

PROJECT TITLE: Well Row, Bayford, Hertfordshire

PROJECT JOB NO: 19081

DATE: 25/09/2023

Technical Summary Report - Well Row, Bayford _Rev B

Introduction

- 1.1 This Technical Summary Report has been prepared by Woods Hardwick Ltd on behalf of Bonnel Homes in relation to a plot of land located on the western side of Well Row, Bayford, Hertfordshire.
- 1.2 The site is greenfield and is located centrally within Bayford. The proposal is to develop the land to provide a single detached dwelling. A copy of the Proposed and Existing Site Plan for the site is included in **Appendix A**.
- 1.3 A topographical survey has been undertaken at the site, a copy of which is included in **Appendix B**.
- 1.4 The scale of development proposed falls well below the threshold for which detailed supporting technical studies would be required, however, this report has been commissioned by the applicant to assist the decision-making process by confirming that there are no technical constraints to development.
- 1.5 The Report covers, highways, access, parking, flood risk, foul and surface water drainage and utilities.

Highways/Access

- 1.6 The site is located immediately to the west of Willow Corner with the site's eastern boundary abutting the adopted highway land.
- 1.7 It is proposed that access is taken by way of a new 3.6m vehicular crossover off Well Row as shown on Drg No. 19081-5-WROW-100 a copy of which is included within Appendix C.
- 1.8 A Section 184 Application has been submitted to Hertfordshire County Council (HCC) Highway Authority in relation to the proposed crossover, however HCC have advised that the application cannot be assessed as they do not carry out assessment / grant approvals of dropped kerb to the proposed developments. HCC advised that a dropped kerb / vehicle access can be assessed as part of the planning application for a new development.
- 1.9 Also included within **Appendix C** is a Vehicular Tracking Drawing (19081-5-WROW-101) which confirms that at least three large family cars could enter and exit the proposed driveway in a forward gear independently of one another.

- 1.11 The Tree Protection Plan included within **Appendix D** indicate the work exclusion zone for the site. It should be noted that the proposed private drive falls outside of the work exclusion zone.
- 1.12 As can be appreciated from the Proposed Site Plan a dedicated cycle storage shed will be provided adjacent to the proposed dwelling.
- 1.13 The impact of one additional dwelling on the highway network will be minimal and it is therefore not considered to be necessary to provide any further studies in support of the application.

Flood Risk

- 1.14 The Environment Agency (EA) Flood Mapping confirms that the site lies within Flood Zone 1 and is therefore not considered to be at risk of flooding from rivers or the sea during storm intensities of at least 1 in 1,000 years. A copy of the EA Flood Map is included in **Appendix E**.

Surface Water Drainage

- 1.15 All of the recent guidance on the arrangements for storm water disposal from new developments has encouraged the application of a hierarchy for surface water disposal. This has now been formalised in the Building Regulations Part H. The hierarchy is also the basis of the advice on surface water disposal contained within HCC's Sustainable Drainage System Design Guidance.
- 1.16 The first choice for surface water disposal which should be pursued is via infiltration. Only where it has been determined that the ground conditions are not suitable should the second choice of disposal to a ditch and/ or watercourse be considered. If there is no alternative the third and last choice of disposal to the public sewer can be considered.
- 1.17 From review of the British Geological Survey it can be appreciated that the site is likely to be underlain by superficial deposits of Lowerstoft Formation over a bedrock of London Clay Formation.
- 1.18 This geology is not typically conducive to drainage via infiltration, however, to ensure that infiltration was not a feasible option the applicant commissioned BRD Environmental Ltd to undertake an intrusive Site Investigation.

- 1.19 The investigation included infiltration testing undertaken in accordance with the guidance contained within BRE Digest 365. An infiltration rate of 10^{-7} was recorded which is indicative of poor infiltration media and therefore not suitable for drainage via infiltration. The relevant extracts of BRD's Report are included within **Appendix F**.
- 1.20 Given that there are no ditches or watercourses on or adjacent to the site it is therefore necessary to consider discharge to the public sewer network.
- 1.21 A copy of Thames Water's Sewer Record Plans are included within **Appendix G**, the plans confirm that there are no adopted surface water sewers in the vicinity of the site.
- 1.22 The Thames Water plans do however show a foul water sewer to the rear of the site. Thames Water were therefore contacted to confirm whether discharge of surface water to the foul water sewer would be acceptable given that all more sustainable options have been exhausted.
- 1.23 Thames Water did not object to the above proposal however they advised that they could not confirm until HCC in their role as Lead Local Flood Authority (LLFA) confirm that they are satisfied that the hierarchy for sustainable drainage has been followed.
- 1.24 At the time the LLFA were not accepting pre-application enquiries and it was therefore not possible to obtain the necessary confirmation, it is however anticipated that the LLFA will confirm within their consultation response on the planning application that in this instance discharge of surface water to the foul sewer would be acceptable.
- 1.25 On this basis an indicative surface water drainage strategy drawing has been prepared a copy of which is included within **Appendix H**. As can be appreciated from the drawing it is proposed to restrict surface water flows to a rate of 0.5l/s which is equal to the calculated greenfield runoff rate for the 1 in 100 year storm event.
- 1.26 With this restriction in place, based upon the proposed impermeable area of 0.030ha it would be necessary to provide 18.4m³ of surface water attenuation. It is proposed that this attenuation will be provided within below ground attenuation crates. Copies of the supporting calculations are also included within **Appendix H**.

- 1.27 Conveyance to the existing Thames Water sewer will be via a private combined sewer. The exact route and point of connection will be agreed with Thames Water at the detailed design stage and will have regard to levels, root protection zones etc.
- 1.28 It should be noted that the proposed attenuation crates are located outside of the work exclusion zone shown on the Tree Protection Plan included within **Appendix D**.

Utilities

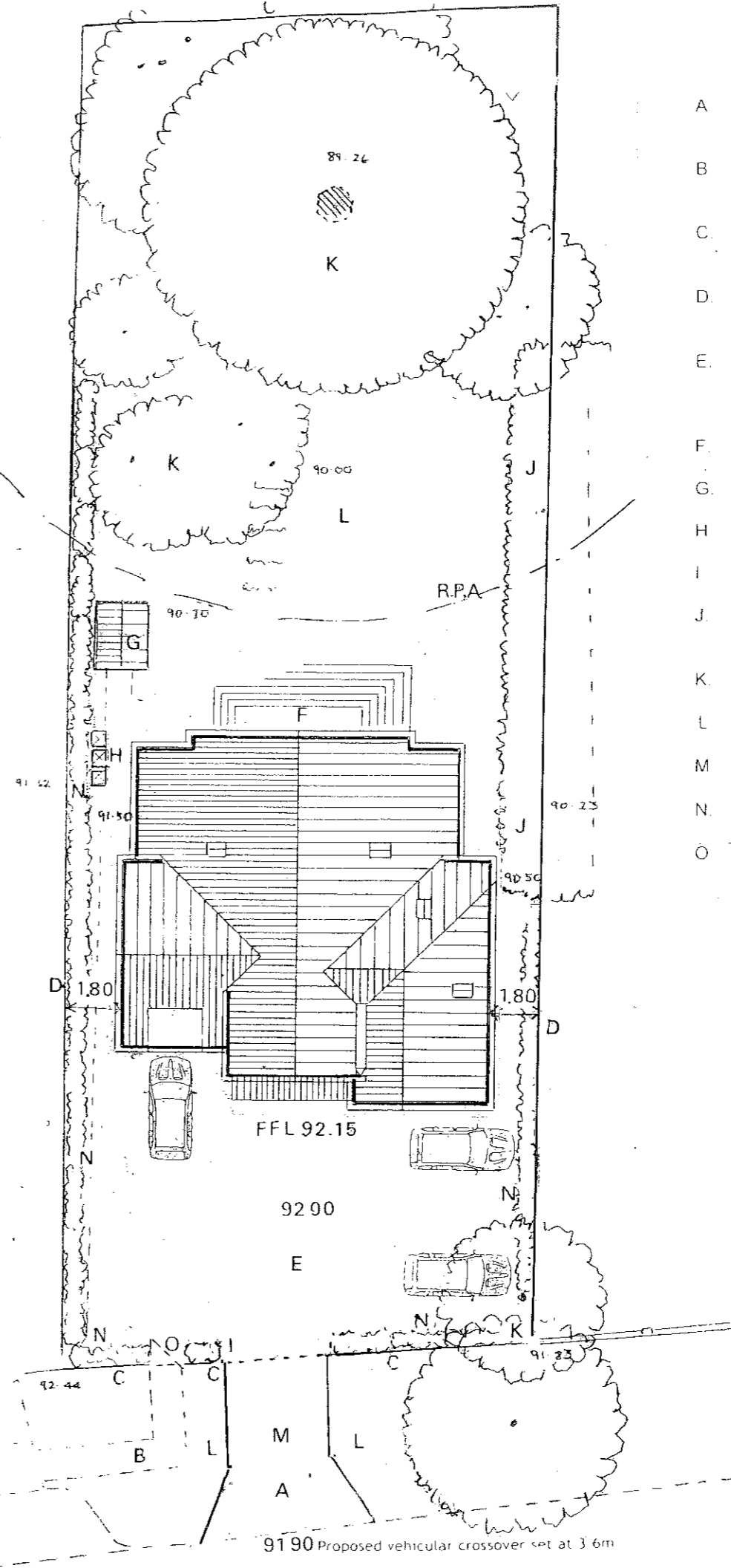
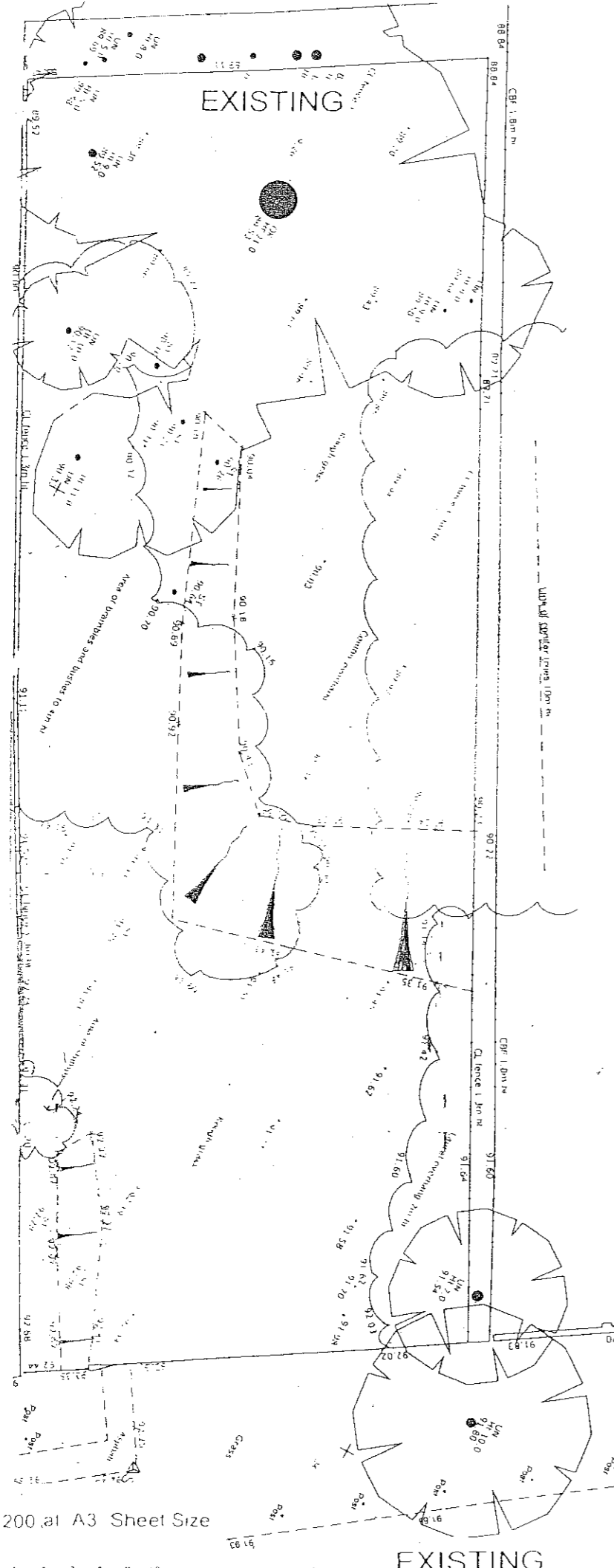
- 1.29 There is no known utility apparatus crossing the site which would serve as a constraint to development.
- 1.30 There are no known utility capacity issues within the village which would mean that an additional single plot could not be serviced by all the necessary utilities.

Summary and Conclusion

- 1.31 This report has been prepared by Woods Hardwick Ltd on behalf of Bonnel Homes in support of a planning application for a single dwelling in Bayford, Hertfordshire.
- 1.32 The report considers the suitability of the site for development with regard to highways, flood risk, drainage and utilities and concludes that there is no technical reason why the proposal should not be supported.

Appendix A

Site Plan



- A Proposed new crossover and access 3.6m wide
- B Section of asphalt footpath continued to proposed access
- C Timber post and rail paddock fence 1.2m high
- D Existing close boarded fence retained average height 1.8m
- E Permeable sett paving to forecourt: channel gully at entrance to avoid any run-off to highway
- F Natural stone paving to terrace
- G Cycle and garden store
- H Refuse bin area
- I Refuse collection point adjoining highway
- J Cypress former hedge cut back to 1.5m from boundary
- K Existing trees retained
- L Grass
- M Asphalt surface from highway to site boundary
- N Proposed hedge planting
- O Timber gate 1.2m high

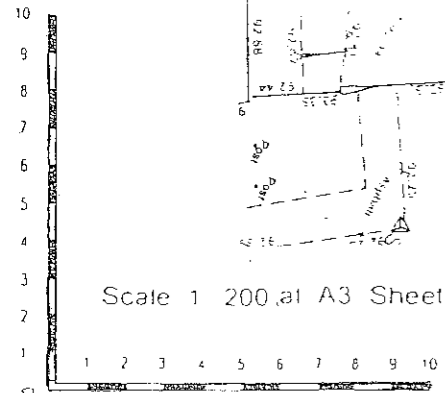
PROPOSED SITE PLAN

Proposed Dwelling with
Integral Garage; Land
at Well Row, Bayford
SG13 8PX

Ivan J. Clarke & John W. Barrett
10A High Street, Welwyn
Hertfordshire AL5 9EQ
Tel 01438 712804
e-mail johnandivan@btconnect.com

Scale 1:200
Date Aug 2023
Ref. W701

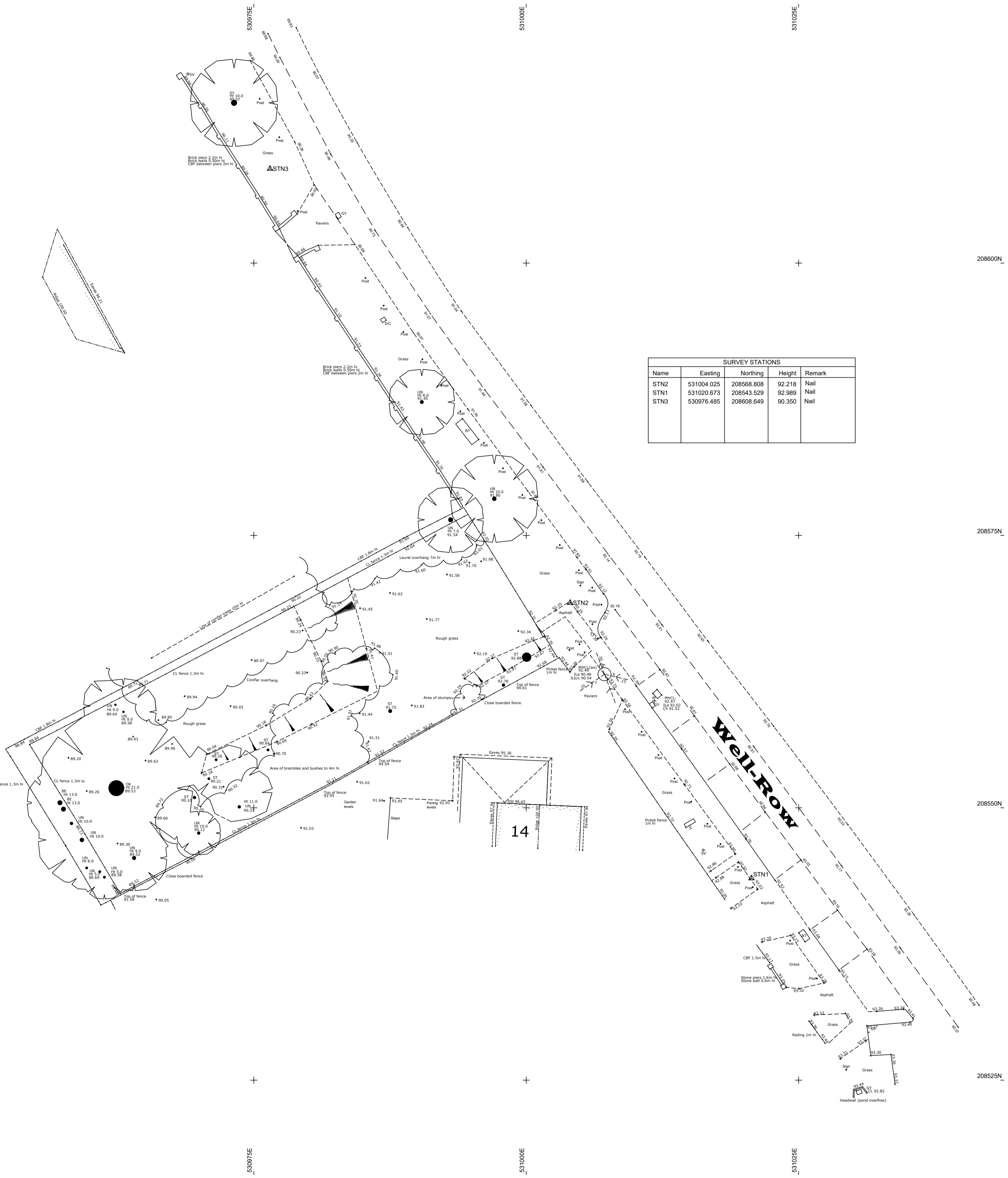
Scale 1:200 at A3 Sheet Size



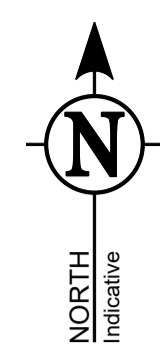
Appendix B

Topographical Survey

530950E
208600N
208575N
208550N
208525N
530950E
530975E
531000E
531025E



| SURVEY STATIONS | | | | |
|-----------------|------------|------------|--------|--------|
| Name | Easting | Northing | Height | Remark |
| STN2 | 531004.025 | 208568.808 | 92.218 | Nail |
| STN1 | 531020.673 | 208543.529 | 92.989 | Nail |
| STN3 | 530976.485 | 208608.649 | 90.350 | Nail |



TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

ABBREVIATIONS & SYMBOLS

| | | |
|---------------------------|----------------------------|-------------------------------|
| AH Arch Head Height | ER Earth Road | RSD Roller Shutter Door |
| AB Air Brick | ET EPT Transformer | RSJ Rolled Steel Joist |
| AR Assumed Road | FB Floor Bed | SI Sign Post |
| AV Air Valve | FBD Floor Board Direction | SP Arch Spring Point Height |
| BB Beisha Beacon | FH Fire Hydrant | SV Stop Valve |
| BH Bone Hole | FL Floor Level | SW Surface Water |
| BL Bed Level | FP Flag Pole | SY Cable Stay |
| BO Bolard | FW Foot Water | Tac Tackle Paving |
| BPF Brace Post | GC Gully Grate | TC Telecom Cover |
| BS Bus Stop | GV Gas Valve | TH Trail Pit |
| BU Bush | HH Head Height | THL Threshold Level |
| BW Barbed Wire Fence | IC Inspection Cover | TW Top Wall |
| BX Box (Utilities) | IL Invert Level | TP Telegraph Pole |
| CB Close Board Fence | IR Iron Railings | TS Traffic Signal Cover |
| CH Cill Height | KD Kerm Outlet | TV Cable TV Cover |
| CL Cover Level | LP Lamp Post | UB Universal Beam |
| CL Chain Link Fence | MH Manhole | UC Unknown Cover |
| CLV Ceiling Level | MP Marker Post | UK Unknown Tree |
| CP Column | NB Name Board | UMG Unmade Ground |
| C/P Chestnut Paling Fence | OHL Overhead Line (approx) | USB Under Side Beam |
| CR Cable Riser | PAI Panel Fence | UTL Unable To Lift |
| CW Chosen Wire | PS Post Box | UTS Unable To Survey |
| DC Drainage Channel | PM Parking Meter | VP Vent Pipe |
| DH Door Head Height | PO Post | WB Waste Bin |
| DI Disinfectant | PR Post & Rail Fence | WH Waste Hole |
| DP Down Pipe | P/W Post & Wire Fence | WL Water Level |
| DR Drain | P/W Partion Wall | WM Water Meter |
| EB Electric Box | RE Roofing Eye | WO Wash Out |
| EC Electric Supply Cover | RL Ridge Level | WC Floor to Ceiling Height |
| EL Eaves Level | RP Reflector Post | W/C Floor to False Ceiling HT |
| EP Electric Pole | RS Road Sign | Survey Control Station |

DRAWING NOTES

Topographical Surveys
Trees are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including: sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Detail, services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

Surveyed physical features may not necessarily represent the legal boundary line.

Measured Building Surveys
Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

Cill heights are measured as floor to the cill and head heights are measured from cill to the top of window.

General
The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to Survey Solutions immediately.

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

The survey control listed is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.

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Do not scale from this drawing.

SURVEY CONTROL CO-ORDINATES

| STATIONS | EASTINGS | NORTHINGS | LEVEL | DESCRIPTION |
|--|----------|-----------|-------|-------------|
| SURVEY GRID AND LEVEL DATUM | | | | |
| The coordinate system established for this survey is related to Ordnance Survey (OS) national grid at a single point using Smartnet, then orientated to grid north with a scale factor of 1.000. | | | | |
| The level datum established for this survey is related to Ordnance Survey (OS) using GPS Smartnet. | | | | |
| To avoid discrepancies any coordinated data used in conjunction with this survey must be derived directly from this control data. | | | | |

| REV | DESCRIPTION | DRAWN | APPR | DATE |
|-----|-------------|-------|------|------|
| | | | | |

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0845 040 5969
survey-solutions.co.uk

IPSWICH BEDFORD COVENTRY GLASGOW LONDON MANCHESTER NORWICH NOTTINGHAM YEovil

PROJECT TITLE
Land next to 14 Well Row, Bayford, Hertfordshire, SG13 8PW

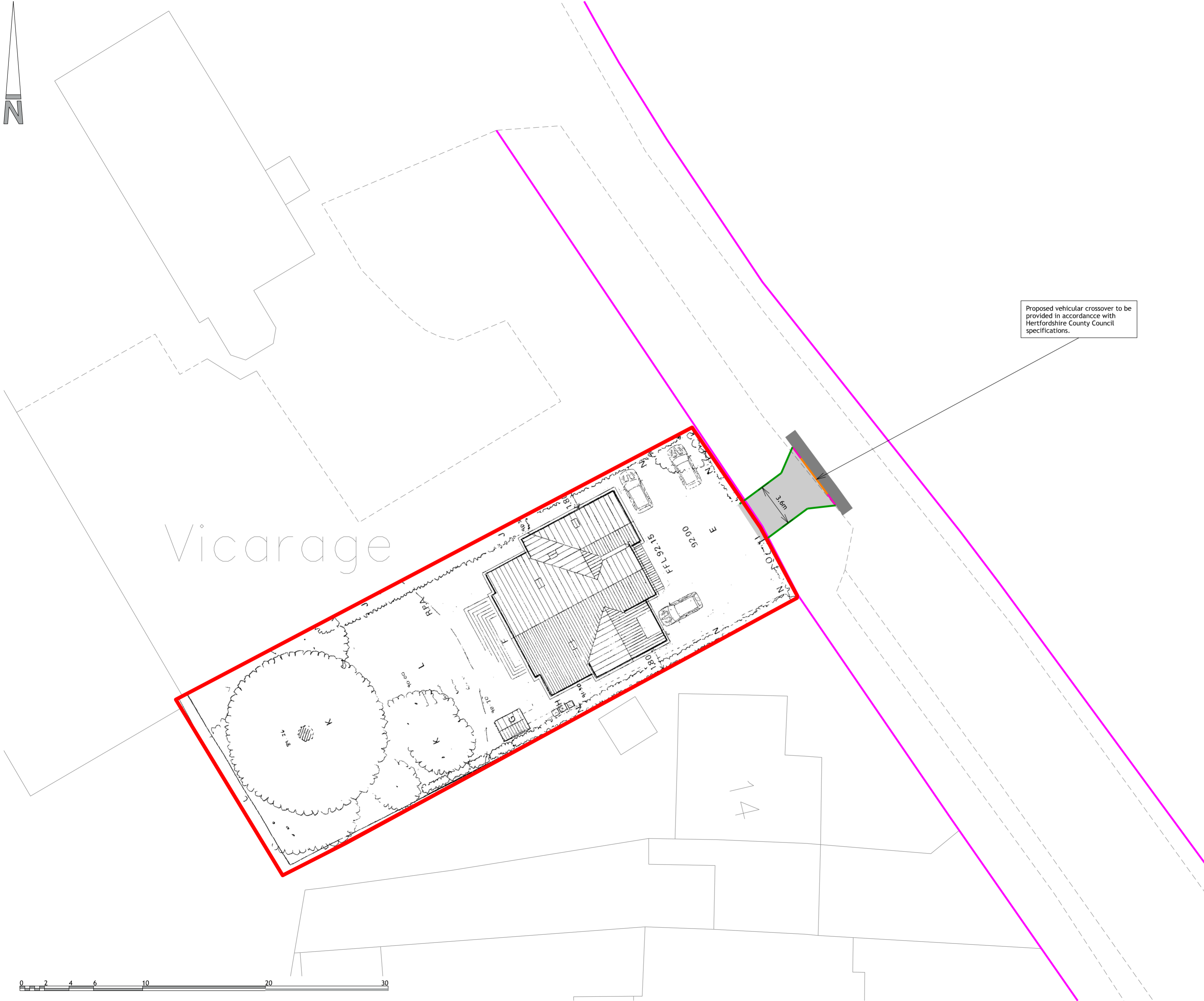
DRAWING DETAIL
TOPOGRAPHICAL SURVEY
Sheet 1 of 1

| | |
|-----------------------------|-------------------------|
| CLIENT Bonnel Homes Ltd | SCALE 1/200 |
| SURVEYOR NM | SURVEY DATE 13/12/21 |
| CHECKED BY CV | APPROVED BY MM |
| DWG STATUS FINAL | ISSUE DATE 16/12/21 |
| DRAWING NUMBER 38197BDLS | REVISION |



Appendix C

Indicative Access and Indicative Access Tracking drawings



NOTES

- Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding. © This drawing is copyright.
- All plans and drawings are drawn true to stated scales and can be used for the purpose of planning only. Responsibility is not accepted for errors made by others in scaling from this drawing.
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- Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at his own risk.

SAFETY, HEALTH AND ENVIRONMENTAL

There are no exceptional risks associated with these works. Refer to the designers risk assessment for the full assessment of risks.

KEY

- Site Boundary
- Highway Boundary based on plans received from Hertfordshire County Council
- Proposed vehicular crossover 3.6m wide

Proposed vehicular crossover to be provided in accordance with Hertfordshire County Council specifications.

| B | Access location updated to latest layout | SHD | GBR | 25.09.23 |
|-----|--|-----|-----|----------|
| A | Access location updated to latest layout | SHD | GBR | 21.08.23 |
| REV | DESCRIPTION | DRN | CHD | DATE |

- PRELIMINARY
- INFORMATION
- TENDER
- CONSTRUCTION
- AS BUILT

SCALE 1:200 @ A2 DATE May 2022

DRAWN IZ CHK GBR

DRAWING NO. 19081-5-WROW-100 REV B

TITLE Land at Well-Row Bayford

DETAILS Site Access



BEDFORD : HEAD OFFICE
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 Bedford MK40 3NH
 T: +44 (0) 1234 268862

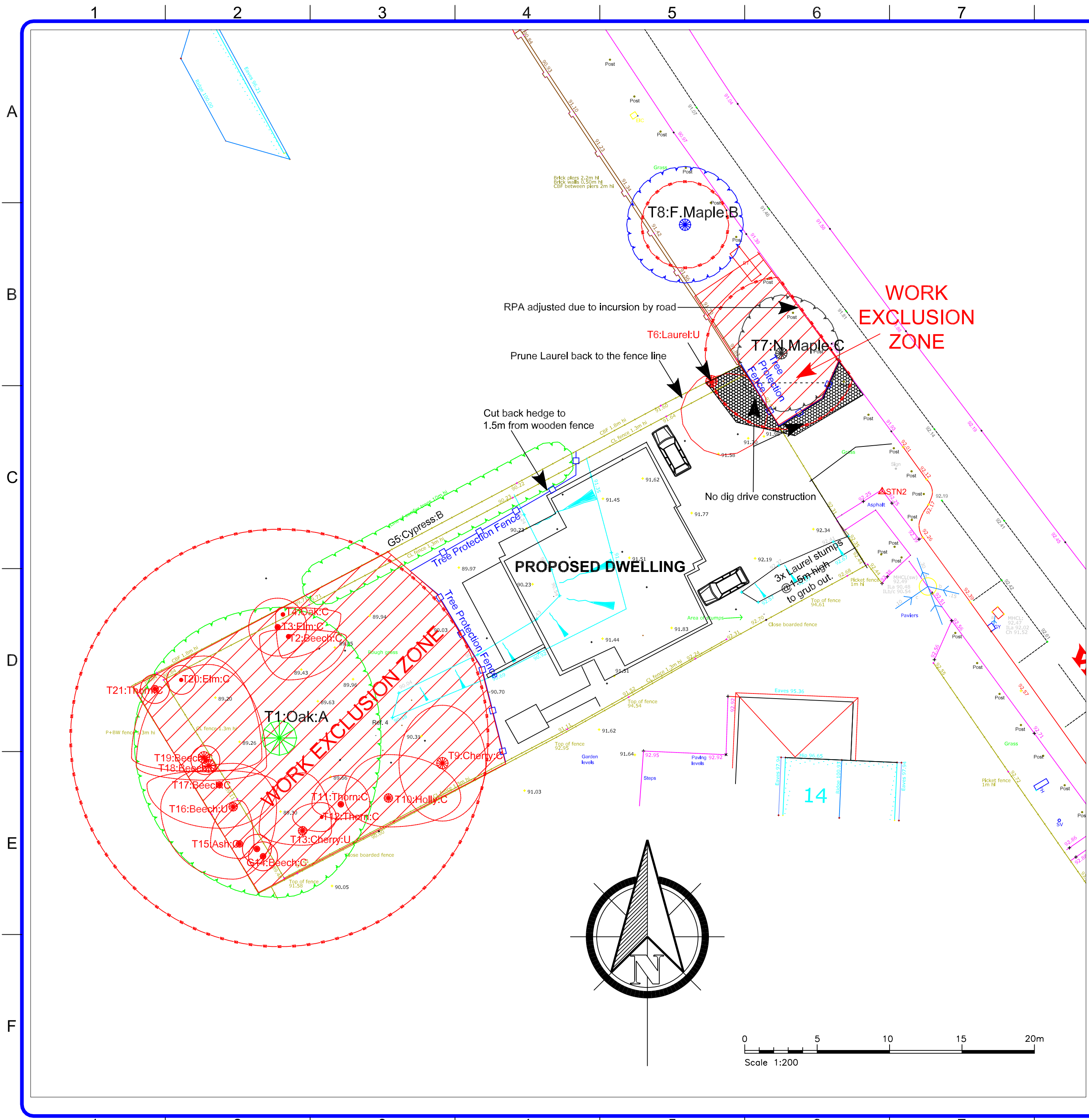
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ONLINE: mail@woodshardwick.com | woodshardwick.com

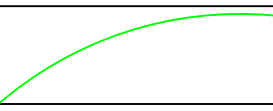
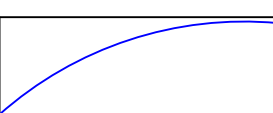
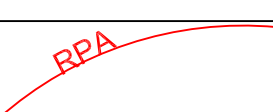
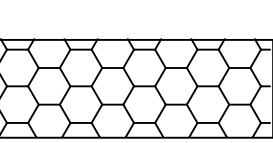


Appendix D

The Tree Protection Plan



TREE LEGEND

- A Grade 
- B Grade 
- C Grade 
- Trees to remove 
- RPA-Retained Trees 
- Protective Fence 
- No Dig Area 

NOTES:
PROTECTION PLAN
 All preliminary tree pruning/felling to be undertaken by an experienced and qualified arboricultural company prior to construction works beginning.
 All Tree Protection Fencing to be erected prior to construction beginning and approved by the Project Arboriculturist.
 All construction works are to be undertaken outside of the Tree Protection Areas.
 No dig construction methods to be used for where the new drive and car park are located within the RPA of T7.



Bob Widd Associates
 6 High Haden Road
 Glatton, Huntingdon
 Cambs. PE28 5RU
 Tel: 01487 834495
 bob@bwa-trees.co.uk

| | | | | | |
|--|---------------------------|-------------------------------|---|---------------|-----------|
| 1 | | | | | |
| EM. Issue | DESCRIZIONE - Description | COMPIL. Drawn up | VERIFIC. Chk'd | APPROV. App'd | DATA Date |
| QUESTO DOCUMENTO NON PUO' ESSERE UTILIZZATO IN ALCUN MODO DA TERZI SENZA PREVENTIVA AUTORIZZAZIONE This document cannot be used by others for any purpose, without prior written consent. | | | CODICE IDENTIFICAZIONE Identification code COMM-Job E C T N: FOGLIO Sheet EM. Issue | | |
| TITOLO - Title | | | TREE PROTECTION PLAN LAND ADJACENT TO 14 WELL ROW HERTFORDSHIRE | | |
| IMPIANTO - Plant | DATA - Date | SCALA GRAFICA - Graphic scale | RIF. CLIENTE - Client ref. | | |
| | 17-04-22 | 1:200@A2 | Bonnel Homes Ltd | | |

Appendix E

EA Flood Map

Flood map for planning

Your reference
19081

Location (easting/northing)
530978/208567

Created
5 May 2022 18:55

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following:**

- bigger than 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

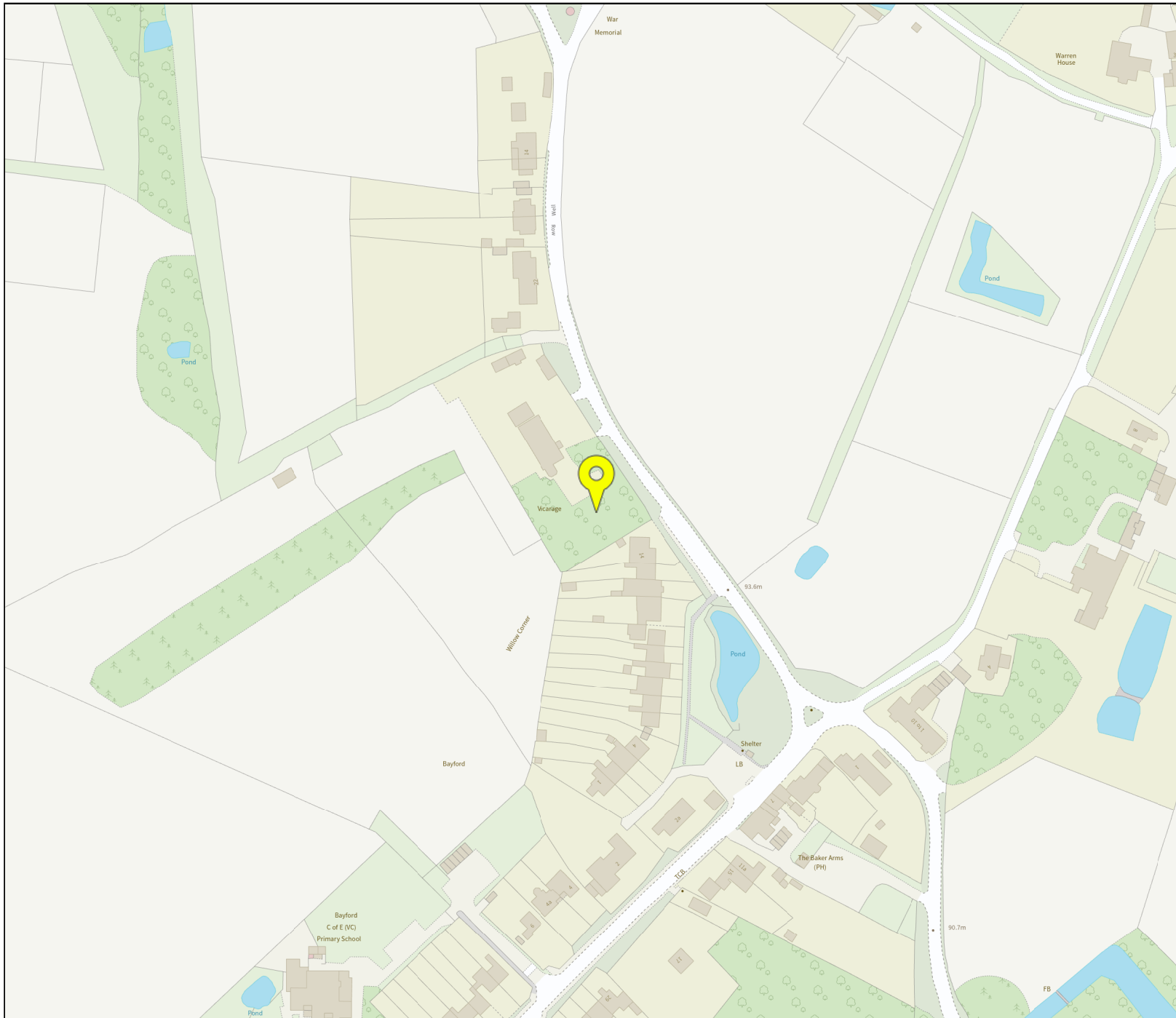
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2021 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference
19081

Location (easting/northing)
530978/208567

Scale
1:2500

Created
5 May 2022 18:55

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefiting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area



Appendix F

Relevant Extracts of BRD's Report



Report
Title:

Geo-Environmental
Site Investigation

Project
Name:

Land South West of
Well Row, Bayford



Report
Reference:

BRD4052-OR1-A

Date:

February 2022

BRD Environmental Ltd

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Banbury, Oxfordshire, OX16 5HT
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www.brduk.com

REPORT CONTROL SHEET

| | |
|--------------|--------------------------------------|
| REPORT TITLE | GEO-ENVIRONMENTAL SITE INVESTIGATION |
| PROJECT | LAND SOUTH WEST OF WELL ROW, BAYFORD |
| CLIENT | BONNEL HOMES |

| REPORT REFERENCE | ISSUE DETAIL | DATE | PREPARED BY | CHECKED BY |
|------------------|--------------|------------|-------------------|--------------|
| BRD4052-OR1-A | First Issue | 11/02/2022 | R Davies & A Leon | B Devonshire |

BRD Environmental Limited

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REPORT LAYOUT

This report is divided into the following four sections: Summary Report, Technical Report, Supporting Information and Appendices.

SUMMARY REPORT

This expanded executive summary provides the main findings of the work undertaken in brief non-technical language. This section provides an overview of the key outcomes for the benefit of non-specialists and concludes with the main recommendations. This section should only be relied upon in the context of the whole report and the Technical Report should be referred to with respect to any design decisions.

TECHNICAL REPORT

The main report section is intended to provide the technical detail of the investigation and is intended to provide the level of information required by current guidance documents and practice. The Technical Report is written in a language that, in part, assumes knowledge of subject matter so that it can be written in as concise a form as possible. Its intended audience is peers, regulators and other professionals in related disciplines.

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SUPPORTING INFORMATION

This section of the report provides background details of a generic nature together with specific technical approaches adopted by BRD and details of the guidance documents that are commonly referenced in the report. The section also includes explanations of technical terms to assist non-specialist readers in understanding the Technical Report. It should be noted that not all the information within this section is necessarily applicable to this specific report.

APPENDICES

The final section of the report presents the factual data collected and employed as part of the investigation.

APPENDIX 1 SITE PLANS & PHOTOGRAPHS

| | |
|--------------------------------|---|
| Site Location Plan | Ref. BRD4052-OP2-A |
| Site Photographs | Ref. BRD4052-OP3-A |
| Revised Conceptual Site Model | Ref. BRD4052-OP5-A |
| Preliminary Site Plan | Ivan J Clarke & John W. Barrett, architectural design consultants. Initial Plan. Ref. N/A, Date: N/A |
| Exploratory Hole Location Plan | Ref. BRD4052-OD1-A |

APPENDIX 2 EXPLORATORY HOLE & MONITORING RECORDS

| | |
|---------------------------------------|--------------------|
| Log of hand dug pit | Ref. HD01 |
| Photographic records of hand dug pit. | Ref. BRD4052-OP4-A |
| Logs of boreholes. | Ref. WS01-WS04 |
| BRE365 soakage test records. | 1 x A4 pages |
| Groundwater monitoring records. | 1 x A4 pages |

APPENDIX 3 LABORATORY TEST RESULTS

| | |
|----------------------|---------------|
| DETS report 21-14849 | 12 x A4 pages |
| SPT report 39947_1 | 9 x A4 pages |



SUMMARY REPORT - GENERAL INFORMATION

| SUBJECT | COMMENTS |
|---------------------------------|---|
| CURRENT SITE CONDITION | The site currently comprises a disused playground, which has had the play equipment removed and much of the vegetation recently removed. |
| PROPOSED DEVELOPMENT | It is proposed that the site will be developed as a single residential dwelling and associated private driveway and garden area. |
| HISTORICAL SUMMARY | The site was developed from part of a large field into part of a garden to a neighbouring vicarage at some point between 1899 and 1923. By 1999 the site is shown as a playground, the play equipment had been removed and the site had become overgrown by 2019. |
| PUBLISHED GEOLOGY | The site is shown to be underlain by superficial deposits comprising of Sand and Gravel of Uncertain Age and Origin in the eastern corner of the site, the rest of the site is shown to be devoid of superficial deposits. The shallowest bedrock unit is shown to be the London Clay Formation. |
| ACTUAL GROUND CONDITIONS | The investigation has proved a thin cover of Topsoil / Made Ground Topsoil overlying the Sand and Gravel of Uncertain Age and Origin across most of the site which in turn was underlain by the London Clay Formation. |
| HYDROGEOLOGY | The site is situated upon superficial deposits designated a Secondary A Aquifer. The underlying bedrock geology is designated as an Unproductive Strata. The site is located within a groundwater Source Protection 3 (Total Catchment). |
| HYDROLOGY | The closest water feature to the site is a pond located approximately 50m to the south east. The site is not in an area indicated to be at risk of flooding. |
| PREVIOUS GROUND REPORTS | BRD is not aware of any previous ground investigations having been conducted at the site. |

SUMMARY REPORT - GEOTECHNICAL

| SUBJECT | COMMENTS |
|-----------------------------|---|
| EXCAVATIONS | <p>It should be possible to forward excavations employing normal equipment.</p> <p>Limited groundwater control in the form of pumping from sumps is likely to be required.</p> <p>It is likely that requirements of the Party Wall Act will apply to the development.</p> |
| SLOPE STABILITY | <p>There are steep slopes at the site, but no obvious signs of instability have been observed. The stability of the slopes should be actively considered with planning any changes to the slopes as part of the development.</p> |
| SUB-SURFACE CONCRETE | <p><u>Sand & Gravel</u>: Design Sulphate Class of DS-1 and Aggressive Chemical Environment for Concrete class of AC-2z applies.</p> <p><u>London Clay Formation</u>: Design Sulphate Class of DS-3 and Aggressive Chemical Environment for Concrete class of AC-2s applies but should be subject to further testing.</p> |
| SOAKAWAYS | <p>Site is not suitable for surface water disposal to soakaways or other forms of infiltration device.</p> |
| PAVEMENT DESIGN | <p>A preliminary design California Bearing Ratio (CBR) of 4% has been recommended.</p> |
| FOUNDATIONS | |
| LIKELY FOUNDATION TYPE | <p>A thickened edge raft foundation is anticipated at semi-basement level. However, due to tree influence on required foundation depths, the need for temporary support to the excavation for the semi-basement structure will be required together with trench fill footings. The whole foundation will require appropriate reinforcement.</p> |
| VOLUME CHANGE POTENTIAL | <p>High i.e. significant swelling or shrinking with moisture content changes.</p> |
| ESTIMATED FOUNDATION DEPTHS | <p>The minimum footing depth required is 1.0m, however due to the tree influence and basement floor construction foundations depths to about 2.7m depth will be required.</p> |
| HEAVE PROTECTION | <p>Will be required.</p> |

SUMMARY REPORT - CONTAMINATION ISSUES

| SUBJECT | COMMENTS |
|--|---|
| SOIL RISKS TO HUMAN HEALTH | No unacceptable contamination in respect of human health have been identified by this investigation. |
| LANDFILL GAS | No plausible sources of landfill gas have been identified. |
| RADON GAS | Radon gas protection measures are not required. |
| RISKS TO THE WATER ENVIRONMENT | No unacceptable contamination risks to water resources have been identified by this investigation. |
| RISKS TO BUILDING MATERIALS AND SERVICES | No unacceptable contamination risks to building materials and services have been identified by this investigation. |
| REMEDIATION | No remedial works are considered necessary to facilitate the development at this stage. |
| ASBESTOS | No asbestos has been detected in the soil sample tested. |
| WASTE SOIL DISPOSAL | <p>It is considered that the topsoil disposed of from the site, even though it is uncontaminated, is unlikely to constitute 'inert waste' due to its high organic matter content.</p> <p>It is considered that the sub-soils disposed of from the site would be classified as 'non-hazardous waste' and would be characterised for disposal to landfill as 'inert waste'.</p> |

SUMMARY REPORT - KEY RECOMMENDATIONS

| RECOMMENDATIONS |
|---|
| <p>It would be prudent for further groundwater monitoring to be undertaken to assess the variation in the water table with seasonal or short term weather effects.</p> <p>Further testing of the London Clay Formation is recommended to confirm classification. If concrete at depths greater than 2.5m below existing ground level are planned as it may be pyrite. Samples could be taken for analysis once the design depths have been confirmed.</p> |

1. INTRODUCTION TO TECHNICAL REPORT

1.1. CONTRACT DETAILS

| | |
|--------------------------|---|
| CLIENT | Bonnel Homes Limited trading as Bonnel Homes. |
| SITE | Land situated at Well Row in the village of Bayford, Hertfordshire. |
| CLIENT'S ADVISORS | BRD Environmental Limited (BRD) has been commissioned directly by the Client. |
| REPORT CONTEXT | It is understood that the Client intends to purchase the site and develop it for residential housing. |
| REPORT TYPE | Geo-environmental site investigation (i.e. combined geotechnical ground investigation and Phase 2 contamination assessment). |
| REPORT OBJECTIVES | The purpose of the report is to present the findings of a ground investigation, and to present both geotechnical and contamination assessments of the ground conditions revealed. |

1.2. SCOPE OF WORKS

The agreed scope of works was:

- Desk based research through the purchase of an Envirocheck report, including:
 - Environmental database search.
 - Environment Agency data.
 - BGS radon maps.
 - Available historical Ordnance Survey plans.
- Interpretation of the geological, hydrogeological and hydrology setting of the site from published sources.
- Mobilisation to site and production of health and safety documentation.
- Undertake a Cable Avoidance Tool (CAT) scan at each exploratory point location.
- One day of windowless sampling using a percussive drilling rig to provide approximately 4-5No. boreholes to a nominal depth of 5-6m, ground conditions permitting. Undertake Standard Penetration Tests (SPT) at 1m intervals.
- Installation of a 3m depth combined gas and groundwater monitoring well (nominal 50mm diameter) into 1No. borehole. Installation will be finished with a flush fitting metal stopcock cover.
- A falling head permeability test or simple soakage test (as appropriate the ground conditions) will also be undertaken within the monitoring well to determine likely soil permeability or infiltration rates.
- All exploratory points will be logged and sampled in general accordance with BS5930:2015 by supervising Geo-Environmental Consultant. In-situ geotechnical testing of fine soils using a Hand Shear Vane and/or Pocket Penetrometer.

- Determination of the location of exploratory points by tape measurements or the use of a handheld recreational GPS unit.
- Chemical testing of soil samples to confirm the soils are uncontaminated, to determine waste classification for muckaway and to meet the requirements for new water supply pipe specification. Budget based on the following testing schedule:
 - 5No. Metals Suite - As, Cd, Cr, CrVI, Hg, Pb, Se, Cu, Ni and Zn.
 - 5No. Inorganics Suite - water soluble sulphate, pH, organic matter.
 - 5No. Speciated Polycyclic Aromatic Hydrocarbons (PAH).
 - 1No. Banded aliphatic/aromatic Total Petroleum Hydrocarbons (TPH).
 - 1No. Benzene, Toluene, Ethylbenzene, Xylene (BTEX) and Methyl Tertiary Butyl Ether (MTBE) compounds.
 - 1No. Semi-Volatile Organic Compounds (SVOC) suite.
 - 1No. Asbestos quantification.
- Chemical testing of 1No. soil sample for Waste Acceptance Criteria (WAC) to assist in establishing the waste classification of the soil for disposal purposes.
- Geotechnical testing as appropriate to the nature of the ground conditions encountered, but the budget is based on the following testing schedule:
 - 5No. Moisture content.
 - 5No. Plasticity indices.
 - 5No. pH and water soluble sulphate analysis.
 - 5No. Total sulphate and sulphur analysis.
- Provision of a combined factual and interpretative investigation report. Factual findings to include all exploratory point records and test results. Interpretative reporting to include a summary of information from desk study research, a Generic Quantitative Contamination Risk Assessment (GQRA), waste classification and a Geotechnical Assessment providing comments on pavement design, concrete classification, soakaway feasibility, foundation design recommendations.

After preliminary work, the scope was expanded to include the following items:

- 1No. return groundwater monitoring visit to determine resting groundwater levels and to undertake a falling head permeability test or simple soakage test (as appropriate the ground conditions) within one of the monitoring wells to determine likely soil permeability or infiltration rates.

1.3. REPORT LIMITATIONS

Any site boundary lines depicted on plans included within this report are approximate only and do not imply legal ownership of land. Any observations of tree species, asbestos containing materials within structures or invasive weeds, does not constitute a formal survey of such features. The identification of such features is therefore tentative only. In the case of Japanese Knotweed, BRD can undertake separate surveys for this plant undertaken by a Property Care Association qualified surveyor.

The report does not consider whether sensitive ecology or archaeology is present as these require consideration by professionals specialising in these matters. It should be recognised that the collection of desk study information may not be exhaustive and that other information pertinent to the site may be available.

The recommendations, interpretations and conclusions of this report are based solely on the ground conditions found at the exploratory holes. Due to the variability in the nature of ground,

conditions between exploratory holes can only be interpreted and not defined. The description of the site and the ground conditions is accurate only for the dates of the field works. In particular, groundwater levels can vary due to seasonal and other effects.

The assessment and interpretation of contamination risks is based on the scope of works agreed with the Client together with the budgetary and programme constraints imposed. Further investigation, analysis and assessment of contamination may be required by regulators or other third parties with an interest in the site. An ecological risk assessment of contaminated soils is beyond the scope of this report. This report is concerned with assessing those contamination risks which apply to the future use of the site through the proposed development as part of the planning regime. The assessment does not consider the risk to current site users or continued future use of the site in its current state. If development of the site should occur that differs from that proposed, then the findings of the contamination assessment would need to be re-evaluated.

At the time of writing, detailed information on the proposed structure, such as detailed layout, loadings and serviceability limits, was not available. Accordingly, where geotechnical design advice is provided it is on the prescriptive basis allowed for by Eurocode 7: employing conventional and conservative design rules. The scope of this investigation excludes a formal slope stability study and any observations made regarding slopes are for information only.

2. SITE CHARACTERISTICS

2.1. SITE SETTING

| | |
|-----------------------------------|--|
| SITE ADDRESS AND POST CODE | Land south west of Well Row, Bayford, Hertford, Hertfordshire, SG13 8PW. |
| NATIONAL GRID REFERENCE | 530980E, 208560N. |

2.2. SITE DESCRIPTION

| SUBJECT | COMMENTS |
|---------------------------------|---|
| CURRENT SITE DESCRIPTION | <p>The site currently comprises a disused playground, which has had the play equipment removed and much of the vegetation recently removed. The site is approximately rectangular in shape and covers an area of approximately 0.08 hectares.</p> <p>The site slopes from the north east to the south west by approximately 2.8m with an 'L' shaped embankment present in the centre of the site between approximately 1.20m and 0.20m in height. The embankment is surfaced by overgrown grass, brambles and bamboo. Given the topography of the surrounding area and the shape of the embankment, it would appear the embankment was most likely formed by cutting into the slope on the site, most likely to form a level area from when the site was part of a private garden area.</p> <p>There is a mature oak tree located in the south west of the site, there is a row of mature conifers present along the north western site boundary, a mature laurel tree is present in the northern corner of the site. There are also several mature trees present along the south western and south eastern site boundaries however, it was not possible to identify any of the other tree species during the walkover. There are several tree stumps present in the site where trees and bushes have recently been felled, there were laurel sapling growing from some of the tree stumps present in the east of the site.</p> |
| SURROUNDING LAND USE | The site is located within a mixed agricultural and residential area. The site is bounded to the north east by Well Row road, by residential properties to the south east and north west and by an open field to the south west. |
| PROPOSED DEVELOPMENT | It is proposed that the site will be developed as a single residential dwelling and associated private driveway and garden area. |
| HISTORICAL SUMMARY | The site was developed from part of a large field into part of a garden to a neighbouring vicarage at some point between 1899 and 1923. By 1999 the site is shown as a playground, the play equipment had been removed and the site had become overgrown by 2019. |

| SUBJECT | COMMENTS |
|-------------------|---|
| PUBLISHED GEOLOGY | <p>The site is shown to be underlain by superficial deposits comprising of Sand and Gravel of Uncertain Age and Origin in the eastern corner of the site, the rest of the site is shown to be devoid of superficial deposits.</p> <p>The shallowest bedrock unit is shown to be the London Clay Formation.</p> |
| RADON | <p>Radon protection measures are not required.</p> |
| HYDROGEOLOGY | <p>The superficial deposits comprising of Sand and Gravel of Uncertain Age and Origin in the eastern corner of the site are designated a Secondary A Aquifer. The shallowest bedrock unit, the London Clay Formation is designated as an unproductive strata.</p> <p>The site is located within a Source Protection Zone 3 (Total Catchment).</p> |
| HYDROLOGY | <p>The closest water feature to the site is a pond located approximately 50m to the south east. The nearest stream is an unnamed tributary of the River Lee located approximately 420m to the south west which flows in a north before joining the River Lee, approximately 1.7km to the north which flows east.</p> <p>The site is not in an area indicated to be at risk of flooding.</p> |

2.3. PREVIOUS INVESTIGATIONS

BRD is not aware of any previous ground investigations having been conducted at the site.

3. GROUND INVESTIGATION

3.1. INVESTIGATION DESIGN

| | | |
|---|---|-------------------------|
| METHODOLOGY | Windowless sample boreholes were selected as a monitoring installation was required, because access was limited and because in-situ density tests were required in the coarse soils. A hand dug pit was selected as access to the south western end of the site was limited by the overgrown embankment. | |
| DATES OF SITE WORKS | The main field works were undertaken on 16 th December 2021. | |
| CONSTRAINTS TO EXPLORATORY HOLE LAYOUT | It was not certain that the windowless sample drilling rig would be able to get back up the embankment in the centre of the site and as such no borehole were undertaken in the south western end of the site. | |
| EXPLORATORY HOLE SPACING | Approximately 8m grid. | |
| LAYOUT RATIONALE | SOURCE / FEATURE | EXPLORATORY HOLE |
| CONTAMINATION SOURCES TARGETED | General site coverage. | WS01-WS04 and HD01. |
| GROUND FEATURES TARGETED | General site coverage. | WS01-WS04 and HD01. |
| CONTAMINATION SAMPLING PLAN | Based on the proposed end use, the sampling and analysis plan is more positively biased towards near surface samples as these represent the soils most likely to be available to future site users. The analysis is more biased towards the Made Ground samples as this stratum represents the soils most likely to be contaminated. | |
| ANALYSIS PLAN | Given the site's history as a part of a garden area and a playground, BRD has scheduled a suite of typically occurring contaminants and a suite of contaminants required to determine water supply pipe specifications. | |

3.2. BRD FIELDWORK

| HAND DUG INSPECTION PITS | |
|---------------------------------|--|
| REFERENCES | HD01 |
| DEPTH RANGE | 0.80m. |
| BACKFILL | The inspection pit was backfilled with arisings upon completion. |

| WINDOWLESS SAMPLING BOREHOLES | |
|-------------------------------|--|
| REFERENCES | WS01 to WS04. |
| DEPTH RANGE | From 2.45m to 6.45m. |
| RIG TYPE | Premier Drilling Rig. |
| INSTALLATION / BACKFILL | Boreholes WS01, WS03 and WS04 were backfilled with arisings only. Borehole WS01 had a monitoring well installed. This comprised 50mm nominal diameter standpipe fitted with a gas tap finished with a flush metal cover. The slotted response length of the well is shown on the individual log. Bentonite seals are also indicated on the log. The filter medium used was pea gravel. |

| MONITORING | |
|-----------------------------|---|
| TYPE | Groundwater monitoring. |
| DATES | 14/01/2022 |
| GROUNDWATER SAMPLING METHOD | No samples taken, only groundwater levels measured. |

3.3. LABORATORY TESTING

| GEOTECHNICAL TESTING | |
|---|--------------------------|
| <p>The soil samples for geotechnical testing were forwarded to the laboratory of Soil Property Testing Ltd with pH and sulphate analysis undertaken at the laboratory of DETS Ltd. The geotechnical testing suite is detailed below. The UKAS accreditation of the individual test methods is shown on the laboratory test report included in the Appendices.</p> | |
| TEST | NUMBER OF SAMPLES TESTED |
| Moisture content | 5 |
| Liquid and plastic limits | 5 |
| pH and Water soluble Sulphate | 5 |
| Total Sulphur and Sulphate | 5 |

SOIL CHEMICAL TESTING

The soil samples for contamination and chemical geotechnical testing were forwarded to the laboratory of DETS Ltd and the testing suite is detailed below. The UKAS or MCERTS accreditation of the individual test methods is shown on the laboratory test report included in the Appendices.

| SOIL TESTS | NUMBER OF SAMPLES TESTED |
|--|--------------------------|
| Arsenic, Cadmium, Chromium, Chromium VI, Copper, Lead, Mercury, Nickel, Selenium, Zinc | 5 |
| Speciated Polycyclic Aromatic Hydrocarbons (PAH) | 5 |
| Total Petroleum Hydrocarbons (TPH) with full carbon banding and aliphatic/aromatic split | 1 |
| Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) plus Methyl Tert Butyl Ether (MTBE) | 1 |
| Fibrous Material Screen (for Asbestos) | 1 |
| Semi-Volatile Organic Compounds (SVOCs) | 1 |
| Waste Acceptance Criteria (WAC) testing | 1 |

4. GROUND CONDITIONS

4.1. OVERVIEW

The ground conditions encountered differed slightly from the published geology maps with a thin cover of Topsoil / Made Ground Topsoil overlying the Sand and Gravel of Uncertain Age and Origin across most of the site which in turn was underlain by the London Clay Formation.

Details of the various stratigraphic units are given in the following sections.

4.2. TOPSOIL AND MADE GROUND TOPSOIL

Topsoil was encountered across the site in boreholes WS01 and WS02 and in hand dug pit HD01 from ground level to depths of between 0.10m below ground level (m bgl) and 0.30m bgl. The topsoil was described as either dark brown, slightly silty, slightly gravelly, clayey sand or a dark brown, slightly silty, slightly gravelly clay. Gravel of fine to coarse, angular to sub-rounded flint and quartzite with many rootlets and roots up to 30mm in diameter.

The Made Ground Topsoil was encountered in borehole WS03 and WS04 in the northern corner of the site from ground level to a depth of 0.40m bgl. The Made Ground Topsoil was described as either dark brown, slightly silty, slightly gravelly, clayey sand or a dark brown, slightly silty, slightly gravelly clay. Gravel of fine to coarse, angular to sub-rounded flint, quartzite and rare brick with many rootlets and roots up to 30mm in diameter

4.3. SUPERFICIAL DEPOSITS

4.3.1. Sand and Gravel of Uncertain Age and Origin

The Sand and Gravel of Uncertain Age and Origin, hereinafter referred to as 'Sand & Gravel' was encountered across most of the site to a depth of between 0.40m bgl, deepening in the south east of the site to between 2.00m bgl and 2.10m bgl. The Sand & Gravel was variable in nature and typically encountered as one or more of the following strata:

- Stiff, orange brown, silty, gravelly CLAY with occasional rootlets. Gravel of fine to coarse, sub-angular to rounded flint and quartzite.
- Medium dense, orange brown, clayey, sandy GRAVEL of fine to coarse, sub-angular to rounded flint and quartzite.
- Medium dense, brown becoming orange brown, gravelly to very gravelly, medium SAND. Gravel of fine to coarse, angular to sub-rounded flint and quartzite.
- Stiff, orange brown, sandy, very gravelly CLAY. Gravel of fine to coarse, angular to sub-rounded flint and quartzite.
- Very stiff, fissured, orange brown mottled brown, slightly silty CLAY with occasional rootlets and rare flint and quartzite gravel.

4.4. BEDROCK

4.4.1. London Clay Formation

The London Clay Formation was encountered either underlying the Sand & Gravel or from surface in the northern corner of the site in borehole WS04. It was proven to a maximum depth of 6.45m bgl. The London Clay Formation was typically encountered as either firm to stiff, fissured, orange brown with some grey mottling, slightly silty clay with rare relict rootlets. Or a stiff to very stiff, fissured, brown with some grey mottling, slightly silty clay with rare relict rootlets.

4.5. GEOTECHNICAL COMMENTS

The slopes across the site and the embankment towards the centre area might be have an impact on the site development.

4.6. CONTAMINATION OBSERVATIONS

No visual or olfactory evidence of contamination was noted during the forwarding of exploratory holes.

4.7. GROUNDWATER BEHAVIOUR

Groundwater was not encountered whilst forwarding the exploratory holes, but the gravelly to very gravelly sand layer within the Sand & Gravel in borehole WS02 was noted to be wet between 0.90m bgl and 1.00m bgl.

4.8. GROUNDWATER MONITORING

| DATE | RESTING GROUNDWATER RANGE | COMMENTS |
|----------|---------------------------|--|
| 14/01/22 | 1.15m bgl. | Only borehole WS02, located in the higher eastern end of the site, was installed with a monitoring well. The monitoring visit undertaken following a period of relatively wet weather recorded standing groundwater at a relatively shallow depth of 1.15m bgl. This is groundwater perched within the superficial Sand and Gravel upon the effectively impermeable London Clay. |

5. GEOTECHNICAL PROPERTIES

5.1. COARSE SOIL PARAMETERS

5.1.1. Variable Head Permeability

The records of the variable head permeability tests are presented in the Appendices that includes the calculation of the permeability. The results are presented in the table below:

| BOREHOLE | PERMEABILITY | STRATUM TESTED |
|----------|---------------------------|--|
| WS02 | 2.07×10^{-7} m/s | GL-1.0m: Medium dense, orange brown, gravelly to very gravelly medium SAND. 1.0-2.0m: Medium dense, slightly sandy, very clayey GRAVEL. |

5.1.2. Standard Penetration Tests (SPTs)

Two SPTs were undertaken in the coarse soils of the Sand & Gravel superficial deposits at a depth of 1.0m bgl in boreholes WS01 and WS02. The N-values were of 14 and 17 indicative of medium dense relative density soils.

5.2. FINE SOIL PARAMETERS

5.2.1. Index Property Testing

| | |
|-----------------------|--|
| SOIL TYPE | Sand & Gravel. |
| PLASTICITY INDEX (PI) | Oversize particles present. |
| MODIFIED PI | 8% - Non shrinkable soil type (clayey gravel bed). 17% - Low volume change potential (gravelly clay bed). |
| COMMENTS | The Sand & Gravel deposits were recorded comprising from gravel to clayey beds. The coarse deposits, sand and gravel, are recorded as non-shrinkable soils, whereas the clayey beds have been recorded with a low volume change potential. |
| NHBC CLASS | Low volume change potential. |

| | |
|-----------------------|---|
| SOIL TYPE | London Clay Formation. |
| PLASTICITY INDEX (PI) | 43% - 58% |
| MODIFIED PI | Not applicable - no oversize particles. |
| NHBC CLASS | High volume change potential. |

5.2.2. Undrained Shear Strength

This section discusses all of the laboratory and in-situ tests that produce either direct or indirect measures of undrained shear strength.

5.2.2.1. *Hand Penetrometer*

| | |
|--|--|
| SOIL TYPE | London Clay Formation. |
| DISCUSSION OF CORRECTED RESULTS | The recorded undrained shear strength was in the range of 45kPa to 113kPa, averaging 79kPa which is indicative of high strength soil type. |

5.2.2.2. *Standard Penetration Test Correlations*

A total of 18No. Standard Penetration Tests were undertaken in the clayey soils recorded on site.

N-values recorded in the London Clay bedrock from 5 to 20 being indicative of firm to stiff soils, typically values increase with depth.

For fissured, over consolidated fine-grained soils, such as the London Clay, SPT N-values can be converted using industry standard correlations, such as Stroud's method, to equivalent undrained shear strengths of a 100mm-diameter triaxial compression test. This conversion uses values for Stroud's conversion factor, f_1 , selected on the basis of plasticity index recorded in the samples tested in the London Clay. A hammer efficiency value for the windowless sample rig of $E_r=86\%$ based on the annual calibration certificate provided by the sub-contractor.

At a depth of 1.0m, equivalent undrained shear strengths for the London Clay of 32kPa and 39kPa, have been recorded, indicative of low strength soil type.





Below, at 2.0m depth equivalent undrained shear strengths of between 52kPa and 111kPa have been recorded, with values ranging that are indicative of medium to high strength.

Between 3.0m and 4.0m bgl, equivalent undrained shear strengths of between 97kPa and 116kPa have been recorded, which are indicative of high strength.

Between 5.0m and 6.0m depth, equivalent undrained shear strengths of between 110kPa and 129kPa have been recorded, which are indicative of high strength soils.

The following charts show the distribution with depth of the N_{60} values recorded in every borehole together with the derived equivalent undrained shear strength values.

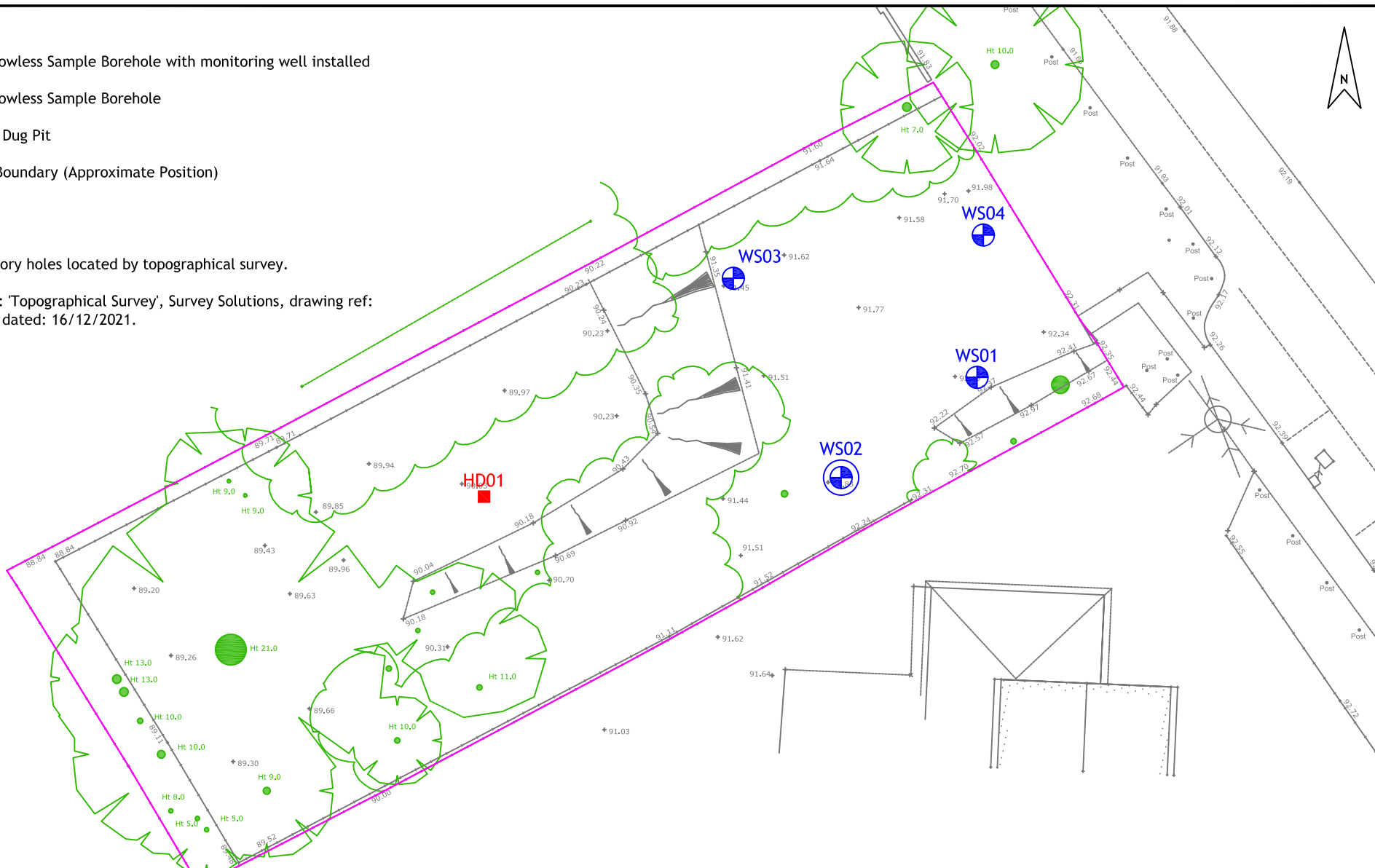
Key:

-  Windowless Sample Borehole with monitoring well installed
-  Windowless Sample Borehole
-  Hand Dug Pit
-  Site Boundary (Approximate Position)

Notes:

All exploratory holes located by topographical survey.

Drawing ref: 'Topographical Survey', Survey Solutions, drawing ref: 38197BDLS, dated: 16/12/2021.



| | | |
|--|--|---------------------------|
| Project title LAND SOUTH WEST OF WELL ROW, BAYFORD | | |
| Client BONNEL HOMES | | |
| Scale 1:250 | Original drg. size/colour A4 / C | Date 14/01/2022 |
| Drawn RD | Checked RD | Approved BD |

| | |
|--|-----------------|
| Drawing title EXPLORATORY POINT PLAN | |
| Drawing Number BRD4052-OD1 | Rev A |



Appendix G

Thames Water's Sewer Record Plans

Asset location search



Property Searches

Cornerstone Projects LTD
91Market Street
HOYLAKE
WIRRAL
CH47 5AA

Search address supplied SG13 8PW

Your reference Bayford

Our reference ALS/ALS Standard/2021_4548460

Search date 25 November 2021

Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0800 009 4540

Search address supplied: SG13 8PW

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk

Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

Affinity Water Ltd
Tamblin Way
Hatfield
AL10 9EZ
Tel: 0345 3572401

Asset location search



Property Searches

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

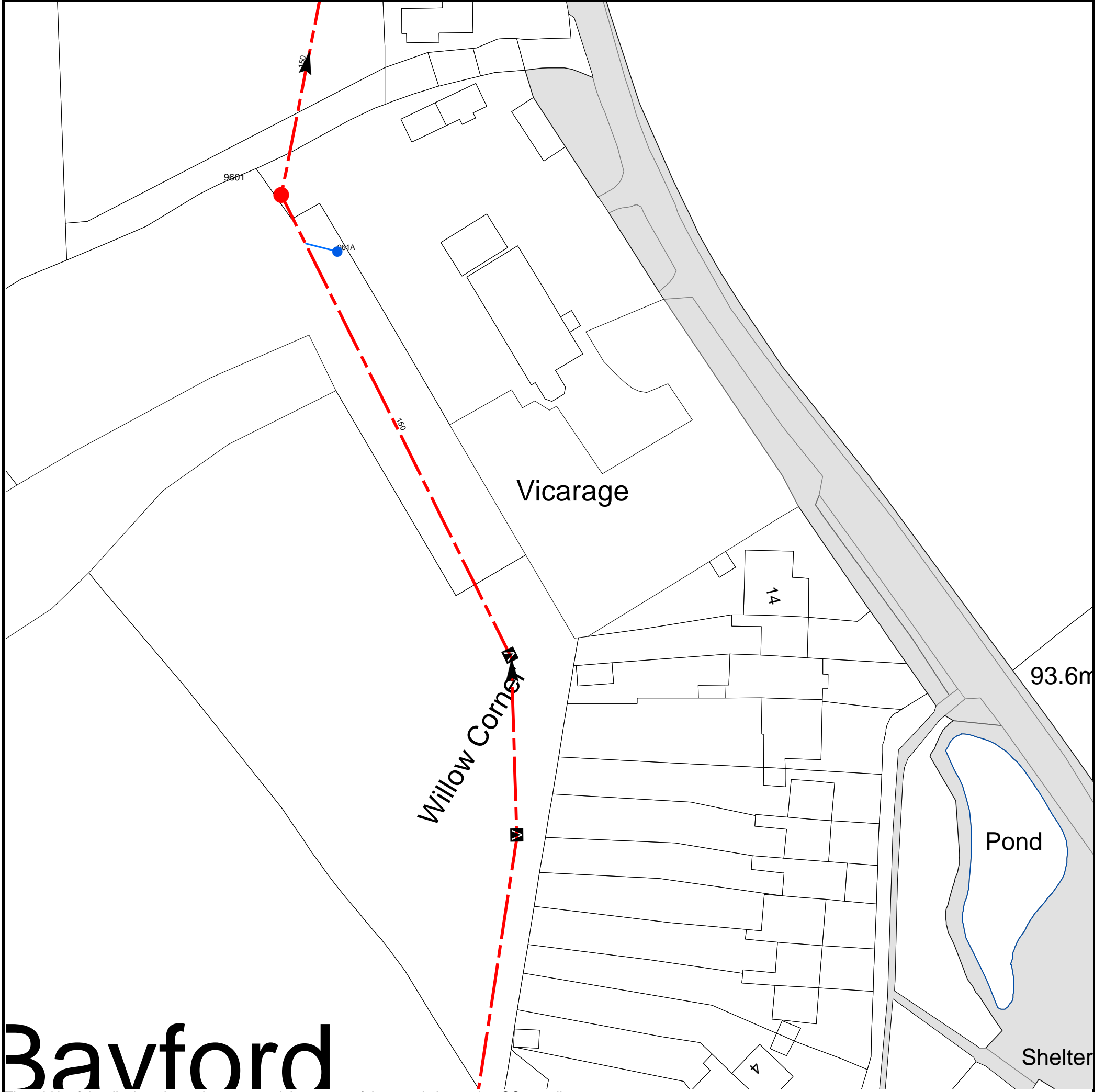
Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk



Bavford

The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 530958,208557

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available



















| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|--------------------------|----------------------------|-----------------------------|
| 9601 961A | .01 n/a | n/a n/a |

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

-  **Foul:** A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
-  **Surface Water:** A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
-  **Combined:** A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
-  **Trunk Surface Water**
-  **Trunk Foul**
-  **Storm Relief**
-  **Trunk Combined**
-  **Vent Pipe**
-  **Bio-solids (Sludge)**
-  **Proposed Thames Surface Water Sewer**
-  **Proposed Thames Water Foul Sewer**
-  **Gallery**
-  **Foul Rising Main**
-  **Surface Water Rising Main**
-  **Combined Rising Main**
-  **Sludge Rising Main**
-  **Proposed Thames Water Rising Main**
-  **Vacuum**

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or 'D' on a manhole level indicates that data is unavailable.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

-  Air Valve
-  Dam Chase
-  Fitting
-  Meter
-  Vent Column




Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

-  Control Valve
-  Drop Pipe
-  Ancillary
-  Weir





End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

-  Outfall
-  Undefined End
-  Inlet






Other Symbols

Symbols used on maps which do not fall under other general categories








-  Public/Private Pumping Station
-  Change of characteristic indicator (C.O.C.I.)
-  Invert Level
-  Summit

Areas

Lines denoting areas of underground surveys, etc.

-  Agreement
-  Operational Site
-  Chamber
-  Tunnel
-  Conduit Bridge

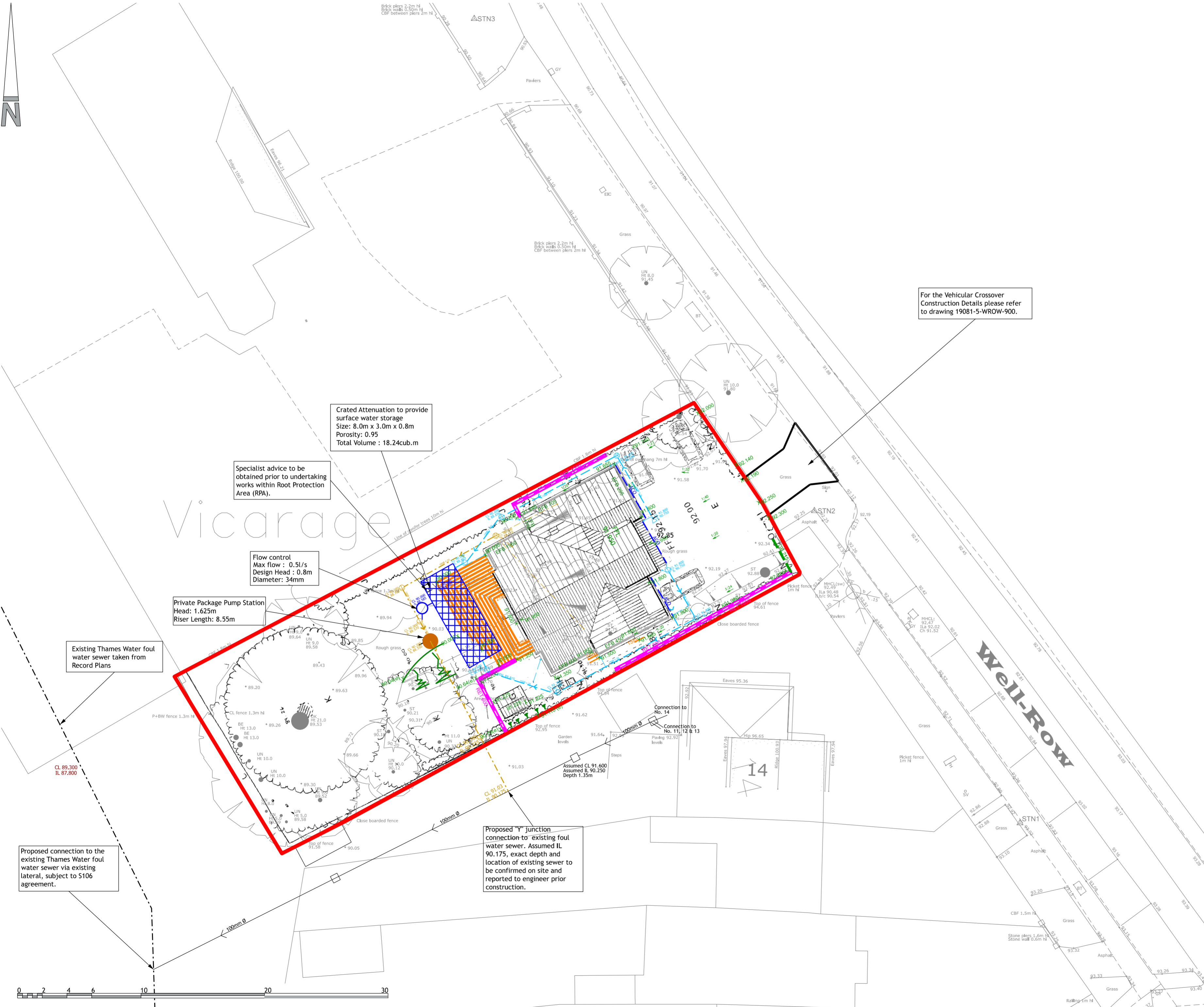
Other Sewer Types (Not Operated or Maintained by Thames Water)

-  Foul Sewer
-  Surface Water Sewer
-  Combined Sewer
-  Gully
-  Culverted Watercourse
-  Proposed
-  Abandoned Sewer

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Searches on 0800 009 4540.

Appendix H

Indicative Drainage Strategy and MicroDrainage Calculations



- NOTES**
- Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding. © This drawing is copyright.
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 - Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at his own risk.
 - No individual flight of stairs to have a rise of more than 1800mm between landings in accordance with Building Regulations Part M.
 - Every flight of stairs with 3 or more risers to have a suitable handrail to one side in accordance with Building Regulations Part M.

SAFETY, HEALTH AND ENVIRONMENTAL

There are no exceptional risks associated with these works. Refer to the designers risk assessment for the full assessment of risks.

- KEY**
- Site Boundary
 - Existing Public Foul Water Sewer
 - Proposed private surface water inspection chamber (>3 connections)
 - Proposed private surface water inspection chamber (max 3 connections)
 - Proposed backdrop manhole
 - Proposed private rodding eye
 - Proposed private foul water inspection chamber (max 3 connections)
 - Proposed Private Metal Drainage Channel
 - Proposed Combined Sewer
 - Proposed Geo-cellular Crates
 - FFL
XX.XXX
Finished floor level
 - Finished external level
 - EFB 150
Extra facing brickwork
 - SDPC 150
Stepped DPC
 - TK 3000
Tanking
 - 2Slp
Steps (indicating number required)
 - Banking
 - Retaining wall (indicating max. retained height)
 - Gravel board (indicating max. retained height)

| | | | | |
|---|---|-----|-----|------------|
| G | Updated access | SHD | GBR | 25.09.23 |
| F | Updated to new layout | SHD | SD | 21.08.2023 |
| E | Existing sewer information updated | SHD | SD | 26.04.2023 |
| D | Foul and surface water drainage amended | SHD | SD | 06.04.2023 |
| C | Draft alternate foul arrangement shown | SHD | SD | |
| B | External levels & drainage amended | SHD | SD | 21.02.2023 |
| A | EFB, SDPC and retaining added. | IZ | SD | 07.02.2023 |

| REV | DESCRIPTION | DRN | CHD | DATE | |
|--------------------------|--------------|--------------------------|-------------|--------------------------|--------|
| <input type="checkbox"/> | PRELIMINARY | <input type="checkbox"/> | INFORMATION | <input type="checkbox"/> | TENDER |
| <input type="checkbox"/> | CONSTRUCTION | <input type="checkbox"/> | AS BUILT | | |

SCALE 1:200 @ A2 DATE Jan 2023

DRAWN IZ CHK GBR

DRAWING NO. 19081-5-WROW-500 REV G

TITLE Land at Well-Row Bayford

DETAILS Private Levels and Drainage

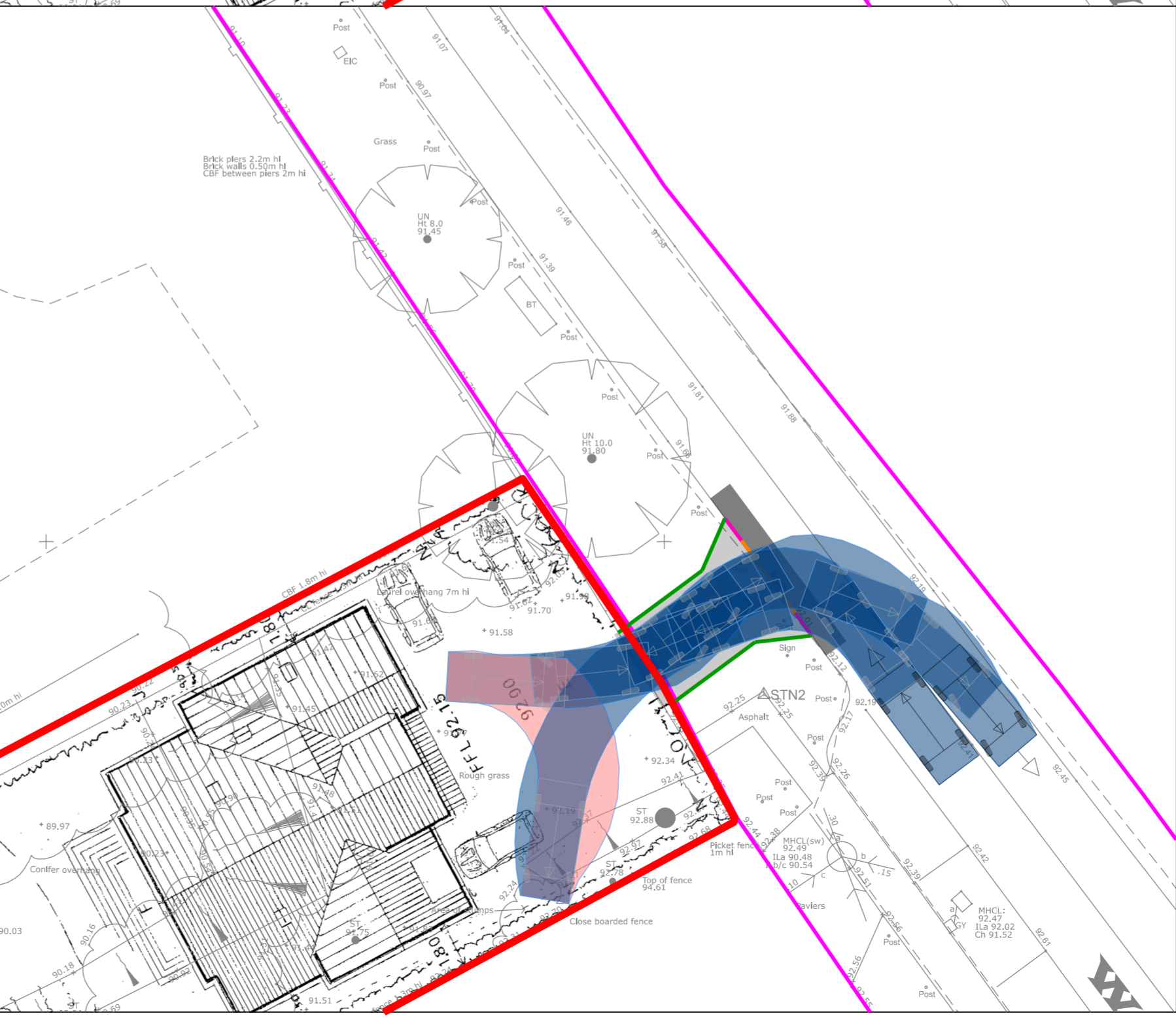
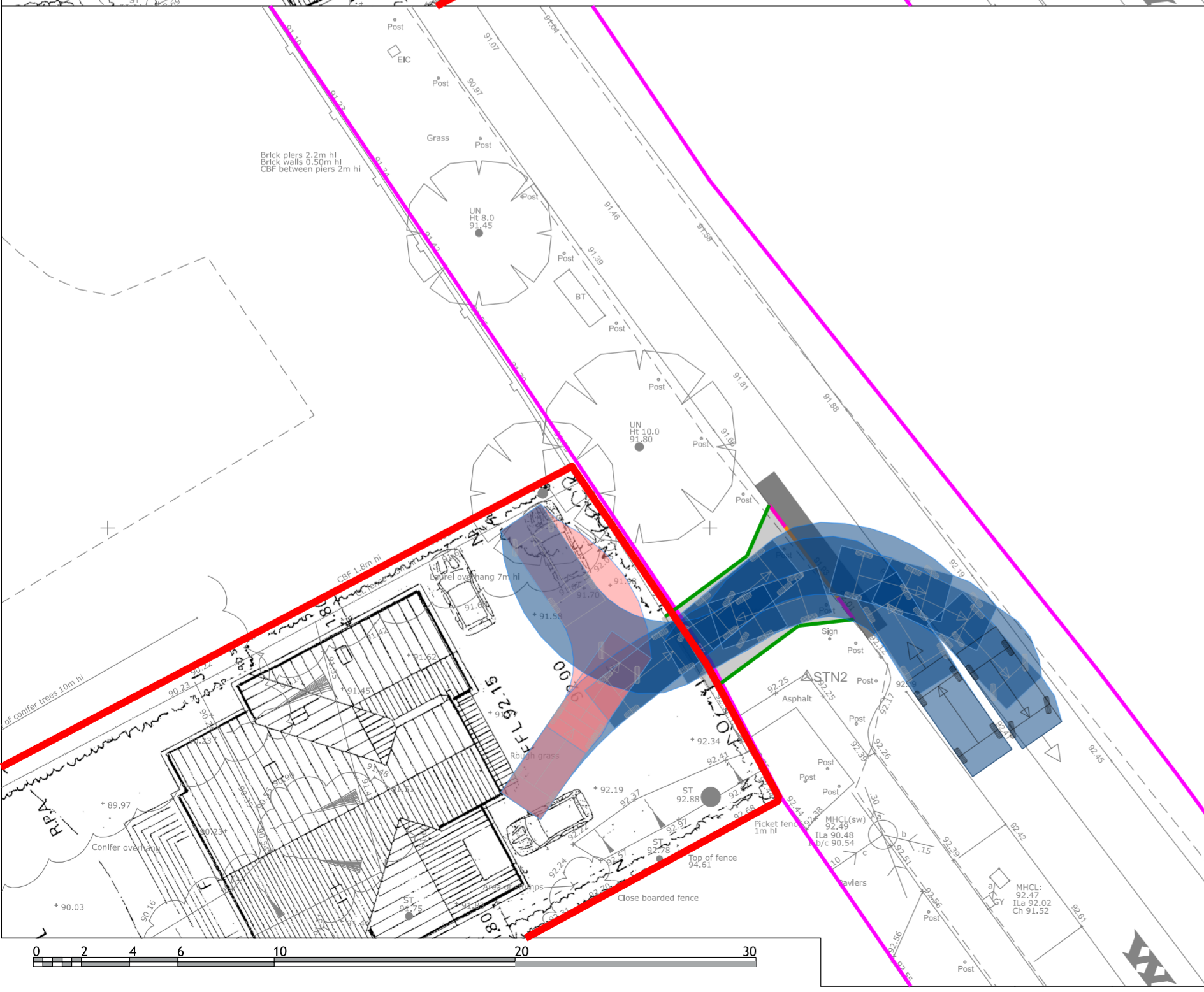
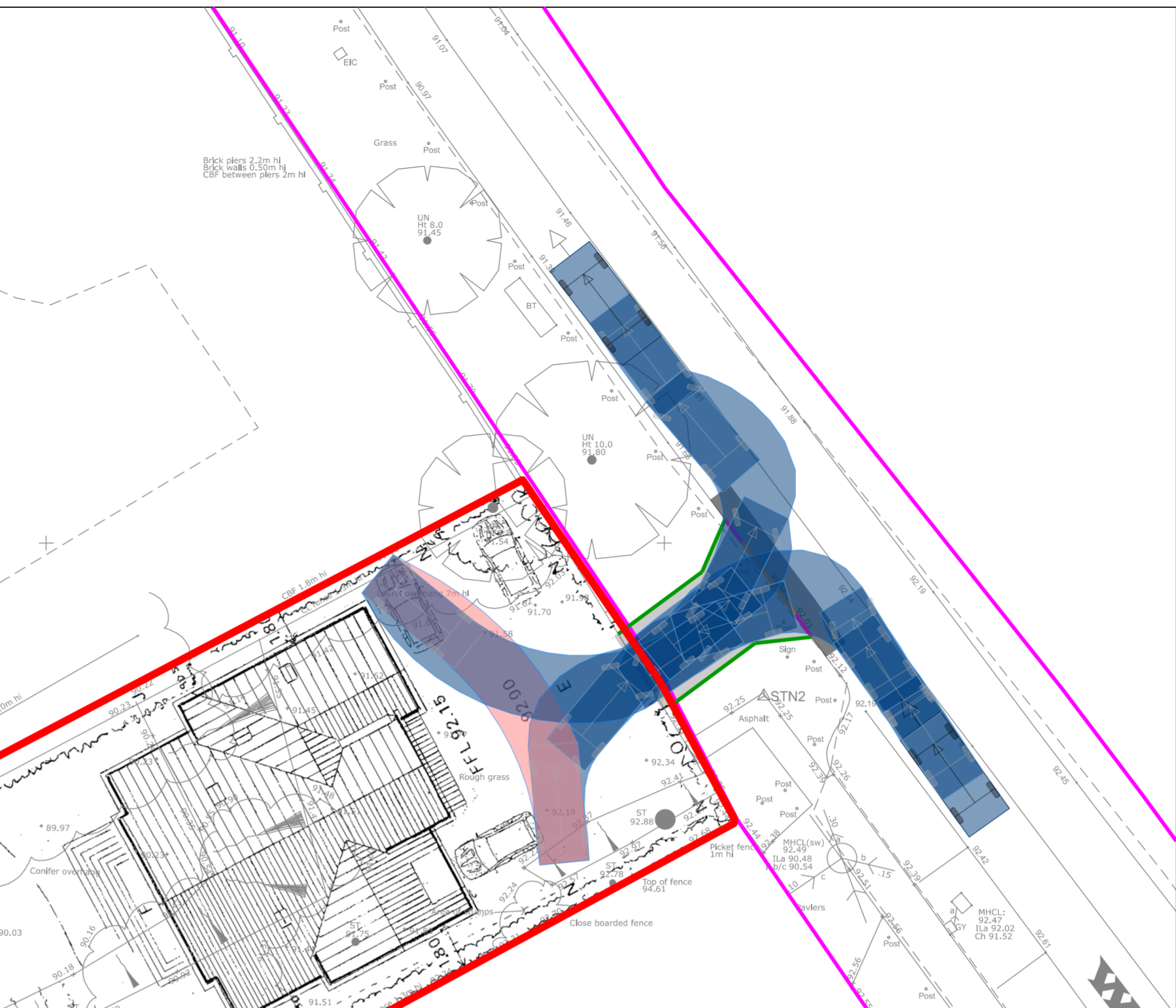
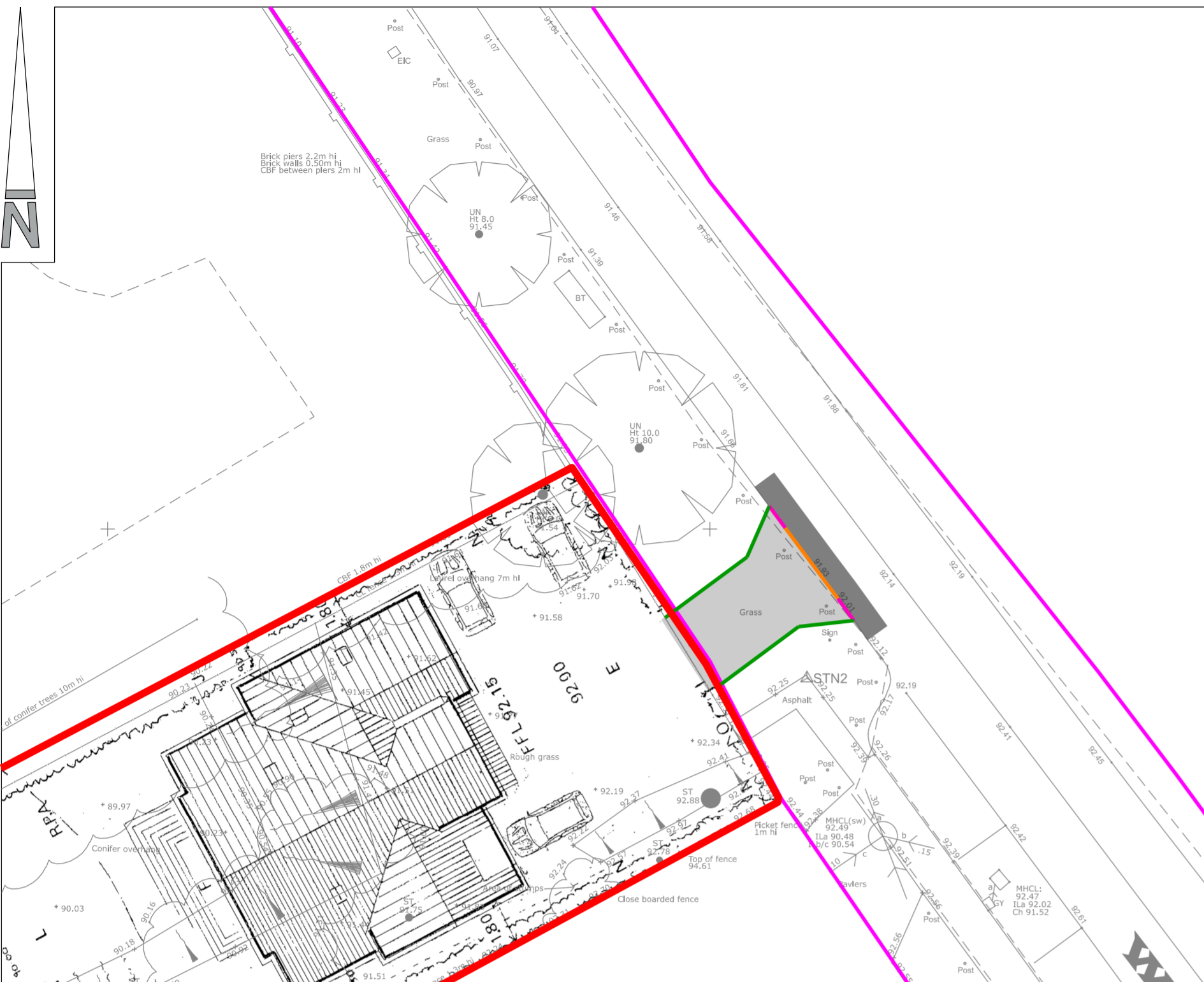
Woods Hardwick
Architecture | Engineering | Planning | Surveying

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ONLINE: mail@woodshardwick.com | woodshardwick.com

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS DRAWING



- NOTES**
- Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding. © This drawing is copyright.
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 - Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at his own risk.

SAFETY, HEALTH AND ENVIRONMENTAL

There are no exceptional risks associated with these works. Refer to the designers risk assessment for the full assessment of risks.

- KEY**
- Site Boundary
 - Highway Boundary based on plans received from Hertfordshire County Council
 - Proposed vehicular crossover
 - Vehicle in forward gear
 - Vehicle reversing

| REV | DESCRIPTION | DRN | CHD | DATE |
|-----|-----------------------------------|-----|-----|----------|
| B | Updated to latest layout | SHD | SD | 25.09.23 |
| A | Tracking updated to latest layout | SHD | SD | 21.08.23 |

SCALE 1:200 @ A2 DATE May 2022

DRAWN IZ CHK GBR

DRAWING NO. 19081-5-WROW-101 REV B

TITLE Land at Well-Row Bayford

DETAILS Site Access Tracking

Woods Hardwick
Architecture | Engineering | Planning | Surveying


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ONLINE: mail@woodshardwick.com | woodshardwick.com

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| | | |
|--|---------------------------------|---|
| Woods Hardwick | | Page 1 |
| 15-17 Goldington Road Bedford MK40 3NH | Well Row Bayford Rev A |  |
| Date 21/08/2023 10:31 File LAND NEXT TO 14 WELL RO... | Designed by IZ Checked by SD | |
| Micro Drainage | | Source Control 2018.1.1 |

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 356 minutes.


| Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max E Outflow (l/s) | Max Volume (m ³) | Status |
|------------------|---------------|---------------|------------------------|-------------------|---------------------|------------------------------|--------|
| 15 min Summer | 88.880 | 0.580 | 0.0 | 0.4 | 0.4 | 13.2 | O K |
| 30 min Summer | 88.934 | 0.634 | 0.0 | 0.5 | 0.5 | 14.5 | O K |
| 60 min Summer | 88.981 | 0.681 | 0.0 | 0.5 | 0.5 | 15.5 | O K |
| 120 min Summer | 89.007 | 0.707 | 0.0 | 0.5 | 0.5 | 16.1 | O K |
| 180 min Summer | 89.003 | 0.703 | 0.0 | 0.5 | 0.5 | 16.0 | O K |
| 240 min Summer | 88.987 | 0.687 | 0.0 | 0.5 | 0.5 | 15.7 | O K |
| 360 min Summer | 88.951 | 0.651 | 0.0 | 0.5 | 0.5 | 14.8 | O K |
| 480 min Summer | 88.920 | 0.620 | 0.0 | 0.4 | 0.4 | 14.1 | O K |
| 600 min Summer | 88.891 | 0.591 | 0.0 | 0.4 | 0.4 | 13.5 | O K |
| 720 min Summer | 88.866 | 0.566 | 0.0 | 0.4 | 0.4 | 12.9 | O K |
| 960 min Summer | 88.820 | 0.520 | 0.0 | 0.4 | 0.4 | 11.8 | O K |
| 1440 min Summer | 88.741 | 0.441 | 0.0 | 0.4 | 0.4 | 10.1 | O K |
| 2160 min Summer | 88.640 | 0.340 | 0.0 | 0.4 | 0.4 | 7.7 | O K |
| 2880 min Summer | 88.535 | 0.235 | 0.0 | 0.4 | 0.4 | 5.3 | O K |
| 4320 min Summer | 88.421 | 0.121 | 0.0 | 0.4 | 0.4 | 2.8 | O K |
| 5760 min Summer | 88.372 | 0.072 | 0.0 | 0.4 | 0.4 | 1.6 | O K |
| 7200 min Summer | 88.354 | 0.054 | 0.0 | 0.3 | 0.3 | 1.2 | O K |
| 8640 min Summer | 88.345 | 0.045 | 0.0 | 0.3 | 0.3 | 1.0 | O K |
| 10080 min Summer | 88.339 | 0.039 | 0.0 | 0.2 | 0.2 | 0.9 | O K |
| 15 min Winter | 88.951 | 0.651 | 0.0 | 0.5 | 0.5 | 14.8 | O K |

| Storm Event | Rain (mm/hr) | Flooded Volume (m ³) | Discharge Volume (m ³) | Time-Peak (mins) |
|------------------|--------------|----------------------------------|------------------------------------|------------------|
| 15 min Summer | 241.425 | 0.0 | 13.5 | 19 |
| 30 min Summer | 134.497 | 0.0 | 15.1 | 33 |
| 60 min Summer | 74.927 | 0.0 | 16.8 | 62 |
| 120 min Summer | 41.742 | 0.0 | 18.8 | 122 |
| 180 min Summer | 29.645 | 0.0 | 20.0 | 180 |
| 240 min Summer | 23.254 | 0.0 | 20.9 | 240 |
| 360 min Summer | 16.515 | 0.0 | 22.3 | 294 |
| 480 min Summer | 12.955 | 0.0 | 23.3 | 356 |
| 600 min Summer | 10.731 | 0.0 | 24.1 | 422 |
| 720 min Summer | 9.200 | 0.0 | 24.8 | 492 |
| 960 min Summer | 7.223 | 0.0 | 26.0 | 628 |
| 1440 min Summer | 5.136 | 0.0 | 27.7 | 908 |
| 2160 min Summer | 3.652 | 0.0 | 29.6 | 1316 |
| 2880 min Summer | 2.867 | 0.0 | 31.0 | 1648 |
| 4320 min Summer | 2.053 | 0.0 | 33.2 | 2296 |
| 5760 min Summer | 1.620 | 0.0 | 35.0 | 2992 |
| 7200 min Summer | 1.348 | 0.0 | 36.4 | 3672 |
| 8640 min Summer | 1.160 | 0.0 | 37.6 | 4408 |
| 10080 min Summer | 1.021 | 0.0 | 38.6 | 5136 |
| 15 min Winter | 241.425 | 0.0 | 15.2 | 19 |

Summary of Results for 100 year Return Period (+40%)

| Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max Σ Outflow (l/s) | Max Volume (m ³) | Status |
|-----------------------|---------------|---------------|------------------------|-------------------|---------------------|------------------------------|------------|
| 30 min Winter | 89.013 | 0.713 | 0.0 | 0.5 | 0.5 | 16.3 | O K |
| 60 min Winter | 89.069 | 0.769 | 0.0 | 0.5 | 0.5 | 17.5 | O K |
| 120 min Winter | 89.105 | 0.805 | 0.0 | 0.5 | 0.5 | 18.3 | O K |
| 180 min Winter | 89.107 | 0.807 | 0.0 | 0.5 | 0.5 | 18.4 | O K |
| 240 min Winter | 89.095 | 0.795 | 0.0 | 0.5 | 0.5 | 18.1 | O K |
| 360 min Winter | 89.054 | 0.754 | 0.0 | 0.5 | 0.5 | 17.2 | O K |
| 480 min Winter | 89.016 | 0.716 | 0.0 | 0.5 | 0.5 | 16.3 | O K |
| 600 min Winter | 88.981 | 0.681 | 0.0 | 0.5 | 0.5 | 15.5 | O K |
| 720 min Winter | 88.946 | 0.646 | 0.0 | 0.5 | 0.5 | 14.7 | O K |
| 960 min Winter | 88.882 | 0.582 | 0.0 | 0.4 | 0.4 | 13.3 | O K |
| 1440 min Winter | 88.769 | 0.469 | 0.0 | 0.4 | 0.4 | 10.7 | O K |
| 2160 min Winter | 88.617 | 0.317 | 0.0 | 0.4 | 0.4 | 7.2 | O K |
| 2880 min Winter | 88.470 | 0.170 | 0.0 | 0.4 | 0.4 | 3.9 | O K |
| 4320 min Winter | 88.365 | 0.065 | 0.0 | 0.3 | 0.3 | 1.5 | O K |
| 5760 min Winter | 88.346 | 0.046 | 0.0 | 0.3 | 0.3 | 1.1 | O K |
| 7200 min Winter | 88.337 | 0.037 | 0.0 | 0.2 | 0.2 | 0.9 | O K |
| 8640 min Winter | 88.332 | 0.032 | 0.0 | 0.2 | 0.2 | 0.7 | O K |
| 10080 min Winter | 88.329 | 0.029 | 0.0 | 0.2 | 0.2 | 0.7 | O K |

| Storm Event | Rain (mm/hr) | Flooded Volume (m ³) | Discharge Volume (m ³) | Time-Peak (mins) |
|-----------------------|---------------|----------------------------------|------------------------------------|------------------|
| 30 min Winter | 134.497 | 0.0 | 16.9 | 33 |
| 60 min Winter | 74.927 | 0.0 | 18.9 | 62 |
| 120 min Winter | 41.742 | 0.0 | 21.0 | 120 |
| 180 min Winter | 29.645 | 0.0 | 22.4 | 176 |
| 240 min Winter | 23.254 | 0.0 | 23.4 | 232 |
| 360 min Winter | 16.515 | 0.0 | 25.0 | 334 |
| 480 min Winter | 12.955 | 0.0 | 26.1 | 376 |
| 600 min Winter | 10.731 | 0.0 | 27.0 | 452 |
| 720 min Winter | 9.200 | 0.0 | 27.8 | 530 |
| 960 min Winter | 7.223 | 0.0 | 29.1 | 682 |
| 1440 min Winter | 5.136 | 0.0 | 31.0 | 980 |
| 2160 min Winter | 3.652 | 0.0 | 33.1 | 1408 |
| 2880 min Winter | 2.867 | 0.0 | 34.7 | 1700 |
| 4320 min Winter | 2.053 | 0.0 | 37.2 | 2288 |
| 5760 min Winter | 1.620 | 0.0 | 39.2 | 2936 |
| 7200 min Winter | 1.348 | 0.0 | 40.7 | 3680 |
| 8640 min Winter | 1.160 | 0.0 | 42.1 | 4400 |
| 10080 min Winter | 1.021 | 0.0 | 43.2 | 5120 |

| | | |
|--|---------------------------------|---|
| Woods Hardwick | | Page 3 |
| 15-17 Goldington Road Bedford MK40 3NH | Well Row Bayford Rev A |  |
| Date 21/08/2023 10:31 File LAND NEXT TO 14 WELL RO... | Designed by IZ Checked by SD | |
| Micro Drainage | | Source Control 2018.1.1 |


Rainfall Details

| | |
|-----------------------|---------------------------------|
| Rainfall Model | FEH |
| Return Period (years) | 100 |
| FEH Rainfall Version | 1999 |
| Site Location | GB 531000 209300 TL 31000 09300 |
| C (1km) | -0.025 |
| D1 (1km) | 0.271 |
| D2 (1km) | 0.274 |
| D3 (1km) | 0.291 |
| E (1km) | 0.320 |
| F (1km) | 2.508 |
| Summer Storms | Yes |
| Winter Storms | Yes |
| Cv (Summer) | 0.750 |
| Cv (Winter) | 0.840 |
| Shortest Storm (mins) | 15 |
| Longest Storm (mins) | 10080 |
| Climate Change % | +40 |

Time Area Diagram

Total Area (ha) 0.030

| Time (mins) | Area |
|-------------|----------|
| From: | To: (ha) |
| 0 | 4 0.030 |

| | | |
|--|---------------------------------|---|
| Woods Hardwick | | Page 4 |
| 15-17 Goldington Road Bedford MK40 3NH | Well Row Bayford Rev A |  |
| Date 21/08/2023 10:31 File LAND NEXT TO 14 WELL RO... | Designed by IZ Checked by SD | |
| Micro Drainage | Source Control 2018.1.1 | |

Model Details

Storage is Online Cover Level (m) 89.900

Cellular Storage Structure

Invert Level (m) 88.300 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

| Depth (m) | Area (m ²) | Inf. Area (m ²) | Depth (m) | Area (m ²) | Inf. Area (m ²) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000 | 24.0 | 24.0 | 0.900 | 0.0 | 40.7 |
| 0.800 | 24.0 | 39.7 | | | |

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0034-5000-0800-5000
 Design Head (m) 0.800
 Design Flow (l/s) 0.5
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 34
 Invert Level (m) 88.300
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

| Control Points | Head (m) | Flow (l/s) |
|---------------------------|----------|------------|
| Design Point (Calculated) | 0.800 | 0.5 |
| Flush-Flo™ | 0.151 | 0.4 |
| Kick-Flo® | 0.303 | 0.3 |
| Mean Flow over Head Range | - | 0.4 |

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

| Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) |
|-----------|------------|-----------|------------|-----------|------------|-----------|------------|
| 0.100 | 0.4 | 1.200 | 0.6 | 3.000 | 0.9 | 7.000 | 1.3 |
| 0.200 | 0.4 | 1.400 | 0.6 | 3.500 | 1.0 | 7.500 | 1.4 |
| 0.300 | 0.3 | 1.600 | 0.7 | 4.000 | 1.0 | 8.000 | 1.4 |
| 0.400 | 0.4 | 1.800 | 0.7 | 4.500 | 1.1 | 8.500 | 1.4 |
| 0.500 | 0.4 | 2.000 | 0.7 | 5.000 | 1.1 | 9.000 | 1.5 |
| 0.600 | 0.4 | 2.200 | 0.8 | 5.500 | 1.2 | 9.500 | 1.5 |
| 0.800 | 0.5 | 2.400 | 0.8 | 6.000 | 1.2 | | |
| 1.000 | 0.6 | 2.600 | 0.8 | 6.500 | 1.3 | | |

