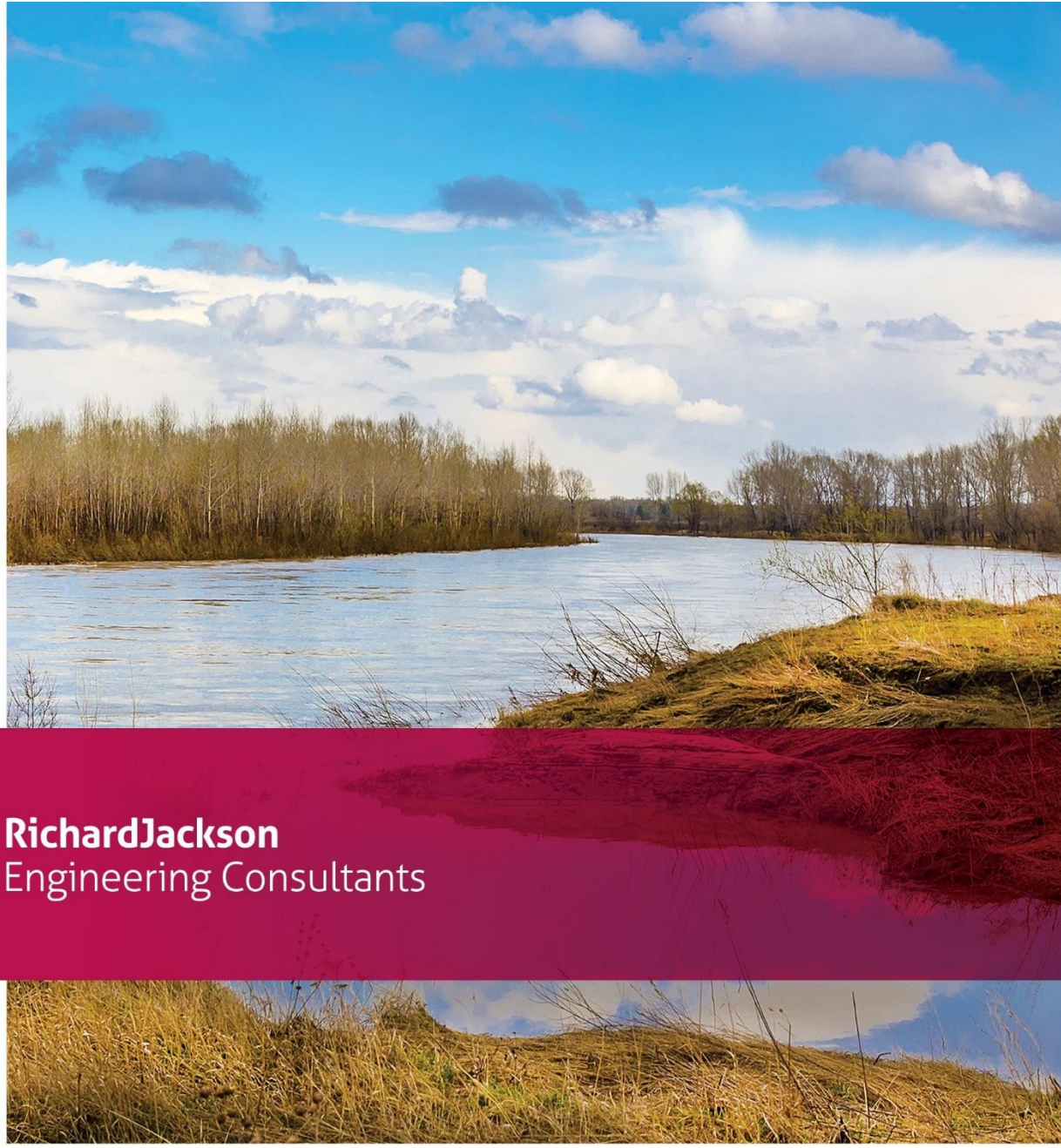


RichardJackson
Engineering Consultants

SITE SPECIFIC FLOOD RISK ASSESSMENT

Alington Estate, Little Barford, Bedfordshire

The Executors of the Late Nigel Alington

June 2021

Project no: 60830 Rev A

RichardJackson
Engineering Consultants

Document Review Sheet: -

Original Document prepared by: - [redacted]
on behalf of Richard Jackson Ltd

Date: - 27 May 2021

Original Document checked by: - [redacted]
on behalf of Richard Jackson Ltd

Date: - 02 June 2021

Original Document approved by: - [redacted]
on behalf of Richard Jackson Ltd

Date: - 04 June 2021

Document Status

DRAFT	FINAL
☐	☒

Revision Status

Issue	Date	Description	Prepared	Checked	Approved
A	12.8.21	Drg 60830-PP-012, Paras 1.3,3.2,5.2,6.10	MJD	MJD	MJD

Contents:-

Figures / Drawings

Appendices

1. INTRODUCTION

1.1. Richard Jackson Ltd (RJ Ltd) has been commissioned by The Executors of the Late Nigel Alington to undertake a Site Specific Flood Risk Assessment (SSFRA) in support of a development site in Little Barford see **Figure 1** for the extents of the assessment.

1.2. The SSFRA will be completed in accordance with the National Planning Policy Framework (NPPF), Planning Practice Guidance (PPG) on Flood Risk and Coastal Change and the Bedfordshire Borough Council (BBC), Lead Local Flood Authority (LLFA) Guidance and Sustainable Drainage Supplementary Planning Policy dated Feb 2018, where applicable. Additional guidance will be sought from the Environment Agency (EA) where applicable. The LLFA for this site will be BBC.

1.3.

2. DEVELOPMENT SITE AND LOCATION

2.1. The site is bound by the River Great Ouse to the West and to the north the boundary of the site is the RWE power station. To the south, the site has a boundary as indicated on **Figure 1** which is the extent of the land ownership. To the east is the East Coast Main Line (ECML) railway.

2.2. This location as highlighted on **Figure 1**, has an approximate Ordnance Survey midpoint of 518356E, 256536N and Postcode PE196YD.

2.3. The existing site comprises of agricultural land, farm buildings, a church and some residential dwellings of the agricultural estate.

2.4. The topographical survey data is shown on **Drawing 60830-PP-012**, which shows ground levels of the site by contours and the site falls from the east to the west, where levels are approximately 24.0m to 24.5m Above Ordnance Datum (AOD) alongside the ECML to a level of 14.5m to 15.0m AOD in the west alongside the Great River Ouse, thus the site has a gradient of ranging from approximately 1 in 49 to 1 in 163 from east to west.

2.5. The current land has a higher land classification of "More Vulnerable" according to Table 2:Flood Risk Vulnerability Classification guidance in the Flood Risk and Coastal Change on the 'Gov.uk' website and planning policy data. More vulnerable uses are listed as appropriate development for Flood Zones 1 & 2, see Table 3:Flood Risk Vulnerability and Flood Zone Compatibility, to which this site lies – refer to the flood map for planning in **Appendix A**.

3. DEVELOPMENT PROPOSALS

3.1. The site is proposed for a change of use from mainly agricultural land uses and associated housing to residential and employment with some mixed use on the site.

3.2. The proposed uses have a higher flood risk classification of "More Vulnerable" which is the same as the highest classification for the existing uses, thus in

reality there is no change in flood risk classification. The anticipated design life of this development will be 100 years.

4. SEQUENTIAL TEST

4.1. As this site is located in Flood Risk Zone (FRZ) 1 and 2 the sequential test for the flood risk areas will be considered and development outside of FRZ 2 will be applied.

4.2. FRZ1 which is considered to be at very low risk to fluvial and/or tidal flooding as well as being at low risk of surface water flooding (refer to **Section 6** for more detail), will be the appropriate development areas and thus the Sequential Test has been applied to the potential development areas of the site.

5. CLIMATE CHANGE

5.1. Climate change over the next 100 years or so is predicted to increase the probability of surface water flooding, as peak rainfall is predicted to significantly increase. Therefore, it is proposed to factor in a 40% climate change allowance, in accordance with the PPG on rain fall intensity for developments of a design life of 100 years and also the LLFA guidance.

5.2. In terms of the climate change allowances for the impacts on Fluvial Flooding, reference is made to the details provided by the Environment Agency (EA) which can be found in **Appendix B**. This data suggests that for sites classified as "More Vulnerable", as this site, an "upper end" allowance should be considered for climate change which is indicated as 65% for the Anglian River Basin District and for the lifetime of the development. This percentage will be used to calculate the River Great Ouse flood levels with climate change added.

6. SITE SPECIFIC FLOOD RISK ASSESSMENT

6.1. The 'Gov.uk' website flood mapping for this site has been reviewed and other sources of flood information including data from BCC, the EA and Internal Drainage Board (IDB) Bedford Group.

6.2. There are five main sources of flooding that have the potential to affect development and therefore must be assessed for their potential to flood the development and to increase the risk of flooding to others. The main sources of flooding that need to be considered are as follows:

- Fluvial and/or tidal flooding;
- Overland surface water flooding;
- Overloading of the existing drainage network;
- Ground water flooding; and
- Artificial flood sources.

Fluvial and Tidal Flooding

6.3. Fluvial and tidal flooding occurs when the natural capacity of a river system or sea defence (natural or manmade) is reached. The site is located within FRZ 1 and 2 (as shown on mapping in **Appendix A**) and abuts the River Great Ouse to the west, with eastern parts of the site being in FRZ 1. An indication of the associated flood mapping is shown on **Figure 2**.

6.4. To understand the local responsibilities or watercourses in the area of the site an assessment of the BBC Areas of Responsibilities, mapping, has been considered. See **Appendix C** for details.

6.5. An assessment of the local watercourses and rivers has indicated that the River Great Ouse is a main river as classified by the Environment Agency and the mapping extract can be seen in **Appendix C**.

6.6. An assessment of the watercourses locally has concluded that the site is outside the area controlled by the IBD, Bedford Group, thus no further action on this issue has been considered.

6.7. Notwithstanding the above, modelled fluvial flood level data for the River Great Ouse has been obtained from the EA for various flood events, including the 0.1% Annual Exceedance Probability (AEP), 1 in 100 plus climate change and 0.1% AEP, 1 in 1000 year flood events. This data is provided in **Appendix D**, dated 03 March 2021**.**

6.8. The EA flood level data indicates that the nearest recorded Modelled Flood Level Node Points for the River Great Ouse are as listed below, located west of the site. The associated fluvial flood levels are as indicated below, which have been extrapolated from the data provided by the EA and the graphs showing the extrapolation are in **Appendix E**.

Table 6.1 – EA River Great Ouse Flood Node Levels Plus CC

Node Point	1% AEP (1 in 100)	1% AEP (1 in 100) + 20%CC	1% AEP (1 in 100) + 65%CC	0.1% AEP (1 in 1000)
EA052349UO0118	16.27	16.42	16.73	16.73
EA052349UO0119	16.28	16.43	16.73	16.74
EA052349UO0120	16.39	16.44	16.71	16.75
EA052349UO0121	16.34	16.49	16.81	16.79
EA052349UO0122	16.39	16.54	16.91	16.83
EA052349UO0123	16.46	16.61	17.02	16.91
EA052349UO0124	16.50	16.65	17.12	16.94
EA052349UO0125	16.53	16.68	16.89	16.97
EA052349UO0126	16.58	16.72	16.95	17.00
EA052349UO0127	16.62	16.75	17.06	17.01
EA052349UO0128	16.70	16.81	17.16	17.06
EA052349UO0129	16.77	16.90	17.22	17.16

Source: Environment Agency. Fluvial Flood Levels - mAODN. CC= Plus Climate Change

6.9. The flood level data has been shown on the topographical survey on **Drawing 60830-PP-012A** to indicate the effects of the 1% AEP (1 in 100) plus 65% climate change river flooding or 0.1%AEP (1 in 1000) storm whichever is the higher indicated in **Table 6.1**.

Surface Water Flooding

6.10. An investigation into the surface water flooding in the local area of the site via the 'Gov.uk' maps, as shown on **Figure 3** (high risk) indicates some minor risk of surface water flooding in the centre of the site near Lower Farm and also near the railway underpass along the route of the ditch towards the River Great Ouse, relating to the 3.33% AEP (1 in 30 year) event.

6.11. For the Medium Risk Scenario (up to the 1.0% AEP), shown on **Figure 4** there is some minor flooding between 300mm and 900mm along the route of the ditch mentioned above.

6.12. For the Low risk 0.1% AEP (1 in 1000 year) event on **Figure 5**, the site is shown to be at risk of surface water flooding which appears to be mainly from the railway underpass and the associated watercourse to the west of the railway line, which then flows towards the River Great Ouse.

6.13. Consideration should be given to the surface water flow routes on any proposed development scheme and exceedance routes to ensure that a safe route to exit can be maintained in an extreme event. Our assessment of the 0.1% AEP event indicates that being able to exit the site avoiding the overland flow can be completed, showing that it is not detrimental to the development or an escape route.

Overloading of Existing Drainage Network

6.14. Flooding can occur when the drainage capacity of the network is exceeded or fails. This can be due to the design capacity of the network being less than the return period of the rainfall event. Otherwise, it can be when the network does not perform to the design capacity due to blockage or damage within the network. In addition, it can also occur if a water main fails. The water main and sewer plans can be found in **Appendix F**.

6.15. An assessment of the existing potable water network has been completed and there appears to be water mains parallel to Barford Road and these will need to be avoided with any future development.

6.16. An assessment of the surface water sewerage system locally indicated there are no surface water sewers within the site boundary.

6.17. There are foul water sewers within the site and these are positioned in the centre of the site near to Lower Farm, leading to a sewage treatment plant just to the north of Lower Farm. These will need to be avoided with any future development.

Groundwater Flooding

6.18. Groundwater flooding occurs when the water table rises. As such, groundwater flooding can happen sometime after a rainfall event and can last a considerable length of time.

6.19. Consideration has been given the groundwater vulnerability and this is indicated on **Figure 6**. The site is shown to be in a potential medium to low or low, Groundwater Vulnerability area.

6.20. The ground investigation records of the borehole (TL15NE119, taken from the BGS website) on the northern boundary of the site just south of the tree belt and RWE Power Station indicates that the ground water was not encountered to a depth of approximately 2.37m. The ground level of the borehole was 17.3m AOD, thus the groundwater would likely be at a level of approximately 14.93m.

6.21. The conclusion is that the groundwater level is not extremely deep and consideration to groundwater should be considered in the design of the proposed development and a surface water solution.

Artificial Sources of Flooding

6.22. A view of the Reservoir flooding risk to the site has also been assessed via the 'Gov.uk' mapping and shows no risk beyond that already identified earlier in this report, so it has not been investigated further.

7. SURFACE WATER MANAGEMENT

7.1. It is proposed to change the existing site from agricultural uses and dwellings to further residential and employment uses.

7.2. At the appropriate time, consideration to a surface water scheme taking into account the existing geology, sustainable drainage uses and greenfield run off will need to be completed.

7.3. Mitigation will be needed to manage the runoff from the development site in accordance with current policy, so to not cause a detrimental effect downstream.

7.4. In terms of the FRZ 2, this has been addressed in the report and an appropriate level across the site calculated. In accordance with national policy, it is suggested that no floor levels should be a minimum of whichever is the higher of:

- 300 millimetres (mm) above the general ground level of the site
- 600mm above the estimated river or sea flood level

7.5. On this site the highest flood level is 17.22m AOD (1.0% plus 65%CC) as **Table 6.1**, thus it is suggested that as a precaution the lowest floor level should be 17.85m AOD. Through agreement and careful consideration, the floor level may be able to be reduced to 17.34m AOD in the northeast of the site, which is 0.6m above the flood level of 16.74m AOD. The agreement of the floor levels may need to be agreed with the EA or LLFA.

8. OCCUPANTS AND USERS OF THE DEVELOPMENT

8.1. As the site is proposed for a change of use, from mainly agricultural to residential and employment, consideration to the users of the site will need to be addressed for the fluvial flood levels as well as the surface water flooding, for any accommodation or employment use, especially where occupants that may stay overnight.

9. EXCEPTION TEST

9.1. The exception test and assessment of the relevant flood levels with consideration to the appropriate climate change percentage has been completed. Development is proposed to be positioned in the areas of least flood risk, for example in FRZ 1. Therefore the site will be acceptable for the proposed uses.

10. RESIDUAL RISKS

10.1. The residual risk is usually taken to refer to the portion of overall risk that remains once risk mitigation measures have been implemented.

10.2. Groundwater flooding could occur, however, there is no proposed basement development suggested at the present time and the recorded groundwater is approximately 2.5m below the existing ground level. As previously stated, groundwater flooding can cause disruption, but the slow onset of this type of flooding means that it is unlikely to cause a serious danger to life or property. Any flow from the site could be channeled toward the roads / driveways as well as green space away from buildings.

10.3. A surface water flood greater than the 1.0% Annual Exceedance Probability could occur, which may exceed the capacity of the existing drainage system and cause flooding to the site. However, the site is on a slight slope and with building located on higher ground and with appropriate exceedance routing the surface water could be mitigated.

10.4. Other sources of potential flooding might be water main failure, but these are rare and also failure of the Anglian Water sewage treatment plant to the west of Barford Road near Lower Farm, however this has a monitoring station. Therefore these are unlikely to affect the development.

11. CONCLUSIONS

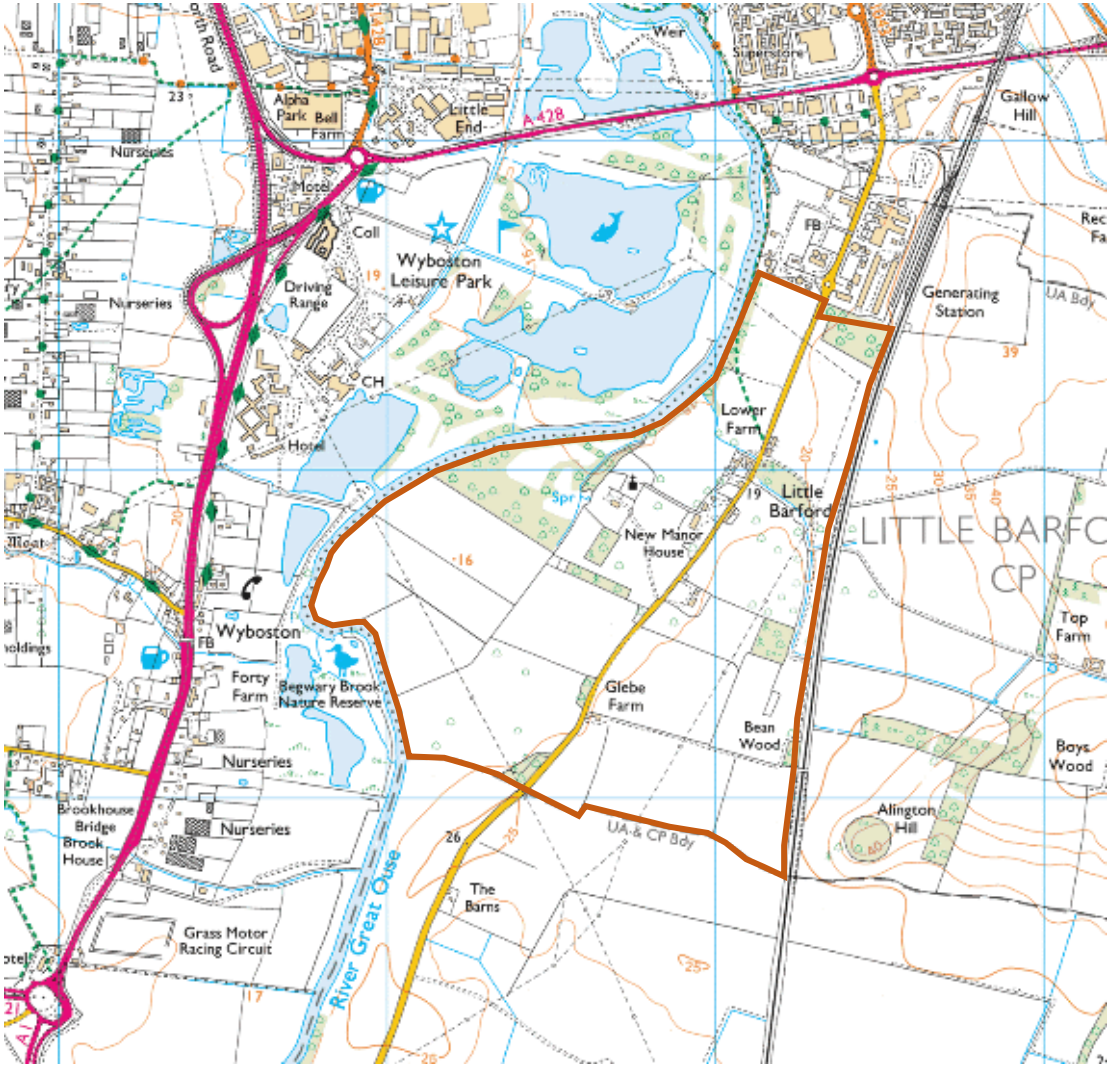
11.1. The site is location in an area of FRZ 1 and 2 and the development will be situated in Flood Zone 1 and is an appropriate for development for that zone according to the Planning Policy Guidance of the NPPF and the LLFA.

11.2. There will be no increase in water flow from the site once a suitable mitigation strategy is in place and development will be located outside of the surface water flooding areas.

11.3. The existing surface water flooding routes have been considered and will need to managed away from the development areas, thus meeting the requirement of the local and national policy.

RichardJackson
Engineering Consultants

FIGURES / DRAWINGS



Site location grid reference 518356,256536
and postcode PE19 6YD

Client:	Drawing Title:		
Executors of the Late Nigel Alington	Site Location Plan		
Job Title:	Date:	Job No:	Dwg No:
Little Barford, Bedfordshire	27.5.21	60830	Fig. 1 (NTS)

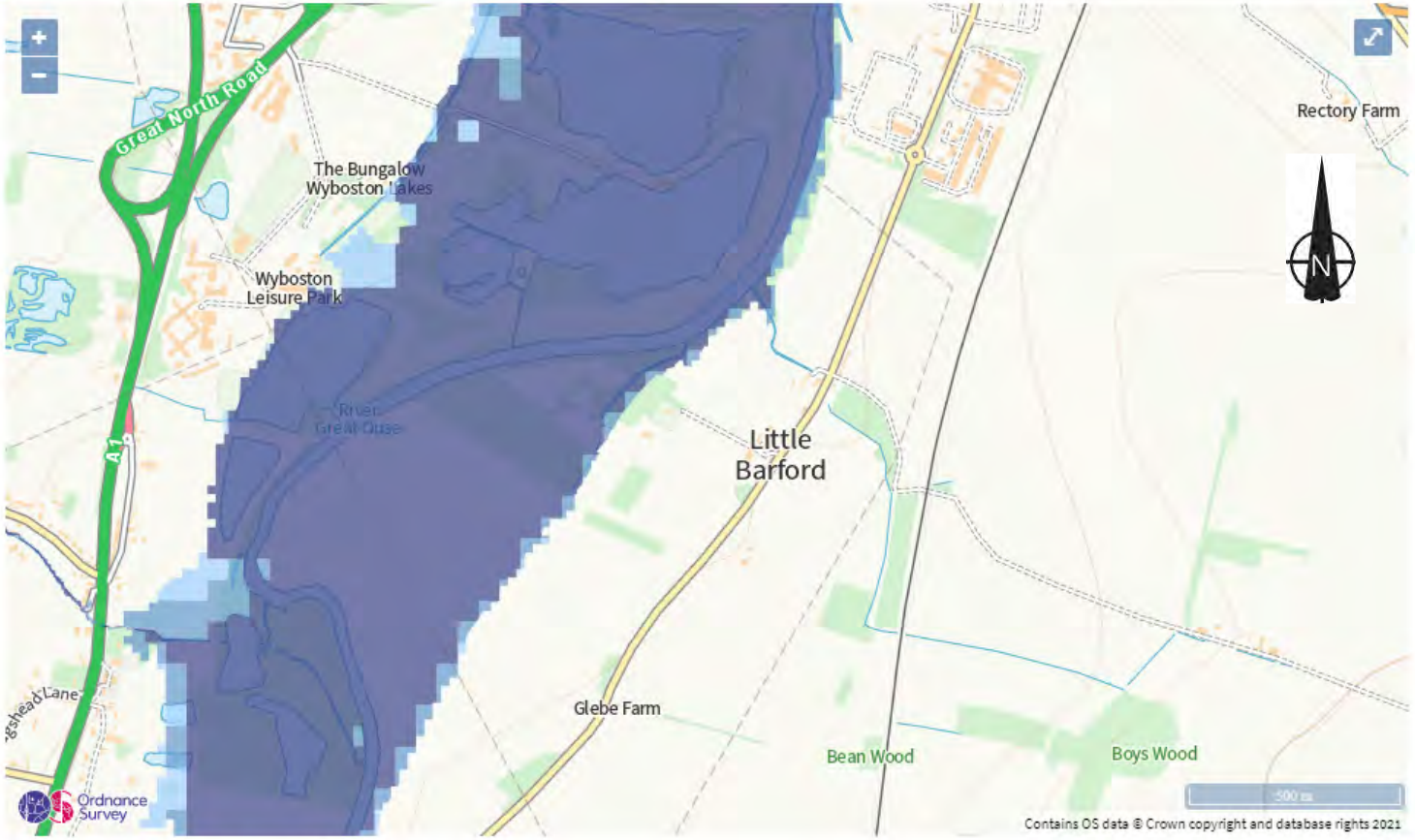
RichardJackson Engineering Consultants
4 The Old Church, St Matthews Road, Norwich, NR1 1SP
Tel. 01603 230240
www.richardjackson.uk.com

Flood risk

Extent of flooding

Location

Enter a place or postcode



Extent of flooding from rivers or the sea

High Medium Low Very low

Client:	Drawing Title:		
The Executors of the Late Nigel Alington	Flood Mapping (High Risk)		
Job Title:	Date:	Job No:	Dwg No:
Little Barford	27.5.21	60830	Fig. 2 (NTS)

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4 The Old Church, St Matthews Road, Norwich, NR1 1SP
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www.richardjackson.uk.com

Flood risk

High risk: depth

Location

Enter a place or postcode

Surface water flood risk: water depth in a high risk scenario

Flood depth (millimetres)

Over 900mm | 300 to 900mm | Below 300mm

Client:	Drawing Title:		
The Executors of the Late Nigel Alington	Surface Water Flooding (High Risk)		
Job Title:	Date:	Job No:	Dwg No:
Little Barford	27.5.21	60830	Fig. 3 (NTS)

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www.richardjackson.uk.com

Flood risk

Medium risk: depth

Location

Enter a place or postcode

Surface water flood risk: water depth in a medium risk scenario

Flood depth (millimetres)

Over 900mm | 300 to 900mm | Below 300mm

Client:	Drawing Title:		
The Executors of the Late Nigel Alington	Surface Water Flooding (Medium Risk)		
Job Title:	Date:	Job No:	Dwg No:
Little Barford	27.5.21	60830	Fig. 4 (NTS)

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4 The Old Church, St Matthews Road, Norwich, NR1 1SP
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Flood risk

Low risk: depth

Location

Enter a place or postcode

Surface water flood risk: water depth in a low risk scenario

Flood depth (millimetres)

Over 900mm | 300 to 900mm | Below 300mm

Client:	Drawing Title:		
The Executors of the Late Nigel Alington	Surface Water Flooding (Low Risk)		
Job Title:	Date:	Job No:	Dwg No:
Little Barford	27.5.21	60830	Fig. 5 (NTS)

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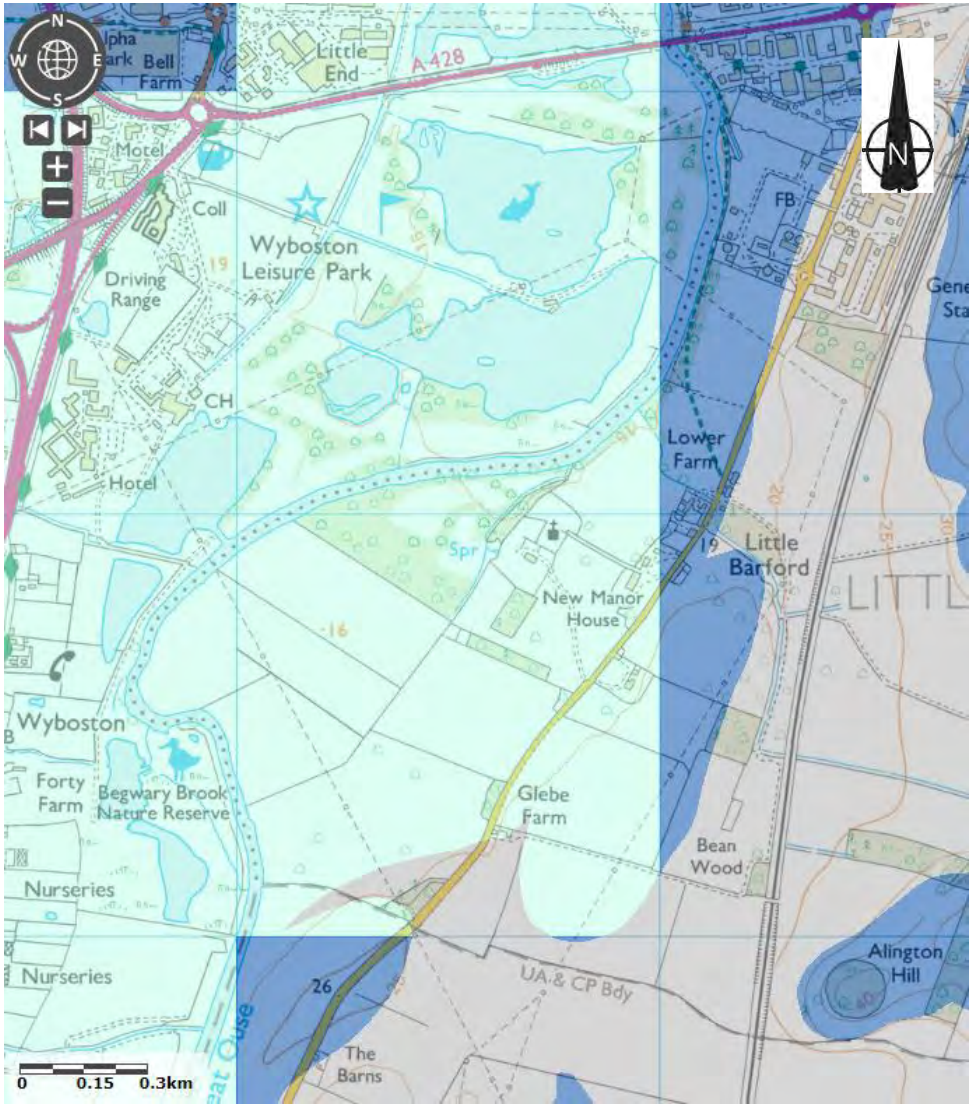

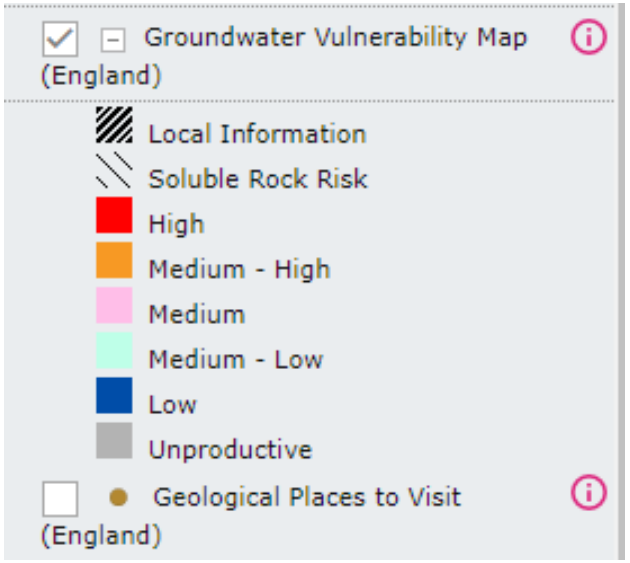

Client:	Drawing Title:		
The Executors of the Late Nigel Alington	Groundwater Vulnerability		
Job Title:	**Date:**	**Job No:**	**Dwg No:**
Little Barford	27.5.21	60830	Fig. 6 (NTS)

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4 The Old Church, St Matthews Road, Norwich, NR1 1SP
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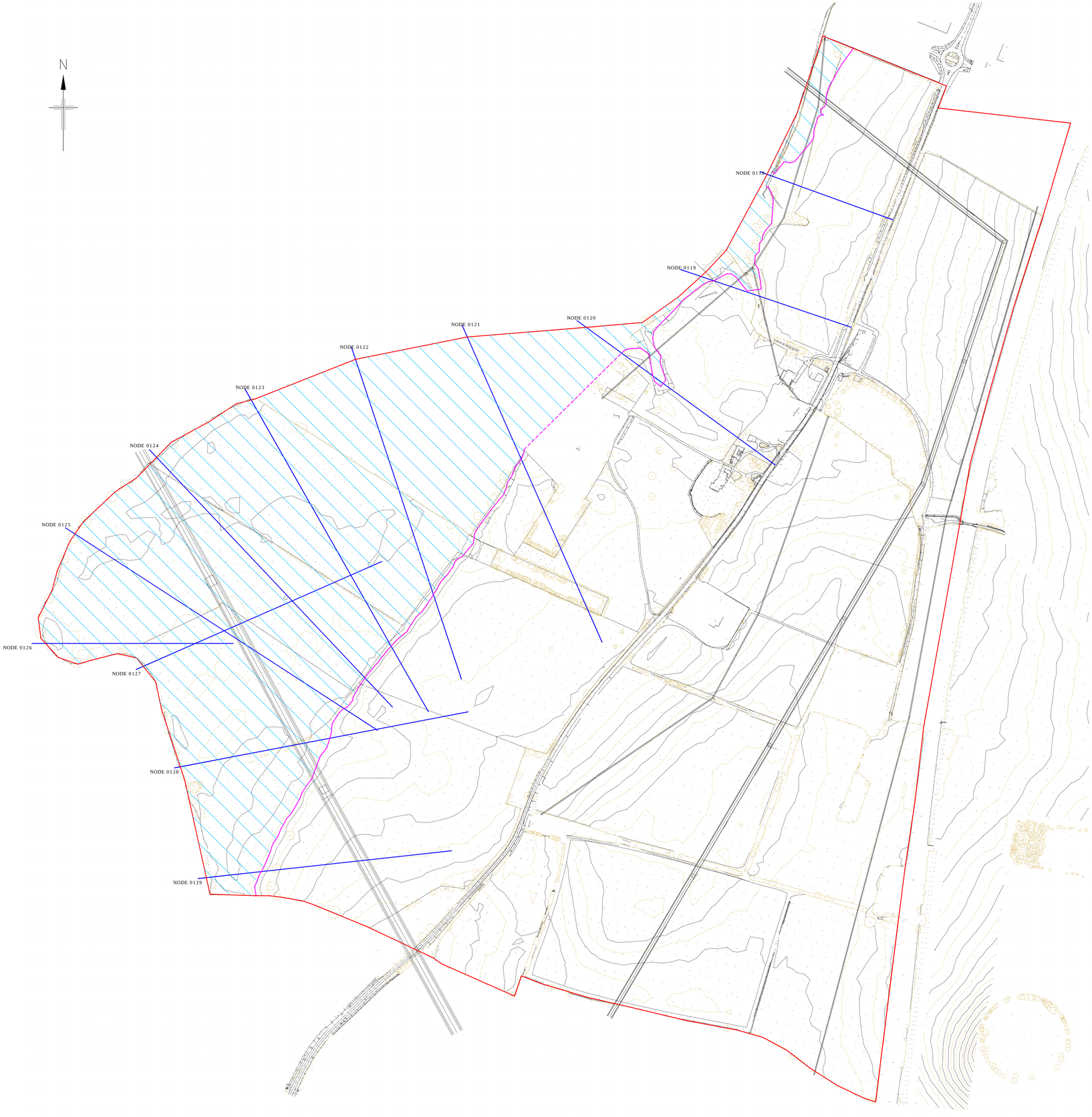
DO NOT SCALE



NOTES

1. ALL LEVELS ARE IN METRES ABOVE ORDNANCE SURVEY DATUM (mAOD).
2. THE POSITION OF FLUVIAL FLOOD LEVEL NODES AND CROSS SECTIONS SHOWN ON THIS DRAWING ARE APPROXIMATE AND HAVE BEEN REPRODUCED AS ACCURATELY AS POSSIBLE, FROM DATA PROVIDED BY THE ENVIRONMENT AGENCY (EA) FOR INFORMATION PURPOSES ONLY.
3. DATA WAS OBATINED FROM THE ENVIRONMENT AGENCY ON 3 MARCH 2021 AND IS ASSUMED TO BE THE MOST UP TO DATE DATA AVAILABLE.
4. THE TOPOGRAPHICAL SURVEY DATA WAS PROVIDED BY SURVEY SOLUTIONS LTD DATED 12.5.21, DRAWINGS 31109NOLS-05 TO 30, RICHARD JACKSON LTD ACCEPT NO LIABILITY FOR ERROR OR OMISSION WITH REGARD TO THE DATA CONTAINED WITHIN THE SURVEY.

KEY:

- INDICATIVE SITE BOUNDARY
- EA MODELLED FLOOD LEVEL CROSS SECTIONS - NODE VALUES ARE TO BE PREFIXED WITH THE FOLLOWING EA052349UO FOLLOWED BY 0118 (FOR EXAMPLE)
- CONTOUR OF 1% AEP (1 IN 100) PLUS 65%CC OR 0.1% (1IN 1000) YEAR FLOOD LEVEL (DATED 3 MARCH 2021)
- INTERPRETED CONTOUR OF 1% AEP (1 IN 100) PLUS 65%CC OR 0.1% (1IN 1000) YEAR FLOOD LEVEL (DATED 3 MARCH 2021), WHERE NO TOPOGRAPHICAL DATA IS PROVIDED
- EXTENT OF FLOOD RISK ZONE 2/3

REV	DATE	DESCRIPTION	DRAWN	CHKD
A	12.8.21	NOTES UPDATED	MJD	MJD

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
ALINGTON ESTATE, LITTLE BARFORD

Title
SITE AND PREDICTED FLOOD LEVELS

Client
THE EXECUTORS OF THE LATE NIGEL ALINGTON

Scale	Drawn	Date
1:2500 @ A0	MJD	27.5.21
Job Manager	Checked	Approved
M DOUGHTY	JENL	MJD

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8&7 The Crescent, Colchester, Essex CO4 9YQ — Tel: 01206 228800
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5 Quern House, Mill Court, Great Shelford, Cambs CB22 5LD — Tel: 01223 314794
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Email Address: mail@rj.uk.com — Website: http://www.rj.uk.com

Drawing No.	Revision
60830-PP-012	A

Drawing Status

- [X] INFORMATION
- [ ] APPROVAL
- [ ] COSTING
- [ ] TENDER
- [ ] CONSTRUCTION
- [ ] AS CONSTRUCTED

A0

APPENDIX A

Flood map for planning

Your reference	Location (easting/northing)	Created
60830	**518022/256851**	**26 May 2021 11:26**

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

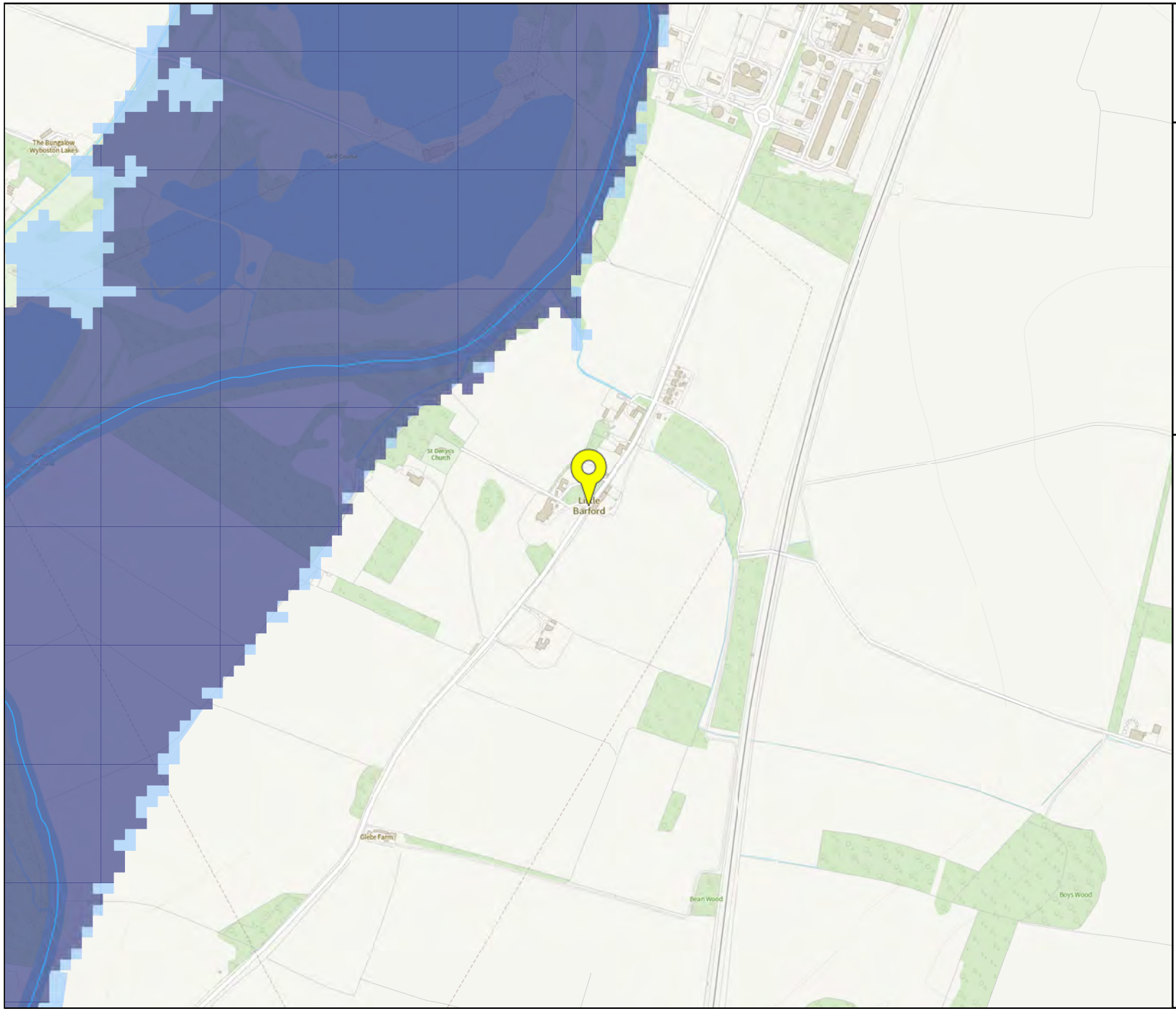
This means:

- 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
60830

Location (easting/northing)
518022/256851

Scale
1:10000

Created
26 May 2021 11:26

- 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

APPENDIX B

Flood risk assessments: Climate change allowances

Application of the allowances and local considerations

East Anglia; Essex, Norfolk, Suffolk, Cambridgeshire and Bedfordshire

1) The climate change allowances

The National Planning Practice Guidance refers planners, developers and advisors to the Environment Agency guidance on considering climate change in Flood Risk Assessments (FRAs). This guidance was updated in February 2016 and is available on Gov.uk. The guidance can be used for planning applications, local plans, neighbourhood plans and other projects. It provides climate change allowances for peak river flow, peak rainfall, sea level rise, wind speed and wave height. The guidance provides a range of allowances to assess fluvial flooding, rather than a single national allowance. It advises on what allowances to use for assessment based on vulnerability classification, flood zone and development lifetime.

2) Assessment of climate change impacts on fluvial flooding

Table A below indicates the level of technical assessment of climate change impacts on fluvial flooding appropriate for new developments depending on their scale and location. This should be used as **a guide only**. Ultimately, the agreed approach should be based on expert local knowledge of flood risk conditions, local sensitivities and other influences. **For these reasons we recommend that applicants and / or their consultants should contact the Environment Agency at the pre-planning application stage to confirm the assessment approach, on a case by case basis**. **Table A** defines three possible approaches to account for flood risk impacts due to climate change, in new development proposals:

- **Basic:** Developer can add an allowance to the 'design flood' (i.e. 1% annual probability) peak levels to account for potential climate change impacts. The allowance should be derived and agreed locally by Environment Agency teams.
- **Intermediate:** Developer can use existing modelled flood and flow data to construct a stage-discharge rating curve, which can be used to interpolate a flood level based on the required peak flow allowance to apply to the 'design flood' flow.
- **Detailed:** Perform detailed hydraulic modelling, through either re-running Environment Agency hydraulic models (if available) or construction of a new model by the developer.

Table A – Indicative guide to assessment approach

VULNERABILITY CLASSIFICATION	FLOOD ZONE	DEVELOPMENT TYPE		
		MINOR	SMALL-MAJOR	LARGE-MAJOR
ESSENTIAL INFRASTRUCTURE	Zone 2	Detailed		
	Zone 3a	Detailed		
	Zone 3b	Detailed		
HIGHLY VULNERABLE	Zone 2	Intermediate/ Basic	Intermediate/ Basic	Detailed
	Zone 3a	Not appropriate development		
	Zone 3b	Not appropriate development		
MORE VULNERABLE	Zone 2	Basic	Basic	Intermediate/ Basic
	Zone 3a	Intermediate/ Basic	Detailed	Detailed
	Zone 3b	Not appropriate development		
LESS VULNERABLE	Zone 2	Basic	Basic	Intermediate/ Basic
	Zone 3a	Basic	Basic	Detailed
	Zone 3b	Not appropriate development		
WATER COMPATIBLE	Zone 2	None		
	Zone 3a	Intermediate/ Basic		
	Zone 3b	Detailed		

Note: Where the table states 'not appropriate development', this is in line with national planning policy. If in exceptional circumstances such development types are proposed in these locations, we would expect a detailed modelling approach to be used.

NOTES:

- Minor: 1-9 dwellings/ less than 0.5 ha | Office / light industrial under 1ha | General industrial under 1 ha | Retail under 1 ha | Gypsy/traveller site between 0 and 9 pitches
- Small-Major: 10 to 30 dwellings | Office / light industrial 1ha to 5ha | General industrial 1ha to 5ha | Retail over 1ha to 5ha | Gypsy/traveller site over 10 to 30 pitches
- Large-Major: 30+ dwellings | Office / light industrial 5ha+ | General industrial 5ha+ | Retail 5ha+ | Gypsy/traveller site over 30+ pitches | any other development that creates a non residential building or development over 1000 sq m.

The assessment approach should be agreed with the Environment Agency as part of pre-planning application discussions to avoid abortive work.

3) Specific local considerations

Where the Environment Agency and the applicant and / or their consultant has agreed that a '**basic**´ level of assessment is appropriate the figures in Table B below can be used as a precautionary allowance for potential climate change impacts on peak 'design' (i.e. 1% annual probability) fluvial flood level rather than undertaking detailed modelling.

Table B – Local precautionary allowances for potential climate change impacts

Essex, Norfolk and Suffolk

Hydraulic Model (Watercourse)	Central	Higher Central	Upper
Blackwater & Brain - Blackwater between TL7520925623 and TL7820324314 Brain between TL7373323312 and TL7683821321	500mm	600mm	900mm
Chelmer - between TL6872107082 and TL7161609422 and TL7436306592	350mm	450mm	750mm
Colne (Model Extent)	450mm	600mm	950mm
Gipping – Downstream of Needham Market	400mm	500mm	850mm
Gipping – Needham Market and upstream including Somersham W/C	200mm	250mm	400mm
Norwich Downstream of TG2332009072	450mm	600mm	950mm
Norwich Upstream of TG2332009072	600mm	800mm	1200mm
Wensum (Model Extent)	400mm	500mm	800mm
Yare (Model Extent)	200mm	250mm	450mm
Broads (2008 Model Extent) Bure and Ant (2012 Model Extent)	Please use the current 1 in 1000 (0.1%) annual probability including climate change allowance		
Other main rivers, tributaries and ordinary watercourses	For other main rivers, tributaries and ordinary watercourses that are not stated above, basic allowances have not been calculated. In this instance you can either: • If flow data is available you can request this data from us and can conduct an intermediate assessment yourself • Or alternatively, you can choose to undertake a Detailed Assessment and "perform detailed hydraulic modelling, through either re-running our hydraulic models (if available) or constructing a new model		

Cambridgeshire and Bedfordshire

Watercourse / Model	Central	Higher Central	Upper End
Alconbury Brook	600mm	700mm	900mm
River Kym			
Lower Ouse (Model Extent)	700mm	800mm	1100mm
Mid Ouse (Cold Brayfield to Bromham – between SP9156852223 and TL0132950919)	700mm	800mm	1100mm
Mid Ouse (East of Bedford to Roxton – between TL0791848903 and TL1618854543)	700mm	850mm	1200mm
River Hiz and River Purwell	400mm	450mm	550mm
River Ivel	500mm	600mm	750mm
Pix Brook	450mm	500mm	600mm
Potton Brook	500mm	600mm	700mm
River Cam and tributaries (excluding the Cam Lodes and the Slade System)	600mm	700mm	950mm
Great Barford (ordinary watercourses)	500mm	550mm	650mm
Bromham (ordinary watercourse)	550mm	650mm	850mm

NOTES:

Urban areas excluded from the 'basic' approach: St Ives, Holywell, Godmanchester, Swavesey, Over, Bedford, Newport Pagnell, Buckingham and Leighton Buzzard. More detailed assessment of climate change allowances will need to be undertaken in these locations.

Use of these allowances will only be accepted after discussion with the Environment Agency.

4) Fluvial food risk mitigation

For planning consultations where we are a statutory consultee and our Flood risk standing advice **does not** apply we use the following benchmarks to inform flood risk mitigation for different vulnerability classifications. **These are a guide only**. **We strongly recommend you contact us at the pre-planning application stage to confirm this on a case by case basis.** For planning consultations where we are not a statutory consultee or our Flood risk Standing advice applies we recommend local planning authorities and developers use these benchmarks but we do not expect to be consulted.

- For development classed as '**Essential Infrastructure**' our benchmark for flood risk mitigation is for it to be designed to the '**upper end**' climate change allowance for the epoch that most closely represents the lifetime of the development, including decommissioning.

- For **highly vulnerable** or **more vulnerable developments** in flood zone 2, the '**central**' climate change allowance is our minimum benchmark for flood risk mitigation, and in flood zone 3 the '**higher central**' climate change allowance is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **higher central** (in flood zone 2) and the **upper end** allowance (in flood zone 3).

- For **water compatible** or **less vulnerable** development (e.g. commercial), the '**central**' climate change allowance for the epoch that most closely represents the lifetime of the development is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **higher central** (particularly in flood zone 3) to inform built in resilience.

For a visual representation of the above, please see Tables 1 and 2 overleaf.

5) Development in Tidal Areas

There is no change to the way we respond to sites affected solely by tidal flood risk as the sea level allowances are unchanged.

6) Our Service

Non-chargeable service

We will give a free opinion on:

- What climate change allowance to apply to a particular development type
- Which technical approach is suitable in the FRA

Chargeable service:

- Review of climate change impacts using intermediate and detailed technical approaches (i.e. modelling review)
- Assessment and review of proposals for managed adaptation.

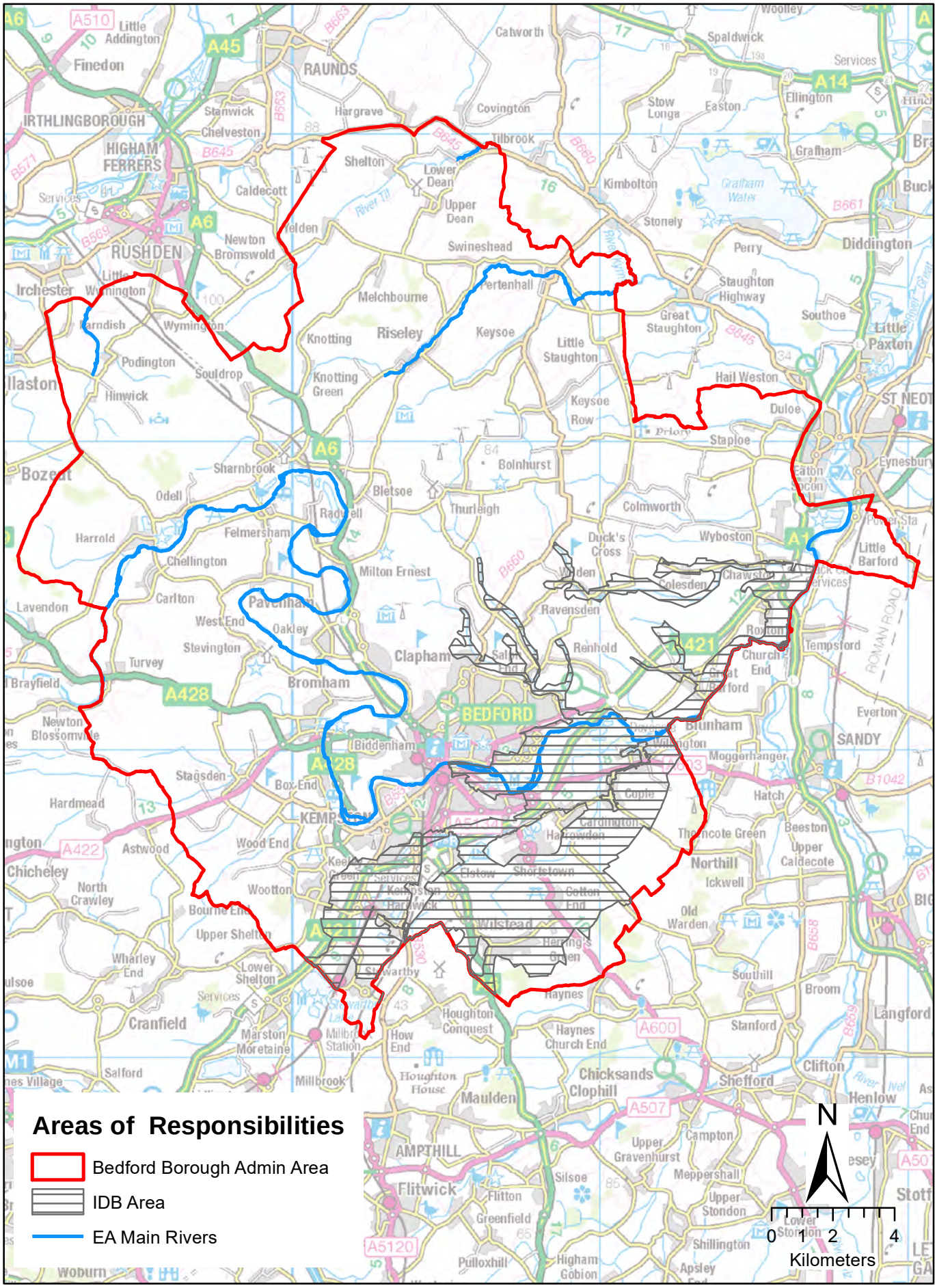
Table 1 peak river flow allowances by river basin district (use 1961 to 1990 baseline)				
River basin district	**Allowance category**	**Total potential change anticipated for '2020s'** **(2015 to 39)**	**Total potential change anticipated for '2050s'** **(2040 to 2069)**	**Total potential change anticipated for '2080s'** **(2070 to 2115)**
Anglian	**Upper end**	25%	35%	65%
	Higher central	15%	20%	35%
	Central	10%	15%	25%
Thames	**Upper end**	25%	35%	70%
	Higher central	15%	25%	35%
	Central	10%	15%	25%

Table 2: Using peak river flow allowances for flood risk assessments					
Flood Zone	**Essential Infrastructure**	**Highly Vulnerable**	**More Vulnerable**	**Less Vulnerable**	**Water Compatible**
2	higher central and upper end allowances	higher central and upper end allowances	central and higher central allowances	central allowance	none of the allowances
3a	upper end allowance	**X**	higher central and upper end	central and higher central	central allowance
3b	upper end allowance	**X**	**X**	**X**	central allowance

X – Development should not be permitted
If (exceptionally) development is considered appropriate when not in accordance with flood zone vulnerability categories, then it would be appropriate to use the upper end allowance.

There may be circumstances where local evidence supports the use of other data or allowances. Where you think this is the case we may want to check this data and how you propose to use it.

APPENDIX C



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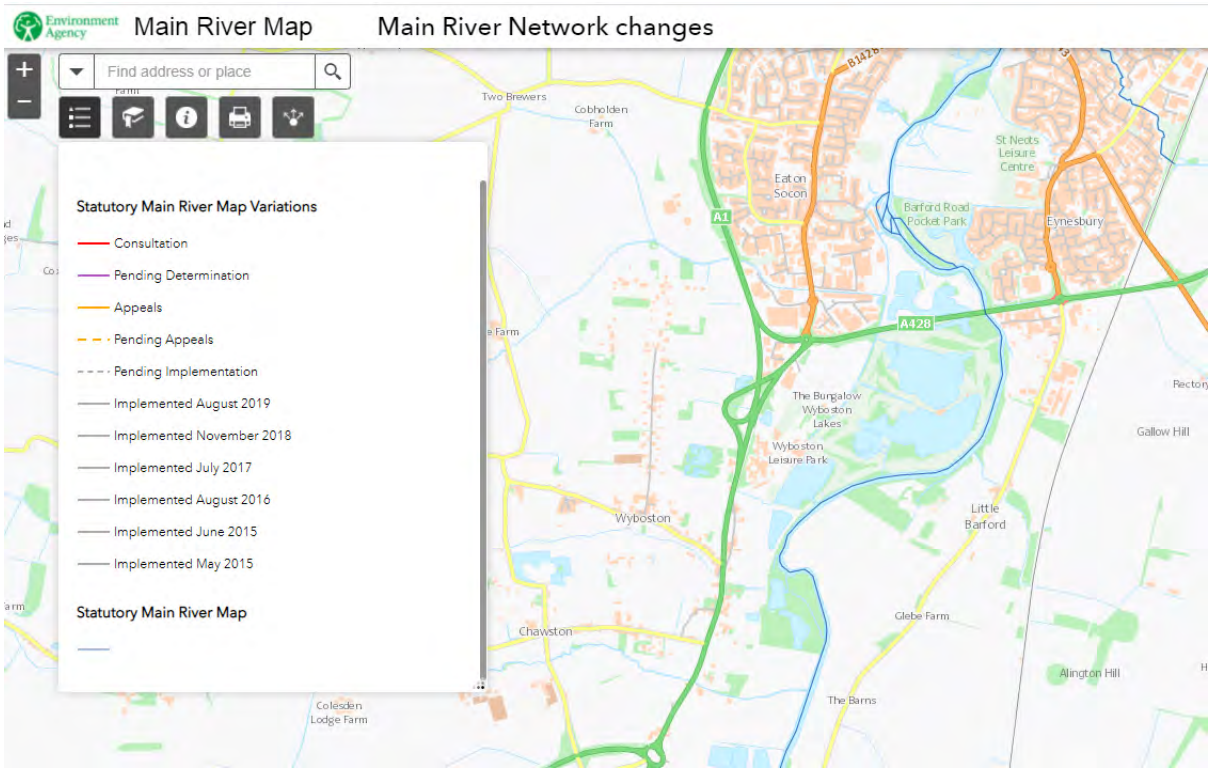
BEDFORD BOROUGH COUNCIL

Bedford Borough Council
Areas of Responsibilities

Environment Agency – Main River Mapping
Dated 27.5.21



APPENDIX D

Title

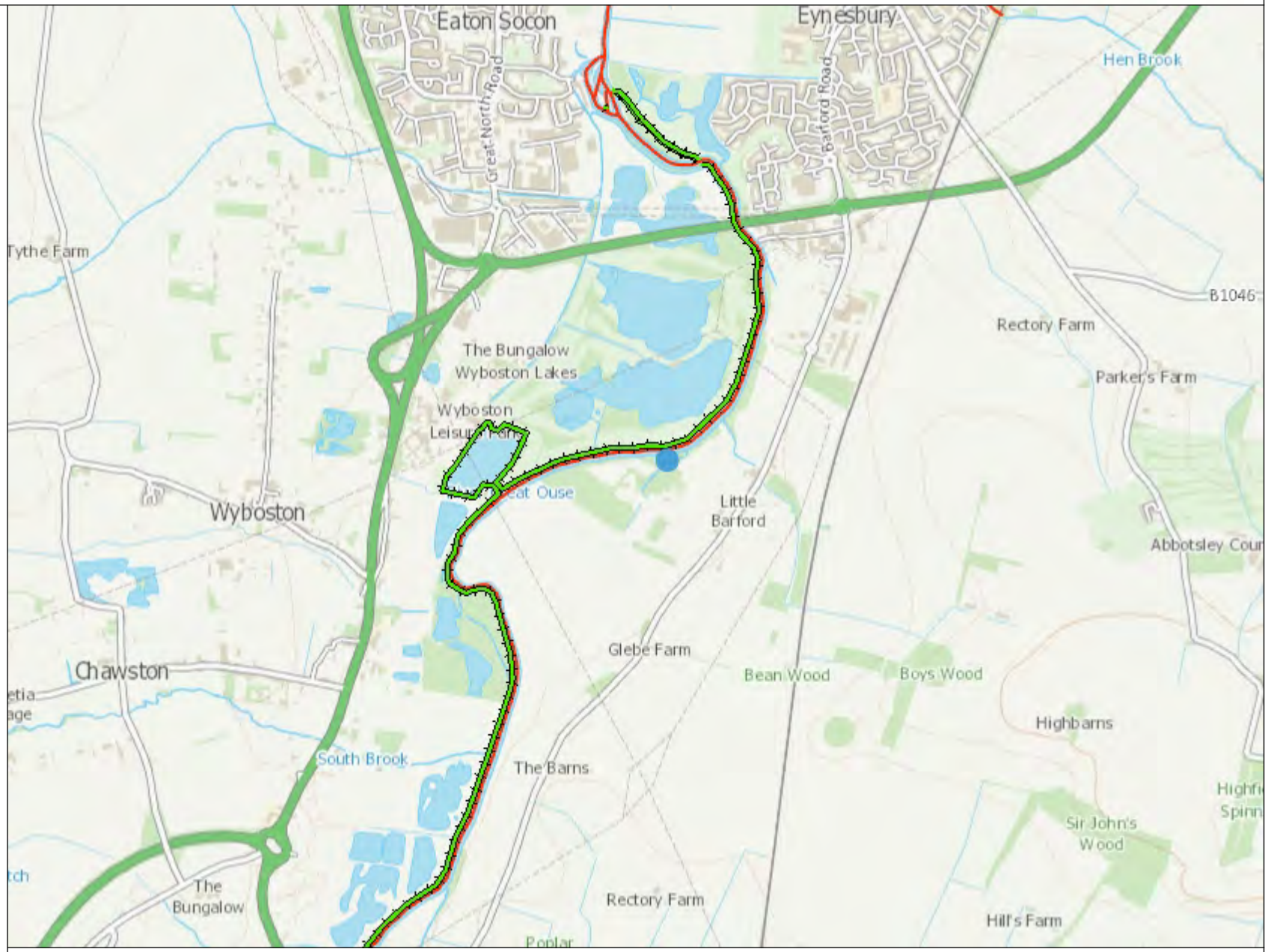
Environment Agency

Legend

Defences (EA maintained)

- Asset type not defined
- Embankment
- Wall
- Flood Gate
- Demountable Defence
- Bridge Abutment
- High Ground
- Beach
- Barrier Beach
- Promenade
- Quay
- Cliff
- Dunes

Statutory Main Rivers



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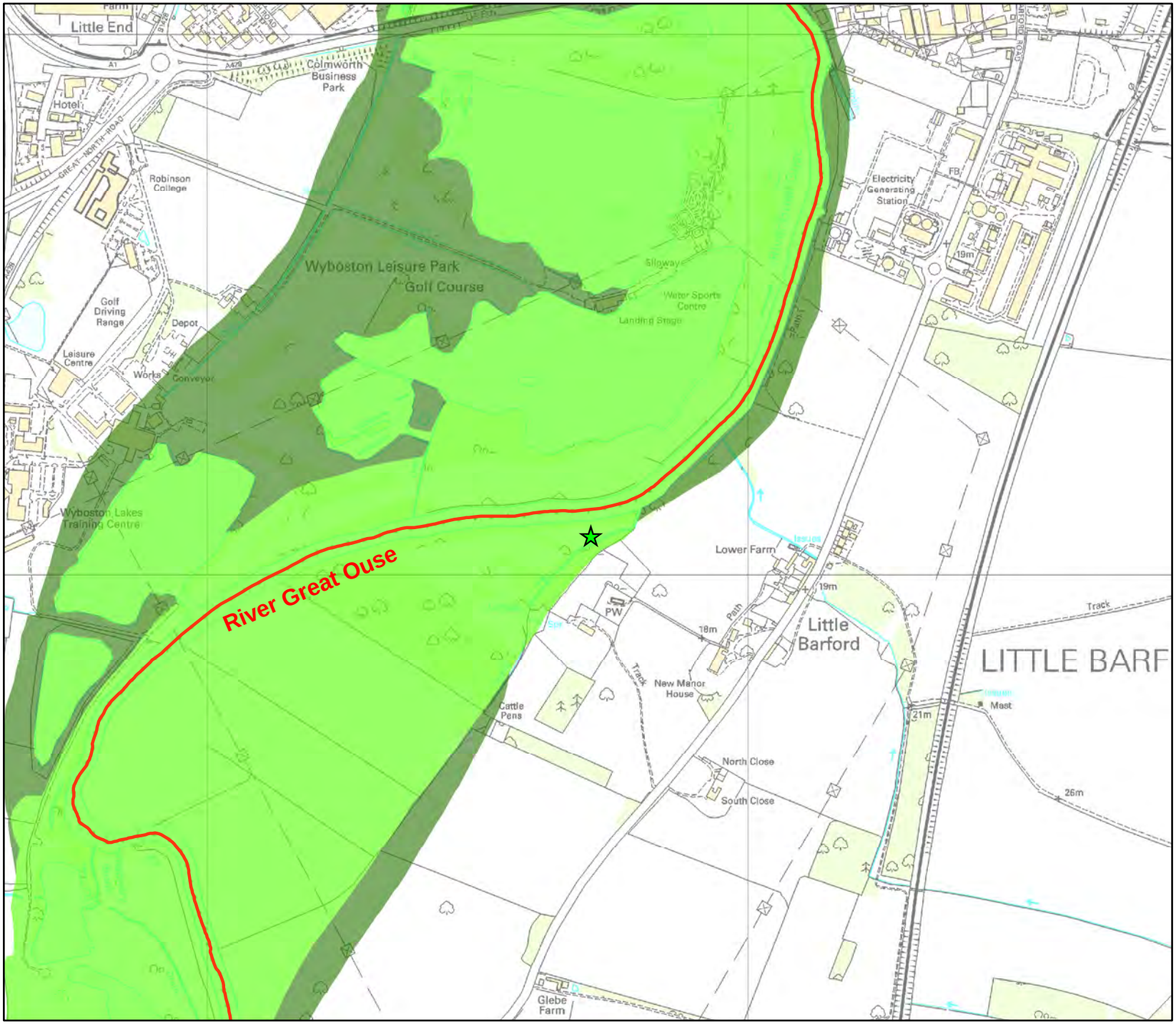
0 625

Metres

N W E S

Recorded Flood Event Outlines centred on land at Little Barford

NGR TL1771057072
Ref 206031
Created 03/03/2021



Environment Agency
Bromholme Lane,
Brampton,
Cambridgeshire
PE28 4NE

Environment Agency

Legend

- Site
- Main river
- Easter 1998
- March 1947

0 0.125 0.25 0.5 km

Information

Recorded Outlines - The recorded flood outlines provided are only indicative and may not accurately represent the area that flooded in the named events. Our historic flood event outlines do not provide a definitive record of flooding. It is possible that there will be an absence of datail in places where we have not been able to record the extent of flooding. It is also possible for errors occur in the digitisation of historic records of flooding.

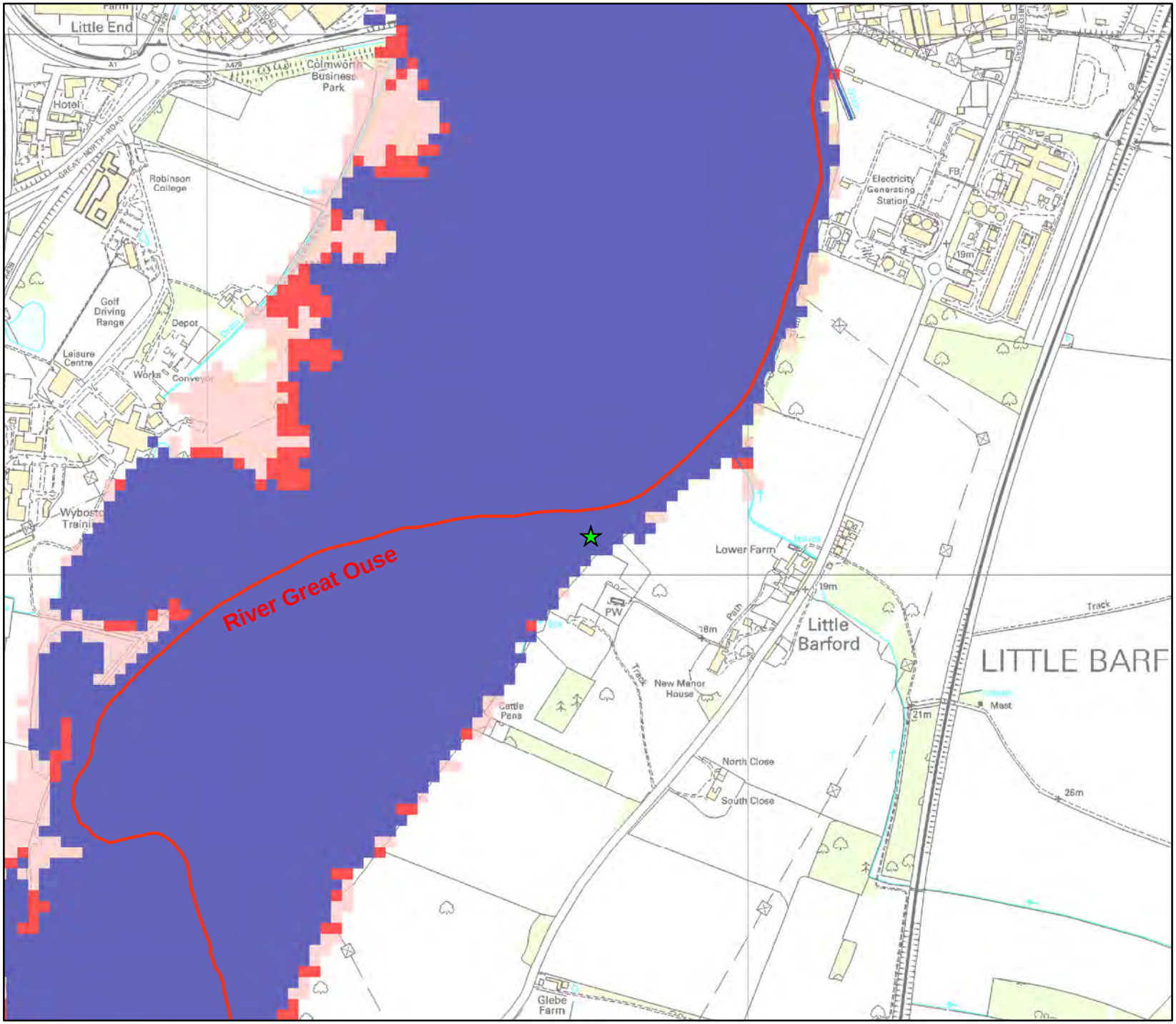
Recorded Outlines - There may be other flood events that have occurred that we have not been able to produce an outline for.

Recorded Outlines - The historic flood event outlines are based on a combination of anecdotal evidence, Environment Agency staff observations and survey.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Defended Model Flood Outlines centred on land at Little Barford

NGR TL1771057072
Ref 206031
Created 03/03/2021



Environment Agency
Bromholme Lane,
Brampton,
Cambridgeshire
PE28 4NE

Environment Agency

Legend

- Site
- Main river
- 5% AEP
- 1% AEP
- 0.1% AEP

0 0.125 0.25 0.5 km

Information

Model Tolerance - Any data included in this product is subject to a standard modelling tollerance of +/- 150mm.The fluvial models used to produce these results are intended for strategic scale use only.

Flood Risk Assessments - The Environment Agency recommends any Flood Risk Assessment should only consider these results in the context of a site specific assessment.

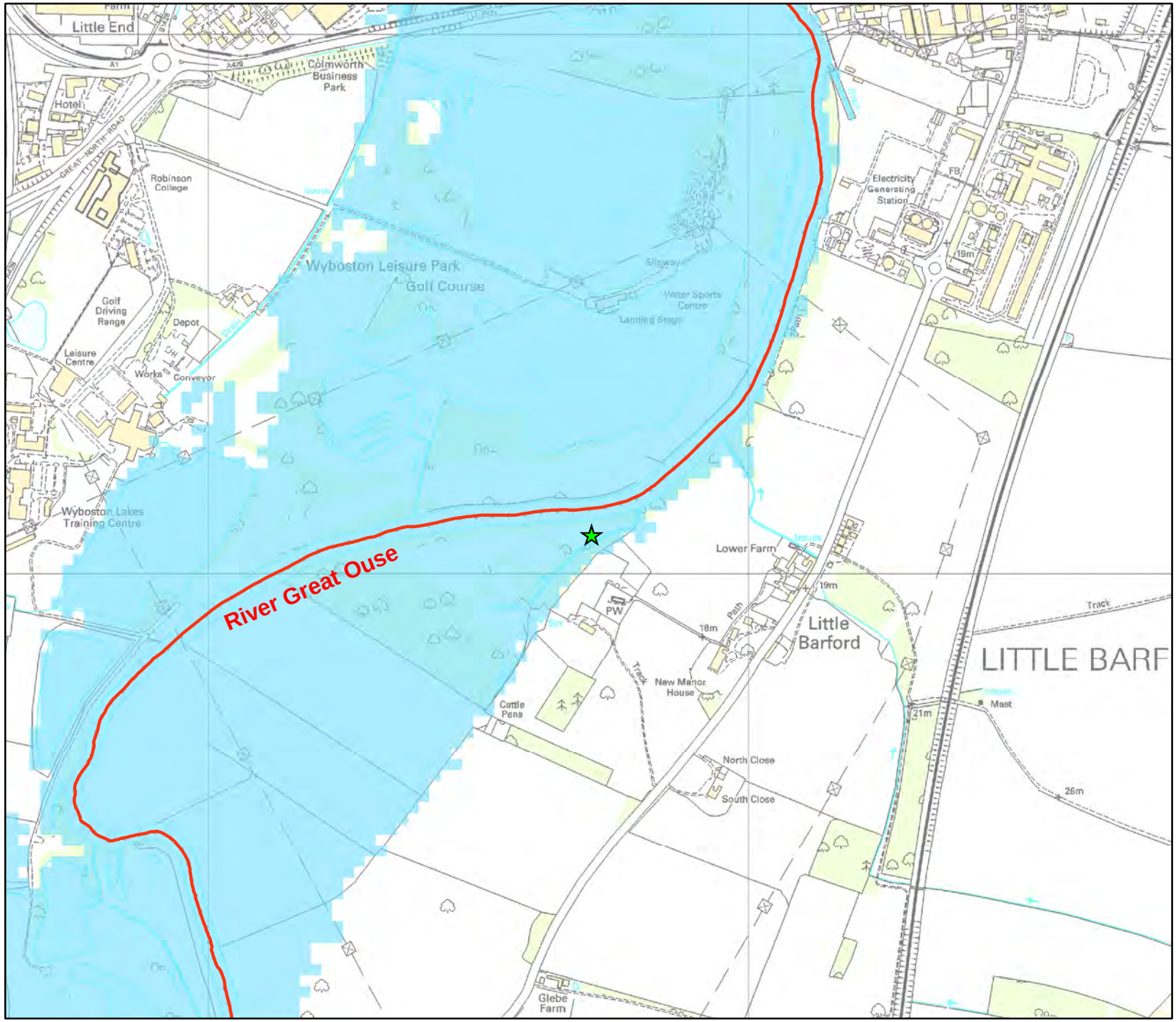
AEP - Annual Exceedance Probability - The probability of a given event occurring in any one year. Please note this is not a return period.

Strategic Scale Model - This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment. Modelled outlines take into account catchment wide defences if present.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Defended Climate Change Model Flood Outlines centred on land at Little Barford

NGR TL1771057072
Ref 206031
Created 03/03/2021



Environment Agency
Bromholme Lane,
Brampton,
Cambridgeshire
PE28 4NE

Environment Agency

Legend

- Site
- Main river
- 1% AEP +CC

0 0.125 0.25 0.5 km

Information

Model Tolerance - Any data included in this product is subject to a standard modelling tollerance of +/- 150mm.The fluvial models used to produce these results are intended for strategic scale use only.

Flood Risk Assessments - The Environment Agency recommends any Flood Risk Assessment should only consider these results in the context of a site specific assessment.

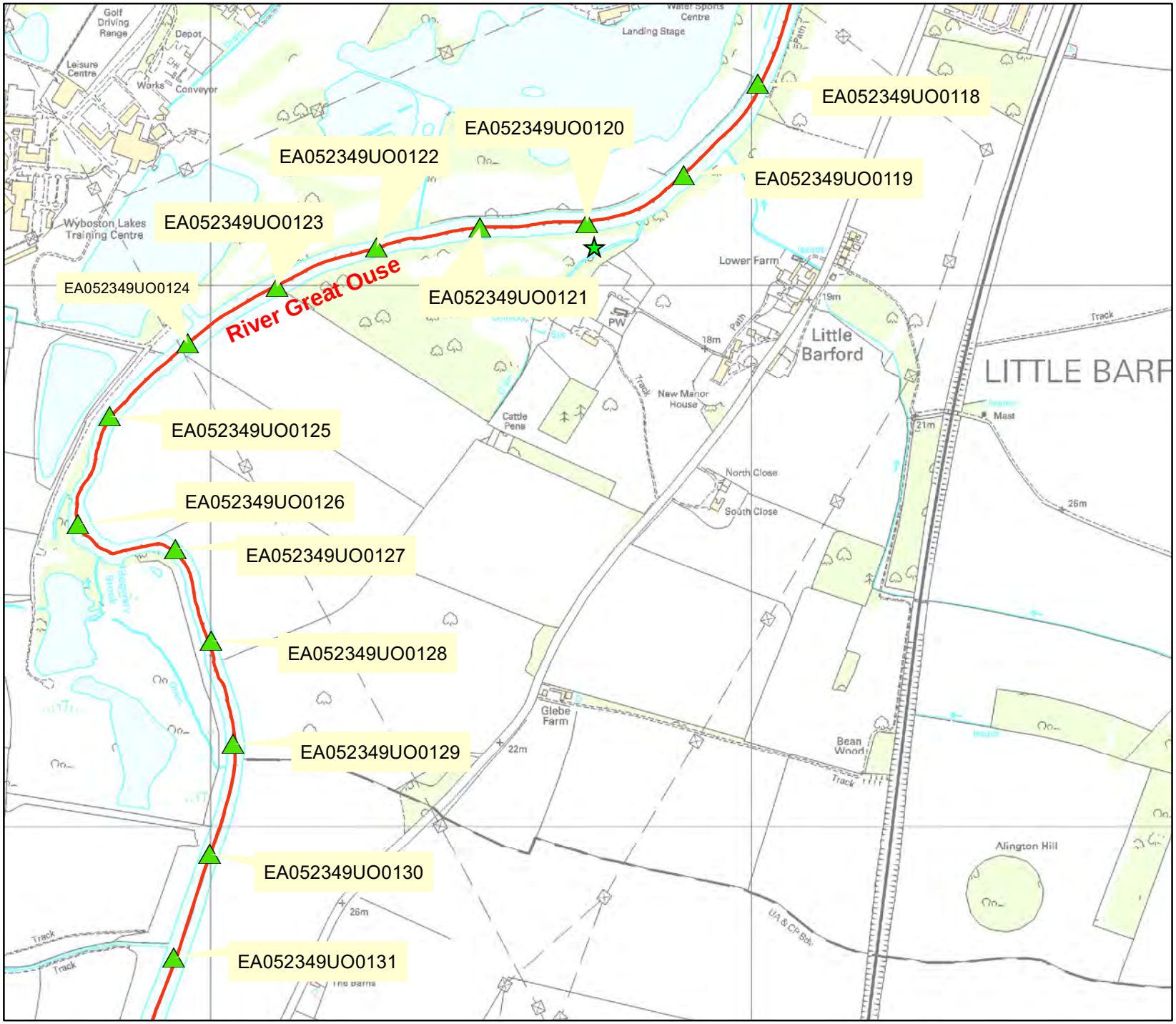
AEP - Annual Exceedance Probability - The probability of a given event occurring in any one year. Please note this is not a return period.

Strategic Scale Model - This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment. Modelled outlines take into account catchment wide defences if present.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY Tel: 03708 506 506 (Mon-Fri 8-6).
Email: enquiries@environment-agency.gov.uk

Modelled Node Point Locations centred on land at Little Barford

NGR TL1771057072
Ref 206031
Created 03/03/2021



Environment Agency
Bromholme Lane,
Brampton,
Cambridgeshire
PE28 4NE

Environment Agency

Legend

- Site
- Modelled Node Point
- Main river

0 0.125 0.25 0.5 km

Information

Model Tolerance - Any data included in this product is subject to a standard modelling tollerance of +/- 150mm.The fluvial models used to produce these results are intended for strategic scale use only.

Flood Risk Assessments - The Environment Agency recommends any Flood Risk Assessment should only consider these results in the context of a site specific assessment.

AEP - Annual Exceedance Probability - The probability of a given event occurring in any one year. Please note this is not a return period.

Strategic Scale Model - This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment. Modelled outlines take into account catchment wide defences if present.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Datasheet - Product 4

03 March 2021

Reference Number	206031
Site	Little Barford PE19 6YD
Customer	Martin Doughty
NGR	TL1771057072

This datasheet provides supporting information for your Product 4. It will be clearly indicated if we are unable to provide information to fulfil any part of your request.

Model Summary

Model Name	Model Code
Lower Ouse	EA052349

Important Information

The following information should considered when using the material provided to fulfil this request.

Information	
Limited Modelled Extents Provided	We have only provided a limited number of modelled flood extents for clarity. If you require further extents we will be happy to provide them.
Climate Change Allowances	The 1%+CC AEP flood level in the tables will be based on the 1% annual probability flood event including an additional 20% increase in peak flows to account for climate change impacts. Guidance on climate change allowances for the purpose of flood risk assessments is available on our website at https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances. You may need to undertake further assessment / modelling of future flood risk using different climate change allowances to ensure your assessment of future flood risk is based on the best available evidence.

Modelled Water Levels and Flows

The following tables provide modelled in channel water level and flow values. Values are provided for Annual Exceedence Probability (AEP) events, which is the probability of a given event occurring in any one year. This is not a return period.

The fluvial models used to produce these results are intended for strategic scale use only.

If the tables show a value of -9999, this indicates that we have no level or flow data for that particular AEP or node point.

Level Data

Level values are measured in metres above Ordnance Datum (m aOD).

All level data included are subject to standard modelling tolerance of +/-150 millimetres.

Present Day Levels

Node	Model	Easting	Northing	20%	10%	5%	4%	2%	1.33%	1%	0.5%	0.1%
EA052349UO0118	EA052349	518012	257373	15.87	15.96	-9999	16.08	16.17	16.23	16.27	16.37	16.73
EA052349UO0119	EA052349	517875	257204	15.88	15.97	-9999	16.1	16.19	16.24	16.28	16.38	16.74
EA052349UO0120	EA052349	517696	257116	15.89	15.98	-9999	16.11	16.2	16.26	16.29	16.39	16.75
EA052349UO0121	EA052349	517498	257108	15.92	16.02	-9999	16.15	16.25	16.31	16.34	16.44	16.79
EA052349UO0122	EA052349	517307	257070	15.97	16.07	-9999	16.21	16.3	16.36	16.39	16.49	16.83
EA052349UO0123	EA052349	517123	256998	16.01	16.12	-9999	16.26	16.37	16.43	16.46	16.57	16.91
EA052349UO0124	EA052349	516958	256893	16.04	16.15	-9999	16.3	16.4	16.46	16.5	16.6	16.94
EA052349UO0125	EA052349	516813	256758	16.07	16.18	-9999	16.33	16.44	16.5	16.53	16.64	16.97
EA052349UO0126	EA052349	516755	256558	16.18	16.27	16.36	16.4	16.49	16.55	16.58	16.68	17
EA052349UO0127	EA052349	516935	256513	16.25	16.35	16.44	16.46	16.54	16.59	16.62	16.71	17.01
EA052349UO0128	EA052349	517001	256343	16.34	16.44	16.52	16.55	16.62	16.67	16.7	16.78	17.06
EA052349UO0129	EA052349	517042	256152	16.38	16.49	16.58	16.6	16.69	16.74	16.77	16.86	17.16
EA052349UO0130	EA052349	516999	255949	16.44	16.55	16.64	16.67	16.77	16.82	16.85	16.96	17.27
EA052349UO0131	EA052349	516932	255758	16.47	16.59	16.69	16.73	16.82	16.88	16.91	17.01	17.32

Climate Change Level

Node	Model	Easting	Northing	1%+20%cc	1%+25%cc	1%+35%cc	1%+65%cc	0.5%+20%cc	0.1%+20%cc
EA052349UO0118	EA052349	518012	257373	16.42	-9999	-9999	-9999	-9999	-9999
EA052349UO0119	EA052349	517875	257204	16.43	-9999	-9999	-9999	-9999	-9999
EA052349UO0120	EA052349	517696	257116	16.44	-9999	-9999	-9999	-9999	-9999
EA052349UO0121	EA052349	517498	257108	16.49	-9999	-9999	-9999	-9999	-9999
EA052349UO0122	EA052349	517307	257070	16.54	-9999	-9999	-9999	-9999	-9999
EA052349UO0123	EA052349	517123	256998	16.61	-9999	-9999	-9999	-9999	-9999
EA052349UO0124	EA052349	516958	256893	16.65	-9999	-9999	-9999	-9999	-9999
EA052349UO0125	EA052349	516813	256758	16.68	-9999	-9999	-9999	-9999	-9999
EA052349UO0126	EA052349	516755	256558	16.72	-9999	-9999	-9999	-9999	-9999
EA052349UO0127	EA052349	516935	256513	16.75	-9999	-9999	-9999	-9999	-9999
EA052349UO0128	EA052349	517001	256343	16.81	-9999	-9999	-9999	-9999	-9999
EA052349UO0129	EA052349	517042	256152	16.9	-9999	-9999	-9999	-9999	-9999
EA052349UO0130	EA052349	516999	255949	17	-9999	-9999	-9999	-9999	-9999
EA052349UO0131	EA052349	516932	255758	17.06	-9999	-9999	-9999	-9999	-9999

Flow Data

Flow values are measured in cubic metres per second (cumecs - m3/s).

Present Day Flows

Node	Model	Easting	Northing	20%	10%	5%	4%	2%	1.33%	1%	0.5%	0.1%
EA052349UO0118	EA052349	518012	257373	84.56	91	-9999	100.5	107.5	111.1	113.7	118.9	131.9
EA052349UO0119	EA052349	517875	257204	94.3	103.9	-9999	117.4	127.1	132.3	135.6	142.8	157.1
EA052349UO0120	EA052349	517696	257116	105.5	116.8	-9999	130.2	139.8	144.8	148.0	154.6	168.0
EA052349UO0121	EA052349	517498	257108	103.7	114.6	-9999	126.9	135.5	140.1	142.9	149.6	163.4
EA052349UO0122	EA052349	517307	257070	96.41	105.7	-9999	117.1	125.7	130.7	134.0	141.9	161.6
EA052349UO0123	EA052349	517123	256998	92.63	98.26	-9999	104.7	109.1	111.8	113.3	117.8	125.9
EA052349UO0124	EA052349	516958	256893	95.99	101.0	-9999	104.7	106.6	109.0	110.2	114.0	125.6
EA052349UO0125	EA052349	516813	256758	110.3	114.7	-9999	116.1	117.6	118.3	119.3	120.8	125.5
EA052349UO0126	EA052349	516755	256558	112.1	122.0	127.0	127.3	128.6	129.3	129.9	132.6	148.1
EA052349UO0127	EA052349	516935	256513	104.2	113.4	120.4	122.3	129.2	133.7	136.3	143.6	167.8
EA052349UO0128	EA052349	517001	256343	104.2	113.4	123.3	127.0	139.8	147.0	152.0	166.3	200.3
EA052349UO0129	EA052349	517042	256152	106.0	118.5	131.1	135.0	146.3	151.9	156.3	168.4	199.8
EA052349UO0130	EA052349	516999	255949	106.0	118.6	130.6	134.1	143.5	147.9	151.2	159.9	189.3
EA052349UO0131	EA052349	516932	255758	104.8	113	121.3	124.2	133.7	139.4	143.4	154.5	190.4

Climate Change Flows

Node	Model	Easting	Northing	1%+20%cc	1%+25%cc	1%+35%cc	1%+65%cc	0.5%+20%cc	0.1%+20%cc
EA052349UO0118	EA052349	518012	257373	121.6	-9999	-9999	-9999	-9999	-9999
EA052349UO0119	EA052349	517875	257204	146.3	-9999	-9999	-9999	-9999	-9999
EA052349UO0120	EA052349	517696	257116	157.9	-9999	-9999	-9999	-9999	-9999
EA052349UO0121	EA052349	517498	257108	153.3	-9999	-9999	-9999	-9999	-9999
EA052349UO0122	EA052349	517307	257070	146.5	-9999	-9999	-9999	-9999	-9999
EA052349UO0123	EA052349	517123	256998	120.0	-9999	-9999	-9999	-9999	-9999
EA052349UO0124	EA052349	516958	256893	116.6	-9999	-9999	-9999	-9999	-9999
EA052349UO0125	EA052349	516813	256758	121.0	-9999	-9999	-9999	-9999	-9999
EA052349UO0126	EA052349	516755	256558	134.8	-9999	-9999	-9999	-9999	-9999
EA052349UO0127	EA052349	516935	256513	147.6	-9999	-9999	-9999	-9999	-9999
EA052349UO0128	EA052349	517001	256343	172.4	-9999	-9999	-9999	-9999	-9999
EA052349UO0129	EA052349	517042	256152	173.2	-9999	-9999	-9999	-9999	-9999
EA052349UO0130	EA052349	516999	255949	163.6	-9999	-9999	-9999	-9999	-9999
EA052349UO0131	EA052349	516932	255758	159.2	-9999	-9999	-9999	-9999	-9999

Recorded Flood Events

Where included, the Recorded Flood Event Outlines map provides an indication of areas which have flooded. Not all properties shown to be within the outline will have flooded.

Flood Event	Start	End	Source	Cause
Easter 1998	08/04/1998	15/04/1998	Main River	Channel Capacity Exceeded (no raised defences)
March 1947	13/03/1947	17/03/1947	Main River	Channel Capacity Exceeded (no raised defences)

General Information

Flood Map for Planning (Rivers and Sea

The Flood Map for Planning (Rivers and Sea) indicates the area at risk of flooding for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring in any year for fluvial (river) flooding (Flood Zone 3).

It also shows the extent of the Extreme Flood Outlines (Flood Zone 2) which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater. The Flood Zones refer to the land at risk of flooding and do not refer to individual properties.

The Flood Map for Planning (Rivers and Sea) can be viewed and downloaded as a PDF file on GOV.UK by following this link: https://flood-map-for-planning.service.gov.uk or downloaded in GIS format under an open data licence from the following address: https://data.gov.uk/publisher/environment-agency

The Flood Map is updated on a quarterly basis to account for any amendments required.

Surface Water, Ordinary Watercourses and Groundwater Flooding

Lead Local Flood Authorities (LLFA) are responsible for managing local flood risk from ordinary watercourses, surface water flooding and groundwater flooding. You should check with the LLFA as they may have more up to date information regarding this type of flooding.

The Risk of Flooding from Surface Water Flood Map can be viewed and downloaded as a PDF file on GOV.UK by following this link: https://flood-warning-information.service.gov.uk/long-term-flood-risk

Information on how to reduce the impact of flooding from groundwater can be found online by the following link: https://www.gov.uk/government/publications/flooding-from-groundwater

Flooding from Reservoirs

The Risk of Flooding from Reservoirs Flood Map can be viewed and downloaded as a PDF file on GOV.UK by following this link: https://flood-warning-information.service.gov.uk/long-term-flood-risk

Sewer Flooding

Your local water company may have information on sewage flooding in your area of interest.

Areas Benefitting from Defence

Areas Benefitting from Defences show the area benefiting from defences from a 1 in 100 (1% AEP) year fluvial event or a 1 in 200 (0.5% AEP) tidal/coastal event.

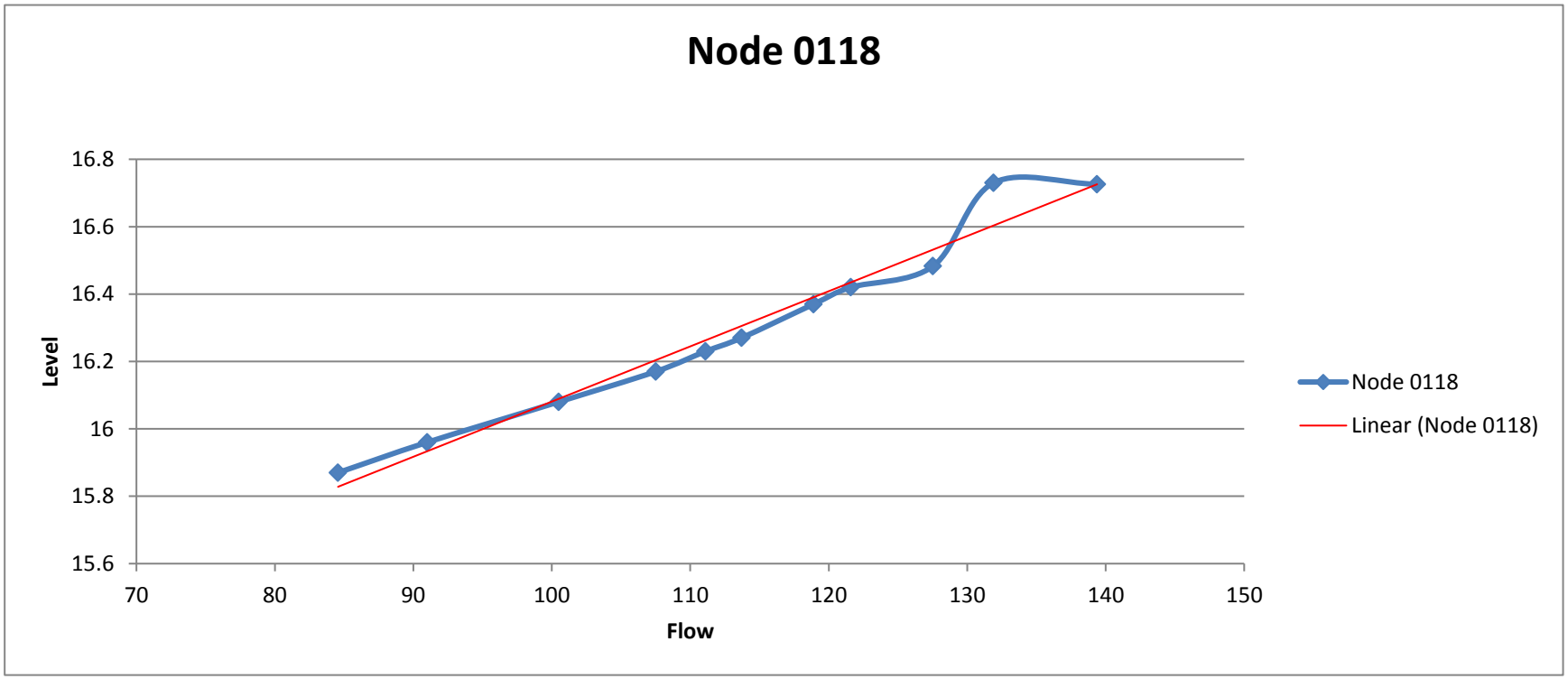
The associated dataset can be downloaded in GIS from the following link: https://data.gov.uk/dataset/flood-map-for-planning-rivers-and-sea-areas-benefiting-from-defences

APPENDIX E

RichardJackson Engineering Consultants

River Great Ouse - Little Barford

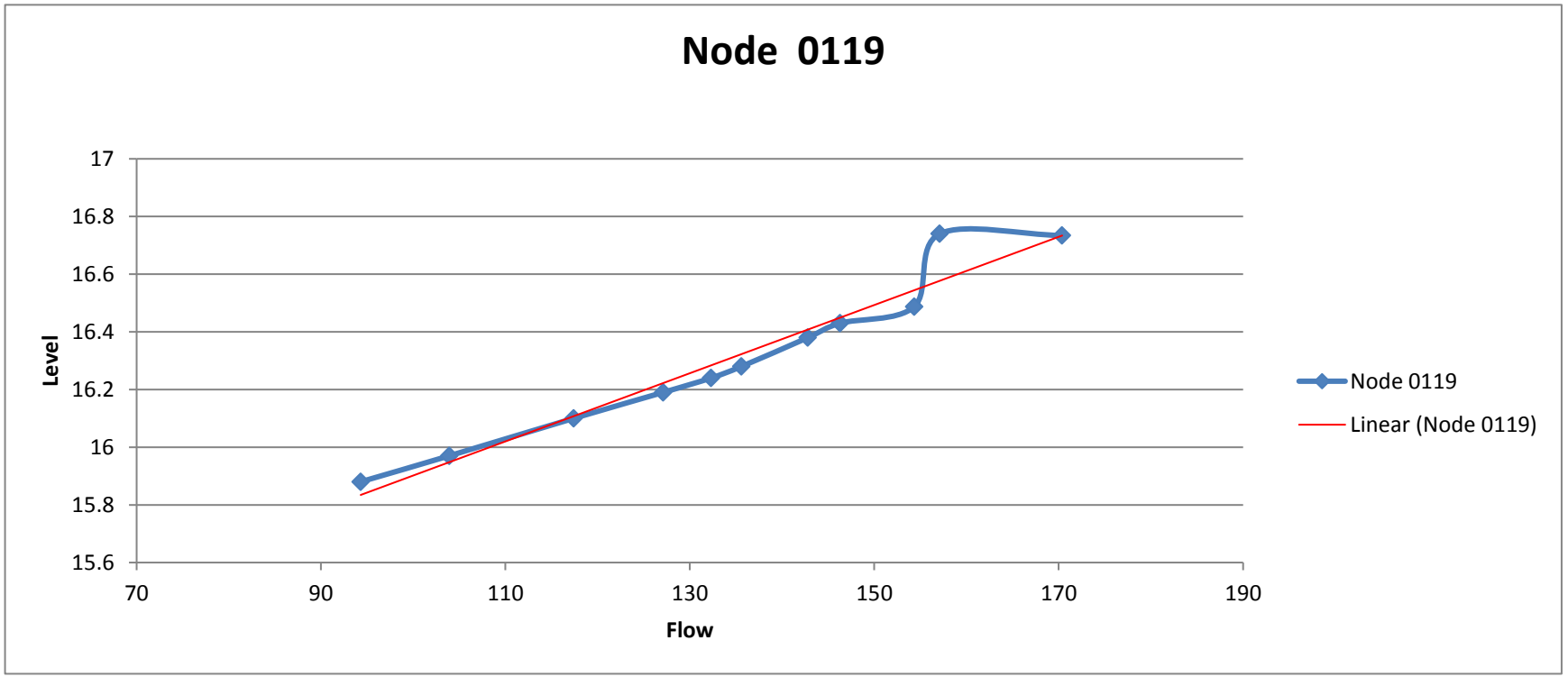
Node 0118									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	84.56	91	100.5	107.5	111.1	113.7	118.9	121.6	127.525	131.9	139.375
level	15.87	15.96	16.08	16.17	16.23	16.27	16.37	16.42	16.483	16.73	16.726



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

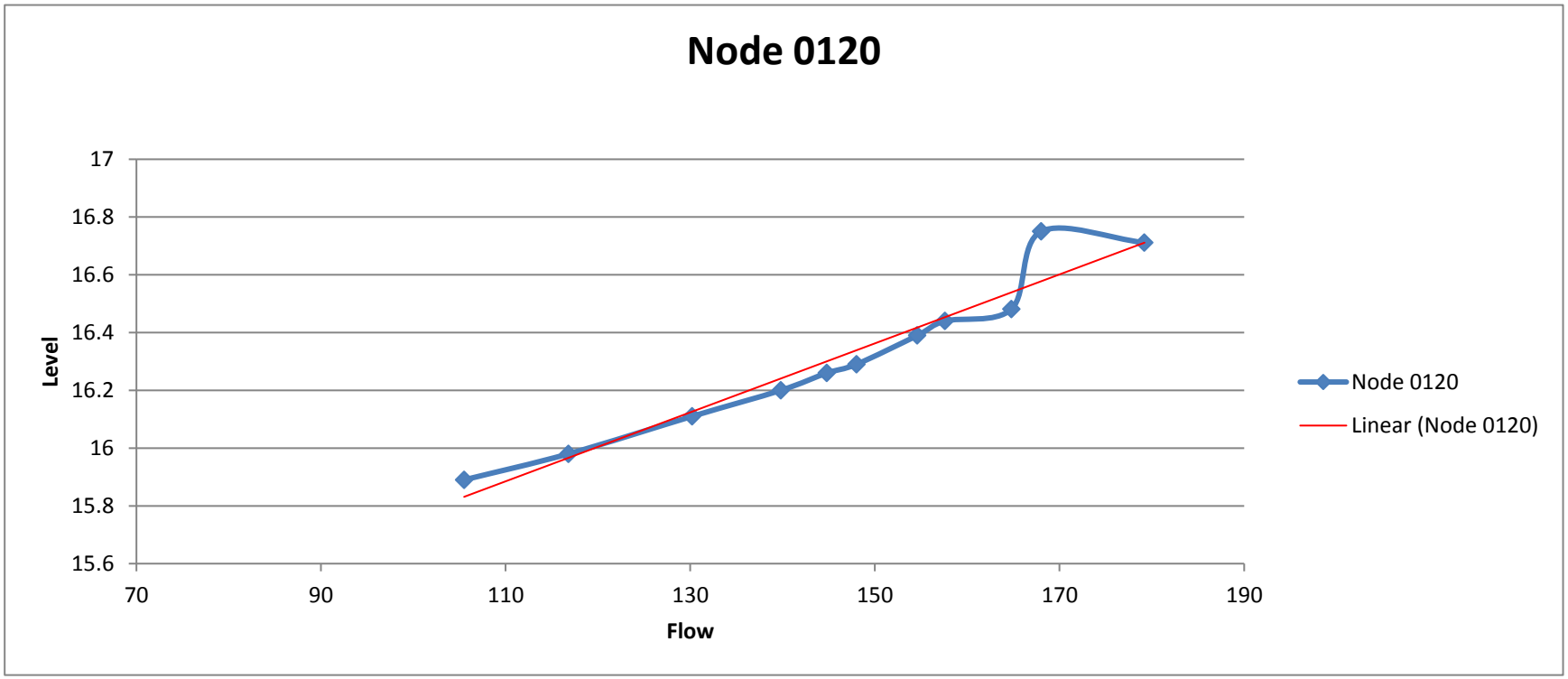
Node 0119									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	94.3	103.9	117.4	127.1	132.3	135.6	142.8	146.3	154.325	157.1	170.375
level	15.88	15.97	16.1	16.19	16.24	16.28	16.38	16.43	16.487	16.74	16.734



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

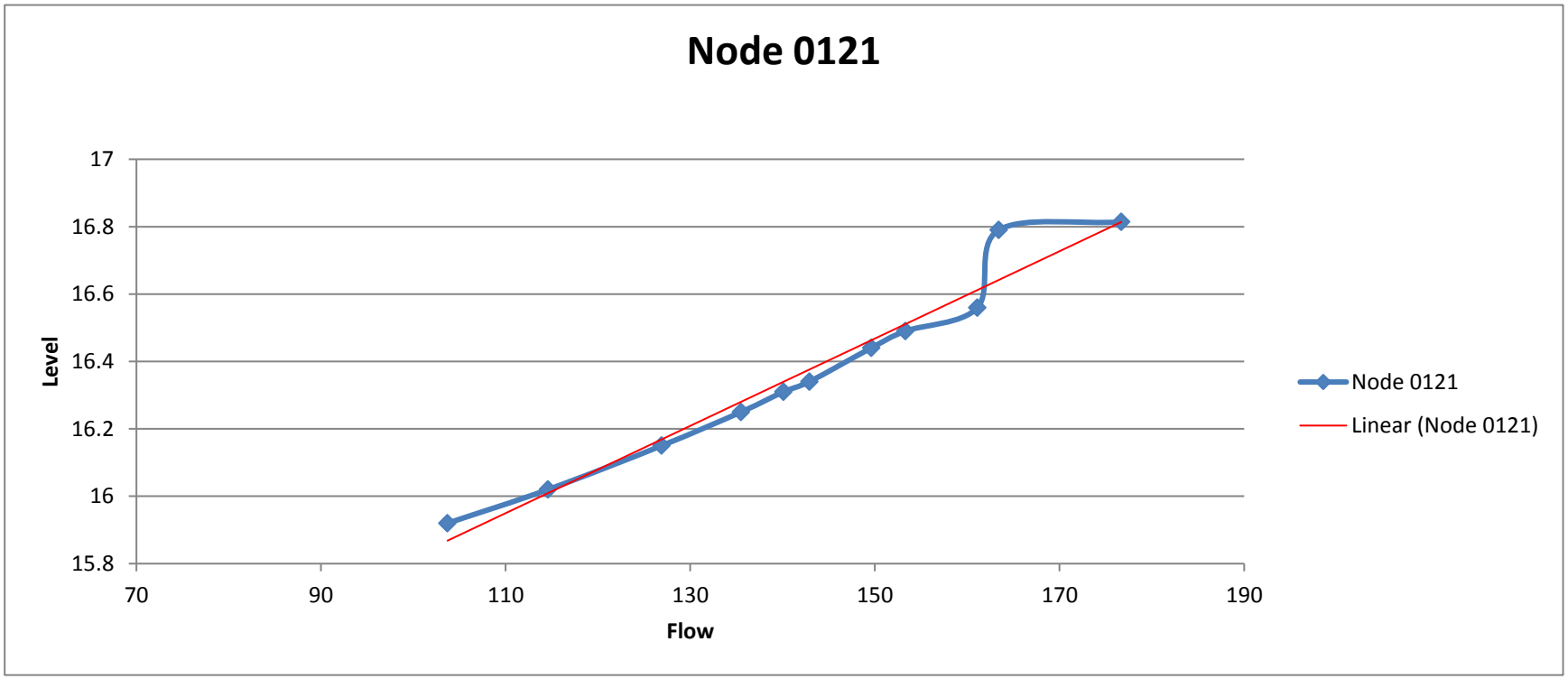
Node 0120									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	105.5	116.8	130.2	139.8	144.8	148	154.6	157.6	164.800	168	179.200
level	15.89	15.98	16.11	16.2	16.26	16.29	16.39	16.44	16.482	16.75	16.711



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

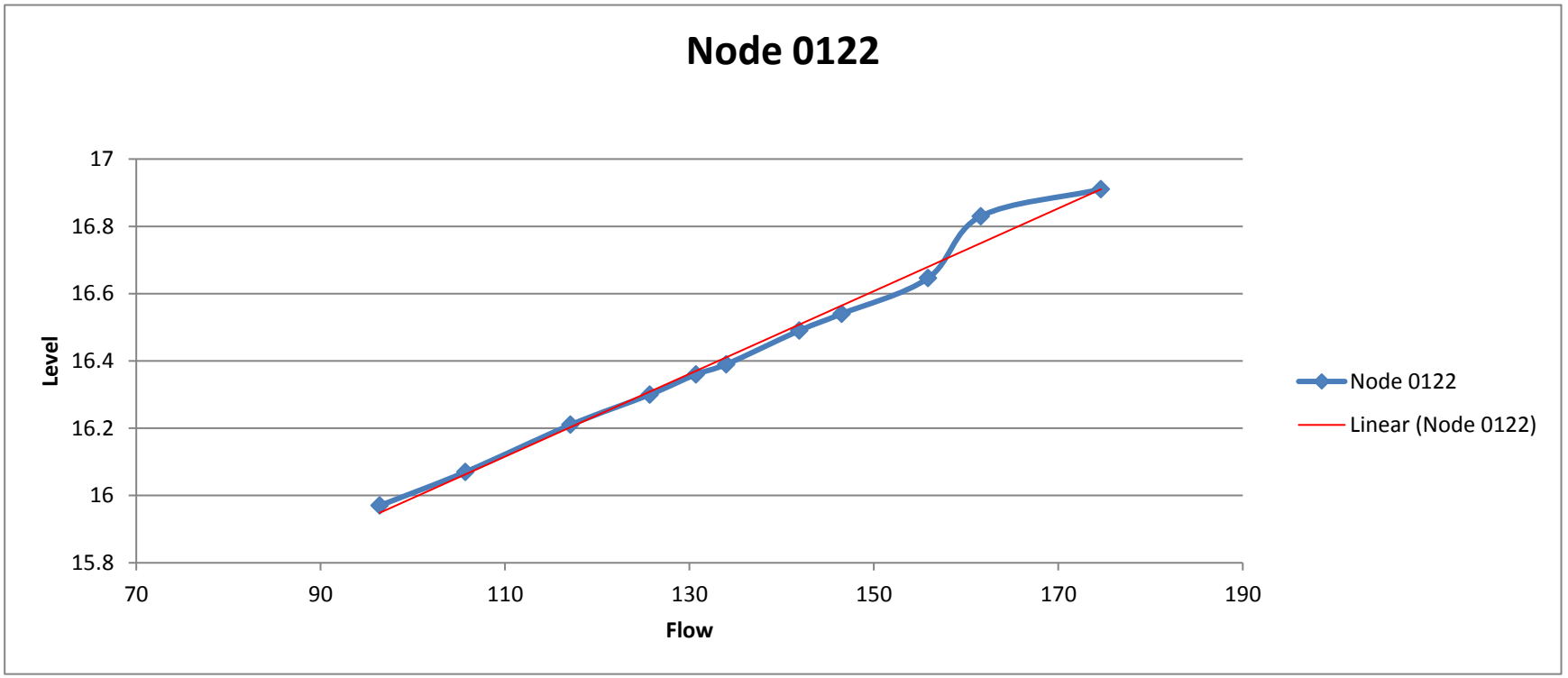
Node 0121									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	103.7	114.6	126.9	135.5	140.1	142.9	149.6	153.3	161.100	163.4	176.700
level	15.92	16.02	16.15	16.25	16.31	16.34	16.44	16.49	16.560	16.79	16.814



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

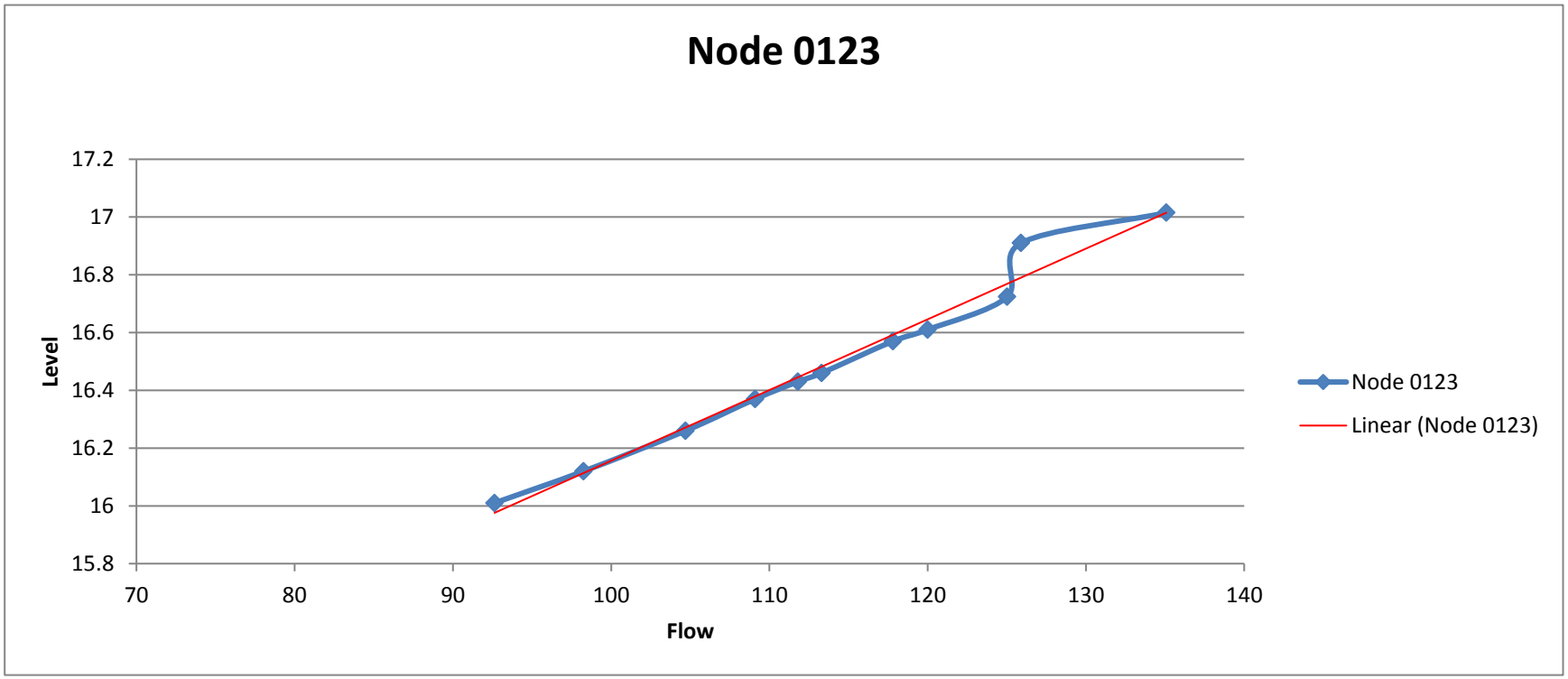
Node 0122									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	96.41	105.7	117.1	125.7	130.7	134	141.9	146.5	155.875	161.6	174.625
level	15.97	16.07	16.21	16.3	16.36	16.39	16.49	16.54	16.646	16.83	16.910



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

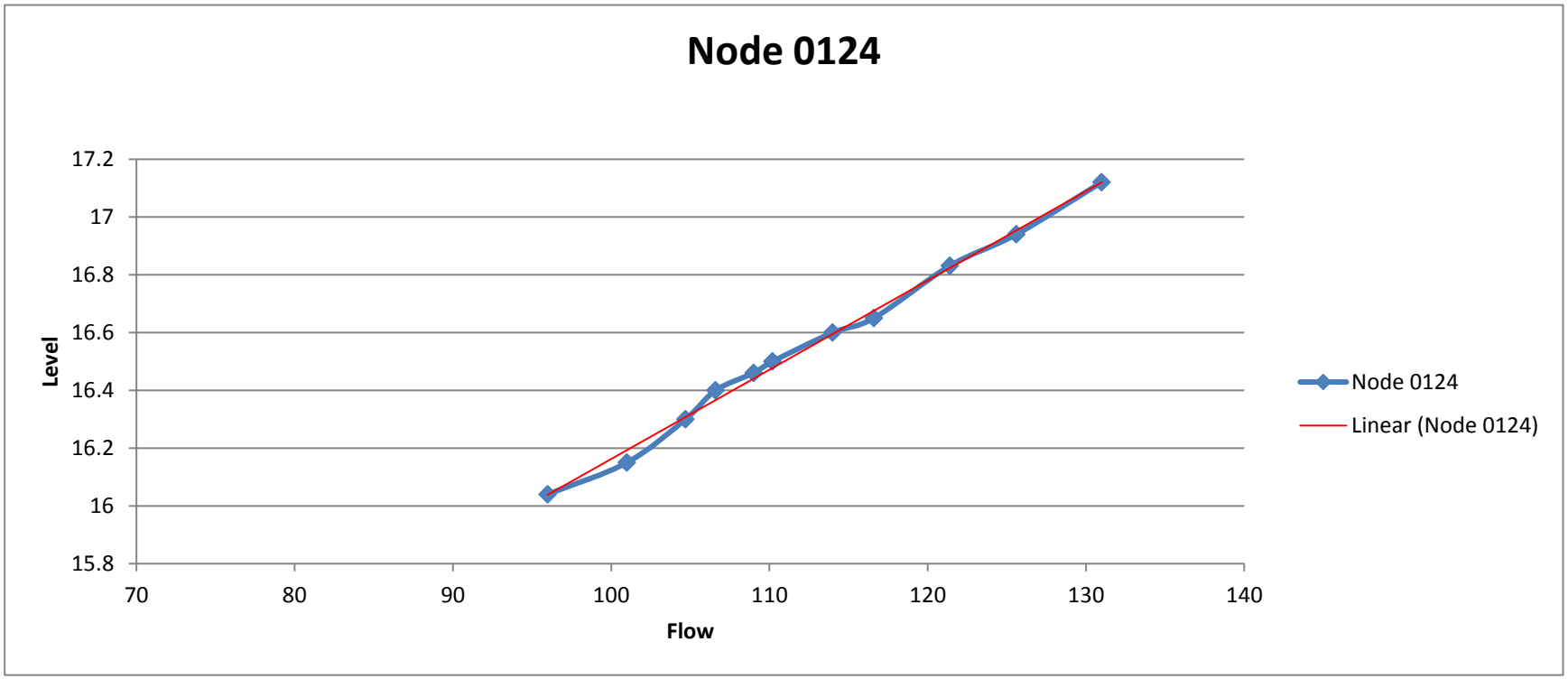
Node 0123									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	92.63	98.26	104.7	109.1	111.8	113.3	117.8	120	125.025	125.9	135.075
level	16.01	16.12	16.26	16.37	16.43	16.46	16.57	16.61	16.724	16.91	17.015



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

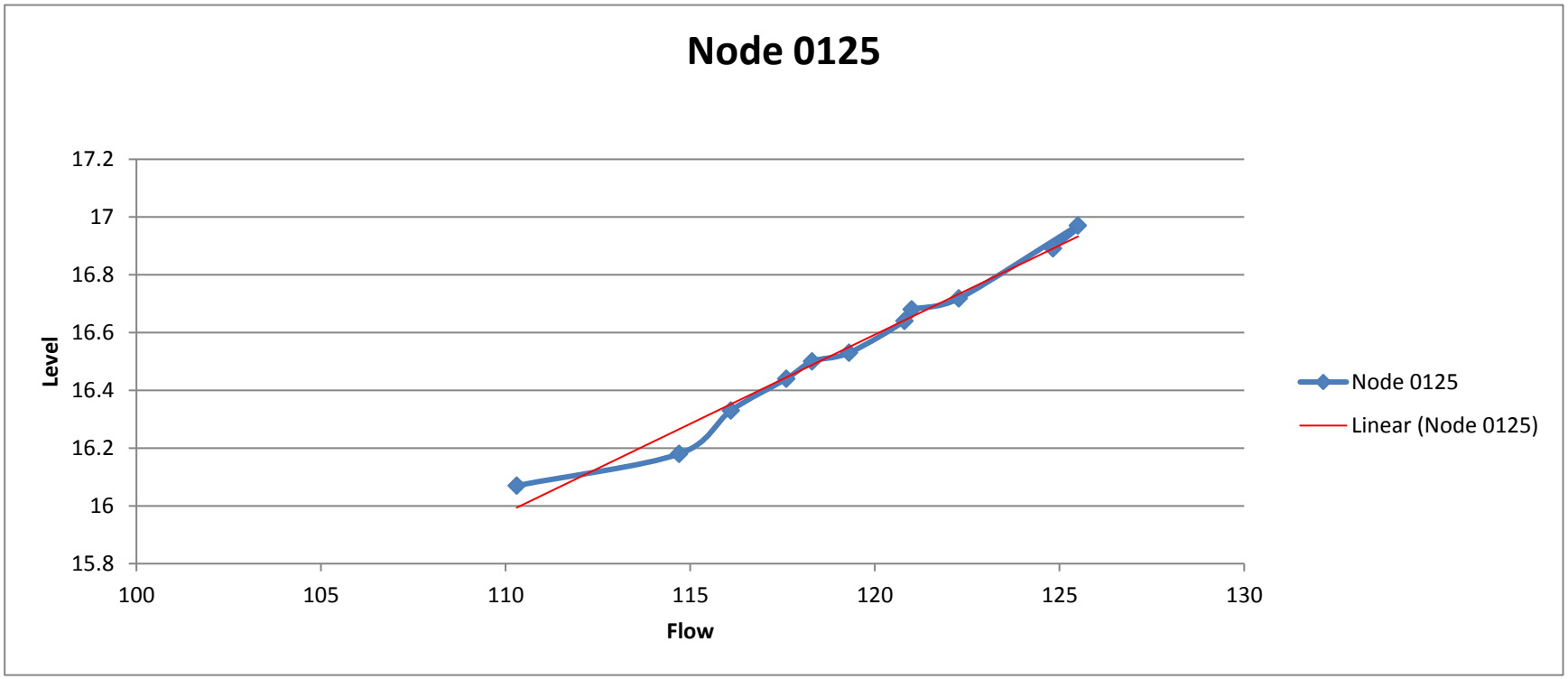
Node 0124									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	95.99	101	104.7	106.6	109	110.2	114	116.6	121.400	125.6	131.000
level	16.04	16.15	16.3	16.4	16.46	16.5	16.6	16.65	16.831	16.94	17.120



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

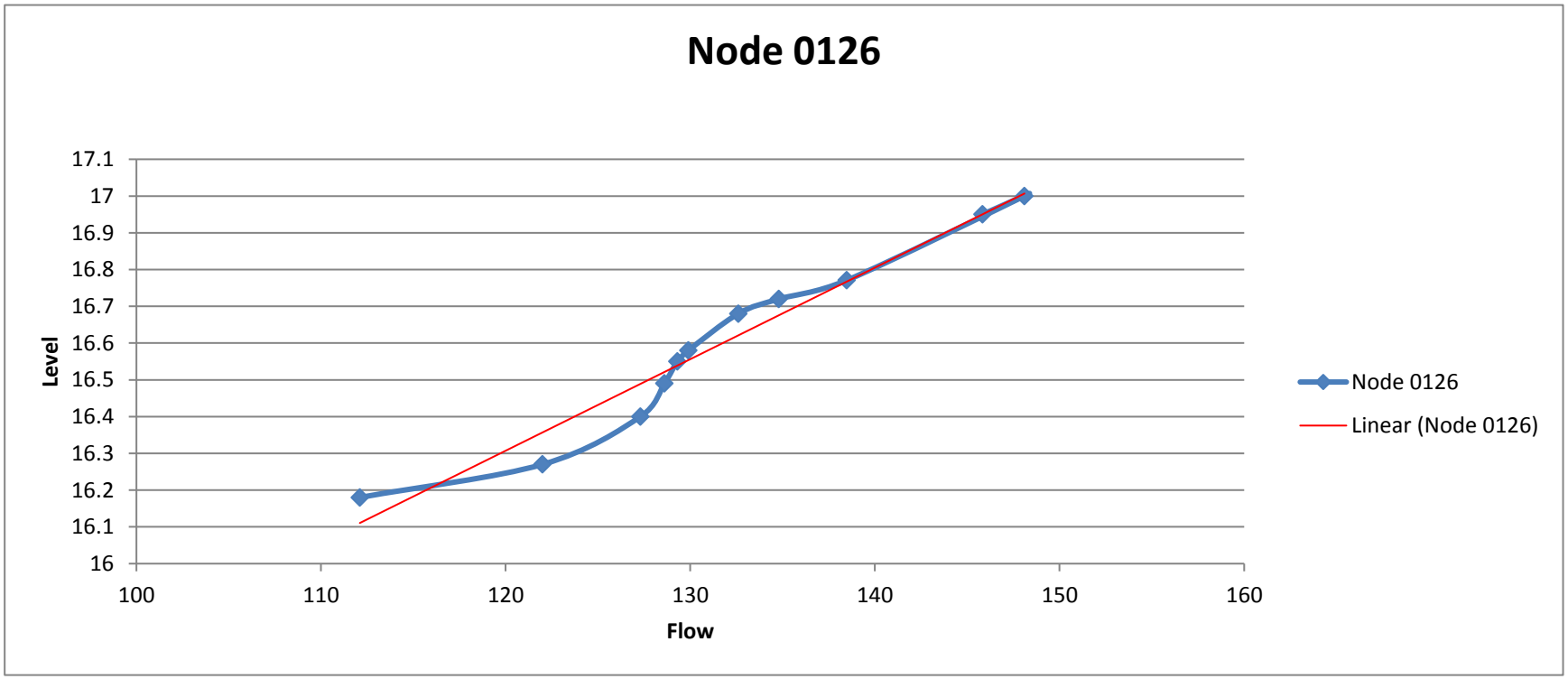
Node 0125									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	110.3	114.7	116.1	117.6	118.3	119.3	120.8	121	122.275	125.5	124.825
level	16.07	16.18	16.33	16.44	16.5	16.53	16.64	16.68	16.718	16.97	16.891



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

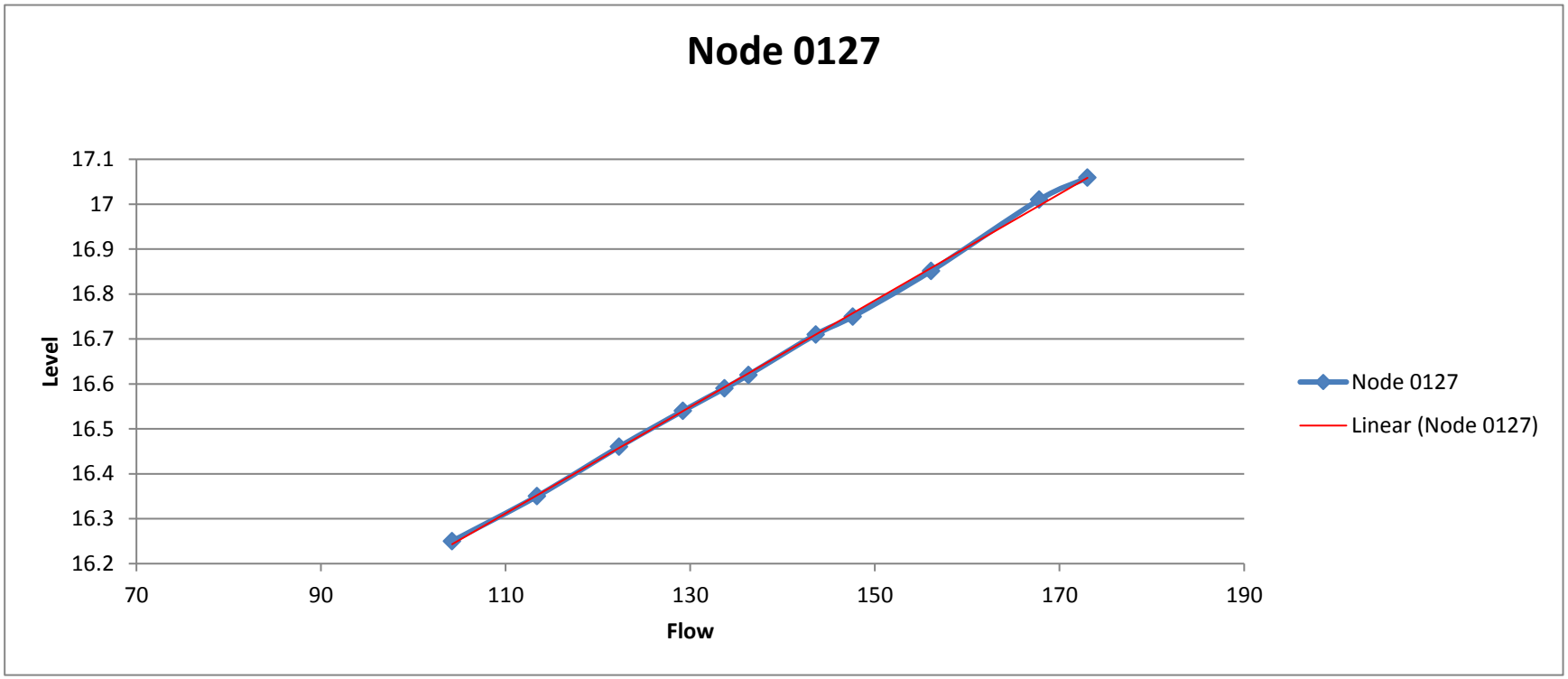
Node 0126									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	112.1	122	127.3	128.6	129.3	129.9	132.6	134.8	138.475	148.1	145.825
level	16.18	16.27	16.4	16.49	16.55	16.58	16.68	16.72	16.771	17	16.950



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

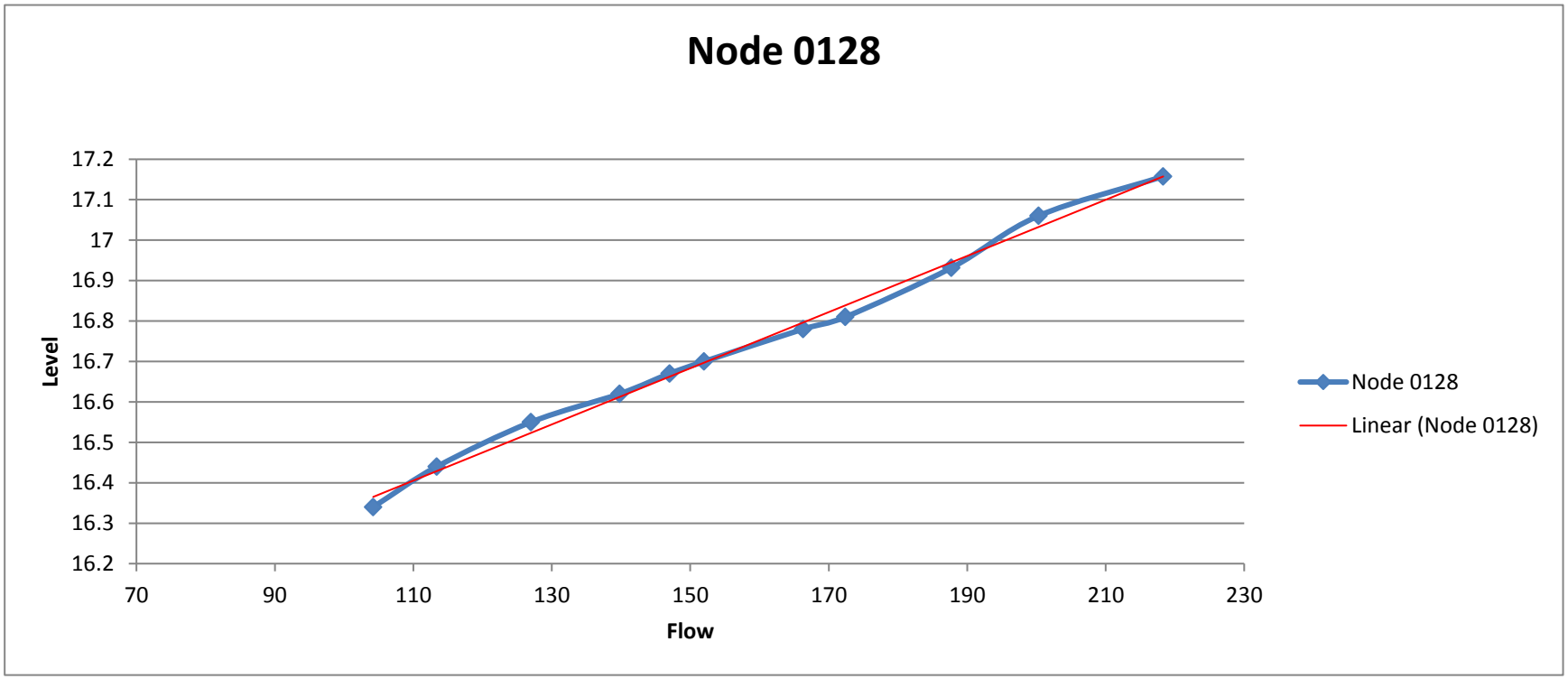
Node 0127									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	104.2	113.4	122.3	129.2	133.7	136.3	143.6	147.6	156.075	167.8	173.025
level	16.25	16.35	16.46	16.54	16.59	16.62	16.71	16.75	16.851	17.01	17.059



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

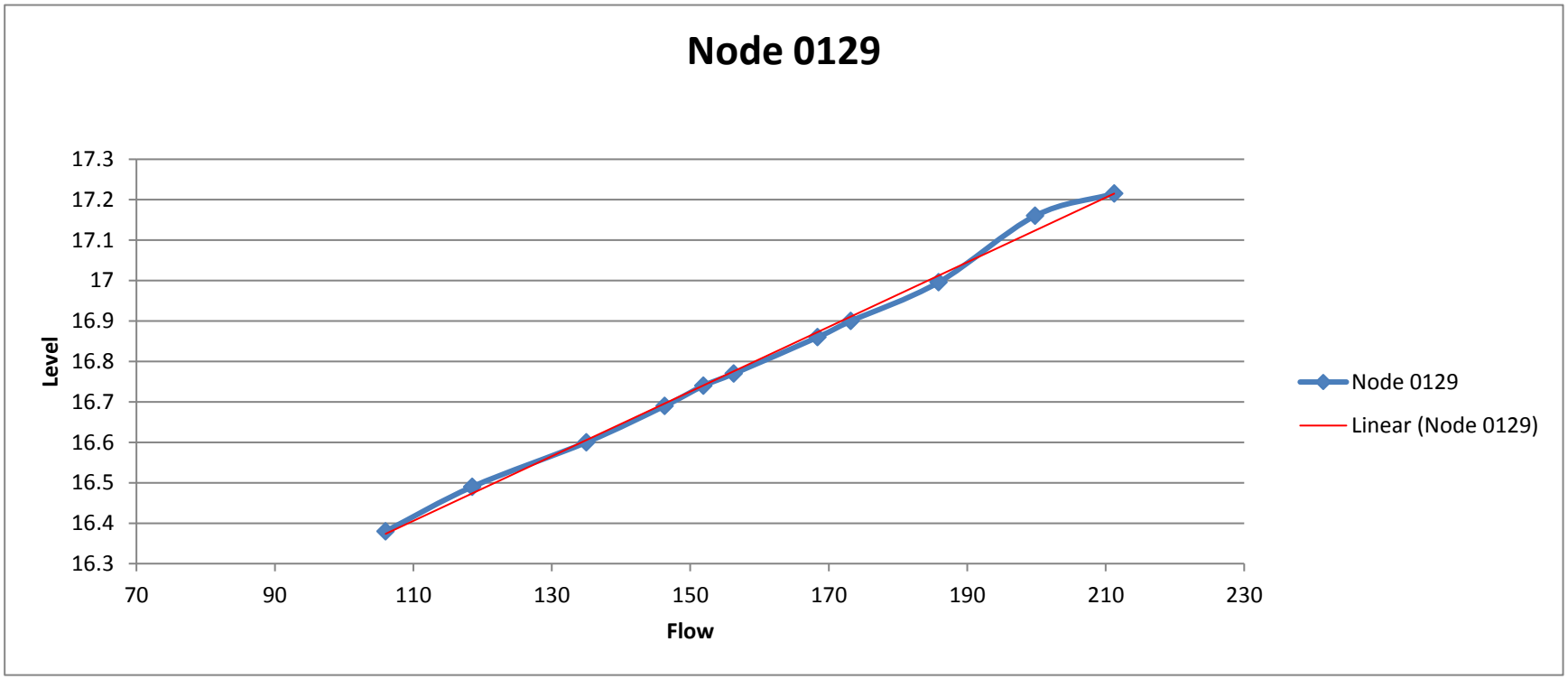
Node 0128									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	104.2	113.4	127	139.8	147	152	166.3	172.4	187.700	200.3	218.300
level	16.34	16.44	16.55	16.62	16.67	16.7	16.78	16.81	16.931	17.06	17.158



RichardJackson Engineering Consultants

River Great Ouse - Little Barford

Node 0129									1 in 100 plus		1 in 100 plus
AEP (%)	20.00%	10.00%	4.00%	2.00%	1.33%	1.00%	0.50%	1.00%	1.00%	0.10%	1.00%
Return Period (1inX)	5	10	25	50	75	100	200	100	100	1000	100
Additional CC %	0	0	0	0	0	0	0	20%	35%	0	65%
Flow	106	118.5	135	146.3	151.9	156.3	168.4	173.2	185.875	199.8	211.225
level	16.38	16.49	16.6	16.69	16.74	16.77	16.86	16.9	16.996	17.16	17.215

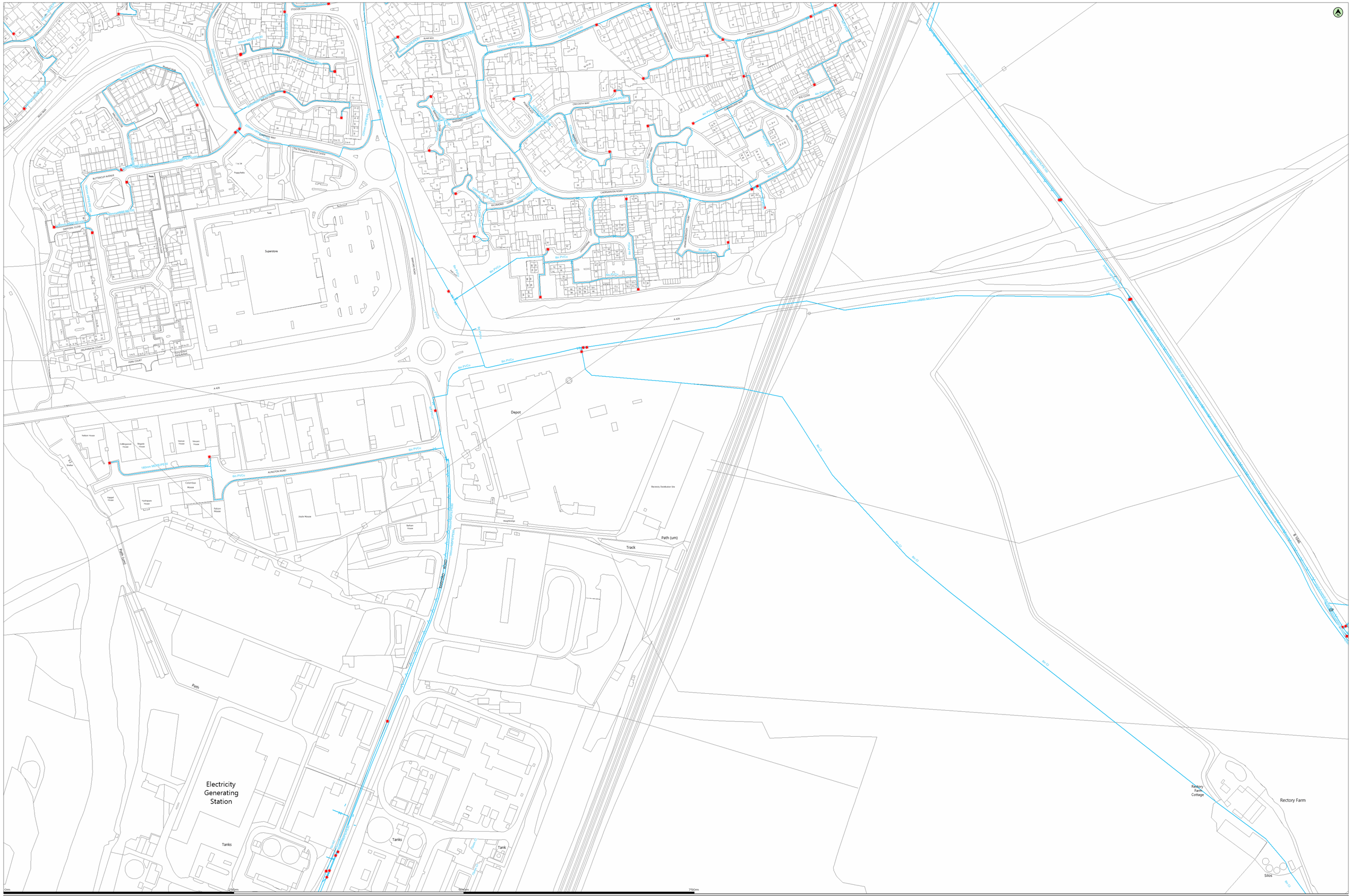


APPENDIX F

CORNERSTONE PROJECTS LTD

WATER

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



Date: 09/02/21 | Scale: 1:1250 | Map Centre: 518749,258090 | Data updated: 31/01/21 | Our Ref: 492566 - 1 | Clean Water Plan A0

Potable Water
Raw Water
Decommissioned Water
Fitting
Hydrant

duncan@cornerstoneprojects.co.uk
60830-All

love every drop
anglianwater

Date: 09/02/21

Scale: 1:1250

Map Centre: 518458,257188

Data updated: 31/01/21

Our Ref: 492566 - 3

Clean Water Plan A0

Potable Water

Raw Water

Decommissioned Water

Fitting

Hydrant

duncan@cornerstoneprojects.co.uk

60830-A4 2

love every drop
anglianwater

B 1046

180mm HPPE/PE100

GP

Rectory Farm Cottages

180mm HPPE/PE100

B 1046

9in CI

250mmHPPE/PE100

36in PVCu

180mm DI

Rectory Farm Cottage

Rectory Farm

Rectory Farm Cottage

Silos

8in CI

POTTON ROAD

36in PVCu

150mm DI

8in CI

250mmHPPE/PE100

Track

Parker's Farm

Track

-99in U

Parkers Farmhouse

Eynesbury Warehousing

150mm DI+CI

4in PVCu

Bramley Bungalow

Glen Eden

POTTON ROAD

Post

0m 100m 200m 300m

Data updated: 31/01/21

Scale: 1:1250 Date: 09/02/21 Clean Water Plan A0

Map Centre: 519633,257576 Our Ref: 492566 - 5 Powered by digdat

Potable Water

Raw Water RAW

Decommissioned Water

Fitting

Hydrant

Please note: Not all fittings are shown on the map

duncan@cornerstoneprojects.co.uk

60830-All 3

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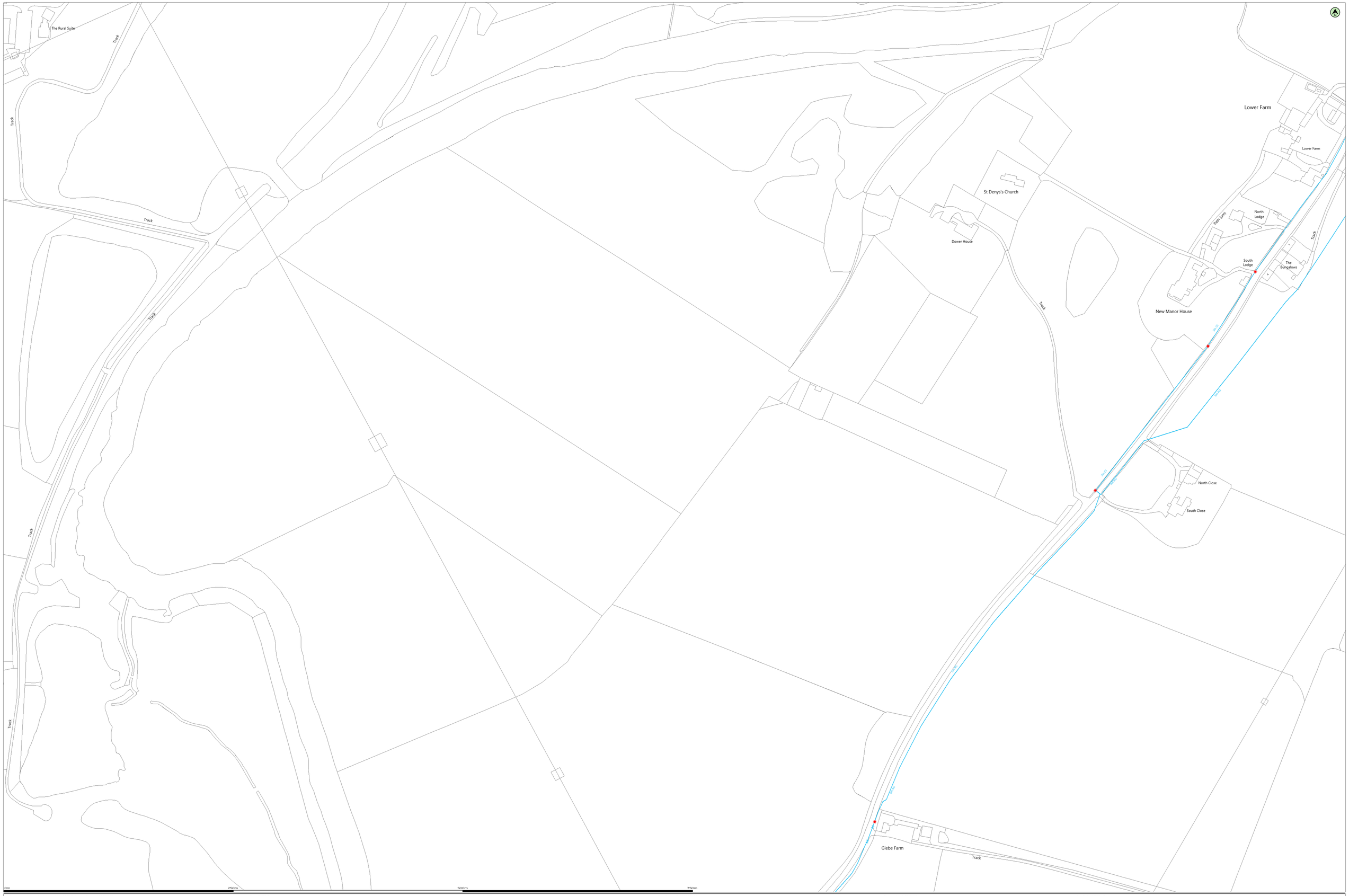

Date: 09/02/21

Scale: 1:1250

Map Centre: 517387,256661

Data updated: 31/01/21

Our Ref: 492566 - 7

Clean Water Plan A0

Potable Water

Raw Water

Decommissioned Water

Fitting

Hydrant

duncan@cornerstoneprojects.co.uk

60830-All 4

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Date: 09/02/21 | Scale: 1:1250 | Map Centre: 518818,256482 | Data updated: 31/01/21 | Our Ref: 492566 - 9 | Clean Water Plan A0

Potable Water
Raw Water
Decommissioned Water
Fitting
Hydrant

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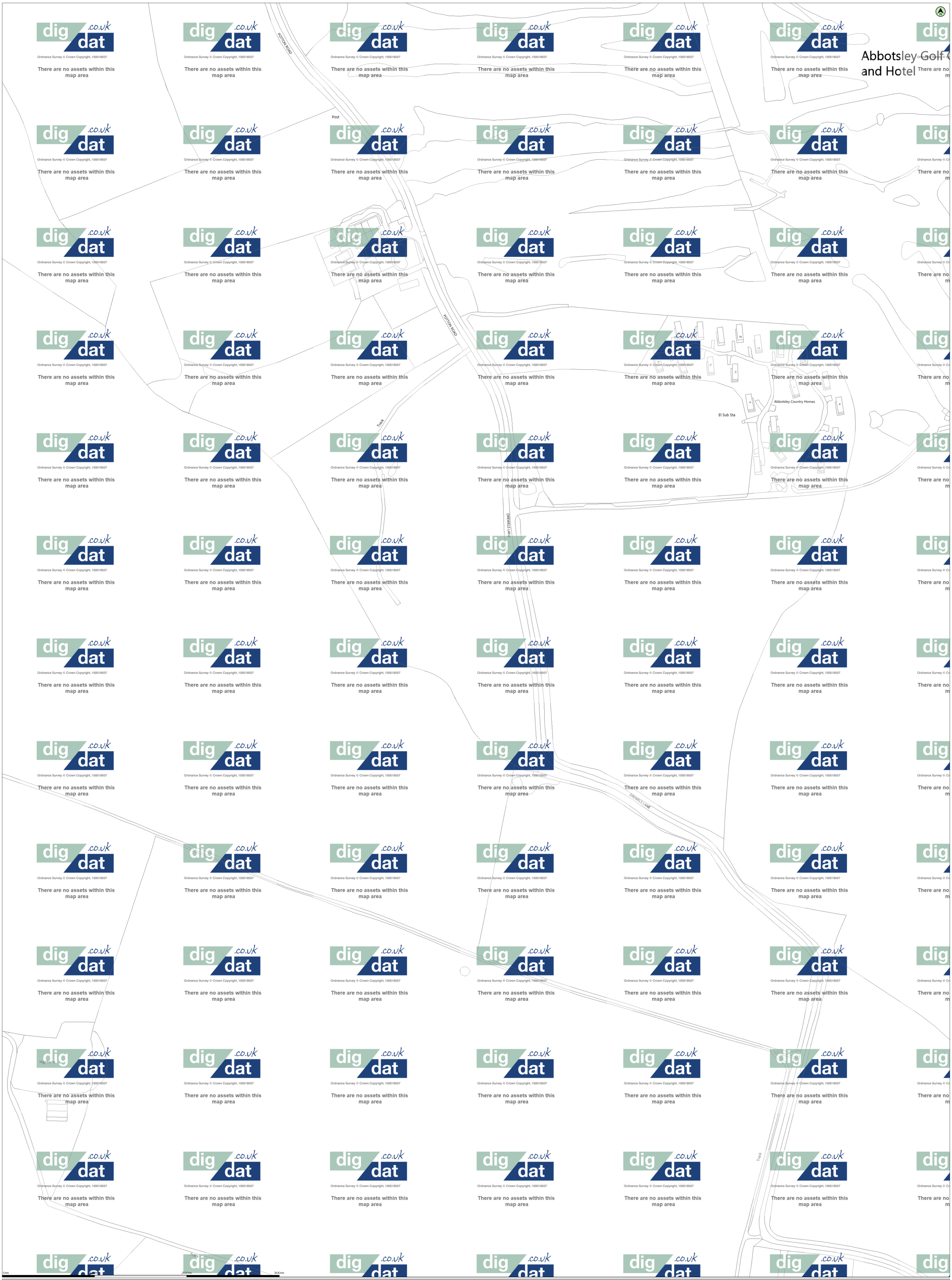

Date: 09/02/21

Scale: 1:1250

Map Centre: 517575,255815

Data updated: 31/01/21

Our Ref: 492566 - 13

Clean Water Plan A0

Potable Water

Raw Water

Decommissioned Water

Fitting

Hydrant

duncan@cornerstoneprojects.co.uk

60830-A8 7

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anglianwater

Date: 09/02/21

Scale: 1:1250

Map Centre: 518986,255611

Data updated: 31/01/21

Our Ref: 492566 - 15

Clean Water Plan A0

Potable Water

Raw Water

Decommissioned Water

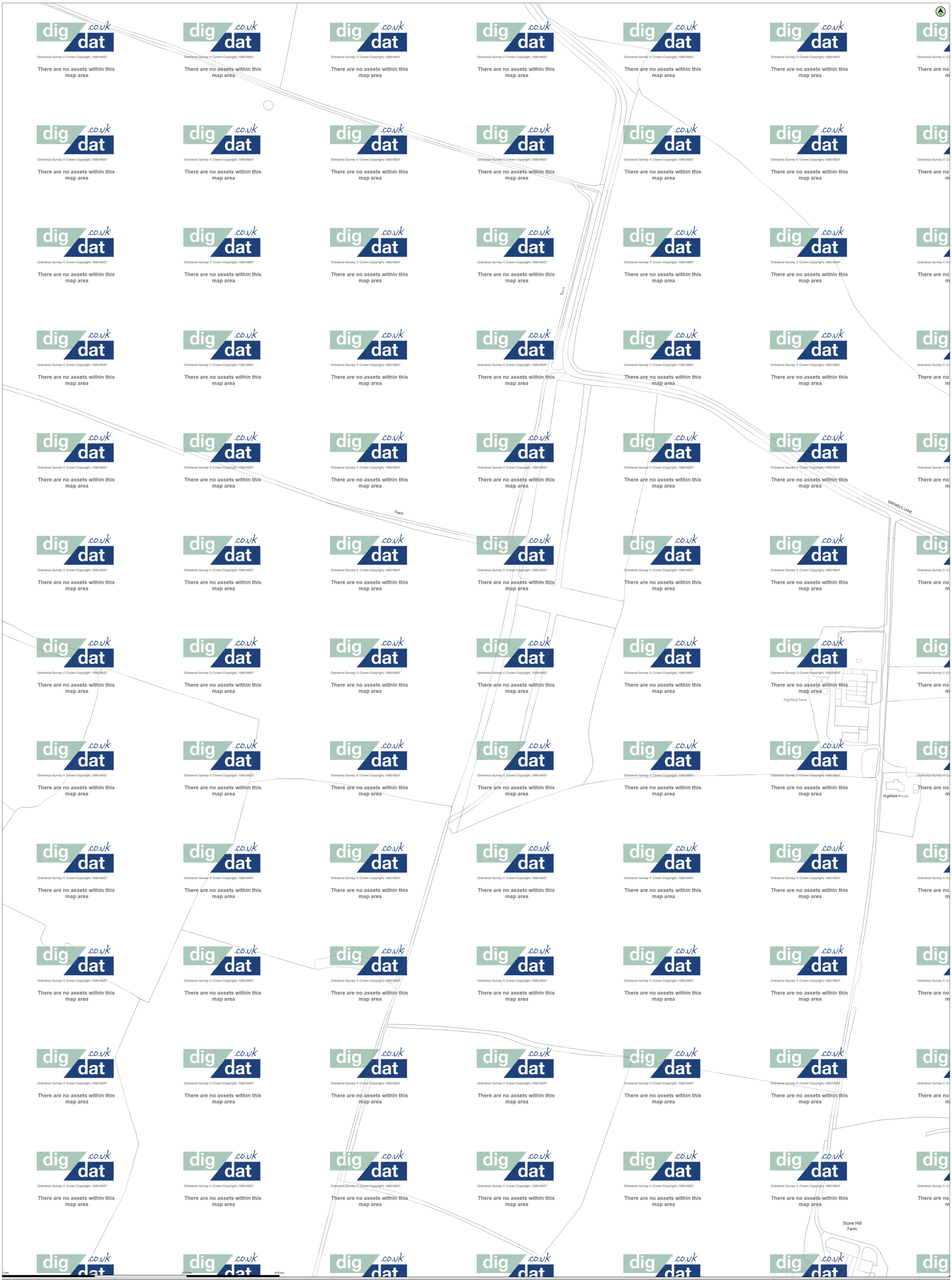
Fitting

Hydrant

duncan@cornerstoneprojects.co.uk

60830-All 8

love every drop
anglianwater



Scale: 1:1250 | Date: 09/02/21 | Clean Water Plan A0
Map Centre: 520173,255481 | Our Ref: 492566 - 17 | Powered by digdat

Potable Water
Raw Water
Decommissioned Water
Fitting
Hydrant

Please note: Not all fittings are shown on the map

duncan@cornerstoneprojects.co.uk

60830-All 9

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Date: 09/02/21

Scale: 1:1250

Map Centre: 517295,255102

Data updated: 31/01/21

Our Ref: 492566 - 19

Clean Water Plan A0

Potable Water

Raw Water

Decommissioned Water

Fitting

Hydrant

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60830-All 10

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Date: 09/02/21 | Scale: 1:1250 | Map Centre: 518638,254986 | Data updated: 31/01/21 | Our Ref: 492566 - 21 | Clean Water Plan A0

Potable Water
Raw Water
Decommissioned Water
Fitting
Hydrant

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CORNERSTONE PROJECTS LTD

SEWER

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www.cornerstoneprojects.co.uk
VAT Reg. No. 851 4941 19
Company No. 5132353

Date: 09/02/21

Scale: 1:1250

Map Centre: 518749,258090

Data updated: 31/01/21

Our Ref: 492566 - 2

Wastewater Plan A0

Foul Sewer
Surface Sewer
Combined Sewer
Final Effluent
Rising Main*
Private Sewer*
Decommissioned Sewer*

Outfall* ⋲
Inlet* ⋺
Manhole* ●

Sewage Treatment Works ▭
Public Pumping Station ⬢
Decommissioned Pumping Station ⬢

*(Colour denotes effluent type)

duncan@cornerstoneprojects.co.uk

60830-All

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0300	518095	258329	F	-	-	-
0301	518071	258325	F	-	-	-
0500	518061	258540	F	-	-	-
0501	518067	258507	F	-	-	-
0502	518088	258573	F	-	-	-
0503	518078	258562	F	-	-	-
0504	518048	258528	F	-	-	-
0505	518032	258529	F	-	-	-
0506	518022	258527	F	-	-	-
0507	518055	258516	F	-	-	-
1000	518172	258058	F	-	-	-
1001	518148	258055	F	-	-	-
1100	518198	258190	F	-	-	-
1101	518181	258187	F	-	-	-
1102	518143	258181	F	-	-	-
1103	518103	258196	F	-	-	-
1200	518139	258203	F	-	-	-
1201	518137	258216	F	-	-	-
1202	518132	258242	F	-	-	-
1203	518128	258265	F	-	-	-
1204	518162	258271	F	-	-	-
1205	518179	258274	F	-	-	-
1206	518189	258290	F	-	-	-
1207	518191	258295	F	-	-	-
1300	518185	258396	F	-	-	-
1301	518158	258391	F	-	-	-
1302	518190	258369	F	-	-	-
1303	518185	258327	F	-	-	-
1304	518120	258311	F	-	-	-
1305	518116	258333	F	-	-	-
1306	518114	258345	F	-	-	-
1307	518152	258351	F	-	-	-
1308	518109	258378	F	-	-	-
1400	518150	258435	F	-	-	-
1401	518167	258442	F	-	-	-
1402	518192	258454	F	-	-	-
1403	518129	258469	F	-	-	-
1404	518134	258472	F	-	-	-
1405	518133	258474	F	-	-	-
1406	518132	258476	F	-	-	-
1407	518136	258470	F	-	-	-
1408	518138	258467	F	-	-	-
1409	518140	258465	F	-	-	-
1410	518141	258463	F	-	-	-
1411	518143	258460	F	-	-	-
1500	518154	258569	F	-	-	-
2001	518252	258055	F	-	14.956	-
2002	518253	258040	F	-	15.126	-
2003	518250	258077	F	-	15.156	-
2004	518229	258066	F	-	-	-
2100	518228	258195	F	-	-	-
2400	518293	258465	F	-	-	-
2401	518281	258459	F	-	-	-
2402	518274	258452	F	-	-	-
2403	518256	258487	F	-	-	-
2404	518284	258440	F	-	-	-
2405	518299	258429	F	-	-	-
2406	518266	258419	F	-	-	-
2407	518250	258406	F	-	-	-
2408	518242	258406	F	-	-	-
2502	518256	258575	F	-	-	-
2503	518246	258557	F	-	-	-
2504	518243	258534	F	-	-	-
3001	518376	258072	F	-	14.076	-
3002	518322	258064	F	-	14.476	-
3400	518383	258465	F	-	-	-
3401	518359	258466	F	-	-	-
3402	518344	258460	F	-	-	-
3403	518329	258474	F	-	-	-
3404	518320	258477	F	-	-	-
3405	518359	258418	F	-	-	-
3406	518397	258410	F	-	-	-
3407	518319	258426	F	-	-	-
3502	518327	258565	F	-	-	-
3503	518327	258537	F	-	-	-
3504	518324	258523	F	-	-	-
3505	518368	258567	F	-	-	-
4001	518486	258092	F	-	13.35	-
4002	518442	258084	F	-	13.676	-
4003	518482	258018	F	9.33	6.824	2.506
4004	518483	258033	F	9.2	6.624	2.576
4005	518489	258034	F	-	-	-
4400	518480	258466	F	-	-	-
4401	518493	258444	F	-	-	-
4402	518490	258415	F	-	-	-
4503	518490	258537	F	-	15.32	-
4504	518467	258535	F	16.89	15.52	1.37
4505	518458	258529	F	16.96	15.73	1.23
4900	518442	257981	F	9.19	7.724	1.466
4901	518481	257985	F	9.66	7.224	2.436
5300	518597	258378	F	17.38	15.11	2.27
5301	518571	258359	F	-	-	-
5302	518517	258374	F	-	-	-
5303	518537	258354	F	-	-	-
5304	518533	258334	F	-	-	-
5305	518535	258322	F	-	-	-
5401	518534	258492	F	-	-	-
5402	518536	258469	F	17	14.61	2.39
5403	518550	258439	F	16.94	14.76	2.18
5404	518540	258455	F	16.94	14.67	2.27
5405	518570	258420	F	17.14	14.89	2.25
5406	518582	258431	F	17.13	15.13	2
5407	518582	258468	F	17.43	15.67	1.76
5408	518519	258447	F	-	-	-
5504	518522	258547	F	17.18	14.17	3.01
5505	518531	258521	F	17.27	14.27	3
5506	518587	258534	F	17.29	15.09	2.2
6200	518697	258299	F	-	-	-
6201	518610	258299	F	-	-	-
6300	518626	258364	F	17.4	15.27	2.13
6301	518654	258365	F	17.27	15.37	1.9
6302	518656	258316	F	-	-	-
6303	518695	258317	F	-	-	-
6304	518645	258302	F	-	-	-
6400	518684	258470	F	17.7	16.27	1.43
6401	518630	258464	F	17.51	15.71	1.8
6402	518640	258425	F	17.52	16.06	1.46
6403	518647	258415	F	17.64	16.24	1.4
6404	518601	258446	F	17.28	15.36	1.92
6501	518611	258534	F	17.36	15.31	2.05
7300	518755	258367	F	18.02	15.75	2.27
7301	518770	258360	F	18.23	15.87	2.36
7302	518763	258326	F	-	16.21	-
7303	518764	258309	F	18.6	16.33	2.27
7304	518789	258308	F	18.94	16.64	2.3
7305	518717	258400	F	17.72	15.92	1.8
7306	518720	258370	F	17.64	15.62	2.02
7401	518706	258496	F	18.33	16.15	2.18
7402	518762	258445	F	18.78	16.75	2.03
7403	518793	258456	F	18.4	17	1.4
7404	518753	258429	F	18.18	16.41	1.77
7405	518726	258428	F	17.89	16.11	1.78
7501	518787	258554	F	18.72	17.197	1.523
7502	518798	258555	F	-	-	-
7503	518733	258549	F	18.318	15.428	2.89
7504	518743	258524	F	18.239	15.799	2.44
7505	518740	258511	F	18.167	15.877	2.29
8301	518870	258399	F	19.67	18.99	0.68
8302	518802	258362	F	18.63	16.13	2.5
8303	518832	258376	F	19.12	16.59	2.53
8401	518833	258472	F	-	17.72	-
8402	518867	258457	F	19.828	18.388	1.44
8403	518896	258478	F	20.901	19.111	1.79
8404	518880	258415	F	-	-	-
8405	518829	258429	F	-	-	-
8501	518801	258539	F	18.871	17.356	1.515
8502	518840	258545	F	20.263	18.348	1.915
8503	518882	258558	F	22.326	20.391	1.935
9501	518903	258505	F	-	-	-
0250	518020	258271	S	-	-	-
0251	518064	258289	S	-	-	-
0252	518072	258296	S	-	-	-
0350	518073	258304	S	-	-	-
0351	518070	258328	S	-	-	-
0352	518092	258332	S	-	-	-
1052	518193	258026	S	-	15.209	-
1150	518105	258199	S	-	-	-
1151	518145	258183	S	-	-	-
1152	518179	258189	S	-	-	-
1153	518196	258192	S	-	-	-
1250	518131	258264	S	-	-	-
1251	518135	258245	S	-	-	-
1252	518139	258219	S	-	-	-
1253	518142	258205	S	-	-	-
1254	518165	258270	S	-	-	-
1255	518181	258273	S	-	-	-
1256	518191	258290	S	-	-	-
1257	518192	258296	S	-	-	-
1350	518119	258336	S	-	-	-
1351	518122	258315	S	-	-	-
1352	518187	258331	S	-	-	-
1353	518191	258344	S	-	-	-
1354	518187	258368	S	-	-	-
1355	518117	258348	S	-	-	-
1356	518111	258381	S	-	-	-
1357	518152	258354	S	-	-	-
1358	518146	258387	S	-	-	-
1359	518156	258389	S	-	-	-
1360	518183	258394	S	-	-	-
1450	518149	258426	S	-	-	-
1451	518148	258436	S	-	-	-
1452	518128	258467	S	-	-	-
1453	518166	258443	S	-	-	-
1454	518189	258456	S	-	-	-
2051	518249	258042	S	-	15.318	-
2052	518248	258058	S	-	15.351	-
2053	518246	258079	S	-	15.456	-
2450	518232	258402	S	-	-	-
3051	518317	258067	S	-	15.61	-
3052	518370	258074	S	-	15.736	-
4051	518437	258087	S	-	15.862	-
4052	518473	258094	S	-	15.945	-
4451	518488	258419	S	-	-	-
4452	518490	258442	S	-	-	-
4453	518480	258464	S	-	-	-
4553	518492	258535	S	16.83	15.98	0.85
4554	518472	258534	S	16.88	16.22	0.66
4555	518461	258528	S	16.92	16.42	0.5
5351	518537	258326	S	-	-	-
5352	518541	258352	S	-	-	-
5353	518535	258335	S	-	-	-
5354	518520	258373	S	-	-	-
5355	518573	258357	S	-	-	-
5451	518536	258492	S	-	-	-
5452	518539	258467	S	16.97	15.39	1.58
5453	518549	258444	S	16.94	15.43	1.51
5454	518542	258454	S	16.92	15.41	1.51
5455	518575	258420	S	17.11	15.54	1.57
5456	518586	258430	S	17.16	15.88	1.28
5457	518582	258465	S	17.43	16.21	1.22
5458	518521	258446	S	-	-	-
5550	518518	258571	S	-	-	-
5551	518525	258546	S	-	-	-
5552	518535	258520	S	-	-	-
6251	518699	258300	S	-	-	-
6252	518612	258297	S	-	-	-
6351	518627	258366	S	17.43	15.74	1.69
6352	518600	258378	S	17.43	15.63	1.8
6353	518656	258368	S	-	15.8	-
6354	518698	258319	S	-	-	-
6355	518659	258318	S	-	-	-
6356	518645	258301	S	-	-	-
6451	518673	258466	S	17.55	-	-
6452	518602	258443	S	-	15.93	-
6453	518628	258461	S	17.53	16	1.53
6454	518637	258426	S	17.51	16.36	1.15
6455	518647	258412	S	17.64	16.56	1.08
6553	518632	258540	S	-	-	-
7351	518755	258370	S	18.03	16.15	1.88
7352	518800	258364	S	18.56	16.42	2.14
7353	518722	258373	S	17.66	15.99	1.67
7354	518721	258380	S	17.65	16.18	1.47
7355	518719	258399	S	17.73	16.32	1.41
7356	518768	258364	S	18.19	16.18	2.01
7357	518790	258306	S	19	17.09	1.91
7358	518762	258307	S	18.54	16.9	1.64
7359	518760	258328	S	18.46	16.5	1.96
7451	518728	258425	S	17.88	16.54	1.34
7452	518756	258426	S	18.2	16.85	1.35
7453	518763	258443	S	-	-	-
7552	518783	258570	S	18.2	17.315	0.885
7554	518790	258530	S	18.75	17.31	1.44
7555	518700	258500	S	-	-	-
8352	518872	258397	S	19.642	18.222	1.42
8353	518836	258378	S	-	-	-
8451	518832	258470	S	19.154	17.434	1.72
8452	518866	258455	S	19.866	18.466	1.4
8453	518883	258416	S	19.947	18.577	1.37
8551	518812	258535	S	20.923	19.238	1.685
8552	518856	258546	S	22.664	20.729	1.935
8553	518885	258558	S	19.23	18.125	1.105
8554	518821	258517	S	-	-	-
9451	518914	258489	S	21.979	19.909	2.07
9551	518905	258507	S	22.391	21.071	1.32
9552	518922	258519	S	23.583	22.263	1.32
9553	518930	258537	S	24.696	23.356	1.34

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- Foul Sewer
- Surface Sewer
- Combined Sewer
- Final Effluent
- Rising Main*
- Private Sewer*
- Decommissioned Sewer*
- Outfall*
- Inlet*
- Manhole*
- Sewage Treatment Works
- Public Pumping Station
- Decommissioned Pumping Station

*(Colour denotes effluent type)

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0001	518096	257044	F	-	-	-
0002	518100	257051	F	-	-	-
0801	518056	256892	F	-	-	-
0802	518015	256832	F	-	-	-
0901	518095	256972	F	-	-	-
1001	518105	257062	F	-	-	-
1002	518144	257048	F	-	-	-
1003	518136	257027	F	-	-	-
1101	518168	257112	F	-	-	-
1901	518106	256965	F	-	-	-
9701	517984	256787	F	-	-	-
9702	517937	256724	F	-	-	-

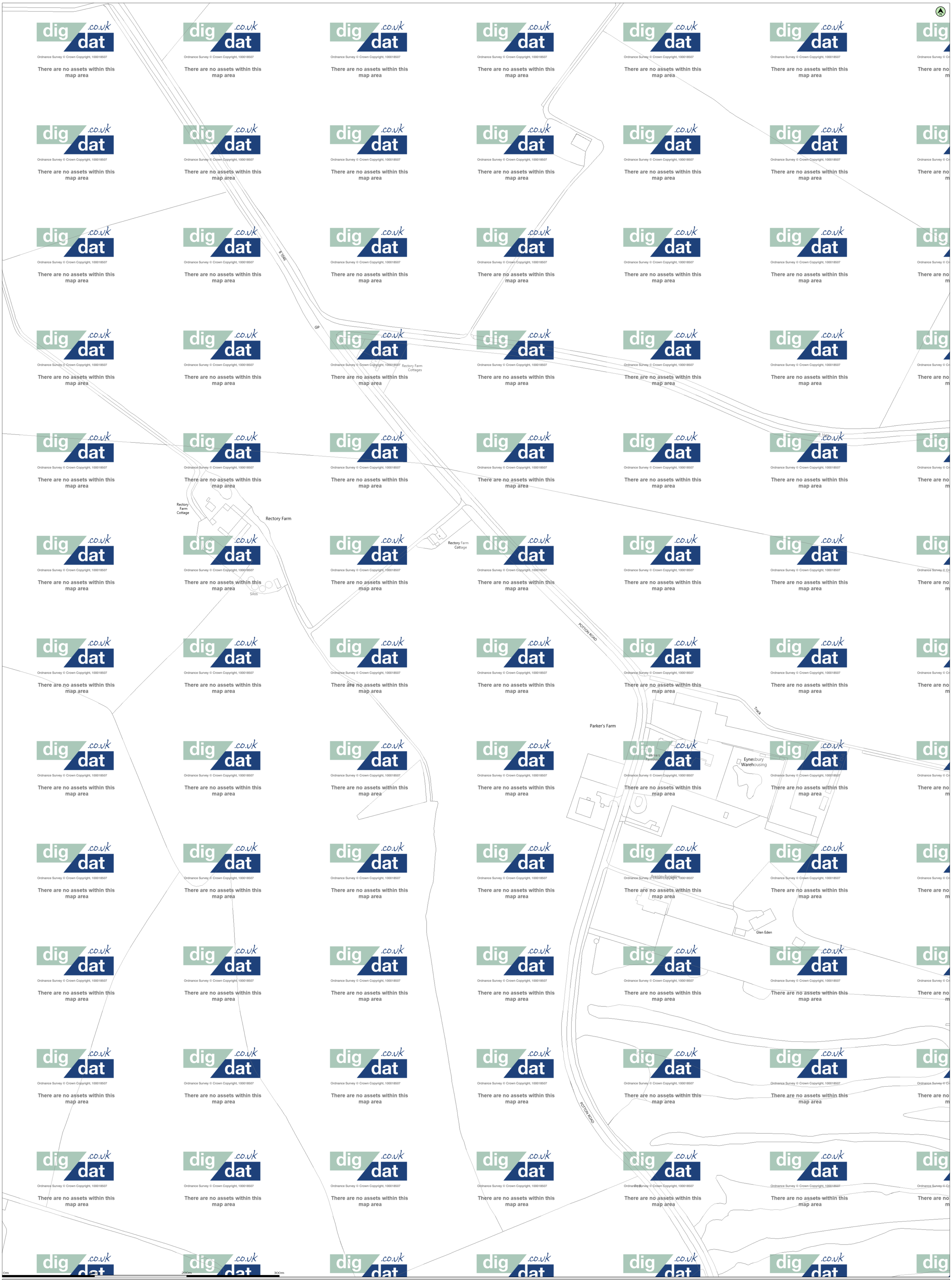
Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert



Scale: 1:1250 | Date: 09/02/21 | Wastewater Plan A0
Map Centre: 519633,257576 | Our Ref: 492566 - 6 | Powered by digdat

Foul Sewer
Surface Sewer
Combined Sewer
Final Effluent Sewer
Rising Main*
Private Sewer*
Decommissioned Sewer*

Outfall*
Inlet*
Manhole*

Sewage Treatment Works
Public Pumping Station
Decommissioned Pumping Station

*(Colour denotes effluent type)

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

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This plan is provided by Anglian Water pursuant its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited and is drawn using the best information available rights 2020 Ordnance Survey 100022432 This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other use of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

Foul Sewer		Outfall*		Sewage Treatment Works	
Surface Sewer					
Combined Sewer		Inlet*		Public Pumping Station	
Final Effluent					
Rising Main*		Manhole*		Decommissioned Pumping Station	
Private Sewer*					
Decommissioned Sewer*					

*(Colour denotes effluent type)

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0001	518096	257044	F	-	-	-
0002	518100	257051	F	-	-	-
0801	518056	256892	F	-	-	-
0802	518015	256832	F	-	-	-
0901	518095	256972	F	-	-	-
1001	518105	257062	F	-	-	-
1901	518106	256965	F	-	-	-
8601	517888	256661	F	-	-	-
9701	517984	256787	F	-	-	-
9702	517937	256724	F	-	-	-

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

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Foul Sewer		Outfall*		Sewage Treatment Works	
Surface Sewer					
Combined Sewer		Inlet*		Public Pumping Station	
Final Effluent					
Rising Main*		Manhole*		Decommissioned Pumping Station	
Private Sewer*					
Decommissioned Sewer*					

*(Colour denotes effluent type)

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
1901	518106	256965	F	-	-	-

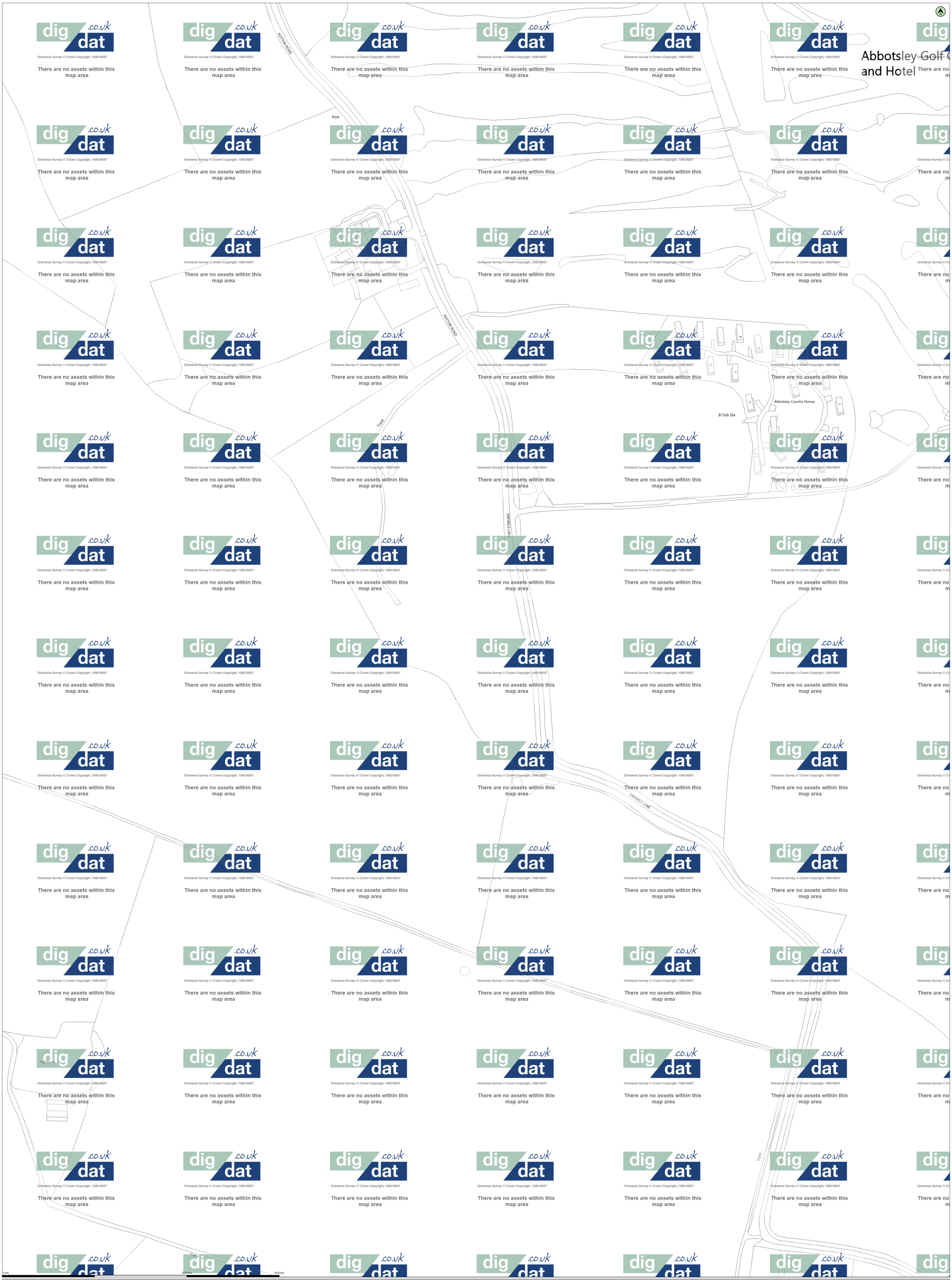
Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert



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Data updated: 31/01/21

Scale: 1:1250 | Date: 09/02/21 | Wastewater Plan A0
Map Centre: 519960,256418 | Our Ref: 492566 - 12 | Powered by digdat

Foul Sewer		Outfall*		Sewage Treatment Works	
Surface Sewer					
Combined Sewer		Inlet*		Public Pumping Station	
Final Effluent Sewer					
Rising Main*		Manhole*		Decommissioned Pumping Station	
Private Sewer*					
Decommissioned Sewer*					

*(Colour denotes effluent type)

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Date: 09/02/21

Scale: 1:1250

Map Centre: 517575,255815

Data updated: 31/01/21

Our Ref: 492566 - 14

Wastewater Plan A0

Foul Sewer
Surface Sewer
Combined Sewer
Final Effluent
Rising Main*
Private Sewer*
Decommissioned Sewer*

Outfall*
Inlet*
Manhole*

Sewage Treatment Works
Public Pumping Station
Decommissioned Pumping Station
*(Colour denotes effluent type)

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Date: 09/02/21

Scale: 1:1250

Map Centre: 518986,255611

Data updated: 31/01/21

Our Ref: 492566 - 16

Wastewater Plan A0

- Foul Sewer
- Surface Sewer
- Combined Sewer
- Final Effluent*
- Rising Main*
- Private Sewer*
- Decommissioned Sewer*
- Outfall*
- Inlet*
- Manhole*
- Sewage Treatment Works
- Public Pumping Station
- Decommissioned Pumping Station

*(Colour denotes effluent type)

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

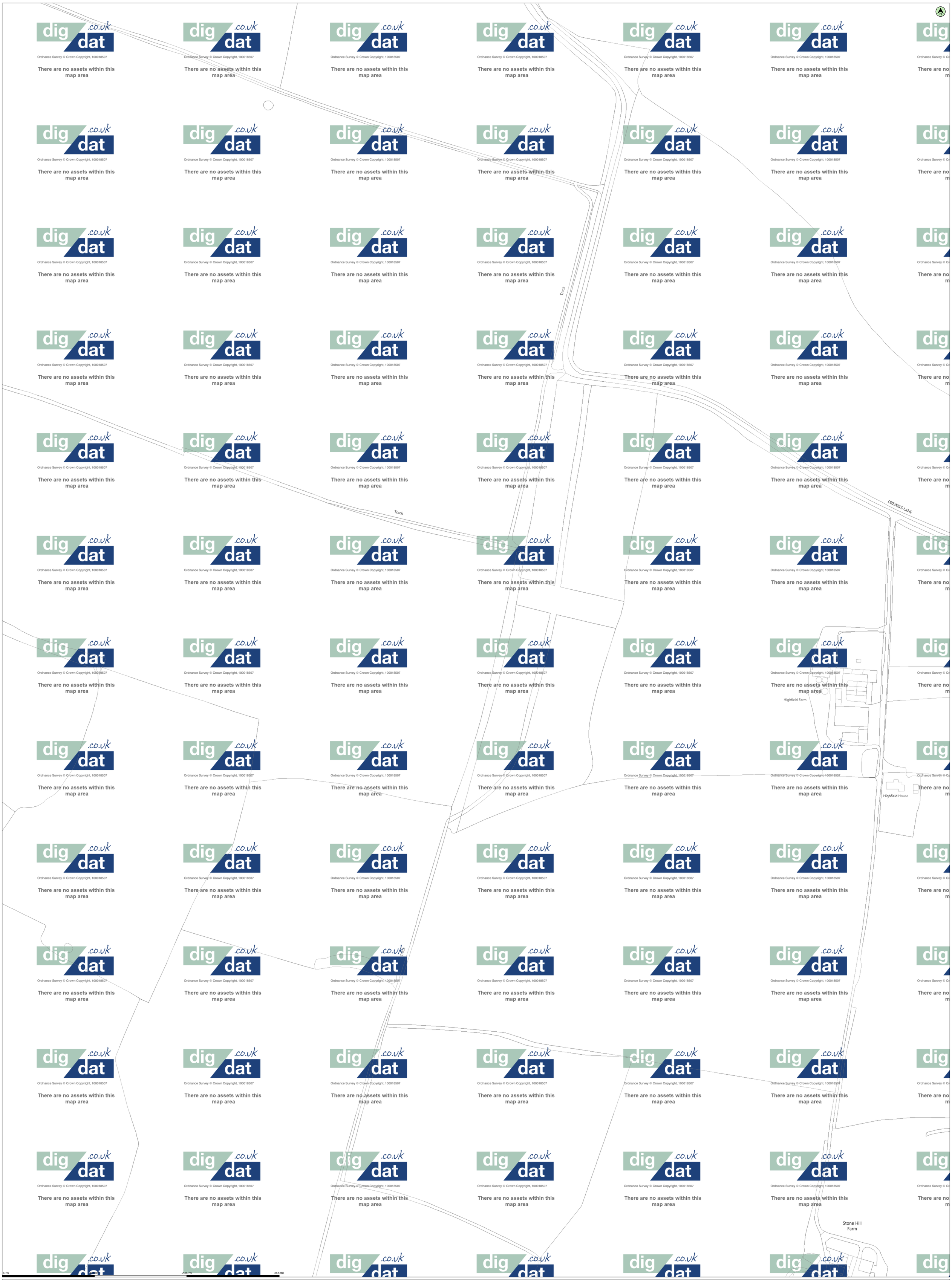
Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert



Scale: 1:1250 | Date: 09/02/21 | Wastewater Plan A0
Map Centre: 520173,255481 | Our Ref: 492566 - 18 | Powered by digdat

Foul Sewer		Outfall*		Sewage Treatment Works	
Surface Sewer					
Combined Sewer		Inlet*		Public Pumping Station	
Final Effluent Sewer					
Rising Main*		Manhole*		Decommissioned Pumping Station	
Private Sewer*					
Decommissioned Sewer*					

*(Colour denotes effluent type)

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Date: 09/02/21 | Scale: 1:1250 | Map Centre: 517295,255102 | Data updated: 31/01/21 | Our Ref: 492566 - 20 | Wastewater Plan A0

Foul Sewer	Outfall*	Sewage Treatment Works	
Surface Sewer			
Combined Sewer	Inlet*	Public Pumping Station	
Final Effluent			
Rising Main*	Manhole*	Decommissioned Pumping Station	
Private Sewer*			
Decommissioned Sewer*		*(Colour denotes effluent type)	

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Date: 09/02/21 | Scale: 1:1250 | Map Centre: 518638,254986 | Data updated: 31/01/21 | Our Ref: 492566 - 22 | Wastewater Plan A0

- Foul Sewer
- Surface Sewer
- Combined Sewer
- Final Effluent
- Rising Main*
- Private Sewer*
- Decommissioned Sewer*
- Outfall*
- Inlet*
- Manhole*
- Sewage Treatment Works
- Public Pumping Station
- Decommissioned Pumping Station

*(Colour denotes effluent type)

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60830-All 11

love every drop anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

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Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Colchester 01206 228800

London 020 7448 9910

Norwich 01603 230240

Cambridge 01223 314794

Bristol 01172 020070

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