would also be required.
- 4.13. If bat roosts are present and would be affected, then mitigation would be required and could include providing replacement roosting opportunities for bats in the form of bat boxes. This may require a European Protected Species (EPS) licence to be obtained prior operations that may affect bat roosts
- 4.14. Recommendations for the retention and protection of key features such as trees, habitat along the brook and hedge boundaries, would help to ensure that foraging and commuting habitats for bats are maintained. Where possible, linkages between existing features could also be enhanced through additional tree planting. The creation of other habitat features such as ponds, ditches or swales within the landscape design of the development layout would also help to provide additional foraging habitat for bats.

### *Birds*

- 4.15. The woodland, hedgerows and trees within the site will provide suitable nesting and feeding habitat for a number of bird species, including several UK Priority species recorded within the site such as skylark and starling. In addition, the grassland could provide suitable habitat for ground nesting species such as lapwing and skylark (both are SoPI and Cheshire LBAP species), although it is suboptimal for this due to its grazed nature. Bradley Brook could also provide habitat for bird species potentially including kingfisher, although no sand banks suitable for kingfisher burrows were recorded during the survey. Given the suitability of habitats for these species a breeding bird survey is recommended in order to ascertain whether the site is important for these bird species,



prior to submitting a planning application.

- 4.16. The buildings and mature trees that are scheduled for removal should also be subject to an inspection to identify any potential for nesting barn owl.
- 4.17. It is thought that adequate mitigation for breeding birds could be incorporated within the green infrastructure of the site.
- 4.18. Based on the records of bird species such as pink footed goose and lapwing, which were received from rECOrd, and habitats present within the site, consultation with the Cheshire West and Chester (CWAC) Council ecologist is recommended regarding the need for wintering bird surveys to inform a planning application. (CWAC are delegated by Warrington Council to assess ecological aspects of planning applications).

#### *Great Crested Newt (GCN)*

- 4.19. It will be necessary to complete a full GCN presence/absence survey prior to any future planning application to ascertain if GCN are present within the site. If GCN are found during these surveys, a full mitigation plan may be required and a European Protected Species (EPS) licence may also be needed.
- 4.20. Prior to completing a GCN survey it is not possible to predict the level of mitigation required. However, given the quality of the ponds and the majority of the surrounding habitat (arable and improved pasture) it is not thought at this time that a large population is likely within the site, and it is probable that mitigation could be accommodated with the undeveloped area towards the south of the site.

#### *Other Species*

- 4.21. Otter could potentially use the Bradley Brook as it passes though the site and further survey for otter may be required if the brook is to be affected by proposed developments.
- 4.22. Brown hare could also potentially use the site and areas of open grassland should be provided within the mitigation area to accommodate this species.
- 4.23. Hedgerows and scrub within the site are also likely to provide habitat for other mammals such hedgehog (a UK Priority species), together, with a range of commoner small mammals and terrestrial invertebrate species. Retaining the range of habitat types currently present within future development plans, together with ecological enhancement measures (such as tree and hedgerow planting) would ensure that habitats are maintained for these species, thereby ensuring conformity with National and Local planning policies relating to the conservation of biodiversity.

## **Ecological Design Principles and Enhancement Opportunities**

- 4.24. There is the opportunity to enhance the biodiversity of the site by adopting design principles informed by local conservation strategies, notably the Local Biodiversity Action Plan (BAP). Delivery of such biodiversity gain would be in accordance with the NPPF and WMBC and CEC Local Planning Policies described in **Appendix 1**. Such opportunities include:
  - Creation of green infrastructure within the development design, which can be multi-functional, delivering biodiversity, amenity, aesthetic and drainage benefits. This should form continuous



corridors for wildlife movement and can include retained and newly created habitats, such as those listed below, which should be managed and monitored;

- Habitat creation that could include ponds (of benefit to amphibians, birds and invertebrates), hedgerows with rough grassland margins and trees; and
- Use of native flora species where possible in the landscape designs to provide new opportunities for fauna.

4.25. In addition, a management plan for the site could be produced detailing the habitat protection, creation and enhancement plans and, if required, the provision for the monitoring of any protected species on the site.

## **Further Work to inform a Future Planning Application**

4.26. In order to provide sufficient information to inform a planning application it is recommended that the following detailed surveys for protected species are undertaken:

- Badger survey of site and within 30m of its boundary;
- Bat activity surveys across the site;
- Bat PRA surveys of buildings and mature trees identified for removal;
- Breeding bird surveys (including a barn owl assessment of buildings and trees identified for removal);
- Consultation on the need for wintering bird surveys;
- GCN survey of ponds within the site and within 250m of the site; and
- Otter survey along Bradley Brook (if it is to be affected by the development).

4.27. It is advised that the scope of any future surveys is agreed with the Cheshire West and Chester's Council Ecologist (who are delegated by Warrington Council to assess ecological aspects of planning applications) prior to submission of a planning application. The ecology survey planner in **Appendix 2** shows the optimal time for these surveys to occur.



## Section 5: Conclusions

- 5.1. For the reasons stated in Section 4 development proposals are not likely to result in any adverse impacts to statutory and non-statutory nature conservation designations.
- 5.2. The Phase I survey and results of the desk study have found that the woodland, ponds, trees, scrub and brook habitats within the site are of local ecological importance. Therefore, the retention of these key habitat features has been recommended where ever possible. Where losses do occur, they should be mitigated or compensated for within the green infrastructure within the site. Ecological design principles which can be used to inform designs have also been provided. These designs can be refined as necessary once further survey data is available.
- 5.3. It is possible that the site could support a range of amphibians (including GCN), breeding birds including barn owl, badger, bats and hedgehog, brown hare, together with commoner small mammals and a range of invertebrate species.
- 5.4. Further surveys for species / faunal groups has been recommended to inform any future planning application and depending on the findings of these, it may be necessary to devise suitable mitigation and enhancement strategies, to enable the site to be developed in conformity with relevant legislation and planning policy.
- 5.5. Taking into account what is present, or could be present, mitigation requirements (in particular in relation to GCN) may have the potential to reduce the quantity of development the site can support. However, this would not to an extent that would preclude the overall principle of development of the site.





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# Appendix 1: Legislation and Planning Policy



Land off Junction 20 of M6/M56 Interchange, Grappenhall, Cheshire  
Preliminary Ecological Appraisal

10682\_R01a\_17 November 2017\_LRD\_LP

# Appendix 1: Legislation and Planning Policy

A1.1. This section summarises the legislation and national, regional and local planning policies, as well as other reference documents, relevant to the baseline ecology results.

## Legislation

A1.2. Specific habitats and species receive legal protection in the UK under various pieces of legislation, including:

- The Wildlife and Countryside Act 1981 (as amended)
- The Conservation of Habitats and Species Regulations 2010
- The Countryside and Rights of Way Act 2000
- The Natural Environment and Rural Communities Act 2006
- The Hedgerows Regulations 1997
- The Protection of Badgers Act 1992.

A1.3. The European Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, 1992, often referred to as the 'Habitats Directive', provides for the protection of key habitats and species considered of European importance. Annexes II and IV of the Directive list all species considered of community interest. The legal framework to protect the species covered by the Habitats Directive has been enacted under UK law through The Conservation of Habitats and Species Regulations 2010 (as amended).

A1.4. In Britain, the WCA 1981 (as amended) is the primary legislation protecting habitats and species. SSSIs, representing the best examples of our natural heritage, are notified under the WCA 1981 (as amended) by reason of their flora, fauna, geology or other features. All breeding birds, their nests, eggs and young are protected under the Act, which makes it illegal to knowingly destroy or disturb the nest site during nesting season. Schedules 1, 5 and 8 afford protection to individual birds, other animals and plants.

A1.5. The CRoW Act 2000 strengthens the species enforcement provisions of the WCA 1981 (as amended) and makes it an offence to 'recklessly' disturb a protected animal whilst it is using a place of rest or shelter or breeding/nest site.

## Planning Policy

### *National Planning Policy Framework*

A1.6. The relevant adopted policy at the national level is set out in The National Planning Policy Framework (NPPF; 2012), which replaces Planning Policy Statement 9 (PPS9) Biodiversity and Geological Conservation (2005). The NPPF aims to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth. It sets out the key principles of ensuring that development is sustainable and that the potential impacts of planning decisions on biodiversity and geological conservation are fully considered (although the presumption in favour of sustainable development does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined).



A1.7. Outline principles state that planning should:

- Contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in this Framework; and
- Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions (such as for wildlife, recreation, flood risk mitigation, carbon storage, or food production).

A1.8. Chapter 11, Conserving and Enhancing the Natural Environment, sets out a number of planning protocols, as follows:

- The NPPF provides guidance as to the protection of statutorily designated sites, including international sites, National Nature Reserves (NNR) and Sites of Special Scientific Interest (SSSIs), as well as non-statutory regional and local sites. The NPPF also addresses development and wildlife issues outside these sites and seeks to ensure that planning policies minimise any adverse effects on wildlife;
- The NPPF places emphasis on local authorities to further the conservation of those habitats of principal importance, or those habitats supporting species of principal importance, which are identified in Section 41 of the NERC Act 2006;
- The NPPF requires that adverse effects of development on species of principal importance should be avoided through planning conditions or obligations and that planning permission should be refused where harm to these species, or their habitats, may result, unless the need for and benefits of the development clearly outweigh the harm;
- The NPPF requires that opportunities for improving biodiversity within developments should be maximised. It states that development proposals where the primary objective is to conserve or enhance biodiversity should be permitted and that opportunities to incorporate biodiversity in and around developments should be encouraged; and
- The NPPF states that by encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

A1.9. The Government Circular 06/2005<sup>3</sup> accompanies the National Planning Policy Framework and sets out the application of the law in relation to planning and nature conservation in England.

### *Local Planning Policy*

#### **Warrington Borough Council Local Plan Core Strategy (adopted July 2014)**

A1.10. The Warrington Borough Local Plan Core Strategy was consulted to identify relevant policies relating to ecology and nature conservation which may need to be considered in connection with a future planning application to be submitted for the site. They are summarised as follows:

#### **Policy QE3 - Green Infrastructure**

A1.11. The Council will work with partners to develop and adopt an integrated approach to the provision, care and management of the borough's Green Infrastructure. Joint working and the assessment of applications will be focused on:

- protecting existing provision and the functions this performs;

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<sup>3</sup> Office of the Deputy Prime Minister (2005). *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. [Online].



- increasing the functionality of existing and planned provision especially where this helps to mitigate the causes of and addresses the impacts of climate change;
- improving the quality of existing provision, including local networks and corridors, specifically to increase its attractiveness as a sport, leisure and recreation opportunity and its value as a habitat for biodiversity;
- protecting and improving access to and connectivity between existing and planned provision to develop a continuous right of way and greenway network and integrated ecological system;
- securing new provision in order to cater for anticipated increases in demand arising from development particularly in areas where there are existing deficiencies assessed against standards set by the Council.

### **Policy QE 5 - Biodiversity and Geodiversity**

A1.12. The Council will work with partners to protect and where possible enhance sites of recognised nature and geological value. These efforts will be guided by the principles set out in National Planning Policy and those which underpin the strategic approach to the care and management of the borough's Green Infrastructure in its widest sense.

A1.13. Sites and areas recognised for their nature and geological value are shown on the Policies Map and include:

- European Sites of International Importance
- Sites of Special Scientific Interest
- Regionally Important Geological Sites
- Local Nature Reserves
- Local Wildlife Sites
- Wildlife Corridors

A1.14. The specific sites covered by the above designations at the time of publication are detailed in Appendix 3.

A1.15. Proposals for development which may affect European Sites of International Importance will be subject to the most rigorous examination in accordance with the Habitats Directive. Development or land use change not directly connected with or necessary to the management of the site and which is likely to have significant effects on the site (either individually or in combination with other plans or projects) and which would affect the integrity of the site, will not be permitted unless the Council is satisfied that;

- there is no alternative solution;
- and there are imperative reasons of over-riding public interest for the development or land use change.

A1.16. Proposals for development in or likely to affect Sites of Special Scientific Interest (SSSI) will be subject to special scrutiny. Where such development may have an adverse effect, directly or indirectly, on the SSSI it will not be permitted unless the reasons for the development clearly outweigh the nature conservation value of the site itself and the national policy to safeguard the national network of such sites.

A1.17. Proposals for development likely to have an adverse effect on regionally and locally designated sites will not be permitted unless it can be clearly demonstrated that there are reasons for the development which outweigh the need to safeguard the substantive nature conservation value of the site or feature.

A1.18. Proposals for development which may adversely affect the integrity or continuity of UK Key habitats or other habitats of local importance, or adversely affect EU Protected Species, UK Priority Species



or other species of local importance, or which are the subject of Local Biodiversity Action Plans will only be permitted if it can be shown that the reasons for the development clearly outweigh the need to retain the habitats or species affected and that mitigating measures can be provided which would reinstate the habitats or provide equally viable alternative refuge sites for the species affected.

A1.19. All development proposals affecting protected sites, wildlife corridors, key habitats or priority species (as identified in Local Biodiversity Action Plans) should be accompanied by information proportionate to their nature conservation value including;

- a site survey where necessary to identify features of nature and geological conservation importance; an assessment of the likely impacts of the proposed development proposals for the protection and management of features identified for retention;
- an assessment of whether the reasons for the development clearly outweigh the nature conservation value of the site, area or species; and
- proposals for compensating for features damaged or destroyed during the development process.

A1.20. Where development is permitted, the Council will consider the use of conditions or planning obligations to ensure the protection and enhancement of the site's nature conservation interest and/or to provide appropriate compensatory measures.

### **Supplementary Planning Documents**

A1.21. Relevant supplementary planning document considerations are set out below:

#### **Environmental Protection SPD (May 2013)**

A1.22. This SPD supports Policy QE6 Environment and Amenity Protection and details the councils approach to dealing with environmental protection including light pollution. Development schemes which include street lighting proposals should adhere to the design principles set out in the SPD. Principles relating to landscape and visual include:

- "Limiting the light levels to a designed uniformity;
- limiting the use of lighting schemes to identified uses or users;
- the retention of screening vegetation; and
- the use of planting and bunding to contain lighting effects."

A1.23. The SPD states that "these conditions will be applied as necessary by the LPA to help reduce obtrusive light from new proposals, particularly glare and spillage, from areas of wildlife importance, open countryside and residential amenity."

#### **Design and Construction (October 2010)**

A1.24. This document provides advice and guidance to developers about aspects of the design and construction process. The document states that "A well designed landscape scheme should enhance the appearance and setting of any new development and its location. A successful scheme will have considered and correctly interpreted the landscape character of the location so as to produce the most appropriate design solution for the development."

#### **Open Space and Recreation Provision (September 2007)**

A1.25. This policy details a number of key objectives for open space within the borough including:

- "To ensure an adequate provision of open space in quantitative, qualitative and accessibility terms subsequently helping to ensure the creation of sustainable communities;
- to create opportunities for and enhance biodiversity;



- to create opportunities for travel by more sustainable modes such as by walking or cycling;
- to assist in maintaining and improving public health by providing opportunities for recreation and sport;
- to provide educational opportunities in the form of 'outside classrooms' through providing opportunities for contact with nature;
- to provide focal points for social interaction and community events;
- to contribute to local distinctiveness through helping to create a sense of place and belonging;
- to help secure safe and well-designed open spaces where the design has intended to deter crime; and
- to assist in tackling climate change through the plantation of trees and creation of green 'breathing' spaces."

### **Planning Obligations (September 2007)**

A1.26. This SPD details the councils approach to the use of planning obligations to facilitate decision making, relevant key objectives include:

- "Ensure appropriate environmental and biodiversity protection and enhancement and mitigation measures where appropriate;
- Ensure no detrimental impacts on amenity (visual, residential, noise, flood risk, landscape);
- Ensure conservation of heritage assets and mitigation where appropriate."

### **Cheshire East Local Plan (adopted July 2017)**

A1.27. The following policies of the local plan are also considered to be of relevance:

- Policy SE 3 Biodiversity and Geodiversity - Areas of high biodiversity and geodiversity value will be protected and enhanced. Enhancement measures will include increasing the total area of valuable habitat in the Borough, and linking up existing areas of high value habitat to create 'ecological stepping stone sites', 'wildlife corridors' and 'Nature Improvements Areas'. Ecological networks and connectivity are vitally important in sustaining sites and addressing the impacts of climate. Development proposals which are likely to have a significant adverse impact on nationally designated nature conservation designations will not be permitted and there will be a presumption against development affecting local sites including: local nature reserves, Sites of Biological Importance (SBIs) priority habitats and species included in the UK and Cheshire Biodiversity Action Plan (BAP), areas of ancient and semi-natural woodland and Nature Improvement Areas. In addition, all development (including conversions and that on brownfield and greenfield sites) must aim to positively contribute to the conservation and enhancement of biodiversity;
- Policy SE 5 Trees, Hedgerows and Woodland - Development proposals which are likely to result in the loss of, or threat to, the continued health and life expectancy of trees, hedgerows or woodlands (including veteran trees or ancient semi-natural woodland), that provide a significant contribution to the amenity, biodiversity, landscape character or historic character of the surrounding area, will not normally be permitted, except in exceptional circumstances; and
- Policy SE 6 Green Infrastructure - Cheshire East Council aims to deliver a good quality, and accessible network of green spaces for people to enjoy. Where appropriate planning controls can be applied to ensure that the value of existing green infrastructure assets is not compromised, and developer contributions will be secured wherever appropriate in order to improve the quality, use and multi-functionality. In addition, opportunities to include new green open spaces within development plans will also be encouraged.

## **Biodiversity Action Plans**



- A1.27. The UK Post-2010 Biodiversity Framework succeeded the UK BAP partnership in 2011 and covers the period 2011 to 2020. However, the lists of Priority Species and Habitats agreed under the UKBAP still form the basis of much biodiversity work in the UK. The current strategy for England is 'Biodiversity 2020: A Strategy for England's wildlife and ecosystem services' published under the UK Post-2010 UK Biodiversity Framework. Although the UK BAP has been succeeded, Species Action Plans (SAPs) developed for the UK BAP remain valuable resources for background information on priority species under the UK Post-2010 Biodiversity Framework.
- A1.28. Priority Species and Habitats identified under the UKBAP are also referred to as Species and Habitats of Principal Importance for the conservation of biodiversity in England and Wales within Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006. The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England and Wales in Section 40 of the NERC Act 2006.

### *Local Biodiversity Action Plan (LBAP) - Cheshire Wildlife Trust*

- A1.29. Habitats detailed within the LBAP which occur on site:

- Hedgerows
- Woodland
- Arable Field Margins
- Gardens & Allotments
- Wood-Pasture and Parkland
- Ponds
- Roadside Verges

- A1.30. Species detailed on the LBAP which occur, or have the potential to occur on site:

#### *Birds*

- Barn Owl, *Tyto alba*
- Spotted flycatcher, *Muscicapa striata*
- Farmland birds

#### *Reptiles*

- Great crested newt, *Triturus cristatus*
- Slow worm, *Anguis fragilis*

#### *Mammals*

- Brown hare, *Lepus europaeus*
- Harvest mouse, *Micromys minutus*
- Common Pipistrelle *Pipistrellus pipistrellus*
- Whiskered *Myotis mystacinus*
- Brandt's bat *Myotis brandti*
- Daubenton's bat *Myotis daubentoni*
- Leisler's bat *Nyctalus leisleri*





- Natterers *Myotis nattereri*
- Serotine *Eptesicus serotinus*

#### *Invertebrates*

- Dingy Skipper, *Erynnis tages*
- Downy Emerald *Cordulia aenea*
- Mud snail, *Omphiscola glabra*
- Small Pearl-bordered Fritillary, *Boloria selene*
- White letter hairstreak, *Satyrion w-album*

#### *Plants*


- Ivy-leaved Water-crowfoot, *Ranunculus hederaceus*




# Appendix 2: Great Crested Newt Habitat Suitability Indices





## Appendix 2: Great Crested Newt Habitat Suitability Indices

| Pond 1                                      |   |             |
|---|---|-------------|
| <b>Indices</b>                              |   |             |
| <b>Grid Reference</b>                       | SJ 65165 84547  |             |
| <b>Description</b>                          | Two depressions connected by a shallow ditch heavily shaded by trees and scrub, No macrophytes evident at the time of survey. |             |
| <b>Distance to Site</b>                     | On-site   |             |
| <b>Photograph</b>                           |    |             |
| <b>SI<sub>1</sub> - Location</b>            | Zone A, optimal   | 1           |
| <b>SI<sub>2</sub> - Pond area</b>           | 450m <sup>2</sup>   | 0.9         |
| <b>SI<sub>3</sub> - Pond drying</b>         | Sometimes   | 0.5         |
| <b>SI<sub>4</sub> - Water quality</b>       | Moderate  | 0.67        |
| <b>SI<sub>5</sub> - Shade</b>               | 85%   | 0.5         |
| <b>SI<sub>6</sub> - Fowl</b>                | Minor   | 0.67        |
| <b>SI<sub>7</sub> - Fish</b>                | Absent  | 1           |
| <b>SI<sub>8</sub> - Ponds</b>               | 33  | 1           |
| <b>SI<sub>9</sub> - Terrestrial habitat</b> | Moderate  | 0.67        |
| <b>SI<sub>10</sub> - Macrophytes</b>        | 0   | 0.3         |
| <b>HSI Scores</b>                           | <b>Average</b>  | <b>0.68</b> |


| Pond 2                                      |  |            |
|---|--|------------|
| <b>Indices</b>                              |  |            |
| <b>Grid Reference</b>                       | SJ 65467 84635   |            |
| <b>Description</b>                          | Field pond present along hedge lone. Partially shaded and with large amounts of leaf litter. |            |
| <b>Distance to Site</b>                     | On-site  |            |
| <b>Photograph</b>                           |           |            |
| <b>SI<sub>1</sub> - Location</b>            | Zone A, optimal  | 1          |
| <b>SI<sub>2</sub> - Pond area</b>           | 100m <sup>2</sup>  | 0.2        |
| <b>SI<sub>3</sub> - Pond drying</b>         | Sometimes  | 0.5        |
| <b>SI<sub>4</sub> - Water quality</b>       | Moderate   | 0.67       |
| <b>SI<sub>5</sub> - Shade</b>               | 25%  | 1          |
| <b>SI<sub>6</sub> - Fowl</b>                | Absent   | 1          |
| <b>SI<sub>7</sub> - Fish</b>                | Absent   | 1          |
| <b>SI<sub>8</sub> - Ponds</b>               | 33   | 1          |
| <b>SI<sub>9</sub> - Terrestrial habitat</b> | Moderate   | 0.67       |
| <b>SI<sub>10</sub> - Macrophytes</b>        | 30%  | 0.6        |
| <b>HSI Scores</b>                           | <b>Good</b>  | <b>0.7</b> |




| Pond 3                                      |   |             |
|---|---|-------------|
| <b>Indices</b>                              |   |             |
| <b>Grid Reference</b>                       | SJ 65598 84664  |             |
| <b>Description</b>                          | Field pond at field margin. Partially shaded.                                     |             |
| <b>Distance to Site</b>                     | On-site   |             |
| <b>Photograph</b>                           |  |             |
| <b>SI<sub>1</sub> - Location</b>            | Zone A, optimal   | 1           |
| <b>SI<sub>2</sub> - Pond area</b>           | 450 m <sup>2</sup>  | 0.9         |
| <b>SI<sub>3</sub> - Pond drying</b>         | Rarely  | 1           |
| <b>SI<sub>4</sub> - Water quality</b>       | Moderate  | 0.67        |
| <b>SI<sub>5</sub> - Shade</b>               | 25%   | 1           |
| <b>SI<sub>6</sub> - Fowl</b>                | Absent  | 1           |
| <b>SI<sub>7</sub> - Fish</b>                | Absent  | 1           |
| <b>SI<sub>8</sub> - Ponds</b>               | 30  | 1           |
| <b>SI<sub>9</sub> - Terrestrial habitat</b> | Moderate  | 0.67        |
| <b>SI<sub>10</sub> - Macrophytes</b>        | 25%   | 0.55        |
| <b>HSI Scores</b>                           | <b>Excellent</b>  | <b>0.86</b> |


| Pond 4                                      |   |             |
|---|---|-------------|
| <b>Indices</b>                              |   |             |
| <b>Grid Reference</b>                       | SJ 65681 84693  |             |
| <b>Description</b>                          | Duck pond partially shaded by scrub at the field boundary.                          |             |
| <b>Distance to Site</b>                     | On-site   |             |
| <b>Photograph</b>                           |  |             |
| <b>SI<sub>1</sub> - Location</b>            | Zone A, optimal   | 1           |
| <b>SI<sub>2</sub> - Pond area</b>           | 350 m <sup>2</sup>  | 0.7         |
| <b>SI<sub>3</sub> - Pond drying</b>         | Never   | 0.9         |
| <b>SI<sub>4</sub> - Water quality</b>       | Moderate  | 0.67        |
| <b>SI<sub>5</sub> - Shade</b>               | 70%   | 0.8         |
| <b>SI<sub>6</sub> - Fowl</b>                | Minor   | 0.67        |
| <b>SI<sub>7</sub> - Fish</b>                | Minor   | 0.33        |
| <b>SI<sub>8</sub> - Ponds</b>               | 30  | 1           |
| <b>SI<sub>9</sub> - Terrestrial habitat</b> | Moderate  | 0.67        |
| <b>SI<sub>10</sub> - Macrophytes</b>        | 10%   | 0.4         |
| <b>HSI Scores</b>                           | <b>Average</b>  | <b>0.68</b> |




| Pond 5                           |  |             |
|----------------------------------|--|-------------|
| <b>Indices</b>                   |  |             |
| <b>Grid Reference</b>            | SJ 65822 84847   |             |
| <b>Description</b>               | Partially shaded field pond at fields boundary. Some soft rush and bulrush present around the ponds margins. |             |
| <b>Distance to Site</b>          | On-site  |             |
| <b>Photograph</b>                |                             |             |
| <b>Sl1- Location</b>             | Zone A, optimal  | 1           |
| <b>Sl2- Pond area</b>            | 150 m <sup>2</sup>   | 0.3         |
| <b>Sl3 - Pond drying</b>         | Sometimes  | 0.5         |
| <b>Sl4 - Water quality</b>       | Moderate   | 0.67        |
| <b>Sl5 - Shade</b>               | 40%  | 1           |
| <b>Sl6 - Fowl</b>                | Minor  | 0.67        |
| <b>Sl7 - Fish</b>                | Absent   | 1           |
| <b>Sl8 - Ponds</b>               | 30   | 1           |
| <b>Sl9 – Terrestrial habitat</b> | Moderate   | 0.67        |
| <b>Sl10 - Macrophytes</b>        | 50%  | 0.8         |
| <b>HSI Scores</b>                | <b>Good</b>  | <b>0.72</b> |


| Pond 6                           |  |             |
|----------------------------------|--|-------------|
| <b>Indices</b>                   |  |             |
| <b>Grid Reference</b>            | SJ 65397 84446   |             |
| <b>Description</b>               | Field pond in centre of field, partially shaded but mostly open. No macrophytes evident at the time of survey. |             |
| <b>Distance to Site</b>          | On-site  |             |
| <b>Photograph</b>                |                             |             |
| <b>Sl1- Location</b>             | Zone A, optimal  | 1           |
| <b>Sl2- Pond area</b>            | 1,700 m <sup>2</sup>   | 0.85        |
| <b>Sl3 - Pond drying</b>         | Sometimes  | 0.5         |
| <b>Sl4 - Water quality</b>       | Moderate   | 0.67        |
| <b>Sl5 - Shade</b>               | 20%  | 1           |
| <b>Sl6 - Fowl</b>                | Absent   | 1           |
| <b>Sl7 - Fish</b>                | Absent   | 1           |
| <b>Sl8 - Ponds</b>               | 30   | 1           |
| <b>Sl9 – Terrestrial habitat</b> | Moderate   | 0.67        |
| <b>Sl10 - Macrophytes</b>        | 10%  | 0.4         |
| <b>HSI Scores</b>                | <b>Good</b>  | <b>0.77</b> |




| Pond 7                                      |  |             |
|---|--|-------------|
| <b>Indices</b>                              |  |             |
| <b>Grid Reference</b>                       | SJ 66191 84372   |             |
| <b>Description</b>                          | Small depression in field, only a small amount of water present and will dry in summer months. |             |
| <b>Distance to Site</b>                     | On-site  |             |
| <b>Photograph</b>                           |               |             |
| <b>SI<sub>1</sub> - Location</b>            | Zone A, optimal  | 1           |
| <b>SI<sub>2</sub> - Pond area</b>           | 20 m <sup>2</sup>  | 0.05        |
| <b>SI<sub>3</sub> - Pond drying</b>         | Annually   | 0.1         |
| <b>SI<sub>4</sub> - Water quality</b>       | Moderate   | 0.67        |
| <b>SI<sub>5</sub> - Shade</b>               | 0%   | 1           |
| <b>SI<sub>6</sub> - Fowl</b>                | Absent   | 1           |
| <b>SI<sub>7</sub> - Fish</b>                | Absent   | 1           |
| <b>SI<sub>8</sub> - Ponds</b>               | 30   | 1           |
| <b>SI<sub>9</sub> - Terrestrial habitat</b> | Moderate   | 0.67        |
| <b>SI<sub>10</sub> - Macrophytes</b>        | 0%   | 0.3         |
| <b>HSI Scores</b>                           | <b>Poor</b>  | <b>0.48</b> |

| Pond 8                                      |   |             |
|---|---|-------------|
| <b>Indices</b>                              |   |             |
| <b>Grid Reference</b>                       | SJ 66179 84329  |             |
| <b>Description</b>                          | Woodland pond which is heavily shaded. Lots of leaf litter and no macrophytes were evident at the time of survey. |             |
| <b>Distance to Site</b>                     | On-site   |             |
| <b>Photograph</b>                           |                                |             |
| <b>SI<sub>1</sub> - Location</b>            | Zone A, optimal   | 1           |
| <b>SI<sub>2</sub> - Pond area</b>           | 400 m <sup>2</sup>  | 0.8         |
| <b>SI<sub>3</sub> - Pond drying</b>         | Rarely  | 1           |
| <b>SI<sub>4</sub> - Water quality</b>       | Moderate  | 0.67        |
| <b>SI<sub>5</sub> - Shade</b>               | 90%   | 0.4         |
| <b>SI<sub>6</sub> - Fowl</b>                | Absent  | 1           |
| <b>SI<sub>7</sub> - Fish</b>                | Absent  | 1           |
| <b>SI<sub>8</sub> - Ponds</b>               | 30  | 1           |
| <b>SI<sub>9</sub> - Terrestrial habitat</b> | Good  | 1           |
| <b>SI<sub>10</sub> - Macrophytes</b>        | 0%  | 0.3         |
| <b>HSI Scores</b>                           | <b>Good</b>   | <b>0.73</b> |




| Pond 9                           |  |             |
|----------------------------------|--|-------------|
| <b>Indices</b>                   |  |             |
| <b>Grid Reference</b>            | SJ 66067 84234   |             |
| <b>Description</b>               | Woodland pond at edge of wood, which is heavily shaded. Lots of leaf litter and no macrophytes were evident at the time of survey. |             |
| <b>Distance to Site</b>          | On-site  |             |
| <b>Photograph</b>                |   |             |
| <b>SI1- Location</b>             | Zone A, optimal  | 1           |
| <b>SI2- Pond area</b>            | 380 m <sup>2</sup>   | 0.8         |
| <b>SI3 - Pond drying</b>         | Rarely   | 1           |
| <b>SI4 - Water quality</b>       | Moderate   | 0.67        |
| <b>SI5 - Shade</b>               | 90%  | 0.4         |
| <b>SI6 - Fowl</b>                | Absent   | 1           |
| <b>SI7 - Fish</b>                | Absent   | 1           |
| <b>SI8 - Ponds</b>               | 30   | 1           |
| <b>SI9 – Terrestrial habitat</b> | Good   | 1           |
| <b>SI10 - Macrophytes</b>        | 0%   | 0.3         |
| <b>HSI Scores</b>                | <b>Good</b>  | <b>0.76</b> |

| Pond 10                          |   |             |
|----------------------------------|---|-------------|
| <b>Indices</b>                   |   |             |
| <b>Grid Reference</b>            | SJ 66013 84055  |             |
| <b>Description</b>               | Shallow field pond. Open and unshaded. Some areas of flag iris and soft rush present at time of survey. |             |
| <b>Distance to Site</b>          | On-site   |             |
| <b>Photograph</b>                |                      |             |
| <b>SI1- Location</b>             | Zone A, optimal   | 1           |
| <b>SI2- Pond area</b>            | 250 m <sup>2</sup>  | 0.5         |
| <b>SI3 - Pond drying</b>         | Annually  | 0.1         |
| <b>SI4 - Water quality</b>       | Moderate  | 0.67        |
| <b>SI5 - Shade</b>               | 0%  | 1           |
| <b>SI6 - Fowl</b>                | Absent  | 1           |
| <b>SI7 - Fish</b>                | Absent  | 1           |
| <b>SI8 - Ponds</b>               | 30  | 1           |
| <b>SI9 – Terrestrial habitat</b> | Moderate  | 0.67        |
| <b>SI10 - Macrophytes</b>        | 30%   | 0.6         |
| <b>HSI Scores</b>                | <b>Average</b>  | <b>0.65</b> |



| Pond 11                                     |   |             |
|---|---|-------------|
| <b>Indices</b>                              |   |             |
| <b>Grid Reference</b>                       | SJ 65960 83946  |             |
| <b>Description</b>                          | Shallow depression in field Only a small puddle was present at the time of survey and it will dry out in summer months. |             |
| <b>Distance to Site</b>                     | On site   |             |
| <b>Photograph</b>                           | No photograph available   |             |
| <b>SI<sub>1</sub> - Location</b>            | Zone A, optimal   | 1           |
| <b>SI<sub>2</sub> - Pond area</b>           | 20 m <sup>2</sup>   | 0.05        |
| <b>SI<sub>3</sub> - Pond drying</b>         | Annually  | 0.1         |
| <b>SI<sub>4</sub> - Water quality</b>       | Moderate  | 0.67        |
| <b>SI<sub>5</sub> - Shade</b>               | 0%  | 1           |
| <b>SI<sub>6</sub> - Fowl</b>                | Absent  | 1           |
| <b>SI<sub>7</sub> - Fish</b>                | Absent  | 1           |
| <b>SI<sub>8</sub> - Ponds</b>               | 30  | 1           |
| <b>SI<sub>9</sub> - Terrestrial habitat</b> | Moderate  | 0.67        |
| <b>SI<sub>10</sub> - Macrophytes</b>        | 0%  | 0.3         |
| <b>HSI Scores</b>                           | <b>Poor</b>   | <b>0.48</b> |

| Pond 12                                     |  |             |
|---|--|-------------|
| <b>Indices</b>                              |  |             |
| <b>Grid Reference</b>                       | SJ 65675 84521   |             |
| <b>Description</b>                          | Moat (a Scheduled Ancient Monument), stone-sided in some areas, shaded by mature trees and colonised by <i>Lemna sp.</i> And <i>Typha L.</i> |             |
| <b>Distance to Site</b>                     | On site  |             |
| <b>Photograph</b>                           |   |             |
| <b>SI<sub>1</sub> - Location</b>            | Zone A, optimal  | 1           |
| <b>SI<sub>2</sub> - Pond area</b>           | 2,200 m <sup>2</sup>   | 0.8         |
| <b>SI<sub>3</sub> - Pond drying</b>         | Rarely   | 1.0         |
| <b>SI<sub>4</sub> - Water quality</b>       | Moderate   | 0.67        |
| <b>SI<sub>5</sub> - Shade</b>               | 100%   | 0.2         |
| <b>SI<sub>6</sub> - Fowl</b>                | Minor  | 0.67        |
| <b>SI<sub>7</sub> - Fish</b>                | Absent   | 1           |
| <b>SI<sub>8</sub> - Ponds</b>               | 30   | 1           |
| <b>SI<sub>9</sub> - Terrestrial habitat</b> | Moderate   | 0.67        |
| <b>SI<sub>10</sub> - Macrophytes</b>        | 100%   | 0.8         |
| <b>HSI Scores</b>                           | <b>Good</b>  | <b>0.72</b> |





# Appendix 3: Parameters Plan



## AREA SUMMARY:

**Redline Area:**  
96.86 Ha / 239.35 Ac

**Total Developable Area:**  
61.82 Ha / 152.63 Ac

**Proposed Use:**  
Flexible B2/B8 with ancillary B1(a)

**Number of Units:**  
Ranging from 2 to 10 Units

**Maximum Floorspace:**  
325,160 m<sup>2</sup> (3,500,000 ft<sup>2</sup>) GIA

**Proposed Unit Height:**  
Haunch height ranging from 12m to 40m  
(from 72.00 AOD to 101.00 AOD)

**Proposed Unit Floor Level:**  
Ranging from FFL 55.00 AOD to 67.00 AOD

**Car Parking Provision:**  
Compliant with Council's parking standards for B2 use - 1/60m<sup>2</sup> and B8 use - 1/120m<sup>2</sup>

**SuDS Provision:**  
Each Unit will have its own surface water drainage strategy as well as attenuation of public realm

**Landscaping:**  
Appropriate landscaping will be included as part of the development proposals

Existing PRoW subject to diversion or extinguishment

Potential Retention of Existing Residential Properties

Possible Highway Improvement Works

Junction 20

Scheduled Ancient Monument

Bradley Gorse

Wrights Covert

Ecological Mitigation Area

### Employment Zone A Parameters:

**Developable Area:**  
32.48 Ha / 80.26 Ac

**Proposed Use:**  
Flexible B2/B8 with ancillary B1(a)

**Number of Units:**  
Ranging from 1 to 6 Units

**Proposed Unit Height:**  
Haunch height ranging from 12m to 40m  
(from 79.00 AOD to 101.00 AOD)

**Proposed Unit Floor Level:**  
Ranging from FFL 59.00 AOD to 67.00 AOD

**Car Parking Provision:**  
Compliant with Council's parking standards for B2 use - 1/60m<sup>2</sup> and B8 use - 1/120m<sup>2</sup>

**SuDS Provision:**  
Each Unit will have its own surface water drainage strategy as well as attenuation of public realm

**Landscaping:**  
Appropriate landscaping will be included as part of the development proposals

### Employment Zone B Parameters:

**Developable Area:**  
26.74 Ha / 66.08 Ac

**Proposed Use:**  
Flexible B2/B8 with ancillary B1(a)

**Number of Units:**  
Ranging from 1 to 4 Units

**Proposed Unit Height:**  
Haunch height ranging from 12m to 40m  
(from 72.00 AOD to 96.00 AOD)

**Proposed Unit Floor Level:**  
Ranging from FFL 55.00 AOD to 60.00 AOD

**Car Parking Provision:**  
Compliant with Council's parking standards for B2 use - 1/60m<sup>2</sup> and B8 use - 1/120m<sup>2</sup>

**SuDS Provision:**  
Each Unit will have its own surface water drainage strategy as well as attenuation of public realm

**Landscaping:**  
Appropriate landscaping will be included as part of the development proposals

M16

M56

|                       |                               |               |                      |                                    |  |                             |  |
|-----------------------|-------------------------------|---------------|----------------------|------------------------------------|--|-----------------------------|--|
| Planning Boundary     | Employment Development Zones  | Existing PRoW | Existing Watercourse | Area for Proposed Main Access Road | Watercourse 15m Stand Off from the top of the bank | Proposed Emergency Access   | Proposed Main Access   |
| Strategic Landscaping | Existing Trees To be Retained | Proposed PRoW | Proposed Cycle Link  | South-North Open Green Corridor    | SAM 50m Stand Off from the outer bank of the moat  | Existing Ancient Roman Road | Stephen George + Partners LLP<br>Architects + Masterplanners |

Cliff Lane, Warrington  
Parameters Plan (for Scoping Stage)  
CDE Reference  
Drawn: JB  
Team: HMS  
Scale: 1:2500 @ A1  
Project No: 16-184  
16-184

Draft: 16-184-001  
Date: 13/11/2017  
Dwg No: P001  
Rev: -

Logos: FIRST PANATTONI, PGIM, Langtree

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# Appendix 4: Ecology Survey Planner





# Ecology Survey Planner

Birmingham  
t. 0121 773 0770

Cotswolds  
t. 01285 831 804

Exeter  
t. 01392 447 588

Manchester  
t. 01625 525 731

London  
t. 0207 620 2710

e. [info@tylergrange.co.uk](mailto:info@tylergrange.co.uk)  
w. [tylergrange.co.uk](http://tylergrange.co.uk)

|   | Jan         | Feb         | Mar         | Apr         | May         | Jun         | Jul         | Aug         | Sep         | Oct         | Nov         | Dec         |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Badgers   | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Bats activity                                       | Unreliable  | Unreliable  | Unreliable  | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Optimal     | Optimal     | Unreliable  | Unreliable  |
| Bats <sup>1</sup> roost identification              | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Birds breeding                                      | Unreliable  | Unreliable  | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Birds winter  | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Crayfish  | Unreliable  | Unreliable  | Unreliable  | Unreliable  | Unreliable  | Unreliable  | Unreliable  | Unreliable  | Unreliable  | Unreliable  | Unreliable  | Unreliable  |
| Dormouse  | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Great Crested Newts breeding ponds                  | Unreliable  | Unreliable  | Unreliable  | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Habitats / Detailed Flora <sup>2</sup>              | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Hedgerows   | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Otter   | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Reptiles  | Unreliable  | Unreliable  | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Terrestrial / Freshwater Invertebrates <sup>3</sup> | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |
| Water Voles <sup>4</sup>                            | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal | Sub-optimal |

<sup>1</sup> Internal building searches for evidence of bats can be undertaken at any time; winter is the best time for assessing trees for roosting potential, with further work to confirm potential undertaken in spring / summer.

<sup>2</sup> The timing of detailed flora surveys is dependent on the specific habitat type to be investigated. Lower plants should be surveyed in winter.

<sup>3</sup> Timing is dependent on target species/group.

<sup>4</sup> Surveys are required in both the early and late seasons.



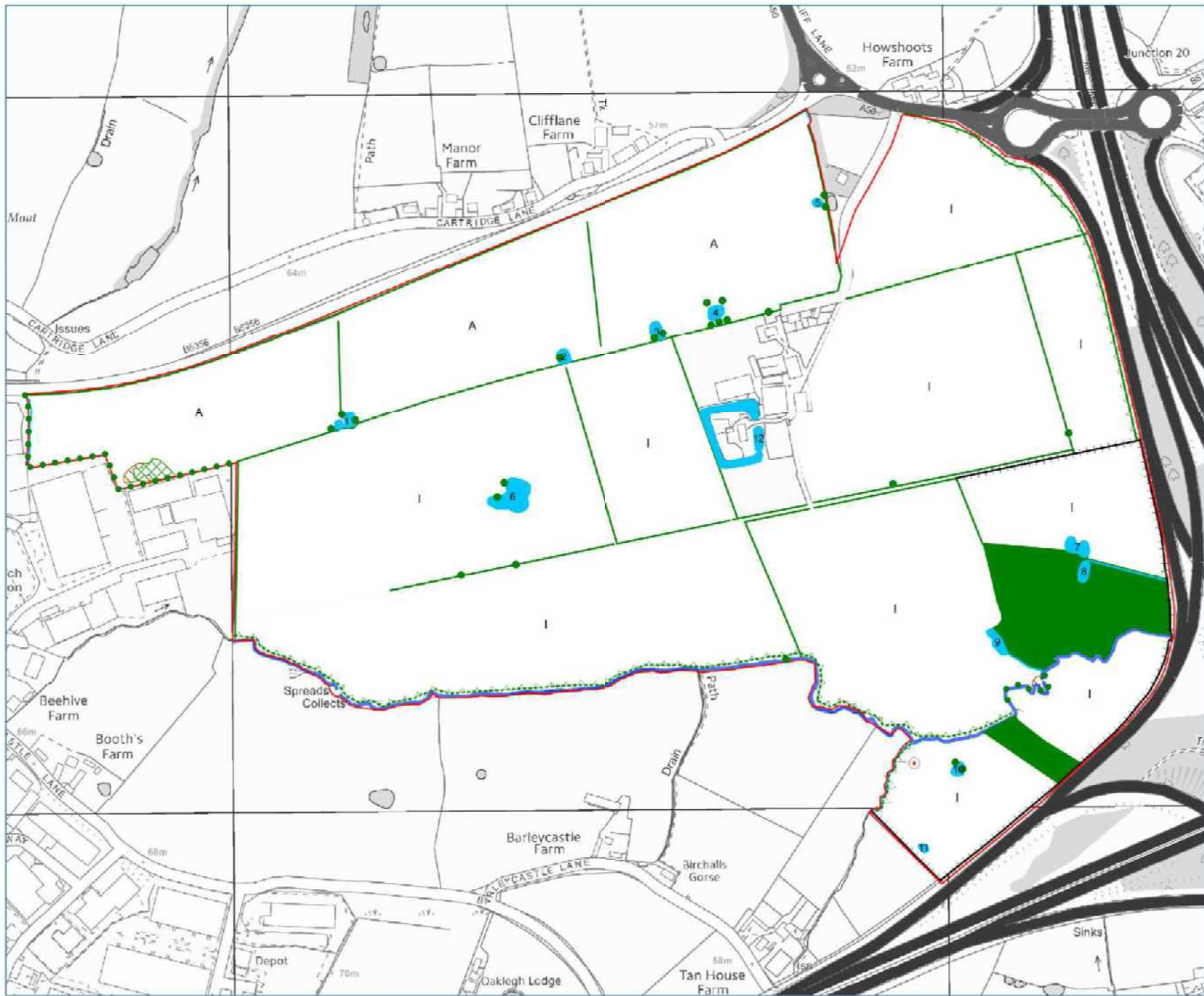
# Plans

Habitat Features Plan  
10682\_P01a October 2017 LRD/HC



Land off Junction 20 of M6/M56 Interchange, Grappenhall, Cheshire  
Preliminary Ecological Appraisal

10682\_R01a\_17 November 2017\_LRD\_LP



- Redline boundary
- A Arable
- Ditch
- Fence
- Hedgerow species rich (intact)
- Hedgerow species rich defunct
- Hedgerow species poor intact
- I Improved grassland
- Flowing water
- Ponds
- Scattered tree
- Tall ruderal
- ⊙ TN1
- Tree line
- Scrub dense
- Semi-natural broad-leaved woodland



Project Cliff Lane Warrington

Drawing Title Habitat Features

Scale As Shown (Approximate)

Drawing No. 10682/P01a

Date October 2017

Checked PM/HC



## **ES Scoping Appendix I3 – Noise and Vibration:**

- Environmental Noise Baseline Assessment



# Warrington Interchange MP

---

## Environmental Noise Assessment – Baseline Survey Results

### First Industrial / Langtree

Job No: 1015524  
Doc Ref: 1015524-RPT-AS-001  
Revision: —  
Date: 15 September 2017

|                      |  |                   |
|----------------------|--|-------------------|
| <b>Project title</b> | Warrington Interchange MP                                | <b>Job Number</b> |
| <b>Report title</b>  | Environmental Noise Assessment – Baseline Survey Results | 1015524           |

**Document Revision History**

| Revision Ref | Issue Date | Purpose of issue / description of revision |
|--------------|------------|--|
| —            | 15/09/2017 | First Issue                                |
|              |            |  |
|              |            |  |
|              |            |  |
|              |            |  |
|              |            |  |
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|              |            |  |
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|              |            |  |

**Document Validation (latest issue)**

|   |   |  |
|---|---|--|
| <p>15/09/2017</p> <p>X </p> <hr style="border: 0.5px solid black;"/> <p>Principal author</p> <p>Signed by: Nikolova, Lily</p> | <p>15/09/2017</p> <p>X </p> <hr style="border: 0.5px solid black;"/> <p>Checked by</p> <p>Signed by: Nikolova, Lily</p> | <p>15/09/2017</p> <p>X </p> <hr style="border: 0.5px solid black;"/> <p>Verified by</p> <p>Signed by: Nikolova, Lily</p> |
|---|---|--|

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## **1.0 Introduction**

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Cundall has been commissioned to undertake baseline noise monitoring of noise levels affecting noise sensitive receptors located nearby the new development site off Cliff Road, Warrington.

The purpose of this report is to detail the prevailing noise levels affecting noise-sensitive receptors and to establish representative daytime and night-time background levels at each measurement location for the purpose of future assessment.

## 2.0 Environmental noise survey

In order to assess the prevailing levels of environmental noise affecting nearby noise sensitive receivers, environmental noise surveys were undertaken at six different locations.

Due to access and security requirements, continuous unattended noise logging measurements were undertaken on the development land at positions representative of the noise climate at the nearest and most exposed noise-sensitive receptors.

Table 2.1 below documents the monitoring positions and the corresponding measurement duration.

| Monitoring position | Monitoring location  | Measurement duration  |
|---------------------|--|---|
| MP 1                | North-west corner of the site, approximately 3m from the boundary hedge to Grappenhall Lane.<br><br>Assumed to be representative of the prevailing background noise climate at the Grappenhall Lodge, approximately 45m away.        | Unattended measurement undertaken between 16 and 17 August 2017.  |
| MP 2                | North boundary of the site, approximately 3m from the boundary hedge to Grappenhall Lane.<br><br>Assumed to be representative of the prevailing background noise climate at the dwellings on Cartridge Lane, approximately 40m away. | Unattended measurements undertaken between 17 and 18 August 2017. |
| MP 3*               | North-east corner of the site, approximately 3m from the boundary hedge to Cliff Lane.<br><br>Assumed to be representative of the prevailing background noise climate at Howshoots Farm approximately 16m away.                      | Unattended measurements undertaken between 24 and 30 August 2017. |
| MP 4                | South-east corner of the site, on the site boundary.<br><br>Assumed to be representative of the prevailing background noise climate at Tan House Farm on Barleycastle Lane, approximately 150m away.                                 |   |
| MP 5                | On the south boundary of the site.<br><br>Assumed to be representative of the prevailing background noise climate at Barleycastle Farm on Barleycastle Lane, approximately 150m away.  |   |
| MP 6*               | Near the eastern pond in the centre of the site, on the boundary to Bradley View Cottages.   |   |

*\*The monitoring position representative of the prevailing background noise climate at Bradley View Cottage is to be identified at the next stage of the acoustic assessment.*

Table 2.1 - Monitoring positions and measurement periods

The drawing referenced in Appendix I of this report details the approximate location of each unattended measurement position.

Noise measurements were made using three 01dB Cube (serial numbers 10619, 10692 and 11112) and one Casella CEL 63X (serial number 1211404) precision sound level meters, generally in accordance with BS EN 60651:1994 and BS 7445:1993. All meters were field calibrated before and after with no significant drift witnessed. Calibration certificates for all equipment are available upon request.

## 2.1 Weather conditions

A summary of weather conditions for the duration of the surveys is presented in Table 2.2.

| Date                         | Wind speed – average (km/h) | Wind speed – high (km/h) | Average temperature (°C) | Precipitation (mm) |
|------------------------------|-----------------------------|--------------------------|--------------------------|--------------------|
| 16 <sup>th</sup> August 2017 | 4                           | 10                       | 15                       | 0.5                |
| 17 <sup>th</sup> August 2017 | 1                           | 3                        | 18                       | 8.4                |
| 18 <sup>th</sup> August 2017 | 1                           | 6                        | 13                       | 7.9                |
| 23 <sup>rd</sup> August 2017 | 1                           | 8                        | 16                       | 0                  |
| 24 <sup>th</sup> August 2017 | 0                           | 3                        | 16                       | 0.3                |
| 25 <sup>th</sup> August 2017 | 1                           | 5                        | 16                       | 0                  |
| 26 <sup>th</sup> August 2017 | 2                           | 8                        | 15                       | 0                  |
| 27 <sup>th</sup> August 2017 | 1                           | 5                        | 15                       | 0                  |
| 28 <sup>th</sup> August 2017 | 1                           | 3                        | 19                       | 0                  |
| 29 <sup>th</sup> August 2017 | 2                           | 8                        | 14                       | 0.5                |
| 30 <sup>th</sup> August 2017 | 2                           | 8                        | 13                       | 0                  |

Table 2.2 - Summary of weather conditions

## 2.2 Results summary

A summary of the average daytime (07:00h - 23:00h) and night-time (23:00h - 07:00h) ambient noise levels recorded is detailed within Table 2.3 and Table 2.4. The values are the logarithmically averaged  $L_{Aeq,15min}$ , the maximum  $L_{AF,max}$ , the maximum  $L_{AF10,15min}$  and range of  $L_{A90,15min}$  dB values measured. All values have been rounded to the nearest integer value (as fractions of a decibel are imperceptible) and are given in dBA.

| Location | Date  | Average $L_{Aeq,15min}$ (dB) | Highest $L_{AFMax,15min}$ (dB) | Highest $L_{AF10,15min}$ (dB) | Range $L_{AF90,15min}$ (dB) |
|----------|---|------------------------------|--------------------------------|-------------------------------|-----------------------------|
| 1        | 16 <sup>th</sup> – 17 <sup>th</sup> August 2017 | 68                           | 106                            | 81                            | 43 – 58                     |
| 2        | 17 <sup>th</sup> – 18 <sup>th</sup> August 2017 | 66                           | 93                             | 73                            | 46 – 56                     |
| 3        | 23 <sup>rd</sup> August 2017*                   | 69                           | 88                             | 73                            | 54 – 66                     |
|          | 24 <sup>th</sup> August 2017                    | 70                           | 87                             | 74                            | 53 – 67                     |
|          | 25 <sup>th</sup> August 2017                    | 70                           | 92                             | 75                            | 50 – 67                     |
|          | 26 <sup>th</sup> August 2017                    | 71                           | 100                            | 82                            | 49 – 60                     |
|          | 27 <sup>th</sup> August 2017                    | 68                           | 95                             | 73                            | 54 – 62                     |
|          | 28 <sup>th</sup> August 2017                    | 68                           | 82                             | 72                            | 50 – 63                     |
|          | 29 <sup>th</sup> August 2017                    | 70                           | 93                             | 74                            | 48 – 67                     |
|          | 30 <sup>th</sup> August 2017*                   | 71                           | 84                             | 74                            | 57 – 68                     |
| 4        | 23 <sup>rd</sup> August 2017*                   | 57                           | 68                             | 62                            | 49 – 59                     |
|          | 24 <sup>th</sup> August 2017                    | 60                           | 77                             | 68                            | 50 – 63                     |
|          | 25 <sup>th</sup> August 2017                    | 61                           | 75                             | 69                            | 51 – 66                     |
|          | 26 <sup>th</sup> August 2017                    | 59                           | 85                             | 65                            | 48 – 59                     |
|          | 27 <sup>th</sup> August 2017                    | 61                           | 89                             | 66                            | 52 – 62                     |
|          | 28 <sup>th</sup> August 2017                    | 59                           | 71                             | 64                            | 52 – 61                     |

| Location | Date                          | Average<br>L <sub>Aeq,15min</sub> (dB) | Highest<br>L <sub>AFMax,15min</sub> (dB) | Highest<br>L <sub>AF10,15min</sub> (dB) | Range<br>L <sub>AF90,15min</sub> (dB) |
|----------|-------------------------------|--|--|---|---------------------------------------|
|          | 29 <sup>th</sup> August 2017  | 56                                     | 70                                       | 61                                      | 51 – 56                               |
|          | 30 <sup>th</sup> August 2017* | 60                                     | 66                                       | 64                                      | 53 – 62                               |
| 5        | 23 <sup>rd</sup> August 2017* | 50                                     | 68                                       | 55                                      | 42 – 52                               |
|          | 24 <sup>th</sup> August 2017  | 52                                     | 73                                       | 60                                      | 41 – 56                               |
|          | 25 <sup>th</sup> August 2017  | 53                                     | 73                                       | 60                                      | 40 – 58                               |
|          | 26 <sup>th</sup> August 2017  | 49                                     | 73                                       | 56                                      | 40 – 52                               |
|          | 27 <sup>th</sup> August 2017  | 61                                     | 97                                       | 73                                      | 44 – 55                               |
|          | 28 <sup>th</sup> August 2017* | 52                                     | 72                                       | 56                                      | 45 – 53                               |
| 6        | 23 <sup>rd</sup> August 2017* | 41                                     | 68                                       | 49                                      | 36 – 47                               |
|          | 24 <sup>th</sup> August 2017  | 41                                     | 68                                       | 47                                      | 36 – 44                               |
|          | 25 <sup>th</sup> August 2017  | 42                                     | 65                                       | 49                                      | 36 – 47                               |
|          | 26 <sup>th</sup> August 2017  | 41                                     | 63                                       | 46                                      | 37 – 42                               |
|          | 27 <sup>th</sup> August 2017  | 55                                     | 96                                       | 72                                      | 37 – 45                               |
|          | 28 <sup>th</sup> August 2017  | 40                                     | 64                                       | 44                                      | 37 – 41                               |
|          | 29 <sup>th</sup> August 2017  | 42                                     | 62                                       | 47                                      | 37 – 43                               |
|          | 30 <sup>th</sup> August 2017* | 42                                     | 72                                       | 43                                      | 38 – 41                               |

Table 2.3 - Summary survey results, daytime (07:00h – 23:00h)

| Location | Date  | Average<br>L <sub>Aeq,15min</sub> (dB) | Highest<br>L <sub>AFMax,15min</sub> (dB) | Highest<br>L <sub>AF10,15min</sub> (dB) | Range<br>L <sub>AF90,15min</sub> (dB) |
|----------|---|--|--|---|---------------------------------------|
| 1        | 16 <sup>th</sup> – 17 <sup>th</sup> August 2017 | 65                                     | 100                                      | 73                                      | 46 – 57                               |
| 2        | 17 <sup>th</sup> – 18 <sup>th</sup> August 2017 | 64                                     | 87                                       | 73                                      | 44 – 54                               |
| 3        | 23 <sup>rd</sup> – 24 <sup>th</sup> August 2017 | 67                                     | 86                                       | 75                                      | 55 – 66                               |
|          | 24 <sup>th</sup> – 25 <sup>th</sup> August 2017 | 67                                     | 89                                       | 75                                      | 54 – 66                               |
|          | 25 <sup>th</sup> – 26 <sup>th</sup> August 2017 | 65                                     | 82                                       | 73                                      | 46 – 60                               |
|          | 26 <sup>th</sup> – 27 <sup>th</sup> August 2017 | 65                                     | 96                                       | 71                                      | 51 – 60                               |
|          | 27 <sup>th</sup> – 28 <sup>th</sup> August 2017 | 64                                     | 80                                       | 71                                      | 55 – 61                               |
|          | 28 <sup>th</sup> – 29 <sup>th</sup> August 2017 | 66                                     | 80                                       | 75                                      | 47 – 61                               |
|          | 29 <sup>th</sup> – 30 <sup>th</sup> August 2017 | 66                                     | 81                                       | 74                                      | 44 – 64                               |
| 4        | 23 <sup>rd</sup> – 24 <sup>th</sup> August 2017 | 61                                     | 71                                       | 69                                      | 51 – 65                               |
|          | 24 <sup>th</sup> – 25 <sup>th</sup> August 2017 | 61                                     | 83                                       | 69                                      | 53 – 66                               |
|          | 25 <sup>th</sup> – 26 <sup>th</sup> August 2017 | 57                                     | 66                                       | 63                                      | 48 – 60                               |
|          | 26 <sup>th</sup> – 27 <sup>th</sup> August 2017 | 62                                     | 96                                       | 64                                      | 53 – 60                               |
|          | 27 <sup>th</sup> – 28 <sup>th</sup> August 2017 | 59                                     | 73                                       | 64                                      | 52 – 60                               |
|          | 28 <sup>th</sup> – 29 <sup>th</sup> August 2017 | 54                                     | 66                                       | 58                                      | 47 – 56                               |
|          | 29 <sup>th</sup> – 30 <sup>th</sup> August 2017 | 57                                     | 67                                       | 64                                      | 48 – 62                               |
| 5        | 23 <sup>rd</sup> – 24 <sup>th</sup> August 2017 | 54                                     | 71                                       | 60                                      | 45 – 58                               |
|          | 24 <sup>th</sup> – 25 <sup>th</sup> August 2017 | 53                                     | 65                                       | 60                                      | 47 – 59                               |
|          | 25 <sup>th</sup> – 26 <sup>th</sup> August 2017 | 49                                     | 62                                       | 55                                      | 40 – 52                               |

| Location | Date  | Average<br>L <sub>Aeq,15min</sub> (dB) | Highest<br>L <sub>AFMax,15min</sub> (dB) | Highest<br>L <sub>AF10,15min</sub> (dB) | Range<br>L <sub>AF90,15min</sub> (dB) |
|----------|---|--|--|---|---------------------------------------|
|          | 26 <sup>th</sup> – 27 <sup>th</sup> August 2017 | 53                                     | 69                                       | 58                                      | 48 – 54                               |
|          | 27 <sup>th</sup> – 28 <sup>th</sup> August 2017 | 52                                     | 74                                       | 58                                      | 47 – 54                               |
| 6        | 23 <sup>rd</sup> – 24 <sup>th</sup> August 2017 | 43                                     | 58                                       | 49                                      | 38 – 47                               |
|          | 24 <sup>th</sup> – 25 <sup>th</sup> August 2017 | 43                                     | 56                                       | 49                                      | 38 – 47                               |
|          | 25 <sup>th</sup> – 26 <sup>th</sup> August 2017 | 40                                     | 63                                       | 46                                      | 36 – 41                               |
|          | 26 <sup>th</sup> – 27 <sup>th</sup> August 2017 | 43                                     | 65                                       | 55                                      | 39 – 43                               |
|          | 27 <sup>th</sup> – 28 <sup>th</sup> August 2017 | 42                                     | 65                                       | 52                                      | 38 – 43                               |
|          | 28 <sup>th</sup> – 29 <sup>th</sup> August 2017 | 41                                     | 60                                       | 46                                      | 36 – 43                               |
|          | 29 <sup>th</sup> – 30 <sup>th</sup> August 2017 | 40                                     | 64                                       | 56                                      | 36 – 42                               |

Table 2.4 - Summary of survey results, night-time (23:00h – 07:00h)

A graphical representation of survey results at unattended logging locations is presented in Appendix II of this report.

### 2.3 Discussion

Based on survey results and subjective impressions from Cundall engineers who attended site, Table 2.5 provides a review of existing noise sources noted to contribute to the existing noise climate at measurement position.

| Measurement position | Existing noise climate   |
|----------------------|--|
| MP 1                 | The L <sub>Aeq</sub> noise climate is largely driven by road traffic noise on Grappenhall Lane, while background noise levels (L <sub>A90</sub> values) are largely dominated by distant road traffic noise from the M6 and the M56. |
| MP 2                 |  |
| MP 3                 | The L <sub>Aeq</sub> noise climate is largely driven by road traffic noise on Cliff Lane, while background noise levels (L <sub>A90</sub> values) are largely dominated by distant road traffic noise from the M6 and the M56.       |
| MP 4                 | The noise L <sub>Aeq</sub> and background noise climate largely dominated by the road traffic noise from the M6 and the M56.   |
| MP 5                 |  |
| MP 6                 |  |

Table 2.5 - Description of existing noise climates

### 2.4 BS 4142 representative background levels

When assessing the level of adverse impact upon existing dwellings to the introduction of new industrial and commercial sound sources, the relevant British Standard (BS 4142:2014) requires that the predicted level of new impact (Rating Level) be compared against the existing ‘representative’ background sound level.

Statistical analysis has been used to determine the most commonly occurring L<sub>AF90,15min</sub> value during each reference period. In all instances, this value has been considered as the ‘representative’ background level.

Histograms showing the percentage occurrence of each L<sub>AF90,15min</sub> value at location are presented in Appendix III of this report.

#### 2.4.1 Proposed representative background values

Based on information detailed in Table 2.3, Table 2.4 and Appendix III, Table 2.6 below presents a summary of assumed representative background levels at each monitoring location during the daytime and night-time:



| Period                       | Monitoring location | Representative background level (dB) |
|------------------------------|---------------------|--------------------------------------|
| Daytime (07:00h – 23:00h)    | MP1                 | 52                                   |
|                              | MP2                 | 51                                   |
|                              | MP3                 | 59                                   |
|                              | MP4                 | 56                                   |
|                              | MP5                 | 50                                   |
|                              | MP6                 | 38                                   |
| Night-time (23:00h – 07:00h) | MP1                 | 49                                   |
|                              | MP2                 | 47                                   |
|                              | MP3                 | 57                                   |
|                              | MP4                 | 54                                   |
|                              | MP5                 | 48                                   |
|                              | MP6                 | 37                                   |

Table 2.6 - Proposed representative background levels

## **3.0 Conclusions**

---

Unattended environmental noise surveys have been conducted in order to establish the prevailing noise levels at noise-sensitive dwellings situated nearby the proposed development at land off Cliff Lane, Warrington.

Based on the noise survey results obtained, data analysis has been performed to establish proposed representative background levels for the purpose of future assessments.

# Appendices

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## **Appendix I    Relevant drawings**

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Please refer to the latest issue of the following site location drawing which details the approximate location of each survey position:

- 1015527-AS-XX(90)1001\_S2 – Environmental Noise Mark-Up

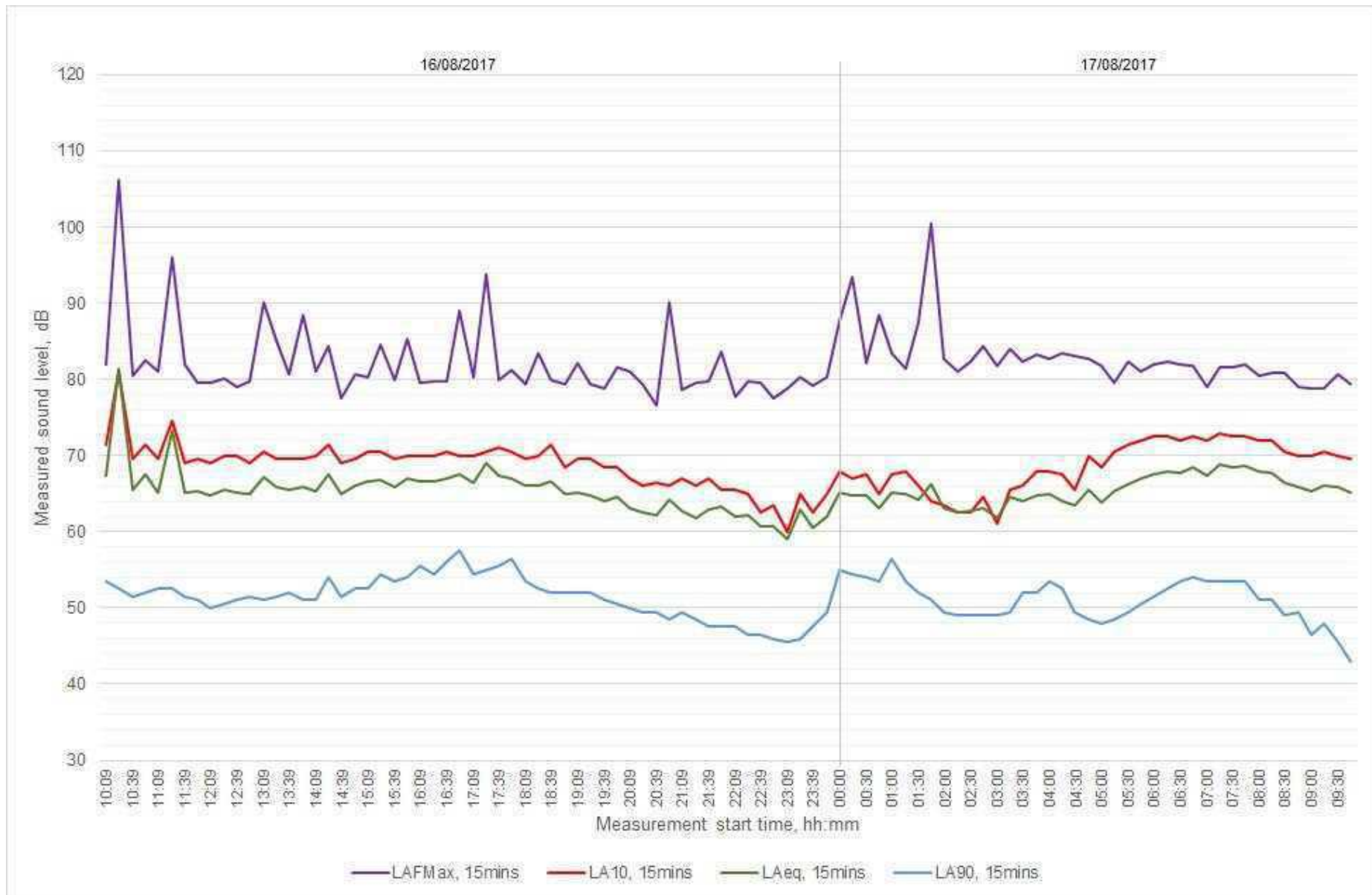
## Appendix II Logging survey results

---

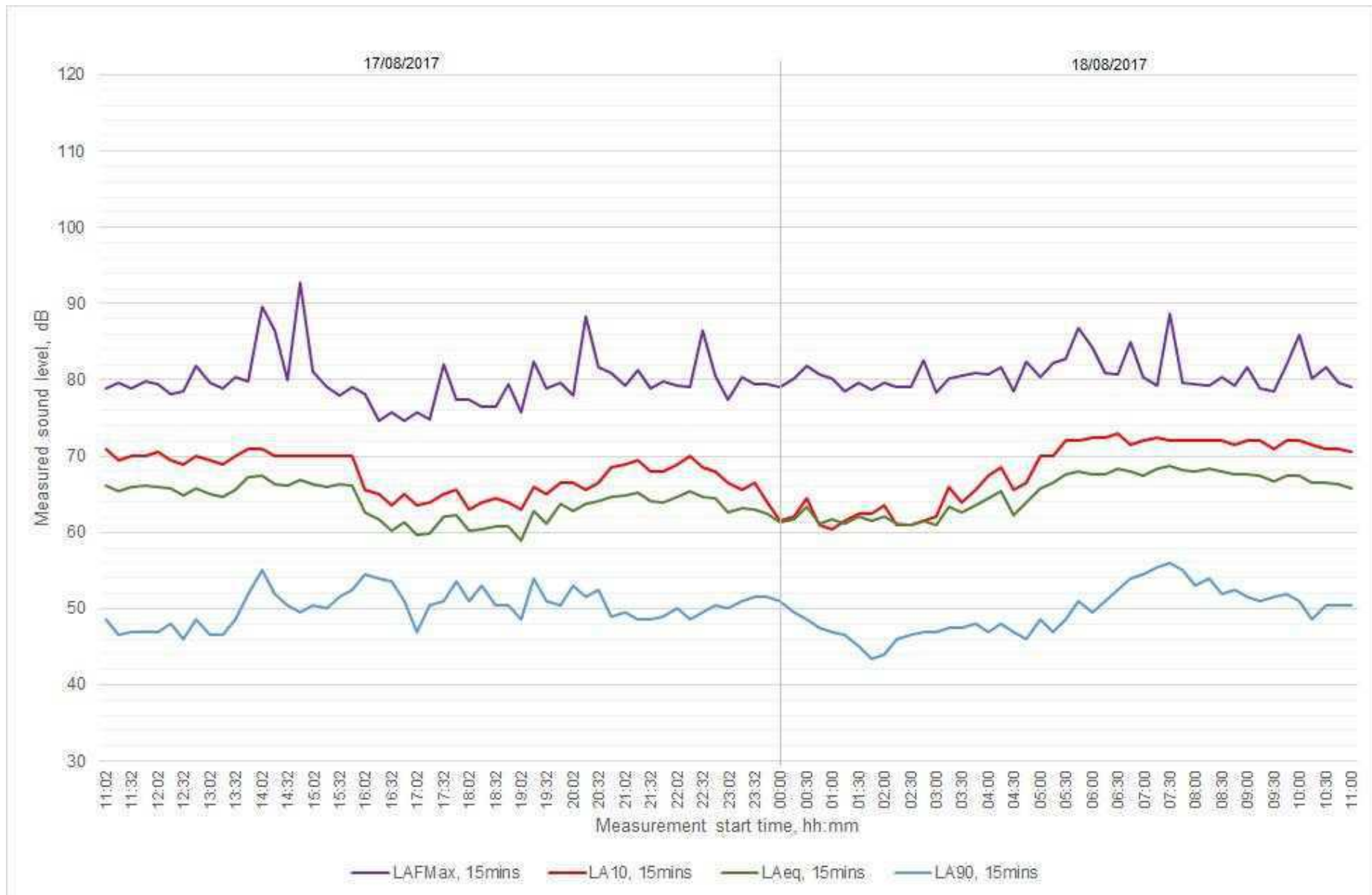
The figures below provide a graphical representation of measured survey data at each logging location (period, T = 15 minutes).

All measurements were taken in free-field conditions and are in dBA.

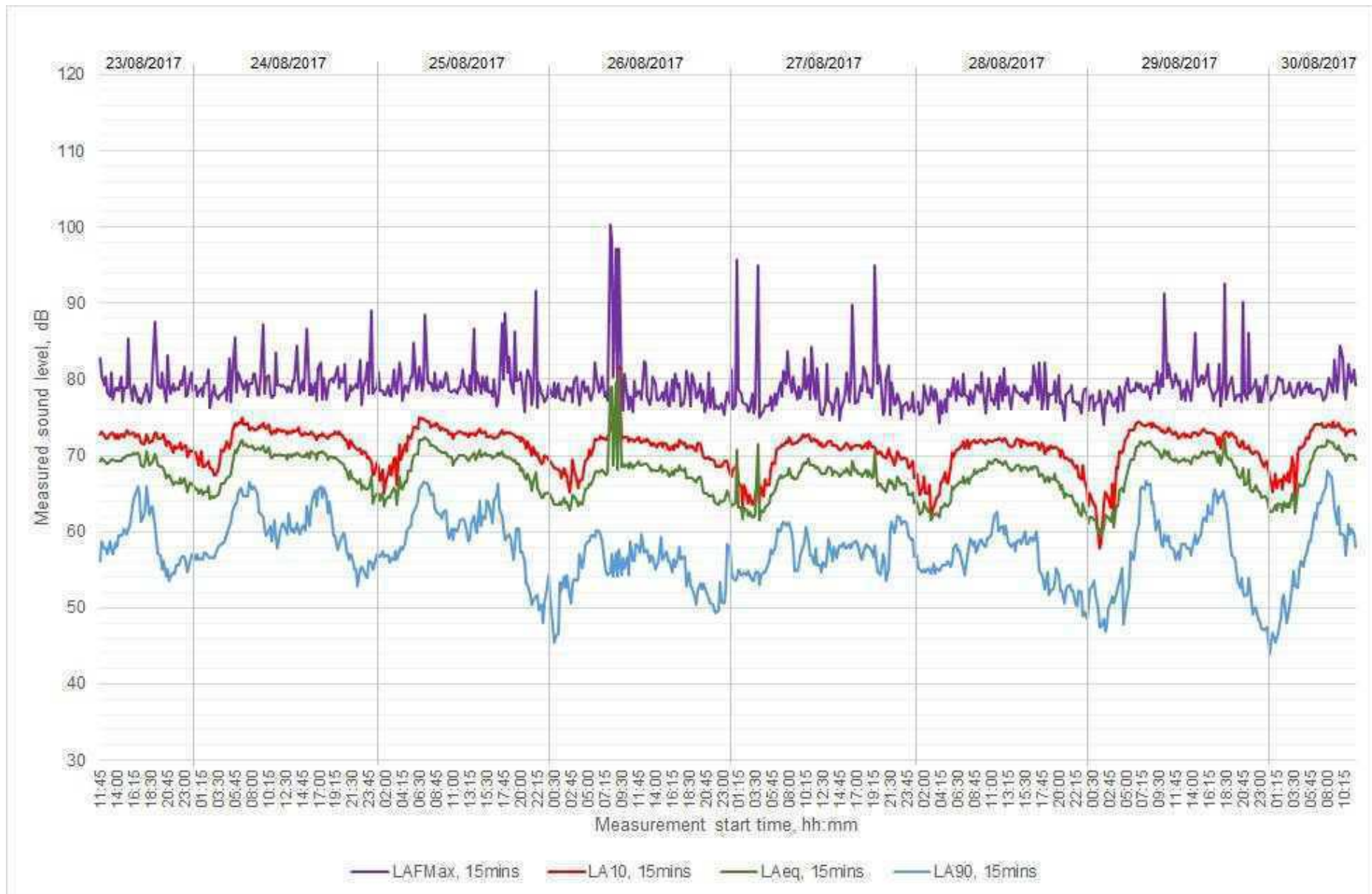
Location MP1: 16<sup>th</sup> – 17<sup>th</sup> August 2017



Location MP2: 17<sup>th</sup> – 18<sup>th</sup> August 2017

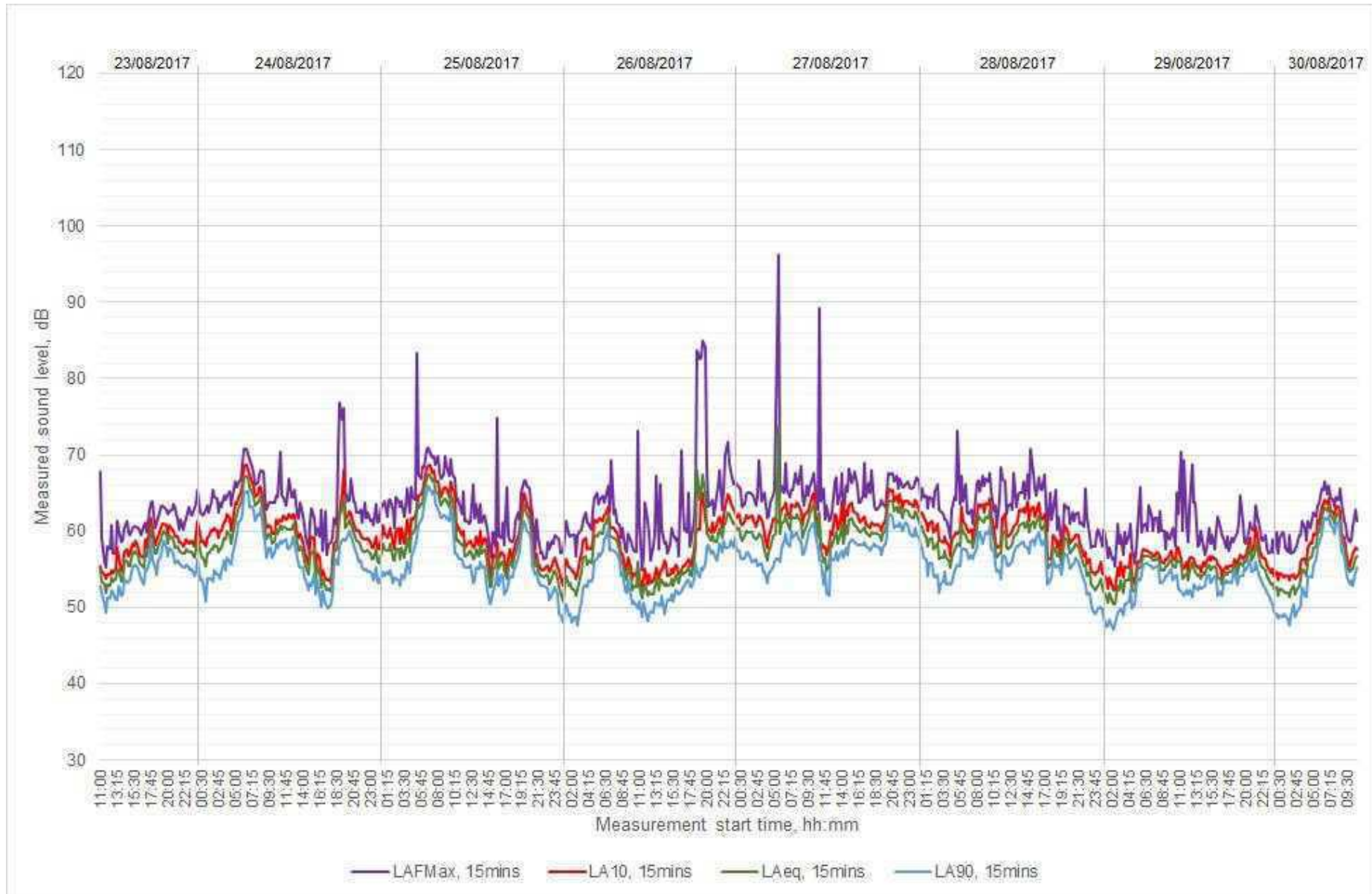


**Location MP3: 23<sup>rd</sup> – 30<sup>th</sup> August 2017**

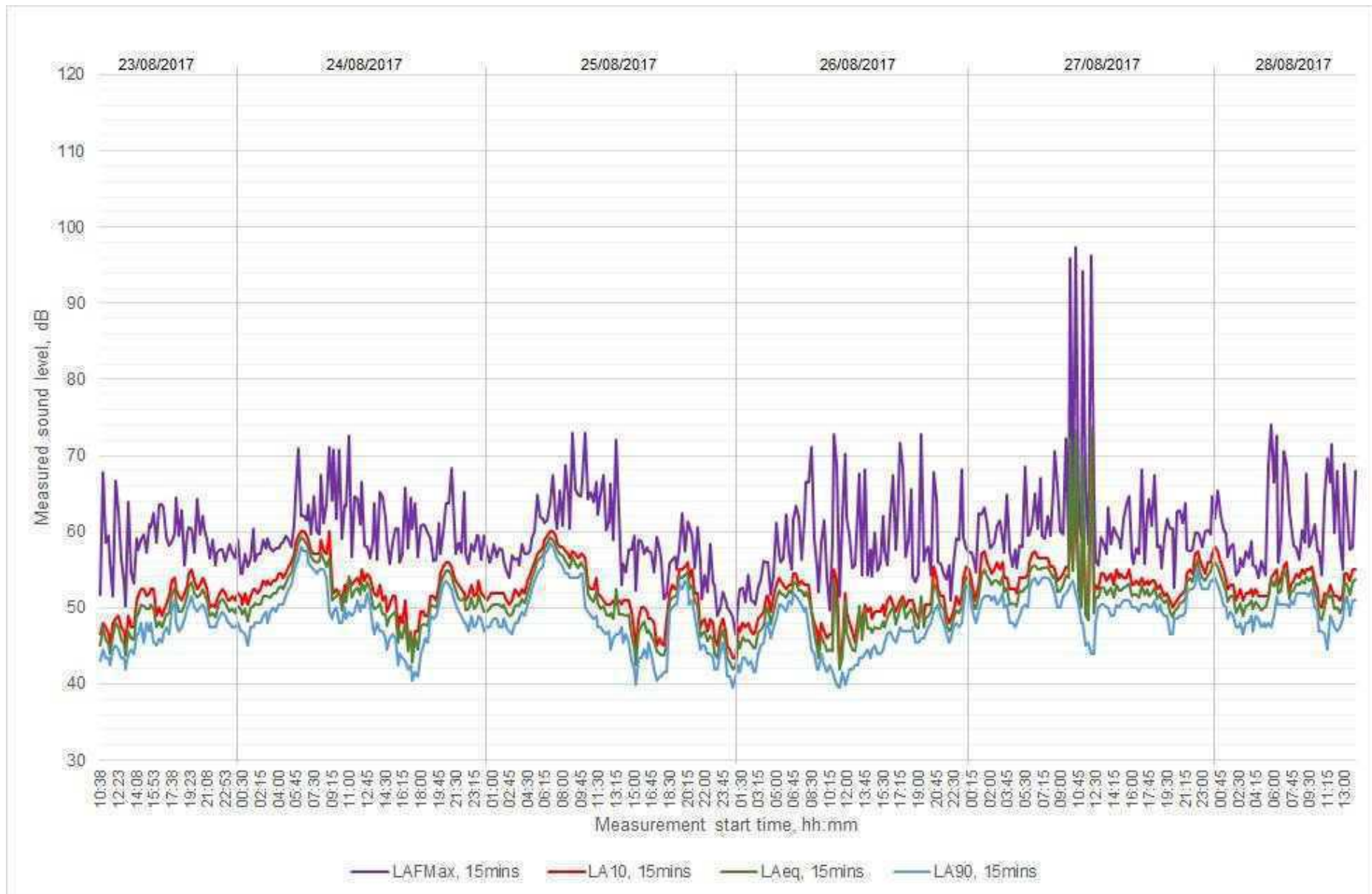




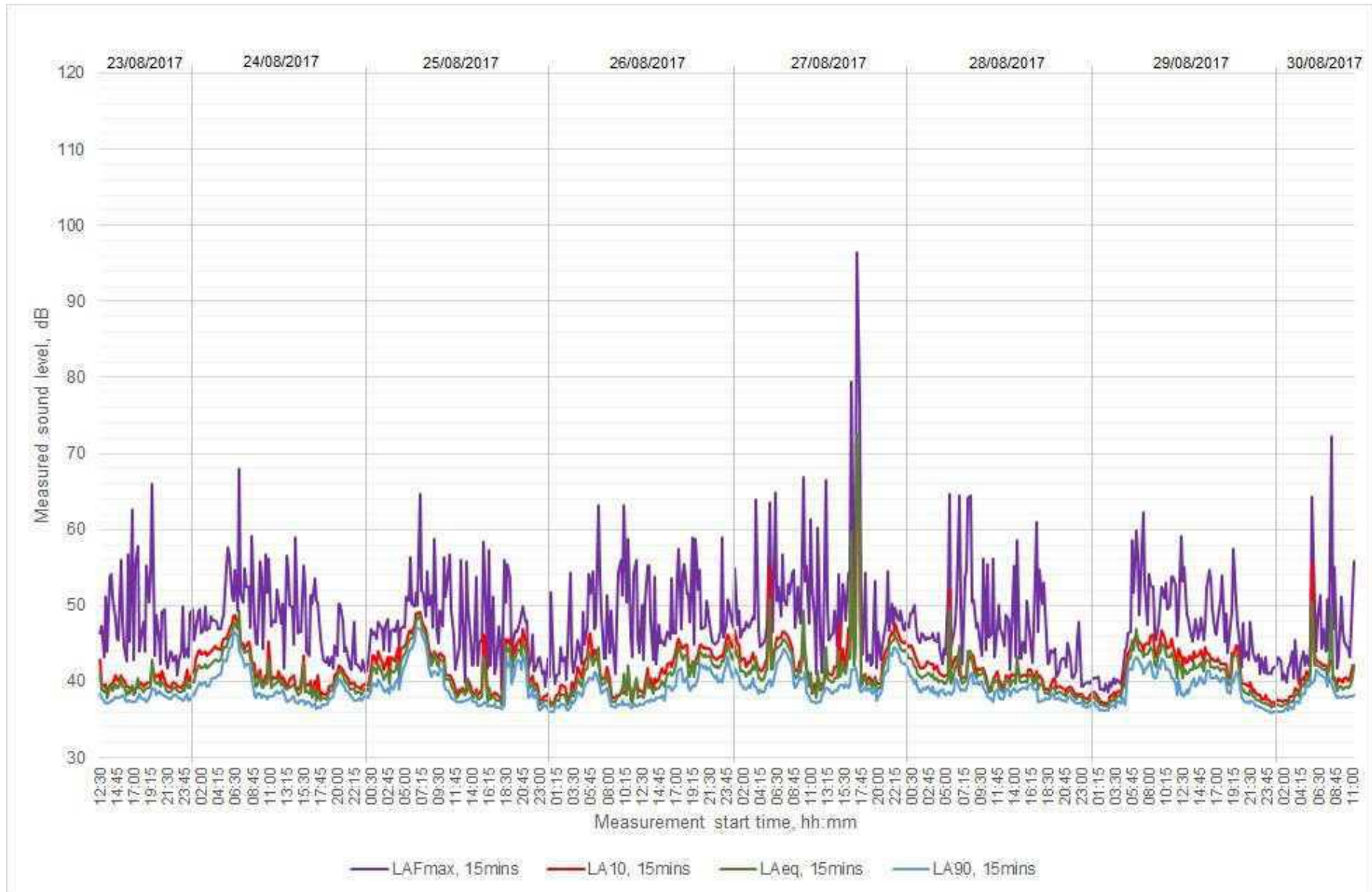
**Location MP4: 23<sup>rd</sup> – 30<sup>th</sup> August 2017**



Location MP5: 23<sup>rd</sup> – 28<sup>th</sup> August 2017

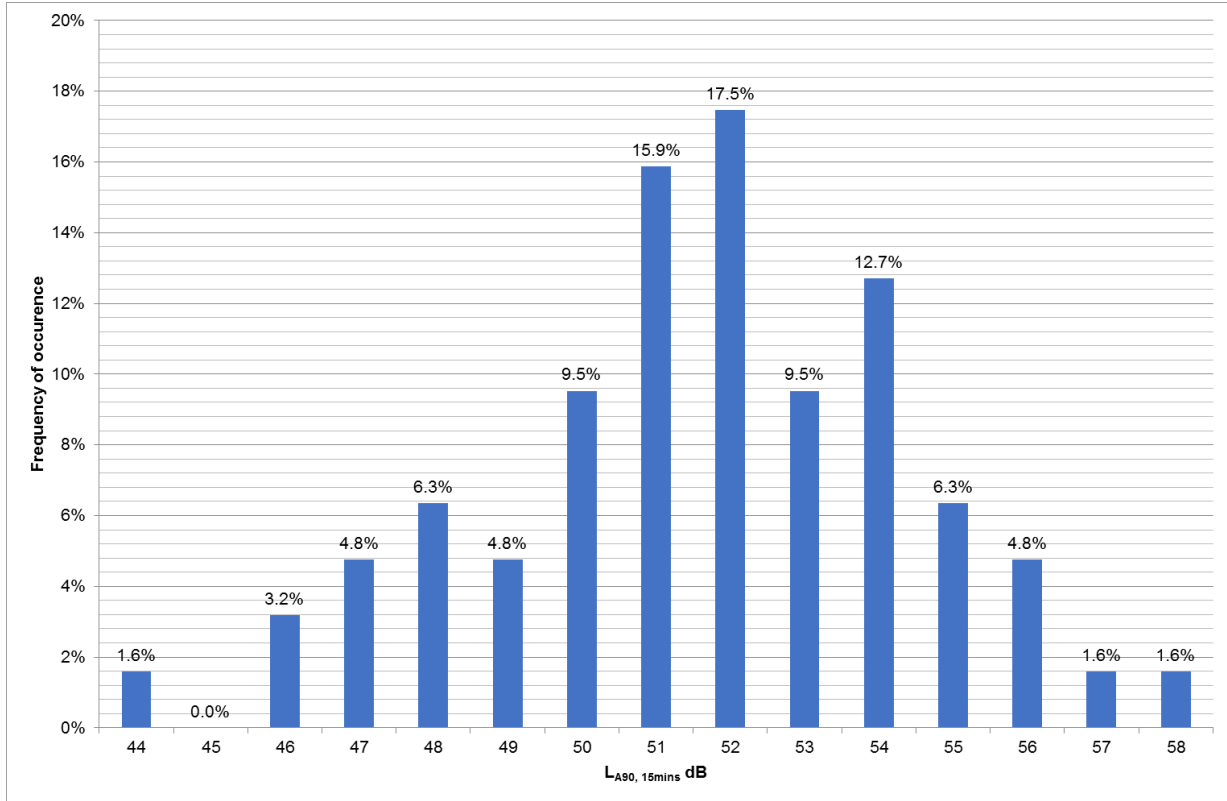


**Location MP6: 23<sup>rd</sup> – 30<sup>th</sup> August 2017**

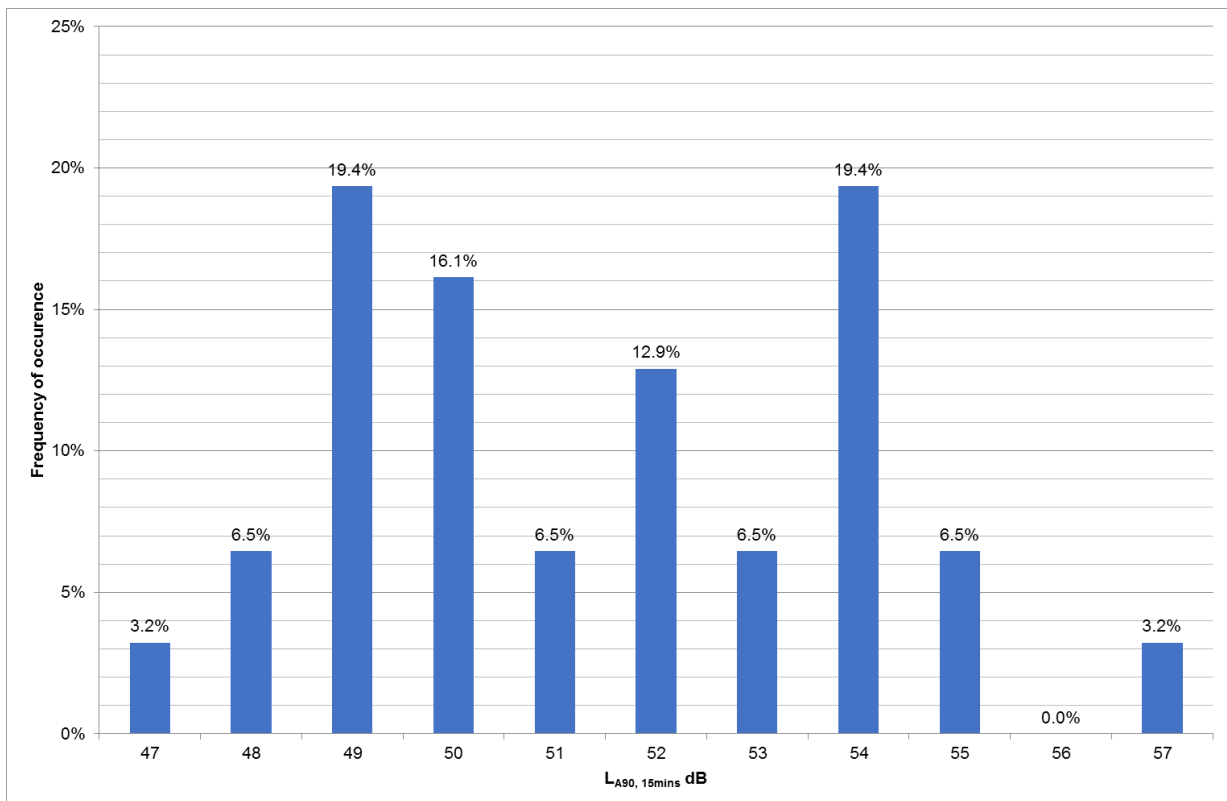


## Appendix III Histogram analysis

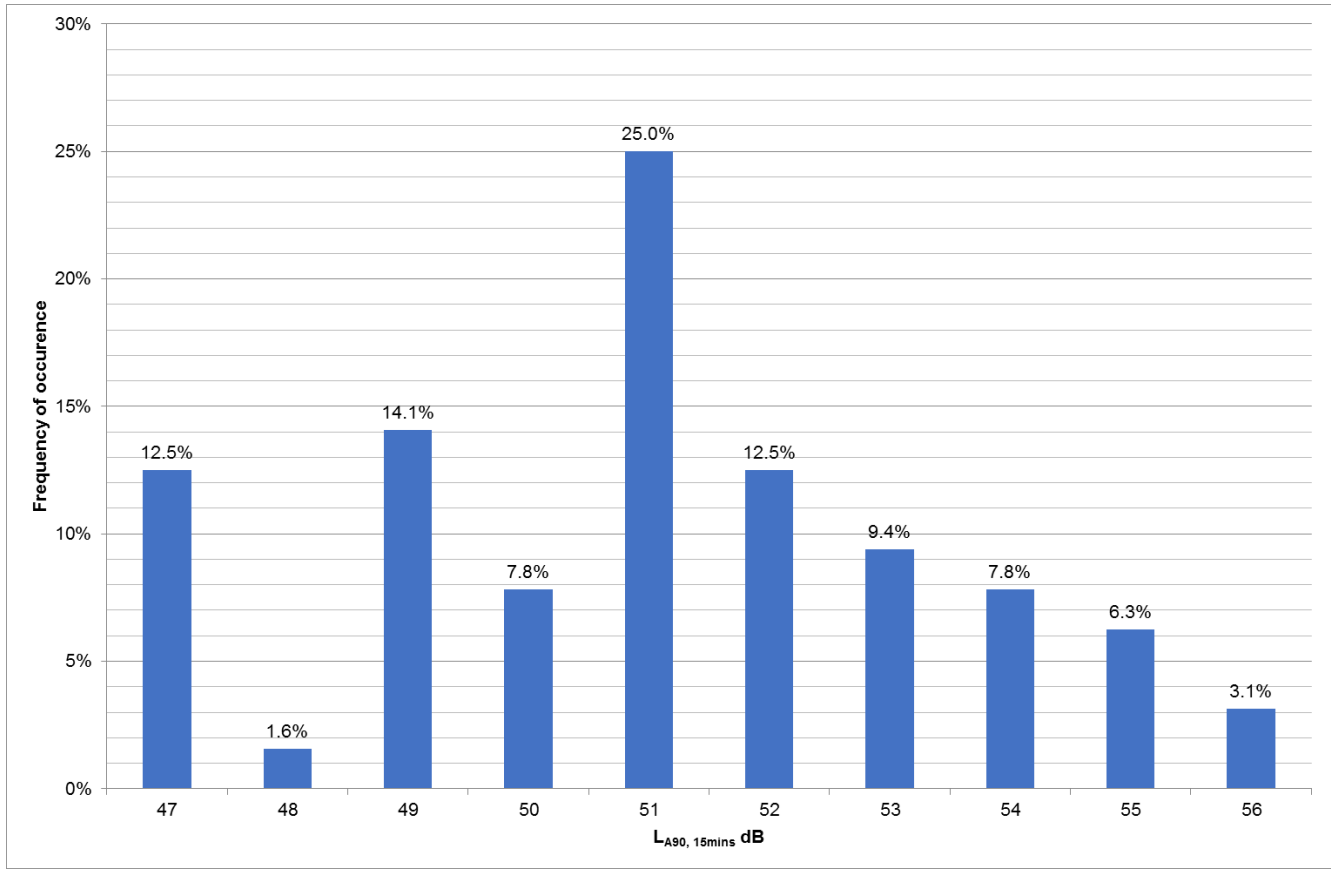
**MP1 daytime background sound level distribution (07:00 – 23:00 hrs)**



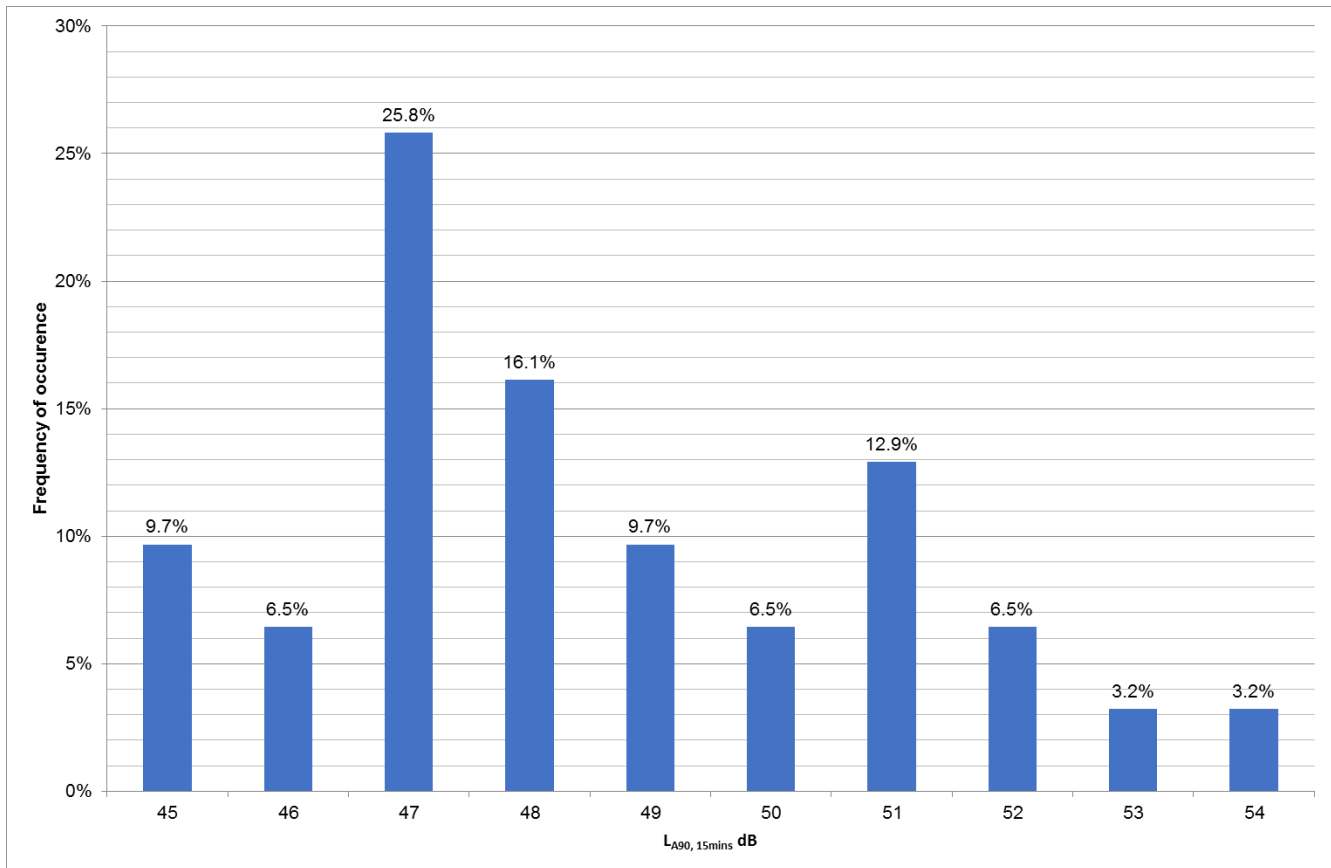
**MP1 night-time background sound level distribution (23:00 – 07:00 hrs)**



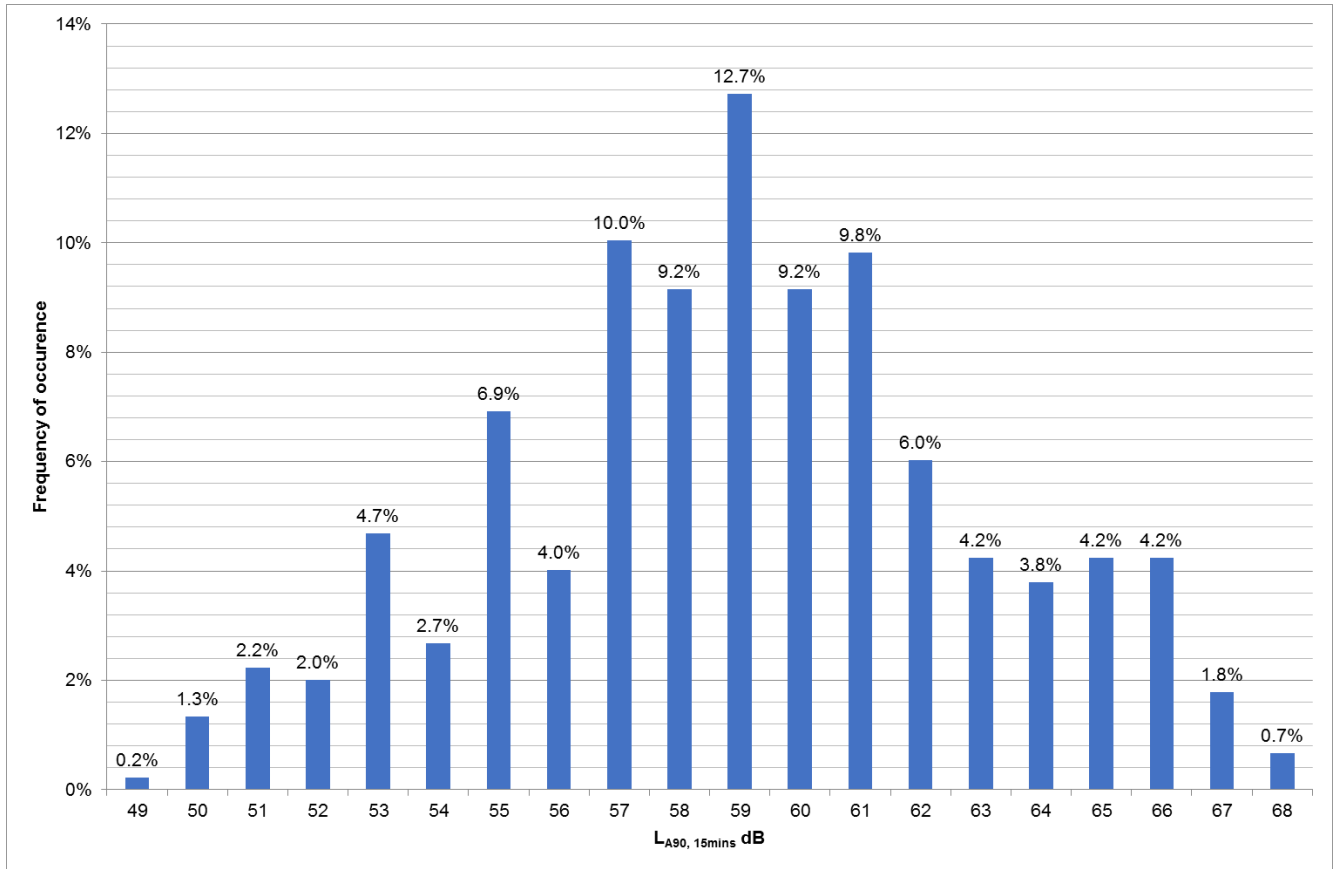
**MP2 daytime background sound level distribution (07:00 – 23:00 hrs)**



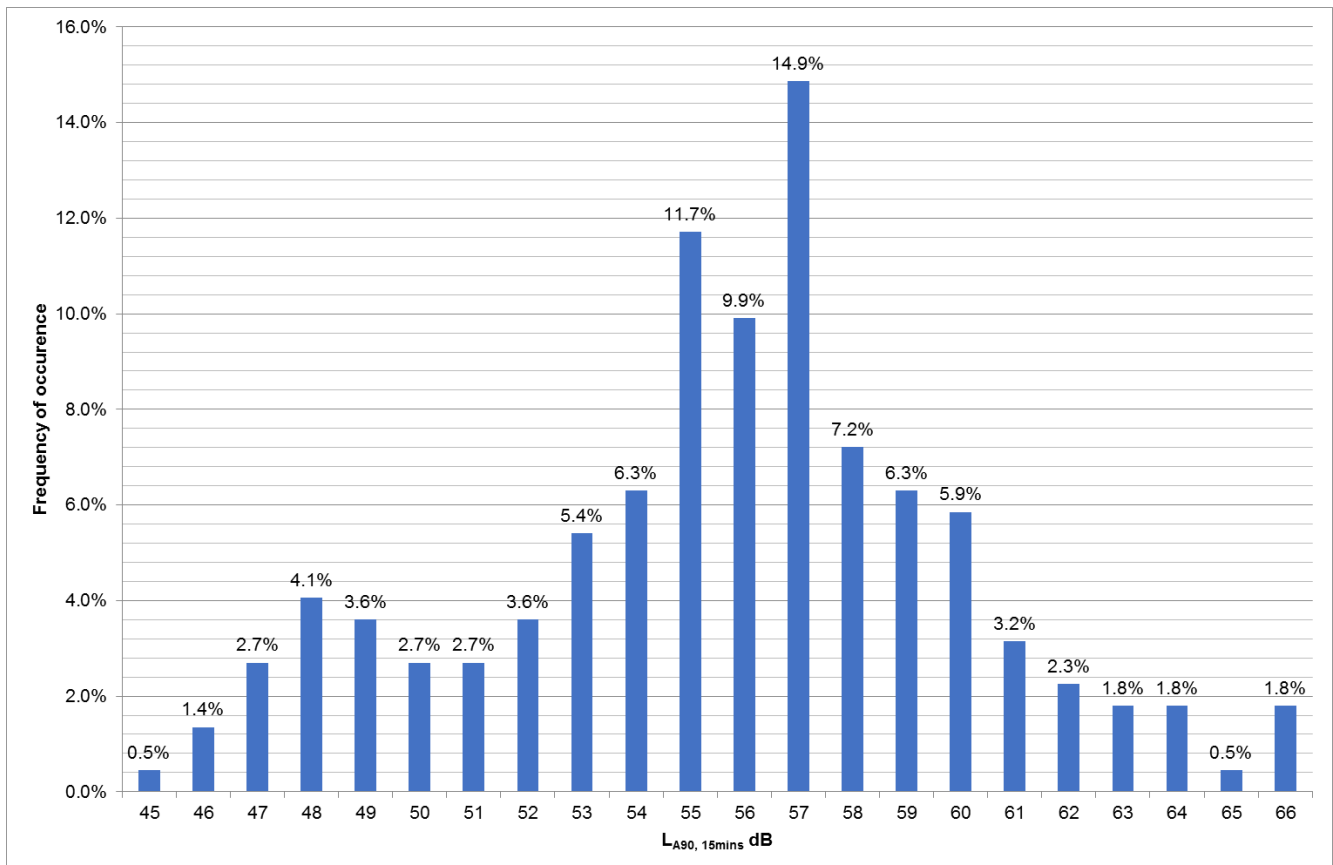
**MP2 night-time background sound level distribution (23:00 – 07:00 hrs)**



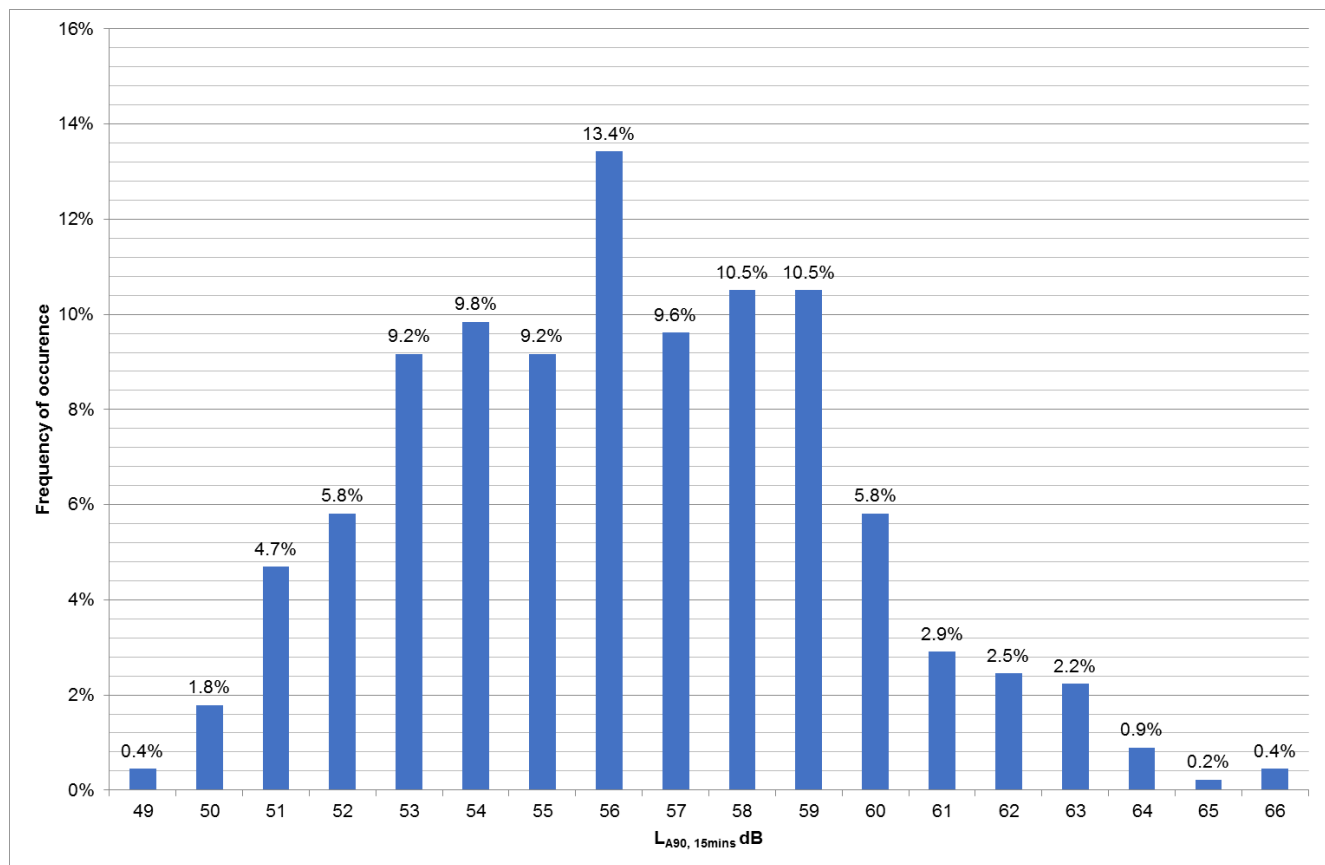
**MP3 daytime background sound level distribution (07:00 – 23:00 hrs)**



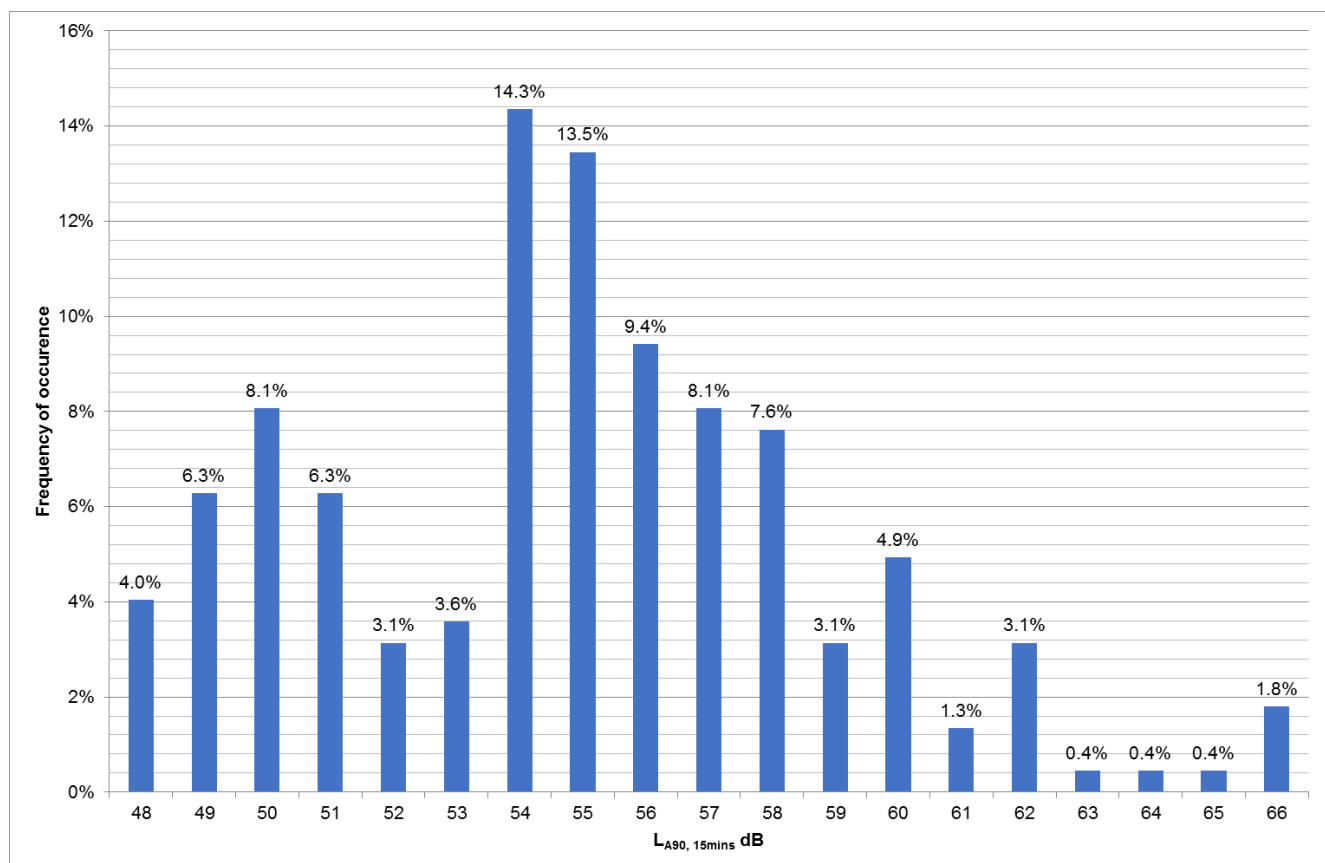
**MP3 night-time background sound level distribution (23:00 – 07:00 hrs)**



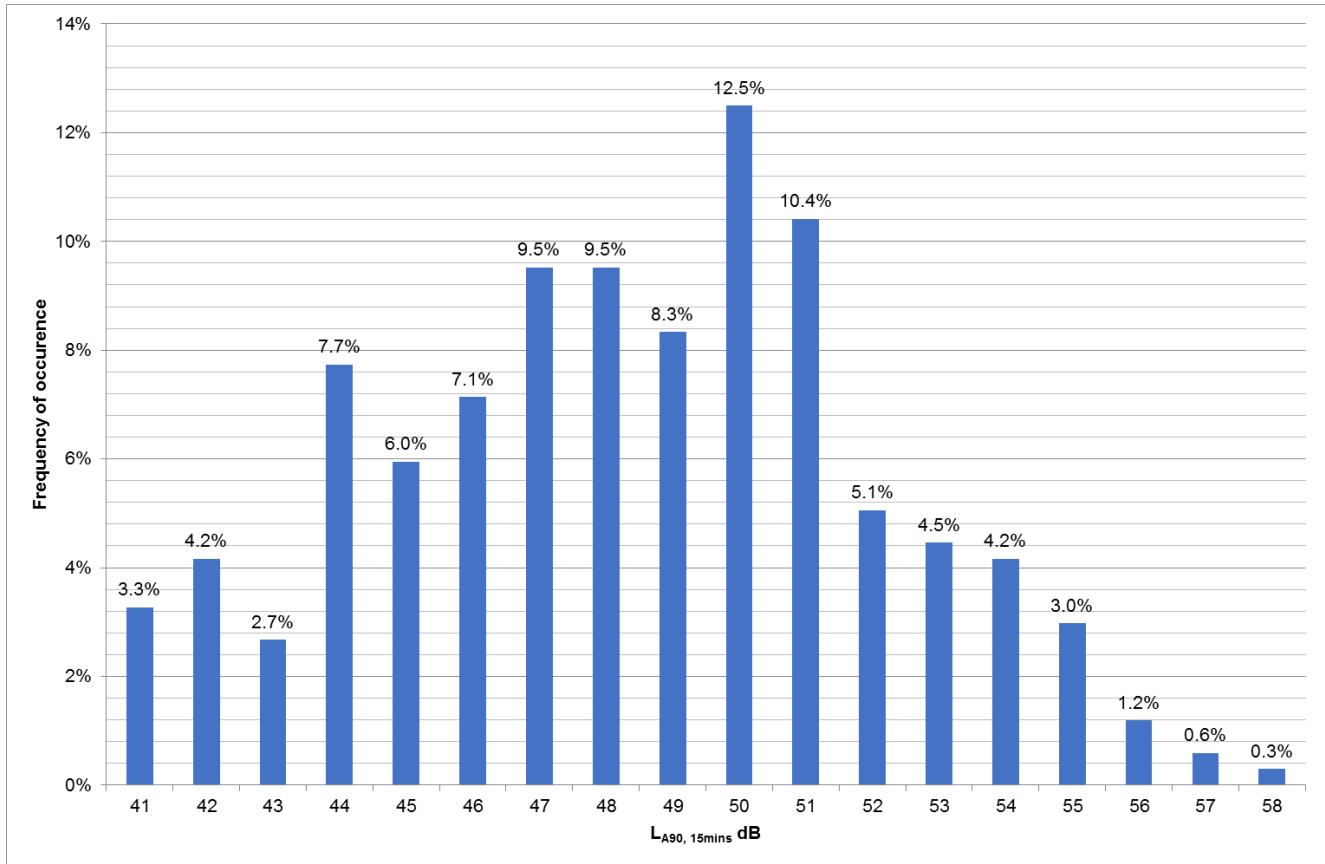
**MP4 daytime background sound level distribution (07:00 – 23:00 hrs)**



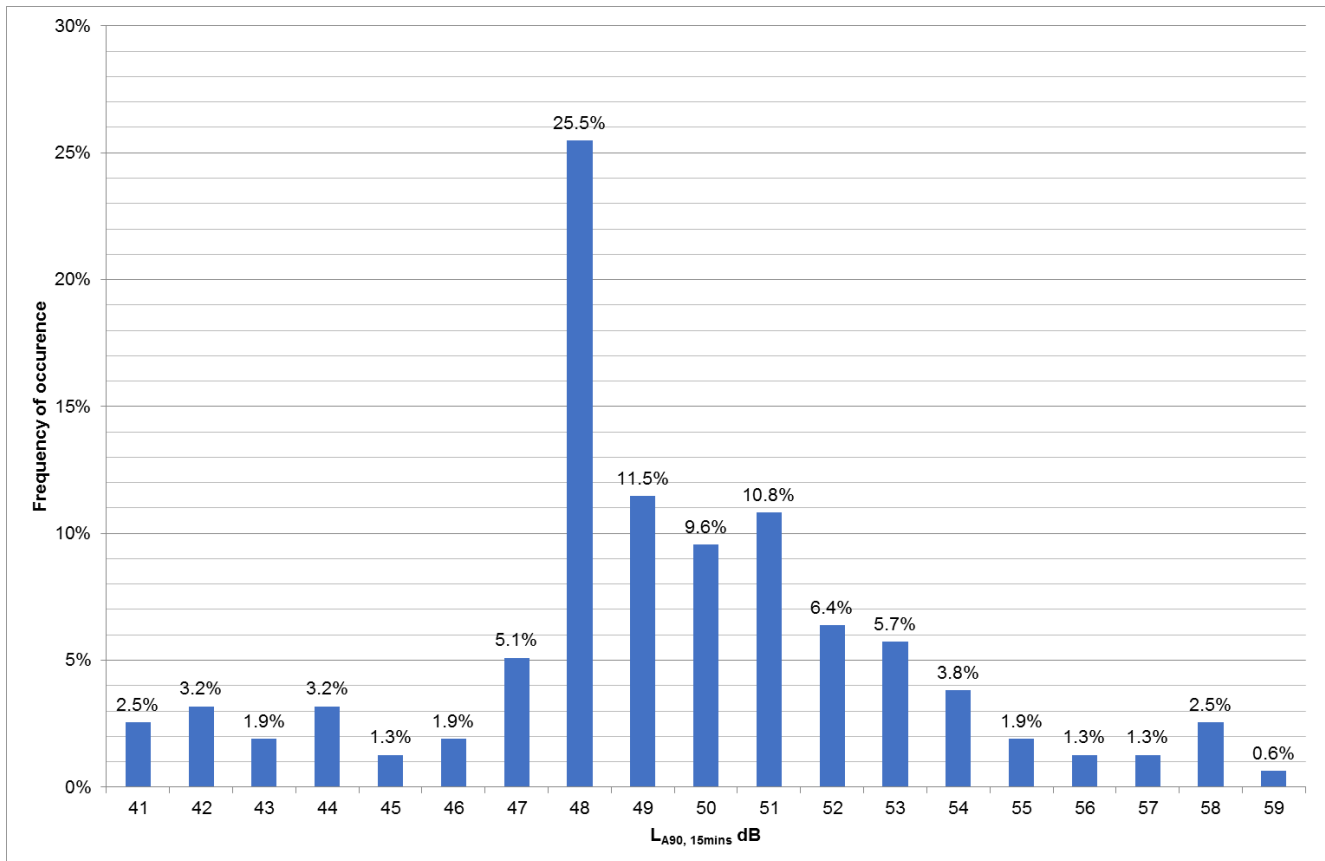
**MP4 night-time background sound level distribution (23:00 – 07:00 hrs)**



**MP5 daytime background sound level distribution (07:00 – 23:00 hrs)**

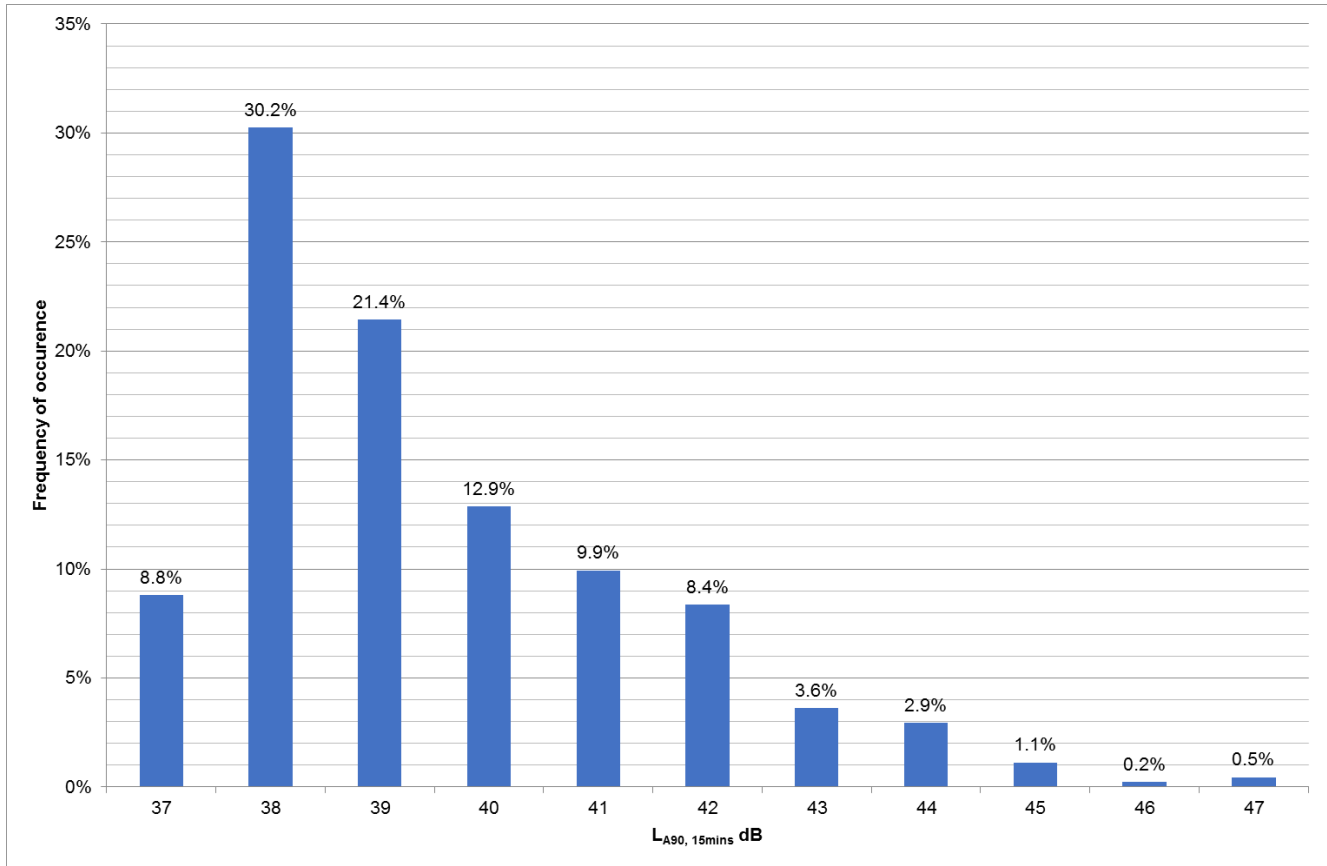


**MP5 night-time background sound level distribution (23:00 – 07:00 hrs)**

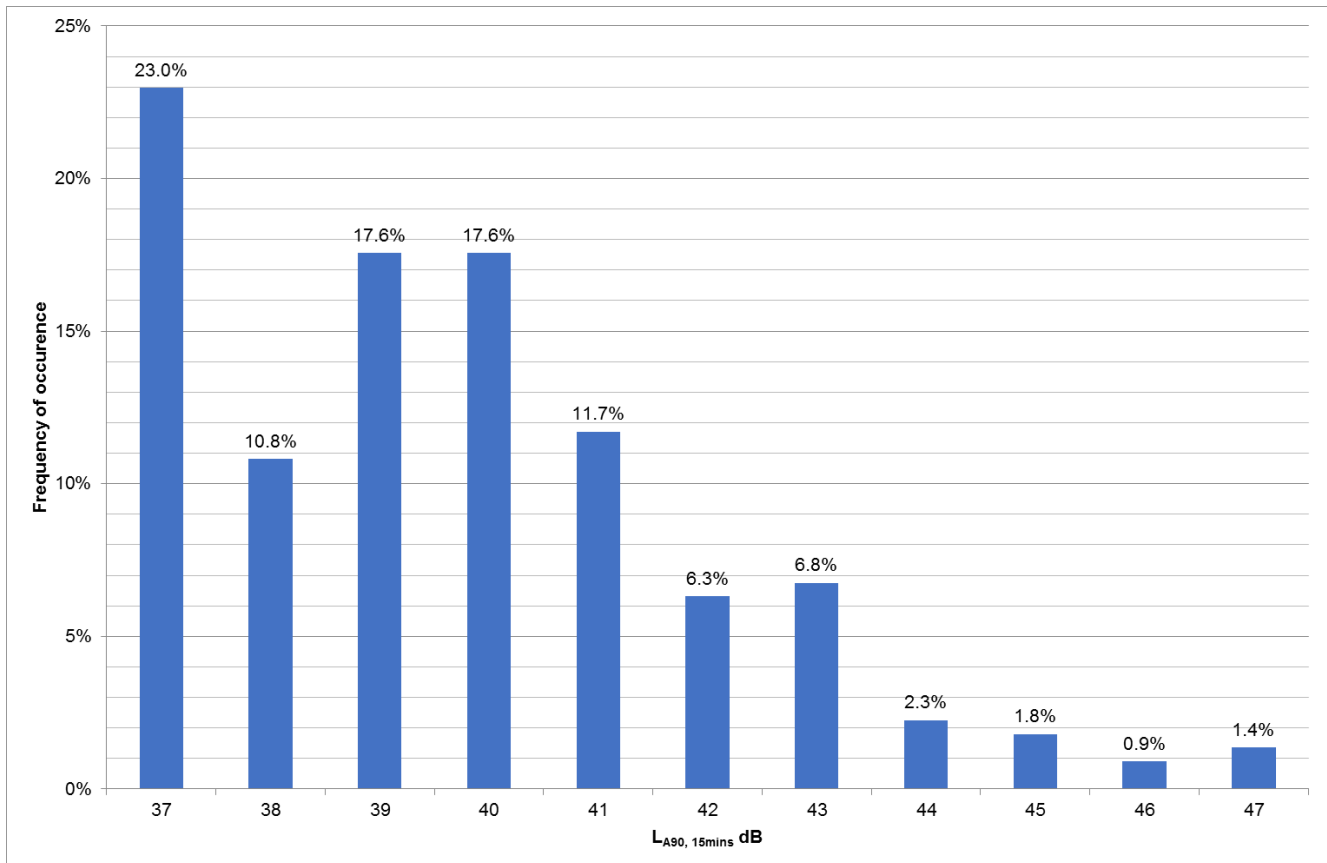




**MP6 daytime background sound level distribution (07:00 – 23:00 hrs)**



**MP6 night-time background sound level distribution (23:00 – 07:00 hrs)**



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## **ES Scoping Appendix I4 – Lighting Baseline Assessment**

# Warrington Interchange MP

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## Light Spill Assessment - Baseline Survey Results

### First Industrial / Langtree

Job No: 1015524  
Doc Ref: 1015524-RPT-LG-001  
Revision: —  
Revision Date: 15 September 2017

|                      |  |                   |
|----------------------|--|-------------------|
| <b>Project title</b> | Warrington Interchange MP                        | <b>Job Number</b> |
| <b>Report title</b>  | Light Spill Assessment - Baseline Survey Results | 1015524           |

**Document Revision History**

| Revision Ref | Issue Date | Purpose of issue / description of revision |
|--------------|------------|--|
| —            | 15/09/2017 | For Information                            |
|              |            |  |
|              |            |  |
|              |            |  |
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**Document Validation (latest issue)**


 Recoverable Signature

X 

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 Recoverable Signature

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 Recoverable Signature

X 

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Verified by  
Signed by: m.tweedale@cundall.com

## Executive Summary

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First Industrial / Langtree are proposing to redevelop the area situated within the Warrington Interchange located immediately South East of Warrington. The site safety and security lighting located within the development area will not have an effect on the residential properties to the North or the South of the development, if the lighting techniques highlighted in the ILP Guidance note on the reduction of obtrusive light, 2011 document are adhered to. The use of trees will act as an obstruction to the site and will therefore limit any light spill and sky glow. Careful consideration must be undertaken for any lighting adjacent to Bradley View site and further tree obstructions may be required for the area. It is understood that Bradley Hall Cottages will be removed in line with the masterplan however the properties have been assessed as a receptor point for the baseline review to encompass any future changes.

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# 1.0

## Introduction

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## **1.0 Introduction**

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Cundall Light4 were commissioned by First Industrial / Langtree to undertake the baseline light spill assessment at the Warrington Interchange site. More specifically, the statement assesses the likely impact of the existing external lighting on the residential buildings and ecology, in the area immediately surrounding the development site. The assessment includes a summary of the existing lighting found within the area to measure the baseline condition.

# 2.0

## Policy Context

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## 2.0 Policy Context

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### 2.1 Legislation

#### 2.1.1 The Planning (Clean Neighbourhoods and Environment) Act 2005

- The legislation governing light pollution is the Planning (Clean Neighbourhoods and Environment) Act 2005. It applies to “artificial light emitted from premises so as to be prejudicial to health or a nuisance”. The relevant section is 102..
- Section 102 defines the premises to which the act applies. Shopping centres, residential properties and offices are not exempt.

### 2.2 National Planning Policy Framework (March, 2012)

#### 2.2.1 Paragraph 125

- By encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

#### 2.2.2 Annex 2

- **Pollution:** Anything that affects the quality of land, air, water or soils, which might lead to an adverse impact on human health, the natural environment or general amenity. Pollution can arise from a range of emissions, including smoke, fumes, gases, dust, steam, odour, noise and light.

### 2.3 Local Planning Policy

#### 2.3.1 Warrington Borough Council – Supplementary Planning Document, Design and Construction (October 2010)

- Chapter 5 – Sustainable Design and Construction, states that;
- The assessment should show that the proposed design provides adequate lighting to enhance safety during the day and at night
- Chapter 9 – Landscaping in New Development states;
- Provide lighting along footpaths to and through open spaces
- Chapter 17 – Design and Crime, Industrial Estates and Business Parks Development Checklist states that;
- Lighting is directed towards entrances and exit points, car parks and service yards
- Proposed lighting is compliant with British Standard 5489 part 2
- There are no blind spots
- Chapter 17 – Design and Crime, Car Parks Development Checklist states that;
- Parking bays, footpaths, circulation routes and entrance/exit points are all well lit
- Lighting is in accordance with British Standard 5489 part 9

## 2.4 Industry Standards

### 2.4.1 Institute of Lighting Professionals (ILP formally the ILE), Guidance note on the reduction of obtrusive light, (GN01:2011)

- The ILP Guidance note sets out the industry standard for numerically measuring, (both through lighting design calculations and on site), the light spill from lighting into windows, sky glow, source luminance and building façade brightness. The ILP guidance note provides illuminance, luminance and percentage figures which must be satisfied both pre-and post curfew for various types of environmental zone classifications. See tables 1 and 2 below.

| Zone | Surrounding | Lighting Environment       | Examples  |
|------|-------------|----------------------------|---|
| E0   | Protected   | Dark                       | UNESCO Starlight Reserves, IDA Dark Sky Parks             |
| E1   | Natural     | Intrinsically dark         | National Parks, Areas of Outstanding Natural Beauty etc   |
| E2   | Rural       | Low district brightness    | Village or relatively dark outer suburban locations       |
| E3   | Suburban    | Medium district brightness | Small town centres or suburban locations                  |
| E4   | Urban       | High district brightness   | Town/city centres with high levels of night-time activity |

Table 1 – Environmental Zones for Obtrusive Lighting Limitations for Exterior Lighting Installations

| Environmental Zone | Sky Glow ULR [Max %] <sup>(1)</sup> | Light Intrusion (into Windows) E <sub>v</sub> [lux] <sup>(2)</sup> |             | Luminaire Intensity I [candelas] <sup>(3)</sup> |             | Building Luminance Pre-curfew <sup>(4)</sup> |
|--------------------|-------------------------------------|--|-------------|---|-------------|--|
|                    |                                     | Pre-curfew   | Post-curfew | Pre-curfew                                      | Post-curfew | Average, L [cd/m <sup>2</sup> ]              |
| E0                 | 0                                   | 0  | 0           | 0   | 0           | 0  |
| E1                 | 0                                   | 2  | 0 (1*)      | 2,500   | 0           | 0  |
| E2                 | 2.5                                 | 5  | 1           | 7,500   | 500         | 5  |
| E3                 | 5.0                                 | 10   | 2           | 10,000  | 1,000       | 10   |
| E4                 | 15                                  | 25   | 5           | 25,000  | 2,500       | 25   |

Table 2 – Obtrusive Lighting Limitations for Exterior Lighting Installations

- The Warrington Interchange site is situated South East of Warrington centre near Lymm. It is within an outer suburban area which allows it to meet with the E2 'Rural' classification of area.

### 2.4.2 Institute of Lighting Professionals (ILP formally the ILE), BATS Conservation Trust Lighting Guidance (May 2009)

- The Bat Conservation Trust and the ILP produced a paper in 2009, 'Bats and Lighting in the UK', discussing the appropriate lighting levels, types of lamps, colour temperatures etc. which are suitable for lighting areas adjacent to bat houses.

**2.4.3 Institute of Lighting Professionals (ILP formally the ILE), A Review of the Impact of Artificial Light on Invertebrates (March 2011)**

- The Invertebrate Conservation Trust and ILP produced a paper in 2011 which discusses the appropriate lighting levels, types of lamps, colour temperatures etc. and the impact any lighting has on insects and other invertebrates, making recommendations and identifying several further research areas.

**2.4.4 Institute of Lighting Professionals (ILP formally the ILE), Lighting Against Crime, A Guide for Crime Reduction Professionals (January 2011)**

- Secured by Design and the ILP produced a paper in 2011 conversing an understanding of external lighting and the recommended levels of illumination used to combat crime, the fear of crime and antisocial behaviour. Secured by Design is a police initiative to encourage the building industry to adopt crime prevention measures in the design of developments to assist in reducing the opportunity for crime and the fear of crime, creating a safer and more secure environment.

# 3.0

## Assessment Methodology and Significance Criteria

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## 3.0 Assessment Methodology and Significance Criteria

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### 3.1 The baseline assessment methodology is as follows:

#### 3.1.1 Site Survey

- A site survey will be undertaken to establish the type, height and light distribution of the existing lighting components on and around the site.
- Key receptors will be identified to signal which areas need to be looked at in further detail during the detail lighting design process.

#### 3.1.2 Environmental impacts on wildlife will be identified and a recommendation made on lamp types, colour temperature etc. Consideration of the potential impact of the development.

- A desktop study will be undertaken to understand the building façade designs, their positions in relation to the residential buildings and key routes around and through the site and their likely lighting design requirements, e.g. functional, feature, media etc. From this study the likely impact has been assessed.
- Public realm lighting within the car parks of the development will be evaluated with respect to light spill onto the surrounding areas.

#### 3.1.3 The Lighting Strategy

- A lighting strategy aimed at minimising light spill will be developed during the detailed design phase of the project.

# 4.0

## Key Receptors

---



## 4.0 Key Receptors

### 4.1 The key receptors surrounding the development are listed below.

It is assumed that each of these receptors may be impacted by light spill from the proposed Warrington Interchange site development, and as a result could be detrimental to the existing environment. The receptors that are the subject of this chapter as per Figure 1 are;

- Grappenhall Lodge
- Cartridge Lane Dwelling
- Bradley Hall Cottages
- Bradley View
- Howshoots Farm
- M6 Motorway
- Barleycastle Lane dwellings x 2

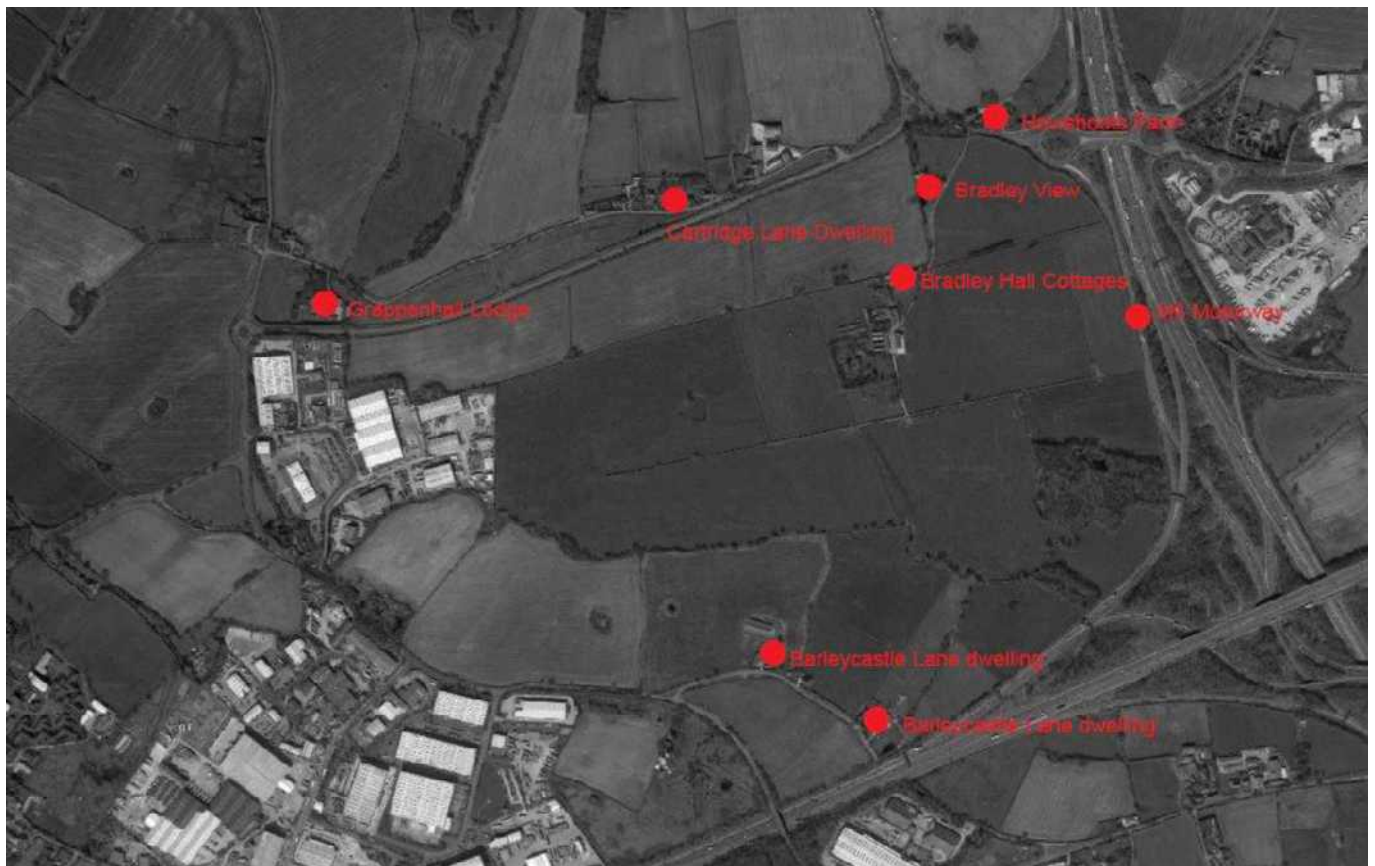


Figure 1

# 5.0

## Baseline Conditions

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## 5.0 Baseline Conditions

- Cundall Light 4 carried out a site survey between 8.00 and 12.00 on the 16<sup>th</sup> August 2017. The survey included a study of the existing site and any lighting around the perimeter of the development area.
- There is currently no existing lighting system in place on site and so Cundall Light4 spent their time on site noting each of the receptors and how they may be affected by future light spill.

The residential property at Grapenhall Lodge cannot be viewed from the current site due to the dense number of trees in the area, see Figure 2. Therefore it can be assumed that Grapenhall Lodge will not be affected by any light spill if the lighting techniques highlighted in the ILP Guidance note on the reduction of obtrusive light, 2011 document are adhered to.



Figure 2

The residential dwellings adjacent to the development on Cartridge Lane can be viewed from the current site. There is a reduced number of trees in the area, see Figures 3 and 4. Therefore it can be assumed that currently, the residential dwelling would be affected by a small percentage of light spill.



Figure 3



Figure 4

Within the development site is the residential dwellings of Bradley Hall cottages and farm, see Figures 5 and 6. It has currently been confirmed that the cottages will be removed from the masterplan however to encompass any future changes that may take place, a baseline assessment has taken place. Care must be taken upon any surrounding lighting so as not to exceed the recommended light trespass onto the windows. Currently there are a number of lighting columns already installed in close proximity to the cottages, see Figure 7. The use of additional trees may be required to block any light spill due to the low-level hedges that are currently in place and will not provide any obstructive views. However, it can therefore currently be assumed that the residential dwellings of Bradley Hall cottages would be affected by a percentage of light spill, as a number of the cottages are currently already affected by a minor percentage of light spill from the existing columns.



Figure 5



Figure 6



Figure 7

The residential dwelling within Bradley View requires extra precaution with any adjacent lighting. The house and gardens are currently viewable from the West and East directions with minimal surrounding trees, see Figures 8 and 9. Therefore it can currently be assumed that the residential dwelling within Bradley View would be affected by a percentage of light spill.



Figure 8



Figure 9

Howshoots Farm is the adjacent property to the North East of the site, see Figure 10. There is currently a sparse number of trees populating the area and so it can be assumed that Howshoots Farm would be affected by a small percentage of light spill.



Figure 10 – view from site towards the adjacent road and Howshoots Farm

The M6 motorway runs adjacent to the East of the development, see Figure 11. Currently there is a minor percentage of light spill around the site adjacent to the motorway. Care must be taken upon any surrounding lighting so as not to cause glare to drivers. The use of additional trees may be required to block any light spill both onto the motorway and onto the site, however it can therefore currently be assumed that the M6 motorway would be affected by a percentage of light spill.



Figure 11 – M6 motorway to the left

To the South of the development site is two residential dwellings on Barleycastle Lane, see Figures 12 and 13. There is a reduced number of trees in the area. However with the distance from the dwellings to the site it can be assumed that the residential dwellings would not be affected by a small percentage of light spill.



Figure 12





Figure 13

The ILP Guidance note on the reduction of obtrusive light, (2011) document, states that in the category E2 (Low district brightness areas), the light trespass into windows should not exceed 5lux pre-curfew and 1lux post-curfew. There is currently no light trespass on the residential windows from the site

# 6.0

## Summary

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## 6.0 Summary

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- There is no existing lighting at the Warrington Interchange development site, therefore there is currently no contribution to light spill to the surrounding roads and residential building.
- There is minor light spill onto the site from the M6 motorway.
- The site, in its current state will pass the ILP Institute of Lighting Professionals, Guidance note on the reduction of obtrusive light, (GN01:2011).

# 7.0

## Conclusion

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## 7.0 Conclusion

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- The lighting design discussion within this report refers to the site known as Warrington Interchange
- If the lighting techniques highlighted in the ILP Guidance note on the reduction of obtrusive light, 2011 document are used, the site safety and security lighting located within the development area will not have an effect on the adjacent residential properties to the North and South of the development
- If the lighting techniques highlighted in the ILP Guidance note on the reduction of obtrusive light, 2005 document are used, the site safety and security lighting located within the development area will not have an effect on the adjacent M6 Motorway to the East of the development
- The use of trees as an obstruction to the site will limit any light spill and sky glow
- Careful consideration must be undertaken for any lighting adjacent to the Bradley Hall Cottages, if they remain, and Bradley View site. Further tree obstructions may be required for the area.

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## **ES Scoping Appendix 15 – Glossary and Abbreviations**

## Abbreviations

### A a

|         |   |
|---------|---|
| AADT    | Annual Average Daily Traffic  |
| AAWT    | Average Annual Weekday Traffic  |
| ABI     | Annual Business Inquiry Data  |
| ACM     | Asbestos Containing Materials   |
| ADF     | Average Daylight Factor   |
| AGL     | Above Ground Level. A measurement of altitude above a specific land mass. |
| AOD     | Above Ordnance Datum  |
| APSH    | Annual Probable Sunlight Hours  |
| APZ     | Archaeological Priority Zone  |
| AQAP    | Air Quality Action Plan   |
| AQMA(s) | Air Quality Management Area(s)  |
| AQS     | Air Quality Strategy  |
| AVR     | Accurate Visual Representations   |

### B b

|      |  |
|------|--|
| BAME | Black, Asian and Minority Ethnic                                     |
| BAP  | Biodiversity Action Plan   |
| BGS  | British Geological Survey  |
| BMT  | BMT Fluid Mechanics Limited. Wind Microclimate specialist consultant |
| BRMC | Biodiversity Recording and Monitoring Centre                         |
| BS   | British Standard   |
| BSI  | British Standard Institute   |

|      |  |
|------|--|
| BT   | British Telecom                        |
| BTEX | Benzene, Toluene, Ethylbenzene, Xylene |
| BUG  | Bicycle User Groups                    |

### C c

|                 |  |
|-----------------|--|
| CCTV            | Closed Circuit Television                                  |
| CEMP            | Construction Environmental Management Plan                 |
| CFD             | Computational Fluid Dynamics                               |
| CIRIA           | Construction Industry Research and Information Association |
| CLEA            | Contaminated Land Exposure Assessment                      |
| CLP             | Construction Logistics Plan                                |
| CLR             | Contaminated Land Report                                   |
| CMS             | Construction Management System                             |
| CMSC            | Construction Management System Contractor                  |
| CO              | Carbon Monoxide  |
| CO <sub>2</sub> | Carbon Dioxide   |
| COCP            | Code of Construction Practice                              |
| COP             | Code of Practice   |
| CPZ             | Controlled Parking Zone                                    |
| CRN             | Calculation of Rail Noise                                  |
| CRTN            | Calculation of Road Traffic Noise                          |
| CS              | Core Strategy  |
| CWS             | County Wildlife Site                                       |



## D d

|          |   |
|----------|---|
| dB       | Decibel   |
| dBA      | The unit of noise measurement (measured on a logarithmic scale), which expresses the loudness in terms of decibel (dB) scale and the frequency factor |
| DCLG/CLG | Department for Communities and Local Government   |
| DDA      | Disability Discrimination Act   |
| DEFRA    | Department for Environment, Food and Rural Affairs  |
| DETR     | Department of Environment, Transport and the Regions (now Department for Transport)   |
| DfT      | Department for Transport  |
| DMRB     | Design Manual for Roads and Bridges   |
| DoE      | Department of Environment   |
| DoT      | Department of Transport   |
| DPD      | Development Plan Document   |

## E e

|                          |  |
|--------------------------|--|
| EA                       | Environment Agency                                 |
| EAPPG                    | Environment Agency Pollution Prevention Guidelines |
| EDBP                     | Economic Development Business Plan                 |
| EH                       | English Heritage                                   |
| EIA                      | Environmental Impact Assessment                    |
| EMP                      | Environmental Management Plan                      |
| EMSE                     | Environmental Management Act 1990                  |
| Environmental Management |  |

|            |                                |
|------------|--------------------------------|
| StrategyPA |                                |
| EN         | English Nature                 |
| EPS        | European Protected Species     |
| EQS        | Environmental Quality Standard |
| ES         | Environmental Statement        |
| EU         | European Union                 |

## F f

|            |  |
|------------|--|
| FRA        | Flood Risk Assessment                  |
| FE         | Form of Entry – cohorts of 30 children |
| FTE (Jobs) | Full Time Equivalent (Jobs)            |

## G g

|     |   |
|-----|---|
| GDP | Gross Domestic Product. A measure of the national economic performance. |
| GEA | Gross External Area   |
| GIA | Gross Internal Area   |
| GP  | General Practitioner  |
| GQA | General Quality Assessments   |
| GVA | Gross Value Added   |

## H h

|          |  |
|----------|--|
| Ha       | Hectare                                |
| HDV(s)   | Heavy Duty Vehicle(s)                  |
| HER      | Historic Environment Record            |
| HGV(s)   | Heavy Goods Vehicle(s)                 |
| HSMS     | Health and Safety Management System    |
| HVAC     | Heating, Ventilation, Air Conditioning |
| HWR      | Hazardous Waste Regulations 2005       |
| Hz / kHz | Hertz / Kilohertz                      |

## I i

|      |  |
|------|--|
| ICE  | Institute of Civil Engineers                         |
| IDP  | Infrastructure Delivery Plan                         |
| IEA  | Institute of Environmental Assessment                |
| IEEM | Institute of Ecology and Environmental Management    |
| IEMA | Institute of Environmental Management and Assessment |
| IHT  | Institute of Highways and transportation             |
| IMD  | Index of Multiple Deprivation                        |

## J j

|      |                                  |
|------|----------------------------------|
| JMP  | Inclusive Access Consultants     |
| JSA  | Job Seekers Allowance            |
| JSNA | Joint Strategic Needs Assessment |

## K k

|     |   |
|-----|---|
| Kg  | Kilogram  |
| KS1 | Key Stage 1 – Primary education between years 1-2 |
| KS2 | Key Stage 2 – Primary education between years 3-6 |
| Kw  | Kilowatt  |

## L l

|       |  |
|-------|--|
| LA10  | The noise level exceeded for 10% of the measurement time |
| LAeqT | Equivalent continuous sound level                        |
| LAQM  | Local Air Quality  |

|       |                             |
|-------|-----------------------------|
|       | Management                  |
| LDF   | Local Development Framework |
| LDV   | Light Duty Vehicles         |
| LEZ   | Low Emission Zone           |
| LGV   | Light Goods Vehicle         |
| LNR   | Local Nature Reserve        |
| LoWR  | List of Waste Regulations   |
| LPA   | Local Planning Authority    |
| LSOAs | Lower Super Output Areas    |
| LW    | Long Wave                   |

## M m

|                |   |
|----------------|---|
| m              | Metre   |
| m <sup>2</sup> | Square metres   |
| m <sup>3</sup> | Cubic metres  |
| MAGIC          | Multi-Agency Geographic Information for the Countryside |
| mm             | millimetres   |
| MMP            | Materials Management Plan                               |
| MNL            | Music Noise Level                                       |
| MOL            | Metropolitan Open Land                                  |
| m/s            | Metres per second                                       |

## N n

|                 |                                 |
|-----------------|---------------------------------|
| NAQS            | National Air Quality Strategy   |
| NE              | Natural England                 |
| NEC             | Noise Exposure Category         |
| NGR             | National Grid Reference         |
| NHBC            | National House Building Council |
| NHS             | National Health Service         |
| NIA             | Net Internal Area               |
| NMR             | National Monuments Record       |
| NNR             | National Nature Reserve         |
| No <sub>2</sub> | Nitrogen Dioxide                |
| NO <sub>x</sub> | Nitrogen Oxide                  |
| NPPF            | National Planning Policy        |

|      |   |
|------|---|
|      | Framework   |
| NPS  | National Planning Statement<br>(NN NPS National Networks National Planning Statement) |
| NSCA | National Society for Clean Air  |
| NTS  | Non-Technical Summary   |

## O o

|     |                               |
|-----|-------------------------------|
| ONS | Office of National Statistics |
| OS  | Ordnance Survey               |

## P p

|        |                                      |
|--------|--------------------------------------|
| PAH(s) | Polycyclic Aromatic Hydrocarbons     |
| PAL    | Published Admissions Limit           |
| PANs   | Published Admissions Numbers         |
| PCBs   | Polychlorinated Biphenyls            |
| PCT    | Primary Care Trust                   |
| PERS   | Pedestrian Environment Review System |
| PIA    | Personal Injury Accidents            |
| PPE    | Personal Protective Equipment        |
| PPG    | Planning Policy Guidance             |
| PPPL   | Primary Place Planning Location      |
| PPS    | Planning Policy Statement            |
| PTAL   | Public Transport Accessibility Level |
| PV     | Photovoltaics                        |

## Q q

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## R r

|     |                            |
|-----|----------------------------|
| R&A | Review and Assessment      |
| RC  | Reinforced Concrete        |
| RF  | Radio Frequency            |
| RPG | Registered Park and Garden |

## S s

|                 |  |
|-----------------|--|
| SAC             | Special Areas of Conservation              |
| SAM             | Scheduled Ancient Monument                 |
| SAP             | Species Action Plan                        |
| SFRA            | Strategic Flood Risk Assessment            |
| SHMA            | Strategic Housing Market Assessment        |
| SIC             | Standard Industrial Classification         |
| SIL             | Strategic Industrial Land                  |
| SINC            | Site of Importance for Nature Conservation |
| SMR             | Sites and Monuments Records                |
| SNCI            | Sites of Nature Conservation Importance    |
| SO <sub>2</sub> | Sulphur dioxide                            |
| SOC             | Standard Occupational Classification       |
| SPA             | Special Protection Area                    |
| SPD             | Supplementary Planning Document            |
| SPG             | Supplementary Planning Guidance            |
| SPZ             | Source Protection Zone                     |
| SSSI            | Site of Special Scientific Interest        |
| SUDS            | Sustainable Urban Drainage System          |
| SVOCs           | Semi Volatile Organic Compounds            |
| SWMP            | Site Waste Management Plan                 |

**T t**

|     |   |
|-----|---|
| T   | Total Annual Probable Sunlight Hours (APSH) |
| TA  | Transport Assessment                        |
| TfL | Transport for London                        |
| TG  | Technical Guidance                          |
| TPH | Total Petroleum Hydrocarbons                |
| TPO | Tree Preservation Order                     |

**U u**

|        |   |
|--------|---|
| UDP    | Unitary Development Plan                |
| UK     | United Kingdom                          |
| UK BAP | United Kingdom Biodiversity Action Plan |
| USA    | Updating and Screening Assessment       |
| UXO    | Unexploded Ordnance                     |

**V v**

|      |                            |
|------|----------------------------|
| VCM  | Volatile Correction Model  |
| VOCs | Volatile Organic Compounds |
| VSC  | Vertical Sky Component     |

**W w**

|      |                                 |
|------|---------------------------------|
| WFD  | Water Framework Directive       |
| WHO  | World Health Organisation       |
| WM   | Winter Months Component of APSH |
| WRA  | Water Resources Act 1991        |
| WW   | First World War                 |
| WWII | Second World War                |

**X x**

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## Glossary of Terms

### A a

**Adoption** - the final confirmation of a plan as a statutory document by the local planning authority.

**Affordable Housing** - low cost housing for sale or rent, often from a housing association, to meet the needs of local people who cannot afford accommodation through the open or low cost market, or subsidised housing.

**Aged or veteran tree:** A tree which, because of its great age, size or condition is of exceptional value for wildlife, in the landscape, or culturally.

**Agricultural Dwelling** - a dwelling which is subject to a condition or legal agreement that it shall only be occupied by someone who is employed or was last employed solely or mainly in agriculture, forestry or other appropriate rural employment.

**Air Quality Management Areas:** Areas designated by local authorities because they are not likely to achieve national air quality objectives by the relevant deadlines.

**Alternative option/solution.** Alternative methods of achieving the objectives of the project. They may include: alternative locations that are suitable; or different approaches in terms of design, manufacturing, transportation, energy, or supply of materials etc.

**Ambient:** Background levels

**Amenity** - the pleasant or normally satisfactory aspects of a location which contribute to its overall character and the enjoyment of residents or visitors.

**Anemometer.** Measures the wind speed and transmits wind speed data to the controller.

**Ancient woodland:** An area that has been wooded continuously since at least 1600 AD.

**Ancillary Use** - a subsidiary use connected to the main use of a building or piece of land.

**AOD:** Above Ordnance Datum, the height above acknowledged sea level.

**Appeal** - the process whereby an applicant can challenge an adverse decision on an application by means of written representations, an informal hearing or formal inquiry proceedings. Appeals can also be made against the failure of the planning authority to issue a decision, against conditions attached to a permission and against the issue of an enforcement notice.

**Aquifer:** A water bearing bed of strata, either by virtue of its porosity or because it is pervious.

**Archaeological interest:** There will be archaeological interest in a heritage asset if it holds, or potentially may hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.

**Archaeological watching brief:** Attendance on site of a suitable qualified or experienced archaeologist during the course of ground excavations, usually working to a brief agreed with the Local planning Authority.

**Area of Outstanding Natural Beauty** - area designated by the Countryside Agency or the Countryside Council for Wales where the primary purpose is the conservation and enhancement of natural beauty including flora, fauna, geology and landscape.

**Area of Special Control of Advertisements** - an area which is specifically defined by the local planning authority because they consider its scenic, historical, architectural or cultural features are so significant that a stricter degree of advertisement control is justified in order to conserve visual amenity within that area. Such areas can only be designated with the approval of the Secretary of State.

**Article 4 Direction** - an order made by the Secretary of State, the National Assembly for Wales or the local planning authority, requiring a planning application to be made where normally permitted development rights would apply.

**Article 14 Direction** - issued by the Secretary of State or the National Assembly for Wales to restrict the grant of planning permission by a local planning authority, either indefinitely or for a specified period, normally to give the Department time to decide whether to call in the application.

**Assessment:** An umbrella term for description, analysis and evaluation.

### B b

**Background Noise:** The background noise level is the underlying level of noise present at a particular location for the majority (usually 90%) of a period of time. As such it excludes any short duration noises, such as individual passing cars (but not continuous traffic), dogs barking or passersby. Sources of background noise typically include such things as wind noise, traffic and continuously operating machinery (e.g. air conditioning or generators).

**Back-land** - land which is behind existing development with no, or very limited, road frontage.

**Baseline conditions.** The conditions that would pertain in the absence of the proposed project at the time that the project would be constructed/operated/decommissioned. The definition of these baseline conditions should be informed by changes arising from other causes (e.g. other consented developments).

**BPEO (Best Possible Environmental Option)** - The option that provides the most benefits or the least damage for the environment, as a whole, at acceptable cost, in the long term as well as the short term. (defined in the 12th report of the Royal Commission on Environmental Pollution)

**Best and most versatile agricultural land:** Land in grades 1, 2 and 3a of the Agricultural Land Classification.

**Betterment** - the amount by which the value of land is increased by development or by the grant of planning permission, or because of the development of neighbouring land.

**Bio-diversity** - a measure of the number and range of species and their relative abundance in a community. / The biological diversity of the earth's living resources. The total range of variability among systems and organisms at all levels of organisation and the structural and functional relationships within and between these different levels.

**Bio-diversity Action Plan (BAP)** - the means by which the UK government commitment to the Convention on Biological Diversity at Rio de Janeiro (1992) is to be met.

**Birds and Habitats Directives:** European Directives to conserve natural habitats and wild fauna and flora.

**Borehole:** A deep hole bored into the ground as part of intrusive investigations typically to test depth and quality of ground water.

**Brown-field Site** - land which has been previously developed, excluding mineral workings or other temporary uses.

**Bronze Age:** Prehistoric time period from 2,000 to 700 BC.

**Buffer zone.** An area (human-made or natural) that helps to protect a habitat from damage, disturbance or pollution. It is managed to protect the 'integrity' of the valued habitat and/or the conservation status of species that it supports

**Building Preservation Order** - a notice under Section 3 of the Planning (Listed Buildings and Conservation Areas) Act 1990 to protect buildings of special architectural or historic interest from demolition or alterations that would affect their interest.

## C c

**Cadw** - government agency supporting the preservation, conservation, enhancement, interpretation and appreciation of historic buildings and monuments in Wales.

**Called-in Application** - a planning application referred to the Secretary of State or the National Assembly for Wales for determination by virtue of the powers contained in section 77 of the Town and Country Planning Act 1990.

**Change of Use** - more correctly referred to as a 'material change of use'. A change in the use of land or buildings that is of significance for planning purposes, often requiring planning permission.

**Circular** - guidance, including policy, issued by a government department usually, but not always, in support of legislation.

**Commercial (activity):** Activities involved in buying and selling things, such as office workplaces. Commercial sites are not often open to the public.

**Commitments** - All land with current planning permission or allocated in local plans.

**Community Forests** - A joint initiative between the Countryside Agency and the Forestry Commission to promote the creation, regeneration of well-wooded landscapes around major towns and cities.

**Community Infrastructure Levy:** A levy allowing local authorities to raise funds from owners or developers of land undertaking new building projects in their area.

**Community Right to Build Order:** An Order made by the local planning authority (under the Town and Country Planning Act 1990) that grants planning permission for a site-specific development proposal or classes of development.

**Competent person (to prepare site investigation information):** A person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution or land instability, and membership of a relevant professional organisation.

**Comparison Goods** - 'non perishable' goods for retail sale which are often stocked in a wide range of sizes, styles, colours and qualities, including furniture, carpets, televisions etc.

**Competent Authority.** The authority which determines the application for a consent, permission, license or other authorisation to proceed with a development. It is the authority that must consider the environmental information before granting any kind of authorisation. For example, for projects requiring planning permission this will usually be the Local Planning Authority.

**Compulsory Purchase Orders (CPOs)** - notice issued by the government or a local authority to acquire land or buildings for public interest purposes.

**Conditions** - stipulations attached to a planning permission to limit or direct the manner in which a development is carried out.

**Contaminated Land** - land which has been polluted or harmed in some way rendering it unfit for safe development and most practical uses.

**Controlled Parking Zone (CPZ)** - an area in which all kerbside space is controlled by either waiting or loading restrictions or by designated parking spaces.

**Conservation (for heritage policy):** The process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance.

**Conservation Area** - an area given statutory protection under the Planning Acts, in order to preserve and enhance its character and townscape.

**Conservation Area Consent** - consent required from the local planning authority before demolishing an unlisted building in a conservation area.

**Contamination:** Contamination is the addition, or the result of addition, or presence of a material or materials to, or in, another substance to such degree as to render it unfit for its intended purpose.

**Consultation** - procedures for assessing public opinion about a plan or major development proposal, or in the case of a planning application, the means of obtaining the views of affected neighbours or others with an interest in the proposal.

**Consultation bodies (consultees).** Any body specified which has been consulted in respect of the Environmental Statement. See **Statutory Consultee** below.

**Convenience Shop** - supermarket, grocers, newsagents, confectioners, tobacconists, off-licences or other shops selling goods which tend to be purchased regularly.

**Conversions** - the sub-division of residential properties into bedsits, self-contained flats or maisonettes.

**Countryside Agency** - organisation responsible for advising government and taking action on issues affecting the social, economic and environmental well-being of the English countryside.

**Countryside Council for Wales (CCW)** - government agency promoting the interests and well-being of rural Wales.

**CO<sub>2</sub>:** (Carbon Dioxide) Contributes about 60% of the potential global warming effect of man made emissions of greenhouse gases. Although this gas is naturally emitted by living organisms, these emissions are offset by the uptake of carbon dioxide by plants during photosynthesis; they

therefore tend to have no effect on atmospheric concentrations. The burning of fossil fuels, however, releases carbon dioxide fixed by plants many millions of years ago and thus increases its concentration in the atmosphere.

**Cumulative effects / impacts:** The summation of effects / impacts that result from changes caused by a development in conjunction with other past, present or reasonably foreseeable actions.

**Cumulative landscape effects:** There is the potential for cumulative landscape effects where there would be:

- An incremental change to the fabric of the landscape, as the result of two or more operational, permitted and/or proposed wind farms.
- An incremental change in the character and/or quality of the landscape as a result of the simultaneous, successive and/or sequential visibility of two or more operational, permitted and/or proposed wind farms from various locations.

**Cumulative visual effects:** can occur where there would be:

- Simultaneous visibility of two or more operational, permitted and/or proposed wind farms at a viewpoint location, in the same sector of the view (within 45degrees).
- Successive visibility of two or more operational, permitted and/or proposed wind farms at a viewpoint location, where each wind farm is in a different sector of the view (>45 percent apart). Sequential visibility of two more operational, permitted and/or proposed wind farms along a linear route.

**Cumulative ZVI:** Areas within which a number of proposed developments may have an influence or effect on visual amenity.

## D d

**Decentralised energy:** Local renewable energy and local low-carbon energy usually but not always on a relatively small scale encompassing a diverse range of technologies.

**Decommissioning:** A process where the site is made safe by removing hazards.

**Deemed Consent** - this allows the display of certain "specified classes" of advertisement without first having to make an application to the local planning authority. Under the Control of Advertisements Regulations there are 14 Classes, all of which are subject to strict conditions and limitations.

**Density** - in the case of residential development, a measurement of either the number of habitable rooms per hectare or the number of dwellings per hectare.

**Departure** - a proposed development which is not in accordance with a local plan but which due to exceptional circumstances the local planning authority proposes to accept - after due publicity and possible referral to the Secretary of State or the National Assembly for Wales.

**Designated heritage asset:** A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation.

**Derelict Land** - Land so damaged by industrial or other development that it is incapable of beneficial use without treatment.

**Detailed/Full Application** - The most common type of planning application is one that seeks full or detailed planning permission. It should contain all the information needed for the LPA to reach its decision, but the LPA may seek further information.

**Determination** - local planning authority process to decide whether a proposed development requires planning permission.

**Developer:** The applicant for authorisation for a private project or the public authority which initiates a project.

**Development** - the carrying out of building, engineering, mining or other operations in, on, over or under land, or the making of any material change in the use of any buildings or land.

**Development Area** - a priority area for environmental, social or economic regeneration or a combination of these.

**Development Brief** - document providing detailed information to guide developers on the type of development, design and layout constraints and other requirements for a particular, usually substantial, site.

**Development Consent:** The decision of the Competent Authority or Authorities which entitles the Developer to proceed with the project.

**Development Control** - the process whereby a local planning authority decides whether a planning application meets the requirements of planning policy, particularly as set out in development plans.

**Development Plan** - document (a structure or local plan) that sets out in writing and/or in maps and diagrams a local planning authority's policies and proposals for the development and use of land and buildings in the authority's area.

**Directive:** European Commission (EC) Directives impose legal obligations on European Member States. They are binding as to the results to be achieved, but allow individual states the right to decide the form and methods used to achieve the results.

**Discontinuance Notice** - notice served by a local planning authority requiring the discontinuance of the display of any advertisement, or the use of a site for the display of an advertisement, which has the benefit of deemed consent under the Control of Advertisements Regulations. Action to serve a discontinuance notice may only be taken if the planning authority is satisfied it is necessary to do so to remedy a substantial injury to the

amenity of the locality or a danger to members of the public.

**Displacement:** The extent to which the benefits of a project are offset by reductions of output or employment elsewhere.

## E e

**EA:** Environment Agency

**Economic development:** Development, including those within the B Use Classes, public and community uses and main town centre uses (but excluding housing development).

**Ecology:** The study of living organisms in relation to their surroundings.

**Ecological networks:** These link sites of biodiversity importance.

**Ecosystem services:** The benefits people obtain from ecosystems such as, food water, flood and disease control and recreation.

**Effects/Impacts:** A predicted change in the environmental baseline as a result of the proposed development. Effects can be positive or negative.

**Effluent:** A fluid discharged or emitted to the external environment.

**Employment uses:** Any undertaking or use of land that provides paid employment.

**Employment density:** Average floor space per person in a given building

**EN:** English Nature

**Enforcement** - procedures by a local planning authority to ensure that the terms and conditions of a planning decision are carried out, or that development carried out without planning permission is brought under control.

**Enforcement Notice** - notice requiring the discontinuance of an unauthorised use and/or the removal of buildings, including restoration of land, where development has been begun without permission or in breach of a condition.

**Edge-of-centre** - For retail purposes, a location that is well connected and up to 300 metres of the primary shopping area. For all other main town centre uses, a location within 300 metres of a town centre boundary. For office development, this includes locations outside the town centre but within 500 metres of a public transport interchange. In determining whether a site falls within the definition of edge of centre, account should be taken of local circumstances.



**Emission:** A material that is expelled or released to the environment. Usually applied to gaseous or odorous discharges to the atmosphere.

**English Heritage (Historic Buildings and Monuments Commission for England)** - a national body funded by the government to promote and give advice on building conservation matters.

**English Nature** - a national body funded by the government to promote and give advice on the conservation of England's wildlife and natural features.

**Environmental Appraisal** - the process of weighing all the policies in a development plan for their global, national and local implications.

**Environmental Baseline:** The existing (pre-development) context of a study area.

**Environmental Capacity:** The ability of the environment to accommodate a particular activity or rate of activity without unacceptable change.

**Environmental Impact Assessment (EIA)** - under the Town and Country Planning (Assessment of Environmental Effects) Regulations 1988, proposers of certain scheduled developments are required to submit a planning application with an accompanying environmental statement, evaluating the likely environmental impacts of the development, together with an assessment of how the severity of the impacts could be reduced. / This is an assessment carried out under the EIA Regulations. It is the whole process of gathering environmental information; describing a development or other project; predicting and describing the environmental effects of the project; defining ways of avoiding, reducing or compensating for these effects; consulting the general public and specific bodies with responsibilities for the environment; and ensuring that measures are prescribed to avoid, reduce or compensate for environmental effects.

**Environmental Information** - The information that must be taken into account by the decision maker (the Competent Authority) before granting any kind of authorisation in any case where the EIA process applies. It includes the Environmental Statement, including any further information, any representations made by any body required by the Regulations to be invited to make representations, and any representations duly made by any other person about the environmental effects of the development.

**Environmental Statement (ES)** - The report on the assessment carried out under the EIA Regulations, on the environmental effects of a development; normally submitted with the planning application.

**Environmental Studies:** The surveys and investigations carried out by the developer and the EIA team in order to prepare the Environmental Information for submission to the competent authority.

**EIA Regulations** - The UK statutory instruments that are designed to meet the requirements of Council Directive

85/337/EEC on the Assessment of the effects of certain public and private projects on the environment, as amended by Council Directive 97/11/EC, 2003/35/EC and 2009/31/EC.

**EIA Team:** The team which carries out the environmental studies and prepares the environmental information for submission to the competent authority.

**Established use** - a use which does not conform to a plan but against which enforcement proceedings cannot be taken, often because of the length of time a use has been in operation.

**Established Use Certificate** - these were issued by a planning authority before July 1992 where it could be shown that a use of land or buildings had existed since before 1964. It gave immunity from enforcement action. Since July 1992 these have been replaced by Lawful Development Certificates.

**European Spatial Development Perspective (ESDP)** - non-binding regional structure plan for the European Union.

**Examination in Public (EIP)** - consideration of public views on a draft structure plan or proposed changes to it, held before an independent inspector.

**Exclusion List:** A list of threshold and criteria for specified categories of projects defining those projects for which EIA is not required because they are considered to be unlikely to have significant effects on the environment.

**Express Consent** - this is needed to display an advertisement, which does not benefit from deemed consent under the Town and Country Planning (Control of Advertisements Regulations).

## F f

**Fauna:** Animal Life.

**Floodplain:** Land adjacent to a watercourse over which water flows, or would flow but for defences in place, in times of flood.

**Flora:** The plant life of a particular geographical area.

**Footprint:** perimeter of building's ground floor plan.

**Frequency:** The frequency of a sound is equivalent to its pitch in musical terms. The units of frequency are Hertz (Hz), which represents the number of cycles (vibrations) per second.

**Fugitive dust emissions:** Dust emissions escaping from a construction site.

## G g

**General Permitted Development Order (GPDO)** - the Town and Country Planning (General Permitted Development) Order 1995 grants rights (known as permitted development rights) to carry out certain limited forms of development without the need to make an application for planning permission.

**Green Belt** - specially designated area of countryside protected from most forms of development in order to stop urban sprawl and the coalescence of settlements, preserve the character of existing settlements and encourage development to locate within existing built-up areas.

**Green infrastructure:** A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities.

**Green-field Site** - an area not previously used for built development.

**Grid (also “National Grid” and “Power Grid”).** A common term referring to the electricity transmission and distribution system.

**Gross:** The sum total without reduction.

**Gross Value Added** - A productivity metric that measures the difference between output and intermediate consumption. Gross value added provides a pound value for the amount of goods and services that have been produced, less the cost of all inputs and raw materials that are directly attributable to that production.

**Ground Investigation (GI).** An intrusive sub-surface investigation by mechanised plant or hand held tools. Designed to characterise soil or rock by sample recovery or exposure of subsurface strata; thus enabling the correct and accurate design of foundations, slopes or earthworks.

**Ground Water:** Water associated with soil or rocks below the ground surface but is usually taken to mean water in the saturated zone.

## H h

**ha:** 1 hectare = 10,000 sq. metres = 2.47 acres.

**Horizon:** A time - plane recognisable in rocks by some characteristic feature such as flora, fauna or lithology.

**Habitable Room** - all living rooms and bedrooms, but not kitchens, bathrooms, WCs or circulation space, are normally regarded as habitable for the purposes of density calculations.

**Habitat** - A place in which a particular plant or animal lives. Often used in the wider sense referring to major assemblages of plants and animals found together.

**Heritage asset:** A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage asset includes designated heritage assets and assets identified by the local planning authority (including local listing).

**Heritage Coast:** Areas of undeveloped coastline which are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors.

**Historic environment:** All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.

**Historic environment record:** Information services that seek to provide access to comprehensive and dynamic resources relating to the historic environment of a defined geographic area for public benefit and use.

**Hoarding:** A temporary board fence set up on the perimeter of a building site.

**Hydraulic piling:** A piling mechanism used for pressing in and pulling out sheet piles with minimized noise and vibration generation.

**Hydrogeology:** The study of the geological factors relating to the Earth's water.

**Hydrology:** The study of the distribution, conservation, use of the water of the earth and its atmosphere.

**Hz:** Sound frequency refers to how quickly the air vibrates, or how close the sound waves are to each other (in cycles per second, or Hertz; Hz).

## I i

**Impact** - The way in which a receptor or natural resource is affected by a proposed development.

**Improved grassland:** Grassland that has been modified to increase its agricultural value, often using ploughing and re-seeding, land drainage and treatment with fertilisers and herbicides.

**Inclusive design:** Designing the built environment, including buildings and their surrounding spaces, to ensure that they can be accessed and used by everyone.

**Inert waste:** Wastes that do not undergo any significant physical, chemical or biological transformation.

**In-situ preservation:** Preserving archaeological remains in the natural, original or appropriate position.

**Invertebrate:** An animal lacking a backbone and internal skeleton.

**Indirect impacts:** Impacts on the environment, which are not a direct result of the Development but are often produced away from it or as a result of a complex pathway. Sometimes referred to as secondary impacts.

**Infrastructure** - permanent resources serving society's needs, including roads, sewers, schools, hospitals, railways, communication networks etc.

**Integrated Transport Strategy** - the integration of land-use and transportation planning to allow transport provision and the demand for travel to be planned and managed together, balancing the use of different modes of transport to encourage easy transfer between them and reduced reliance on the private car.

**Iterative process** - A process repeated until the best solution has been found. In the context of EIA, it can be understood as the process of assessment and reassessment until the most appropriate development is achieved.

J j

K k

**kWh:** kilowatt hour = 1 unit of electricity.

L l

**Land Compensation** - concerns the assessment of compensation where land, or some other interest in land, is being acquired, either compulsorily, or by agreement, by an authority possessing compulsory purchase powers.

**Landscape:** Landscape results from the way that different aspects of our environment (physical, social, aesthetic and perceptual) interact together and are perceived by us:

- Physical elements- e.g. geology, landform, soils, flora and fauna.
- Social elements- e.g. land use, enclosure patterns, and the patterns, form and scale of settlements and other built development.
- Aesthetic factors- e.g. colour, form, visual texture and pattern, sounds, smells and touch.
- Perceptual factors- e.g. memories, associations, stimuli and preferences.

**LBAP:** Local Biodiversity Action Plan.

**Landscape character:** the distinct and recognisable pattern of elements that occur consistently in a particular type of landscape, and how these are perceived by people. It reflects particular combinations of geology, landform,

soils, vegetation, land use and human settlement. It creates the particular sense of place of different areas of the landscape.

**Landscape character type:** A landscape type will have broadly similar patterns of geology, landform, soils, vegetation, land use, settlement and field pattern discernible in maps and field survey records.

**Landscape effects:** Change in the elements, characteristics, character and qualities of the landscape as a result of development. These effects can be negative or positive.

**Landscape value:** is concerned with the relative value that is attached to different landscapes. In a policy context the usual basis for recognising certain highly valued landscapes is through the application of a local or national landscape designation. Yet a landscape may be valued by different communities of interest for many different reasons without any formal designation, recognising, for example, perceptual aspects such as scenic beauty, tranquility or wildness; special cultural associations; the influence and presence of other conservation interests; or the existence of a consensus about importance, either nationally or locally.

**Lawful Development Certificate** - a procedure by which existing or proposed uses and other forms of development can be certified as lawful for planning purposes. An application has to be made to the local planning authority and there is a right of appeal against their decision.

**Listed Building** - building or other structure of special architectural or historic interest included on a statutory list and assigned a grade (I, II\* or II).

**Listed Building Consent** - a permission required for the alteration or demolition of a listed building.

**Local Development Order:** An Order made by a local planning authority (under the Town and Country Planning Act 1990) that grants planning permission for a specific development proposal or classes of development.

**Local Enterprise Partnership:** A body, designated by the Secretary of State for Communities and Local Government, established for the purpose of creating or improving the conditions for economic growth in an area.

**Local Nature Partnership:** A body, designated by the Secretary of State for Environment, Food and Rural Affairs, established for the purpose of protecting and improving the natural environment in an area and the benefits derived from it.

**Local planning authority:** The public authority whose duty it is to carry out specific planning functions for a particular area. All references to local planning authority apply to the district council, London borough council, county council, Broads Authority, National Park Authority and the Greater London Authority, to the extent appropriate to their responsibilities.

**Local Nature Reserve (LNR)** - area designated under the National Parks and Access to the Countryside Act 1949 as being of particular importance to nature conservation and where public understanding of nature conservation issues is encouraged.

**Local Plan** - statutory development plan prepared by a local planning authority setting out detailed policies for environmental protection and development.

**Local Planning Authority** - the local authority or council that is empowered by law to exercise planning functions. This is normally the local borough or district council, but in National Parks and some other areas there is a different arrangement.

## M m

**Made Ground:** Soils or other material that has been deposited by man rather than natural processes, for example to make up ground levels.

**Magnitude:** A combination of the scale, extent and duration of an effect.

**Mandatory List:** A list of thresholds and criteria for specified categories of projects defining those projects for which EIA is always required because they are considered to be likely to have significant effects on the environment.

**Material Consideration** - a matter which should be taken into account in deciding on a planning application or on an appeal against a planning decision.

**Medieval:** Historic time period from AD1066 – AD1485.

**Megawatt (MW)** - A million watts.

**Megawatt-hour (MWh)** - One million watt-hours. Equal to one thousand kilowatt-hours (kWh) or 'units' of electricity.

**Metropolitan** - constituting a large urban area, usually including a city, its suburbs and outlying areas.

**Micro climate:** The climate of a small localised area.

**Mineral Planning Guidance Notes (MPGs)** - a series of documents issued by the Office of the Deputy Prime Minister (ODPM) (previously Department of Transport, Local Government and the Regions (DTLR)) setting out government policy and advice on planning issues relating to mineral resources.

**Minerals Planning Policy Wales** - Document setting out the policy of the Welsh Assembly Government in relation to short and long term future use and safeguarding of mineral deposits.

**Mitigation** - Measures taken to avoid or reduce negative impacts. Measures may include: locating the development and its working areas and access routes away from areas of high ecological interest, fencing off sensitive areas during

the construction period, or timing works to avoid sensitive periods.

**Multiplier:** Figure used to calculate the number of induced and indirect jobs created.

**Multiplier Effects:** Further economic activity (jobs, expenditure or income) associated with additional local income and local supplier purchasing.

## N n

**National Assembly for Wales** - Government body in Wales that debates and approves legislation and holds the Welsh Assembly Government to account.

**National Nature Reserve** - area designated by English Nature to protect and conserve nationally important areas of wildlife habitat and geological formations and to promote scientific research; in Wales it is an SSSI that the Countryside Council for Wales (CCW) has designated of national or international importance for nature conservation. (Note: on the CCW website I noticed that they also refer to National Nature Reserves, as well as SSSIs)

**National Park** - tract of predominantly open and attractive countryside designated under the National Parks and Access to the Countryside Act 1949 with its own administration and management role and function as a local planning authority.

**National Planning Policy Framework – NPPF** sets out the Government's policies on different aspects of planning.

**Nature Conservation** - the preservation, management and enhancement of natural plant and animal communities, and occasionally modified vegetation, as representative samples of their kind.

**Net:** After all deductions have been made.

**Net Additional Jobs:** The number of jobs created in the construction and operating phases, less the number of jobs likely to happen anyway (deadweight), those jobs that are filled by non-impact area residents (leakage) and those jobs displaced in existing businesses or activities by the development (displacement).

**Natural Area:** Sub-division of England, each with a characteristic association of wildlife and natural features.

**Negative List:** See exclusion List

**New Town** - free-standing new settlement designated and planned under the New Towns Act 1946 and subsequent legislation.

**NGR:** National Grid Reference used for identifying locations on OS maps.

**Noise:** Unwanted sound. May refer to both natural (e.g. wind, birdsong etc) and artificial sounds (e.g. traffic, noise from wind turbines, etc)

**Noise sensitive receptors:** Locations that may potentially be adversely affected by the addition of a new source of noise. Can include residential properties, outdoor areas and sensitive species.

**Non-aquifer:** A below ground layer of soil or rock that does not yield water.

**Non-conforming Use** - a use which does not conform to the general provisions of the development plan for the area in which it is located.

**Non-Fossil Fuel Obligation (NFFO)** - a provision of the Electricity Act 1989 requiring regional electricity companies to take a proportion of their electricity from energy sources other than fossil fuels.

**Non-Technical Summary:** A brief report summarising the principle sections of the Environmental Statement in non-technical language. The Non-Technical Summary is bound into the main report, but is also be available as a free-standing document.



**Office of the Deputy Prime Minister (ODPM)** - (previously Department of Transport, Local Government and the Regions (DTLR)) government department responsible for town and country planning policy and administration.

**Open space:** All open space of public value, including not just land, but also areas of water (such as rivers, canals, lakes and reservoirs) which offer important opportunities for sport and recreation and can act as a visual amenity.

**Original building:** A building as it existed on 1 July 1948 or, if constructed after 1 July 1948, as it was built originally.

**OS:** Ordnance Survey

**Outline application** - a general application for planning permission to establish that a development is acceptable in principle, subject to subsequent approval of detailed matters.

**Out-of-Centre** - a location that is separated from a town centre but is not necessarily outside the built-up area.

**Out-of-town** - an out-of-centre development on a green-field site or on land not clearly within the current urban boundary.



**Palaeolithic:** Prehistoric time period from 450,000 – 12,000 BC.

**Park and Ride** - scheme enabling motorists to leave their vehicles at edge-of-town car parks and travel into town centres by public transport.

**Parks and Gardens of Special Historic Interest (GSHI)** - parks and gardens containing historic features dating from 1939 or earlier and registered by English Heritage in three grades as with historic buildings.

**Pathways:** The routes by which impacts are transmitted through air, water, soils or plants and organisms to their receptors.

**Permeability:** The ease at which liquids (or gases) can pass through rocks or a layer of soil.

**Permitted Development Rights** - rights to carry out certain limited forms of development without the need to make an application for planning permission, as granted under the terms of the Town and Country Planning (General Permitted Development) Order 1995.

**pH:** Scale of 0-14 defining the acidity/alkalinity of solutions including those in soils and water bodies; 0 = extremely acid, 14 = extremely alkaline and 7 = neutral.

**Phase I Habitat Survey:** first stage of strategy recommended by Nature Conservancy Council (1990) for ecological surveys. Seeks to provide general description of habitat/vegetation types within a study area, and to fit these to as standard classification so that they can be readily compared.

**Photomontage:** computer aided process which incorporates a photograph of the existing site/view/landscape with a representation of the development to provide an impression of the visual impact of the Development.

**Planning condition:** A condition imposed on a grant of planning permission (in accordance with the Town and Country Planning Act 1990) or a condition included in a Local Development Order or Neighbourhood Development Order.

**Planning Obligations and Agreements** - legal agreements between a planning authority and a developer, or offered unilaterally by a developer, ensuring that certain extra works related to a development are undertaken, usually under Section 106 of the Town and Country Planning Act 1990.

**Planning Gain** - the principle of a developer agreeing to provide additional benefits or safeguards, often for the benefit of the community, usually in the form of related development supplied at the developer's expense.

**Planning Policy Wales** - document setting out the land use planning policies of the Welsh Assembly Government.

**Plant:** A building's generator, heating, ventilation, and/or electricity-production system.

**Playing field:** The whole of a site which encompasses at least one playing pitch as defined in the Town and Country Planning (Development Management Procedure) (England) Order 2010.

**Population** - A collection of individuals (plants or animals), all of the same species and in a defined geographical area.

**Positive List:** See Mandatory List.

**Previously developed land:** Land which is or was occupied by a permanent structure, including the curtilage of the developed land (although it should not be assumed that the whole of the curtilage should be developed) and any associated fixed surface infrastructure.

**Proposals Map** - an obligatory component of a local plan showing the location of proposals in the plan on an Ordnance Survey base map.

**Protected Species** - plant and animal species, including all wild birds, protected under the Conservation (Natural Habitats and Conservation) Regulations 1994, the Wildlife and Countryside Act 1981 and subsequent amendments, or other species protected under legislation specific to them and the Wildlife and Countryside (Amendments) Act 1985.

**Public Open Space (POS)** - land provided in urban or rural areas for public recreation, though not necessarily publicly owned.

**Public Realm** - outdoor areas accessible to the public.

**Public Right of Way** - a way where the public has a right to walk, and in some cases ride horses, bicycles, motorcycles or drive motor vehicles, which will be designated either as a footpath, a bridleway, a road used as a public path (RUPP) or a byway.

**Purchase Notice** - this requires a local planning authority to purchase an interest in land where a planning decision conflicts with the private interests of landowners.

## Q q

**Quasi-static equipment:** moves sufficiently slowly to be considered stationary for the purpose of noise assessment.

## R r

**Ramsar Site** - area identified under the internationally agreed Convention on Wetlands of International Importance, especially as waterfowl sites and as Sites of Special Scientific Interest focusing on the ecological importance of wetlands generally.

**Receptor** - Any environmental or other defined feature (e.g. human beings) that is sensitive to or has the potential to be affected by an impact.

**Recycling** - the recovery of reusable materials from waste.

**Regional Planning Guidance Notes (RPGs)** - policy guidance and advice issued for each region in England by the Secretary of State.

**Regional Shopping Centre** - out-of-town concentration of shops, usually containing over 50,000 square metres gross retail area, typically offering a wide range of comparison goods.

**Regionally Important Geological/Geomorphological Sites (RIGS)** - non-statutory sites of regional importance recognised by English Nature and local authorities.

**Regulation 7 Direction** - a Direction made by the Secretary of State to remove from a particular site or defined area the benefit of deemed consent normally provided by the Town and Country Planning (Control of Advertisements) Regulations.

**Renewable Energy** - energy generated from resources that are unlimited, rapidly replenished or naturally renewable such as wind, water, sun, wave and refuse, and not from the combustion of fossil fuels.

**Residual Effects/Impacts:** Effects/Impacts predicted as a consequence of the development assuming successful implementation of the identified mitigation measures.

**Review:** The process of establishing whether an EIS is adequate for the Competent authority to use it to inform the decision on Development consent.

**Ribbon development** - a narrow band of development extending along one or both sides of a road.

**Risk Assessment:** An assessment of the likelihood and severity of an occurrence.

**RSPB:** Royal Society for the Protection of Birds.

**Rural Development Area** - priority area for economic and social development.

**Rural Diversification** - activities undertaken on surplus land to support farming incomes, including, for example, forestry, leisure and tourism.

## S s

**Scheduled Ancient Monument** - a structure placed on a schedule compiled by the Department of National Heritage in England and Cadw in Wales for protection under the Ancient Monuments and Archaeological Areas Act.

**Scoping** - Is the procedure whereby the Competent Authority and the relevant statutory and other consultees are consulted at the outset, or very early in the EIA process, by the developer to agree what effects should be

covered in the Environmental Statement, how they should be covered and the methods to be used to assess them. If requested by the developer the Competent Authority must give a scoping opinion.

**Screening** - Is the process of deciding whether a particular project that is proposed is subject to the EIA process. It involves checking whether the project falls within the classes of project in Schedules 1 or 2 of the Regulations (or Annexes I or II of the Directives) and if in Schedule 2, whether it would be likely to have significant effects on the environment.

**Section 106 Agreement (see Planning Gain)** - a binding agreement between a council and a developer associated with a grant of planning permission and regarding matters linked to the proposed development.

**Site of Importance for Nature Conservation (SINC):** An area of land designated by a local authority because it supports nature conservation of significance in a county context. Designation criteria and policy context may vary between different local authority areas but they are usually linked with planning policies relating to nature conservation.

**Site of Special Scientific Interest (SSSI)** - area identified by English Nature or Countryside Council for Wales for protection by reason of the rarity of its nature conservation or wildlife features.

**Special Area of Conservation:** Land protected under Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora. Data supplied has a status of 'Candidate'.

**Special Needs Housing** - housing to meet need arising from homelessness or overcrowding, and purpose-built or supported housing for the elderly or disabled people or those requiring care.

**Special Protection Area:** Land classified under Directive 79/409 on the Conservation of Wild Birds. Data supplied has a status of 'Classified'.

**Statutory** - required by law (statute), usually through an Act of Parliament.

**Statutory Consultee** - Any body specified in the relevant EIA Regulations which the Competent Authority must consult in respect of an Environmental Statement, and which also has a duty to provide information or advice during the EIA process

**Statutory Undertakers/Statutory Utilities** - providers of essential services such as gas, electricity, water or telecommunications.

**Stop Notice** - a notice served in respect of land subject to enforcement proceedings prohibiting the carrying out or continuing of specified operations which are alleged to constitute a breach of planning control and designed to stop work going on pending the outcome of an appeal.

**Structure Plan** - statutory plan setting out key strategic policies which provide the framework for more detailed policies in local plans.

**Sui Generis** - uses of land or buildings which do not fall into any of the use classes identified by the Use Classes Order, for example theatres, launderettes, car showrooms and filling stations.

**Supplementary Planning Guidance** - additional advice issued by a local planning authority expanding upon its statutory policies.

**Sustainable Development** - environmentally responsible development, commonly defined as "development which meets the needs of the present generation without compromising the ability of future generations to meet their own needs".

## T t

**TANs** - technical advice notes for Wales which provide topic-based supplements to the policy document Planning Policy Wales.

**Threshold:** A level of effect above which an assessment will be taken of whether any changes to procedures need to be made.

**Topography:** The natural or artificial features, level and surface form of the ground surface.

**Town Centre** - describes city, town and traditional suburban centres which provide a broad range of facilities and services and which fulfil a function as a focus for a community and for public transport.

**Town Centre Management** - partnership of local organisations, businesses and individuals to promote the common good of a town by developing, managing, promoting and improving facilities, the useful resources, the economy and the environment of a town centre.

**Townscape** - the appearance and character of buildings and all other features of an urban area taken together as a whole.

**Traffic Calming** - management measures designed to lower traffic speeds or redirect traffic to alternative routes to avoid congestion, reduce accidents and injuries and prevent excess levels of pollution.

**Transport assessment:** A comprehensive and systematic process that sets out transport issues relating to a proposed development. It identifies what measures will be required to improve accessibility and safety for all modes of travel, particularly for alternatives to the car such as walking, cycling and public transport and what measures will need to be taken to deal with the anticipated transport impacts of the development.

**Travel plan:** A long-term management strategy for an organisation or site that seeks to deliver sustainable

transport objectives through action and is articulated in a document that is regularly reviewed.

**Transport Policy and Programme (TPP)** - statutory document setting out a transport authority's bid for the programming and funding of transport measures, produced annually for submission to central government.

**Transport statement:** A simplified version of a transport assessment where it is agreed the transport issues arising out of development proposals are limited and a full transport assessment is not required.

**Travel to Work Area (TTWA)** - a broadly self-contained labour market area usually focused on an urban employment centre.

**Tree Preservation Order (TPO)** - direction made by a local planning authority that makes it an offence to cut, top, lop, uproot or wilfully damage or destroy a tree without that authority's permission.

**Trial pits:** intrusive investigation positions excavated by a mechanical excavator.

## U u

**Unitary Development Plan** - local plan produced by certain unitary district authorities and London boroughs which have responsibility for the full range of local authority services.

**Urban Fringe** - predominantly open land on the edge of an existing urban area.

**Urban Regeneration** - the re-use or redevelopment of decaying or run-down parts of older urban areas to bring them new life and economic vitality.

**Use Classes Order** - the Town and Country Planning (Use Classes) Order 1987 puts uses of land and buildings into various categories, planning permission not being required for changes of use within the same use class. In practice changes between use classes are likely to require planning permission.

## V v

**Vibration:** In this context, refers to vibration carried in structures such as the ground or buildings, rather than airborne noise

**Village envelope** - boundaries defined on a map beyond which the local planning authority proposes that a village should not be allowed to extend.

**Visual amenity:** The value of a particular area or view in terms of what is seen.

**Visual effect:** Change in the appearance of the landscape as a result of development. This can be positive (i.e.

beneficial or an improvement) or negative (i.e. adverse or a detraction).

**Visual envelope:** Extent of potential visibility to or from a specific area or feature.

## W w

**Welsh Assembly Government** - a body that develops and implements policy in Wales via the civil service and a range of sponsored bodies.

**Wildlife Corridor** - a continuous area facilitating the movement of wildlife through rural or urban environments.

**Wind Farm** - large open site where wind speeds are consistently high on which a number of wind turbines generate electricity for private or commercial use.

**Wind turbine.** A term used for a wind energy conversion device that produces electricity.

**Wireline perspective:** computer aided process which shows landform and number and extent of wind turbines visible from a view.

**Written Statement** - documentary statement of policy, forming part of a development plan submitted by a local planning authority and requiring formal approval.

## X x

## Y y

## Z z

**Zone of influence.** The areas/resources that may be affected by the biophysical changes caused by activities associated with a project.

**Zone of Theoretical Visibility (ZTV):** representation (usually presented as a map with markings or colourings) of the area over which a site and/or a proposed development may be visible. Does not account for buildings or trees local to the viewer that may obscure a view.



## Six: 56 Warrington

### Langtree PP and First Panattoni

## Site Specific Glossary

| Site Specific Terminology                         | Description   |
|---|---|
| A50 Cliff Lane<br>A50 Knutsford Road              | Road bounding the Site.   |
| Appleton Thorn Trading Estate                     | Industrial estate to the west of the Site with Barleycastle Trading Estate and Stretton Green Distribution Park   |
| Applicant   | Langtree PP and First Panattoni   |
| Application Site                                  | Application Site for proposed development - Land at Junction 20 of the M6/M56 Interchange   |
| B5356 Grappenhall Lane                            | Road bounding the Site.   |
| Barleycastle Trading Estate                       | Industrial estate to the west of the Site with Appleton Thorn Trading Estate and Stretton Green Distribution Park   |
| Borough   | The authority area is a Borough   |
| Bradley Brook                                     | Watercourse running west to east to the southern boundary of the site   |
| Bradley Brook Tributary                           | Watercourse running west to east to the southeastern boundary of the Site and turns into Bradley Brook.   |
| Bradley Gorse                                     | Area of woodland located within the south east of the Site, to the north of Wrights Covert.   |
| Bradley Hall Farm                                 | Farm complex within the Site boundary   |
| Bradley Hall moated site                          | Scheduled Ancient Monument within the Site boundary   |
| CIA   | Cumulative Impact Assessment  |
| Client  | Langtree PP and First Panattoni   |
| Core Strategy (July 2014)                         | Warrington's adopted local planning policy (although currently under review).   |
| EIA Regulations 2017                              | The Town and Country Planning (Environmental Impact Assessment ) Regulations 2017. The EIA Regulations the ES is based upon.  |
| emerging Local Plan (Preferred Options July 2017) | Warrington's emerging Local Plan document that is currently being consulted upon.   |
| First Panattoni and Langtree PP                   | Applicant / Client  |
| Garden City Suburb                                | Area of growth within the emerging Local Plan (Preferred Options July 2017). The Site is part of this area of growth, although can also be delivered independently of this. |
| GRR   | Greenfield run-off rate   |
| Internal Site Access Road(s)                      | The access road within the site to facilitate access to each development plot   |
| Langtree PP and First Panattoni                   | Applicant / Client  |
| Local Plan Core Strategy (July 2014)              | Warrington's adopted local planning policy (although currently under review).   |
| LWS   | Local Wildlife Sites  |
| M56 Motorway                                      |   |
| M6 Motorway                                       |   |
| Means of Access                                   | Details of the vehicular access into the Application Site   |

## Six: 56 Warrington

### Langtree PP and First Panattoni

| Site Specific Terminology   | Description  |
|---|--|
| Parameters  | A series of parameters fixed as part of the proposals which form the basis of the environmental assessment.  |
| Primary Internal Site Access Road   | The primary access road within the site  |
| Proposed Development  | Application Site for proposed development  |
| PROW  | Public Rights of Way   |
| Secondary Internal Site Access Road(s)  | The secondary access roads within the site to facilitate access to each plot   |
| Site  | Application Site - Land at Junction 20 of the M6/M56 Interchange   |
| Six:56 Warrington   | Application Site (Land at Junction 20 of the M6/M56 Interchange)   |
| SSSI  | Site of Special Scientific Interest  |
| Stretton Green Distribution Park  | Industrial estate to the west of the Site with Appleton Thorn Trading Estate and Barleycastle Trading Estate   |
| SWUEFP  | South Warrington Urban Extension Framework Plan Document (SWUEFP) (June 2017) produced on behalf of Warrington Borough Council as part of their evolving planning policy |
| The Town and Country Planning (Environmental Impact Assessment ) Regulations 2017 | The EIA Regulations the ES is based upon.  |
| WMB   | Warrington Metropolitan Borough  |
| WMBC  | Warrington Metropolitan Borough Council  |
| Wrights Covert  | Area of woodland located within the south east of the Site, to the south of Bradley Gorse.   |

## **ES Part I Appendix I3**



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## **Environmental Impact Assessment Regulations 2017**

### **Regulation 15 Scoping Opinion**

**Reference No.:** 2018/32281  
**Location:** Land at Junction 20 of the M6 Motorway and Junction 9 of the M56 Motorway (known as Six:56 Warrington)

PROPOSAL: DEMOLITION OF EXISTING BUILDINGS AND CONSTRUCTION OF UP TO 325,150 SQ M (GROSS INTERNAL) OF EMPLOYMENT FLOORSPACE (USE CLASSES B8; B2 AND B1 (a) (OFFICES) AND ASSOCIATED SERVICING AND INFRASTRUCTURE INCLUDING CAR PARKING AND VEHICLE & PEDESTRIAN CIRCULATION AND ALTERATION OF EXISTING ACCESS ROAD INTO SITE INCLUDING WORKS TO EXISTING A50 JUNCTION, NOISE MITIGATION, EARTHWORKS TO CREATE DEVELOPMENT PLATFORMS AND BUNDS, LANDSCAPING INCLUDING BUFFERS, CREATION OF DRAINAGE FEATURES, ELECTRICAL SUBSTATION, PUMPING STATION, AND ECOLOGICAL WORKS.

This scoping opinion is prepared in accordance with Regulation 15 (4) of Part 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 and relates to the development proposal set out in your Environmental Impact Scoping Report (EISR) Rev B dated 23rd February 2018.

This letter comprises the adopted Scoping Opinion of the Council.

The site is a circa 97 hectare area of land. Your EISR sets out the likely effects of the proposed development in relation to the topic headings.

It is considered that, in general terms, your EISR adequately sets out how the EIA would establish the existing situation and then assess the impact of the proposal individually and cumulatively on the baseline situation, both during construction and once the development is complete - as required by the 2011 Regulations (as amended). Your EISR goes on to advise that the EIA will be



prepared in accordance with Schedule 4 of the Regulations, and this would be required to ensure compliance with the Regulations.

It is agreed that the matters contained in paragraph 19.6 are to be scoped out of the EIA, with the exception of the following matters (within the Cultural Heritage and Archaeology section):

DCH1638 Yew Tree Farmhouse Grade II Listed Building 1139340

DCH1659 Beehive Farmhouse Grade II Listed Building 1139361

DCH1660 Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building 1139362

DCH1934 Booths Farm Farmhouse Grade II Listed Building 1329740

DCH12753 Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building

DCH12869 Milepost at Gallows Croft, Knutsford Road, Lymm

DCH13677 Tan House Farm, Barleycastle Lane, Appleton

Barleycastle Farmhouse, Barleycastle Lane - DCH1329741

Tanyard Farm building, Barleycastle Lane - DCH1139363

The LPA consider that bearing in mind the proposed heights of the development proposed (and therefore the wide ranging visual impact), an assessment of the impact on the setting of the above heritage assets should be included within any subsequent EIA.

The Local Planning authority consider that in addition to the information set out It in the submitted Environmental Impact Scoping Report (EISR), Rev B dated 23rd February 2018, the following additional matters should be included/re-assessed and incorporated into any subsequent Environmental Impact Assessment submitted for the site:

#### 6. Interaction of Effects and Cumulative Impact

Warrington Borough Council's Public Health Team consider that any such assessment within this paragraph should be undertaken as a sub-Warrington basis, (rather than at the wider town level) given the broad levels of inequalities evident locally. Such an assessment should take into consideration the positive/negatives in terms of the socio-economic impacts for different areas/population groups and evidence should also be provided on how the proposed development would impact local residents that are in greatest need.

#### 7. Geology & Ground Conditions

The Environment Agency concur with the findings of the EISR that the site has a low overall risk to the water environment , however the presence of an agricultural building is such that conditions may well be requested to be attached to any subsequent planning application in order to protect controlled waters. Due to the former land uses and the possibility that groundwater contamination may exist, the risk to controlled waters should be addressed by:

a) following the risk management framework provided within the Model Procedures for the Management of Land Contamination's Groundwater Protection: Principles & Practice (CLR 11)

- b) referring to the Environment Agency guiding principles contained within the Environment Agency's Groundwater Protection; Principles & Practice
- c) further information can be found on the land contamination technical guidance pages on the direct.gov web site

There are two "main river" watercourses, Bradley Brook and Bradley Brook Tributary, which flow along the southern boundary of the site and in the south-eastern part of the site. Under the Environmental Permitting (England and Wales) Regulations 2016, a permit may be required from the Environment Agency for any proposed works or structures, in, under, over or within eight metres of the top of the banks of the brooks. This was formerly called a Flood Defence Consent. Some activities are also now excluded or exempt. A permit is separate to and in addition to any planning permission granted. Further details and guidance are available on the GOV.UK website: <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>

The Environment Agency have no objections to the proposals to deal with foul and surface water flows as outlined in this section of the EISR

This part of the EISR includes a brief assessment of the risks to construction and operational phases of the development. It is stated within the report that 'no potential impacts have been identified as no significant sources of contamination or ground gas that represent a risk to receptors have been identified'. However, both 'Construction' and 'Operational' phases will be considered and the short, medium and long term impacts assessed.

A Phase I Geotechnical and Geoenvironmental Assessment has been undertaken by Cundall, dated November 2017 and is included within Appendix 8 of the report. The report has not been reviewed however the conclusions state that an exploratory geoenvironmental investigation will be required to support an ES Technical Chapter for the proposed development.

The application/approval will be conditioned accordingly, as the development is a large scheme located on/adjacent to potentially contaminated land, and the above reporting/documentation should be submitted as supporting information.

## 8. Traffic & Transportation

Warrington Borough Councils' Highways Section consider that the information contained within the Traffic & Transportation section of the EISR is acceptable, subject to the assessment of the existing junctions (contained within the sixth bullet point of paragraph 8.29) being undertaken/re-assessed utilizing the information contained within Warrington Multi Modal Transport Model.

Highways England consider that, given the wider proposals for a Garden City Suburb in the consultation version of Warrington Borough Council's Local Plan Preferred Development, the cumulative impacts of wider proposed development are not defined, and the necessary infrastructure improvements have not been determined. Highways England have concerns that, in the absence of a cumulative assessment of potential growth in the south-east Warrington area, the development's contribution to future network needs and infrastructure requirements cannot be determined at this stage. A cumulative assessment should therefore be included as part of any subsequent EIA in order to address such concerns.

The aspects of the traffic and transportation assessment which are understood to have previously been agreed with Highways England are:

Trip Generation - using appropriate TRICS data and observed traffic flows from a comparable site (preferably OMEGA)

Trip Distribution - operational staff journeys should be distributed based on 2011 Census journey to work data. HGV movements which are agreed to all be routed via M6 Junction 20 should be distributed based on observed HGV proportions at that junction.

Committed Developments - three recently approved HCA housing developments collectively circa 1,000 homes and the proposed 50,000m<sup>2</sup> Stobart Distribution Centre at land off Barleycastle Lane, this latter development to be considered as a sensitivity test.

Assessment Years - opening year of 2021 and future year assessment ten years later (2031).

The proposed highway network to be assessed includes the M6 Junction 20 dumbbell roundabouts, the merge and diverge capacities at M6 Junction 20. Also included is the A50/Grappenhall Lane roundabout, to the west of M6 Junction 20. Not included however is the roundabout junction on the A50 around 100m to the east of M6 Junction 20 which provides access to Lymm Services. This junction should be included in any future junction assessment network. The developer should undertake their own capacity assessment of the Lymm interchange even if strategic/micro-simulation models exist.

Within the Scoping Report estimates of trip generation and trip distribution are provided, however no supporting analysis is provided and so the estimates cannot be verified at this stage.

The methodology adopted in the Environmental Statement will follow IEMA methods set out in the document 'Guidelines for the Environmental Assessment of Road Traffic' (1993).

The guidelines set rules for screening which parts of the highway network should be included in the assessment. Forecast traffic flows from the Transport Assessment will be used to determine which parts of the highway network should be included in the Environmental Statement.

In the classification of receptors existing traffic on the M6 motorway is designated as of National significance, whereas traffic on the M56 motorway is designated as Regional. Given that the M56 provides access to Manchester Airport and is the only motorway link between England and Wales in the north, we believe that the M56 should be designated as of National significance.

The initial assessments of environmental impact during construction and the operation of the site can only be considered as indicative as the full assessment will need to draw on an agreed Construction Management Plan and Transport Assessment.

The general principles and scope defined for the environmental assessment of traffic impact are considered acceptable. However, a separate Transport Assessment Scoping Report should be prepared for the development and agreed with Highways England and the local highway authority in advance of any planning submission. The Transport Assessment Scoping Report should include the required supporting information for traffic generation and distribution estimates, along with outlining proposed assessment parameters such as time periods, background growth factors, and the proposed assessment approach (traffic modelling). Further detail should also be provided in respect of how sustainable access to the site is proposed, with proposals for staff to access the site by non-car modes. The Transport Assessment Scoping Report will provide greater certainty in respect of the scope and methodology of a future Transport Assessment, and therefore underpin the assessment of environmental impacts.

The LPA consider that all of the above should be provided/assessed as part of any subsequent EIA for the site

## 9. Flood Risk & Drainage

Warrington Borough Councils' Flooding section is satisfied with the information contained within section 9 of the EISR.

The Environment Agency concur with the EISR in that the land lies within Flood Zone 1.

The Environment Agency are satisfied with the inclusion of a Sustainable Urban Drainage system (SuDS) within the report (Section 9.60). SuDS can and should be designed to enhance biodiversity and should include options such as retention ponds, reed beds, wetlands and swales.

The Environment Agency have no objections to the proposals to deal with foul and surface water flows as outlined in this section of the EISR

#### 11. Ecology & Nature conservation

Greater Manchester Ecology Unit considers that the broad principles (in terms of the ecological surveys required) contained within the Ecology Nature Conservation chapter of the EISR are acceptable, however without the completion of all the necessary surveys, they are unable to judge (at this stage) whether the Significance of Effects outlined are correct.

The EISR seeks to scope out the assessment of arable/improved grassland and tall ruderal habitats, however in the light of the draft advice contained in the National Planning Policy Framework and the government's recent 25 Year Environment Plan, that development should embed a net environmental gain, (in terms of biodiversity offsetting metrics), the LPA consider that these habitats should be included in any such calculations. Consequently, such matters should be scoped in to the final EIA.

In relation to air pollution, the impacts on natural receptors (such as existing habitats/designated sites) should also be assessed, as well as the impact on human health.

The Environment Agency note that there is no inclusion of water vole and otter surveys within the report. However, there are historic records of Water vole (*Arvicola amphibius*) within 1 kilometre of this site. The site boundary includes a large length of Bradley Brook and we would expect that a riparian mammal survey carried out by a qualified ecologist (at the appropriate time of year following best practice guidelines) is included within the EIA to ensure that development does not impact these protected species. The water vole and otter, and their habitats, are protected under Schedule 5 of the Wildlife & Countryside Act (1981) and we would expect to see appropriate mitigation and compensation if these are present on site.

The Environment Agency are satisfied with the proposed inclusion of a 15m buffer zone from bank top (ES Scoping Appendix 3). This should be free from built development including lighting, domestic gardens, road ways, footpaths and formal landscaping; and could form a vital part of green infrastructure provision. Land alongside watercourses is particularly valuable for wildlife and it is essential this is protected. Such networks may also help wildlife adapt to climate change and will help restore watercourses to a more natural state as required by the Water Framework Directive (WFD).

There is a requirement within the Water Framework Directive (WFD) that nothing should be done to a water body which would cause its condition to deteriorate. Measures should be included with any subsequent EIA to ensure that no part of this development should affect the watercourses ability to reach "good ecological potential" by 2027. A WFD assessment may be required depending upon the details of the proposed scheme. As part of any subsequent planning application/EIA opportunity should be taken to improve the watercourse and remove redundant modification from the watercourses, i.e. remove any existing redundant retaining walls or weirs.



It is noted that Bradley Brook is culverted to the east of the site (Section 4.42). Any subsequent EIA should include measures to ensure no further culverting of this watercourse as this involves the destruction of river and bankside habitat and the interruption of a wildlife corridor, acting as a barrier to movement. Again, refer to NPPF paragraph 109 and article 10 of the Habitats directive.

The Environment Agency are satisfied that habitats of ecological importance are to be retained as far as possible (Section 4.75). If ponds cannot be retained in their original location then they should be mitigated for at a ratio of 2 for 1, (as part of any subsequent EIA) and should be designed, located, constructed and managed in such a way as to positively contribute to the nature conservation value of the site. This is necessary to ensure that the ponds are protected and contributes to the nature conservation value in accordance with the NPPF paragraph 109. Paragraph 118 of the NPPF also states that opportunities to incorporate biodiversity in and around developments should be encouraged.

### 13. Noise & Vibration

The details in the above sections of the scoping report are acceptable. However, the following areas need to be incorporated in any future EIA submission:

- The proposal does not include management of the demolition of buildings, as outlined in the description of the development statement on page 9, section 1.2 (noise, vibration and dust controls required).
- The proposal does not include noise assessments and monitoring of locations off site.
- There is no consideration of the existing dwellings located in the middle of the site, should they remain. Noise, odour and dust assessments are required for the demolition, construction and operational stages.
- Careful consideration is required regarding routes for vehicles and vehicle movements in respect to dwellings and assessment of any impacts from traffic noise and vibration for the demolition, construction and operational stages.

### 14. Air Quality

The scoping proposes a detailed air quality assessment, which is acceptable.

### 15. Cultural Heritage and Archaeology

The methodology contained in paragraphs 15.1 to 15.5 of the EISR represents an appropriate approach to identifying the significance of the material likely to exist on the site.

The further work identified at paragraph 15.70 of the EISR should be provided/undertaken as part of the subsequent EIA. In addition, evaluation works, (in the form of a geophysical survey or non-intrusive techniques should be undertaken/submitted as part of any subsequent EIA.

In addition to the heritage assets to be assessed, an assessment of the impact on the setting of the following heritage assets should also be included within any subsequent EIA:

DCH1638 Yew Tree Farmhouse Grade II Listed Building 1139340

DCH1659 Beehive Farmhouse Grade II Listed Building 1139361

DCH1660 Booths Farm, Shippon on Left (North West) Side of Farmyard Grade II Listed Building 1139362

DCH1934 Booths Farm Farmhouse Grade II Listed Building 1329740

DCH12753 Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building

DCH12869 Milepost at Gallows Croft, Knutsford Road, Lymm

DCH13677 Tan House Farm, Barleycastle Lane, Appleton

Barleycastle Farmhouse, Barleycastle Lane - DCH1329741

Tanyard Farm building, Barleycastle Lane - DCH1139363

In this respect, any subsequent outline planning application may well need to include the scale and landscaping of the development proposed rather than deal with such issues as reserved matters.

#### Appendix 14 - Lighting

The baseline acceptable is acceptable, however, a full lighting assessment will be required for lighting both on and off site.

In addition to the above, the LPA consider that pre-application consultation with surrounding neighbours, the local Parish Councils' (Grappenhall & Thelwall, Lymm and Appleton and the South Warrington Parish Councils' Working Group), local ward Councillors and if not already done so, Cheshire East Council and their equivalent local representatives/Councillors, parish councils). The LPA have received a number of representations from local residents/parish council's/Councillors as part of the current scoping opinion request and it will be very important to gauge their views/take into account their concerns before submitting any formal planning application/EIA.

The local Ward Councillor has raised concerns about the loss of higher quality agricultural land and bearing in mind that potential loss, the LPA consider that an assessment of the impact of the loss of such land should be scoped into the final EIA for the site. In particular the subsequent EIA will need to demonstrate that, in policy terms, the proposed development is not premature in the light of the status of the Local Plan and the current status of the land as green belt.

Finally, I would advise you to make use of the Council's fee-based protocol for pre-application advice - which you can access via:- [https://www.warrington.gov.uk/forms/form/400/en/1/pre-application\\_advice](https://www.warrington.gov.uk/forms/form/400/en/1/pre-application_advice)

- or by ringing our Support team on 01925 442819.

DATE OF REQUEST FOR SCOPING  
OPINION RECEIVED:

27th February 2018

DATE SCREENING OPINION ISSUED:

6th April 2018



Development Manager  
Development Management

## ES Part I Appendix I 4

## Six 56 Warrington

### Langtree PP and Panattoni

## Site Specific Glossary

| Site Specific Terminology            | Description  |
|--------------------------------------|--|
| ALC                                  | Agricultural Land Classification   |
| AQMAs                                | Air Quality Management Areas   |
| A50 Cliff Lane<br>A50 Knutsford Road | Road bounding the Site.  |
| Appleton Thorn Trading Estate        | Industrial estate to the west of the Site with Barleycastle Trading Estate and Stretton Green Distribution Park  |
| Applicant                            | Langtree PP and Panattoni  |
| Application Site                     | Application Site for proposed development - Land at Junction 20 of the M6/M56 Interchange  |
| B5356 Grappenhall Lane               | Road bounding the Site.  |
| Barleycastle Trading Estate          | Industrial estate to the west of the Site with Appleton Thorn Trading Estate and Stretton Green Distribution Park  |
| BPM                                  | Best Practicable Means   |
| Borough                              | The authority area is a Borough  |
| Bradley Brook                        | Watercourse running west to east to the southern boundary of the site  |
| Bradley Brook Tributary              | Watercourse running west to east to the southeastern boundary of the Site and turns into Bradley Brook.  |
| Bradley Gorse                        | Area of woodland located within the south east of the Site, to the north of Wrights Covert.  |
| Bradley Hall Farm                    | Farm complex within the Site boundary, comprising Bradley Hall and detached barn which is Locally Listed   |
| Bradley Hall moated site             | Scheduled Ancient Monument (SAM) within the Site boundary  |
| CIA                                  | Cumulative Impact Assessment   |
| Client                               | Langtree PP and Panattoni  |
| Core Strategy (July 2014)            | Warrington's adopted Statutory Development Plan comprising the Borough's local planning policy.  |
| CEMP                                 | Construction Environmental Management Plan   |
| DoWCoP                               | Definition of Waste Code of Practice   |
| EcMP                                 | Ecological Management Plan   |
| EIA Regulations 2017                 | The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. The EIA Regulations the ES is based upon.  |
| EDNA                                 | The Council's Economic Development Needs Assessment (2016)   |
| Updated EDNA                         | The Council's Updated Economic Development Needs Assessment (2019)   |
| emerging Local Plan                  | Warrington's emerging Local Plan refers to Warrington Borough Council's Preferred Development Option Regulation 18 Consultation Document (July 2017) and the Proposed Submission Version Local Plan (2019), which will be consulted on for eight weeks commencing in April 2019. |
| FCEMP                                | Framework Construction Environmental Management Plan   |

## Six 56 Warrington

### Langtree PP and Panattoni

| Site Specific Terminology              | Description   |
|--|---|
| Garden Suburb                          | Area of growth allocated as a Garden Suburb sustainable urban extension within the emerging Local Plan. The Site is part of this area of growth, although can also be delivered independently of this.                      |
| GCN                                    | Great Crested Newts   |
| GRR                                    | Greenfield run-off rate   |
| GVA                                    | Gross Value Added   |
| Internal Site Access Road(s)           | The access road within the site to facilitate access to each development plot   |
| Langtree PP and Panattoni              | Applicant / Client  |
| Local Plan Core Strategy (July 2014)   | Warrington's adopted Statutory Development Plan comprising the Borough's local planning policy.   |
| LLFA                                   | Lead Local Flood Authority  |
| LWS                                    | Local Wildlife Sites  |
| LVIA                                   | Landscape and Visual Impact Assessment  |
| MAFF                                   | The Ministry of Agriculture, Fisheries and Food   |
| MMP                                    | Materials Management Plan   |
| M56 Motorway                           | The M56 Motorway is a strategic road which is to the south of the Site  |
| M6 Motorway                            | The M6 Motorway is a strategic road which runs parallel with the east of the Site.  |
| Means of Access                        | Details of the vehicular access into the Application Site   |
| NOx                                    | Nitrogen dioxide and nitric oxide are referred to together as oxides of nitrogen (NOx). NOx gases react to form smog and acid rain as well as being central to the formation of fine particles (PM) and ground level ozone. |
| Parameters                             | A series of parameters fixed as part of the proposals which form the basis of the environmental assessment.   |
| Primary Internal Site Access Road      | The primary access road within the site   |
| Proposed Development                   | Application Site for proposed development   |
| Proposed Development Sire              | Application Site for proposed development   |
| PROW                                   | Public Rights of Way  |
| OWMS                                   | Operational Waste Management Strategy   |
| Secondary Internal Site Access Road(s) | The secondary access roads within the site to facilitate access to each plot  |
| SWMP                                   | A Site Waste Management Plan  |
| Site                                   | Application Site - Land at Junction 20 of the M6/M56 Interchange  |
| Six 56 Warrington                      | Application Site (Land at Junction 20 of the M6/M56 Interchange)  |
| SSSI                                   | Site of Special Scientific Interest   |
| Stretton Green Distribution Park       | Industrial estate to the west of the Site with Appleton Thorn Trading Estate and Barleycastle Trading Estate  |
| SuDS                                   | Sustainable urban Drainage Systems  |
| SWUEFP                                 | South Warrington Urban Extension Framework Plan Document (SWUEFP) (June 2017) produced on behalf of Warrington Borough Council as part of their evolving planning policy  |

## Six 56 Warrington

### Langtree PP and Panattoni

| Site Specific Terminology   | Description  |
|---|--|
| TA  | Transport Assessment   |
| The Town and Country Planning (Environmental Impact Assessment ) Regulations 2017 | The EIA Regulations the ES is based upon.  |
| WBC   | Warrington Borough Council   |
| Warrington BC   | Warrington Borough Council   |
| Wrights Covert  | Area of woodland located within the south east of the Site, to the south of Bradley Gorse.   |
| WMMTM   | Warrington Multi Modal Transport Model (WMMTM)   |
| ZTV   | A desktop landscape study carried out using a computer model of the 5km study area to produce a Zone of Theoretical Visibility (ZTV) based on the topographical OS data for the study area |

Rev D

## ES Part I Appendix I5





## Spawforths

Founded in 1988, Spawforths have an in-house multidisciplinary team offering Planning, Masterplanning, Architecture, Landscape Architecture, Consultation and Project Management services.

We are the largest independent planning consultancy in the north of England, employing a large team of Chartered Town Planners, with more than 150 years combined professional experience. Spawforths also has a highly respected Design Team of Masterplanners, Landscape Architects and Architects. This allows us to take on any project no matter the scale or complexity. We are Members of IEMA and are accredited to IEMA's Quality Mark scheme in recognition of our excellence in EIA activities.

Within the planning team we have environmental planners who specialise in EIA. We can utilise our knowledge, experience, and project management skills to lead, coordinate and manage specialist consultants to ensure that the Environmental Statement is robust, proportionate and focuses upon the key potential environmental effects and impacts. Our involvement from project inception and our integrated approach with the wider team allows us to ensure that the key potential environmental impacts are addressed to evolve and influence the proposals at an early stage in the process.

Spawforths key EIA related services include:

- ES Coordination and Project Management
- EIA Screening and Scoping
- ES preparation and review
- Landscape and Visual Impact Assessments
- Socio Economic Assessments
- Energy Assessments for renewable energy projects
- Masterplanning
- Landscape Architecture
- Stakeholder and Community Consultation

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# Jenny Ray

Title

Associate

Job Description /Role

Chartered Town Planner

Qualifications

BSc (Hons), MA

Professional Memberships

MRTPI

Role on this Project or Framework

Planner, ES and Project Coordinator

Jenny is an Associate Chartered Town Planner at Spawforths. She joined Spawforths in 2005, following three years as a Development Control Officer at Leeds City Council. She provides professional advice to a wide range of public and private sector clients, including developers, landowners, local authorities and housebuilders, on a variety of planning and environmental matters. She also leads on EIA activities at Spawforths along with the Directors and successfully secured an IEMA quality Mark which she is now responsible for maintaining practice-wide.

Jenny's specialist skills and experience are as an environmental assessment co-ordinator and project manager for large scale and strategic projects including infrastructure, motorway service areas, mixed use urban extensions, renewable energy and logistics and distribution development. This involves the preparation and submission of environmental statements and planning applications, and progressing them through the process to determination. Jenny's other skills and experience are in site promotion and appeals and all other planning related advice and services.

## Core Skills

- Wide range of town planning experience in both the public and private sector.
- Experienced Environmental Impact Assessment Coordinator including the preparation of screening and scoping requests and full Environmental Statements and co-ordination of a full team of consultants
- Significant experience related to development control issues.
- Excellent project management skills, delivering a wide variety and scale of projects, on time and in budget
- Good commercial understanding and awareness
- Extensive knowledge and experience of stakeholder engagement and community consultation

## Current and Recent Major Projects

- Wakefield Council – Wakefield Eastern Relief Road
- Extra MSA Group – Leeds Skelton Lake Services
- Langtree – Parkside Colliery Employment Park – 1 million square feet of B8 Phase 1
- Langtree and First Panattoni - 3 million sq ft B2 and B8 Development
- Persimmon Homes – Hartlepool South West Urban Extension
- BOCM Pauls – Olympia Park 863 homes and commercial centre

## Benefits to Client

- Efficient and effective preparation and project management of Environmental Assessment documentation across wide range of development types
- Proven track record in unlocking development value through securing high value planning permissions with accompanying, market facing, robust environmental assessments



# Gavin Winter

Title

Associate

Job Description /Role

Chartered Town Planner

Qualifications

BA (Hons), MA

Professional Memberships

MRTPI

Role on this Project or Framework

Planner, ES and Project Coordinator

Gavin is an Associate Town Planner at Spawforths with over 15 years' experience in the public and private sectors, joining Spawforths in 2003. Gavin provides professional advice to a broad selection of commercial clients and manages a varied portfolio of projects dealing with a range of planning issues, including the project management, coordination and negotiation of major development schemes, including Environmental Impact Assessments, large scale mixed use developments, industrial schemes and urban extensions.

Recent projects and achievements include being Project Coordinator for a strategic urban extension of Selby, securing its allocation in the Core Strategy and permission for 863 new dwellings, a new primary school, sports pitches, significant highway infrastructure, a public house/restaurant, and food retail unit.

## Core Skills

- Good understanding and awareness of the public sector and their statutory requirements required when negotiating with the local planning authority
- Experience in Development Management, in particular Green Belt and heritage matters and Development Plan Site Promotion and EiP's
- Experienced Environmental Impact Assessment Coordinator including the preparation of screening and scoping requests and Full Environmental Statements
- Housing developments, viability and delivery
- Excellent project management skills, delivering a variety of scales projects
- Extensive knowledge and experience of stakeholder engagement and community consultation

## Current and Recent Major Projects

- 863 dwellings and mix of commercial and community facilities at Selby
- Northern Gateway, mixed-use development, incorporating Logistics and Technology Park (1,507,000 sqft) 770 dwellings and local retail
- 3 million sqft logistic park at Grappenhall, Warrington
- 334 dwellings at Former Wakefield Power Station
- Local Retail Centre at Heathlands (29,600 sqft)
- 280,490 sqft employment space, Knowsley
- 200,000 sqft employment space at Salford
- 209 units and 56,414 sqft employment, Dudley
- 120 dwellings at Eggborough, Selby
- 70 dwellings at Ickleford, North Hertfordshire

## Benefits to Client

- Extensive knowledge of planning matters, in particular experience of Environmental Impact Assessments
- Client focused with excellent communication skills
- Strong knowledge and experience in securing planning permissions for large-scale industrial and commercial developments
- Experience of working with a wide variety of clients and stakeholders

# SIX 56 WARRINGTON ENVIRONMENTAL IMPACT ASSESSMENT COMPETENCY CAPABILITY STATEMENT

JUNE 2018

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Lee French, Associate Director  
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  2. EIA AND SCOPE OF SERVICES
  3. RELEVANT EXPERIENCE
  4. THE TEAM
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INTRODUCTION

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# Introduction to Cundall



We are an international multi-disciplinary consultancy, operating from 20 locations across the globe. With sustainability at the heart of everything we do, our team of engineers delivers innovative, sustainable design solutions to address the project's whole life cycle.

We expect our engineers to consider the implications of their design for every project as a whole, as well as commenting on wider environmental issues across disciplines. We routinely design to LEED, BREEAM and Green Star standards, and our approach is always to look for those wider implications. This goes beyond simply meeting the requirements for benchmarking credits, while also acknowledging that these are important as a minimum requirement.

We are also the world's first consultancy to be formally endorsed as a One Planet Company by sustainability charity Bioregional.

Innovation isn't about being different for the sake of it, but being different when the project requires it.

Our mission is to play a key role in making buildings more energy-efficient, sustainable and cost-effective to operate.

Every project is an opportunity to make a positive difference and challenge ourselves to develop solutions tailored to our clients' requirements. We achieve this by listening, collaborating and using our local and global expertise. Whether we are focused on cost, programme or reduction in environmental impact, we look for options that will bring client benefit. We encourage innovation at every turn, but understand this shouldn't come at the expense of functionality.

A priority of all our projects is building strong relationships with our client and design team, based on open communication and Partner involvement throughout. Because of this, the vast majority of our work is repeat business. This produces better project outcomes, as everyone involved has a clear understanding of roles and responsibilities.

# Core Services



## Building services engineering

We offer an end-to-end service, extending from initial planning to construction fit-out, plus lifetime facilities management.

Our mission is to help design sustainable buildings which are more energy efficient and cost-effective to operate. Integration with our in-house civil and structural engineering and specialist teams enables us to devise the best possible solutions to ensure our clients' buildings are holistic, sustainable and futureproof.

Our approach is focused on offering best value by: analysing client needs, considering possible design options and delivering the most appropriate for location, development and budget.



## Structural engineering

We provide structural engineering design services with our renowned analytical creativity and ingenuity. As a result, we have a high level of repeat clients. To deliver maximum value to our clients, we aim to be involved in projects from the very outset, which allows us to contribute to the development of fully integrated solutions.

This creates the greatest benefit and minimises the risk to budget and programme. Our approach is to use 3D modelling software to assist with integration on all our projects.



## Civil engineering

Civil engineering is one of our core services and covers all sectors of the construction industry. We help to create, improve and protect the environment in which we live. We provide facilities for day-to-day life, and for transport and industry to function effectively.

We help each client identify both the constraints placed on development by regulatory requirements and site conditions and the opportunities that can be created through practical and innovative design.

We work closely with project teams and stakeholders to ensure project deliverables and goals are exceeded, while also providing sustainable solutions.



## Sustainable design and Health & wellbeing

We are positioned at the forefront of sustainability in the built environment. This is because we take a refreshingly positive approach to engineering design, fostering collaboration and creativity. We are driven by the consideration of people.

We know going green and commercial pragmatism can happily co-exist, and use this knowledge on all our projects. We provide a service to suit all aspirations, as we are familiar with the latest energy and environmental legislation, green ratings and delivering zero carbon buildings.



# Specialist services



Acoustics



Building automation



Building Information Management (BIM)



Building Performance Services (BPS)



CDM consultancy



Data Centre Infrastructure Management (DCIM)



Fire engineering



Geotechnical engineering



IT and audio visual



Lighting design



Planning consultancy



Security consultancy



Survey solutions



Transportation



Vertical transportation

2 EIA AND SCOPE OF SERVICES

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## Six 56 Warrington EIA Capabilities



Cundall has been providing professional engineering consultancy for over 40 years while the Planning department within Cundall has been undertaking Environmental Impact Assessments (EIA) since 2003 with technical input into external EIA's pre-dating that. This experience and the technical and professional qualifications held by our staff means that we deem ourselves to be 'competent' under the 2017 EIA Regulations to prepare and review EIA work.

Cundall are preparing Technical Papers for Drainage/Flood Risk, Ground Contamination, Noise and Lighting with the following individuals leading each:

Flood Risk/Drainage – Lee French, Associate Director, is a Chartered Civil Engineer, with over 15 years' experience in flood risk, drainage design and assessing the impact from and to development sites.

Ground Contamination – Kevin McGee, Associate Director, is a Chartered Environmental Scientist with over 15 years' experience in ground investigation, transactional environmental due diligence and geoenvironmental and geotechnical assessments.

Noise – Rob Turner, Principal Acoustic Consultant, is an Audio Engineering degree qualified professional with over 10 years' experience in modelling and assessing the impact of noise generation and pollution.

Lighting – Andrew Bissell, Director of Lighting, is a Chartered Engineer and Fellow of the Society of Light and Lighting and Member of the Chartered Institute of Building Services with over 15 years of experience of delivering lighting schemes and assessing their impact

3 EXPERIENCE / CASE STUDIES

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# ITV Headquarters

## Southbank London

This project was for the redevelopment of ITV's Television Studios and office complex located on the South Bank, London.

The final design for the redevelopment included a new podium structure facing on to the River Thames incorporating ITV's new Headquarters. An existing 25 storey office block would be demolished and replaced by a taller storey residential accommodation block. A new public 'destination square' would also be incorporated to provide open space and outdoor use for the client.

The proposed scheme was deemed by London Borough of Lambeth to be an Environmental Impact Assessment (EIA) scheme. Cundall were instructed to provide EIA coordination to provide a comprehensive Environmental Statement (ES) to review the potential impacts the scheme would have on the environment. The EIA included a Non-Technical Summary, the Main ES, a Townscape, Heritage and Visual Impact Assessment and Technical Appendices.

The Team worked closely alongside the project team and the sub-consultants to ensure a swift production of the ES to meet the client's application deadline, and incorporated our internal review of the ES, as well as producing a version for a Legal Review prior to submission.

There were particular challenges with this project, including the protected Westminster – St Paul's Cathedral Viewing Corridor in the London View Management Framework. Viewing Corridor dissected the site and restricted the height and footprint of the taller structures. There were also factors to consider including the South Bank Conservation Area, and the site's links with the potential Garden Bridge development immediately to the north.

Cundall also produced the Waste and Socio-Economics Chapters for the EIA. The Waste



**Client:** ITV  
**Sector:** Commercial and Residential  
**Value:** Confidential  
**Completion date:** Estimated completion 2023  
**Architect:** Hopkins Architects  
**Services:** Planning  
**Images:** Hopkins Architects©

Chapter included assessing the level of demolition, construction and operation waste anticipated to be produced and the Socio-Economics Chapter reviewed the potential benefits the redevelopment of the site would have at a local and regional level.

The proposed redevelopment is aiming for a BREEAM Excellent rating and were designed to be highly sustainable. The level of car parking spaces was reduced, electronic car charging stations to be installed and significant cycle parking provided.

The proposals also included a green roof solution across the site to improve biodiversity and aid rainwater attenuation, whilst integrating into a roof terrace for the client's employees.

# Yorkshire Wildlife Park

Doncaster, UK

Yorkshire Wildlife Park first opened its gates to visitors in 2009 as a small wildlife park built on the site of an old farm attraction.

The Park defined itself in a different way to any other zoo, safari or wildlife park in the UK – as the first walkthrough Safari Park with a vision to provide exemplary welfare, conservation, education and visitor experience supported by sound commercial principles for a sustainable business into the future. YWP animals come from other collections, not the wild, to generally more optimal conditions.

Yorkshire Wildlife Park proposed a 60-hectare extension of the existing wildlife park incorporating the following elements such as; expansion of animal attractions, new restaurants and shopping facilities, additional car parking and the provision of a new hotel complex.

The proposed scheme was considered by Doncaster Metropolitan Borough Council to be an Environmental Impact Assessment (EIA) scheme. Cundall were instructed to provide EIA coordination to provide a comprehensive Environmental Statement (ES) to review the potential impacts the scheme would have on the environment. The EIA included a Non-Technical Summary, the Main ES, a Landscape and Visual Impact Assessment and other Technical Chapters.

The Team worked closely alongside the project architects and landscape designers to ensure a swift production of the ES to meet the client's application deadline.

There were challenges associated with this project associated with the requirements for archaeological investigation and recording. Previously discovered Roman remains near the proposed development led to the requirement for additional archaeological survey work across the site. There were also factors to consider



**Client:** Yorkshire Wildlife Park  
**Sector:** Leisure and Tourism  
**Value:** £ Confidential  
**Completion date:** 2019  
**Architect:** Melt  
**Services:** Environmental Impact Assessment consultancy, civil and geotechnical engineering  
**Images:** © COE Design / Melt

including increased traffic flows and impact on the local road network given the increased numbers of visitors to Yorkshire Wildlife Park.

Cundall also produced the Socio-Economic, Hydrology, Ground and Human Health Chapters for the EIA. The Socio-Economic Chapter reviewed the potential benefits of the extension to Yorkshire Wildlife Park would have at a local and regional level and the Human Health Chapter considered the wellbeing benefits associated with the Proposed Development.

# Chapelgarth

## Sunderland UK

The scheme consists of a 750-dwelling greenfield residential masterplan, set over 100 acres. Our role has been to provide planning and engineering support to develop the concept masterplan, prepare a hybrid planning application for the site (including the preparation of a full Environmental Impact Assessment) and design for a first phase of infrastructure.

We worked closely with the scheme masterplanners and landscape designers to develop a masterplan that worked with the site's complex topography. We also developed a strategic approach to sustainable urban drainage that integrated with the provision of large areas of natural greenspace required for ecological mitigation.

A particular challenge was developing a surface water drainage strategy that worked within the new requirements of the Council as Lead Local Flooding Agency and ensuring this could be designed in a way that coped with this phased development.

As we were co-ordinating a range of planning, engineering and environmental aspects of the project, this enabled synergy between intrusive ground investigations and archaeological assessment work, streamlining surveys and limiting disruption to the tenant farmer. We worked closely with the client to assist them in focusing such work to suit the phasing and early options being secured by housebuilders, as well as making sure intrusive SIs met with the more detailed housebuilder requirements.

Our team worked closely with the client / design team and the local planning authority to develop manageable planning conditions, limiting the number of upfront conditions while maximising the ability to make a prompt start on site.

The site has been assessed using igloo's Footprint® sustainability assessment framework. Our team has been closely involved in assessment workshops and seeking to maximise

June 2018



**Client:** Siglion LLP  
**Sector:** Residential  
**Value:** £100 million  
**Completion date:** Ongoing  
**Architect:** URBED  
**Services:** Planning, transportation, civil and geotechnical engineering and acoustics.

opportunities for sustainable design and construction. We have also taken a proactive approach to client communication, with a dedicated Project Director and Project Manager who act as a first point of contact and ensure co-ordination between disciplines at Cundall, providing joined up service delivery.

Planning approval was secured in August 2016 and we are assisting the client in moving towards a start on site.

# The Sill

## Northumberland, UK

Cundall has worked with Northumberland National Park to create an exciting Landscape Discovery Centre, The Sill. The £11.2 million initiative aims to attract visitors to participate and inspire current and future generations to discover and enjoy the unspoilt natural and cultural landscapes.

Cundall was appointed in March 2013 to provide planning and lighting consultancy services to support the development.

This work has included:

- Extensive pre-application discussions with the Local Authority and English Heritage
- Screening the development for Environmental Impact Assessment
- Scoping the development for Environmental Impact Assessment
- Co-ordinating the Environmental Impact Assessment
- Developing a strategy for public engagement and organising, staffing and documenting a significant programme of community engagement
- Co-ordination of the Planning Submissions
- Co-ordination of the Scheduled Ancient Monument Application Submission
- Undertaking a Waste Management Plan
- Negotiation of scheme details to ensure a positive committee recommendation

Scheduled Ancient Monument Consent was granted and the planning application approved. Construction started in 2015 and the Centre opened in July 2017.

Cundall also completed a lighting assessment which was especially important given the granted Gold Tier Dark Sky Park status that had been recently awarded by the International Dark Skies Association. As a result of this award, The Sill site is now part of the largest area of protected night sky in Europe.

June 2018



**Client:** Northumberland National Park Authority

**Sector:** Lifestyle

**Value:** £11.2 million

**Completion date:** 2017

**Architect:** Jane Darbyshire and David Kendall Ltd

**Services:** Lighting design and planning

**Images:** © Jane Darbyshire and David Kendall Ltd

This lighting design work has focused on meeting the requirements of the international dark sky association. A number of the criteria to satisfy the IDA require a reduction in obtrusive light, i.e. sky glow and a reduction in the visibility of the building at night.

The completed lighting design does in fact reduce the amount of obtrusive light compared to the existing building which has been demolished as part of the work. Additionally, through good lighting design techniques and also incorporating the architectural fabrics such as automatically closing curtains when it is dark, the building will make a negligible visual impact on surrounding properties.



# Tower Bridge Business Complex

## London UK

The Biscuit Factory, is being developed on the site of the former Peek Frean's Biscuit Factory, which made biscuits in Bermondsey for 123 years, from 1866 until 1989 when the factory closed. The first mass producer of biscuits, it was home to baked goods like the Bourbon and the Garibaldi.

The triangular site extends over approximately 12 acres and is part of Tower Bridge Business Complex and consists of a collection of buildings that began in the Victorian age when this area first developed as a major centre for food production and is currently occupied by commercial and light industrial buildings.

Once completed, the development will provide Southwark with a major mixed-use scheme and its largest hub for small businesses, which is expected to support over 2,000 jobs. The redevelopment will provide 25,000m<sup>2</sup> of business space and 7,500m<sup>2</sup> of new business accommodation, as well as 800 new residential units.

The site will be extensively landscaped to provide open and accessible amenity spaces. The development is to be delivered in phases over a ten-year period. The commercial development is targeting a BREEAM "Excellent" rating and the residential units will be designed to achieve Code for Sustainable Homes Level 4. The residential development covers a variety of different unit types including; townhouses, apartments and affordable housing.

Cundall has extensive experience working on similar redevelopments and has been appointed to provide a wide range of engineering services associated with producing a planning application for the site and contributing to the Environmental Impact Assessment. As part of the site wide energy strategy we have investigated integrating the development into a proposed district heating network and assessed the utility demand for the



**Client:** Workspace Ltd

**Sector:** Mixed-use

**Value:** £100 million

**Completion date:** 2019

**Architect:** Alford Hall Monaghan Morris

**Services:** Building services, structural, civil engineering, sustainable design, geotechnical, acoustics, fire engineering, waste management and vertical transportation

**Images:** © Uniform and AHMM

development to verify that there is sufficient capacity in the local utility networks.

Acoustic surveys and vibration surveys have been carried out to assess the impact of the development on the surrounding properties and to assess the impact of the noise and vibration from the railway viaduct on the proposed residential units. A 3D analytical model has been produced to enable accurate prediction of the sound propagation between buildings and test the viability of acoustic mitigation measures.

# Parkside

## St Helens

Cundall was responsible for Civil Engineering, Geotechnical Engineering and Acoustic/Lighting Consultancy on the proposed 66 ha Employment Park for the JV between Langtree and St Helens Council.

In addition to the discipline responsibility, Cundall was the lead Engineer for the Masterplan informing the Architectural decisions.

The site is the former Parkside colliery, located to the south of Newton-le-Willows which began production in 1964.

The scheme was designed to regenerate the disused site while protecting the surrounding green space and improving transportation access with a new link road and M6 junction improvement works.

The former use of the site presented many engineering challenges to overcome, particularly regarding potential contamination from the old colliery spoils.

The proposed earthworks and lighting and noise designs required a huge collaborative effort due to the surrounding residential setting and large platforms proposed for the building units.

With the site boundary being an EA main river which the proposed storm water was to outfall, Cundall produced a truly sustainable drainage solution with swales, ponds and basins being integrated into the landscaping providing 3 levels of water quality treatment.



**Client:** Langtree

**Sector:** Masterplanning

**Value:** £155 million

**Completion date:** Ongoing

**Architect:** Fletcher Rae

**Services:** Civil and geotechnical engineering, acoustics and lighting design.

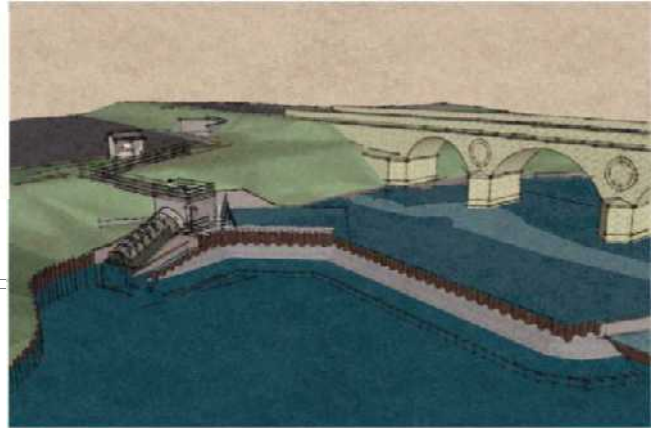
As part of the planning application, an EIA was also produced with Cundall producing technical papers for all discipline appointments including Drainage, Flood Risk, Ground, Noise and Lighting

## Hexham Community Hydro Project

Northumberland, UK

Cundall provided EIA Screening and Scoping services of this project to erect an Archimedes Screw type hydro-electric generation scheme under a Listed Bridge in Hexham and adjacent to a Scheduled Ancient Monument.

Cundall were involved in extensive negotiations with the statutory authorities and procurement of specialists surveys to accompany the scoping exercise.



**Client:** Hexham Community Partnership

**Sector:** Infrastructure

**Value:** £5 million

**Completion date:** TBC

**Architect:** Kevin Doonan Architects

**Services:** Planning, Environmental Impact Assessment, Building services, structural, civil engineering, geotechnical, acoustics, transportation

## Alpine Coaster

Sentosa, Singapore

Cundall undertook a high-level EIA Scoping exercise for a proposed leisure attraction on Sentosa Island for Skyline Luge Sentosa. This steeply sloping site was partially in the buffer zone of Mount Imbiah Nature Reserve and key issues included slope stability, impact on trees and ecology, noise and construction traffic.

This early work was in support of Skyline Luge's expression of interest to lease the site from the Sentosa Development Corporation.



**Client:** Skyline Luge Sentosa

**Sector:** Lifestyle/Infrastructure

**Value:** £10 million

**Completion date:** TBC

**Architect:** TBC

**Services:** Planning, environmental impact assessment, structural, civil engineering, geotechnical, acoustics

## 4 THE TEAM

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## About Lee

Lee joined Cundall in 2001 and is a Chartered Civil Engineer, Member of the ICE and Chartered Construction Manager, Member of the CIOB.

Lee has led and managed design teams and projects in the UK, Middle East & Africa. In addition to managing teams within a design office, Lee has also had experience residing on Construction Sites managing consultants and design implementation.

The majority of Lee's experience lies within the Infrastructure & Masterplanning sector but he has broad experience across all. Lee's design and management experience includes externals, earthworks, landscaping, finishes, highways, drainage, service co-ordination, multi-discipline project management and flood risk assessments in high risk areas.

Lee is also a keen researcher and writer in the fields of urban drainage, flood resilience and environmental impacts. His highlight being co-authoring the book "Flood Hazards: Impacts and Responses for the Built Environment", 2011.

## Role on this project

Drainage/Flood Risk Chapter

## Lee French

Associate Director

BSc (Hons) CEng MICE MCIQB

## Relevant projects and experience

### Industrial

#### **BAE Systems, Washington, UK**

Managed the external works design for the new 30 000m<sup>2</sup> manufacturing facility in Washington which included concrete pavement infrastructure and surface water attenuation design.

#### **Parkside Re-Development, Manchester, UK**

Project manager for the EIA re-development of the former 66 ha Colliery site which included Drainage, Flood Risk, Ground, Noise and Lighting input.

#### **Chapelgarth, Sunderland, UK**

Project lead and Drainage specialist for the infrastructure and masterplan EIA development to serve approx. 1000 homes which included high specification detention basins and a tiered SuDS network.

the basement car park which spanned majority of the site at high levels.

#### **Tower Bridge Business Complex, London, UK**

Drainage and Flood Risk lead for the Zone 3 EIA redevelopment of the existing Tower Bridge business complex in London behind the Thames defences. The new development included residential and commercial uses with mitigation measures including raised podiums.



## Kevin McGee

Associate Director

BSc CSci

### About Kevin

Kevin joined Cundall in September 2013 to deliver our geotechnical and geo-environmental consultancy services. He undertakes project management and provides technical support within the geotechnical team, which provides an advisory and design service in all aspects of geotechnical and geo-environmental engineering.

Kevin is a commercially focussed geo-environmental specialist with a broad spectrum of experience within contaminated land, geo-environmental engineering and engineering geology, together with client liaison, business development, and contracts management. He has particular expertise in site investigation / risk assessment and the development and management of remediation schemes for complex and difficult sites. He has worked on a broad range of schemes from simple greenfield residential sites through to complex multi-million pound hydro-electric and nuclear schemes with challenging ground conditions and engineering and logistical constraints.

Kevin has also presented as expert witness at public enquiry and provided technical support on challenging planning cases.

### Role on this project

Ground Chapter

### Relevant projects and experience

#### **Site Investigation (contaminated land, engineering geology and geo-environmental)**

Kevin has designed, managed and reported numerous investigations for site acquisition, disinvestment, forensic investigations, Part 2A assessments and infrastructure, including near shore, off shore, overseas, and investigations in difficult and mountain terrain. More recent experience has seen Kevin undertake projects for large residential schemes, schools, healthcare and retail developments throughout the north of the UK.

#### **Remediation of Contaminated Land**

Responsible for the development and implementation of remedial strategies and supervision and verification of remedial works for numerous contaminated and geotechnically challenging sites.

#### **Due Diligence & EIA**

Acted as the geo-environmental specialist on numerous due diligence and EIA schemes including PFI and highways schemes. He has also undertaken pre acquisition due diligence and site appraisal within the commercial, industrial and residential sectors.



## Robert Turner

Principal Acoustic Consultant

BSc(Hons)MIOA MIHEEM MANC

### About Rob

After training in Audio, Video and Broadcast Engineering at the University of Salford, with a year-out working at a pro-audio company in central London, Robert joined a multi-disciplinary consultancy, specialising in acoustics in 2005.

Robert subsequently joined Cundall in 2015, focusing on the field of environmental and architectural acoustics, with particular interest in natural ventilation solutions and building services noise.

Robert is a client-facing engineer who engages with end users and other design team members to determine and develop appropriate acoustic strategies. Robert takes overall acoustic design responsibility for the delivery of projects from feasibility stage to practical completion.

Robert has acted as lead consultant on a significant number of projects.

### Role on this project

Noise Chapter

### Relevant projects and experience

#### **101 Embankment, Manchester, UK**

Between 2009 and 2015, Robert was the lead consultant in charge of the acoustic design for the development of Building 101 at the flagship Embankment scheme in Manchester. The completed scheme will deliver 165,000 sqft of office accommodation over ten storeys with a multi-storey car park beneath. Robert's responsibilities covered all acoustic aspects from Planning / environmental noise issues to internal concept design and construction oversight. This development is due to complete in summer 2016 and has a total capital build cost £56m.

#### **Clifton House Low Secure Unit, York, UK**

Lead consultant in charge of the acoustic design for a £10m Low Secure Unit at Clifton House, York. Scheme incorporates 22 bedrooms, a gym, café and staff / ancillary areas. Responsibilities covered all acoustic aspects from Planning / environmental noise issues through to internal design and pre-completion testing. Scheme successfully handed over to Leeds and York Partnership NHS Foundation Trust in Spring 2014.

#### **Parkside Re-Development, Manchester, UK**

Lead Consultant for the EIA re-development of the former 66 ha Colliery site which extensive acoustic modelling of the proposed bund mitigation from the industrial units.



## Andrew Bissell

Director

BEng (Hons) CEng MIET MCIBSE FSLL

### About Andrew

Andrew joined Cundall in 2006 and has 15 years' experience in the field of lighting design and engineering.

He heads up Cundall Light4; offering specialist lighting design and expertise, carefully considering all the elements of the process – landscape lighting strategies, daylight design, architectural lighting design and commissioning.

Andrew has been involved in a European Union innovative procurement initiative which aims to bring to market more innovative products and solutions in the field of ultra-efficient lighting and controls.

He has also contributed to the re-write of CIBSE LG5, Lighting for Learning and the EFA Baseline Design Output Specification. Andrew is also a Director of IMI.

### Role on this project

Lighting Chapter

### Relevant projects and experience

#### Sevenside Energy Recycling, UK

Andrew completed the lighting design and environmental impact assessment for a new energy recycling facility. The key receptor was the severn estuary and the embankment which had been identified as a site of special scientific interest.

#### Cornwall Energy From Waste, UK

Andrew completed the lighting design and environmental impact assessment for a new energy recycling facility. The key receptors included a number of farms and an adjacent dual carriageway. The assessment also included the control on the internal lighting with respect to causing light pollution.

#### Binn Moving Grate EfW, Scotland, UK

Andrew completed the lighting design and lighting impact assessment for the energy from waste facility in Perthshire, Scotland. The area was particularly sensitive with regards light pollution as the site sits in a class Z0 zone, i.e. a rural setting. As such the light pollution, sky glow and light spill criteria are the most stringent.

#### Trumps Farm EfW

Andrew completed the lighting design and environmental impact assessment for a new energy recycling facility. The key receptors included a number of farms and an adjacent dual carriageway. The assessment also included the control on the internal lighting with respect to causing light pollution.



Asia Australia Europe MENA UK Ireland



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[www.cundall.com](https://www.cundall.com)



Curtins were established in 1960 and have 14 offices throughout the UK and Ireland, specialising in civils, structures, transport planning, environmental and infrastructure engineering services. Our North West Transport Planning team has 15 members of staff and is headed by Alex Vogt (Technical Director).

Alex has a wide range of experience in traffic engineering and transport planning having spent 16 years working for both private and public-sector clients. He has worked in various different sectors and has appeared as an expert witness at Public Inquiry.

Alex is a Fellow of the Chartered Institute of Highways and Transportation and in 2016 he obtained the Transport Planning Professional qualification. He also holds a degree in Geography and a Master's degree in Traffic Engineering and Transport Planning.

Alex is the primary author of the ES chapter and has authored numerous other chapters throughout his career.

# Landscape / Townscape Visual Impact Assessment

Landscape / Townscape Visual Impact Assessment (LVIA/TVIA) can be key to effective planning decisions since it helps identify the effects of new developments on views and on the landscape itself. These effects can be quite different. Some developments can have visual effects but limited effect on the landscape character and some vice versa. A depth of analysis and understanding of these two interrelated aspects is required to produce a successful LVIA/TVIA.

LAYER have produced LVIA /TVIA in landscapes and cities across the country, from an ANOB in Gloucestershire to high-density city centres such as Manchester and Liverpool.

As Part of our LVIA work, we also manage the work of sub-consultant's (photography and digital visualisation) to provide a complete LVIA/TVIA service.

## LAYER Landscape Architecture Team

### Simon Tugby – Landscape Architect & Director

Simon has been involved with numerous Landscape Architecture and Public Realm Strategies and a number of LVIA's/TVIA's from small scale mixed use schemes to large commercial and industrial developments.

#### Qualifications

BA (Hons) BLA CMLI

Chartered Member of the Landscape Institute

#### Key Projects

**Parkside Colliery, Warrington** – Landscape & Visual Impact Assessment undertaken for an outline planning application for the construction of up to 92,900m<sup>2</sup> of employment floorspace with associated services and infrastructure.

**Freemasons Row, Liverpool** – Townscape & Visual Impact Assessment undertaken for the demolition of existing built form and replacement with 11-15 storey interconnected residential apartment building with ground floor commercial units, residential gym and associated access, services, parking and landscaping.

**Monarchs Quay, Liverpool** – Townscape & Visual Assessment undertaken for a full planning application for a mixed use development comprising commercial / leisure, car parking provision and ground floor retail and residential accommodation.

### Matthew Warner – Landscape Architect & Director

Matthew has been responsible for the delivery of some of Manchester's most significant public realm projects of the last 8 years. His portfolio experiences stretches from small-scale public realm interventions to large town centre strategies.

#### Qualifications & Awards

BA (Hons) PgDip LA

Landscape Institute Yorkshire & Humber Prize for Best Portfolio

#### Key Projects

**Gloucester Services Hotel** – Landscape & Visual Impact Assessment undertaken for a proposed hotel development adjacent to the Gloucester Services Southbound development.

### **Pete Coe – Landscape Architect**

Pete has worked in both public and private sectors and has undertaken a broad spectrum of work. Pete has not only created LVIA's/TVIA's for various residential, commercial industrial and infrastructure projects, but has also undertaken LVIA reviews and Expert Witness for different Local Authorities in relation to urban extension and housing development projects.

#### **Qualifications**

BA Dip LA CMLI

Chartered Member of the Landscape Institute

#### **Key Projects**

**Parkside Colliery, Warrington** – Landscape & Visual Impact Assessment undertaken for an outline planning application for the construction of up to 92,900m<sup>2</sup> of employment floorspace with associated services and infrastructure.

**Freemasons Row, Liverpool** – Townscape & Visual Impact Assessment undertaken for the demolition of existing built form and replacement with 11-15 storey interconnected residential apartment building with ground floor commercial units, residential gym and associated access, services, parking and landscaping.

**Monarchs Quay, Liverpool** – Townscape & Visual Assessment undertaken for a full planning application for a mixed use development comprising commercial / leisure, car parking provision and ground floor retail and residential accommodation.

**Threapland Lees Windfarm, Bothel, Cumbria** – Works undertaken as part of an Environmental Impact Assessment (EIA) for an extension to an existing wind farm at Threapland Lees Farm, Cumbria.

**Kendal Flood Protection Scheme, Kendal** – A multi-million pound scheme to provide flood protection to the town following the flooding caused by storm Desmond in 2015. The scheme runs through rural and peri-urban areas as well as through the urban centre and sensitive heritage areas. The project involved detailed consideration of a variety of factors key of which were landscape/townscape and visual considerations as well as ecological and heritage issues which required a range of flood protection measures to be provided with careful attention to finishes.

**Tank Farm Urban Extension, Chipping Norton, Oxfordshire** – Works undertaken to support the allocation of land in the ownership of the Oxfordshire County Council (OCC) for a residential led, mixed use development site.

## Capability Statement

### **John Moorcroft (Ecology Associate) BSc, MSc, MCIEEM, CEnv.**

John is a Chartered Environmentalist and full member of Chartered Institute of Ecology and Environmental Management (CIEEM), with over 15 years of experience in ecological consultancy and 30 years' experience in Environment sector work. He is an accomplished field surveyor and has extensive experience of habitat assessment. He holds survey licences for bats, great crested newts and white clawed crayfish and has held European Protected Species development licences in respect of great crested newts. He is also an experienced tree climber with extensive experience in the identification of tree roosts for bats. He has particular expertise in the management of habitats for nature conservation particularly woodland and lowland peatlands and has been involved in the design of a number of conservation areas and the management of several nature reserves. John is experienced in producing ecological impact assessments, including ES Chapters (and where necessary Habitats Regulations Assessment) for environmental assessment of developments across a wide range of sectors. He has an extensive knowledge of planning policy and legislation relating to ecological resources.

### **Lisa Davies (Partner) BSc, MA, ACIEEM**

Lisa Davies is a Partner at Tyler Grange where she heads up the Manchester office and the national ecology team. Lisa has a Master's degree from Manchester University in Environmental Impact Assessment. She also has over 8 years' experience providing ecology input into EIA projects ranging from large scale residential development to significant infrastructure projects. Lisa has provided ecology advice to a wide range of public and private sector clients in accordance with best practice guidance and is fully conversant on the latest legislation and policy. Lisa is a member of the Chartered Institute of Ecology and Environmental Management and adheres to their Code of Conduct.

### **Laura Dennis (Senior Ecologist) BSc, MSc, GCIEEM**

Laura is a Senior Ecologist at Tyler Grange working in the Manchester office. Laura has an MSc in Biodiversity and Conservation from Leeds University and is a member of the Chartered Institute of Ecology and Environmental Management. She has five years ecological consultancy experience working on a range of commercial and residential projects throughout the UK and has been involved in preparing Environmental Statement chapters for a number of schemes for private sector clients.



## **Capability Statement – Socio Economic**

AMION Consulting is a public sector consultancy practice founded in 2000 by two former senior consultants from KPMG. Its senior staff are all established practitioners, each of whom has proven national expertise in the economics, policy and strategy, physical development, finance and business, property management and implementation fields. With regard to assessing the significance of socio-economic effects, AMION has a team of specialist economists with substantial experience, knowledge and a successful track record in carrying out economic impact appraisals and evaluations. This has included undertaking, as well as critically reviewing, socio-economic assessments as part of EIAs for a wide range of high-profile projects.

The economist at AMION who has led the assessment of the socio-economic effects is a Partner Director at the firm with over 15 years' consultancy experience, currently providing guidance to government on the economic appraisal of physical development interventions.

## CAPABILITY STATEMENT – AIR QUALITY

Organisations engaged in assessing the significance of air quality impacts should hold relevant qualifications and/or extensive experience in undertaking air quality assessments. The RPS air quality team members have professional affiliations that include Fellow of the Institute of Air Quality Management, Chartered Chemist, Chartered Scientist, Chartered Environmentalist and Member of the Royal Society of Chemistry and have the required academic qualifications for these professional bodies. The work undertaken has been designed and managed by RPS, which has ISO9001 and ISO14001 certifications for its Quality Management System and Environmental Management System, respectively.

The air quality professional having the role of Project Director on this assessment, responsible for the assessment design and authorising all deliverables, is a Fellow of the Institute of Air Quality Management, Chartered Chemist, Chartered Scientist, and Member of the Royal Society of Chemistry with over 25 years' experience. The CVs of the Project Director and the RPS air quality team member conducting the assessment are attached.

# RIDGE

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PROPERTY & CONSTRUCTION CONSULTANTS

**RIDGE MEP CAPABILITY STATEMENT FOR  
LAND AT JUNCTION 20 OF THE M6/M56 INTERCHANGE**  
3<sup>rd</sup> November 2017

Prepared for

**Langtree PP**  
St. James Business Centre  
Wilderpool Causeway  
Warrington  
WA4 6PS

Prepared by

**Ridge and Partners LLP**  
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M3 7NA  
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## 1. CAPABILITY STATEMENT

The Ridge MEP team have the in house design expertise to carry out the utilities design services associated with the “land at Junction 20 of the M6/M56 interchange point” project.

The Ridge MEP team have worked on several similar large-scale developments comparable to the above project.

Some examples of similar projects the Ridge MEP team have worked on includes;

- Parkside development for Langtree PP
- Cuerden Strategic Site for Lancashire County Council
- Hollinwood scheme for Langtree PP

The above are of a similar size and scale to the “land at Junction 20 of the M6/M56 interchange point” project.

Chris Bradburn (Partner) and Carl Niland (Associate) are directly involved with the above schemes and will lead the MEP delivery on this project. CV's of Chris and Carl are attached.

## 2. CV'S



### CHRIS BRADBURN

|                |                                 |
|----------------|---------------------------------|
| Position       | Partner                         |
| Discipline     | Building Services               |
| Qualifications | BEng (Hons) – MCIBSE MIOP - LCC |

---

#### Profile

Chris leads the Building Services Department of Ridge in the North of England being based in Manchester.

Chris has over 34 years' in the Building Services Industry in a wide variety of sectors including Public Sector Buildings, Commercial offices, Retail, Residential, Education, Industrial and Distribution.

Very much still a "hands on" Engineer with a wealth of experience and a proactive/collaborative approach to working with all members of the Design and Construction teams.

#### Relevant Capabilities

Having a trade background and a wealth of knowledge about different types of buildings in various sectors, Chris brings a practical approach to the design of Building Services. Always pushing design for the best value and the most robust solutions that meet the client brief and are practical to operate and suitable for the end users.

Chris has a strong background CIBSE Low Carbon Consultant and also an approved Carbon Trust Consultant. He can offer practical experience of Low Carbon Solutions and will be pivotal in pushing sustainable and Low Carbon design solutions.

Chris understands the importance of managing his team to meet deadlines and design within budget constraints of projects.

Experience of both new build and refurbished buildings including listed buildings will support the overall capability of the team

#### Relevant Experience

##### Parkside Colliery, Newton-le-Willows

Duties included the utility design services for the proposed gas, water, electric and telecommunications services, key duties included;

- Applications for a new point of connections (PoC's).
- Liaison with asset owners to assess diversions and disconnections.
- Production of existing and proposed utility drawings in accordance with Masterplans.
- Input/production of utilities services for the environmental statements for planning submission.

### Cuerdens Strategic Site, Lancashire County Council

The Ridge MEP team's duties included the proposed utility services designs and applications for new connections required for the proposal mixed use development.

The scheme includes large scale industrial warehouse units, offices / business park, retail stores and a residential development.

The scheme required a new 33kV Primary sub-station to serve the site.

### Hollinwood Development

The Ridge MEP team's duties included the proposed utility services designs and applications for new connections required for the proposal mixed use development.

The scheme includes industrial warehouse units, offices, restaurants, retail stores, sports hall and a residential development.



## CARL NILAND

|                |  |
|----------------|--|
| Position       | Associate                                |
| Discipline     | Building Services Engineering            |
| Qualifications | HNC with over 20 years design experience |

### Profile

Carl leads an Electrical design team; he has a wide variety of experience, successfully delivering projects from heritage/ listed, Grade A offices, high end residential, educational buildings, retail, and laboratories.

Carl believes in a collaborative approach with clients to establish clear briefs, in order to fully understand a client's requirements and expectations.

Coming from a trade apprenticeship background, Carl brings a practical knowledge as well as engineering solutions to projects, and has an excellent understanding of the specific project needs.

Carl has worked with many leading architects, clients and project managers from early stage concept and strategy advice through to detailed design, site supervision and delivery.

Working on the University of Manchester framework for many years, Carl worked closely with the estates team, project managers, building manager and end users, delivering wide-range of projects from new builds to refurbishments, many of which being listed buildings.

With a wealth of experience in various sectors, Carl is able to fully understand and work with the various specialist technologies available and offer innovative solutions.

### Relevant Experience

#### Parkside Colliery, Newton-le-Willows

Duties included the utility design services for the proposed gas, water, electric and telecommunications services, key duties included;

- Applications for a new point of connections (PoC's).
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The scheme includes industrial warehouse units, offices, restaurants, retail stores, sports hall and a residential development.



## CAPABILITY STATEMENT - WASTE

- 1.1 The work has been prepared and managed by RPS, which is a founder member of the Institute of Environmental Management and Assessment (IEMA) and an accredited Quality Mark member. The work has been prepared in accordance with RPS's ISO 9001 and ISO 14001 certified Quality Management and Environmental Management Systems.
- 1.2 The RPS Author, Clare Russell, is an EIA Practitioner with IEMA and has the required qualifications and experience for the professional body. She has 18 years' experience in environmental consultancy specialising in Environmental Impact Assessment and the assessment and management of construction impacts. She is also an Affiliate Member of the Chartered Institute of Waste Management.
- 1.3 Clare also has a very good understanding of waste management and specialises in assessing the impacts of waste arising from the construction and operation of developments. She has prepared chapters/technical documents for various projects including:
  - Parkside Regeneration;
  - Broadoak Residential Development;
  - Tetney Oil Pipeline Replacement;
  - M4 Corridor around Newport;
  - Hornsea Project Three Offshore Wind Farm; and
  - South Hook Combined Heat and Power Plant.





Patrick Stephenson Ltd  
Agricultural Consultants

# Agricultural Consultants Crop and Farm Management Specialists

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**Swainsea House, 74 Middleton Road, Pickering, North Yorkshire, YO18 8NH**

---

My name is Patrick Stephenson (BSc Hons Agriculture) I have been responsible for agricultural assessment work undertaken as part of the Environmental Impact Assessments, on major road improvement schemes, planning developments, and change of use requirements for agricultural land for over 25 years. This involves the collection and analysis of farm data, either via published data or on farm surveys to the prepare reports for various Government departments. Subsequently many have been used as an inclusion in environmental statements, often leading to attendance at Public Consultations and subsequent Public Inquiries. Most of the reports require a detailed agricultural land classification work which I have undertaken and included in the report. Work has been undertaken for utilities companies, large and small businesses. Listed below are a collection of the schemes I have worked on to provide detailed assessments:

- a) National Power North Yorkshire/Cleveland Powerline.
- b) Yorkshire Electricity Board Powerline Diversion, Lofthouse.
- c) National Power High Voltage Line, Spalding.
- d) Kelt Vale of Pickering Sour Gas Power Station
- e) Greater Manchester Northern and Western Relief Road.
- f) M1/M62 Motorway Link.
- g) A1 Improvements - Redhouse to Ferrybridge. Dishforth to Ferrybridge.
- h) A64 Upgrading - Malton to Seamer.
- i) A616/A628 Saltersbrook to Stockbridge Improvements.
- j) M6 Widening junctions 16 to 20.
- k) A12 Wickham Market to Saxmundham - Public Inquiry.
- l) A523 Poynton Bypass.
- m) A167 Cock O' the north
- n) A1079 Shiptonthorpe Bypass.
- o) A1 (M) Wetherby to Bramham Service Road.
- p) A66 Great Clifton Bypass - Public Inquiry.
- q) A65 Westhouse Bypass.
- r) Linsdale Bypass
- s) National Coal Board Development
- t) A27 Fontwell Improvement
- u) A41 Norman's Heath - Public Inquiry
- v) Honeybourne to Sapperton National Grid Pipeline
- w) M 60 Road improvement scheme
- x) A1 Dishforth to Scotch Corner Improvement
- y) National Grid carbon capture scheme Drax
- z) Various housing development proposals Barnsley, Doncaster, York, Holmes Chapel, Leeds and Knutsford

**Members of the Association of Independent Crop Consultants**

**Registered in England No:4557028**

## **BWB**

### **Jim MacQueen BA (Hons)**

Jim MacQueen is the service lead for Environmental Planning in BWB which is IEMA Quality Mark certified. Jim specialises in heritage and has over 17 years' experience in Heritage consultancy. He is currently responsible for the management and coordination of a wide range of projects including heritage risk appraisals, heritage assessments, historic landscape assessments, environmental impact assessments and statements, linear schemes and those involving the monitoring and management of archaeological sub-contractors. Jim's experience spans both the public and private sector and he has worked on numerous projects which have required the technical authoring of the Cultural Heritage Technical Paper for the Environment Statement.



## ES Part I Appendix I6

# Six 56 Warrington

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## Lighting Impact Assessment

Langtree + Panattoni

Job No: 1015524

Doc Ref: 1015524-RPT-LG-003

Revision: A

Revision Date: 21 July 2020


|                      |                            |                   |
|----------------------|----------------------------|-------------------|
| <b>Project title</b> | Six 56 Warrington          | <b>Job Number</b> |
| <b>Report title</b>  | Lighting Impact Assessment | 1015524           |

**Document Revision History**

| Revision Ref | Issue Date | Purpose of issue / description of revision |
|--------------|------------|--|
| —            | 15/07/2020 | Planning                                   |
| A            | 21/07/2020 | Planning                                   |
|              |            |  |
|              |            |  |
|              |            |  |
|              |            |  |
|              |            |  |
|              |            |  |
|              |            |  |

**Document Validation (latest issue)**

21/07/2020

X 

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Hannah Murphy  
Lighting Designer  
Signed by: Murphy, Hannah

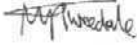
21/07/2020

X Liz Skelton

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Checked by  
Signed by: Skelton, Liz

21/07/2020

X 

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Verified by  
Signed by: Tweedale, Mark

## Executive Summary

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Langtree + Panattoni are proposing to redevelop the area situated within the Six 56 Warrington located immediately South East of Warrington. The site safety and security lighting located within the development area will not have an adverse effect on the residential properties to the North or the South of the development, if the lighting techniques and mitigation highlighted in this document are adhered to. The use of trees will act as an obstruction to the site and will therefore limit any light spill and sky glow. Care must be considered for any lighting adjacent to Bradley View site and further tree obstructions may be required for the area.

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# 1.0

## Introduction

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## 1.0 Introduction

Cundall Light4 were commissioned by Langtree + Panattoni to undertake a lighting impact assessment at the Six 56 Warrington site.

A baseline study during the daytime and night-time were undertaken to assess the likely impact of the existing external lighting on the residential buildings and ecology, in the area immediately surrounding the development site. The assessment includes a summary of the existing lighting found within the area to measure the baseline condition.

A lighting strategy aimed at minimising light spill was then developed during the detailed design phase of the project whereby lighting calculations were undertaken to ensure legislation is met.

Impacts of the proposed lighting have been considered. A light spill assessment has been prepared and the results regarding lux levels, light spill, source intensity and sky glow will be included in drawing BSXX(63)4001 Lighting Lux Level Plot.

The report provides details of the key impact generators associated with the lighting during both construction and operational life of the development. Whilst also providing details of proposed mitigation based, in part on the ILP Dark Skies guidance and an assessment of the likely residual effects of construction and operational mitigated lighting.

### 1.1 Development Site

The site has not yet been developed and is located South of Grappenhall, Warrington.

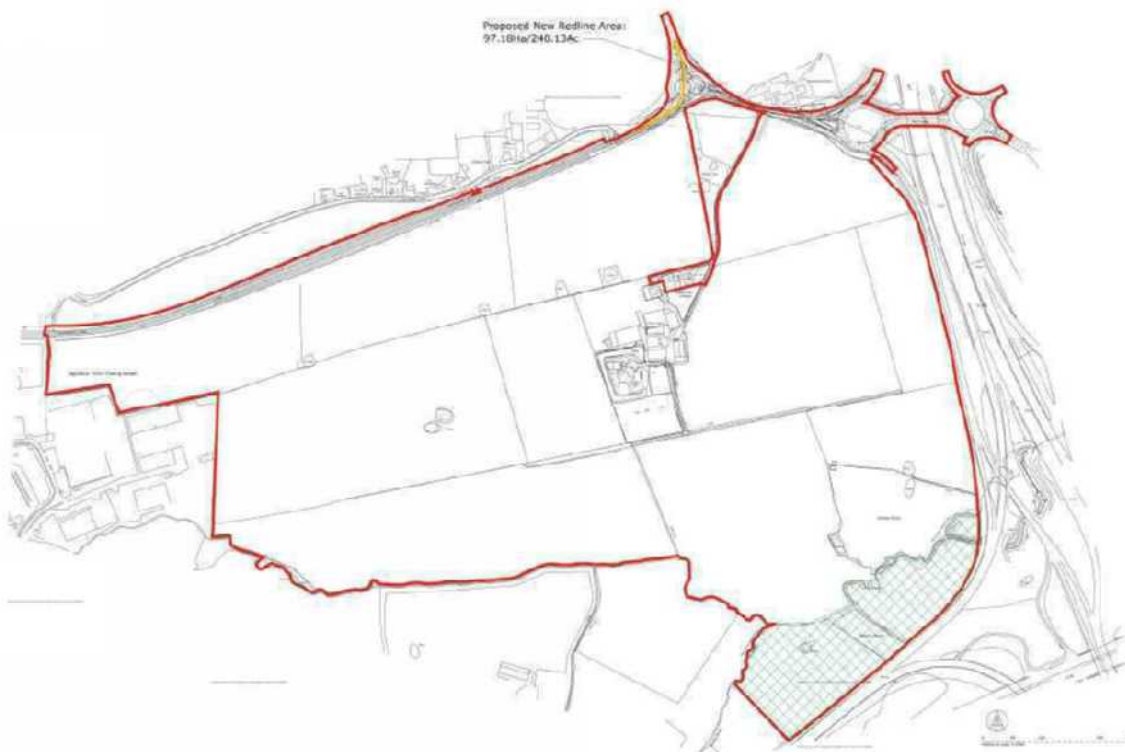


Figure 1 – Red line location

### 1.2 Light Pollution

When the CPRE light pollution study was conducted in September 2016 the site was relatively undeveloped farmland, however due to the surrounding areas already submitting high levels of brightness there is a moderate to high amount of light pollution to the site.

The map below provides an overview of the recorded light pollution on the site ahead of any construction work. The site borders on the moderate to high brightness of the adjacent M6 motorway to the East and the Barleycastle Trading Estate to the North West of the site.

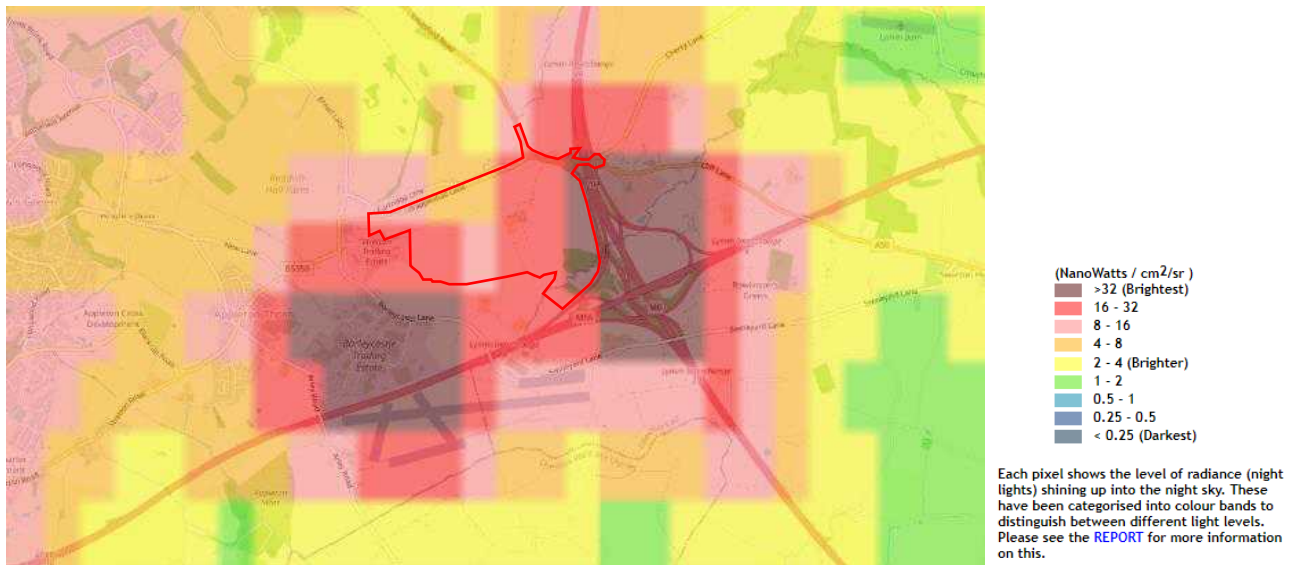


Figure 2 – CPRE Light Pollution map for the proposed site (Source: CPRE website)

# 2.0

## Policy Context

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## 2.0 Policy Context

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### 2.1 Legislation

#### 2.1.1 The Planning (Clean Neighbourhoods and Environment) Act 2005

- The legislation governing light pollution is the Planning (Clean Neighbourhoods and Environment) Act 2005. It applies to “artificial light emitted from premises so as to be prejudicial to health or a nuisance”. The relevant section is 102.
- Section 102 defines the premises to which the act applies. Shopping centres, residential properties and offices are not exempt.

### 2.2 National Planning Policy Framework (February 2019)

#### 2.2.1 Paragraph 180 c)

- limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

### 2.3 Local Planning Policy

#### 2.3.1 Warrington Borough Council – Supplementary Planning Document, Design and Construction (October 2010)

- Chapter 5 – Sustainable Design and Construction, states that;
- The assessment should show that the proposed design provides adequate lighting to enhance safety during the day and at night
- Chapter 9 – Landscaping in New Development states;
- Provide lighting along footpaths to and through open spaces
- Chapter 17 – Design and Crime, Industrial Estates and Business Parks Development Checklist states that;
- Lighting is directed towards entrances and exit points, car parks and service yards
- Proposed lighting is compliant with British Standard 5489 part 2
- There are no blind spots
- Chapter 17 – Design and Crime, Car Parks Development Checklist states that;
- Parking bays, footpaths, circulation routes and entrance/exit points are all well lit
- Lighting is in accordance with British Standard 5489 part 9

## 2.4 Industry Standards

### 2.4.1 Institute of Lighting Professionals (ILP formally the ILE), Guidance note on the reduction of obtrusive light, (GN01:2020)

- The ILP Guidance note sets out the industry standard for numerically measuring, (both through lighting design calculations and on site), the light spill from lighting into windows, sky glow, source luminance and building façade brightness. The ILP guidance note provides illuminance, luminance and percentage figures which must be satisfied both pre-and post-curfew for various types of environmental zone classifications. See tables 1-8 below.



| Angle of light received (circumplex) | Sky glow effect | Stars effect |
|--------------------------------------|-----------------|--------------|
| 100 - 180                            | Local           | Little       |
| 95 - 100                             | Significant     | Some         |
| 90 - 95                              | High            | High         |
| 85 - 90                              | Significant     | High         |
| 80 - 85                              | Normal          | Some         |

Table 1 - Ability to view the night sky

| Zone | Surrounding | Lighting environment                    | Examples  |
|------|-------------|---|---|
| E0   | Protected   | Dark (SQM 20.5+)                        | Astronomical Observable dark skies, UNESCO starlight reserves, IBA dark sky places      |
| E1   | Rural       | Dark (SQM 20 to 20.5)                   | Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty |
| E2   | Rural       | Low district brightness (SQM -15 to 20) | Sparsely inhabited rural areas, village or relatively dark outer suburban               |
| E3   | Suburban    | Medium district brightness              | Well inhabited rural and urban settlements, small town centres of suburban locations    |
| E4   | Urban       | High district brightness                | Town/ city centres with high levels of night time activity                              |

Table 2 - Environmental Zones for Sky Quality Measurements

| Light technical parameter                 | Application conditions | Environmental zone |         |     |      |      |
|---|------------------------|--------------------|---------|-----|------|------|
|   |                        | E0                 | E1      | E2  | E3   | E4   |
| Luminance on the vertical plane ( $F_v$ ) | Pre-curfew             | 4 f                | 2 f     | 5 f | 10 f | 25 f |
|   | Post-curfew            | 4 f                | <0.1 f* | 5 f | 2 f  | 5 f  |

Table 3 - Obtrusive Lighting Limitations for Exterior Lighting Installations

| Light technical parameter                                 | Application conditions | Luminance group (projected area $A_p$ in $m^2$ ) |                         |                        |                        |              |
|---|------------------------|--|-------------------------|------------------------|------------------------|--------------|
|   |                        | $0 < A_p \leq 0.002$                             | $0.002 < A_p \leq 0.01$ | $0.01 < A_p \leq 0.03$ | $0.03 < A_p \leq 0.15$ | $A_p > 0.15$ |
| Maximum luminous intensity emitted by luminaire (I in cd) | E0                     | 0  | 0                       | 0                      | 0                      | 0            |
|   | Pre-curfew             | 0  | 0                       | 0                      | 0                      | 0            |
| E1  | Pre-curfew             | 0.29 f   | 0.63 f                  | 1.3 f                  | 2.5 f                  | 5.1 f        |
|   | Post-curfew            | 0  | 0                       | 0                      | 0                      | 0            |
| E2  | Pre-curfew             | 0.57 f   | 1.3 f                   | 2.5 f                  | 5.0 f                  | 10 f         |
|   | Post-curfew            | 0.29 f   | 0.63 f                  | 1.3 f                  | 2.5 f                  | 5.1 f        |
| E3  | Pre-curfew             | 0.56 f   | 1.9 f                   | 3.8 f                  | 7.5 f                  | 15 f         |
|   | Post-curfew            | 0.29 f   | 0.63 f                  | 1.3 f                  | 2.5 f                  | 5.1 f        |
| E4  | Pre-curfew             | 1.4 f  | 3.1 f                   | 6.3 f                  | 13 f                   | 26 f         |
|   | Post-curfew            | 0.29 f   | 0.63 f                  | 1.3 f                  | 2.5 f                  | 5.1 f        |
| Aid to judging $A_p$ (geometric mean of diameter (cm))    | 2 to 5cm               | 5 to 15cm  | 15 to 20cm              | 20 to 40cm             | 40 to 80cm             | >80cm        |
|   | 3.3                    | 7.1  | 14.1                    | 26.3                   | 56.6                   | >80          |
| Corresponding $A_p$ representative area ( $m^2$ )         | 0.0008                 | 0.004  | 0.016                   | 0.063                  | 0.251                  | >0.5         |

Table 4 - Illuminance intensity

| Light technical parameter    | Road classification*                                       |  |  |  |
|------------------------------|--|--|--|--|
|                              | R0 road lighting   | M0/M5  | M1/M2  | M2/M3  |
| Viewing luminance* ( $L_v$ ) | 0.037 cd/m <sup>2</sup>                                    | 0.23 cd/m <sup>2</sup>                                     | 0.40 cd/m <sup>2</sup>                                     | 0.84 cd/m <sup>2</sup>                                     |
| Threshold increment          | 15% based on adaptation luminance of 0.1 cd/m <sup>2</sup> | 15% based on adaptation luminance of 1.0 cd/m <sup>2</sup> | 15% based on adaptation luminance of 2.0 cd/m <sup>2</sup> | 15% based on adaptation luminance of 5.0 cd/m <sup>2</sup> |

Table 5 - Value thresholds

Table 6 (CIE 150 table 5): Maximum values of upward light ratio (ULR) of luminaires.

| Light technical parameter | Environmental zones |    |    |    |    |
|---------------------------|---------------------|----|----|----|----|
|                           | E0                  | E1 | E2 | E3 | E4 |
| Upward light ratio (ULR)% | 0                   | 0  | 25 | 5  | 15 |

Table 6 - Upwards light Ratio

Table 7 (CIE 150 table 6): Maximum values of upward flux ratio of installation (of four or more luminaires).

| Light technical parameter | Type of installation | Environmental zones |     |    |    |    |
|---------------------------|----------------------|---------------------|-----|----|----|----|
|                           |                      | E0                  | E1  | E2 | E3 | E4 |
| Upward flux ratio (UFR)%  | Road                 | n/a                 | 2   | 5  | 8  | 12 |
|                           | Amenity              | n/a                 | n/a | 5  | 12 | 15 |
|                           | Sports               | n/a                 | n/a | 7  | 9  | 15 |

Table 7 - Upwards flux ratio

Table 8 (CIE 150 table 7): Maximum permitted values of average surface luminance (cd/m²).

| Light technical parameter                   | Application conditions   | Environmental zones |       |     |     |       |
|---|--|---------------------|-------|-----|-----|-------|
|   |  | E0                  | E1    | E2  | E3  | E4    |
| Building facade luminance (L <sub>v</sub> ) | Slider as the product of the design average luminance and reflectance divided by n   | < 0.1               | < 0.1 | 5   | 10  | 35    |
| Sign luminance (L <sub>s</sub> )            | Slider as the product of the design average luminance and reflectance divided by n, or fixed luminance signs, i.e. average luminance | < 0.1               | 50    | 400 | 800 | 1,000 |

Table 8 - Average Surface illuminance

- The Warrington Interchange site is situated South East of Warrington centre near Lymm. It is within an outer suburban area which allows it to meet with the E2 'Rural' classification of area.

Based on the ILP Guidance Notes for the Reduction of Obtrusive Light, the following definitions are used to describe different phenomena related to lighting:

- **Light Spill** - Undesired light spillage on the target area, it may affect sensitive receptors especially residential properties.
- **Source Intensity** - the brightness of the source of light. It is often related to glare issues as bright light sources against a dark background can result in dazzling the observer.
- **Façade Illuminance** - Light trespassing on the site boundary and falling into windows.
- **Sky Glow** - the reemitted light in the sky composed by indirect upward light and direct upward light. This glowing effect can result in a bright sky, which is usually observed above cities.

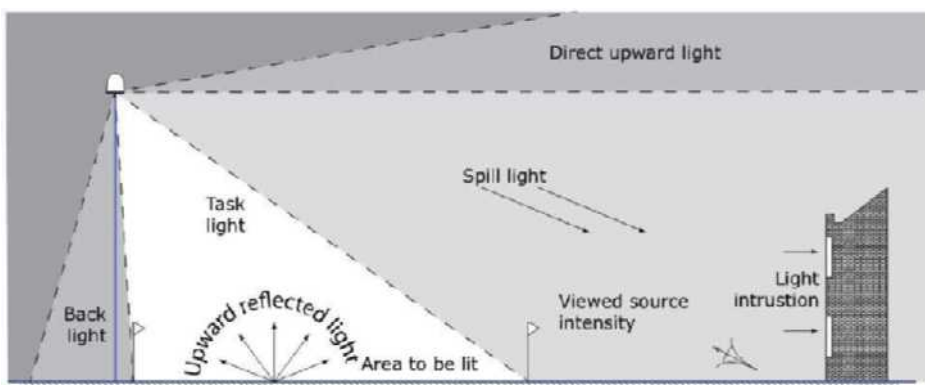


Figure 3 – Luminaire directions

**2.4.2 Institute of Lighting Professionals (ILP formally the ILE), BATS Conservation Trust Lighting Guidance (August 2018)**

- The Bat Conservation Trust and the ILP produced a paper in 2018, 'Bats and Lighting in the UK', discussing the appropriate lighting levels, types of lamps, colour temperatures etc. which are suitable for lighting areas adjacent to bat houses.

**2.4.3 Institute of Lighting Professionals (ILP formally the ILE), A Review of the Impact of Artificial Light on Invertebrates (March 2011)**

- The Invertebrate Conservation Trust and ILP produced a paper in 2011 which discusses the appropriate lighting levels, types of lamps, colour temperatures etc. and the impact any lighting has on insects and other invertebrates, making recommendations and identifying several further research areas.

**2.4.4 Institute of Lighting Professionals (ILP formally the ILE), Lighting Against Crime, A Guide for Crime Reduction Professionals (January 2011)**

- Secured by Design and the ILP produced a paper in 2011 conversing an understanding of external lighting and the recommended levels of illumination used to combat crime, the fear of crime and antisocial behaviour. Secured by Design is a police initiative to encourage the building industry to adopt crime prevention measures in the design of developments to assist in reducing the opportunity for crime and the fear of crime, creating a safer and more secure environment.

# 3.0

## Assessment Methodology and Significance Criteria

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## 3.0 Assessment Methodology and Significance Criteria

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### 3.1 The baseline assessment methodology is as follows:

#### 3.1.1 Site Survey

- A site survey was undertaken to establish the type, height and light distribution of the existing lighting components on and around the site.
- Key receptors were identified to signal which areas need to be looked at in further detail during the detail lighting design process.

#### 3.1.2 Environmental impacts on wildlife were to be identified and a recommendation made on lamp types, colour temperature etc. Consideration of the potential impact of the development.

- A desktop study was to be undertaken to understand the building façade designs, their positions in relation to the residential buildings and key routes around and through the site and their likely lighting design requirements, e.g. functional, feature, media etc. From this study the likely impact has been assessed.
- Public realm lighting within the car parks of the development are to be evaluated with respect to light spill onto the surrounding areas.

#### 3.1.3 The Lighting Strategy

- A lighting strategy aimed at minimising light spill has been developed during the detailed design phase of the project. The lighting strategy will be discussed further in Chapter 6 and the lighting calculation results can be found within Appendix 1 – Lighting Lux Level Plot BSXX(63)4001.

# 4.0

## Key Receptors

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## 4.0 Key Receptors

### 4.1 The key receptors surrounding the development are listed below.

It is assumed that each of these receptors may be impacted by light spill from the proposed Six 56 Warrington site development, and as a result could be detrimental to the existing environment. The receptors that are the subject of this chapter as per Figure 1 are;

- Grappenhall Lodge
- Cartridge Lane Dwelling
- Bradley Hall Cottages
- Bradley View
- Howshoots Farm
- M6 Motorway
- Barleycastle Lane dwellings x 2

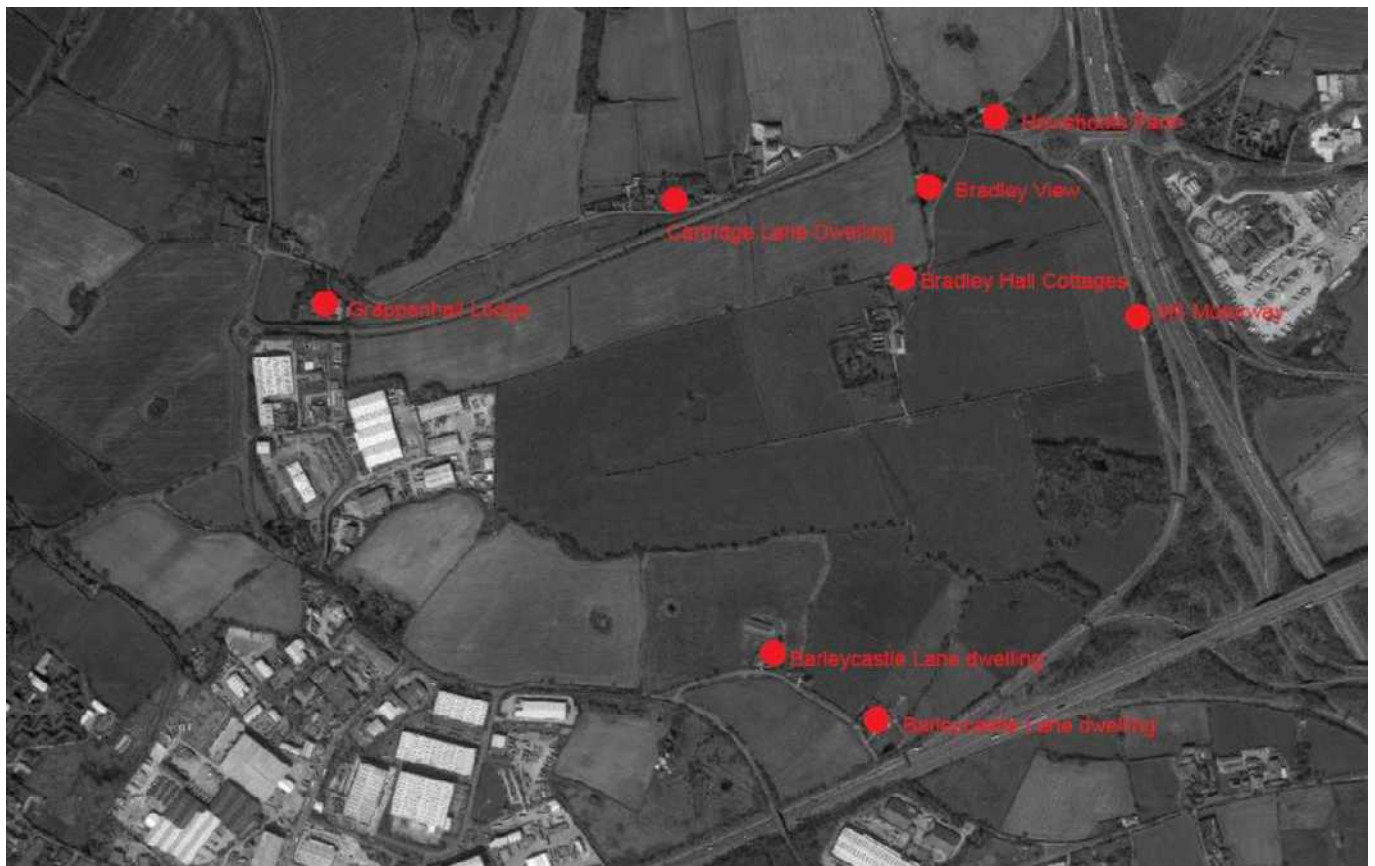


Figure 4 – Receptor Locations

# 5.0

## Baseline Conditions

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## 5.0 Baseline Conditions

### 5.1 Daytime Analysis

Cundall Light 4 carried out a site survey between 8.00 and 12.00 on the 16<sup>th</sup> August 2017. The survey included a study of the existing site and any lighting around the perimeter of the development area.

There is currently no existing lighting system in place on site and so Cundall Light4 spent their time on site noting each of the receptors and how they may be affected by future light spill.

The residential property at Grapenhall Lodge cannot be viewed from the current site due to the dense number of trees in the area, see Figure 2. Therefore, it can be assumed that Grapenhall Lodge will not be affected by any light spill if the lighting techniques highlighted in the ILP Guidance note on the reduction of obtrusive light, 2011 document are adhered to.



Figure 5

The residential dwellings adjacent to the development on Cartridge Lane can be viewed from the current site. There is a reduced number of trees in the area, see Figures 3 and 4. Therefore it can be assumed that currently, the residential dwelling would be affected by a small percentage of light spill.



Figure 6



Figure 7

Within the development site is the residential dwellings of Bradley Hall cottages and farm, see Figures 5 and 6. It has currently been confirmed that the cottages will be removed from the masterplan however to encompass any future changes that may take place, a baseline assessment has taken place. Care must be taken upon any surrounding lighting so as not to exceed the recommended light trespass onto the windows. Currently there are a number of lighting columns already installed in close proximity to the cottages, see Figure 7. The use of additional trees may be required to block any light spill due to the low-level hedges that are currently in place and will not provide any obstructive views. However, it can therefore currently be assumed that the residential dwellings of Bradley Hall cottages would be affected by a percentage of light spill, as a number of the cottages are currently already affected by a minor percentage of light spill from the existing columns.



Figure 8



Figure 9



Figure 10

The residential dwelling within Bradley View requires extra precaution with any adjacent lighting. The house and gardens are currently viewable from the West and East directions with minimal surrounding trees, see Figures 8 and 9. Therefore it can currently be assumed that the residential dwelling within Bradley View would be affected by a percentage of light spill.



Figure 11





Figure 12

Howshoos Farm is the adjacent property to the North East of the site, see Figure 10. There is currently a sparse number of trees populating the area and so it can be assumed that Howshoos Farm would be affected by a small percentage of light spill.



Figure 13 – view from site towards the adjacent road and Howshoos Farm

The M6 motorway runs adjacent to the East of the development, see Figure 11. Currently there is a minor percentage of light spill around the site adjacent to the motorway. Care must be taken upon any surrounding lighting so as not to cause glare to drivers. The use of additional trees may be required to block any light spill both onto the motorway and onto the site, however it can therefore currently be assumed that the M6 motorway would be affected by a percentage of light spill.



Figure 14– M6 motorway to the left

To the South of the development site is two residential dwellings on Barleycastle Lane, see Figures 12 and 13. There is a reduced number of trees in the area. However with the distance from the dwellings to the site it can be assumed that the residential dwellings would not be affected by a small percentage of light spill.



Figure 15



Figure 16

## 5.2 Night-time Analysis

The following site photographs were taken by MSEnvironmental in June 2020. The survey was to establish the current view of surrounding residents and to establish the subsequent visual impact effect of construction and operational lighting. Each of the following photographs were taken at approximately 23:38pm, this is after the time suggested to dim any road lighting and allow for Dusk – Dawn sensors to reduce light pollution and visual impact,



Figure 17 – Viewpoint 1 location

For Viewpoint 1, the image was taken at approximately 22.38 to provide perspective. From Viewpoint 1, at the centre of Grappenhall Lane, looks towards the entire site. Currently the view shows no signs of lighting or sky glow in the distance. However, the location of trees directly behind the Viewpoint 1 location will block the general view of the site from the residential receptor points on Cartridge Lane. Therefore, any light spill will be small enough for no impact, however there may be a view of sky glow following the site’s development.



Figure 18 – Viewpoint 1

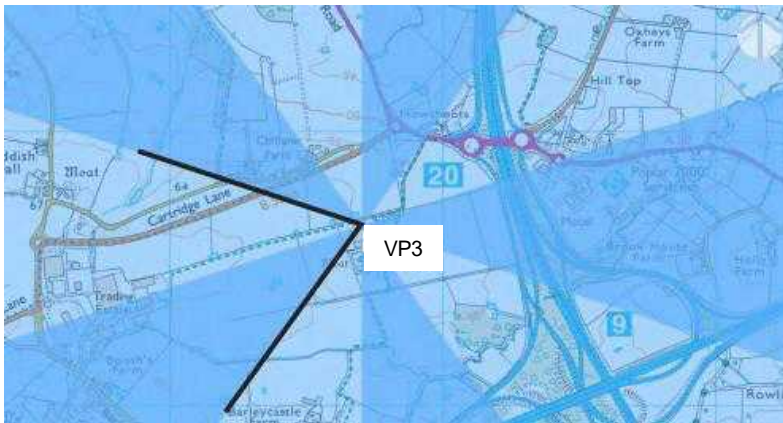


Figure 19 – Viewpoint 3

From Viewpoint 3, the view from the centre of the site, in close proximity to Bradley View, looking towards the Barleycastle Trading Estate shows the visual impact of the estate’s lighting and the subsequent glare and sky glow.



Figure 20 – Viewpoint 3

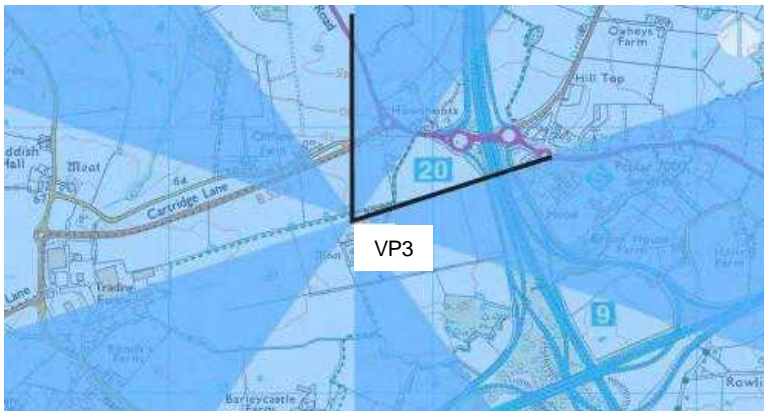


Figure 21 – Viewpoint 3

From Viewpoint 3, the view from the centre of the site in close proximity to Bradley View, looking towards Clifton Lane and the junction off the M6 motorway shows the visual impact of the junctions lighting and the subsequent sky glow.



Figure 22 – Viewpoint 3



Figure 23 – Viewpoint 4

From Viewpoint 4, the view from the Southern perimeter of the site, looking towards the M6 motorway shows the visual impact of the surrounding lighting and the subsequent glare and sky glow.



Figure 24 – Viewpoint 4

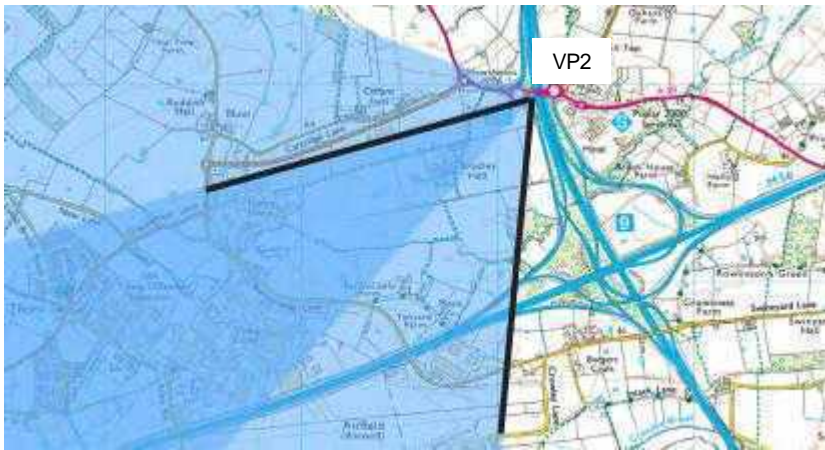


Figure 25 – Viewpoint 2

From Viewpoint 2, the view from the M6 junction looks towards the proposed development site. There is no visual of the site due to the dense trees and hedge line which is successful in obstructing your view. The only lighting that can be seen is the street lighting designed to industry safety standards.



Figure 26 – Viewpoint 5

The above photographs on and around the site correlate with the CPRE light pollution study which shows there is a higher percentage of light spill and sky glow resulting from the built up lighting to the adjacent M6 motorway to the East of the site and the Barleycastle Trading Estate to the North West of the site. Whilst the other images show a lack of light of sky glow this results from the areas where artificial lighting is sparse or absent within the field of vision.



# 6.0

## Lighting Assessment

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## 6.0 Lighting Assessment

### 6.1 Criteria

- Six 56 Warrington has been classed as an E2 Environmental Zone within the ILP Guidance Notes of the Reduction of Obtrusive Light, therefore the following standards must be met,
- Sky Glow (ULR) – 2.5%
- Light Trespass (Lux) – 5 (pre-curfew), 1 (post-curfew)
- Source Intensity (cd) – 7,500 (pre-curfew), 500 (post-curfew)
- Building luminance (cd/m<sup>2</sup>) – 5

### 6.2 Strategy

A lighting design and calculation has been completed for the site and will be shown as an appendix. The strategy and principles of the design area are as follows;

- Any building mounted luminaires or column luminaires which have been included to the external areas adjacent to the perimeter of the site have flat glass diffusers to minimise sky glow. The diffusers are positioned horizontally to the ground or with a 5° tilt if necessary.
- All public realm lighting within the calculation has been specified with flat glass diffusers which would control the light distribution and are mounted horizontally to the ground or with a 5° tilt if necessary.
- A higher quantity of low power luminaires mounted closer to the area to be lit has been the overriding strategy, as this will provide a scheme which is far less likely to cause light pollution compared with more powerful but fewer luminaires.
- All lighting columns and wall mounted bulkheads do not exceed a height of 8m in order to achieve minimal sky glow.
- No lighting has been installed within the proposed habitat mitigation areas in order to allow species to use the areas freely. As these areas aim to be light exclusion zones, the surrounding lighting will be dimmable in order to avoid light spill and glare
- Glare guards will be required to minimise any excessive backlighting from the column lighting

### 6.3 Lighting Calculation Results

Eight receptor points were calculated for light spill and source intensity. Each receptor passed the ILP's requirements at pre-curfew and post-curfew. The sky glow has passed the ILP's requirements at 0.0%, meaning there is no sky glow at all from the Six 56 Warrington site.

The South side of Plot 1 has been calculated under the building illuminance in cd/m<sup>2</sup>. Plot 1 was chosen due to its close proximity to Barleycastle cottages. Despite the potential issue, the building illuminance passed the ILP's requirements.

The calculation results in a small percentage of light spill onto the wildlife habitat areas, looking specifically around the existing farm building which is to be retained as a small office building. The surrounding lighting to this building is for

safety only and therefore will not meet the BSEN guide requirements in a bid to minimise any further light spill into the wildlife habitat areas. Signage will be required for drivers for the minor, adjacent road.

Despite the receptor point at Bradley View passing the ILP requirements, it would still be prudent to utilise tree's within the vicinity to further minimise any light spill or glare due to the close proximity to the site.

The results of the light pollution calculation can be found in Appendix 1; BSXX(63)4001-Lighting Lux Level Plot.

## 6.4 Key Impact Generators

A number of considerations must be taken into account to better understand the potential concerns based on the key impacts of the construction and operation of the site;

- Large car park areas which will increase the need for grouped column lighting
- The reflectance value of the building facades
- The additional lighting along Grappenhall Lane leading to the site entrances, which now becomes a high traffic road
- The addition of 2no roundabouts entrances to Grappenhall Lane which will need to be lit to industry safety standards
- The potential locations of glazing within the buildings which will provide internal spill light
- The location of Bradley View to the site requires total mitigation measures

## 6.5 Visual and Landscape

From the site construction and operation, increased light pollution is likely with this scheme due to the large areas of car parking and the requirement for tall column lighting to facilitate this. Large external areas will need to be lit to accommodate safe access for both pedestrians and vehicles, such as the new roundabouts of Grappenhall Lane.

If the building's façade becomes illuminated then this will have a detrimental effect on the surrounding landscape and therefore the residential buildings and receptors. Where building mounted lighting is required it should be adopted with light shields to reduce unwanted light flashing the building façade.

The use of glazing within the buildings should be considered. Glazing at the side of the building will emit internal light spill and be detrimental to the visual effect whereas roof glazing would be an advantageous alternative.

There is little on and around the immediate site in terms of existing lighting other than the roadway lighting columns for the M6 motorway and the Barleycastle Trading Estate.

The use of trees and foliage are key to providing less of a visual impact to residents. As the residents are generally set back from the proposed site at different locations, the usage of trees and foliage will vary at different locations around the site perimeter. For Bradley View, the use of trees is essential to avoid such a detrimental visual impact.

### 6.5.1 Local Character and Distinctiveness

New lighting is proposed for Grappenhall Lane, as this becomes the access road to the site. Mitigation measures have been undertaken to ensure there is limited light spill onto the surrounding residential receptor points.

### 6.5.2 Impact on the Natural Conservation/Ecology

It is recommended to minimise artificial lighting within the proximity of Bradley Gorse and the Ecological Mitigation Area by positioning and directing light away from these areas.

The lighting effect on animals can be harmful as the 'lack of sleep was likely to be detrimental to the birds' survival and could disrupt the long-term circadian rhythm that dictates the onset of the breeding season.'

It is therefore recommended that the areas adjacent to the ecological mitigation areas will:

- Not provide excessive lighting.
- Not utilise reflective surfaces under lights.
- Adopt motion sensors, to control the lighting in order to provide some dark periods when possible; and
- Use narrow spectrum light sources, with a peak higher than 500nm.

To minimise the disturbance to wildlife, construction should only take place during daylight hours and exterior lighting such as street and security lights in the vicinity of hedgerows, trees and the wildlife corridor should be avoided, or if absolutely necessary, should be of a type that has a minimum impact on the use of these areas by bats.

### 6.5.3 Neighbouring Amenity

Mitigation should include placement of horizontal cut off luminaires at 0° up-light, thereby directing light towards the access road only. This, along with adoption of recommendations listed in the mitigation section of this report, will reduce light spillage onto the surrounding areas.

The allowance of inward facing luminaires will act as mitigation for the surrounding agricultural/residential areas.

## 6.6 Mitigation Measures

The following measures should be considered during the design process to minimise light pollution onto the Six 56 Warrington site;

- Light fittings will generally be positioned at the perimeter of the areas and aim into the site such that the light is not dispersed beyond the site boundary.
- Building facades for employment should utilise materials of a matt finish and have a Light Reflectance Value of no more than 15%
- Flat glass luminaires mounted horizontally to the ground will be used such that the up-light ratio is 0% (This is classified as ULR0 or U0)
- Light fittings will have a limited amount of backlight (This is classified as B0).
- The lights will be on automatic sensors where possible such that the light is only used when needed.
- Column heights to be kept below 8m at a tilt angle no higher than 5°
- High level lighting to be shielded and downward facing only with flat glass lens.
- Utilise LED lighting only to control the light and minimise unwanted light spill.
- Dusk - Dawn sensors on lighting other than street lighting. Should reduce/turn off after a curfew to be agreed. Therefore, only providing light when required ultimately reducing light pollution and visual impact.
- Provision for additional trees/planting around the site perimeter in particular to the North and West of the site to minimise light pollution onto the surrounding fields
- More frequent, low output luminaires should be considered over less frequent high output luminaires.
- Utilise the location of trees and foliage and the various landscape ridge heights to remove, where possible, the visual impact of the site

Loading bays should be positioned inward facing to minimise the extent of light pollution and reduce the visual impact. Generally, it is recommended to maintain the 50-lux level in the loading areas, as recommended by the BS EN 12464 2 only when the loading bays are operative, and to dim lighting levels to 5 lux when not in use. This would, in addition to reducing energy consumption, reduce the risk of light spillage and sky glow onto the existing residential receptors in line with lighting levels recommended for security reasons.

The control of the lighting is proposed to be photocell on / photocell off. An enhancement to this would be to have a degree of smart control such that the road lighting is dimmed at say 11pm such that it has less of an impact on the night-time environment. Luminaire colour temperatures for the development should not exceed 3000K.

Lighting schedules have not developed at this stage for the application as they are occupier- specific and further dependant on the operators' hours of operation. However, if the guidance and mitigation measures outlined in this report, were adopted and carried through to the detailed lighting scheme, they would ensure that the lighting impact to sensitive receptors are minimal and within acceptable limits.

### 6.6.1 Demolition and Construction

During the site set up and mobilisation period the lighting installation should be inspected to ensure the aiming of all floodlights is appropriate and no lighting is being directed towards the residential properties or wildlife habitats.

### **6.6.2 Operation**

The light pollution study shows that the proposed lighting scheme complies with the ILP guidance on the reduction of obtrusive light during both pre-curfew and post-curfew time slots. Therefore, so long as the mitigation measures outlined in this report are adhered to then no further mitigation measures are required for Six 56 Warrington.

# 7.0

## Summary

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## **7.0 Conclusion**

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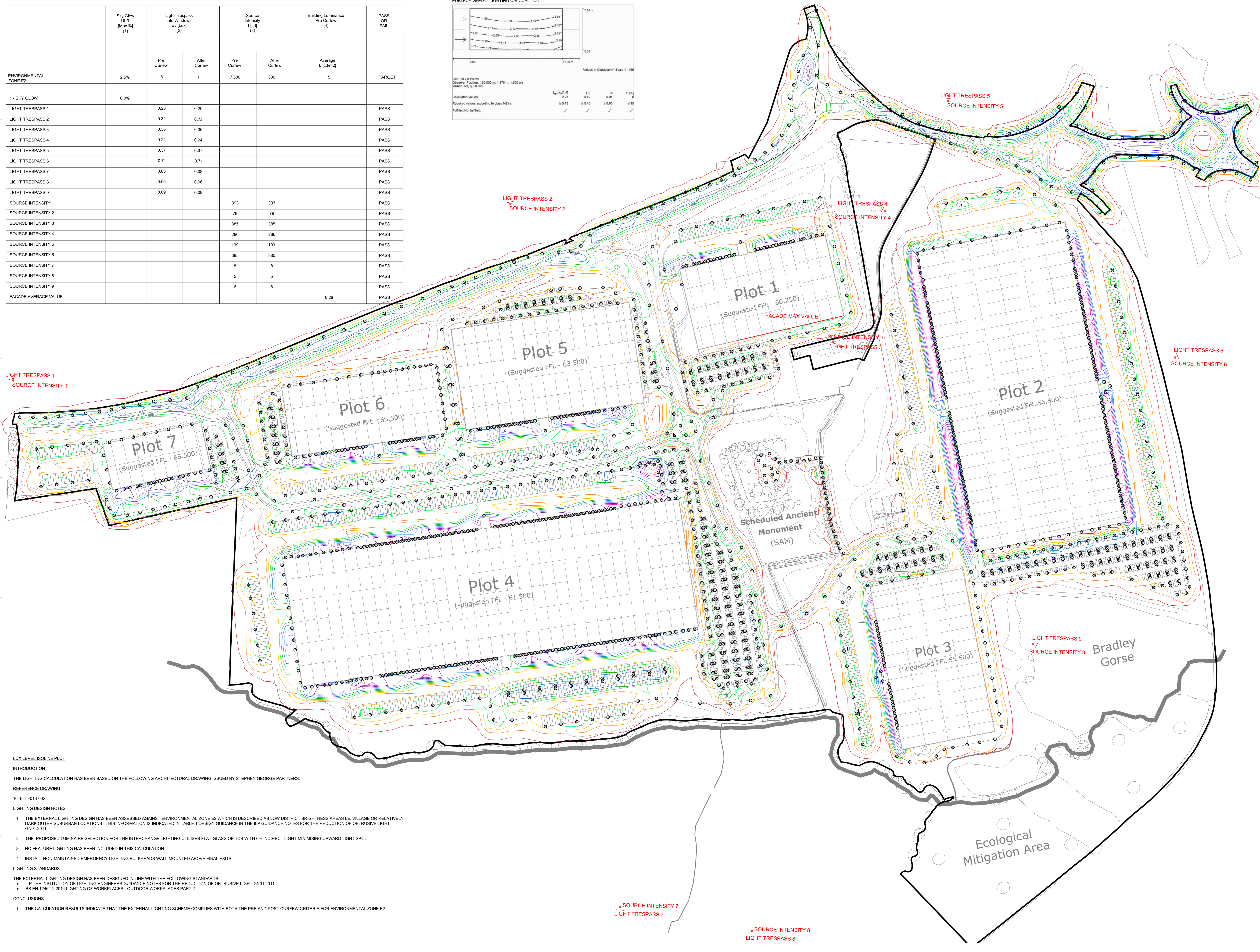
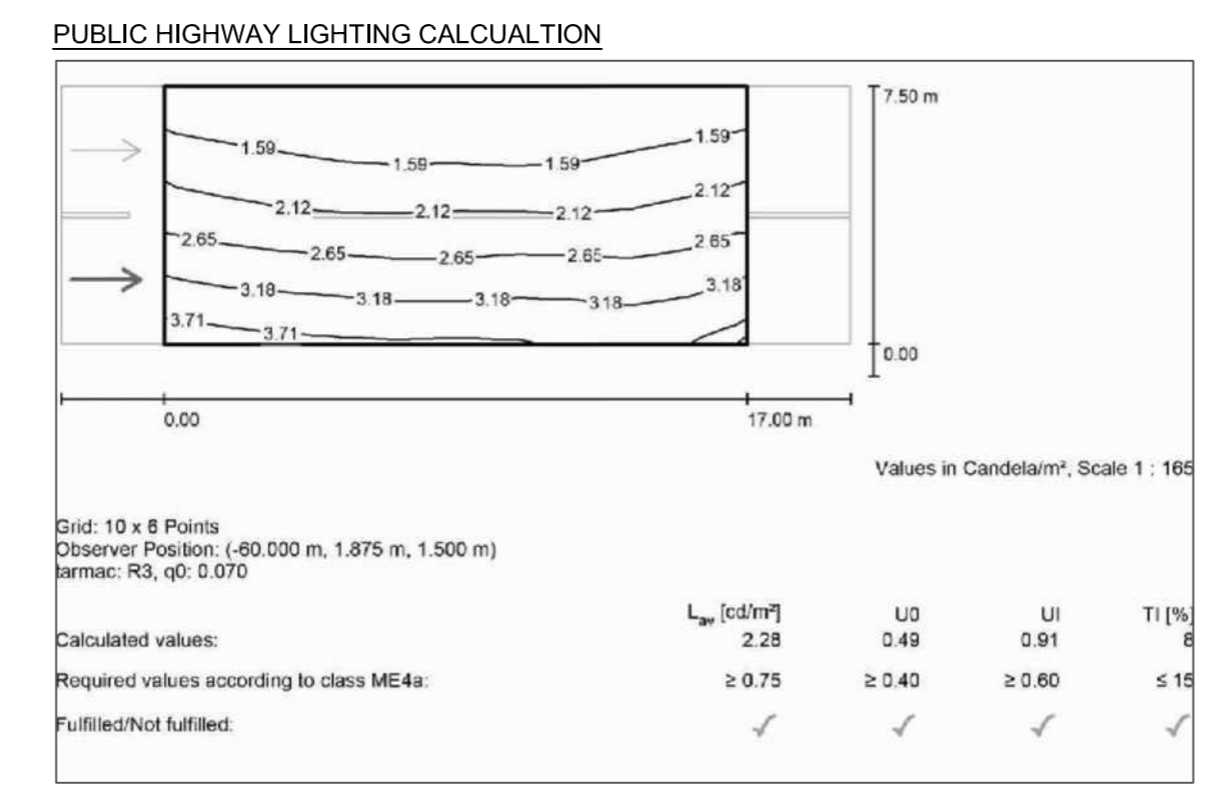
A lighting impact assessment has been undertaken by Cundall Light4 as part of the planning application for the proposed Six 56 Warrington, Warrington.

If the lighting techniques highlighted in the ILP Guidance Note on the Reduction of Obtrusive Light; GN01 2020 document and the mitigation measures advised by Cundall Light4 are adhered to, the site safety and security lighting located within the development area will not have an effect on the receptors points included within this report and the Lighting Lux Level Plot – BSXX(63)4001.

The use of trees will act as an obstruction to the site and will therefore limit any light spill and sky glow. Care must be considered for any lighting adjacent to Bradley View site and further tree obstructions may be required for the area.

ILP GUIDANCE NOTES ON THE REDUCTION OF OBTRUSIVE LIGHT

| ENVIRONMENTAL ZONE E2 | Sky Glow ULR (Max %) (1) | Light Trespass into Windows Ev (Lux) (2) |              | Source Intensity I(cd) (3) |              | Building Luminance Pre Curfew (4) | PASS OR FAIL |
|-----------------------|--------------------------|--|--------------|----------------------------|--------------|-----------------------------------|--------------|
|                       |                          | Pre Curfew                               | After Curfew | Pre Curfew                 | After Curfew |                                   |              |
| ENVIRONMENTAL ZONE E2 | 2.5%                     | 5  | 1            | 7,500                      | 500          | 5                                 | TARGET       |
| 1 - SKY GLOW          | 0.0%                     |  |              |                            |              |                                   |              |
| LIGHT TRESPASS 1      |                          | 0.20                                     | 0.20         |                            |              |                                   | PASS         |
| LIGHT TRESPASS 2      |                          | 0.32                                     | 0.32         |                            |              |                                   | PASS         |
| LIGHT TRESPASS 3      |                          | 0.36                                     | 0.36         |                            |              |                                   | PASS         |
| LIGHT TRESPASS 4      |                          | 0.24                                     | 0.24         |                            |              |                                   | PASS         |
| LIGHT TRESPASS 5      |                          | 0.37                                     | 0.37         |                            |              |                                   | PASS         |
| LIGHT TRESPASS 6      |                          | 0.71                                     | 0.71         |                            |              |                                   | PASS         |
| LIGHT TRESPASS 7      |                          | 0.08                                     | 0.08         |                            |              |                                   | PASS         |
| LIGHT TRESPASS 8      |                          | 0.06                                     | 0.06         |                            |              |                                   | PASS         |
| LIGHT TRESPASS 9      |                          | 0.09                                     | 0.09         |                            |              |                                   | PASS         |
| SOURCE INTENSITY 1    |                          |  |              | 393                        | 393          |                                   | PASS         |
| SOURCE INTENSITY 2    |                          |  |              | 79                         | 79           |                                   | PASS         |
| SOURCE INTENSITY 3    |                          |  |              | 385                        | 385          |                                   | PASS         |
| SOURCE INTENSITY 4    |                          |  |              | 286                        | 286          |                                   | PASS         |
| SOURCE INTENSITY 5    |                          |  |              | 199                        | 199          |                                   | PASS         |
| SOURCE INTENSITY 6    |                          |  |              | 385                        | 385          |                                   | PASS         |
| SOURCE INTENSITY 7    |                          |  |              | 8                          | 8            |                                   | PASS         |
| SOURCE INTENSITY 8    |                          |  |              | 5                          | 5            |                                   | PASS         |
| SOURCE INTENSITY 9    |                          |  |              | 6                          | 6            |                                   | PASS         |
| FACADE AVERAGE VALUE  |                          |  |              |                            |              | 0.28                              | PASS         |



Notes

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL AND ENGINEERING SERVICES DRAWINGS, SPECIFICATIONS, SCHEDULES AND PROJECT SPECIFIC DOCUMENTS.
- ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
- DO NOT SCALE FROM THIS DRAWING.

- ISOLINES
- 1.0 lx
  - 5.0 lx
  - 10.0 lx
  - 15.0 lx
  - 20.0 lx
  - 25.0 lx
  - 30.0 lx
  - 35.0 lx
  - 40.0 lx
  - 45.0 lx
  - 50.0 lx

- LEGEND
- (A) TYPE A - 103W LED FLOODLIGHT
  - (B) TYPE B - 27W LED FLOODLIGHT
  - (C) TYPE C - 64W LED FLOODLIGHT
  - (D) TYPE D - 138W LED FLOODLIGHT
  - (F) TYPE F - 42W LED FLOODLIGHT
  - (G) TYPE G - 128W FLOODLIGHT
  - (H) TYPE H - 11W BOLLARD
  - (J) TYPE J - 19W WALL MOUNTED DOWNLIGHT

LUX LEVEL ISOLINE PLOT

INTRODUCTION

THE LIGHTING CALCULATION HAS BEEN BASED ON THE FOLLOWING ARCHITECTURAL DRAWING ISSUED BY STEPHEN GEORGE PARTNERS.

REFERENCE DRAWING

16-184-F013-00X

LIGHTING DESIGN NOTES

- THE EXTERNAL LIGHTING DESIGN HAS BEEN ASSESSED AGAINST ENVIRONMENTAL ZONE E2 WHICH IS DESCRIBED AS LOW DISTRICT BRIGHTNESS AREAS I.E. VILLAGE OR RELATIVELY DARK OUTER SUBURBAN LOCATIONS. THIS INFORMATION IS INDICATED IN TABLE 1 DESIGN GUIDANCE NOTES FOR THE REDUCTION OF OBTRUSIVE LIGHT GN01:2011
- THE PROPOSED LUMINAIRE SELECTION FOR THE INTERCHANGE LIGHTING UTILISES FLAT GLASS OPTICS WITH 0% INDIRECT LIGHT MINIMISING UPWARD LIGHT SPILL.
- NO FEATURE LIGHTING HAS BEEN INCLUDED IN THIS CALCULATION
- INSTALL NON-MAINTAINED EMERGENCY LIGHTING BULKHEADS WALL MOUNTED ABOVE FINAL EXITS

LIGHTING STANDARDS

THE EXTERNAL LIGHTING DESIGN HAS BEEN DESIGNED IN LINE WITH THE FOLLOWING STANDARDS:

- ILP THE INSTITUTION OF LIGHTING ENGINEERS GUIDANCE NOTES FOR THE REDUCTION OF OBTRUSIVE LIGHT GN01:2011
- BS EN 12464-2:2014 LIGHTING OF WORKPLACES - OUTDOOR WORKPLACES PART 2

CONCLUSIONS

- THE CALCULATION RESULTS INDICATE THAT THE EXTERNAL LIGHTING SCHEME COMPLIES WITH BOTH THE PRE AND POST CURFEW CRITERIA FOR ENVIRONMENTAL ZONE E2

| Issue | Date     | Description  | By | Chkd | Verif |
|-------|----------|--------------|----|------|-------|
| C     | 20/03/20 | UPDATED XREF | HM | MT   |       |
| B     | 13/03/20 | FOR PLANNING | HM | MT   |       |
| A     | 06/02/19 | FOR PLANNING | HM | APB  |       |
| -     | 25/01/19 | DRAFT ISSUE  | HM | MT   |       |

Project: SIX: 56 WARRINGTON

Client: LANGTREE PP/FIRST PANATTONI

Architect: STEPHEN GEORGE PARTNERS

Title: LIGHTING LUX LEVEL PLOT

Drawing No: BSXX(63)4001

Job No: 1015524

Drawing Status: PLANNING

Scale: NTS

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## **ES Part I Appendix I7**

**From:** [Jenny Ray](#)  
**To:** [Thompson, Andrew](#)  
**Cc:** [Gavin Winter](#); [David Rolinson](#)  
**Subject:** Six 56 Warrington - ES Cumulative Matters  
**Date:** 27 September 2018 15:34:28  
**Attachments:** [P0-TP-SPA-NT-4055-0018-B Cumulative Note.pdf](#)  
[image021.png](#)  
[image025.png](#)

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Dear Andrew

Further to previous correspondence and your discussions with Gavin Winter and Dave Rolinson at your recent meeting, we have discussed the EIA cumulative matters further with our Client's legal team. For the purposes of moving forward and coming to an agreement on the approach to be taken, we have reviewed the Garden City Suburb as proposed through the emerging local plan and its timescales for delivery compared to the Six 56 Warrington proposals.

Please therefore find attached a note which sets out how we propose to undertake the cumulative assessment within the Six 56 Warrington ES, based on the level of information that is available for the emerging allocations and the timescales for delivery of the proposals. This would be considered in addition to the list of cumulative projects set out and agreed at the Scoping Stage.

We trust you will consider the details of this note and confirm your agreement with this approach.

We look forward to hearing from you shortly, however should you wish to discuss this further, please do not hesitate to give me a call.

Kind regards

Jenny

JENNY RAY

Associate: Chartered Town Planner (Please note I have a new mobile phone number)  
BSc (Hons), MA, MRTPI



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## **Six 56 Warrington**

### **Cumulative – Garden City Suburb**

#### Assumptions for Six 56 Warrington delivery:

*The delivery of the Proposed Development will come forward in phases. This will ultimately be driven by the demand for the employment buildings, however for the purposes of the Environmental Assessment, the following timescales have been assumed, which represent a precautionary approach (and therefore a worst case scenario) by assuming a single continuous phase of site enabling works and means of access for the Phase 1 Development, followed by a three year build period:*

- *Planning Submission – 2018 (late Q4)*
- *Planning Determination – 2019 (Q2)*
- *Reserve Matters/Detailed Design – 2019 / 2020*
- *Initial Site enabling and infrastructure works – 2020 (6 months – Q3 2020 to Q4 2020)*
- *Development – 2020 to 2027 (6.5 years – Q3 2020 to Q2 2027, with each plot taking approximately 9 months to develop) with an allowance for delivery into 2028 (as requested by LPA).*

#### Assumptions for Garden City Suburb delivery

(Based on Warrington Borough Council's Preferred Development Option (Regulation 19 Consultation), July 2017):

Total allocation:

- 20 years delivery
- 4 Phases (each having a 5-year span)
  - o 7,274 homes
  - o 116.80 ha employment
  - o New distributor roads
  - o New secondary school
  - o Up to 4 primary schools
  - o Major new park
  - o District Centre
  - o Health facilities
  - o Leisure facilities

Local Plan Submission and Consultation – Early 2019

Examination in Public - 2019

Assumed adoption of Local Plan – 2020

| <b>Warrington Garden City Suburb Phase</b>  | <b>Uses and Quantum (Preferred Development Option July 2017)</b>  | <b>Six 56 Cumulative Assessment (to be included within ES)</b>  |
|---|---|---|
| Phase 1<br>0-5 years<br>Assumed 2020-2025   | 406 residential units (non-Green Belt sites)<br><br>22ha employment (employment areas include Six 56 Warrington and Land around Barley Castle Lane)   | <b>Six 56 Warrington under construction, with part delivered.</b><br><br>HCA sites (950 dwgs)<br>78 dwgs associated with land to east of Stretton Road (refused application).<br>Land North of Barley Castle Lane (Liberty Property and Stobart) (LPA Ref: 2017/31757) - 15.7ha<br>Six 56 Warrington developable area and planning application for Land North or Barley Castle Lane (LPA Ref: 2017/31757) equates to 77.52 ha<br><br><b>Conclusion - Six 56 Cumulative Assessment includes Phase 1 Garden City Suburb</b>   |
| Phase 2<br>6-10 years<br>Assumed 2026-2030  | 2610 residential units (includes 496 non-Green Belt sites and 2,114 Green Belt sites)<br><br>30.3 ha employment (employment areas include Six 56 Warrington and Land around Barley Castle Lane) | <b>Six 56 Warrington to be completed during 2027/2028</b><br><br>Garden City Suburb Phase 1 and 2 employment land equates to 52.3ha.<br>Six 56 Warrington developable area and planning application for Land North or Barley Castle Lane (LPA Ref: 2017/31757) equates to 77.52 ha<br><br>Garden City Suburb Phase 1 and 2 residential units equates to 3016 units.<br>Six 56 Warrington Cumulative Assessment includes 1,028 residential units.<br><br><b>Conclusion – Six 56 Cumulative Assessment includes Phase 2 Garden City Suburb (employment)</b><br><b><u>Six 56 Cumulative Assessment to include additional 1988 residential units (i.e. the residual number of units identified in Preferred Development Option that not already included within Six 56 Cumulative Assessment)</u></b> |
| Phase 3<br>11-15 years<br>Assumed 2031-2035 | 2,144 residential units<br>45.9 ha employment   | <b>Six 56 Warrington fully operational</b><br><br><b>Conclusion - Beyond the delivery of Six 56 Warrington and as such, not to be included within the Six 56 Warrington Cumulative Assessment</b>   |
| Phase 4<br>16-20 years<br>Assumed 2036-2040 | 2,144 residential units<br>18.6ha employment  | <b>Six 56 Warrington fully operational</b><br><br><b>Conclusion - Beyond the delivery of Six 56 Warrington and as such, not to be included within the Six 56 Warrington Cumulative Assessment</b>   |

#### Six 56 Warrington Cumulative Assessment:

- Due to the limited information available in respect of the Garden City Suburb, the Six 56 Warrington Cumulative Assessment will be a non-spatial assessment.
- Due to the delivery timeframe for the six 56 Warrington proposals, the cumulative assessment will be based on the quantum of development set out within the table above.
- Traffic and Transportation, Noise and Air Quality cumulative assessments will be undertaken using the information available from Warrington Council's Highway modelling work produced

for the emerging Local Plan and will therefore be based on the assumptions made within this model in terms of timing of delivery and distribution of traffic on the network

- Agricultural Land and Socio Economic cumulative assessments will be based on the quantum of development identified in the table above (i.e. Phase 1 and 2 of the Garden City Suburb)
- There is not sufficient information available in terms of spatial delivery for cumulative assessments to be undertaken in respect of the other technical areas, which include Geology and Ground Conditions; Flood Risk and Drainage; Landscape and Visual Impact; Ecology and Nature Conservation; Cultural Heritage and Archaeology; Utilities; Waste; and Energy. As such it is not possible to undertake a cumulative assessment in respect of these technical areas.

---

**From:** Thompson, Andrew <x-andrew.thompson@warrington.gov.uk>

**Sent:** 30 August 2018 17:33

**To:** Gavin Winter <Gavin.Winter@spawforths.co.uk>

**Cc:** Mark Dawe <mark@mtdawe.com>; Gartland, Ella <ella.gartland@warrington.gov.uk>; David Rolinson <David.Rolinson@spawforths.co.uk>; Walker, Colin <colin.walker@warrington.gov.uk>

**Subject:** Warrington Six:56

Gavin,

Some quick notes of this afternoon's meeting with me (AT), yourself (GW), David (DR) and Mark (MD). I copy in Ella as she was unable to make the meeting and Colin as overall manager so he can feedback to Andy Farrell (as appropriate).

#### 1. Updates to technical work and feedback

GW confirmed that there had been a lot of work going on the masterplan and sorting out drainage matters and highways in terms of providing additional buffer for Historic England and the links for the bus route in the site plan and a buffer for future expansion.

LVIA work in progress – AT to respond on key views

Access and highways matters – consultants were in continued dialogue with Highways England and WBC Highways.

AT – to internally consult on new masterplan for any fundamental issues

AT to check with neighbouring authority that nothing has changed from earlier discussions.

#### 2. Feedback from Historic England

Positive meeting with Andrew Davidson of Historic England (HE)

Key to maintain southern links and views through – may mean moving car parking

HE want cottage to remain – link to the past although not the original – consultants looking at alternative uses – AT advised care with regard to a nursery as the associated works and security needed to meet educational standards may be inappropriate.

HE welcome the loss of the agricultural buildings as an improvement to the setting

Gavin to chase some written comments

AT – welcomed the feedback and that it was positive that HE had been able to meet to discuss the masterplan

#### 3. Masterplan layout

MD updated that Omega was progressing at pace and that space was being taken up very quickly with good demand. 2013 started and nearing completion of the deals.

MD would facilitate with John Laverick and consultants on the masterplan for the Garden Village concept but it looked positive.

Key area to look at – what is in the District Centre.

Phasing – plots would be delivered on market demand but aims enabling works to start in 2020 and complete development by 2027 – AT suggested 2028 to allow for unforeseen circumstances

#### 4. Policy Update – Local Plan and NPPF 2018 issues arising

AT – Confirmed that the Local Plan would be presented to full Council in December.

AT – new NPPF – positive – Para 82; care on para 182-183 (noise and pollution) and 194 (heritage)

Agreed that would continue to work through the plan process and engage with the final draft and EiP process.

#### 5. Alternative Sites Assessment

Agreed that the key would be to look at motorway junctions and call for sites and the process Omega 2, Port of Warrington and Parkside already looked at.

Other side of M6 also should be looked at – i.e. extensions to Lymm Services – infrastructure issues?

M&S building highlighted by many people – need to look at in terms of the location and specifics of the building in terms of dismissal – has the building been marketed.

Brownfield/urban sites – particularly in light of para 82 – should be included but agreed that these were unlikely to be realistic alternatives.

#### 6. Stobart's NDC / Liberty Properties application

Application has three key issues – Highways, Ecology and Heritage with the new NPPF also requiring review of the ES.

Significant Addendum under Reg 25 to be submitted on 7 September 2018 – consultation requirements

If it has addressed comprehensive issues – particularly highways – October committee has been targeted.

#### 7. Cumulative development

It is acknowledged that the legal technicality would limit the consideration but the practical approach to avoid issues later on and the delivery of the Reserved Matters and developments means that the ES should focus on what is happening on the ground.

It was agreed that to take the matter forward the best option would be to look at the delivery phases of the masterplan. Based on the preferred option this would be Phase 1 and elements of Phase 2 – need to confirm with John Laverick.

Key matters for the ES would be Transport and the consequential impacts – particularly Air Quality and Noise. Need to liaise with Highways consultants, Highways England and WBC highways as to modelling and forecasts.

Other matters – heritage, landscape and visual would be assessed through a worst case scenario so the cumulative impact would be less of a consideration.

#### 8. PPA

DR confirmed that wording and principles agreed (subject to typos) – need to work on the fee AT offered to look at a staging of the PPA fee for the outline and each Reserved Matters Submission and would drop DR a separate note on this. Highways would be likely to be needed upfront and some of the fee could be used to support of resources to delivery of the Local Plan/EiP in support of the potential allocation.

#### 9. Timescales / Programme

DR and GW outlined work so far for pre-application consultation – website being worked on and engagement with the community to be offered

AT – suggested Parishes and Ward members to be approached as early as possible.



MD – to facilitate business community contacts.  
DR – also working up engagement with colleges/potential supply chain/employees to promote localised supply chain.  
GW to circulate programme of pre-application engagement asap - WBC comms team will need to be aware so they can manage messages and the local plan process.

10. **AOB**

Agreed positive progress being made.  
GW to circulate future meeting dates to continue dialogue.

Hope this helps,

**Andrew Thompson**

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Please note my normal working days are Monday to Thursday

\*\*\*\*\*

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## ES Part I Appendix I8

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5<sup>th</sup> November 2021

Dear Gavin

**RE: SIX 56, LAND AT BRADLEY HALL FARM, GRAPPENHALL LANE, WARRINGTON – SECOND ADDENDUM TO ENVIRONMENTAL STATEMENT**

Further to your correspondence of the 4<sup>th</sup> November 2021, we can confirm that we have reviewed the updated ES Project Description in the Second ES Addendum arising from amendments to some of the building zones in the Building Heights Parameters Plan that have evolved to address comments raised by key consultees.

We can confirm that the changes resulting from the update of the ES Project Description and Building Heights Parameter Plan in the ES Addendum will not affect Ridge and Partners LLP existing Utilities Technical Paper that was produced in March 2019. Therefore, no updates to the existing Utilities Technical Paper are required as a result of the update of the ES Project Description.

Yours sincerely

**Carl Niland**  
**Partner**  
**Ridge and Partners LLP**  
CNiland@ridge.co.uk

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5<sup>th</sup> November 2021


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We can confirm that the changes resulting from the update of the ES Project Description and Building Heights Parameter Plan in the ES Addendum will not affect Ridge and Partners LLP existing Energy Technical Paper that was produced in March 2019. Therefore, no updates to the existing Energy Technical Paper are required as a result of the update of the ES Project Description.

Yours sincerely

  
**Carl Niland**  
**Partner**  
**Ridge and Partners LLP**  
CNiland@ridge.co.uk

Gavin Winter  
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Junction 41 Business Court  
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8 November 2021

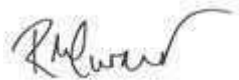
Dear Gavin

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We can confirm that the changes resulting from the update of the ES Project Description and Building Heights Parameter Plan in this Second ES Addendum will not affect Cundall's last issued Addendum Drainage and Flood Technical Paper 3 that was produced in October 2020. Therefore, no updates to the Addendum Flood Risk & Drainage Technical Paper 3 are required as a result of the update of the ES Project Description.

Yours sincerely  
For and on behalf of  
Cundall Johnston & Partners LLP



**Rob Turner**  
**Head of Acoustics UK**  
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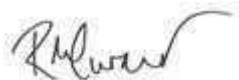
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Yours sincerely  
For and on behalf of  
Cundall Johnston & Partners LLP



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Gavin Winter  
Spawforths  
Junction 41 Business Court  
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Your ref:

Our ref: CB.KCB

5<sup>th</sup> November 2021

Dear Gavin,

**RE: SIX 56, LAND AT BRADLEY HALL FARM, GRAPPENHALL LANE, WARRINGTON – SECOND ADDENDUM TO ENVIRONMENTAL STATEMENT**

Further to your correspondence of the 4th November 2021, we can confirm that we have reviewed the updated ES Project Description and revised building in the Second ES Addendum arising from amendments to some of the building zones in the Building Heights Parameters Plans that have evolved to address comments raised by key consultees.

The following changes have been made: a revised Heights Parameters Plan Drawing No. 16-194 P115 Rev H reduces the maximum building height in Zone B2 from 43.5m to ridge (40m clear internal height) to 30m to ridge (26.5m clear internal height), which relates to Plot 4 of the Illustrative Masterplan and Zone D1 and D2 from 24.5m to ridge (21m clear internal height) to 22m to ridge (18.5m clear internal height), which relates to Plots 2 and 3 of the Illustrative Masterplan.

We can confirm that the changes resulting from the update of the ES Project Description and Parameters Plans in this Second ES Addendum will not affect AMION's last issued Addendum Socio Economic Technical Paper 6 that was produced in July 2020. Therefore, no updates to the Addendum Socio Economic Technical Paper 6 are required as a result of the update of the ES Project Description.

Yours sincerely

Peter Alford  
**Director**

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8 November 2021

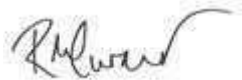
Dear Gavin

**RE: SIX 56, LAND AT BRADLEY HALL FARM, GRAPPENHALL LANE, WARRINGTON – SECOND ADDENDUM TO ENVIRONMENTAL STATEMENT**

Further to your correspondence of the 4<sup>th</sup> November 2021, we can confirm that we have reviewed the updated ES Project Description in the Second ES Addendum arising from amendments to some of the building zones in the Building Heights Parameter Plan that have evolved to address comments raised by key consultees.

We can confirm that the changes resulting from the update of the ES Project Description and Building Heights Parameter Plan in this Second ES Addendum will not affect Cundall's last issued Addendum Noise and Vibration Technical Paper 7 that was produced in October 2020. Therefore, no updates to the Addendum Noise and Vibration Technical Paper 7 are required as a result of the update of the ES Project Description.

Yours sincerely  
For and on behalf of  
Cundall Johnston & Partners LLP



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**Head of Acoustics UK**  
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Gavin Winter  
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8<sup>th</sup> November 2021

Dear Gavin

**RE: SIX 56, LAND AT BRADLEY HALL FARM, GRAPPENHALL LANE,  
WARRINGTON – SECOND ADDENDUM TO ENVIRONMENTAL STATEMENT**

Further to your correspondence of the 4<sup>th</sup> November 2021, we can confirm that we have reviewed the updated ES Project Description and revised building in the Second ES Addendum arising from amendments to some of the building zones in the Building Heights Parameters Plans that have evolved to address comments raised by key consultees.

We can confirm that the changes resulting from the update of the ES Project Description and Building Heights Parameter Plan in this Second ES Addendum will not affect Curtins Consulting last issued Addendum Traffic and Transportation Technical Paper 2 that was produced in June 2020. Therefore, no updates to the Addendum Traffic and Transportation Technical Paper 2 are required as a result of the update of the ES Project Description.

Yours sincerely

A handwritten signature in black ink that reads 'A. Vogt'.

Alex Vogt  
Curtins Consulting

Gavin Winter  
Spawforths  
Junction 41 Business Court  
East Ardsley  
Wakefield  
WF3 2AB

5<sup>th</sup> November 2021

Dear Gavin

**RE: SIX 56, LAND AT BRADLEY HALL FARM, GRAPPENHALL LANE, WARRINGTON –  
SECOND ADDENDUM TO ENVIRONMENTAL STATEMENT**

Further to your correspondence of the 4<sup>th</sup> November 2021, we can confirm that we have reviewed the updated ES Project Description and revised building in the Second ES Addendum arising from amendments to some of the building zones in the Building Heights Parameters Plans that have evolved to address comments raised by key consultees.

We can confirm that the changes resulting from the update of the ES Project Description and Parameters Plans in this Second ES Addendum will not affect Tyler Grange's last issued Addendum Ecology and Nature Conservation Technical Paper 5 that was produced in June 2020. Therefore, no updates to the Addendum Ecology and Nature Conservation Technical Paper 5 are required as a result of the update of the ES Project Description.

Yours sincerely

*Joseph Dance*

**Joseph Dance**

Tyler Grange

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8th November 2021

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Dear Gavin

**RE: SIX 56, LAND AT BRADLEY HALL FARM, GRAPPENHALL LANE, WARRINGTON –  
SECOND ADDENDUM TO ENVIRONMENTAL STATEMENT**

Further to your correspondence of the 4<sup>th</sup> November 2021, we can confirm that we have reviewed the updated ES Project Description in the Second ES Addendum arising from amendments to some of the building zones in the Building Heights Parameter Plan that have evolved to address comments raised by key consultees.

We can confirm that the changes resulting from the update of the ES Project Description and Building Heights Parameter Plan in this Second ES Addendum will not affect RPS's last issued Air Quality, Odour and Dust Technical Paper 8 that was produced in February 2019. Therefore, no updates to the Air Quality, Odour and Dust Technical Paper 8 are required as a result of the update of the ES Project Description.

Yours sincerely

*Kathryn Barker*

Kathryn Barker  
RPS Group



Patrick Stephenson Ltd  
Agricultural Consultants

## Agricultural Consultants Crop and Farm Management Specialists

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Registered in England No:4557028

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11th November 2021

Dear Gavin

**RE: SIX 56, LAND AT BRADLEY HALL FARM, GRAPPENHALL LANE, WARRINGTON - SECOND ADDENDUM TO ENVIRONMENTAL STATEMENT**

Further to your correspondence of the 4th November 2021, we can confirm that we have reviewed the updated ES Project Description in the Second ES Addendum arising from amendments to some of the building zones in the Building Heights Parameter Plan that have evolved to address comments raised by key consultees.

We can confirm that the changes resulting from the update of the ES Project Description and Building Heights Parameter Plan in the ES Addendum will not affect Patrick Stephenson Ltd existing Agricultural Land & Soils Technical Paper that was produced in March 2019. Therefore, no updates to the existing Agricultural Land & Soils Technical Paper are required as a result of the update of the ES Project Description.

Yours sincerely

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Patrick Stephenson Ltd

## ES Part I Appendix I9

## Six 56 Warrington

### ES Addendum – Text Deleted from Original ES Part I

| Section Number / Paragraph Number / Table number / Figure Number in Original Paper | Text Deleted from Original ES   | Reason  |
|--|---|---|
| Front cover  | 26 <sup>th</sup> March 2019   | Revised date of report  |
| Paragraph 1.4  | The   | Change tense  |
| Paragraph 1.7 containing the planning application description of development       | ...change of use of...<br>...to BI (a) office use (335m <sup>2</sup> (3,600ft <sup>2</sup> ))...  | The planning application no longer seeks to change the use of the existing Bradley Hall Farmhouse to office use. Any change of use of this building will form part of a separate application at a later stage, which will give full consideration to any impact this has on the building and its setting. |
| Paragraph 1.10   | ...will...<br>...change of use of...<br>...to BI (a) office use (335m <sup>2</sup> (3,600ft <sup>2</sup> ))...  | As above  |
| Table 1.1 Development Areas  | ...and change of use of the existing Bradley Hall Farm house ((335m <sup>2</sup> 3600ft <sup>2</sup> )) to BI (a) office use...<br>64.74ha<br>6.25ha<br>23.87ha<br>3.13ha | Change to description of development as above and minor changes to breakdown of site development areas on updated illustrative masterplan   |

|                |  |   |
|----------------|--|---|
| Paragraph 2.6  | but which will be retained and converted to BIa office use as part of the Proposed Development.                | Change to description of development as above   |
| Paragraph 2.16 | ...change of use of...<br>...to BI (a) office use (335m <sup>2</sup> (3,600ft <sup>2</sup> ))...               | The planning application no longer seeks to change the use of the existing Bradley Hall Farmhouse to office use. Any change of use of this building will form part of a separate application at a later stage, which will give full consideration to any impact this has on the building and its setting. |
| Paragraph 2.19 | ...are seeking to consult...   | The Council have now consulted on Submission Version Local Plan (March 2019)  |
| Paragraph 2.27 | 64.74<br>160.49<br>32.51 hectares (80.33 acres)<br>5.47 hectares (13.51 acres)<br>24.43 hectares (60.37 acres) | The maximum developable area contained in the development cells has changed.  |
| Paragraph 2.29 | ((335m <sup>2</sup> ) 3600ft <sup>2</sup> ) to BI (a) office use.  | Change to description of development as above   |
| Paragraph 2.30 | 57<br>83.50<br>55.50 to 60.50  | Changes to FFL  |
| Paragraph 2.58 | It also details the location of bunds to attenuate noise egress from the site during the operational phase     | Changes have been made to the location, orientation and alignment of the landscape  |

|                 |   |  |
|-----------------|---|--|
|                 | which<br>2.3m<br>around   | bunds around Bradley Hall Cottages   |
| Paragraph 2.60  | and converted for B1a office use  | Change to description of development omitting change of use of Bradley Hall Farm to B1a office use along an  |
| Paragraph 2.106 | to provide a safe crossing point across   | Minor changes to the realignment of any proposed PROW diversion  |
| Paragraph 2.107 | (see paras 2.115– 2.104)  | Changes to paragraph cross reference   |
| Paragraph 2.134 | ...or will be completed prior to submission of the outline planning application.<br><br>(June – September 2018)   | All relevant surveys are completed and up-to-date<br><br>Bat Surveys have been updated.  |
| Paragraph 2.136 | was   | Change in tense  |
| Paragraph 2.137 | Based on surveys undertaken to date, it is anticipated that compensation for losses to bat and bird habitats can be accommodated within the landscaping design, as described above. | An alternative approach to mitigation is now proposed through an agreed contribution to the management of off-site habitats within the local area. |
| Paragraph 2.200 | 2019 (early Q3)<br>2020<br>(6 months – Q2 2020 to Q3)<br>2020 to 2027 (6.5 years – Q4 2020 to Q1 2027)  | Delays to determination of the planning application have had consequential changes to the phasing programme  |
| Paragraph 3.6   | has been  | Change in tense  |
| Paragraph 3.12  | With the 10-year average new build take up of approximately   | Update to JLL Market Report  |



|                |   |  |
|----------------|---|--|
|                | 2.5m sq ft this is currently standing at just over 1 years supply. Should 2019 take up levels hit 2018 recorded levels of 4 million sq ft JLL expect to see many of these units let during 2019.                                |  |
| Paragraph 3.18 | 7000  | The number of proposed dwellings in the Garden Suburb projected is now 7400                      |
| Paragraph 5.24 | is now happening  | Public consultation on the draft Local Plan has now occurred.                                    |
| Paragraph 5.25 | ...are seeking to...<br>...from...<br>...prior to formal consultation commencing...<br>...prior to formal consultation...<br>...commencing...<br>...will then...  | Consultation on the Proposed Submission Version Local Plan (March 2019) has now been undertaken. |
| Paragraph 5.27 | Whilst the Submission Version of the Local Plan has not commenced formal consultation at the time of submission of this planning application, the Local Plan has been presented to Members at a Full Council Committee Meeting. | Consultation on the Proposed Submission Version Local Plan (March 2019) has now been undertaken. |
| Paragraph 6.17 | ...during recent discussions...<br>...has also be...<br>...and the scheme currently has no committed status.<br>... in view of the prospects that Liberty Properties and Stobarts   | Updates to the status of the Liberty Properties and Stobarts planning application and appeal.    |

|                                    |   |  |
|------------------------------------|---|--|
|                                    | may appeal or re-submit proposals on their Site.  |  |
| Paragraph 6.22                     | have  | Change in tense  |
| Table 9.1: Cumulative Developments | Phase 2 Garden Suburb - 2027  | Minor changes to the delivery of the Six 56 proposals.   |
| Paragraph 9.13                     | Whilst this currently has no committed status following its refusal, a revised application and or appeal is expected to be submitted in Q2 of 2019. | Updates to the status of the Liberty Properties and Stobarts planning application and appeal.                              |
|                                    | ...Therefore...   |  |
| Paragraph 9.16                     | April<br>7000   | Changes to the report date of the Local Plan Submission Version and the number of dwellings proposed in the Garden Suburb. |
| Paragraph 9.18                     | 2027  | Minor changes to the delivery of the Six 56 proposals.   |
| Paragraph 9.40                     | refused   | Updates to the status of the Liberty Properties and Stobarts planning application and appeal.                              |
| Paragraph 10.3                     | and Regeneration  | Change to the name of the Planning Statement to Replacement Planning Statement.  |
| Paragraph 10.12                    | which currently has no committed status following its recent refusal of planning permission   | Updates to the status of the Liberty Properties and Stobarts planning application and appeal.                              |

## Six 56 Warrington

### Second ES Addendum – Text Deleted from Original ES Part I

| Section Number / Paragraph Number / Table number / Figure Number in Original Paper | Text Deleted from Original ES   | Reason   |
|--|---|--|
| Front cover  | 04 October 2020   | Revised date of report                                       |
| Page 4   | have  | Change tense   |
| Page 5   | ...been...<br>This...   | Change tense   |
| Page 12  | <ul style="list-style-type: none"> <li>• Traffic and Transportation</li> <li>• Water Quality and Drainage<br/>Landscape and Visual Impact</li> <li>• Ecology and Nature Conservation</li> <li>• Socio Economic</li> <li>• Noise and Vibration Cultural<br/>Heritage</li> </ul>  | These Technical Papers do not form part of a Second Addendum |
| Page 13  | This Addendum should however be read in conjunction with the original ES submitted to WBC in April 2019 as the other technical papers (Ground Conditions and Contamination; Air Quality, Utilities, Energy, Waste and Agricultural Land and Soils) have not been amended or subject to change and as such are not included within this Addendum, but still remain valid and still form part of the ES for the planning application. See Appendix 18 of the ES Part I Addendum which provides Consultants confirmation that there are no changes to the significance of impacts in the Ground Conditions and Contamination; Air Quality, Utilities, Energy, Waste and Agricultural Land and Soils Technical Papers arising from the updated project description presented in this ES Addendum. | This text repeats text earlier in the Part I Report          |
| Paragraph 1.2  | which commenced on 16 May 2017.   | No longer relevant   |
| Paragraph 1.36   | ...has...   | Change in tense  |

|                 |   |  |
|-----------------|---|--|
|                 | ...yet...<br>...have...   |  |
| Paragraph 1.37  | They<br>Summer<br>2021  | Change to dates of Local Plan  |
| Paragraph 2.14  | (Preferred Options Consultation (July 2017)<br>(March 201)  | Change to status and dates of Local Plan   |
| Paragraph 2.19  | April 2019<br>8 weeks<br>25 <sup>th</sup> March 2019  | Change to dates of Local Plan  |
| Paragraph 2.33  | 40m<br>43.5m<br>24.5m   | Change to building heights parameters  |
| Paragraph 2.45  | Incorporating MOVA delay management (or equivalent technology) and appropriate queue detection; and   | Warrington BC Highways have now confirmed these improvements have already been provided so no longer need to be provided by the Applicant. |
| Paragraph 2.108 | (see paras 2.116– 2.117)  | Change to paragraph numbers.   |
| Paragraph 2.118 | Incorporating MOVA delay management (or equivalent technology) and appropriate queue detection; and   | Warrington BC Highways have now confirmed these improvements have already been provided so no longer need to be provided by the Applicant. |
| Paragraph 2.145 | The ZTV was run using three different building heights for the Proposed Development with the following results:<br><b>ZTV</b><br><br><ul style="list-style-type: none"> <li>• 14-17m High Units: <b>69.62%</b> theoretically visible within the study area.</li> <li>• 14-22m High Units: <b>72.94%</b> theoretically visible within the study area.</li> <li>• 14-40m High Units: <b>73.01%</b> theoretically visible within the study area.</li> </ul> The ZTV analysis was then modified to take into account intervening screening by woodland (nominal 10m height) and | The ZTV is now referenced in the Second Addendum LVIA Paper  |

|                       |  |  |
|-----------------------|--|--|
|                       | <p>buildings (nominal 7.5m height) with the following results:</p> <p><b>ZTV (Modified)</b></p> <ul style="list-style-type: none"> <li>• 14-17m High Units: <b>23.68%</b> theoretically visible within the study area.</li> <li>• 14-22m High Units: <b>29.66%</b> theoretically visible within the study area.</li> <li>• 14-40m High Units: <b>35.29%</b> theoretically visible within the study area.</li> </ul>  |  |
| Paragraph 2.200       | <p>2021 (Q3) (early Q3)<br/> 2020 (6 months – Q2 2020 to Q3 2020)<br/> (6 months – Q3 2022 to Q4 2022)<br/> 2022 to 2029<br/> (6.5 years – Q4 2022 to Q1 2029)</p>   | Changes to dates of phasing            |
| Paragraph 3.10 – 3.16 | <p>3.10. National agents JLL who were appointed to provide market advice on behalf of the Applicant state that in 2018, there has been approximately 4.2 million sq ft (390,186 sq m) of large scale premises take-up across the North West region. With total Grade A and Grade B space in 2018 totalling over 4.2 million sq ft, this is was the highest year on record up 30% on 2017 and up approx. 30% on the five year average (2014-2018).</p> <p>3.11. Take up in 2020 has seen a strong start with 142,881 sq m (1,438,011 sq ft) of Grade A units let or contracted in the first seven months. This includes the letting of Haydock 525 (523,500 sq ft) to Kellogs, Evolution, Salford, (130,000 sq ft), Q110, Crewe (110,000 sq ft) let to AO.com, Magnitude, Middlewich 158,000 sq ft for Swizzells (build to suit), Icon 138, Manchester Airport (138,000 sq ft) and 375@Logistics North (375,000 sq ft) let to Dixons.</p> | Updates to Market Need have been made. |

3.12. 623,000 sq ft or 43% of this take up are e commerce / internet shopping related occupiers. Take up in 2019 was 3.4 million sq ft. The majority of the lettings were for Grade A and B existing units totalling 2.38 m sq ft with 573,000 sq ft of build to suit and 497,000 sq ft of speculatively built take up. This was due to the political uncertainties this caused a slow down in take up for the first 3/4 of the year with the last quarter providing a surge which ties in with the General Election and the decision to leave the European Union at a fixed date. The five-year average take up of Grade A space is 2.1m sq ft and the ten-year average is 2.3m sq ft.

3.13. Long term demand in terms of regional take up show the strength of the North West logistics and industrial sectors. The market has an average Grade A 10 year take up of 2.3 million sq. ft per annum. Demand in the region remains strong with over 1.4 million square feet of speculative build/build to suit units contracted in the first 7 months of 2020 in the North West.

3.14. On a regional basis there are eight speculative build units available with a total area of 1.259 million square feet. There are four units available under construction totalling 0.75 million square feet one of these units is currently under offer. There are two Grade A buildings available of totalling 0.557m square feet.

3.15. In terms of supply based on the five-year average take up of 2.1 million sq ft there is 14 months' supply and on the ten-year average take up of

|                              |  |   |
|------------------------------|--|---|
|                              | <p>2.3 million sq ft there is 13 months' supply.</p> <p>3.16. In summary, the North West industrial and distribution market has had a consistent take up of speculative, Grade A units and build to suit sites despite the various economic and political issues of the last three years. The demand is driven by the expansion of new emerging sectors, the consolidation/expansion of established businesses and the impact on supply chains of the COVID 19 pandemic.</p>   |   |
| <p>Paragraph 3.20 – 3.22</p> | <p>3.20 Warrington is one of the premier North West M6 centric logistics locations. Its location at the intersection of the M6/M62 and M6/M56 motorways enables it to serve the Manchester and Liverpool conurbations in addition to the M6 corridor. Omega has been the most successful industrial and logistics development site in the North West with over 5 million square feet being built out or under construction. In the local Warrington area, there is only one Grade A building over 100,000 sq ft immediately available at Omega Mountpark Warrington (184,000 sq ft) and three Grade B buildings available. Two speculatively built units (307,807sq ft and 203,180 sq ft) are under construction at Omega with completion in January 2021, a further unit (225,000 sq ft) will be available in late 2020. All four units are at Omega South.</p> <p>3.21. With the development of the above units, this will complete the development at Omega Warrington. The only available site with planning permission within the Warrington BC administrative area is at Barley Castle</p> | <p>Updates to Market Need have been made.</p> |

|                |   |   |
|----------------|---|---|
|                | <p>Lane, Stretton which was the proposed HQ/National Distribution Centre for Eddie Stobart. The site has however now been called in by the Secretary of State.</p> <p>3.22 Two properties have come to the market recently, the former Travis Perkins building (11.03 acres) and the former Shearings site (7.28 acres) at Stretton. The Travis Perkins site is an 'L'/irregular shaped site and has been purchased by a developer. The Shearings site is being marketed and it is reported that Government is taking an interest in it as an Import / Export document processing centre. . Neither of these sites can offer a building in excess of 250,000 sq ft.</p> |   |
| Paragraph 3.38 | <p>2019</p> <p>362</p> <p>2037</p> <p>215</p>   | Updates to EDNA including extent of employment need.                      |
| Paragraph 3.40 | <p>it forms part of a Garden Suburb in which up to 7000 additional houses are now proposed.</p>   | Changes to the extent of housing proposed in SE Urban Extension           |
| Paragraph 3.46 | <p>who have undertaken a report to support the planning application</p>   | Updates to JLL evidence now in appendices                                 |
| Paragraph 4.8  | <p>April 2019</p> <p>362ha</p> <p>215ha</p>   | Updates to Local Plan dates and EDNA including extent of employment need. |
| Paragraph 4.11 | <p>2019</p>   | Updates to EDNA   |
| Paragraph 5.13 | <p>A revision to</p> <p>19<sup>th</sup> February 2019</p> <p>Adopted in</p>   | Updates to NPPF   |
| Paragraph 5.26 | <p>The Submission Version of the Local Plan (March 2019) continues to identify the Site for redevelopment for Employment Use (116 ha) as part of the Warrington Garden Suburb under emerging Policy MD2. The evidence based prepared to inform the</p>  | Changes to status of Local Plan Draft                                     |



|                |   |   |
|----------------|---|---|
|                | Submission Version of the Local Plan (March 2019) includes the Warrington Garden Suburb Development Framework Document (March 2019) produced on behalf of Warrington Borough Council which also classifies the Site for redevelopment for Employment Use.   |   |
| Paragraph 5.27 | <p>2019<br/>362ha<br/>Between 2017 and<br/>215ha</p> <p>The Proposed Submission Version Local Plan (2019) proposes a minimum housing requirement of 945 homes per annum, which equates to 18,900 new homes compared to the 1,113 per annum proposed in the Preferred Development Option. Around 7,000 of these homes through release of Green Belt land. This housing requirement is around 4% above the minimum housing requirement under the Government's Standard Housing Methodology (using the 2014 based Household Projections, in accordance with Government's Planning Practice Guidance).</p> <p>...which...<br/>5000 homes<br/>Including 4200 through Green Belt release<br/>2037<br/>2300 homes<br/>Garden Suburb Employment Area (116ha)<br/>Garden Suburb's neighbourhood centre<br/>Garden Suburb<br/>MD2<br/>116</p> | <p>Changes to EDNA employment need</p> <p>Changes to the Local Plan including reduction in housing numbers and land to be released from Green Belt.</p> |
| Paragraph 6.11 | March 2019  | Updates to Local Plan Version   |
| Paragraph 6.29 | 40m   | Changes to building heights parameters  |

|   |   |  |
|---|---|--|
|   | 104.50 AOD<br>40m   |  |
| Table 8.2 Summary list of Mitigation Measures - Operation | Incorporating MOVA delay management (or equivalent technology) and appropriate queue detection; and   | Warrington BC Highways have now confirmed these improvements have already been provided so no longer need to be provided by the Applicant.                     |
| Table 9.1: Cumulative Developments                        | Site 4 - A decision on both these schemes is therefore pending.<br>Site 9 –<br>March 2019<br>around 7,400 homes, with around only 5,100 of these homes to be delivered within the Plan Period, up to 2037<br>Assumed 2020-2025<br>Assumed 2026-2030<br>2027/2028.<br>Assumed 2031-2035<br>Assumed 2036-2040 | Update to status of application and decision.<br>Updates to extent of Urban extension and development trajectory for the purposes of the cumulative assessment |
| Paragraph 9.14  | given a decision on this is pending following approval of a re-submitted application at planning committee in June 2019 and the recent SoS Call In of this application confirmed in May 2020. Therefore   | Update to status of application and decision.  |
| Paragraph 9.17  | April 2019<br>This<br>7000  | Updates to dates of Local Plan and number of houses proposed in SE urban extension.  |
| Paragraph 9.19  | 2029  | Updates to programme   |
| Paragraph 9.34  | 2028/2029   | Updates to programme   |
| Paragraph 9.43  | Is<br>If any<br>Or appeal allowed<br>will   | Change in tense and status of appeal decision.   |
| Paragraph 10.12   | Garden Suburb<br>which currently has no committed status following its recent refusal of planning permission  | Change to name of Garden Suburb and update to status of appeal decision  |