ODYSSEY

DEVELOPING JOURNEYS

CLAY LANE, FISHBOURNE, CHICHESTER

FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY

CLAY LANE, FISHBOURNE, CHICHESTER

FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY
ON BEHALF OF GLEESON LAND

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1.0 INTRODUCTION

1.1 General

1.1.1 Odyssey has been commissioned by Gleeson Land to undertake a Flood Risk Assessment (FRA), incorporating a surface water and foul water drainage strategy to be submitted in association with a planning application for proposed residential development with public open space at Clay Lane, Fishbourne, Chichester.

1.1.2 Outline planning application (with all matters reserved except for access) is being sought for the erection of up to 105 residential dwellings including affordable housing with the provision of vehicular and pedestrian and cycle access from Clay Lane, alongside open spaces, biodiversity enhancement, sustainable urban drainage systems, landscaping, infrastructure, and earthworks. A site layout is presented in **Appendix A**.

1.1.3 This report comprises of the following elements:

- summary of relevant planning policy;
- review of existing site conditions including the hydrology, geology and existing drainage regime of the site;
- assessment of the existing flood risk to the site; and
- proposed surface water and foul drainage strategy.

2.0 EXISTING SITE CONDITIONS

2.1 Location

2.1.1 The site is located at Clay Lane, Fishbourne, approximately two kilometres (km) west of Chichester town centre. The Ordnance Survey (OS) grid reference for the centre of the site is 483946E, 105181N and the nearest postcode for the site is PO19 3QF. A site location plan is shown in **Appendix B**.

2.1.2 The northern part of the site is currently used for agricultural purposes and is bounded by residential units and a field to the north, the A27 to the east, a railway to the south and residential development to the west. The southern part of the site is currently used for agricultural purposes, and is bounded by a railway to the north, the A27 to the east, residential development to the south, and commercial developments and residential units to the west.

2.2 Topography

2.2.1 A topographical survey was completed in April 2019 by Digital Terrain Surveys, which shows the existing levels across the site. The site slopes from north to south, with the highest point at approximately 9.66 metres Above Ordnance Datum (m AOD) on the northern boundary of the site, and the lowest point at 3.51m AOD at the south of the site. The topographical survey is shown in **Appendix C**.

2.3 Hydrology

2.3.1 The nearest Environment Agency (EA) designated main river, the River Lavant, passes approximately 950 metres (m) to the south of the site. There are also existing ditches on the site, which are identified on the topographical survey in **Appendix C**.

2.3.2 The Chichester District Council (CDC) Strategic Flood Risk Assessment (SFRA) mapping shows the site is in a Nitrate Vulnerable Zone for Eutrophic Waters. The CDC SFRA mapping is presented in **Appendix D**.

2.4 Geology and Hydrogeology

2.4.1 British Geological Survey (BGS) online maps (accessed March 2022) indicate the northern part of the site is underlain by London Clay Formation (clay, silt and sand). The southern part of the site is underlain by Lambeth Group (clay, silt and sand).

2.4.2 The BGS maps indicate there are superficial head deposits (gravel, sand, silt and clay) on the eastern side of the site and River Terrace deposits (sand, silt and clay) on the western side of the site. The BGS records are presented in **Appendix E.**

2.4.3 BGS hydrogeology mapping demonstrates the northern part of the site is located within the Thames Group aquifer, described as "*Rocks with essentially no groundwater*" and summarised as a "*Predominantly clayey sequence up to 140m thick confining underlying aquifers. Occasional springs at base have very hard water*".

2.4.4 BGS hydrogeology mapping demonstrates the southern part of the site is located within the Lambeth Group aquifer, described as a "*low productivity aquifer*" and summarised as a "*Variable sequence of clays, shell beds, fine sands, silts and pebble beds giving low yields. Sometimes in hydraulic continuity with underlying Chalk aquifer*".

2.4.5 EA mapping indicates the site is situated in Groundwater Source Protection Zone (SPZ) 1.

2.4.6 BGS records show a number of borehole scans on the site. The findings from some of the records are summarised below:

2.4.7 BGS borehole scan reference SU80NW40:

- Ground Level (GL) to 0.3m below ground level (bgl) – Topsoil;
- 0.30m to 0.90m bgl – Soft light brown and orangey clay;
- 0.90m to 3.59m bgl – Firm grey and brown silty slightly sand clay;
- 3.59m to 6.00m bgl – Stiff fissured grey silty clay;
- Groundwater was encountered at 2.80m bgl.

2.4.8 BGS borehole scan reference SU80NW41:

- GL to 0.30m bgl – Topsoil;
- 0.30m to 1.50m bgl – Soft light brown and orange very sandy clay with some gravel;
- 1.50m to 3.30m bgl – Firm orange-brown and grey very sandy clay and some gravel;
- 3.30m to 6.50m bgl – Firm to stiff fissured grey silty slightly sandy clay;
- Groundwater was encountered at 2.90m bgl.

2.4.9 BGS Borehole scan reference SU80NW69:

- GL to 0.90m bgl – Soft grey-brown silty clay with some gravel;
- 0.90m to 2.40m bgl – Soft to firm grey and brown silty clay;

- 2.40m to 5.00m bgl – Firm becoming stiff grey silty clay;
- Groundwater was not encountered.

2.4.10 Groundwater monitoring was carried out between October 2019 and March 2020 by BRD and documented in the Phase 2 Geo-Environmental Site Investigation Report (Document Reference BRD3511-OR2-D, dated February 2022). The results show groundwater at the site ranges between 3.88m bgl and ground level. The groundwater monitoring data is presented in **Appendix F**.

2.5 Existing Drainage Regime

2.5.1 The site is currently undeveloped and used for agricultural purposes. It is anticipated surface water currently infiltrates into the ground, with any excess water from the northern part of the site discharging towards the railway, and excess water from the southern part of the site flowing onto the adjacent road, owing to the topography of the site.

2.5.2 According to Southern Water (SW) records, there is no existing public surface water sewer network on site. There is a surface water sewer from the northern residential area which discharges into the ditch to the north of the site. There are no other surface water sewers in the vicinity of the site.

2.5.3 SW records show there is no existing public foul sewer network on the site. There are existing public foul sewers within the residential area to the west of the site. The main sewer is located along Salthill Road, to the west of the site. There is also a foul sewer located within the residential area on the eastern side of the A27, along Clay Lane. SW records are shown in **Appendix G**.

2.5.4 The developable area for this site is less than 50ha, meaning the Institute of Hydrology (IoH) Report 124 Flood Estimation for Smaller Catchments (1994) method is suitable to estimate greenfield peak flow rates (50ha is used in the formula and the flow rate value is linearly interpolated based on the ratio of the development area). This methodology is approved in the EA's Rainfall Runoff Management for Developments Report; the parameters used are shown in **Table 2.1**.

Table 2.1 Interim Code of Practice SuDS Parameters

Parameter	Value	Unit
SAAR	769	Millimetres (mm)
Soil Index	0.400	-
Region	7	-
Urban	0.000	-

2.5.5 **Table 2.2** summarises the estimated current greenfield discharge rates for the site based on the total impermeable area (1.93ha). Supporting calculations are provided in **Appendix H**.

Table 2.2: Greenfield Run Off Rates

Return Period	Existing Greenfield Discharge Rates from Site (litres per second (l/s))	Existing Greenfield Discharge Rates per Hectare (l/s/ha)
QBAR	7.3	3.8
Q30	16.6	8.6
Q100	23.4	12.1

3.0 PLANNING POLICY

3.1 Flood and Water Management Act (2010)

3.1.1 The Flood and Water Management Act (FWMA) received royal assent on 8th April 2010. It was intended to implement Sir Michael Pitt's recommendations following the widespread summer 2007 floods. Guidance and information notes are published online by the Department for Environment, Food and Rural Affairs (Defra) to address a range of aspects concerning the act.

3.1.2 The FWMA encourages the use of Sustainable Drainage Systems (SuDS) on development sites by removing the automatic right to connect to sewers.

3.1.3 The development proposals for the site considered by this report should adhere to the FWMA through the provision of SuDS as a fundamental component of the surface water drainage scheme.

3.2 National Planning Policy Framework (2021)

3.2.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies, and how these policies should be applied. Planning Practice Guidance (PPG) is available online and provides additional guidance to the NPPF, as well as providing links to relevant current detail documents. Please refer to **Section 3.3** for further detail.

3.2.2 Paragraph 155 of the NPPF states "*inappropriate development in areas at risk of flooding should be avoided by directing development away from areas of highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere*."

3.2.3 Paragraph 163 of the NPPF states "*when determining planning applications, Local Planning Authorities (LPAs) should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*

- *Within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location.*
- *The development is appropriately flood resistant and resilient.*
- *It incorporates Sustainable Drainage Systems, unless there is clear evidence that this would be inappropriate*.

- *Any residual risk can be safely managed.*
- *Safe access and escape routes are included where appropriate, as part of an agreed emergency plan*."

3.2.4 In accordance with the NPPF, a site-specific FRA is required for sites within the following categories:

- In Flood Zone 1, all proposals involving:
  - sites of 1 hectare or more;
  - land which has been identified by the EA as having critical drainage problems;
  - land identified in a strategic flood risk assessment as being at increased flood risk in future;
  - land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use;
  - All proposals for development in Flood Zones 2 or 3.

3.3 Planning Practice Guidance (2021)

3.3.1 The PPG for Flood Risk and Coastal Change provides additional direction to the NPPF, with details provided in each section of the document on how to conform to the NPPF.

3.3.2 All land in England is classified as falling into one of three main flood zones, with the zones referring to the probability of river or sea flooding, ignoring the existence of defences. Table 1 of the PPG identifies and describes the EA flood zones as:

- Flood Zone 1: Low probability, land assessed as having less than a 1 in 1,000 annual probability of river or sea flooding (<0.1%);
- Flood Zone 2: Medium probability, land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% - 0.1%);
- Flood Zone 3: High probability, land assessed as having a 1 in 100 or greater annual probability of river flooding (≥1%), or a 1 in 200 or greater annual probability of sea flooding (≥0.5%);
- Flood Zone 3b: The Functional Floodplain, land where water has to flow or be stored in times of flood (as identified by the LPAs in the Strategic Flood Risk Assessments).

3.3.3 Paragraph 080 of the PPG sets out the following drainage hierarchy the discharge of surface water runoff should adhere to:

- into the ground (infiltration);
- to a surface water body;

- to a surface water sewer, highway drain, or another drainage system; and,
- to a combined sewer.

3.4 Non-Statutory Technical Standards for Sustainable Drainage Systems (2015)

3.4.1 The Non-Statutory Technical Standards for Sustainable Drainage Systems was published by Defra in March 2015. The standards are to be used to manage surface water runoff in accordance with Schedule 3 of the FWMA.

3.4.2 The Technical Standards document provides guidance on runoff destination, peak flow rate, volume and control of water quality and function.

3.4.3 The LPA may set local requirements for planning permissions that have the effect of more stringent requirements than those of the standards referred to above.

3.5 Chichester District Council Local Plan

3.5.1 Policy 42 of the CDC Local Plan states:

"Flood and erosion risk will be taken into account at all stages in the planning process to avoid inappropriate development in areas at current or future risk, and to direct development away from areas of highest risk.

Development in areas at risk of flooding as identified by the Environment Agency flood risk maps will be granted where all the following criteria are met:

1. *The proposal meets the sequential and exception test (where required) in relation to the National Planning Policy Framework;*
2. *A site-specific flood risk assessment demonstrates that the development will be safe, including the access and egress, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall;*
3. *The proposal incorporates specific requirements of the site, and protection, resilience and resistance measures appropriate to the character and biodiversity of the area;*
4. *Development would not result/exacerbate coastal squeeze of any European sites or prevent managed realignment that may be required to ensure no adverse effect on European sites as a result of coastal squeeze;*
5. *The scheme identifies adaptation and mitigation measures;*
6. *Appropriate flood warning and evacuation plans are in place; and*

7. *New site drainage systems are designed taking account of events which exceed the normal design standard i.e. consideration of flood flow routing and utilising temporary storage areas.*

All development will be required to ensure that, as a minimum, there is no net increase in surface water run-off. Priority should be given to incorporating Sustainable Drainage Systems (SuDS) to manage surface water drainage, unless it is proven that SuDS are not appropriate. Where SuDS are provided arrangements must be put in place for their whole life management and maintenance.

In locations where strategic flood defence or adaptation measures are necessary within the site itself, proposals will be required to demonstrate how measures have been incorporated as an intrinsic part of the scheme in a manner which meets the requirements to manage flood risk.

All development proposals must take account of relevant Surface Water Management Plans, South East River Basin Management Plan and Catchment Flood Management Plans and related flood defence plans and strategies. Financial contributions may be required from development on sites where measures to address flood risk or to improve the environmental quality of watercourses have been identified by these plans and strategies and in accordance with the overall objective of the Water Framework Directive. The reports prepared as part of the criteria above must demonstrate that the development is safe and will not increase flood risk elsewhere; will reduce overall flood risk and take into account contingency allowances, addressing climate change as set out in the NPPF Technical Guidance and the relevant Shoreline Management Plans and Coastal Defence Strategy."

4.0 SOURCES OF FLOOD RISK

4.1 Fluvial Flooding

4.1.1 Fluvial flooding is caused by flows in rivers or streams exceeding the capacity of the river channel and spilling into the floodplain. Fluvial flooding can also occur on designated floodplain land after a period of heavy rainfall.

4.1.2 The EA's Flood Map for Planning (accessed February 2022) shows the site is entirely located in Flood Zone 1; land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1% Annual Exceedance Probability (AEP)). The EA's Flood Map for Planning is presented in **Appendix D**.

4.1.3 The flood risk vulnerability classification of dwellings is deemed as 'more vulnerable'. In accordance with the PPG, development of this nature in Flood Zone 1 is acceptable.

4.1.4 There are no historic records of the site being affected by fluvial flooding in the CDC SFRA historic flood mapping. The historic flood mapping is presented in **Appendix D**. The risk of flooding from fluvial sources is considered to be low.

4.2 Surface Water Flooding

4.2.1 Surface water (pluvial) flooding is caused by rainfall levels exceeding the natural infiltration properties of the surrounding soils. Flooding can occur where there is a lack of a formalised drainage system or as a result of a poorly designed or maintained sewer system. Flooding can also occur owing to the absence of a natural method of drainage such as watercourses or ditches, or where soil infiltration rates are low. Flooding often results in ponding of water at low points or when surface water flow routes are blocked by an obstruction.

4.2.2 The EA's Risk of Flooding from Surface Water (RoFSW) mapping (accessed March 2022) shows most of the site is at 'very low' (less than 0.1% AEP) risk of pluvial flooding. There are areas at 'low' (between 0.1 and 1% AEP) risk of surface water flooding, which mainly follow the ditches present on and adjacent to the site. There are some small areas at 'medium' (between 1 and 3.3% AEP) and 'high' (greater than 3.3% AEP) risk, corresponding to existing ditches and a culvert under the railway respectively.

4.2.3 The CDC SFRA historic mapping shows two sewer or surface water drainage events which could have occurred on the south side of the site. These could coincide with the railway culvert where the greatest risk of surface water flooding is highlighted in EA mapping.

4.2.4 The risk of flooding from pluvial sources is considered to be low.

4.3 Groundwater Flooding

4.3.1 Groundwater flooding is caused by the emergence of water originating from sub-surface permeable strata. A groundwater flood event results from a rise in groundwater level sufficient for the water table to intersect the ground surface and inundate low lying land. Periods of prolonged rainfall may also be a cause of groundwater flooding, with aquifers and soils becoming saturated.

4.3.2 The CDC SFRA mapping shows the site is located in an area where the groundwater is either between 0.025m and 0.5m below the ground surface, and in an area where the groundwater levels are either at or very near (within 0.025m of) the ground surface. The risk of groundwater flooding mapping is presented in **Appendix D**.

4.3.3 Groundwater monitoring carried out for the site confirms the groundwater is at levels ranging from 0.85m bgl to the ground surface. Groundwater monitoring data is presented in **Appendix F**.

4.3.4 The CDC SFRA historic flooding mapping does not show any specific groundwater flooding incidents, however the SFRA does highlight that flooding in the Chichester area has previously been "*influenced by contributions from groundwater"*.

4.3.5 The risk of flooding from groundwater is considered to be medium.

4.4 Sewer Flooding

4.4.1 Sewer flooding can occur due to the failure of existing foul or surface water drainage infrastructure. If flows within the drainage system exceed the designed capacity, or if foreign matter causes blockages, overflow to the surface can occur, leading to flooding.

4.4.2 The CDC SFRA highlights an existing issue of sewer flooding in the Chichester area. The high groundwater level mentioned in **Section 4.3** can lead to groundwater ingress into the existing sewer network and cause over capacity in the Wastewater Treatment Works. This in turn causes emergency discharges into the receiving water bodies. In addition, the area is in a Nitrate Vulnerable Zone for Eutrophic Waters, and therefore the area is sensitive to additional foul flows which contain nitrates.

4.4.3 The site is currently greenfield, and SW records show there are no existing foul sewers on the site. The CDC SFRA historic mapping shows two incidents of sewer or surface water drainage

flooding. It is anticipated they were surface water flooding incidents due to the absence of sewers in the vicinity of the site. The CDC SFRA historic flood mapping is presented in **Appendix D**.

4.4.4 The risk of flooding from sewers for the site is currently considered to be low.

4.5 Artificial Sources

4.5.1 Failure and overtopping of reservoirs and navigable water bodies, and failure of water mains constitute the primary means of flooding from artificial sources.

4.5.2 The CDC SFRA Reservoir Flood Extents mapping shows the site is not located within an area at risk of reservoir flooding. CDC SFRA reservoir flood mapping is presented in **Appendix D**.

4.5.3 The CDC SFRA states "*there are no records of flooding from reservoirs impacting properties inside the study area"*. The study area includes the site.

4.5.4 The nearest canal to the site is Chichester Canal, which is located approximately 2km to the south-east. The CDC SFRA also states, "*There are no recorded incidents of breach or overtopping of canals within the study area"*. The study area includes the site.

5.0 SURFACE WATER DRAINAGE STRATEGY

5.1 Surface Water Drainage Strategy Requirements

5.1.1 Any surface water drainage strategy must demonstrate that the proposed development would be drained in a sustainable manner, commensurate with local and national policy. The NPPF requires that flood risk to land and property is not increased as a result of new development.

5.2 Proposed Surface Water Drainage Strategy

5.2.1 The proposed surface water management strategy described below is outlined in **Drawing 19-079-001F**, which is presented in **Appendix H.** The proposed catchment areas are shown in **Drawing 19-079-002C** which is also presented in **Appendix H**.

5.2.2 As set out in **Section 3.3**, the drainage hierarchy states the first option for surface water discharge should be infiltration. The levels of the groundwater recorded in the groundwater monitoring (see **Section 2.4**) show infiltration would not be viable, as the required 1m depth between the base of an infiltration feature and the groundwater level could not be achieved.

5.2.3 The second most-preferred option is discharge to a watercourse. There are existing drains running the length of the site. It is proposed to discharge to the ditches using gravity connections.

5.2.4 It is proposed that surface water generated by the proposed development would drain to two lined detention basins near the southern boundary of the northern part of the site. The basin volumes have been calculated to attenuate flows for all rainfall events up to a 1 in 100 year storm plus 40% to account for climate change. The total flow from the two basins would be discharged at the Qbar rate for the site.

5.2.5 Urban creep would be accounted for in drainage calculations by incorporating an additional 10% of the roof area into the total impermeable area.

5.2.6 With regards to exceedance flows, it is anticipated that surface water would be conveyed to the topographical low points on site and routed away from proposed dwellings.

5.3 Water Quality

5.3.1 Improving water quality is a key principle of a SuDS system. Steps would be taken to ensure water quality on site and of any water leaving the site is not negatively impacted by the proposed development. **Table 5.1** details the Pollution Hazard Indices of the different land use classifications

of the site, in accordance with the Construction Industry Research and Information Association (CIRIA) SuDS Manual 2015 (C753).

Table 5.1: Pollution Hazard Indices for Proposed Development

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydro-carbons
Residential	Very Low	0.2	0.2	0.05
Individual property driveways, residential car parks, low traffic roads (e.g. cul-de-sacs, home zones and general access roads) and non-residential car parking with infrequent change (e.g. schools, offices) i.e. <300 traffic movements/day	Low	0.5	0.4	0.4

5.3.2 The pollution hazard level for the proposed development would be 'low'. All surface water generated by the proposed development would be attenuated in detention basins before discharging to the ditch. The SuDS mitigation indices are presented in **Table 5.2**, in accordance with the guidance contained in the CIRIA SuDS Manual.

5.3.3 The detention basins would provide an appropriate level of surface water runoff treatment, as shown in **Table 5.2**.

Table 5.2: SuDS Mitigation Indices for Proposed SuDS Features

Type of SuDS Component	Mitigation Indices		
	Total Suspended Solids (TSS)	Metals	Hydro-carbons
Detention Basin	0.5	0.5	0.6

5.4 SuDS Maintenance Requirements

5.4.1 Maintenance of the drainage system and of any implemented SuDS features would be carried out in accordance with the manufacturer guidance and through an approved maintenance management plan to minimise the residual flood risk of drainage system blockage.

5.4.2 Maintenance would be the responsibility of the developer to assign, however for clarity in this FRA, the maintenance measures which would typically be undertaken for detention basins are included in **Appendix I**. This is information is extracted from the CIRIA SuDS Manual.

6.0 FOUL WATER DRAINAGE STRATEGY

6.1 General

6.1.1 Peak design discharges for dwellings would be calculated based on Sewerage Sector Guidance which sets out the expected foul water flow as follows:

Residential domestic flow = 4,000 litres/dwelling/day (peak)

6.1.2 There is no existing SW public foul sewer network in the immediate vicinity of the site. It is proposed that foul water from the development (4.86l/s) would be conveyed via gravity to a private wastewater treatment plant, situated at the low point near the southern boundary of the northern site. The treated effluent would discharge to the ditch.

6.1.3 A series of wetlands have been designed in the southern part of the site; water would be diverted from the ditch into the wetlands to provide nutrient removal, prior to discharge back into the ditch. The total area of the wetlands has been developed in collaboration with Natural England.

7.0 SUMMARY AND CONCLUSIONS

7.1 General

7.1.1 Odyssey has been commissioned by Gleeson Land to undertake an FRA, incorporating a surface water and foul water drainage strategy to support the proposed development at Clay Lane, Fishbourne, Chichester.

7.1.2 Based on EA flood maps, the site is shown to be located within Flood Zone 1. The site mostly lies in an area at 'very low' risk of surface water flooding, with areas of higher risk associated with existing ditches on the site and a culvert under the railway.

7.1.3 High groundwater levels show infiltration on the site would not be feasible, and therefore it is proposed to discharge to the existing ditches that run across the site. Two detention basins would be used to attenuate the surface water up to the 1 in 100 year event, including an allowance of 40% for climate change. The basins would discharge flows at a total rate equivalent to Qbar.

7.1.4 It is proposed that foul water from the development would be conveyed via gravity to a private wastewater treatment plant, situated at the low point near the southern boundary of the northern site. The treated effluent would discharge to the ditch.

7.1.5 A series of wetlands have been designed in the southern part of the site; water would be diverted from the ditch into the wetlands to provide nutrient removal, prior to discharge back into the ditch. The total area of the wetlands has been developed in collaboration with Natural England.

7.1.6 This FRA demonstrates the proposed development can be drained in a sustainable manner, commensurate with national and local policy.

APPENDIX A

Site Layout Plan

Site

LAND WEST OF CLAY LANE, FISHBOURNE

Drawing

Illustrative masterplan

Scale

1:1250@A1

Date

21.02.22

Drawing ref 1270.**02**

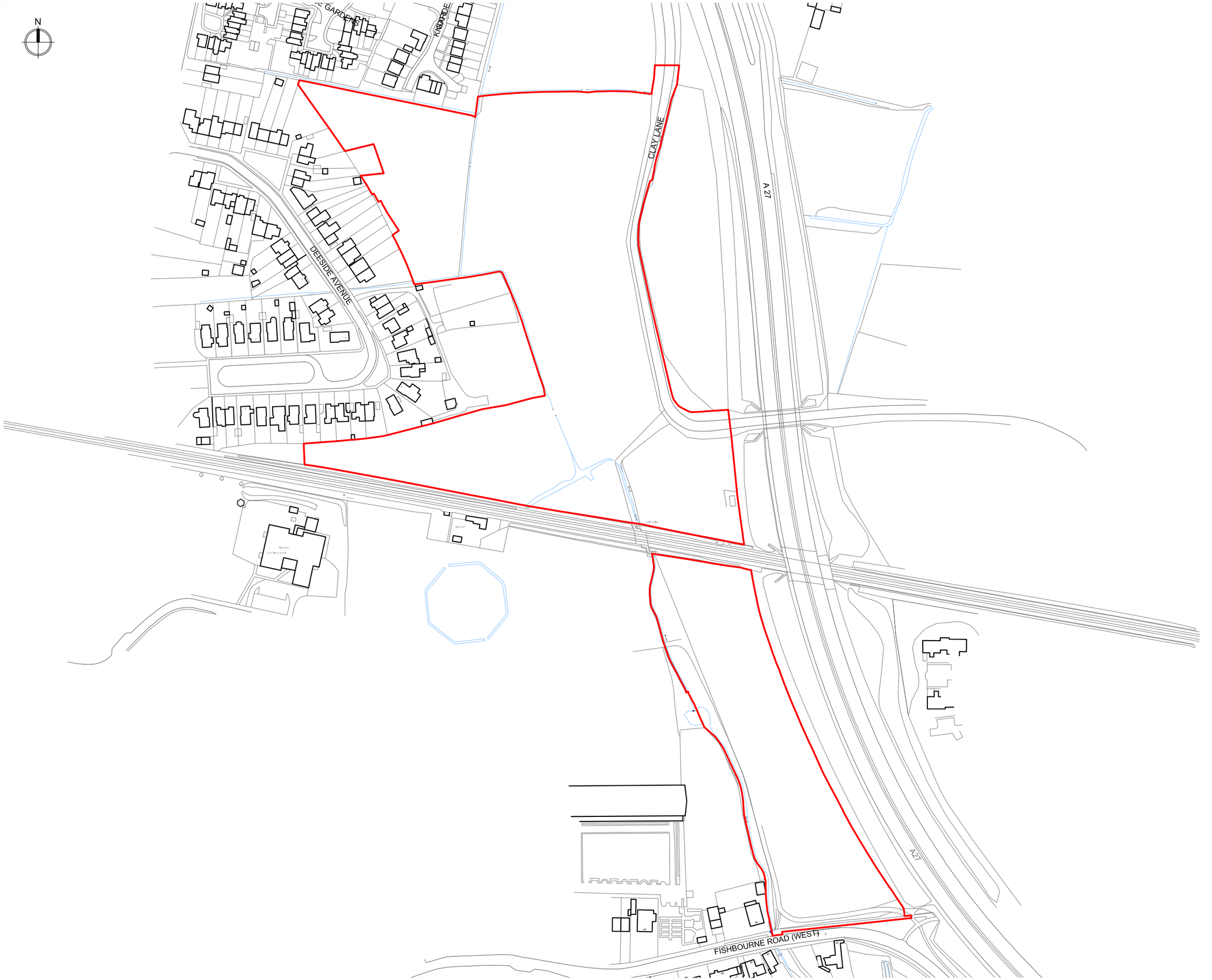
KEY

- Site boundary
- Existing public right of way
- Indicative location of proposed railway crossing

richards
urban design

APPENDIX B

Site Location Plan



Site

LAND WEST OF CLAY LANE, FISHBOURNE

Drawing

Site location plan

Scale

1:2500@A3

Date

21.02.22

Drawing ref 1270.**01**

0 20 40 60 80 100m

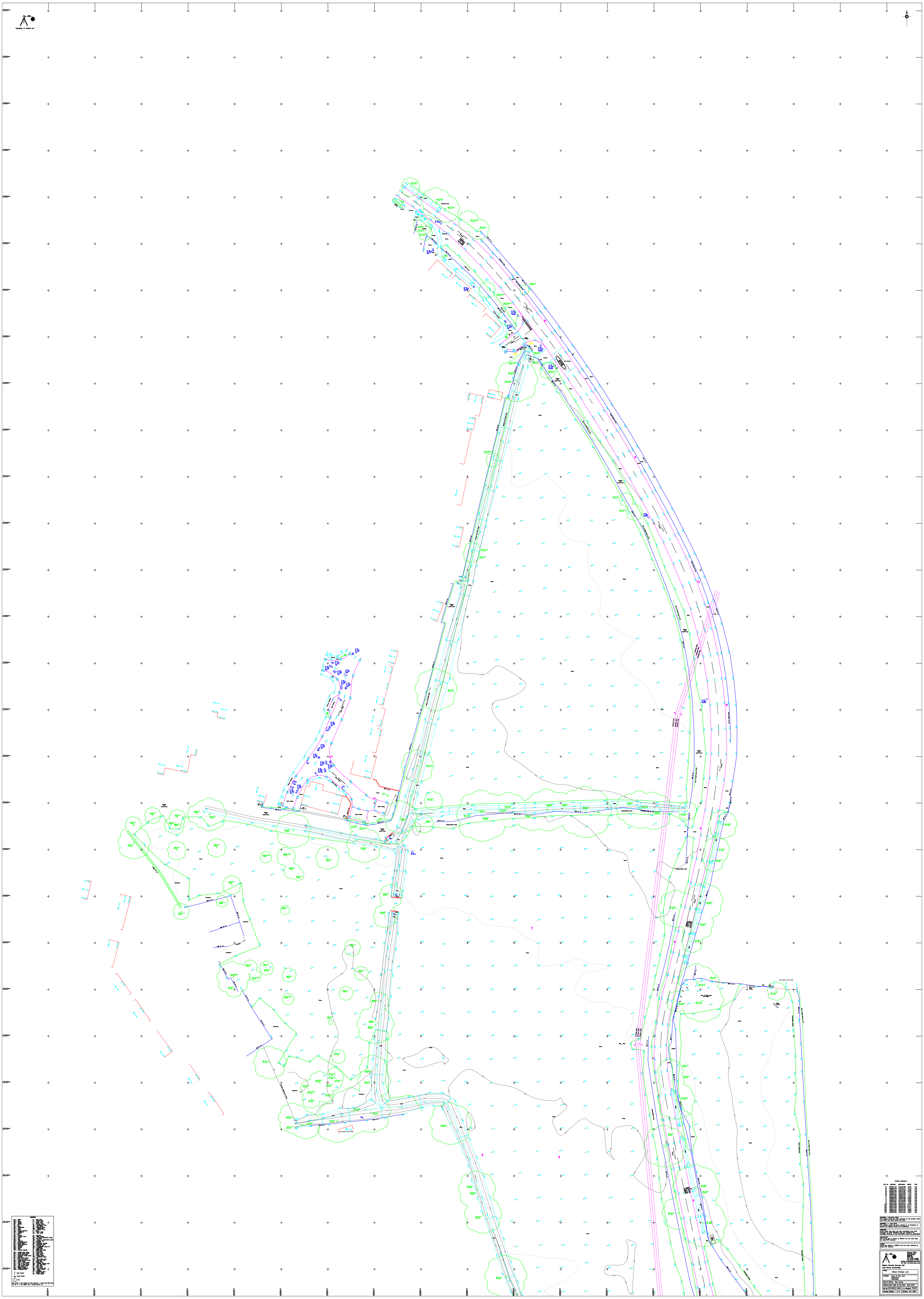
KEY

Site boundary

richards urban design

APPENDIX C

Topographical Survey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02 483886.376 105149.277 8.175 Peg
03 483907.942 105070.206 6.863 Peg
04 483938.759 105019.357 6.720 Peg
05 483959.334 105047.806 7.108 Peg
06 483984.204 105070.936 7.747 Nail
07 484031.265 105056.431 7.389 Nail
11 483980.023 105289.286 9.094 Peg
12 483968.872 105240.609 8.682 Peg
13 483959.402 105190.669 8.304 Peg
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50 483919.349 105148.374 7.924 Peg
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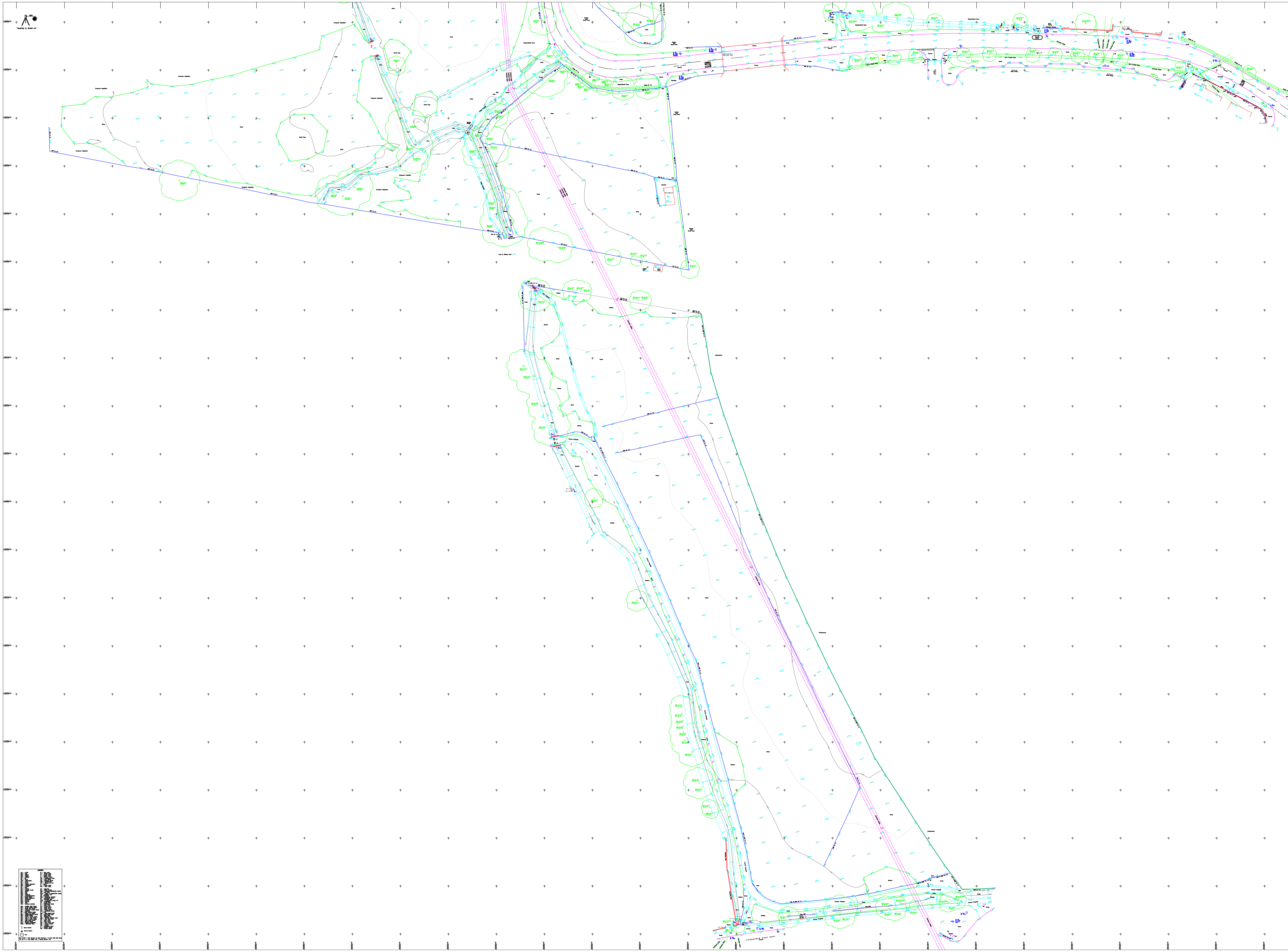
201 483951.978 105448.630 10.214 Peg
202 483913.209 105507.246 10.471 Peg
500 483991.242 105342.387 9.966 Peg
503 483820.924 105319.722 8.986 Nail
504 483839.659 105301.846 9.093 Nail
REVISION – November 2020
The original survey has been extended to the Southern field and North and South along Clay Lane.
REVISION 1 – June 2019
The original survey has been extended in all directions to include the adjacent fields and carriageway.
DRAINAGE
Invert levels, pipe sizes and pipe connections have been surveyed by visual inspection only and therefore the complete accuracy of this information cannot be guaranteed
NORTHPOINT
The survey grid is related to OSTN15 and has been fixed by using GPS receivers.
LEVELS
Levels are related to OSGM15 and have been obtained by using GPS receivers.
DTS
Tanners Court
Tanners Lane
East Wellow
ROMSEY
SO51 6DP
Tel 01794 514978
Fax 01794 517653
E-Mail sales@dtsurveys.co.uk
Web Site www.dtsurveys.co.uk
Digital Terrain Surveys LLP
Land Survey Partnership
Client Gleeson Strategic Land
Location Land at Clay Lane Fishbourne Chichester
Type of Survey Site Survey
Plotted Scale 1:500 @ A0
Date April 2019
Ref No DTS120619-06AA
Q A Checked PH/HS
Drawing Number 1 of 2
Revision Nov 2020
LEGEND
ALD – ALDER
ASH – ASH
BCH – BEECH
CED – CEDAR
CHY – CHERRY
FIR – FIR
FRT – FRUIT
HAW – HAWTHORNE
HZL – HAZEL
HLY – HOLLY
HCH – HORSE CHESTNUT
HRN – HORNBEAM
LRL – LAUREL
LIM – LIME
LOC – LOCUST
LPN – LONDON PLANE
MPL – MAPLE
OAK – OAK
PNE – PINE
POP – POPULAR
RDN – RHODODENDRONS
SIB – SILVER BIRCH
SCH – SWEET CHESTNUT
SYC – SYCAMORE
WNT – WALNUT
WLW – WILLOW
YEW – YEW
SPU – SPECIES UNKOWN
BWF – BARBED WIRE FENCE
CBF – CLOSE BOARD FENCE
CLF – CHAIN LINK FENCE
CPF – CHESTNUT PALING FENCE
HDL – HANDRAIL
IRF – IRON RAILING FENCE
LLP – LARCH LAP FENCE
Misc – MISCELLANEOUS FENCE
PKF – PICKET FENCE
PCF – POST & CHAIN FENCE
PRF – POST & RAIL FENCE
PWF – POST & WIRE FENCE
WMF – WIRE MESH FENCE
TLS – TRELLIS FENCE
RFB – RAISED FLOWERBED
RWall – RETAINING WALL
BL – BED LEVEL
CL – COVER LEVEL
FL – FLOOR LEVEL
IL – INVERT LEVEL
OL – OUTFALL LEVEL
THL – THRESHOLD LEVEL
FW – FOUL WATER
SW – SURFACE WATER
OBS – OBSTRUCTED
UTL – UNABLE TO LIFT
G – GULLY
WL – WATER LEVEL
WLL – WALL LEVEL
BO – BOLLARD
BP – BRICK PAVING
BTIC – TELECOM INSPECTION COVER
BS – BUS STOP
CATV – CABLE TV INSPECTION COVER
CB – CONTROL BOX
CC– CONCRETE
DRC – DRAINAGE CHANNEL
EP – ELECTRICITY POLE
ER – EARTHING ROD
ELCP – ELECTRICITY CABLE PIT
FB – FLOWERBED
GP – GUIDE POST
IC – INSPECTION COVER
LP – LAMP POST
LB – LETTER BOX
KO – KERB OUTLET
NP – NAME PLATE
NB – NOTICE BOARD
OHC – OVERHEAD CABLE
P – POST
RWP – RAIN WATER PIPE
RP – REFLECTOR POST
RS – ROAD SIGN
RE – RODDING EYE
SMP – SERVICE MARKER POST
SVP – SOIL VENT PIPE
SC – STOP COCK
SV – STOP VALVE
SVG – STOP VALVE GAS
TAC – TACTILE PAVING
TAR – TARMAC
TP – TELEGRAPH POLE
TL – TRAFFIC LIGHTS
WM – WATER METER
Slope Symbol
Control Station
Tree
OAK 0.3/2T = OAK Species 0.3 Bole Diameter / 2 Boles (MB Multi Bole)
12/ Sp 14 = Tree Height 12m / Canopy Spread 14m
105140mN
105120mN
105100mN
483700mE



REVISION – November 2020
The original survey has been extended to the Southern field and North and South along Clay Lane.

REVISION 1 – June 2019
The original survey has been extended in all directions to include the adjacent fields and carriageway.

DRAINAGE
Invert levels, pipe sizes and pipe connections have been surveyed by visual inspection only and therefore the complete accuracy of this information cannot be guaranteed

NORTHPOINT
The survey grid is related to OSTN15 and has been fixed by using GPS receivers.

LEVELS
Levels are related to OSGM15 and have been obtained by using GPS receivers.

DTS
Tanners Court
Tanners Lane
East Wellow
ROMSEY
SO51 6DP
Tel 01794 514976
Fax 01794 517653
E-Mail sales@dtsurveys.co.uk
Web Site www.dtsurveys.co.uk

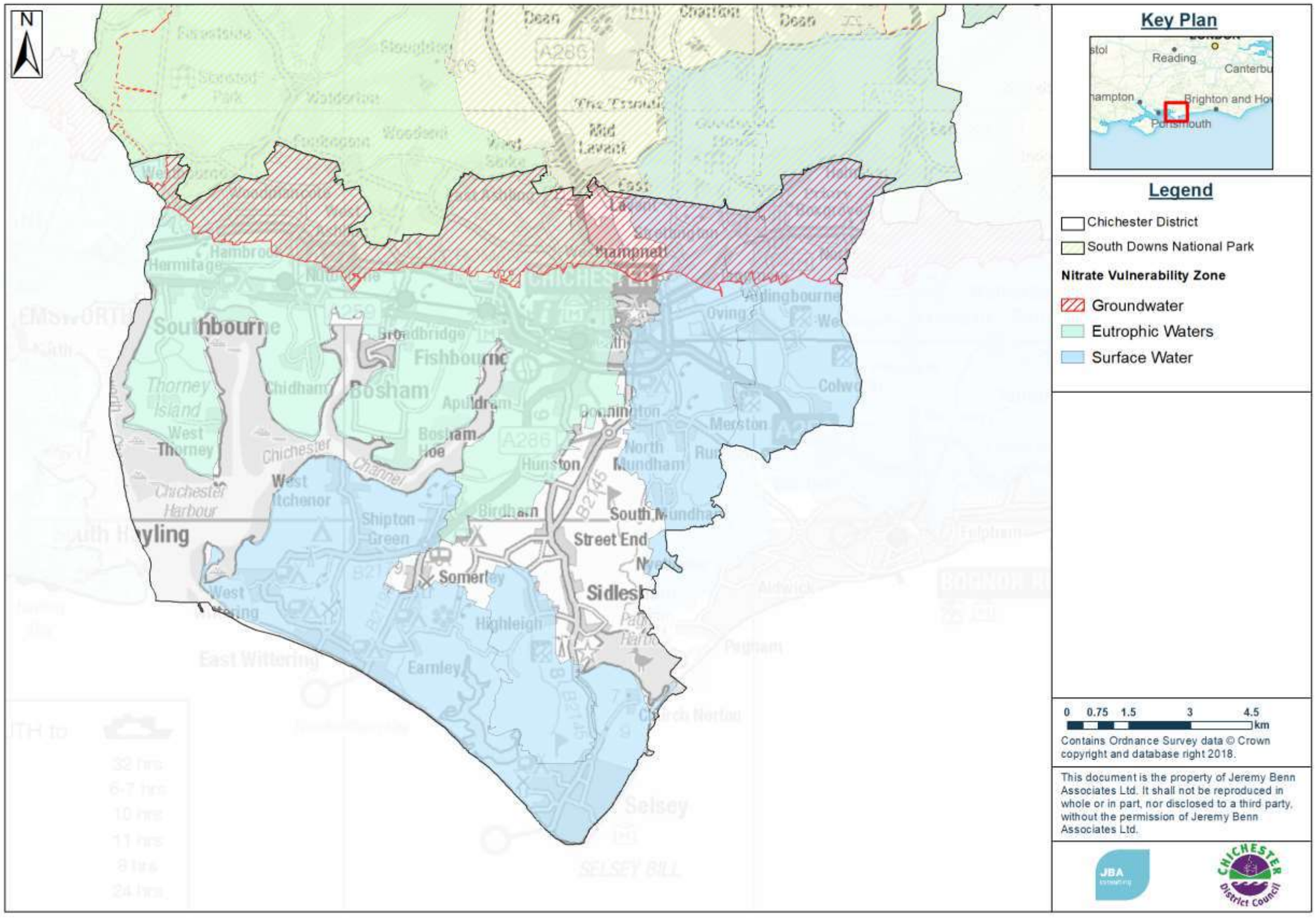
Digital Terrain Surveys LLP
Land Survey Partnership

Client	Gleeson Strategic Land
Location	Land at Clay Lane Fishbourne Chichester
Type of Survey	Site Survey
Plotted Scale 1:500 @ A0	Date April 2019
Ref No DTS120619-06AA	Q A Checked PH/HS
Drawing Number 2 of 2	Revision Nov 2020

APPENDIX D

EA and SFRA Mapping

Figure 9-5: Nitrate Vulnerability Zones in the north Local Plan area



Flood map for planning

Your reference	Location (easting/northing)	Created
19-079	**484006/105001**	**26 Jan 2022 15:28**

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

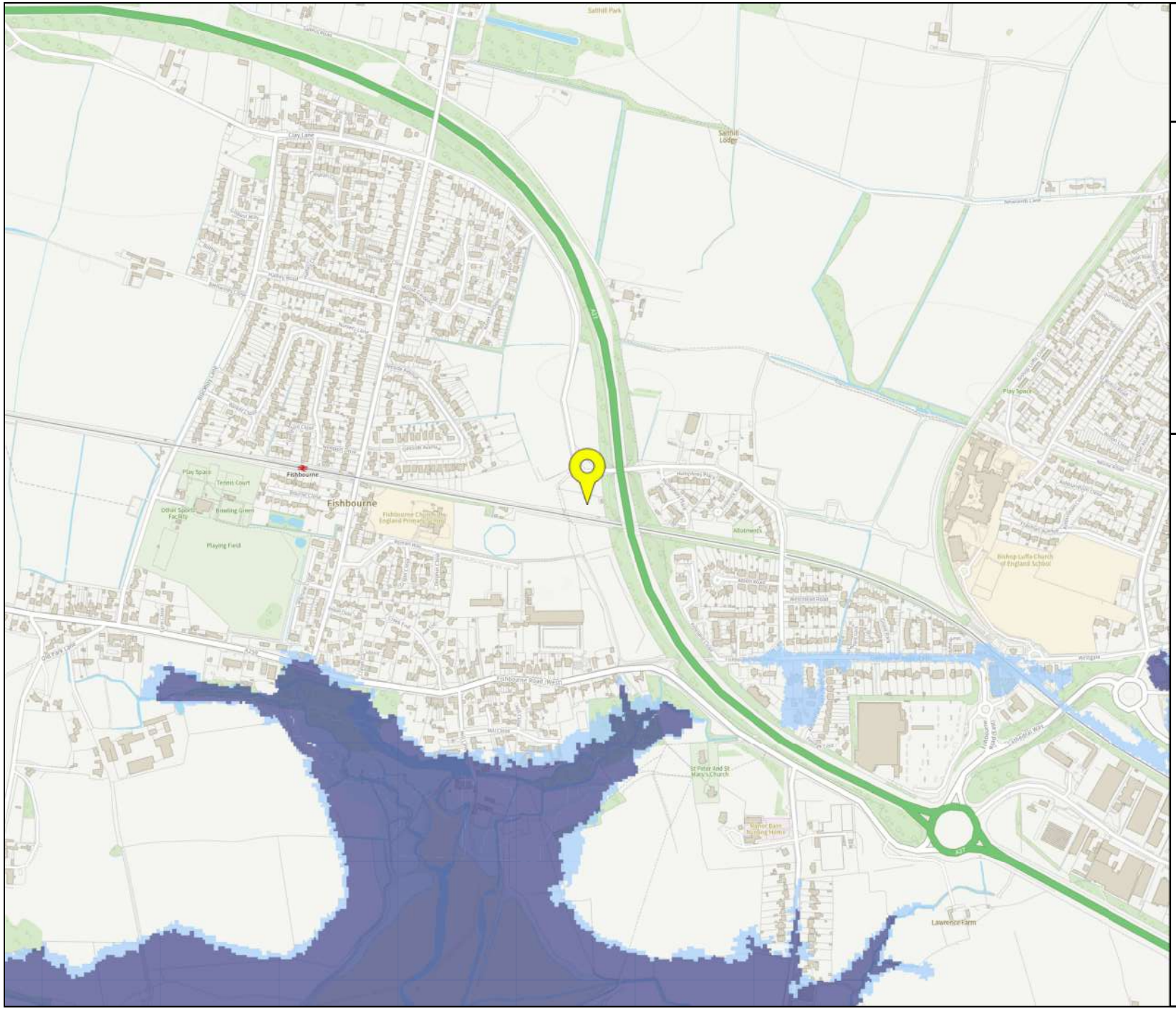
This means:

- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

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.



Environment Agency

Flood map for planning

Your reference
19-079

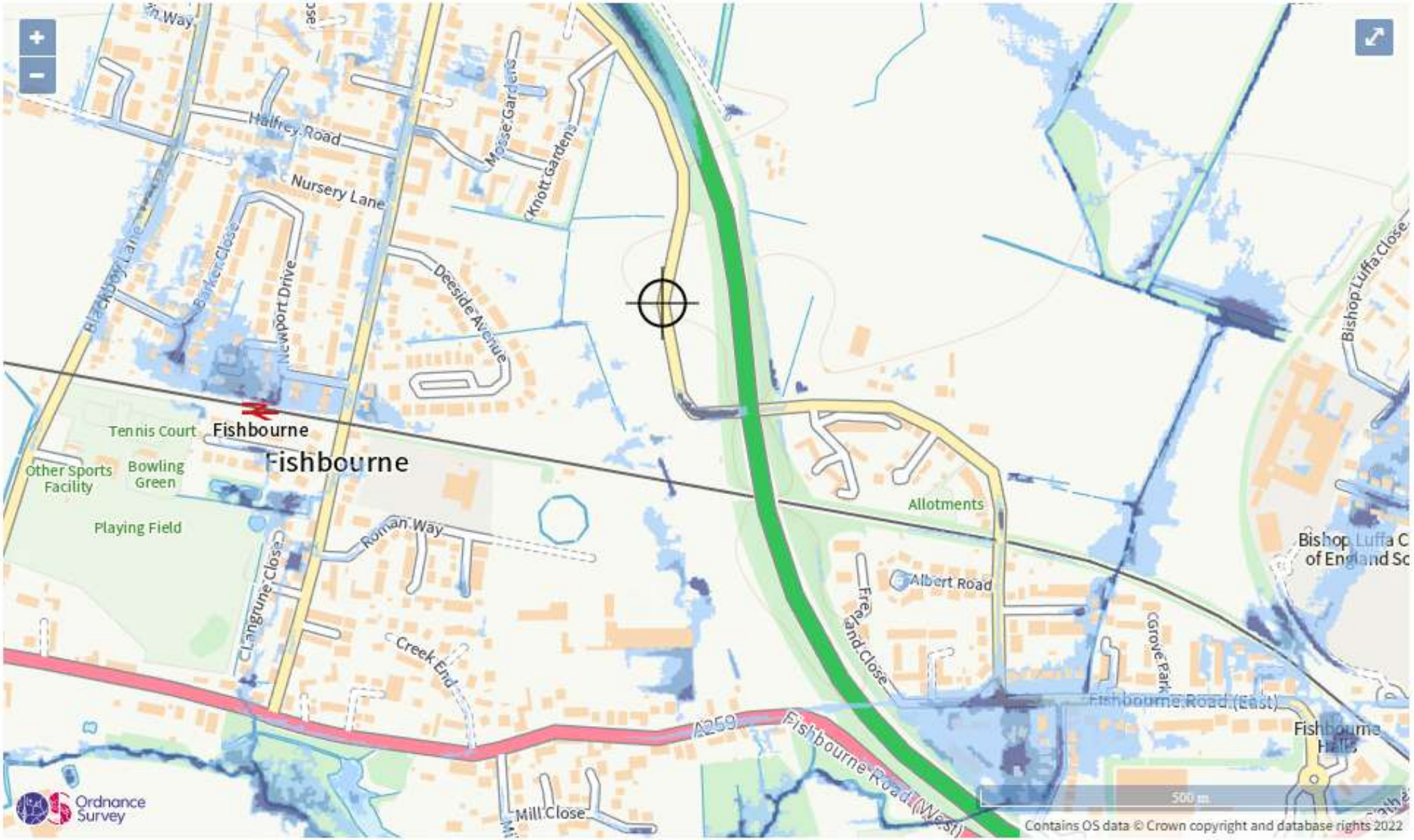
Location (easting/northing)
484006/105001

Scale
1:10000

Created
26 Jan 2022 15:28

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

0 100 200 300m



Extent of flooding from surface water

High Medium Low Very low Location you selected

N

Key Plan

Legend

- Chichester District
- South Downs National Park
- EA Recorded Flood Outlines

WSCC recorded flood incidents

- River
- Coastal
- Tidal
- Drainage (Sewer or Surface
- Failure
- Unknown
- Other

Notes

The Historic Flood Map shows the recorded incidents and flood outlines provided by West Sussex County Council and Environment Agency.

Flooding incidents provided have been categorised based upon the details provided in the records. Unknown flood points could not be determined from the information provided, and therefore could be from a number of sources.

Please note that not all historical records may be shown on this map, and that it is therefore advised you contact the Enviornment Agency or West Sussex County Council for updated information.

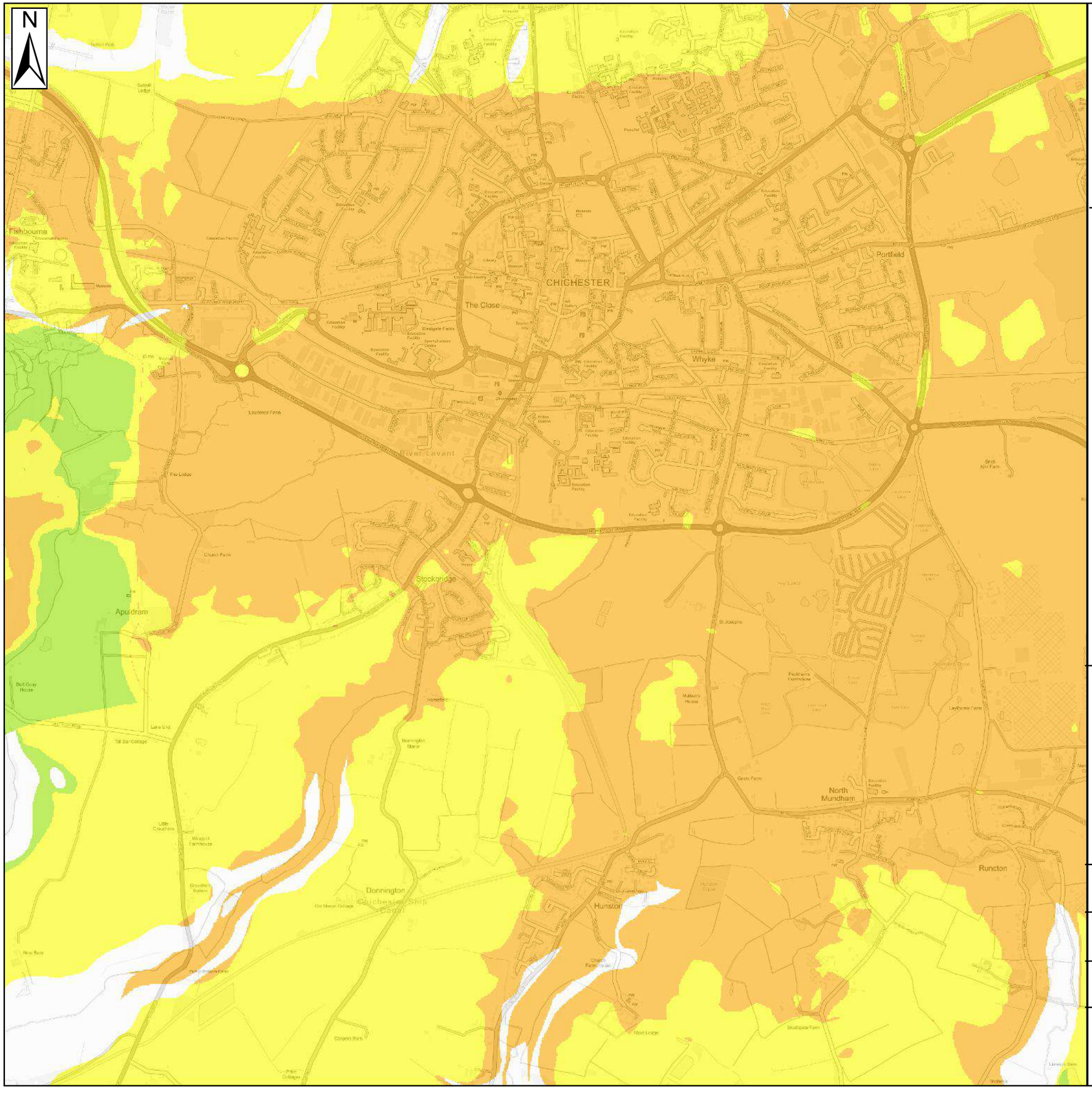
0 1.25 2.5 5 7.5 10 km

CHICHESTER DISTRICT COUNCIL

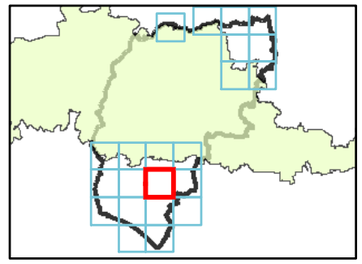
SFRA: APPENDIX B
HISTORIC FLOODING

JBA consulting

CHICHESTER District Council



Key Plan



Legend

- Chichester District
- South Downs National Park

JBA Groundwater Map

Depth

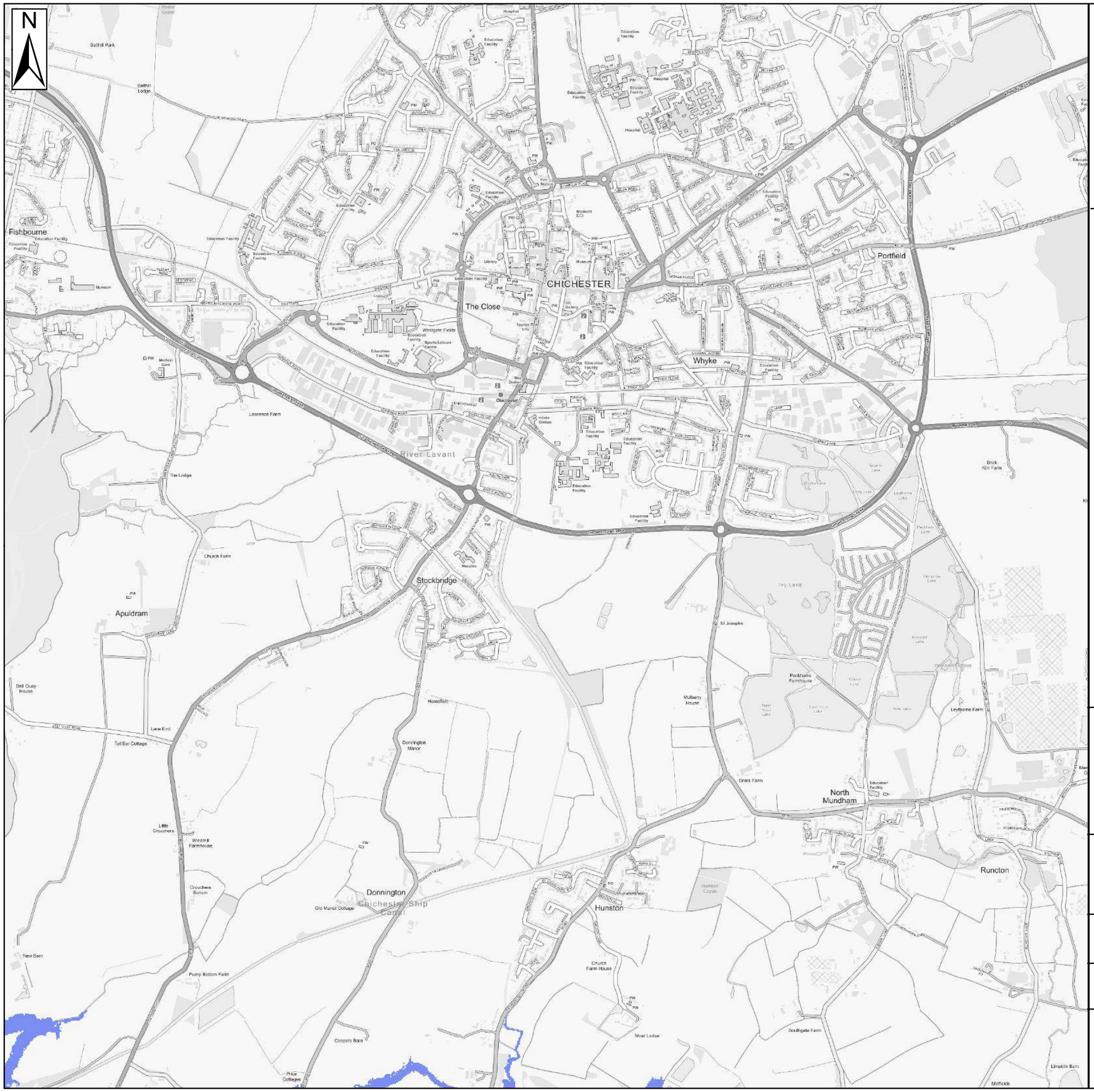
- No risk
- Groundwater levels are at least 5m below the ground surface
- Groundwater levels are between 0.5m and 5m below the ground surface
- Groundwater levels are between 0.025m and 0.5m below the ground surface
- Groundwater levels are either at or very near (within 0.025m of) the ground surface

Notes

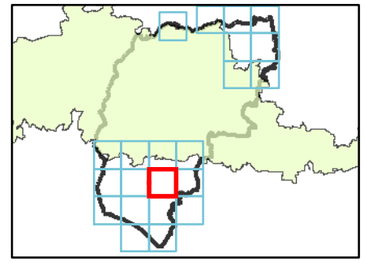
JBA has developed a range of Groundwater Flood Map products at national scale. It should be noted that the JBA Groundwater Flood Map is suitable for general broad-scale assessment of the groundwater flood hazard in an area, but is not explicitly designed for the assessment of flood hazard at the scale of a single property. In high risk areas a site-specific risk assessment for groundwater flooding is recommended to fully inform on the likelihood of flooding.

0 0.325 0.65 1.3 1.95 km

CHICHESTER DISTRICT COUNCIL
SFRA: APPENDIX G - GROUNDWATER



Key Plan



Legend

- Chichester District
- South Downs National Park
- Environment Agency Reservoir Flood Extents

Notes

The risk of inundation due to reservoir breach or failure of reservoirs within the area has been mapped using the outlines available from the Risk of Flooding from Reservoirs dataset made available by the Environment Agency. An Environment Agency programme for updating and improving this mapping is in progress and is due to be completed by 2020.

0 0.325 0.65 1.3 1.95 km

CHICHESTER DISTRICT COUNCIL
SFRA: APPENDIX H - RESERVOIR FLOOD EXTENTS

JBA consulting

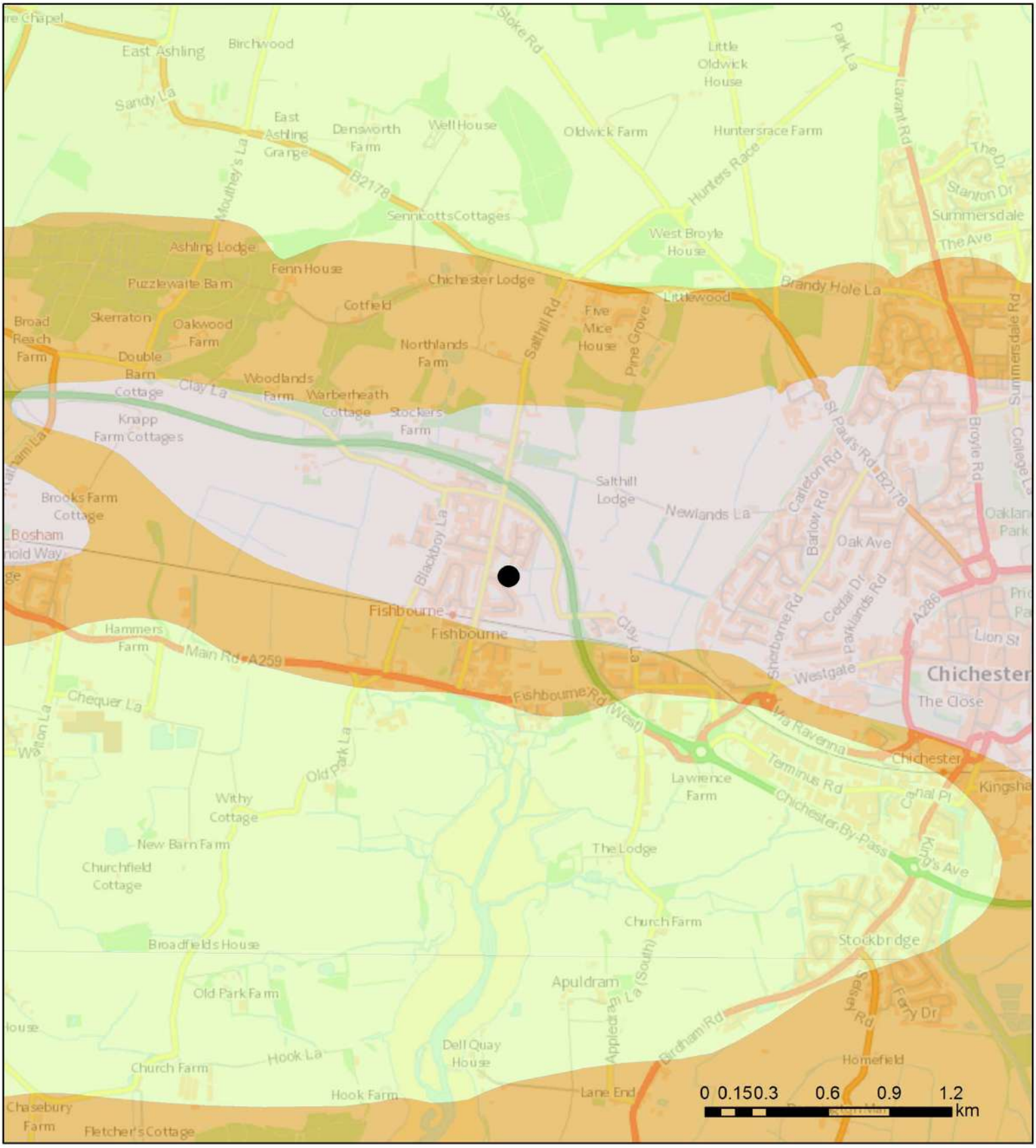
Chichester District Council

APPENDIX E

British Geological Society Data

Bedrock Geology Report

British Geological Survey



Map Key

Bedrock geology 1:50,000 scale

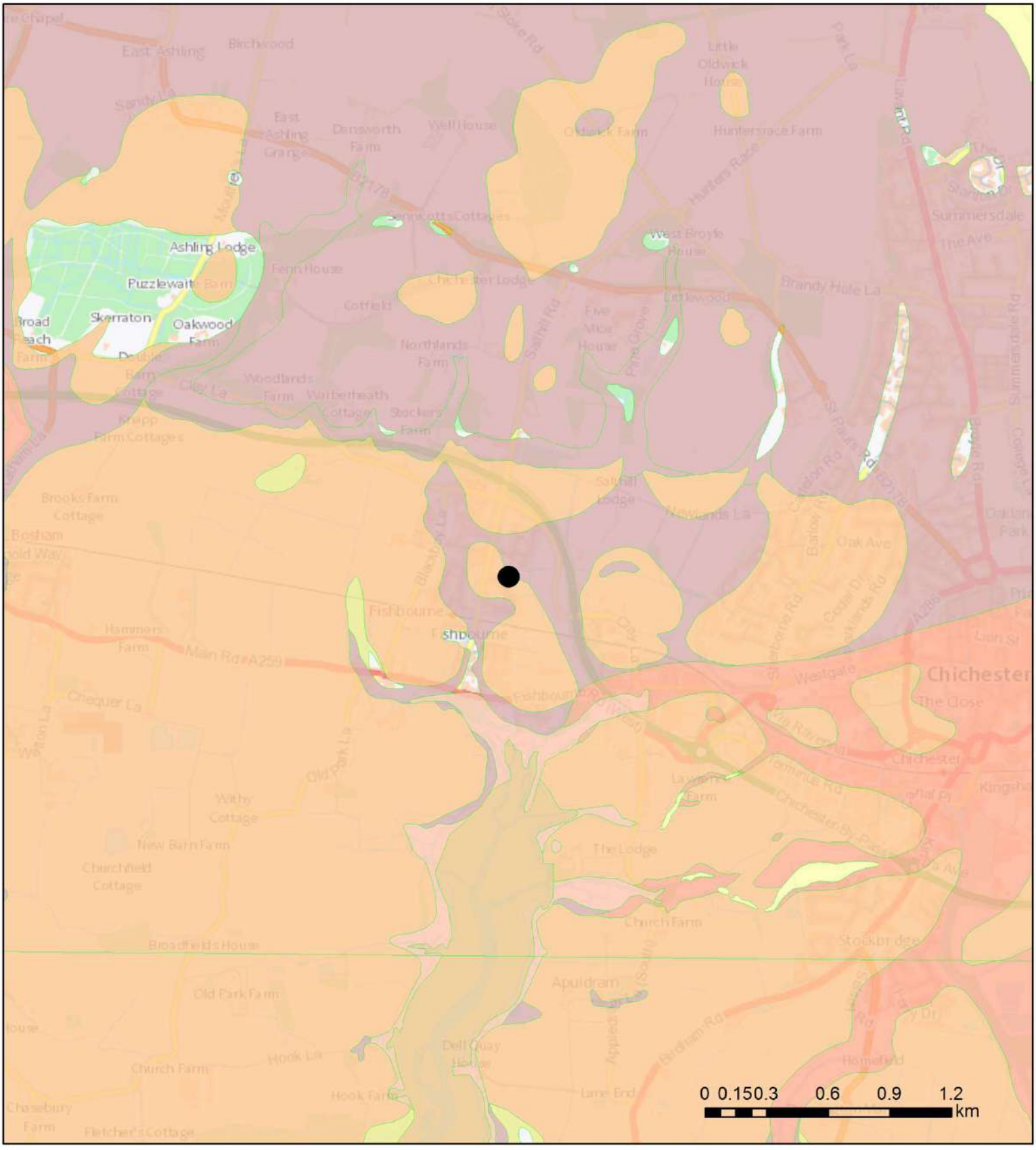

LONDON CLAY FORMATION - CLAY, SILT AND SAND


LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION, NEWHAVEN CHALK FORMATION, CULVER CHALK FORMATION AND PORTSDOWN CHALK FORMATION (UNDIFFERENTIATED) - CHALK


LAMBETH GROUP - CLAY, SILT AND SAND

Superficial Deposits

British Geological Survey



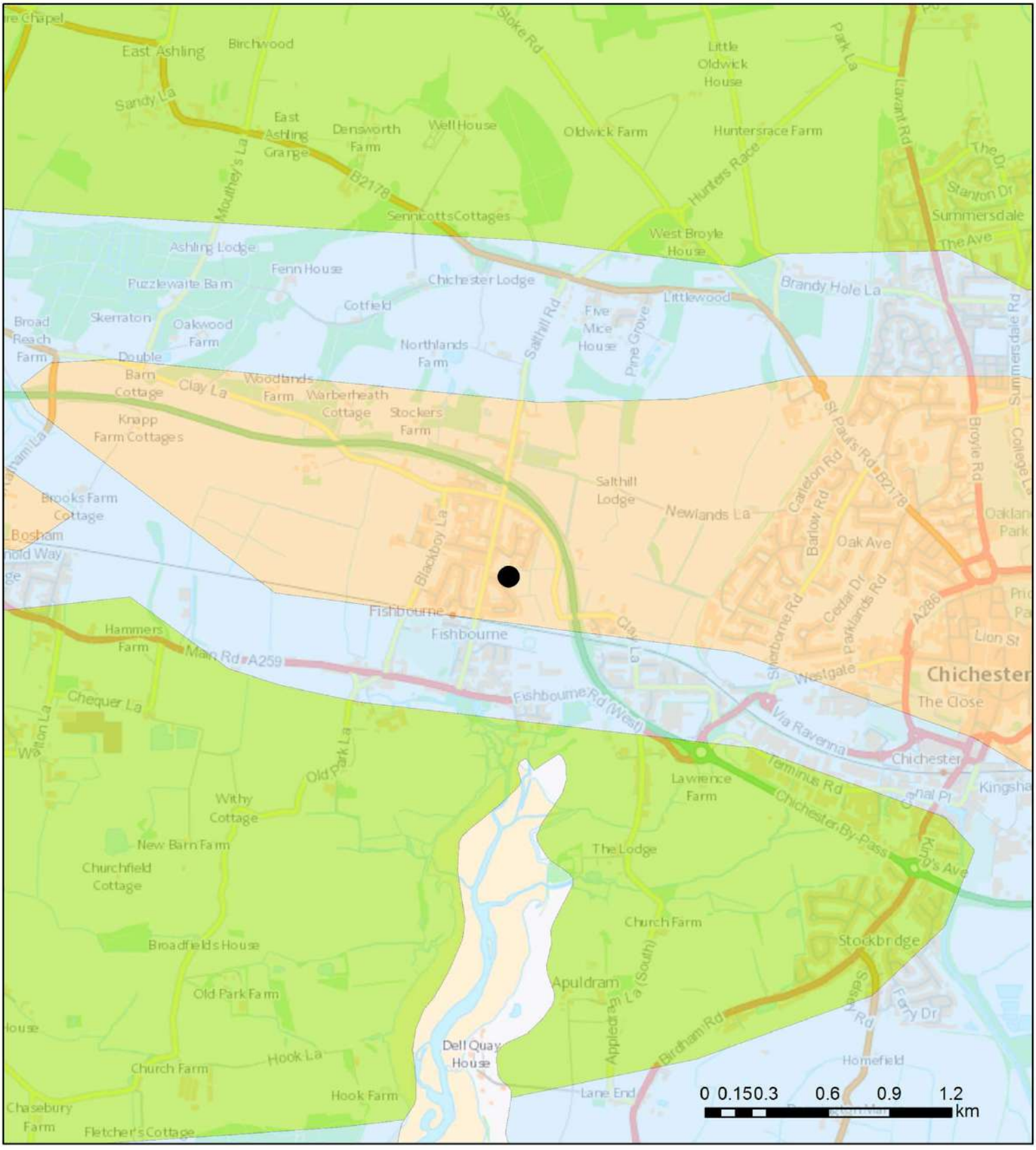
Map Key

Superficial deposits 1:50,000 scale

- ALLUVIUM - CLAY, SILT, SAND AND GRAVEL
- RAISED MARINE DEPOSITS - CLAY, SILT, SAND AND GRAVEL
- HEAD - CLAY AND GRAVEL
- RAISED BEACH DEPOSITS, 2 - SAND AND GRAVEL
- ALLUVIAL FAN DEPOSITS - CLAY, SILT, SAND AND GRAVEL
- RAISED BEACH DEPOSITS, 1 - SAND AND GRAVEL
- BEACH AND TIDAL FLAT DEPOSITS (UNDIFFERENTIATED) - CLAY, SILT, SAND AND GRAVEL
- RAISED STORM BEACH DEPOSITS, 2 - GRAVEL

Hydrogeology Report

British Geological Survey



Map Key

Hydrogeology 1:625,000 scale

Aquifers with significant intergranular flow

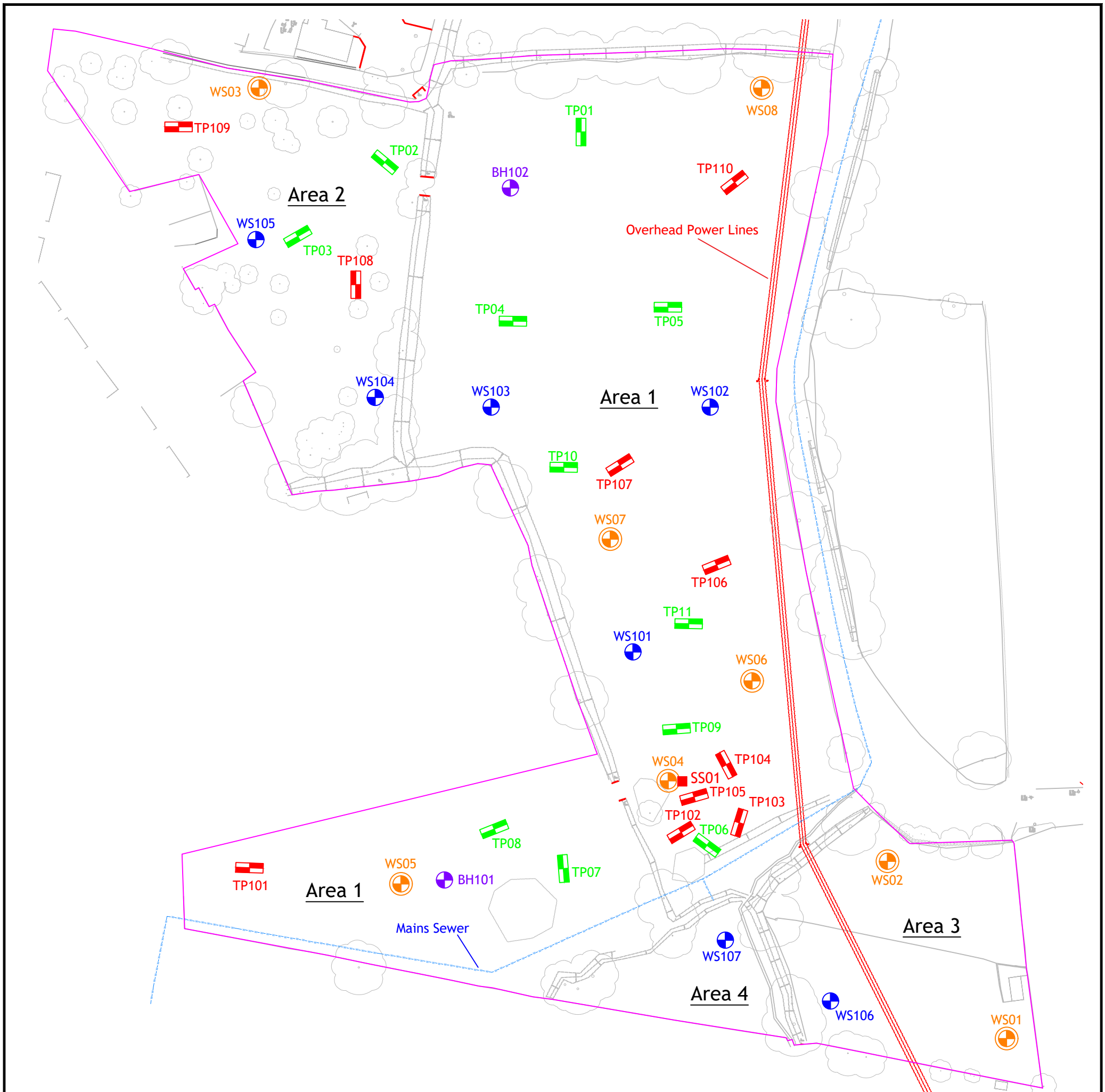
- **Highly productive aquifer**
- **Moderately productive aquifer**
- **Low productivity aquifer**

Aquifers in which flow is virtually all through fractures and other discontinuities

- **Highly productive aquifer**
- **Moderately productive aquifer**
- **Low productivity aquifer**
- **Rocks with essentially no groundwater**

APPENDIX F

Groundwater Monitoring Data



Key:

- BRD Trial Pit Locations (2021)
- BRD Windowless Sample Borehole Locations (2021)
- BRD Cable Percussive Borehole Locations (2021)
- BRD Trial Pit Locations
- BRD Windowless Sample Borehole Location with Monitoring Well Installation
- SS01 BRD Surface Sample
- BRD Site Boundary (Approximate Locations)

Area / Land Ownership:

Area 1: Gleeson Strategic Land

Area 2: West Sussex County Council

Area 3: Smith

Area 4: Gleeson Strategic Land

N

Note:

Drawing reproduced from Digital Terrain Surveys LLP
Title: Site Survey; Drawing Ref: DT5100419-06AA;
Drawing No: 1 of 2; Dated: April 2019

Area 5 not included in Exploratory Point Plan as no investigation works completed in this area. Please refer to BRD3511-OP1-B for full site boundary.

All BRD exploratory points were located using an Handheld Recreational GPS.

Revision	Date	Description	Drawn	Approved
B	08/10/21	Second Issue: Additional Exploratory Point and new topographic survey	IH	BD
A	25/10/19	First Issue: Exploratory Point Plan	DB	BD

Drawing title

EXPLORATORY POINT PLAN

Project title

LAND AT CLAY LANE, FISHBOURNE

Client

GLEESON STRATEGIC LAND

Scale	Original drg. size/colour	Date
1:1250	A3 / C	

Drawn	Checked	Approved
IH	BD	BD

Drawing Number	Rev
BRD3511-OD1	B

BRD Environmental Ltd

01295 272244
info@brduk.com
www.brduk.com

Groundwater Monitoring Record

Project: Clay Lane, Fishbourne
Client: Gleeson Strategic Land
Project No: BRD3511

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS01	29/10/2019	DB	2.01	0.00	0.60	0.40	N/A	N/A	
WS02	29/10/2019	DB	4.00	0.00	3.21	3.10	1.00	Dry	Grey / clear water (3/4 bottle)
WS03	29/10/2019	DB	4.18	0.00	Dry	Dry	N/A	N/A	
WS04	29/10/2019	DB	4.05	0.00	1.45	1.39	N/A	N/A	
WS05	29/10/2019	DB	4.06	0.00	3.88	3.82	0.00	Dry	Grey / clear water (1/4 bottle)
WS06	29/10/2019	DB	4.04	0.00	3.06	2.99	N/A	N/A	
WS07	29/10/2019	DB	3.79	0.00	0.94	0.94	11.00	3.41	Orange brown, sandy water (1 bottle)
WS08	29/10/2019	DB	4.13	0.00	2.18	2.06	6.00	3.83	Orange brown, silty water (1 bottle)

Groundwater Monitoring Record

Project: Clay Lane, Fishbourne
Client: Gleeson Strategic Land
Project No: BRD3511

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS01	27/11/2019	CB	2.01	0.00	0.06	N/A	N/A	N/A	Most of well submerged in water (including surface water)
WS02	27/11/2019	CB	4.12	0.00	0.50	0.38	N/A	N/A	
WS03	27/11/2019	CB	4.20	0.00	0.90	0.75	N/A	N/A	
WS04	27/11/2019	CB	4.12	0.00	0.79	0.67	N/A	N/A	
WS05	27/11/2019	CB	4.14	0.00	1.06	0.91	N/A	N/A	
WS06	27/11/2019	CB	4.06	0.00	N/A	N/A	N/A	N/A	Well submerged, unable to take reading due standing surface water.
WS07	27/11/2019	CB	3.92	0.00	0.82	0.72	N/A	N/A	
WS08	27/11/2019	CB	4.13	0.00	1.05	0.93	N/A	N/A	

Groundwater Monitoring Record

Project: Clay Lane, Fishbourne
Client: Gleeson Strategic Land
Project No: BRD3511

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS01	19/12/2019	DB	2.00	0.00	0.40	0.00	N/A	N/A	WS01 metal cover was flooded prior to removing gas bung.
WS02	19/12/2019	DB	4.00	0.00	0.11	0.00	N/A	N/A	WS02 metal cover was flooded prior to removing gas bung.
WS03	19/12/2019	DB	4.17	0.00	0.22	0.00	N/A	N/A	Bailed 1L of water from standpipe. Recharged within 2 minutes.
WS04	19/12/2019	DB	4.05	0.00	0.33	0.22	N/A	N/A	Rising Head test carried out in WS04. Rose 52cm within 40 minutes
WS05	19/12/2019	DB	4.05	0.00	0.22	0.07	N/A	N/A	Rising Head test carried out in WS05. Rose 34cm within 30 minutes
WS06	19/12/2019	DB	-	-	Flooded	Flooded	N/A	N/A	Area surrounding WS06 completely underwater and unable to monitor.
WS07	19/12/2019	DB	3.78	0.00	0.00	0.00	N/A	N/A	Rising head test carried out in WS07. Rose 39cm within 60 minutes
WS08	19/12/2019	DB	4.14	0.00	0.84	0.71	N/A	N/A	When opening WS08, water levels was monitored at 0.84m. The water rose from 0.84m to 0.69m within 3 minutes. (10:37am). At 11:57am, the standing water level was 0.27m.
									Areas around Window Samples:
									WS01: Areas of standing water around borehole. The borehole was flooded when opened.
									WS02: Areas of standing water around borehole. The borehole was flooded when opened.
									WS03: The ground is completely saturated with large areas around the borehole flooded.
									WS04: The ground is completely saturated with large areas around the borehole flooded.
									WS05: Saturated ground around the borehole.
									WS06: The area around WS06 is completely flooded. There are areas of standing water and unable to monitor.
									WS07: The ground around WS07 was saturated and the borehole was flooded when opened.
									WS08: The ground around WS08 was soft with localised standing water.
									Site ditches were raised but not overflowing.

Groundwater Monitoring Record

Project: Clay Lane, Fishbourne
Client: Gleeson Strategic Land
Project No: BRD3511

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS01	23/01/2020	CB	1.97	0.00	0.34	0.22	N/A	N/A	
WS02	23/01/2020	CB	4.13	0.00	0.34	0.21	N/A	N/A	
WS03	23/01/2020	CB	4.21	0.00	0.28	0.13	N/A	N/A	
WS04	23/01/2020	CB	4.13	0.00	0.85	0.72	N/A	N/A	
WS05	23/01/2020	CB	4.13	0.00	0.48	0.33	N/A	N/A	
WS06	23/01/2020	CB	-	-	Flooded	Flooded	N/A	N/A	Area around WS06 flooded.
WS07	23/01/2020	CB	3.94	0.00	0.23	0.11	N/A	N/A	
WS08	23/01/2020	CB	4.15	0.00	0.29	0.19	N/A	N/A	

Groundwater Monitoring Record

Project: Clay Lane, Fishbourne
Client: Gleeson Strategic Land
Project No: BRD3511

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS01	20/02/2020	DB	2.01	0.00	0.12	Flooded	N/A	N/A	
WS02	20/02/2020	DB	4.01	0.00	0.12	0.02	N/A	N/A	
WS03	20/02/2020	DB	4.17	0.00	0.10	Flooded	N/A	N/A	
WS04	20/02/2020	DB	4.15	0.00	0.55	0.45	N/A	N/A	
WS05	20/02/2020	DB	4.05	0.00	0.10	Flooded	N/A	N/A	
WS06	20/02/2020	DB	-	-	Flooded	Flooded	N/A	N/A	Area around WS06 flooded.
WS07	20/02/2020	DB	3.94	0.00	0.12	Flooded	N/A	N/A	
WS08	20/02/2020	DB	4.10	0.00	0.13	0.03	N/A	N/A	

Groundwater Monitoring Record

Project: Clay Lane, Fishbourne
Client: Gleeson Strategic Land
Project No: BRD3511

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS01	19/03/2020	DB	2.01	N/A	Flooded	Flooded	N/A	N/A	
WS02	19/03/2020	DB	4.00	N/A	0.10	Flooded	N/A	N/A	
WS03	19/03/2020	DB	4.16	N/A	Flooded	Flooded	N/A	N/A	
WS04	19/03/2020	DB	4.15	N/A	0.47	0.35	N/A	N/A	
WS05	19/03/2020	DB	4.04	N/A	Flooded	Flooded	N/A	N/A	
WS06	19/03/2020	DB	4.01	N/A	Flooded	Flooded	N/A	N/A	
WS07	19/03/2020	DB	3.94	N/A	Flooded	Flooded	N/A	N/A	
WS08	19/03/2020	DB	4.12	N/A	0.24	0.14	N/A	N/A	

APPENDIX G

Southern Water Sewer Records

CORNERSTONE PROJECTS LTD

SEWER

91 Market Street Hoylake Wirral CH47 5AA
Tel. 0151 632 5142
enquiries@cornerstoneprojects.co.uk
www.cornerstoneprojects.co.uk
VAT Reg. No. 851 4941 19
Company No. 5132353

from
Southern Water

Cornerstone Projects Ltd
91
Market Street
Wirral
CH47 5AA

Your ref 9028
Our ref 353810
Date 26 September 2019
Contact searches@southernwater.co.uk
Tel 0845 272 0845
0330 303 0276
Fax 01634 844514

Attention: Jake Hughes

Dear Customer

Re: Provision of public sewer record extract
Location: Fishbourne, Clay Lane, Chichester, PO19 3FE

Thank you for your order regarding the provision of extracts of our sewer and/or water main records. Please find enclosed the extracts from Southern Water's records for the above location.

We confirm payment of your fee in the sum of £49.92 and enclose a VAT receipt for your records.

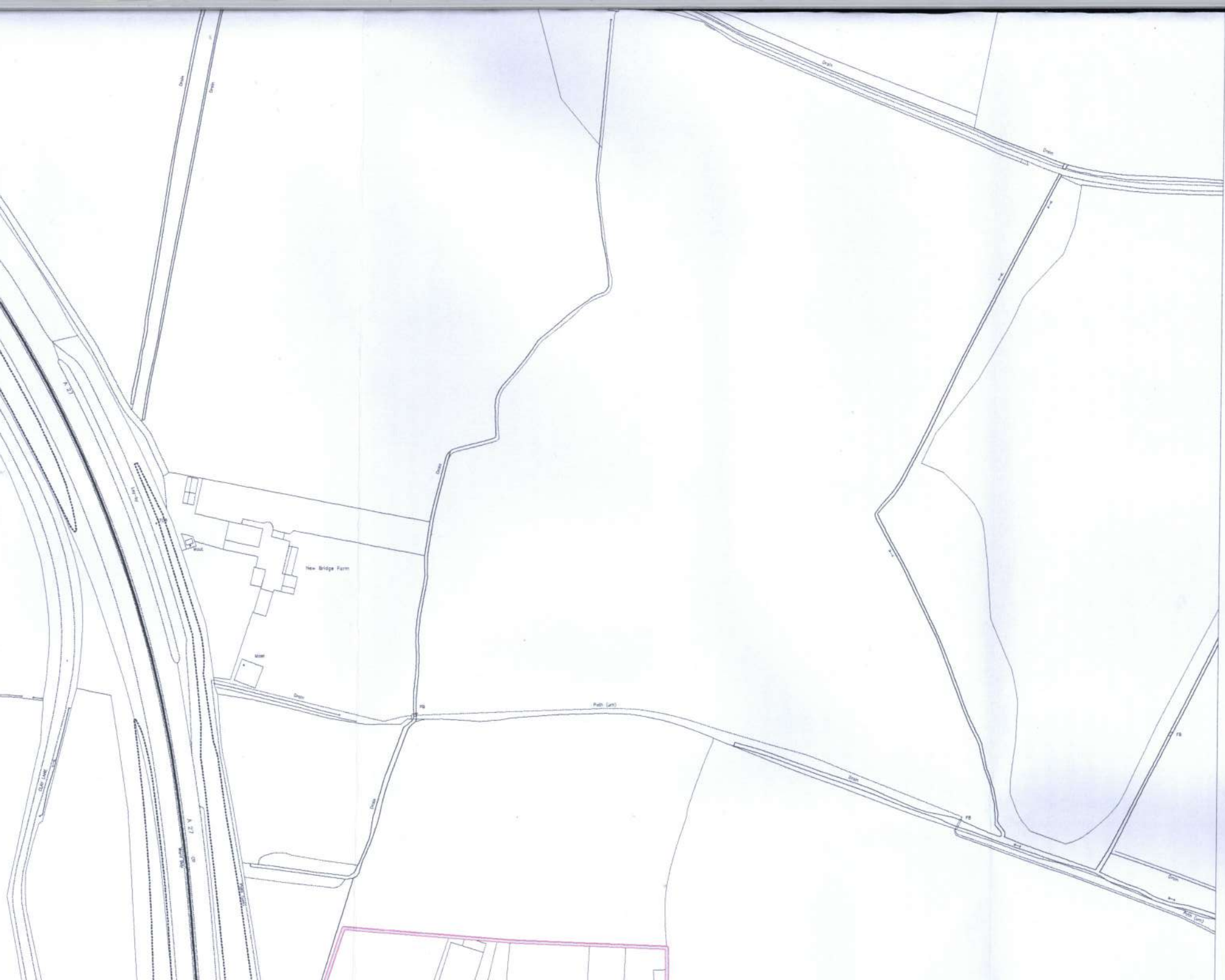
Customers should be aware that there are areas within our region in which there are neither sewers nor water mains. Similarly, whilst the enclosed extract may indicate the approximate location of our apparatus in the area of interest, it should not be relied upon as showing that further infrastructure does not exist and may subsequently be found following site investigation. Actual positions of the disclosed (and any undisclosed) infrastructure should therefore be determined on site, because Southern Water does not accept any responsibility for inaccuracy or omission regarding the enclosed plan. Accordingly it should not be considered to be a definitive document.

Should you require any further assistance regarding this matter, please contact the LandSearch team.

Yours faithfully

LandSearch


CLAY LANE P STN
CLAY LANE
Rudkin Place
Chestnut Court
Venice Court
New Bridge Farm
Drain
Wood



2803X	7.98	6.15	15
2804X			UI
2805X			UI
2806X			UI
280DX			UI
281DX			22
2850X	8.18	6.53	22
2851X	7.98	6.36	22
2901X	8.84	7.17	22
3001X	8.2	4.25	30
3101X	7.58	6.52	17
3102X	7.38	6.39	17
3103X	7.27	6.23	17
3104X			UN
3201X	8.61	6.55	22
3202X	8.3		22
3203X	8.27	7.03	15
3207X			UN
3208X			UN
320DX			22
3301X	8.82	6.83	22
3302X			15
3401X	9.85	8.53	15
3402X	9.38	8	15
3403X			10
3404X			UN
3405X			UN
3406X			UN
340DX			17
341DX			UN
342DX			UN
343DX			UN
344DX			15
3450X			22
345XX	9.31		22
3501X	11.2	9.88	15
3502X	11.02	9.65	15
3602X			UN
3603X			UN
3701X	5.63		30
3701X	5.79	1.97	22
3702X	4.54	3.4	30
3702Y	4.54	3.84	15
3703X	4.61	3.02	22
3704X			UN
3705X			UN
3707X			UN
370DX			30
371DX			30
3801X	6.77	3.79	30
3802X	6.52	5.44	22
3901X	7.85	4.17	30
3902X	7.55	4.04	30
3903X			UN
3904X			UN
4001Y			15
4001X			15
4101X	7.51	6.78	15
4102X	7.39	6.49	17
4105X			UN
4106X			UN
4107X			UN
4201X	7.56	6.97	15
4202X	8.01	7.29	15
4203X			UN
420DX			15
4250X			UN
4301X	8.35	7.47	15
4302X			10
4401X	9.96	8.5	17
4402X	9.46	8.3	15
4403X	9.8	8.78	15
4404X	9.28	8.16	15
4405X	9.18	7.86	22
4406X			15
440DX			10
4501X	11.34	9.59	17
4502X	10.64	9.08	17
4601X	4.51	2.94	52
4601X	13.105	10.66	17
4601X	3.62	1.523	37
4602X			UN
4602X	12.3	10.93	15

Fishbourne
Fishbourne C of E Primary School
Fishbourne Roman Palace (Museum)
Museum
ROMAN PALACE (remains of)
Pond
Drain
BOURNE CLOSE
BEAVER CLOSE
ASSUMED
150 VC
225 VC
150 PF
Path (um)

4404X	9.28
4405X	9.18
4406X	
440DX	
4501X	11.34
4502X	10.64
4601X	4.51
4601X	13.10
4601X	3.62
4602X	
4602X	12.3
4602X	3.61
4603Y	3.5
4603X	3.5
4603X	12.44
4603X	
4604X	
4604X	11.78
4604X	3.55
4605X	
4606X	
4607X	
4608X	
460BX	
460DX	
4610X	
4611X	
4612X	
4613X	
4614X	
4616X	
4617X	
4618X	
4619X	
461BX	
461DX	
4620X	
462BX	
462DX	
463BX	
463DX	
464DX	
4650X	12.36
4651X	11.77
46BBX	
46CBX	
46DBX	
46EBX	
46FBX	
46JBX	
4701X	4.31
4702Y	3.66
4702X	4.73
4703X	4.75
4704X	4.96
4705X	
4706X	
4707X	
4708X	
470DX	
471DX	
475DX	
4801X	5.71
5001X	7.13

LINE

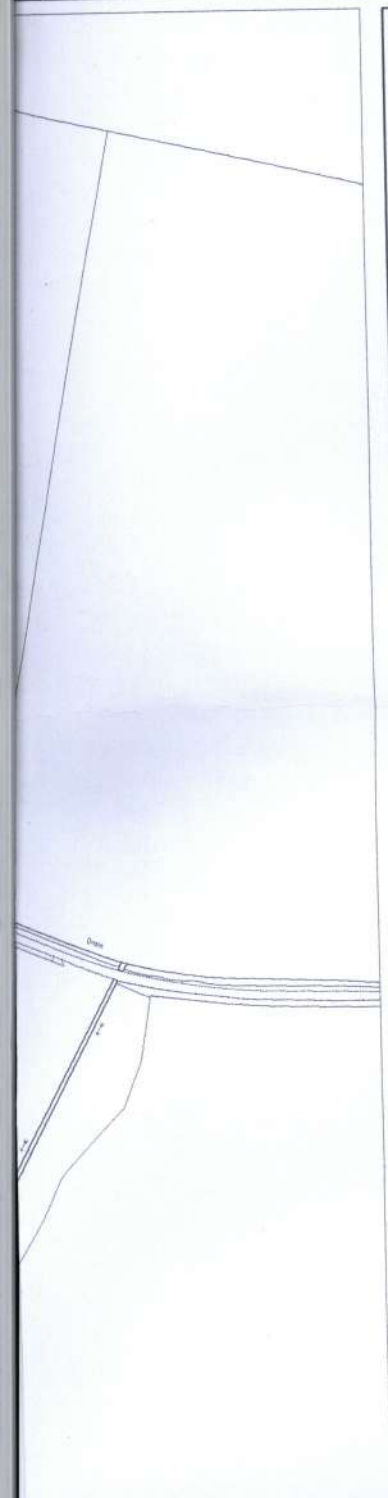
Brown

Red

Orange

Dark Blue

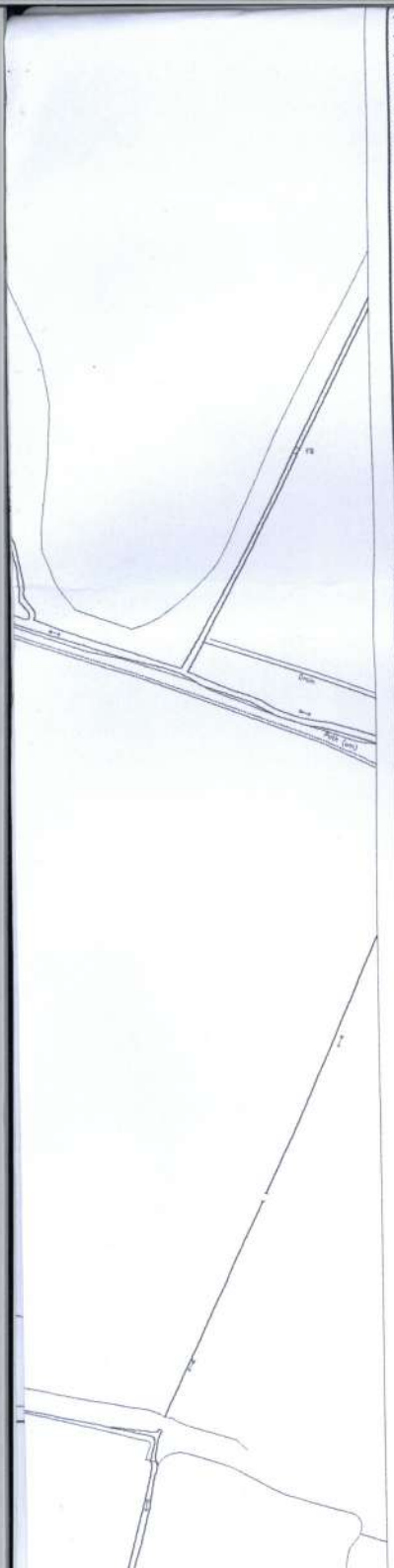
Purple



Node	Cover	Invert	Size	Material	Shape	
0601X	4.86	2.04	UNK	UNK	CIRC	
0700X	12.74	11.93	UNK	UNK	CIRC	
160WX			OTHER	PE	CIRC	
1700#			UNK	UNK	CIRC	
1701X	5.44	2.47	250	GRP	CIRC	
1702X	5.67	2.39	225	VC	CIRC	
1703X	7.39	5.49	150	VC	CIRC	
1750X	7.3	5.86	300	VC	CIRC	
1800X	7.98	6.55	150	VC	CIRC	
1801X	7.72	5.88	150	VC	CIRC	
1850X	8.08	6.68	225	VC	CIRC	
1851X	7.76	6.16	225	VC	CIRC	
1901X	8.11	5.27	225	VC	CIRC	
2001X	8.52	4.57	300	VC	CIRC	*
2001X	8.22	5.53	225	VC	CIRC	*
2002X	8.59	4.45	300	VC	CIRC	
2003X	8.37	4.31	300	VC	CIRC	
2004X			UNK	UNK	CIRC	
2005X			UNK	UNK	CIRC	
2101X	8.41	5.82	225	VC	CIRC	
2102X	8.29	5.89	175	VC	CIRC	
2201X	8.27	6.2	225	VC	CIRC	
2700X			UNK	UNK	CIRC	
2701X	6.14	2.19	225	VC	CIRC	*
2701X	5.01	2.71	250	GRP	CIRC	*
2702X	5.2	2.63	250	GRP	CIRC	
2703X			225	VC	CIRC	
2704X	4.77	2.82	225	VC	CIRC	
2705X	5.51		150	VC	CIRC	
2750X	5.88	4.9	300	VC	CIRC	
2801X			UNK	UNK	CIRC	*
2801X	8.03	6.3	225	VC	CIRC	*
2802X			UNK	UNK	CIRC	*
2802X	8.18	6.36	150	VC	CIRC	*
2803X	7.98	6.15	150	VC	CIRC	
2804X			UNK	UNK	CIRC	
2805X			UNK	UNK	CIRC	
2806X			UNK	UNK	CIRC	
280DX			UNK	UNK	CIRC	
281DX			225	VC	CIRC	
2850X	8.18	6.53	225	VC	CIRC	
2851X	7.98	6.36	225	VC	CIRC	
2901X	8.84	7.17	225	VC	CIRC	
3001X	8.2	4.25	300	VC	CIRC	
3101X	7.58	6.52	175	VC	CIRC	
3102X	7.38	6.39	175	VC	CIRC	
3103X	7.27	6.23	175	VC	CIRC	
3104X			UNK	UNK	CIRC	
3201X	8.61	6.55	225	VC	CIRC	
3202X	8.3		225	UNK	CIRC	
3203X	8.27	7.03	150	VC	CIRC	
3207X			UNK	UNK	CIRC	
3208X			UNK	UNK	CIRC	
320DX			225	VC	CIRC	
3301X	8.82	6.83	225	VC	CIRC	
3302X			150	UNK	CIRC	
3401X	9.85	8.53	150	VC	CIRC	
3402X	9.38	8	150	VC	CIRC	
3403X			100	PF	CIRC	
3404X			UNK	UNK	CIRC	
3405X			UNK	VC	CIRC	
3406X			UNK	VC	CIRC	
340DX			175	VC	CIRC	
341DX			UNK	UNK	UNK	
342DX			UNK	UNK	CIRC	
343DX			UNK	UNK	CIRC	
344DX			150	VC	CIRC	
3450X			225	VC	CIRC	
345XX	9.31		225	UNK	CIRC	
3501X	11.2	9.88	150	PF	CIRC	
3502X	11.02	9.65	150	PF	CIRC	
3602X			UNK	UNK	CIRC	
3603X			UNK	UNK	CIRC	
3701X	5.63		300	VC	CIRC	*
3701X	5.79	1.97	225	VC	CIRC	*
3702X	4.54	3.4	300	VC	CIRC	*

Node	Cover	Invert	Size	Material	Shape	
5002X	8.07	5.39	225	VC	CIRC	
5003X	6.81	3.84	225	VC	CIRC	
5101X	8	6.32	150	PF	CIRC	
5102X	7.8	5.96	150	VC	CIRC	
5103X	7.52	5.85	150	VC	CIRC	
510DX			150	PF	CIRC	
5201X	8.68	7.38	150	PF	CIRC	
5202X	8.46	7.04	150	PF	CIRC	
5301X	8.63	7.5	150	VC	CIRC	
5302X	9.41	7.15	225	VC	CIRC	
5401X	9.47	8.47	150	PF	CIRC	
5402X	9.58	7.87	150	VC	CIRC	
5403X	9.97	8.96	150	VC	CIRC	
5405X			UNK	UNK	CIRC	
5406X			UNK	UNK	CIRC	
5407X			UNK	UNK	CIRC	
5408X			UNK	UNK	CIRC	
540DX			UNK	UNK	CIRC	
542DX			UNK	UNK	CIRC	
544DX			UNK	UNK	CIRC	
5501X	11.21	9.8	150	VC	CIRC	
5502X	10.88	9.48	150	VC	CIRC	
5503X	10.69	9.23	150	VC	CIRC	
5504X	10.63	9.12	150	VC	CIRC	
5505X	10.24	9.02	150	VC	CIRC	
5506X			UNK	UNK	CIRC	
5550X	11.3	9.29	600	CP	CIRC	
5551X	10.95	9.08	600	CP	CIRC	
5552X	10.75	8.98	600	CP	CIRC	
5553X	10.63	8.95	600	CP	CIRC	
5554X	10.35	8.56	225	VC	CIRC	
5601X	3.79	1.41	300	VC	CIRC	*
5601X	11.39	9.95	150	VC	CIRC	*
5602Y	4.07	1.31	UNK	UNK	CIRC	
5603X	3.82	1.375	1200	CO	CIRC	*
5603X	13.105	11.755	150	VC	CIRC	*
5604X	12.74	11.39	150	VC	CIRC	*
5604X	3.91	1.315	300	VC	CIRC	*
5605X	3.94	1.28	UNK	UNK	CIRC	
5650X	12.61	9.44	600	CP	CIRC	
5651X	11.44	9.34	600	CP	CIRC	
5701X	5.66	3.92	150	VC	CIRC	
5702X	5.2	3.62	150	VC	CIRC	*
5702X			UNK	UNK	CIRC	*
5703X	4.5	2.129	300	VC	CIRC	*
5703X	5.33	3.25	525	BRE	CIRC	*
5704X	5.26	3.19	525	BRE	CIRC	
570DX			300	VC	CIRC	
572DX			300	VC	CIRC	
5756Y	5.21	4.4	350	DI	CIRC	
5757X		4.248	350	DI	CIRC	
5801X	7.54	4.7	150	PF	CIRC	*
5801X	6.75	4.66	150	VC	CIRC	*
5802X			100	VC	CIRC	*
5802X	6.95	4.38	150	PF	CIRC	*
5803X			100	VC	CIRC	*
5803X	5.99	3.44	300	VC	CIRC	*
5804X	4.52		300	VC	CIRC	
5805Y	4.7	2.956	300	VC	CIRC	
5807X			UNK	UNK	CIRC	
5808X			UNK	UNK	CIRC	
5809X			UNK	UNK	CIRC	
5810X			UNK	UNK	CIRC	
5811X			UNK	UNK	CIRC	
5812X			UNK	UNK	CIRC	
5813X			300	VC	CIRC	
5901X	5.75	3.44	300	VC	CIRC	
6001X			150	VC	CIRC	
6002X			150	VC	CIRC	
6003X			150	VC	CIRC	
6004X			150	VC	CIRC	
6005X			100	VC	CIRC	
6006X			100	VC	CIRC	
6007X			150	VC	CIRC	
6101X	8.45	5.85	225	VC	CIRC	
6102X			UNK	UNK	CIRC	
6201X	8.78	6.95	175	VC	CIRC	

Node	Cover	Invert	Size	Material	Shape	
7603X	11.32	9.89	150	VC	CIRC	*
7604X			UNK	UNK	CIRC	
760DX			UNK	UNK	CIRC	
761DX			300	VC	CIRC	
762DX			UNK	UNK	CIRC	
7701X	16.67	15.18	150	PF	CIRC	
7702X	16.42		UNK	UNK	CIRC	
7703X	15.96	13.76	150	VC	CIRC	
7704X	14.09		150	VC	CIRC	
7801X	8.03	7.03	150	VC	CIRC	*
7801X	18.56	17.36	150	PF	CIRC	*
7802X			UNK	UNK	CIRC	
7803X			UNK	UNK	CIRC	
7804X			UNK	UNK	CIRC	
7805X			UNK	UNK	CIRC	
780DX			UNK	UNK	CIRC	
7901X	8.24	6.37	150	VC	CIRC	
8101X			100	PF	CIRC	
8102X			UNK	UNK	CIRC	
8350X	8.78	6.98	600	CP	CIRC	
8351X	8.61	6.89	600	CP	CIRC	
8352X	8.38		600	CP	CIRC	
8400X	8.92	7.14	150	VC	CIRC	
8401X			UNK	UNK	CIRC	
8450X	8.92	7.4	150	VC	CIRC	
8501X	10.72	8.79	150	VC	CIRC	
8502X	11.05	8.27	150	VC	CIRC	
8503X	10.45	9.08	150	VC	CIRC	
8504X	10.65	9.01	150	VC	CIRC	
8505X	4.26	1.95	150	VC	CIRC	
8551X	4.23	3.4	225	CP	CIRC	
8601X	15.16	5	200	GRP	CIRC	*
8601X	6.31	1.41	225	VC	CIRC	*
8602X	6.4	1.27	UNK	UNK	CIRC	*
8602X	14.13	11.35	150	VC	CIRC	*
8603X	11.51	10.84	150	VC	CIRC	*
8603X	4.71	3.64	150	VC	CIRC	*
8604X	11.56	3.89	UNK	UNK	CIRC	
8607X	11.62		100	PVC	CIRC	
860AX			OTHER	PE	CIRC	
860PX			100	PVC	CIRC	
8650X	4.54	3.56	150	VC	CIRC	
8701X	14.89	12.78	150	VC	CIRC	
8801X			UNK	UNK	CIRC	
880DX			UNK	UNK	CIRC	
9601X	5.34	1.66	225	VC	CIRC	



3603X			UNK	UNK	CIRC		6006X			150	VC	CIRC	
3701X	5.63		300	VC	CIRC	*	6007X			150	VC	CIRC	
3701X	5.79	1.97	225	VC	CIRC	*	6101X	8.45	5.85	225	VC	CIRC	
3702X	4.54	3.4	300	VC	CIRC	*	6102X			UNK	UNK	CIRC	
3702Y	4.54	3.84	150	CI	CIRC	*	6201X	8.78	6.95	175	VC	CIRC	
3703X	4.61	3.02	225	VC	CIRC		6202X	8.6	6.67	175	VC	CIRC	
3704X			UNK	UNK	CIRC		6203X	8.47	6.28	225	VC	CIRC	
3705X			UNK	UNK	CIRC		6204X			UNK	UNK	CIRC	
3707X			UNK	UNK	CIRC		6205X			UNK	UNK	CIRC	
370DX			300	VC	CIRC		6206X			UNK	UNK	CIRC	
371DX			300	VC	CIRC		6207X			UNK	UNK	CIRC	
3801X	6.77	3.79	300	VC	CIRC		6208X			UNK	UNK	CIRC	
3802X	6.52	5.44	225	VC	CIRC		6209X			UNK	UNK	CIRC	
3901X	7.85	4.17	300	VC	CIRC		620DX			UNK	UNK	CIRC	
3902X	7.55	4.04	300	VC	CIRC		6210X			UNK	UNK	CIRC	
3903X			UNK	UNK	CIRC		6301X	8.84	6.82	225	VC	CIRC	
3904X			UNK	UNK	CIRC		6302X	8.67	6.62	225	VC	CIRC	
4001Y			150	UNK	CIRC	*	6303X	8.87	7.34	150	VC	CIRC	
4001X			150	UNK	CIRC	*	6304X	8.77	6.73	225	VC	CIRC	
4101X	7.51	6.78	150	VC	CIRC		6311X			UNK	UNK	CIRC	
4102X	7.39	6.49	175	VC	CIRC		631DX			225	VC	CIRC	
4105X			UNK	UNK	CIRC		632DX			UNK	UNK	CIRC	
4106X			UNK	UNK	CIRC		633DX			UNK	UNK	CIRC	
4107X			UNK	UNK	CIRC		6350X	8.8	7.68	225	VC	CIRC	
4201X	7.56	6.97	150	VC	CIRC		6401X	9.42	7.63	150	VC	CIRC	
4202X	8.01	7.29	150	VC	CIRC		6402X	9.14	7.13	225	VC	CIRC	
4203X			UNK	UNK	CIRC		6403X	9.29	7.21	225	VC	CIRC	
420DX			150	VC	CIRC		6404X	8.66	7.3	150	VC	CIRC	
4250X			UNK	UNK	CIRC		6405X	8.93	6.97	225	VC	CIRC	
4301X	8.35	7.47	150	VC	CIRC		6407X			UNK	UNK	CIRC	
4302X			100	VC	CIRC		640DX			175	VC	CIRC	
4401X	9.96	8.5	175	VC	CIRC		641DX			100	VC	CIRC	
4402X	9.46	8.3	150	VC	CIRC		642DX			175	VC	CIRC	
4403X	9.8	8.78	150	PF	CIRC		643DX			UNK	UNK	CIRC	
4404X	9.28	8.16	150	PF	CIRC		6501X	10.31	8.34	175	VC	CIRC	
4405X	9.18	7.86	225	VC	CIRC		6601Y	4.89		300	VC	CIRC	*
4406X			150	VC	CIRC		6601X	12.22	10.79	150	VC	CIRC	*
440DX			100	VC	CIRC		6602X	12.555	11.095	150	VC	CIRC	
4501X	11.34	9.59	175	VC	CIRC		6603X	12.12	10.365	150	VC	CIRC	
4502X	10.64	9.08	175	VC	CIRC		6801X	8.25	6.5	150	VC	CIRC	
4601X	4.51	2.94	525	BRE	CIRC	*	6802X			100	VC	CIRC	
4601X	13.105	10.66	175	VC	CIRC	*	6803X			100	VC	CIRC	
4601X	3.62	1.523	375	VC	CIRC	*	6804X			100	VC	CIRC	
4602X			UNK	UNK	CIRC	*	6901X	7.45	5.46	150	PF	CIRC	
4602X	12.3	10.93	150	VC	CIRC	*	6902X	7.79	5.94	150	VC	CIRC	
4602X	3.61	1.485	1200	CO	CIRC	*	7101X	8.42	7.7	175	VC	CIRC	
4603Y	3.5	2.24	300	VC	CIRC	*	7102X	8.46	7.43	175	VC	CIRC	
4603X	3.5	2.3	300	VC	CIRC	*	7103X			UNK	UNK	CIRC	
4603X	12.44	10.72	150	VC	CIRC	*	7104X			UNK	UNK	CIRC	
4603X			UNK	UNK	CIRC	*	7105X			100	PF	CIRC	
4604X			100	VC	CIRC	*	7109X			UNK	UNK	CIRC	
4604X	11.78	10.26	150	VC	CIRC	*	711DX			UNK	UNK	CIRC	
4604X	3.55	1.95	UNK	UNK	UNK	*	7300X	8.62	6.39	150	VC	CIRC	
4605X			100	VC	CIRC		7301X	8.74	6.24	150	VC	CIRC	
4606X			100	VC	CIRC		7302X	8.67	7.6	150	VC	CIRC	
4607X			100	VC	CIRC		7303X	8.89	7.44	150	VC	CIRC	
4608X			UNK	UNK	CIRC		7304X			UNK	UNK	CIRC	
460BX			UNK	UNK	CIRC		7305X			UNK	UNK	CIRC	
460DX			UNK	UNK	CIRC		7306X			UNK	UNK	CIRC	
4610X			UNK	UNK	CIRC		7307X			UNK	UNK	CIRC	
4611X			UNK	UNK	CIRC		7308X			UNK	UNK	CIRC	
4612X			UNK	UNK	CIRC		7309X			UNK	UNK	CIRC	
4613X			UNK	UNK	CIRC		730PX			100	CI	CIRC	
4614X			UNK	UNK	CIRC		731DX			UNK	UNK	CIRC	
4616X			UNK	UNK	CIRC		732DX			100	CI	CIRC	
4617X			UNK	UNK	CIRC		7350X	8.78	7.04	600	CP	CIRC	
4618X			UNK	UNK	CIRC		7351X	8.66	7.08	600	CP	CIRC	
4619X			UNK	UNK	CIRC		7352X	8.59	7.57	300	CP	CIRC	
461BX			UNK	UNK	CIRC		7353X	8.8	7.44	300	CP	CIRC	
461DX			UNK	UNK	CIRC		7354X	8.83	7.31	450	CP	CIRC	
4620X			UNK	UNK	CIRC		7355X	8.45	7.55	300	CP	CIRC	
462BX			UNK	UNK	CIRC		7356X	8.62	7.21	450	CP	CIRC	
462DX			UNK	UNK	CIRC		7400X	8.91	7.35	150	VC	CIRC	
463BX			UNK	UNK	CIRC		7401X	8.88	7.02	150	VC	CIRC	
463DX			UNK	UNK	CIRC		7402X	9.22	6.76	150	VC	CIRC	
464DX			UNK	UNK	CIRC		7403X	8.89	6.56	150	VC	CIRC	
4650X	12.36	10.71	225	VC	CIRC		7404X			UNK	VC	UNK	
4651X	11.77	9.4	600	CP	CIRC		7406X			100	RPM	CIRC	
46BBX			525	BRE	CIRC		7407X			100	RPM	CIRC	
46CBX			100	VC	CIRC		7408X			100	RPM	CIRC	
46DBX			100	VC	CIRC		7410X			UNK	UNK	CIRC	
46EBX			525	BRE	CIRC		7411X			UNK	UNK	CIRC	
46FBX			525	BRE	CIRC		7450X	8.92	7.39	375	CP	CIRC	
46JBX			525	BRE	CIRC		7451X	8.83	7.31	450	CP	CIRC	

484600

4616X			UNK	UNK	CIRC		7352X						
4617X			UNK	UNK	CIRC		7350X	8.78	7.04	600	CP	CIRC	
4618X			UNK	UNK	CIRC		7351X	8.66	7.08	600	CP	CIRC	
4619X			UNK	UNK	CIRC		7352X	8.59	7.57	300	CP	CIRC	
461BX			UNK	UNK	CIRC		7353X	8.8	7.44	300	CP	CIRC	
461DX			UNK	UNK	CIRC		7354X	8.83	7.31	450	CP	CIRC	
4620X			UNK	UNK	CIRC		7355X	8.45	7.55	300	CP	CIRC	
462BX			UNK	UNK	CIRC		7356X	8.62	7.21	450	CP	CIRC	
462DX			UNK	UNK	CIRC		7400X	8.91	7.35	150	VC	CIRC	
463BX			UNK	UNK	CIRC		7401X	8.88	7.02	150	VC	CIRC	
463DX			UNK	UNK	CIRC		7402X	9.22	6.76	150	VC	CIRC	
464DX			UNK	UNK	CIRC		7403X	8.89	6.56	150	VC	CIRC	
4650X	12.36	10.71	225	VC	CIRC		7404X			UNK	VC	UNK	
4651X	11.77	9.4	600	CP	CIRC		7406X			100	RPM	CIRC	
46BBX			525	BRE	CIRC		7407X			100	RPM	CIRC	
46CBX			100	VC	CIRC		7408X			100	RPM	CIRC	
46DBX			100	VC	CIRC		7410X			UNK	UNK	CIRC	
46EBX			525	BRE	CIRC		7411X			UNK	UNK	CIRC	
46FBX			525	BRE	CIRC		7450X	8.92	7.39	375	CP	CIRC	
46JBX			525	BRE	CIRC		7451X	8.83	7.31	450	CP	CIRC	
4701X	4.31	1.78	UNK	UNK	CIRC		7452X	9.2	7.28	450	CP	CIRC	
4702Y	3.66	1.56	225	VC	CIRC	*	7453X	8.91	7.59	225	VC	CIRC	
4702X	4.73	3.2	UNK	UNK	CIRC	*	7454X	8.86	7.21	450	CP	CIRC	
4703X	4.75		525	BRE	CIRC		7500X	9.19	7.7	150	VC	CIRC	
4704X	4.96	3.15	225	VC	CIRC		7501X			100	RPM	CIRC	*
4705X			UNK	UNK	CIRC		7501X	4.11	1.11	150	VC	CIRC	*
4706X			UNK	UNK	CIRC		7502X			100	RPM	CIRC	
4707X			UNK	UNK	CIRC		750DX			100	RPM	CIRC	
4708X			525	BRE	CIRC		7550X	9.17	7.52	300	CP	CIRC	
470DX			225	VC	CIRC		7601X	5.36	4.14	225	VC	CIRC	*
471DX			525	BRE	CIRC		7601X	12.15	9.42	175	VC	CIRC	*
475DX			300	CO	CIRC		7602X	12.44	9.89	UNK	UNK	CIRC	*
4801X	5.71	4.71	225	VC	CIRC		7602X	5.31	0.89	300	VC	CIRC	*
5001X	7.13	5.96	150	VC	CIRC		7603X	5.58	0.75	300	VC	CIRC	*

LINE STYLES / COLOURS

- Brown: Foul; Foul Syphon Sewer; Foul Vacuum Main; Foul Rising Main
- Red: Combined; Combined Syphon Sewer; Combined Rising Main; Lateral Drain
- Orange: Building Over Agreement Area
- Dark Blue: Treated Effluent
- Purple: Sludge; Sewer Catchment; Section 104 Area
- Light Blue: Surface Water; Surface Water Rising Main
- Yellow: Private
- Green: Access Shaft; Decommissioned

MATERIALS

AK	Alkathene
BAC	Bonded Asbestos Cement
BRC	Brick (Common)
BRE	Brick (Engineering)
CC	Concrete Box Culvert
CI	Cast Iron
CO	Concrete (In-Situ)
CP	Concrete (Pre-Cast)
CSB	Concrete Segments (bolted)
CSU	Concrete Segments (unbolted)
DI	Ductile Iron
GRC	Glass Reinforced Concrete
GRP	Glass Reinforced Plastic
MAC	Masonry in regular Courses
MAR	Masonry in random Courses
PE	Polyethylene
PF	Pitch Fibre
PP	Polypropylene
PVC	Polyvinyl Chloride
RPM	Reinforced Plastic Matrix
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
XXX	Other
ZZZ	Unknown

LEGEND - SEWERS

- Manhole (SW)
- Manhole (F&C)
- Lamp hole (SW)
- Lamp hole (F&C)
- Pumping Station (SW)
- Pumping Station (F&C)
- Side entry manhole (SW)
- Side entry Manhole (F&C)
- Blind shaft (SW)
- Blind shaft (F&C)
- Ejector station (SW)
- Ejector station (F&C)
- Watertight door (SW)
- Watertight door (F&C)
- Flushing ch. Mn-e (SW)
- Flushing ch. Mn-e (F&C)
- Flushing ch. No-e (SW)
- Flushing ch. No-e (F&C)
- Demarcation Chamber
- Washout (SW)
- Washout (F&C)
- Rodding Eye (SW)
- Rodding Eye (F&C)
- Gauging point (SW)
- Gauging point (F&C)
- Intercept chamber (SW)
- Intercept chamber (F&C)
- Storm Tank (SW)
- Storm Tank (F&C)
- Vortex chamber (SW)
- Vortex chamber (F&C)
- Label ellipse
- Dummy/S24 manhole
- Outfall
- Penstock chamber
- Damboards
- Storm Overflow
- Backdrop manhole
- Other (s)
- Other
- Change in sewer (s)
- Change in sewer
- Reflux valve
- Flap valve
- Cascade
- Anode
- Valve
- Closed Valve
- Air Valve
- Hatch box (SW)
- Hatch box (F&C)
- Direction arrow
- Emptying valve
- Catchpit
- Soakaway
- Inlet
- Balancing Pond
- Wastewater treatment works
- Marine treatment works
- Outfall headworks
- Vent
- Vent column
- Tidal storage tank
- Blank end
- Head of Public Sewer
- Micro Pumping Station

SHAPES (S)

A	Arched	R	Rectangular
B	Barrel	S	Square
C	Circular	T	Trapezoidal
E	Egg	U	U Shape
H	Horseshoe	X	Other

NODE REFERENCING SYSTEM

- 1st digit: hundred metre easting identifier
- 2nd digit: hundred metre northing identifier
- 3rd digit: sewer type identifier; 0-4 = Foul/Combined; 5-9 = Surface Water
- 4th digit: next sequential node

O.S. Ref.	SU8305SE	Drawn by:	kumaria
Scale:	1:2500	Date:	26/09/2019

Title: 353810_Fishbourne, Clay Lane,

The information contained on this plan is provided as a guide to the approximate position of existing public sewers. The accuracy thereof cannot be guaranteed.

THIS INFORMATION MUST BE TREATED WITH CAUTION AND THE ACTUAL POSITION OF THE PUBLIC SEWERS MUST
BE ESTABLISHED ON SITE, IN ALL CASES.
Southern Water must be informed before lifting manhole covers or excavating trial holes.
WARNING: BAC pipes are constructed of Bonded Asbestos Cement
WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement

N

Southern Water

APPENDIX H

MicroDrainage Calculations, Drainage Strategy and Catchment Drawing

NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE.
3. PROPOSED SITE LAYOUT HAS BEEN PROVIDED BY RICHARDS URBAN DESIGN (DRAWING NO. 1270.02, DATED 21/02/2022). ODYSSEY CANNOT TAKE ANY RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION.
4. THIS DRAWING IS BASED UPON THE SURVEY CARRIED OUT BY DIGITAL TERRAIN SURVEYS LLP. DATED NOVEMBER 2020. DWG NO(S): DTS120619-06AA (1 of 2) AND DTS120619-06AA (2 of 2). ODYSSEY CANNOT TAKE ANY RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION.
5. DRAINAGE STRATEGY IS SUBJECT TO DETAILED DESIGN DEVELOPMENT.

LEGEND

- SITE BOUNDARY
- PROPOSED GRAVITY FOUL SEWER & MANHOLE
- PROPOSED PUMPED FOUL SEWER
- PROPOSED PRIVATE WASTEWATER TREATMENT PLANT
- PROPOSED WASTEWATER TREATMENT PLANT EASEMENT
- PROPOSED SURFACE WATER DRAINAGE & MANHOLE
- VORTEX FLOW CONTROL DEVICE CHAMBER
- PROPOSED HEADWALL
- EXISTING SURFACE WATER MANHOLE AND PIPE
- EXISTING FOUL WATER MANHOLE AND PIPE
- ATTENUATION BASIN. 1 IN 4 SLOPES
- PROPOSED WETLAND
- EXCEEDANCE FLOW ROUTE

7307 7306 7305 8352 825X 7102 7101 7110 7104 7105 8102 8101 7103 7100

CLAY LANE

A27

Public open space incorporating LEAP

Proposed access

Existing public right of way retained

Terminal pylon

BASIN 1

BASIN 2

VORTEX FLOW CONTROL DISCHARGE LIMITED TO 1.5l/s DESIGN HEAD: 1.1m

VORTEX FLOW CONTROL DISCHARGE LIMITED TO 5.8l/s DESIGN HEAD: 0.8m

INDICATIVE KIOSK WITH CONCRETE WORKING AREA

SAMPLE CHAMBER

FOUL PUMPING CHAMBER

Land for ecological enhancement

Existing public right of way retained

Ø150mm

FOR CONTINUATION SEE 19-079/001

FOR CONTINUATION SEE INSET A

INSET A 1:500

FOR PLANNING

Rev	Amendments	Drn	Chk	App	Date
F	CLIENT NAME UPDATED	HM	JW	GG	17.03.22
E	UPDATED TO SUIT NEW SITE LAYOUT	HM	JW	GG	28.02.22
D	BASINS UPDATED	HM	JW	GG	02.02.22
C	CHANGES FOR UPDATED SITE LAYOUT	HM	JW	GG	21.01.22
B	CHANGES FOR UPDATED SITE LAYOUT	HM	NA	GG	APRIL 21
A	CHANGES FOR UPDATED SITE LAYOUT	HM	JH	GG	MAR 21

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Job Title: FISHBOURNE, CHICHESTER

Drawing Title: PRELIMINARY DRAINAGE STRATEGY

Client: GLEESON LAND

Scale	Date	Designed
1:500 @A0	APR 2021	JW
Drawn	Checked	Approved
HM	JH	GG
Job No	Drawing No	Rev
19-079	19-079/001	F

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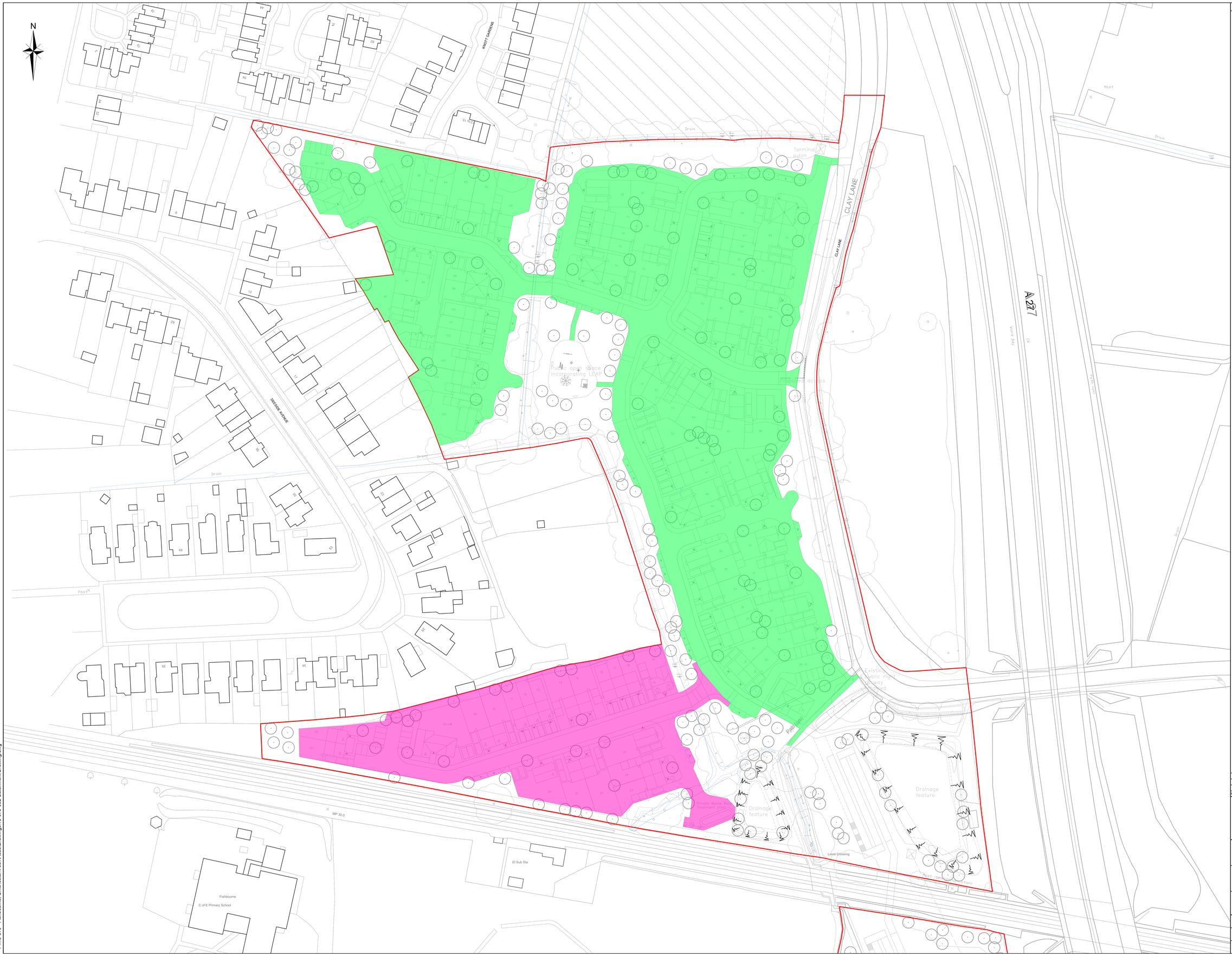

NOTES

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2. ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE.
3. PROPOSED SITE LAYOUT HAS BEEN PROVIDED BY RICHARDS URBAN DESIGN (DRAWING NO. 1270.02. DATED 21/02/2022). ODYSSEY CANNOT TAKE ANY RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION.
4. THIS DRAWING IS BASED UPON THE SURVEY CARRIED OUT BY DIGITAL TERRAIN SURVEYS LLP. DATED NOVEMBER 2020. DWG NO(S): DTS120619-06AA (1 of 2). ODYSSEY CANNOT TAKE ANY RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION.
5. DRAINAGE STRATEGY IS SUBJECT TO DETAILED DESIGN DEVELOPMENT.

LEGEND

- SITE BOUNDARY
- CATCHMENT 1 (2.48ha)
- CATCHMENT 2 (0.73ha)

Rev	Amendments	Drn	Chk	App	Date
C	CLIENT NAME UPDATED	HM	JW	GG	17.03.22
B	UPDATED TO SUIT NEW SITE LAYOUT	HM	JW	GG	28.02.22
A	CATCHMENTS UPDATED	HM	JW	GG	02.02.22

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Job Title
FISHBOURNE
CHICHESTER

Drawing Title
SuDS CATCHMENTS

Client
GLEESON LAND

Scale	Date	Designed
1500 @A0	APR 2021	JW
Drawn	Checked	Approved
JW	JH	GG
Job No	Drawing No	Rev.
19-079	19-079/002	C

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ICP SUDS Mean Annual Flood

Input

Return Period (years)	2	SAAR (mm)	769	Urban	0.000
Area (ha)	1.928	Soil	0.400	Region Number	Region 7

Results l/s

QBAR Rural	7.3
QBAR Urban	7.3
Q2 years	6.5
Q1 year	6.2
Q30 years	16.6
Q100 years	23.4

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

Outflow is too low. Design is unsatisfactory.

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	6.148	0.254	1.3	390.1	O K
30 min Summer	6.232	0.338	1.3	522.8	O K
60 min Summer	6.321	0.427	1.3	665.8	O K
120 min Summer	6.405	0.511	1.3	802.4	O K
180 min Summer	6.454	0.560	1.3	883.6	O K
240 min Summer	6.488	0.594	1.3	940.2	O K
360 min Summer	6.533	0.639	1.3	1015.6	O K
480 min Summer	6.562	0.668	1.3	1063.5	O K
600 min Summer	6.582	0.688	1.3	1097.7	O K
720 min Summer	6.598	0.704	1.3	1123.9	O K
960 min Summer	6.620	0.726	1.3	1161.8	O K
1440 min Summer	6.647	0.753	1.3	1207.4	O K
2160 min Summer	6.672	0.778	1.3	1250.2	O K
2880 min Summer	6.689	0.795	1.3	1280.1	O K
4320 min Summer	6.715	0.821	1.3	1324.4	Flood Risk
5760 min Summer	6.733	0.839	1.3	1356.6	Flood Risk
7200 min Summer	6.750	0.856	1.3	1385.9	Flood Risk
8640 min Summer	6.766	0.872	1.3	1413.5	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	137.764	0.0	110.8	19
30 min Summer	92.401	0.0	110.1	34
60 min Summer	58.941	0.0	215.7	64
120 min Summer	35.630	0.0	198.2	124
180 min Summer	26.237	0.0	188.0	184
240 min Summer	21.000	0.0	186.6	244
360 min Summer	15.213	0.0	191.5	364
480 min Summer	12.017	0.0	194.3	484
600 min Summer	9.981	0.0	195.9	604
720 min Summer	8.564	0.0	196.7	724
960 min Summer	6.714	0.0	197.1	964
1440 min Summer	4.754	0.0	195.0	1442
2160 min Summer	3.387	0.0	397.7	2164
2880 min Summer	2.681	0.0	395.9	2884
4320 min Summer	1.957	0.0	386.7	4320
5760 min Summer	1.585	0.0	796.3	5760
7200 min Summer	1.361	0.0	797.2	7200
8640 min Summer	1.211	0.0	792.7	8040

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
10080 min Summer	6.784	0.890	1.4	1444.4	Flood Risk
15 min Winter	6.178	0.284	1.3	437.0	O K
30 min Winter	6.271	0.377	1.3	585.7	O K
60 min Winter	6.370	0.476	1.3	746.1	O K
120 min Winter	6.464	0.570	1.3	899.4	O K
180 min Winter	6.518	0.624	1.3	990.6	O K
240 min Winter	6.556	0.662	1.3	1054.2	O K
360 min Winter	6.607	0.713	1.3	1139.3	O K
480 min Winter	6.638	0.744	1.3	1193.5	O K
600 min Winter	6.661	0.767	1.3	1232.6	O K
720 min Winter	6.679	0.785	1.3	1262.5	O K
960 min Winter	6.704	0.810	1.3	1306.5	Flood Risk
1440 min Winter	6.736	0.842	1.3	1360.5	Flood Risk
2160 min Winter	6.766	0.872	1.3	1413.0	Flood Risk
2880 min Winter	6.788	0.894	1.4	1451.3	Flood Risk
4320 min Winter	6.822	0.928	1.4	1510.8	Flood Risk
5760 min Winter	6.848	0.954	1.4	1557.6	Flood Risk
7200 min Winter	6.873	0.979	1.4	1601.7	Flood Risk
8640 min Winter	6.896	1.002	1.4	1642.0	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
10080 min Summer	1.102	0.0	783.0	8680
15 min Winter	137.764	0.0	111.1	19
30 min Winter	92.401	0.0	108.9	34
60 min Winter	58.941	0.0	208.2	64
120 min Winter	35.630	0.0	188.1	124
180 min Winter	26.237	0.0	190.7	182
240 min Winter	21.000	0.0	195.5	242
360 min Winter	15.213	0.0	201.2	362
480 min Winter	12.017	0.0	204.0	480
600 min Winter	9.981	0.0	205.6	598
720 min Winter	8.564	0.0	206.3	716
960 min Winter	6.714	0.0	206.5	954
1440 min Winter	4.754	0.0	203.7	1428
2160 min Winter	3.387	0.0	417.1	2136
2880 min Winter	2.681	0.0	414.3	2828
4320 min Winter	1.957	0.0	402.8	4232
5760 min Winter	1.585	0.0	837.1	5592
7200 min Winter	1.361	0.0	836.2	6920
8640 min Winter	1.211	0.0	829.6	8216

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
10080 min Winter	6.917	1.023	1.4	1679.8	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
10080 min Winter	1.102	0.0	817.9	9480

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 483998 105002 SU 83998 05002
Data Type	Point
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) 1.514

Time (mins) From:	To:	Area (ha)
0	4	1.514

Model Details

Storage is Online Cover Level (m) 6.994

Tank or Pond Structure

Invert Level (m) 5.894

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	1502.3	1.100	1808.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0056-1500-1100-1500
Design Head (m)	1.100
Design Flow (l/s)	1.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	56
Invert Level (m)	5.894
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.100	1.5	Kick-Flo®	0.504	1.1
Flush-Flo™	0.247	1.3	Mean Flow over Head Range	-	1.2

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	1.1	1.200	1.6	3.000	2.4	7.000	3.5
0.200	1.3	1.400	1.7	3.500	2.5	7.500	3.6
0.300	1.3	1.600	1.8	4.000	2.7	8.000	3.7
0.400	1.2	1.800	1.9	4.500	2.9	8.500	3.8
0.500	1.1	2.000	2.0	5.000	3.0	9.000	3.9
0.600	1.1	2.200	2.0	5.500	3.1	9.500	4.0
0.800	1.3	2.400	2.1	6.000	3.3		
1.000	1.4	2.600	2.2	6.500	3.4		

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	6.078	0.364	5.8	106.4	O K
30 min Summer	6.174	0.460	5.8	140.5	O K
60 min Summer	6.260	0.546	5.8	174.2	Flood Risk
120 min Summer	6.320	0.606	5.8	198.9	Flood Risk
180 min Summer	6.340	0.626	5.8	207.4	Flood Risk
240 min Summer	6.344	0.630	5.8	209.1	Flood Risk
360 min Summer	6.332	0.618	5.8	203.7	Flood Risk
480 min Summer	6.313	0.599	5.8	195.8	Flood Risk
600 min Summer	6.293	0.579	5.8	187.3	Flood Risk
720 min Summer	6.272	0.558	5.8	178.8	Flood Risk
960 min Summer	6.227	0.513	5.8	160.8	Flood Risk
1440 min Summer	6.144	0.430	5.8	129.7	O K
2160 min Summer	6.043	0.329	5.8	94.3	O K
2880 min Summer	5.965	0.251	5.8	69.4	O K
4320 min Summer	5.875	0.161	5.6	42.3	O K
5760 min Summer	5.840	0.126	5.2	32.5	O K
7200 min Summer	5.825	0.111	4.6	28.5	O K
8640 min Summer	5.815	0.101	4.1	25.9	O K
10080 min Summer	5.809	0.095	3.8	24.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	137.764	0.0	109.2	18
30 min Summer	92.401	0.0	146.8	33
60 min Summer	58.941	0.0	188.5	62
120 min Summer	35.630	0.0	228.0	122
180 min Summer	26.237	0.0	251.9	182
240 min Summer	21.000	0.0	268.9	240
360 min Summer	15.213	0.0	292.2	320
480 min Summer	12.017	0.0	307.8	380
600 min Summer	9.981	0.0	319.5	442
720 min Summer	8.564	0.0	329.0	508
960 min Summer	6.714	0.0	343.9	636
1440 min Summer	4.754	0.0	365.2	894
2160 min Summer	3.387	0.0	391.0	1260
2880 min Summer	2.681	0.0	412.5	1612
4320 min Summer	1.957	0.0	451.3	2288
5760 min Summer	1.585	0.0	488.3	2944
7200 min Summer	1.361	0.0	524.1	3672
8640 min Summer	1.211	0.0	559.1	4408
10080 min Summer	1.102	0.0	593.2	5136

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Winter	6.116	0.402	5.8	119.6	O K
30 min Winter	6.220	0.506	5.8	158.3	Flood Risk
60 min Winter	6.315	0.601	5.8	196.8	Flood Risk
120 min Winter	6.382	0.668	5.8	225.5	Flood Risk
180 min Winter	6.407	0.693	5.8	236.5	Flood Risk
240 min Winter	6.414	0.700	5.8	239.9	Flood Risk
360 min Winter	6.405	0.691	5.8	235.8	Flood Risk
480 min Winter	6.381	0.667	5.8	224.9	Flood Risk
600 min Winter	6.357	0.643	5.8	214.7	Flood Risk
720 min Winter	6.332	0.618	5.8	203.9	Flood Risk
960 min Winter	6.278	0.564	5.8	181.3	Flood Risk
1440 min Winter	6.154	0.440	5.8	133.3	O K
2160 min Winter	6.002	0.288	5.8	81.0	O K
2880 min Winter	5.899	0.185	5.7	49.4	O K
4320 min Winter	5.831	0.117	4.8	30.0	O K
5760 min Winter	5.812	0.098	4.0	24.9	O K
7200 min Winter	5.802	0.088	3.4	22.2	O K
8640 min Winter	5.795	0.081	3.1	20.5	O K
10080 min Winter	5.790	0.076	2.8	19.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Winter	137.764	0.0	122.4	18
30 min Winter	92.401	0.0	164.5	33
60 min Winter	58.941	0.0	211.2	62
120 min Winter	35.630	0.0	255.5	120
180 min Winter	26.237	0.0	282.2	178
240 min Winter	21.000	0.0	301.2	234
360 min Winter	15.213	0.0	327.3	342
480 min Winter	12.017	0.0	344.8	430
600 min Winter	9.981	0.0	357.9	470
720 min Winter	8.564	0.0	368.5	546
960 min Winter	6.714	0.0	385.2	702
1440 min Winter	4.754	0.0	409.1	966
2160 min Winter	3.387	0.0	437.9	1320
2880 min Winter	2.681	0.0	462.1	1640
4320 min Winter	1.957	0.0	505.6	2248
5760 min Winter	1.585	0.0	546.9	2944
7200 min Winter	1.361	0.0	587.0	3672
8640 min Winter	1.211	0.0	626.2	4392
10080 min Winter	1.102	0.0	664.6	5144

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 483998 105002 SU 83998 05002
Data Type	Point
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) 0.428

Time (mins) From:	To:	Area (ha)
0	4	0.428

Model Details

Storage is Online Cover Level (m) 6.514

Tank or Pond Structure

Invert Level (m) 5.714

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	242.5	0.800	489.4

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0116-5800-0800-5800
Design Head (m)	0.800
Design Flow (l/s)	5.8
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	116
Invert Level (m)	5.714
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	5.8	Kick-Flo®	0.543	4.8
Flush-Flo™	0.243	5.8	Mean Flow over Head Range	-	5.0

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	4.1	1.200	7.0	3.000	10.8	7.000	16.2
0.200	5.8	1.400	7.5	3.500	11.6	7.500	16.7
0.300	5.8	1.600	8.0	4.000	12.4	8.000	17.2
0.400	5.6	1.800	8.5	4.500	13.1	8.500	17.7
0.500	5.2	2.000	8.9	5.000	13.8	9.000	18.2
0.600	5.1	2.200	9.3	5.500	14.4	9.500	18.7
0.800	5.8	2.400	9.7	6.000	15.0		
1.000	6.4	2.600	10.1	6.500	15.6		

APPENDIX I

Maintenance Schedule

TABLE 22.1 Operation and maintenance requirements for detention basins

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

22.13 REFERENCE

KENNARD, M F, HOSKINS, C G and FLETCHER, M (1996) *Small embankment reservoirs*, R161, CIRIA, London, UK (ISBN: 978-0-86017-461-5). Go to: **www.ciria.org**

Statutes

Reservoir Act 1975 (c.23)

Health and Safety at Work (etc) Act 1974 (c.37)

Building Act 1984 (c.55)

Flood and Water Management Act 2010 (c.29)

Construction (Design and Management) Regulations (CDM) 2015