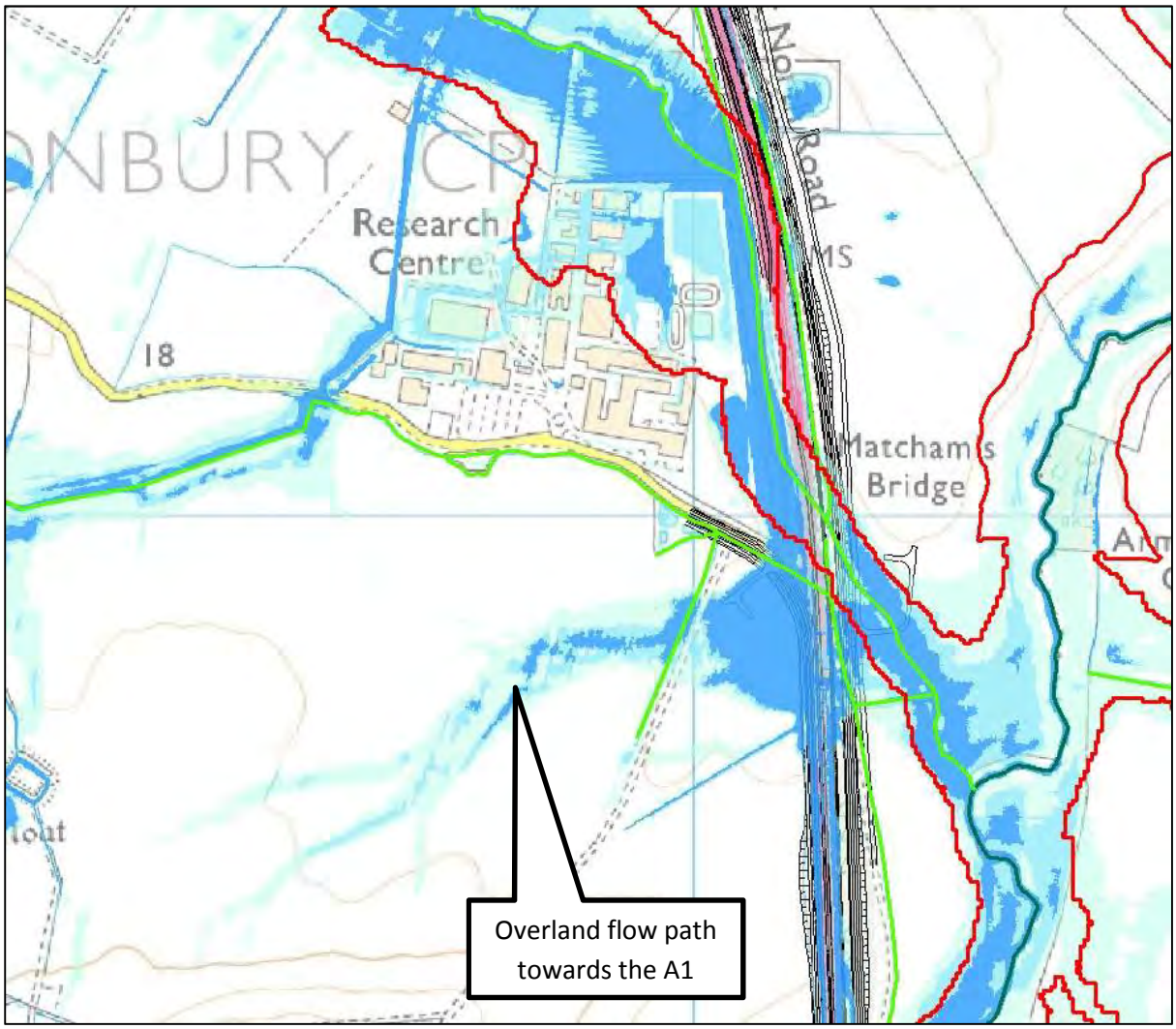
Review of Updated Flood Map for Surface Water Flood Risk to A14

1 Cock Brook

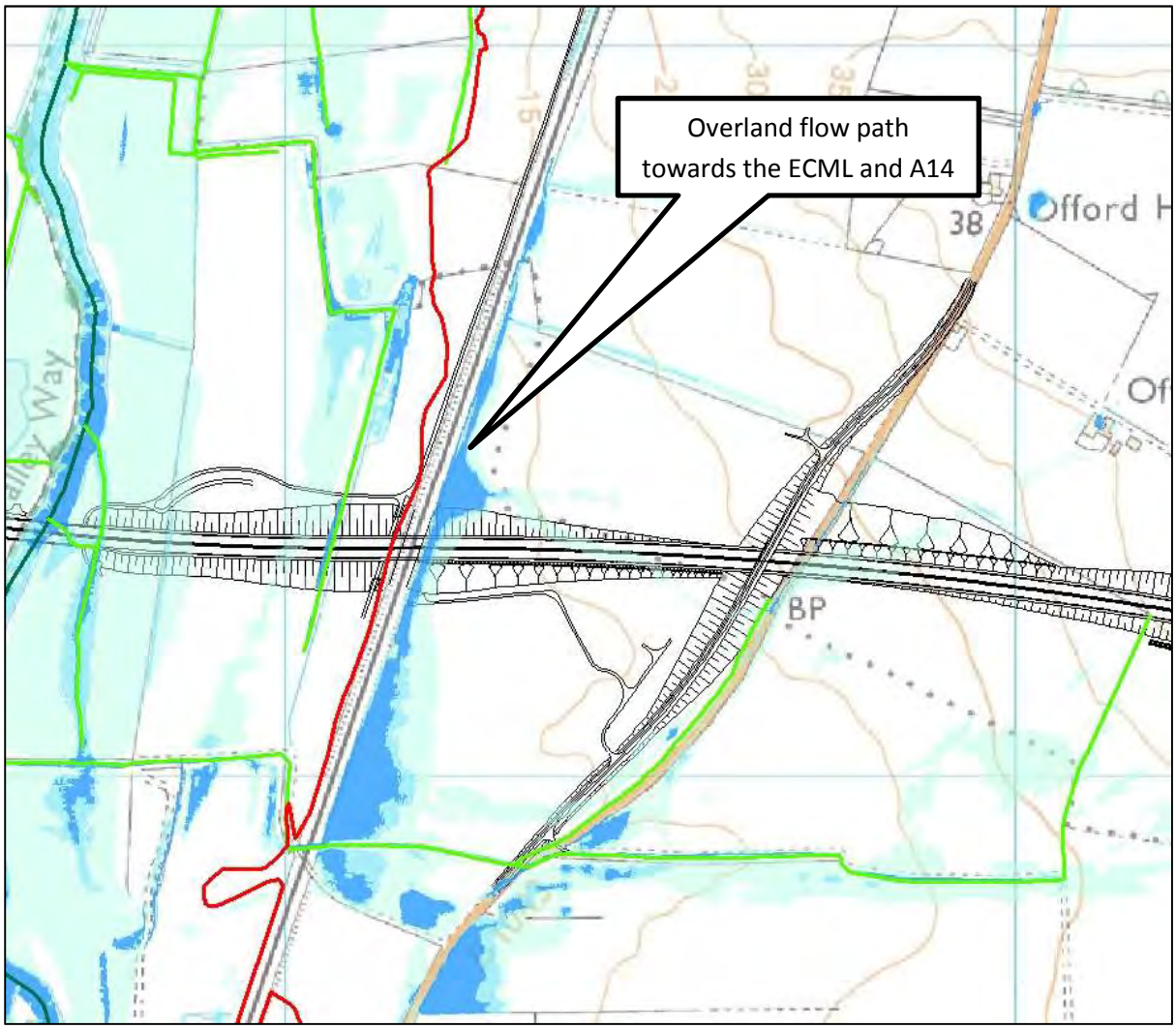


Key

- Main River
- Non Main River
- Flood Zone 3
- Scheme Layout
- uFMfSW Extent 3% AEP
- uFMfSW Extent 1% AEP
- uFMfSW Extent 0.1% AEP

Review of Updated Flood Map for Surface Water Flood Risk to A14

2 East Coast Main Line

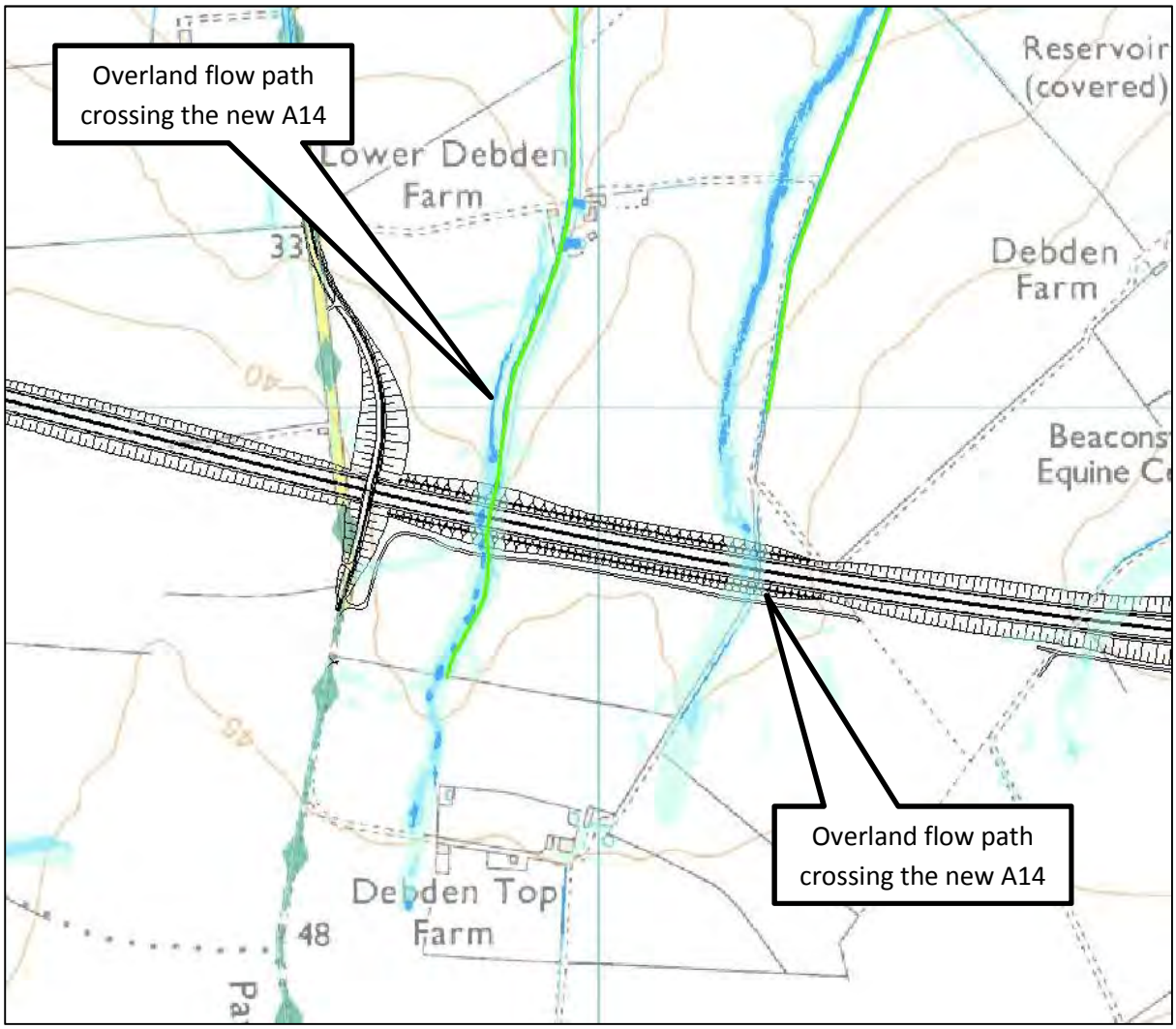


Key

- Main River
- Non Main River
- Flood Zone 3
- Scheme Layout
- uFMfSW Extent 3% AEP
- uFMfSW Extent 1% AEP
- uFMfSW Extent 0.1% AEP

Review of Updated Flood Map for Surface Water Flood Risk to A14

3 Debden Top Farm

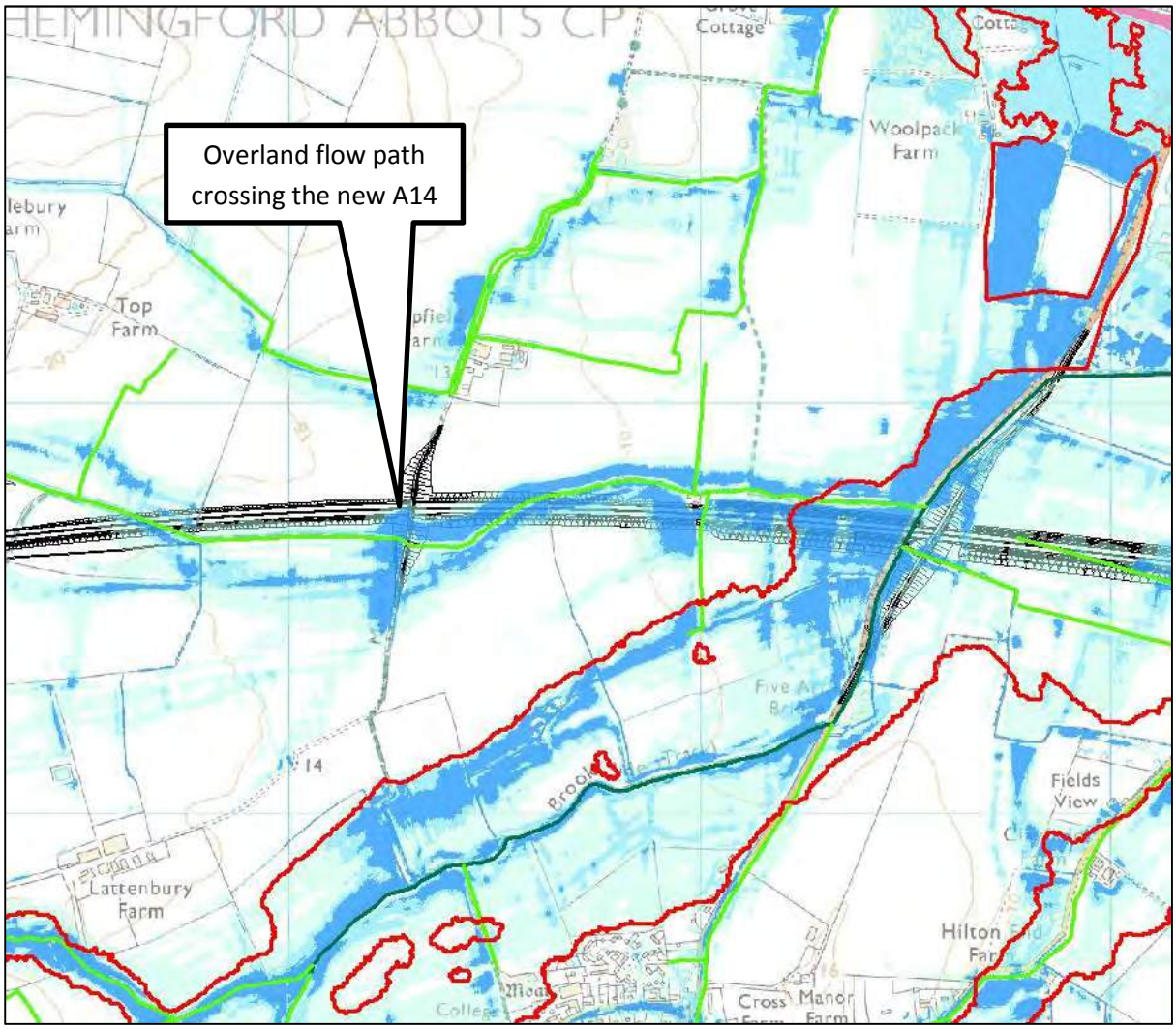


Key

- Main River
- Non Main River
- Flood Zone 3
- Scheme Layout
- uFMfSW Extent 3% AEP
- uFMfSW Extent 1% AEP
- uFMfSW Extent 0.1% AEP

Review of Updated Flood Map for Surface Water Flood Risk to A14

4 Huntingdonshire DC Award Drain

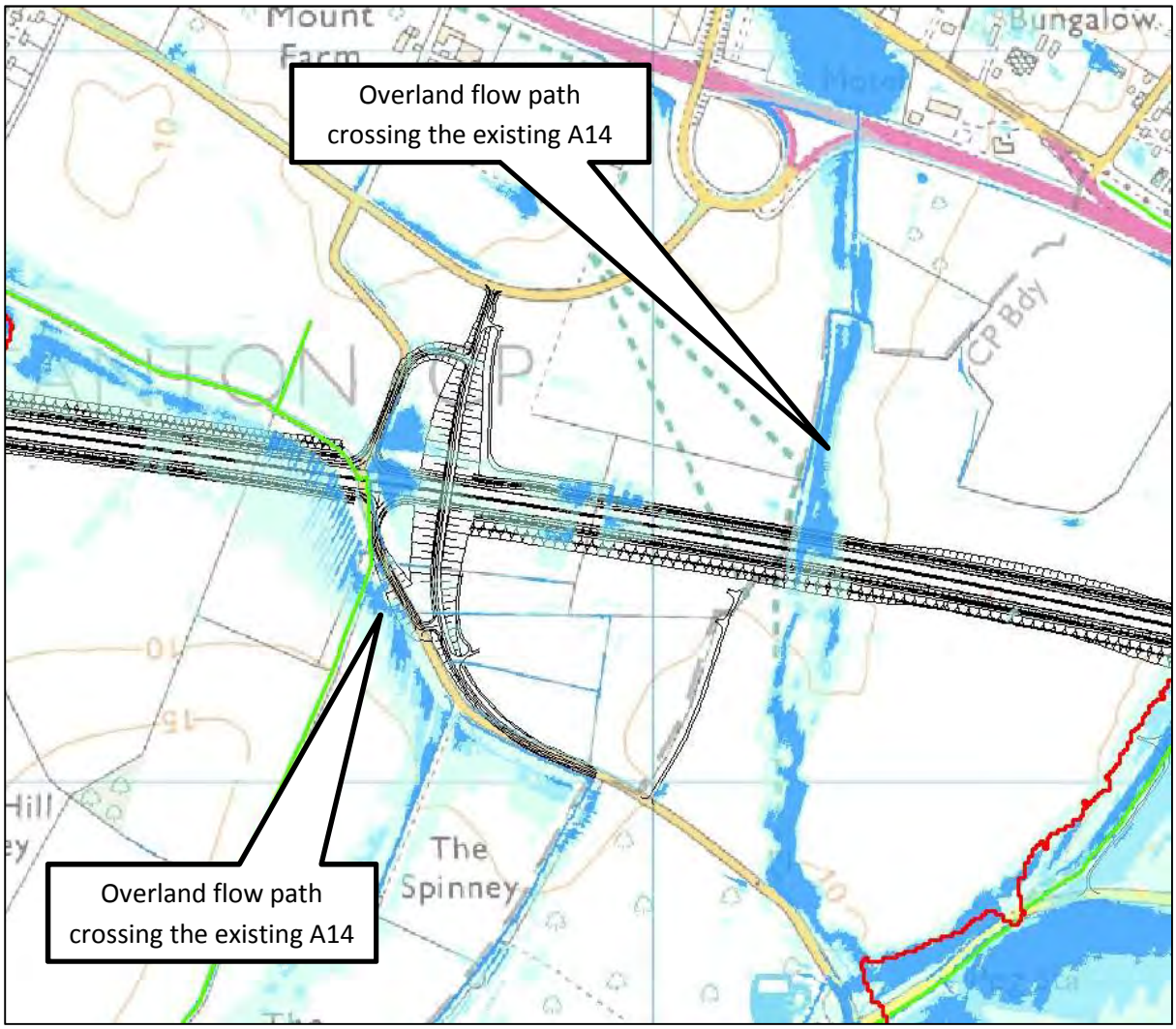


Key

- Main River
- Non Main River
- Flood Zone 3
- Scheme Layout
- uFMfSW Extent 3% AEP
- uFMfSW Extent 1% AEP
- uFMfSW Extent 0.1% AEP

Review of Updated Flood Map for Surface Water Flood Risk to A14

5 Conington Road Bridge



Key

- Main River
- Non Main River
- Flood Zone 3
- Scheme Layout
- uFMfSW Extent 3% AEP
- uFMfSW Extent 1% AEP
- uFMfSW Extent 0.1% AEP

Fluvial Hydraulic Modelling Report

1 Basic Model Information

1.1 Model Name	A14 Utton's Drove	
1.2 Primary Watercourses / Water Bodies	Utton's Drove Drain	
1.3 Designation	Non-main river	
1.4 Model ID	The following table presents information regarding the Existing and Scheme Model Scenario ID	
Model Scenario ID	**Scenario**	**Annual Probability**
A14_UTT_BL_005.DAT A14_UTT_BL_0020_005.ief	Existing Situation Model	5% AEP (1 in 20 years)
A14_UTT_BL_005.DAT A14_UTT_BL_100_005.ief		1% AEP (1 in 100 years)
A14_UTT_BL_005.DAT A14_UTT_BL_100cc_005.ief		1% AEP + Climate Change (1 in 100 years + CC)
A14_UTT_DES_006.DAT A14_UTT_DES_0020_006.ief	With-Scheme Situation Model	5% AEP (1 in 20 years)
A14_UTT_DES_006.DAT A14_UTT_DES_100_006.ief		1% AEP (1 in 100 years)
A14_UTT_DES_006.DAT A14_UTT_DES_100cc_006.ief		1% AEP + Climate Change (1 in 100 years + CC)

2 Model Input Data

2.1 Incoming Models	Atkins ISIS 1D Model (2009) B T100.DAT
2.2 Base Mapping	1 to 10,000 Scale Raster Reference: TL3060
2.3 DTM for 2D Model domain	N/A 1D Model 1m LiDAR DTM from the Environment Agency used to extend cross sections. LiDAR survey date unknown.
2.4 River channel/Structures survey	Cross sections taken from the Atkins ISIS 1D Model (2009). The cross section data in the incoming model is from July 2009 survey data. Site inspection indicates that Hard Bed levels were utilised however, this is not stated in the incoming model report.

3 Existing Situation Hydraulic Model Schematisation	
3.1 Software	**1D domain:** Flood Modeller Version 4 (64 bit - Single Precision) **2D domain(s):** N/A
3.2 Model Reference	A14_UTT_BL_005.DAT A14_UTT_BL_0020_005.ief A14_UTT_BL_100_005.ief A14_UTT_BL_100cc_005.ief
3.3 Model Schematisation	Figure 3-1 shows the Utton's Drove Drain model schematisation. The model consists of a main reach from Manor House Farm to Tipplers' Road and a tributary from Yarmouth Farm.
3.4 Model Updates	The incoming Atkins model has been reviewed and the following updates have been made to create an existing situation model: • Reach 1 and 2 both started upstream of a structure. To aid model stability the start of the model has been moved to the downstream side of the structures. These structures are located sufficiently upstream of the proposed scheme that they are not needed in the model. • Where there are significant changes in the direction of channel bend loss units have been added. • "Glass walling" shown in the previous model has been removed by extending the model cross sections using LiDAR data. • To simplify the floodplain schematisation the Atkins model has been truncated upstream of its original downstream extent. Sensitivity tests were carried out to ascertain that this has no effect on the model results at the location of the scheme. • Upstream of the existing A14, "glass walling" was occurring in the 1% AEP + CC event, due to an undersized culvert surcharging. Due to the nature of the topography it was not possible to remove this glass walling by extending cross sections. LiDAR data for this area showed that any out of bank flooding would flow parallel to the channel to the area immediately upstream of the A14 and drain back into the channel. It was therefore decided to represent this area of the floodplain with a 1D reservoir and appropriate spill arrangement. • During a site visit it was identified that reach 3 is a concrete lined channel. Roughness values were updated to reflect this. • The site visit identified that some of the culvert lengths were incorrect. This was updated in the model. • Parameters for some culvert inlet units where updated as they did not match with the culvert type.

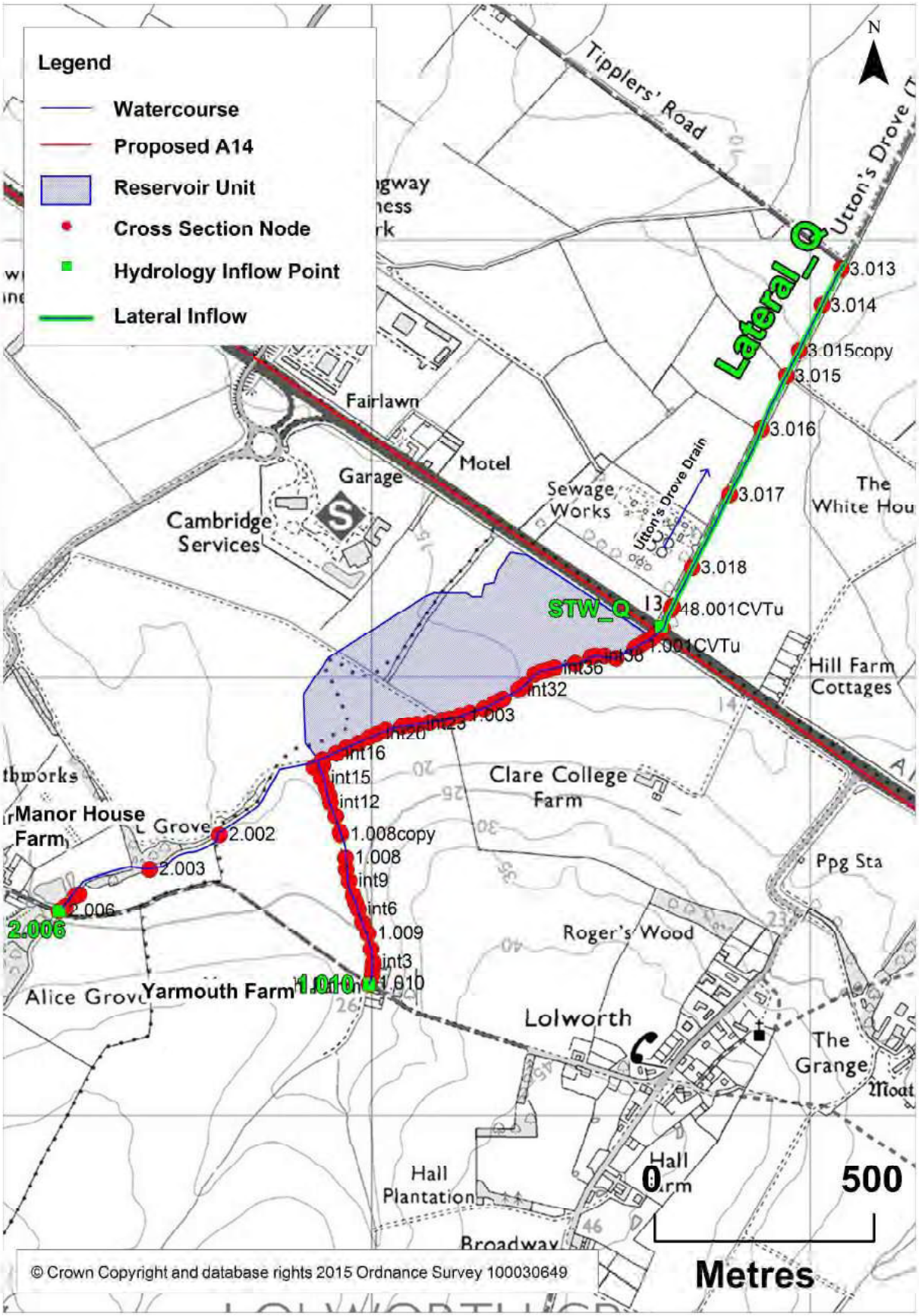


Figure 3-1: Existing Situation Model Schematisation

3.5 Model reaches	The table below shows the watercourse reaches defined in the model. They are also shown in Figure 3-1.		
Watercourse name	**Upstream model node**	**Downstream model node**	**Total Reach length (km)**
Utton's Drove Drain	2.006	3.013	2.507
Yarmouth Farm tributary	1.010	1.006copy	0.541
3.6 Hydrology	A hydrological review of Utton's Drove Drain has identified that the hydrological inflows to the incoming model are appropriate for the FRA model. Details of the hydrology can be found in the incoming model report[1]. Due to the truncation of the downstream end of the incoming model, as discussed in Section 3.4, a minor revision was required to the schematisation of inflow Lateral_Q. In the incoming model, Lateral_Q was distributed between the exiting A14 and the downstream end of the model. Once the model had been truncated, the inflow was distributed so that the same amount of flow entered downstream end of the as in the corresponding sections in the incoming model. An inflow (Trib_Q) was present in the incoming model for a tributary, as this inflow was downstream of the truncation point it was removed from the FRA model. The critical storm duration of 8.5 hours has been retained from the incoming model. A check has shown that this duration is appropriate. The table below show peak inflows for each event.		
	Peak Inflow (m^3/s)		
Input Node in the Hydraulic Model	**Annual Exceedance Probability**		
	5%	**1%**	**1% + CC**
1.010	1.420	2.060	2.470
Lateral_Q	0.220	0.319	0.383
2.006	0.950	1.370	1.650
STW_Q	0.045	0.045	0.045
3.7 Model Boundaries – Downstream Conditions	As discussed in Section 3.4, the downstream end of the model was truncated at node 3.013. There is a structure immediately downstream of this location. However, tests showed that the water levels at this location do not affect water levels at the scheme location. Therefore, for simplicity, it was deemed appropriate to use a normal depth boundary. Sensitivity tests (Section 4.3) showed that, at the location of the scheme, the model is not sensitive to changes in the downstream boundary.		
3.8 Climate Change	An allowance for climate change has been included in the modelling by increasing the fluvial inflows for the 1% AEP event by 20%. The climate change allowance is explained in detail in Section 1.8.12 of the main FRA report.		

[1] Atkins/Highways Agency, A14 Ellington to Fen Ditton Phase 1B, Utton's Drove Drain Hydraulic Modelling Report (May 2010)

4 Model Proving

4.1 Model Performance

Run performance has been monitored throughout the model build process and then during each simulation carried out, to ensure the optimum model convergence was achieved. In the 1D model the convergence plots produced as .bmp files were checked. As shown on the example below (Figure 4-1), there are no non-convergence issues with the 1D model.

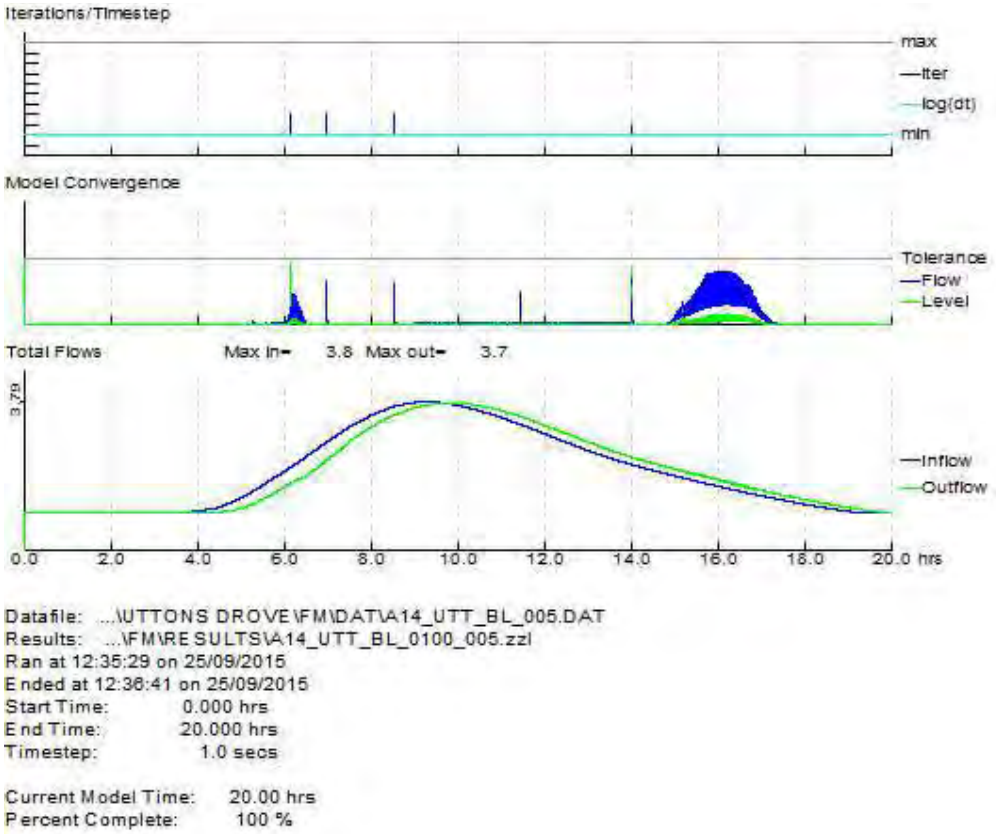


Figure 4-1: Existing Situation 1% AEP Event Flood Modeller 1D convergence plot

4.2 Model Verification	
2.4.1 Calibration	The Utton's Drove Drain FRA model has not been calibrated against hydrometric records as the catchment represented in the model is ungauged.
2.4.2 Flood Zone Comparison	Figure 4-2 shows the modelled 1% AEP existing situation flood extent for the FRA model and the Environment Agency published Flood Zone 3. It can be seen that the modelled flood extent is much smaller than Flood Zone 3. The differences in flood extent are due to a different model being used for the Flood Zone map. The Flood Zone is likely to be based on a model with a coarser level of detail, which uses national scale hydrology. In contrast the FRA model presented here uses hydrology that has been specifically created for the Utton's Drove Drain catchment. In addition, the FRA model uses a normal depth boundary, which will give a different flood extent in the vicinity of the downstream boundary. The FRA model and Flood Zone 3 are therefore not comparable and the differences seen are to be expected.

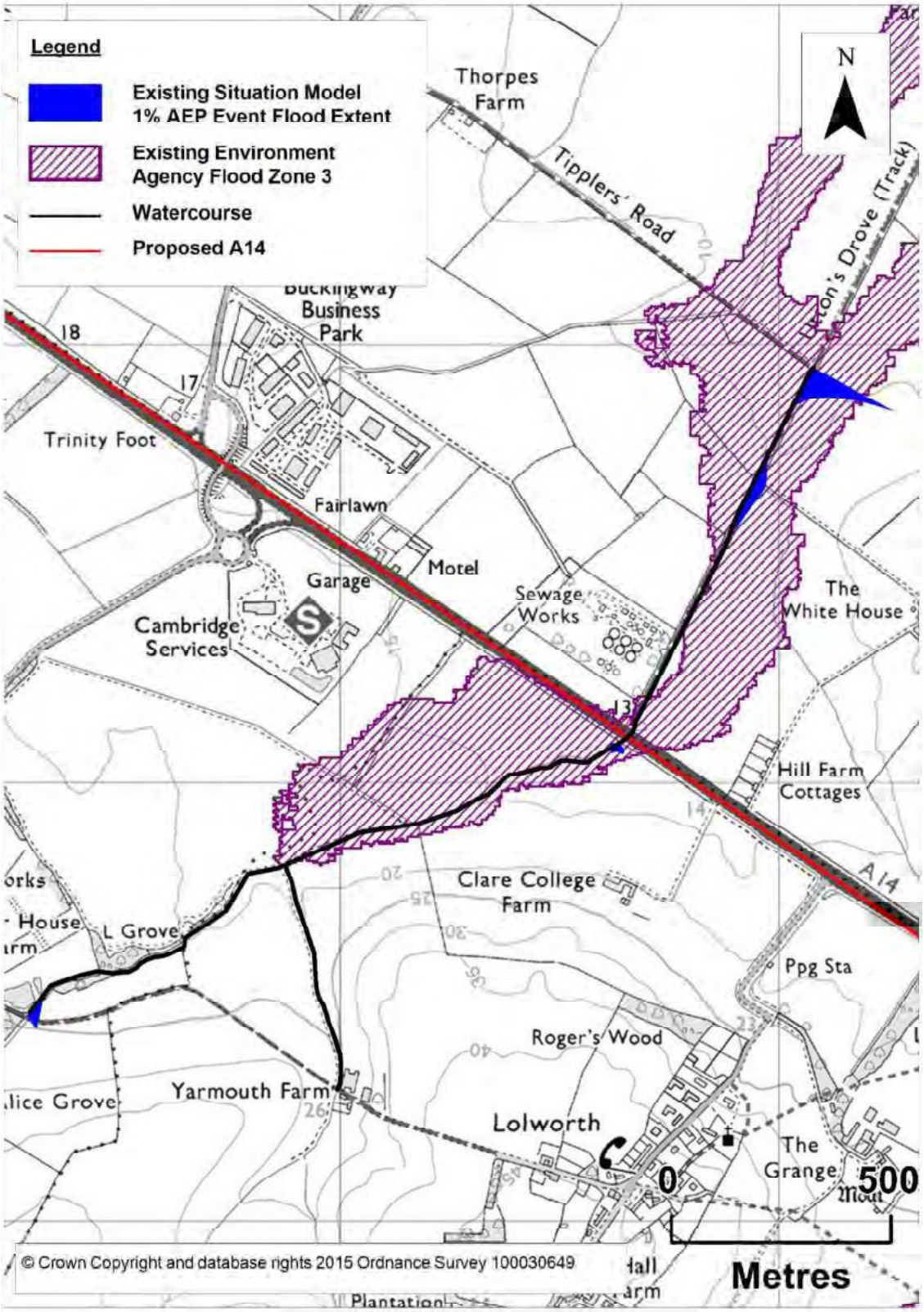


Figure 4-2: 1% AEP event flood extent vs. Environment Agency Flood Zone 3

4.3 Sensitivity Analysis

Sensitivity tests were carried out for the 1% AEP existing situation model to assess the model response to adjustment of:

- Flow: Model inflows changed by +20% and -20%.
- Roughness: In-channel roughness coefficient (Manning's 'n') changed by +20% and -20%.
- Downstream boundary: Normal depth boundary gradient changed by +20% and -20%.

The tables below show the changes in in-channel water level relative to the existing situation model for each sensitivity test, at key scheme locations.

The results show that Utton's Drove Drain is not sensitive to any of the changes tested.

Node	48.005CVTu	
Sensitivity	**Peak Water Level (mAOD)**	**Difference (m)**
Baseline	**13.404**	
+20% Flow	13.421	0.017
-20% Flow	13.351	-0.053
+20% Roughness	13.453	0.049
-20% Roughness	13.332	-0.072
+20% Downstream boundary Gradient	13.404	0.000
-20% Downstream boundary Gradient	13.404	0.000

Node	A14_CVTu	
Sensitivity	**Peak Water Level (mAOD)**	**Difference (m)**
Baseline	**13.333**	
+20% Flow	13.375	0.042
-20% Flow	13.282	-0.051
+20% Roughness	13.343	0.010
-20% Roughness	13.324	-0.009
+20% Downstream boundary Gradient	13.333	0.000
-20% Downstream boundary Gradient	13.333	0.000

Node	48.001CVTu	
Sensitivity	**Peak Water Level (mAOD)**	**Difference (m)**
Baseline	**12.071**	
+20% Flow	12.157	0.086
-20% Flow	11.984	-0.087
+20% Roughness	12.139	0.068
-20% Roughness	11.982	-0.089
+20% Downstream boundary Gradient	12.071	0.000
-20% Downstream boundary Gradient	12.071	0.000

5 Model Build – With-Scheme Situation Model

5.1 Scenario Definition	Figure 5-1 shows the proposed features of the A14 improvement scheme within the extent of the Utton's Drove model. The A14 is to be widened on the southern side. The following sections explain how the features were incorporated into the model.

Flood Modeller 1D Model

The following updates have been made to the 1D model to represent the design features.

- The access crossing on the upstream side of the existing A14 has been added as a bridge unit with a flat soffit at the level of the channel bank top.
- A 10m long 2.5m diameter circular culvert has been added to the model on the downstream side of the existing A14 to represent an access road crossing. The design specification required the bed of circular culverts to be buried below the channel invert by 20% of the culvert diameter. The model assumes that the buried portion of the culvert is infilled with natural material.
- The existing culvert under the A14 has been extended by 33m on the upstream side to allow for the road widening. This extension goes through an existing culvert for a farm track crossing. This structure was removed from the model.
- The reservoir geometry on the upstream side of the A14 was adjusted to take account of the scheme elements in this area.
- Three floodplain compensation (FpC) areas were added on the upstream side of the A14. They are designed to provide level for level compensation for the active floodplain removed by the scheme. The FpC areas have been added as reservoir units in the model. Spill units connect the FpC areas to the channel.
- Four Highway attenuation ponds have been modelled by truncating any cross sections which cross into these areas. This is because the ponds are designed to operate independently from the fluvial floodplain.
- Colebrook-White roughness values have been added to the new culverts:
  - Culvert invert roughness = 0.3000m
  - Culvert walls and soffit roughness = 0.0015m

5.2 Design Detail Sources	In addition to direct communication with the design team the following sources of information were utilised **Design drawings:** A14-JAC-ZZ-E2-DR-Z-00016.pdf **Culvert schedule:** A14_Culvert_Schedule_100415.shp

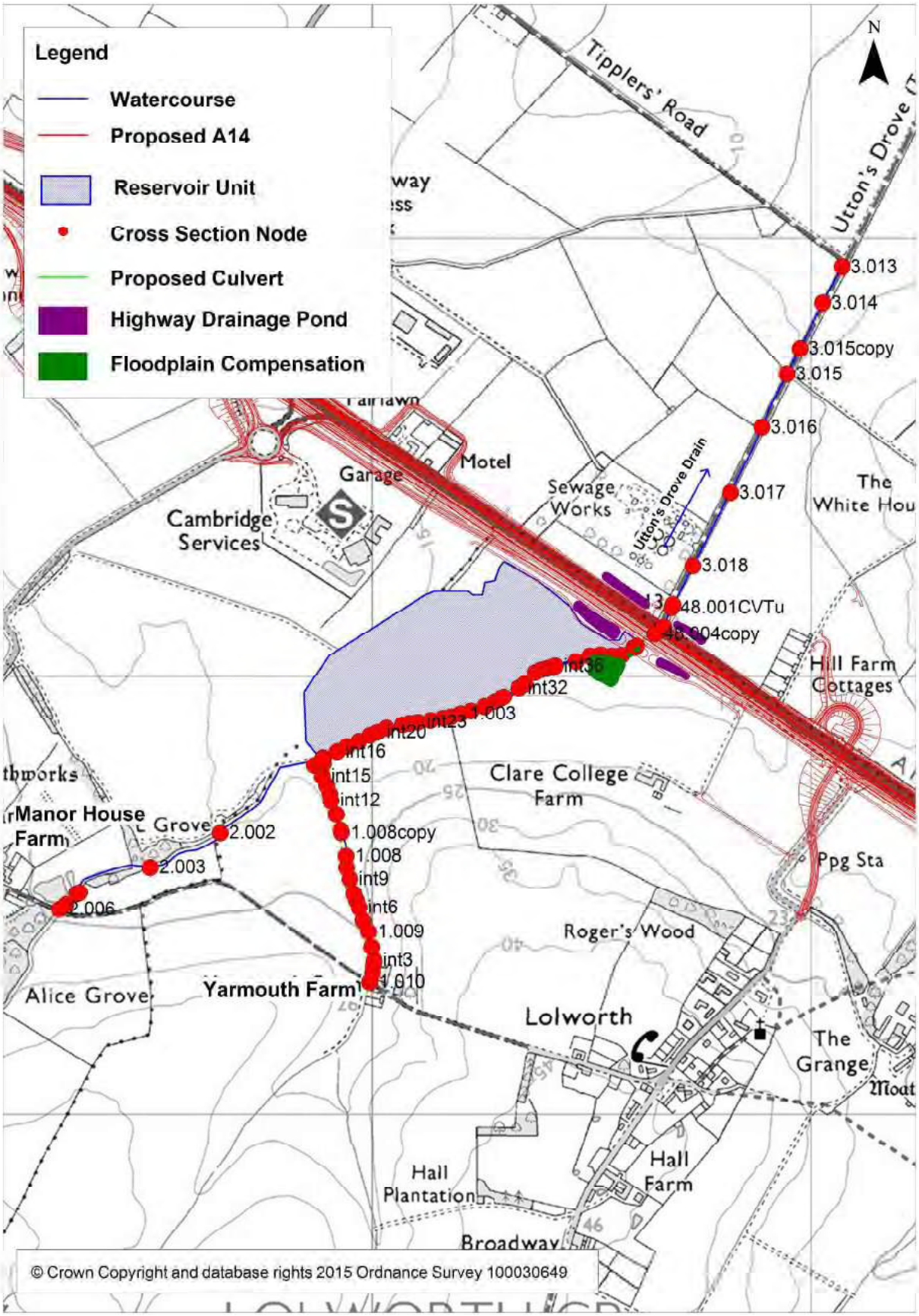


Figure 5-1: With-Scheme Situation Model Schematisation

6 Hydraulic Model Outputs

Water level outputs were extracted for the existing situation and with-scheme situation models at key locations and are presented below (full results are available in attached .csv files).

6.1 1D Water Levels

Existing Situation Model

Peak water levels for the existing situation are provided in the tables below for the three flood events simulated.

Location	Model Node	Peak Water level (mAOD)		
		5% AEP	1% AEP	1% AEP +CC
107m u/s of proposed u/s culvert	1.001	14.744	14.888	14.960
u/s of proposed u/s culvert	48.005CVTu	13.310	13.404	13.421
d/s of proposed u/s culvert	48.005CVTd	13.273	13.376	13.423
u/s of A14 (at proposed extension inlet location)	A14_CVTu	13.239	13.333	13.375
d/s of A14	48.002	12.037	12.201	12.295
u/s of proposed d/s culvert	48.001CVTu	11.926	12.071	12.156
d/s of proposed d/s culvert	48.001	11.852	11.998	12.083
107m d/s of proposed d/s culvert	3.018	11.248	11.377	11.457
Left Bank floodplain u/s of A14	1.002SpD2	*12.701	*13.065	*13.368

*the reservoir floodplain has a minimum ground level of 12.7mAOD, there is no water out of channel in the 5%AEP event.

With-Scheme Situation Model

Peak water levels for the with-scheme situation are provided in the tables below for the three flood events simulated.

Location	Model Node	Peak Water level (mAOD)		
		5% AEP	1% AEP	1% AEP +CC
107m u/s of proposed u/s culvert	1.001	14.744	14.888	14.961
u/s of proposed u/s culvert	48.005CVTu	13.129	13.306	13.400
d/s of proposed u/s culvert	48.005CVTd	12.984	13.155	13.261
u/s of A14 (at proposed extension inlet location)	A14_CVTu	12.524	12.769	12.923
d/s of A14	48.002	12.196	12.366	12.469
u/s of proposed d/s culvert	48.001CVTu	11.910	12.098	12.211
d/s of proposed d/s culvert	48.001	11.841	11.992	12.080
107m d/s of proposed d/s culvert	3.018	11.245	11.376	11.454
Left Bank floodplain u/s of A14	1.002SpD2	**12.991	**12.991	**13.437

** the reservoir floodplain has a minimum ground level of 12.99mAOD, there is no water out of channel in the 5%AEP and 1% AEP events.

Change in peak water level

Changes in peak water level between the existing situation and with-scheme situation are provided in the tables below for the three simulated events.

Location	Model Node	Change in Peak Water level (m)		
		5% AEP	1% AEP	1% AEP +CC
107m u/s of proposed u/s culvert	1.001	0.000	0.000	0.001
u/s of proposed u/s culvert	48.005CVTu	-0.181	-0.098	-0.021
d/s of proposed u/s culvert	48.005CVTd	-0.289	-0.221	-0.162
u/s of A14 (at proposed extension inlet location)	A14_CVTu	-0.715	-0.564	-0.452
d/s of A14	48.002	0.158	0.165	0.175
u/s of proposed d/s culvert	48.001CVTu	-0.017	0.027	0.055
d/s of proposed d/s culvert	48.001	-0.011	-0.005	-0.002
107m d/s of proposed d/s culvert	3.018	-0.003	-0.001	-0.002
Left Bank floodplain u/s of A14	1.002SpD2	0.000	-0.074	0.069

6.2 Long Sections

Figure 6-1 presents a comparison between peak water levels predicted by the existing situation and with-scheme situation models for the 1% AEP event.

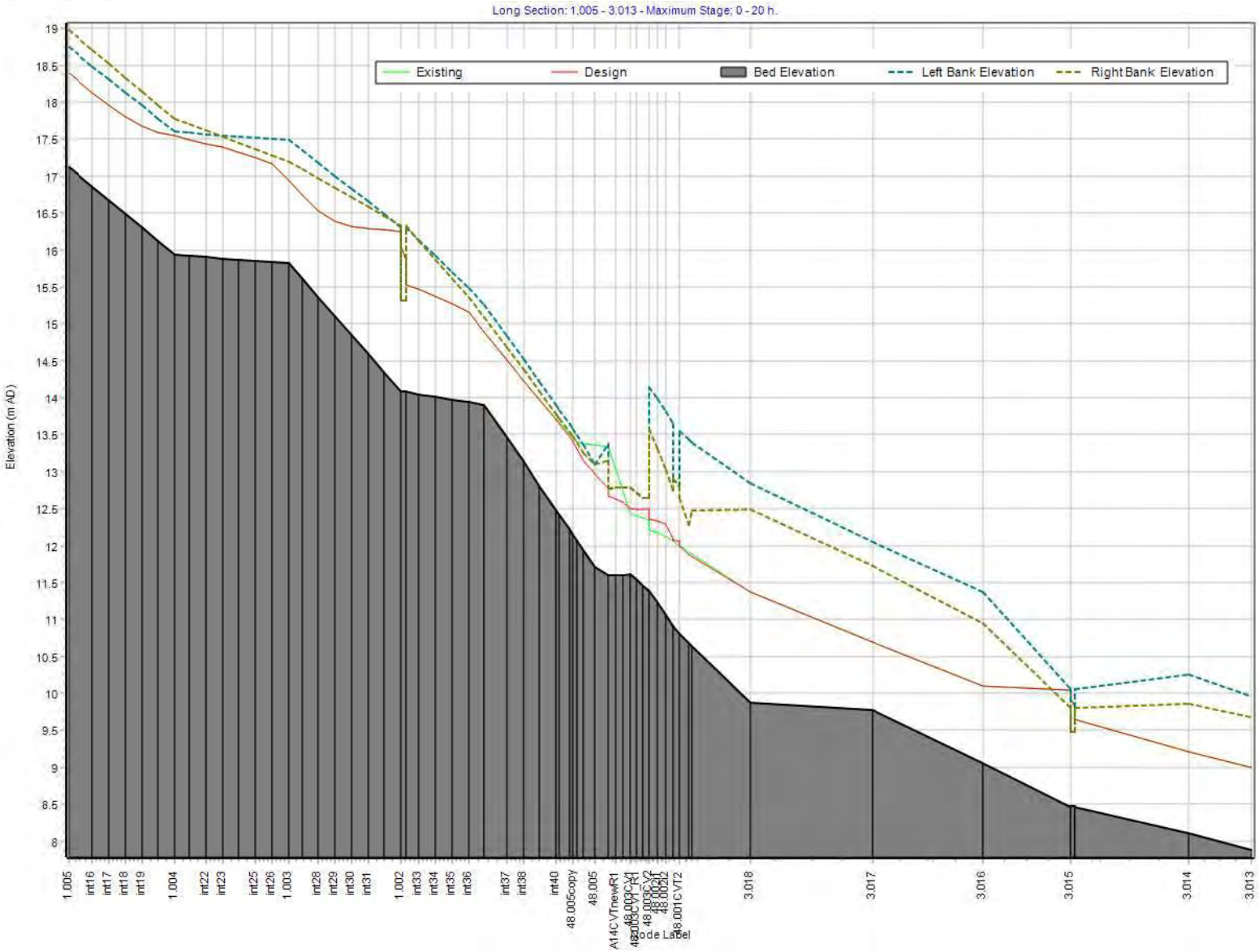


Figure 6-1: Peak water levels for the Utton's Drove Drain 1D model – 1% AEP event

6.3 Pass-Forward Flow

The pass-forward flow at the downstream end of the model has been assessed to see what the likely effect will be for flood risk downstream. The table below shows the peak flows for the existing situation and with-scheme scenarios, at the downstream extent of the model (node 3.013). This shows that for all events the pass-forward flow is marginally reduced as a result of the scheme.

Model Assessed	Peak Flow (m^3/s) at Node 3.013		
	5% AEP	1% AEP	1% AEP +CC
Existing situation	2.63	3.75	4.51
With-scheme	2.60	3.74	4.49

6.4 Floodplain Flood Extent

Figure 6-2 shows the flood extent for the existing situation and with-scheme situation for the 1% AEP +CC AEP event, in the vicinity of the scheme.

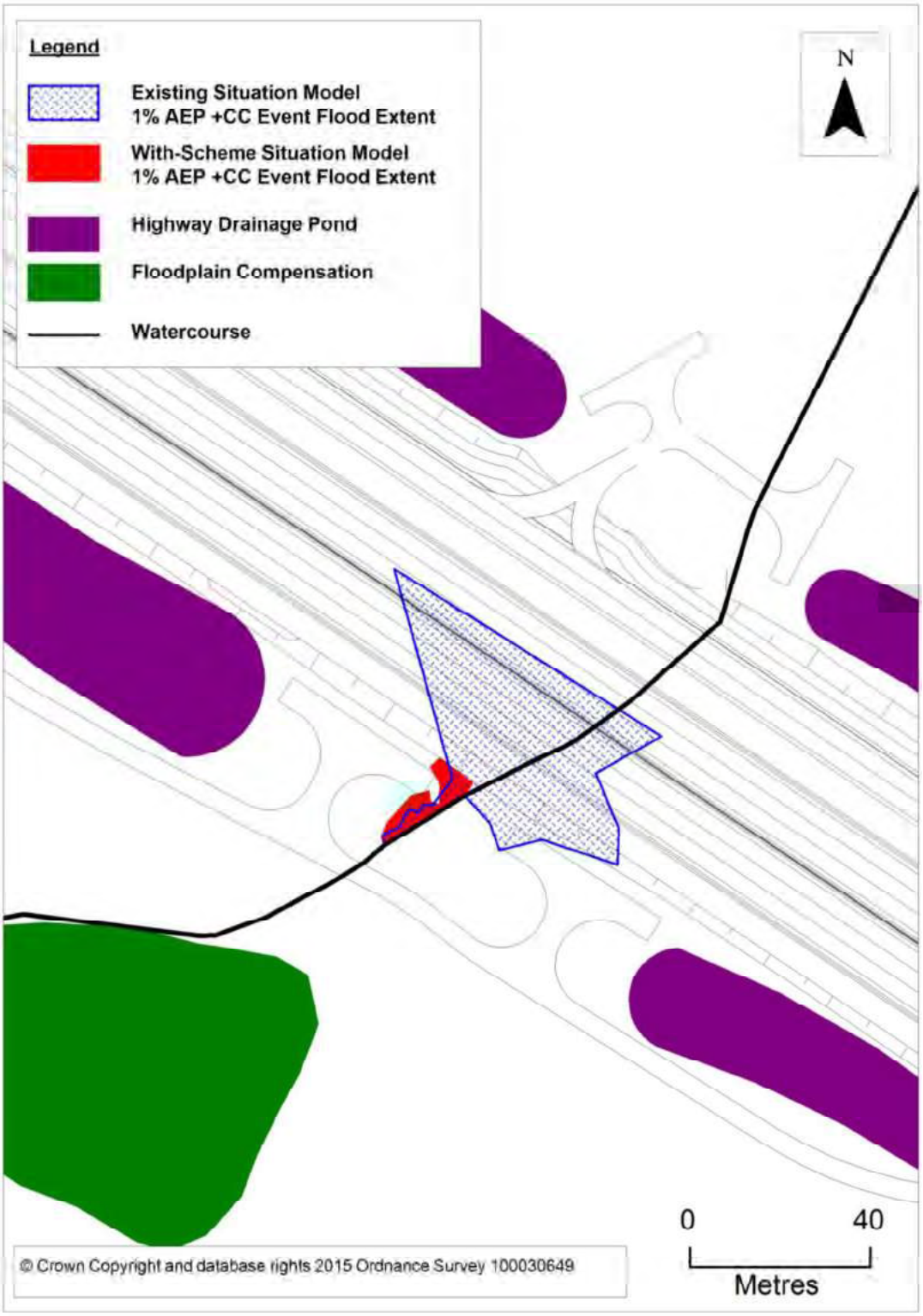


Figure 6-2: 1% AEP +CC event flood extent change

6.5 Effect of proposed Scheme

In-Channel

The results show that for all events the scheme causes a reduction in water levels on Utton's Drove Drain, upstream of the existing A14.

Immediately downstream of the A14, between the existing A14 culvert outlet and the proposed downstream track crossing culvert (model nodes 48.002 to 48.001CVTu), there is an increase in water levels in all events. In the 1% AEP +CC event, the increase in water level downstream of the A14 is greater than 170mm. This increase is due to the changed hydraulic regime caused by the extended A14 culvert. The extended culvert replaces an existing farm track crossing. In the existing situation (between model nodes 48.004 and 48.004copy), the culvert for this crossing is under capacity and surcharges, leading to a high water levels upstream of the culvert and a steep hydraulic gradient with high velocities. In the design situation, without the farm track culvert, the hydraulic gradient is slackened leading to a reduction in velocity and a resultant increase in water level immediately downstream of the A14 culvert. The increase is restricted to a 36m reach of Utton's Drove Drain downstream of the A14 and for all events simulated water level remains within channel.

Downstream of the proposed downstream track crossing culvert the scheme causes a reduction in water levels.

Floodplain

Immediately upstream of the scheme, there is out of bank flooding predicted in the existing situation for the 1% AEP event. This is caused by an under sized culvert immediately upstream of the existing A14 (between model nodes 48.004 and 48.004copy). In the 1% AEP +CC event there is out of bank flooding caused by the same culvert and by another under sized culvert 300m upstream of the existing A14 (between model nodes 1.002 and 1.002copy). The scheme removes the undersized culvert immediately upstream of the existing A14, and subsequently there is no out of bank flooding in the 1% AEP event for the with-scheme situation. For the 1% AEP +CC event the scheme causes a minor increase in the extent of out of bank flooding (Figure 6-2), along with localised depth increase of 69mm. There is no out of bank flooding in the 5% AEP event in the vicinity of the scheme for the existing situation or the with-scheme situation.

7 Key model assumption and limitations

- The previous Atkins 2009 model has been reviewed in as much detail as possible within the scope of the present study. With the updates described above, the model is thought to be an appropriate representation of the existing situation, for the purpose of flood risk assessment of the A14 scheme.
- Culvert inlet design was assumed to feature headwall with square edges.
- The reservoir unit upstream of the existing A14, does not model the routing of the floodplain flow adjacent to the channel. This was deemed appropriate as conveyance in this area will not affect water levels or flood extent at the scheme.
- A normal depth downstream boundary has been used. This does not accurately predict the flooding in the vicinity of the downstream boundary, but this does not affect water flooding at the scheme.
- Minor land drainage features are assumed to be insignificant and have not been modelled at this stage. If required, these features should be added at the detailed design stage.
- No calibration of the hydraulic model has been carried out as the catchment is ungauged.

SWAVESEY INTERNAL DRAINAGE BOARD

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MIDDLE LEVEL OFFICES
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CAMBRIDGESHIRE
PE15 0AH

PINS RECEIVED
08 JUN 2015

Your Ref: TR010018
Our Ref: SW/14d

05 June 2015

Dear Sir

Planning Act 2008 (as amended)
Application by Highways England for an Order granting Development Consent for the A14 Cambridge to Huntingdon Improvement Scheme
Representations by the Swavesey Internal Drainage Board

I refer to letter from Frances Fernandez, the Lead Member of the Panel of Examining Inspectors dated 21st May, and the request for interested parties to submit written representations and comments on the above proposed project by 15th June. This letter therefore contains the comments and representations of the Swavesey Internal Drainage Board.

The Swavesey Internal Drainage Board (the Board) are a statutory Internal Drainage Board within the meaning of the Land Drainage Act 1991 and exercise jurisdiction over the Swavesey Internal Drainage District, shown on the attached plan. This District adjoins the village of Swavesey. By design, the District only enjoys a level of flood defence protection from the adjoining main river system maintained by the Environment Agency of 1:10 (10% chance per annum of flooding) and the Board are therefore extremely concerned to seek to ensure that the above proposals do not increase the level of flood risk for their catchment.

The Board's position is that it accepts the proposed scheme provided that the works achieve drainage flows equivalent to at least current greenfield rates from both the main highway and the local access roads and that the works ensure that the level of flood risk will be (as a minimum) no worse and so far as possible, better than if the roads had not been built.

The Board's District is dependent, for free drainage, on the operation of Webbs Hole Sluice, a structure operated by the Environment Agency on the main river Swavesey Drain. This allows flows from the Board's District and the surrounding catchment to pass into the River Great Ouse when levels permit but the Sluice will shut, at times of high levels within the River, which will therefore lead to flood waters entering the flood meadows around the village. The Board would therefore wish for the design of the drainage scheme to be to allow appropriate flows to pass into the river system when Webbs Hole is open and for balancing to occur when the Sluice is closed. The Board are concerned that to do otherwise will lead to flows being attenuated and held in balancing areas when they would have been able to be discharged, thus increasing the flood risk and the amount of water required to be stored, when balancing is required. In the Board's opinion, it will be important for the balancing areas to be emptied when free flow is possible, to create the maximum storage for when the Sluice is closed.

The Board are concerned to ensure that the attenuation facilities, balancing ponds and any other relevant drainage facilities provided will be adequately maintained and that the level and frequency of this maintenance is stated and in the public domain before approval to the project is given. It will be appreciated that even if such facilities are adequate at the outset, lack of proper maintenance will materially diminish their performance over time. The Board have sought to obtain from Highways England (and its predecessor body) details of the intended maintenance regime for these facilities but, so far, without success. We would therefore request that the Inspectors require the provision of and satisfy themselves as to the adequacy of this regime.

The Board also have a number of more specific queries which have been raised with the Applicant's consultants but on which responses are still awaited. While a number relate to the detail of the design, it is felt that they need to be assessed at this stage as they would, if not properly considered, affect the performance of the new roads.

These queries relate to:-

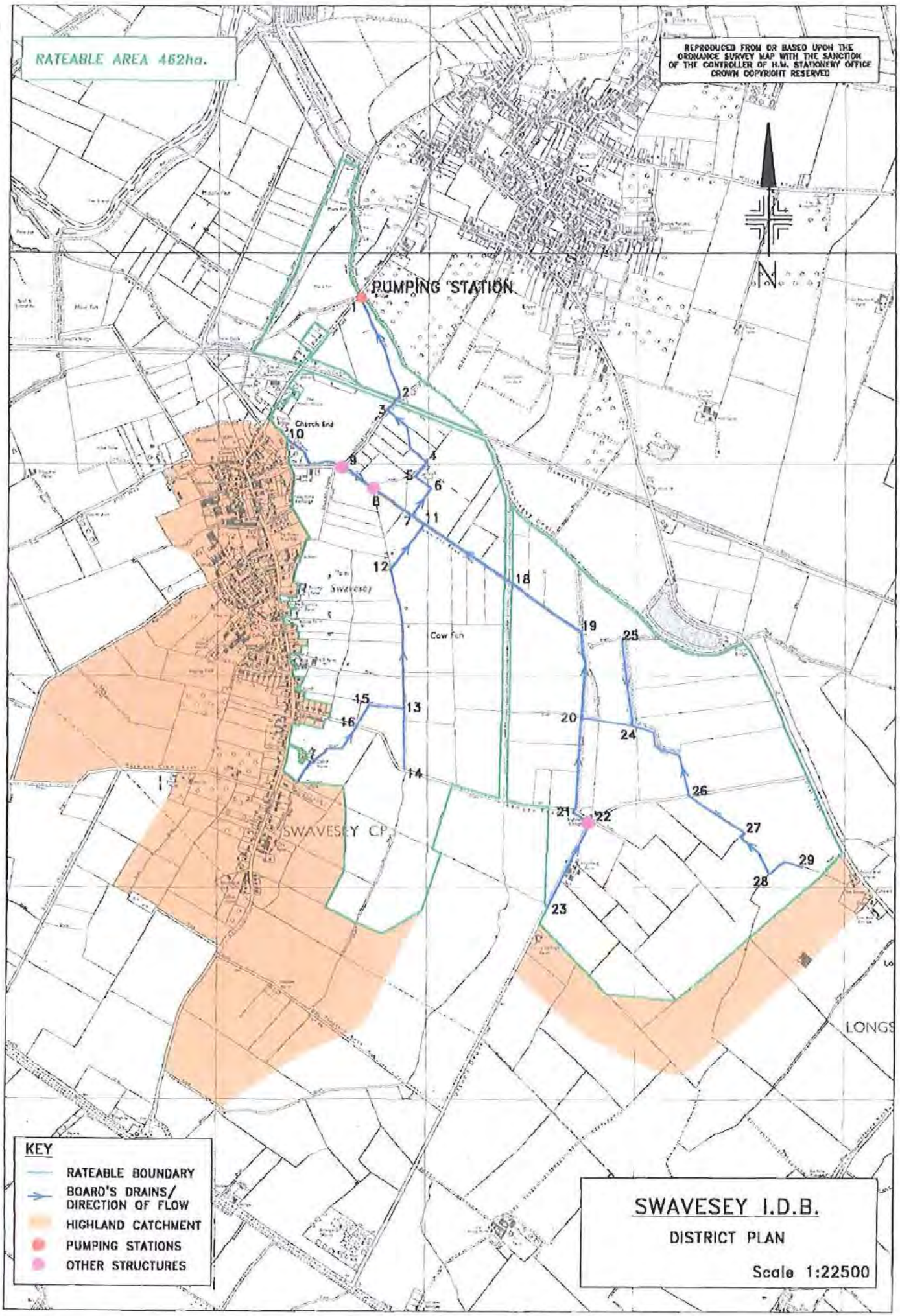
(a) The modelling outputs in terms of flows for the areas around the proposed Swavesey junction
(b) The impact of surface water drainage from Bar Hill and the proposed Northstowe developments on the proposals particularly in the light of concerns that the mitigation measures currently in place for Bar Hill do not appear to be properly functioning.
(c) The envisaged status of the proposed balancing ponds in terms of ecological designation and how it will be ensured that they continue to serve their primary function.
(d) The impact of the flows from the local access roads
(e) The impact of the removal and/or modification of existing culverts
(f) the design of the ponds ensuring that appropriate machine access for maintenance is available and retained.

Yours faithfully

[redacted]

Clerk to the Board

The Planning Inspectorate
3/18 Eagle Wing
Temple Quay House
2 The Square
Bristol
BS1 6PN


RATEABLE AREA 462ha.
REPRODUCED FROM OR BASED UPON THE ORDNANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE CROWN COPYRIGHT RESERVED
N
PUMPING STATION
Church End
Swavesey
Cow Fen
SWAVESEY CP
LONGS
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KEY
RATEABLE BOUNDARY
BOARD'S DRAINS/ DIRECTION OF FLOW
HIGHLAND CATCHMENT
PUMPING STATIONS
OTHER STRUCTURES
SWAVESEY I.D.B.
DISTRICT PLAN
Scale 1:22500

From: Brenda Melton [mailto:admin@middlelevel.gov.uk]
Sent: 22 October 2015 08:54
To: A14 Cambridge to Huntingdon
Cc: Wilderspin K
Subject: A14Drainage and Flood Risk Issue Specific Hearing (Our Ref: SW/14d)

Dear Mr Coombes

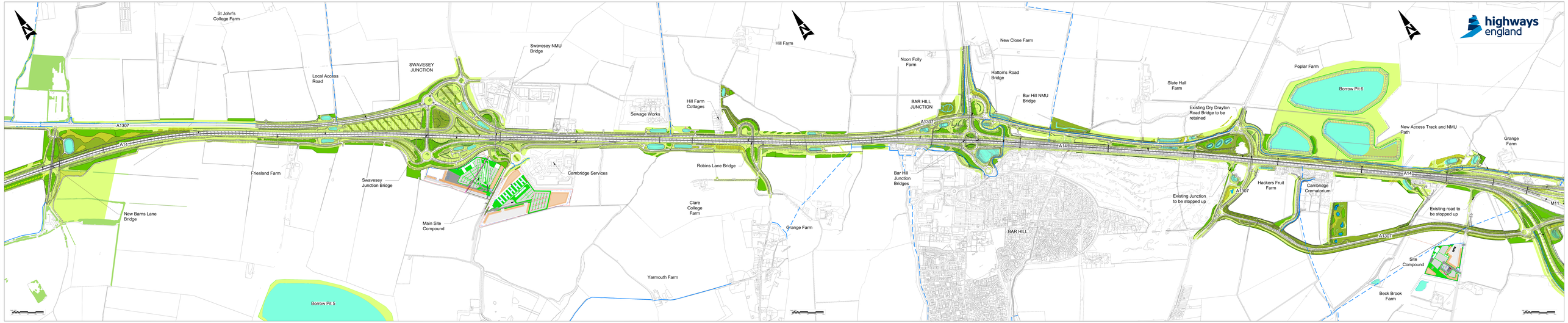
Further to the above hearing held on 21st October, I write as requested to confirm the points which I raised on behalf of Swavesey Internal Drainage Board.

1 The Board are concerned that no specific provisions and/or works programme has been provided by Highways England (HE) for the proposed balancing ponds. In the Board's view, a commitment to the frequency of specified maintenance is important. This point is even more critical, given the statement by HE that the attenuation facilities will have a secondary environmental function, with the protected species, the Great Crested Newt, being specifically mentioned. The Board would wish to know how HE will then ensure that adequate maintenance at the required times of year, will then be guaranteed.

2 The Board are concerned that the impacts of the drainage of Bar Hill have not been fully considered, where such impacts are felt downstream on the receiving watercourse system and on the design of the attenuation facilities.

3 The Board noted that impacts on Uttons Drove Drain were referred to, concerning which the Board have not previously been consulted. While I understand from the HE consultant, Mr Jacobs, that such impacts will not be felt outside the area of land to be acquired by HE and will not therefore impact on the Board, the Board await publication of the Flood Risk Assessment at the end of the month in order to properly consider this.

Yours sincerely
Iain Smith
Clerk to Swavesey Internal Drainage Board


highways
england
St John's College Farm
Local Access Road
SWAVESEY JUNCTION
Swavesey NMU Bridge
Hill Farm
Noon Folly Farm
New Close Farm
Hatton's Road Bridge
Bar Hill NMU Bridge
Slate Hall Farm
Poplar Farm
Borrow Pit 6
Existing Dry Drayton Road Bridge to be retained
New Access Track and NMU Path
Grange Farm
Hill Farm Cottages
Sewage Works
BAR HILL JUNCTION
A1307
A14
Friesland Farm
Swavesey Junction Bridge
Cambridge Services
Robins Lane Bridge
Bar Hill Junction Bridges
Hackers Fruit Farm
Cambridge Crematorium
Existing Junction to be stopped up
Existing road to be stopped up
M11
New Barns Lane Bridge
Main Site Compound
Clare College Farm
Grange Farm
BAR HILL
Site Compound
Beck Brook Farm
Yarmouth Farm
Borrow Pit 5

Appendix C Site Visit Photographs and Location Plan

Stantec

Client

Newlands UK Ltd

CAMBRIDGE GATEWAY, BOXWORTH

Site Visit Photograph Locations

0 250 500 m

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
Contains British Geological Survey materials © UKRI 2020.

1:5,000 @ A3	Date: 16/08/2022
Drawn: MD	Checked: SK
Figure 332210779/017	Rev A

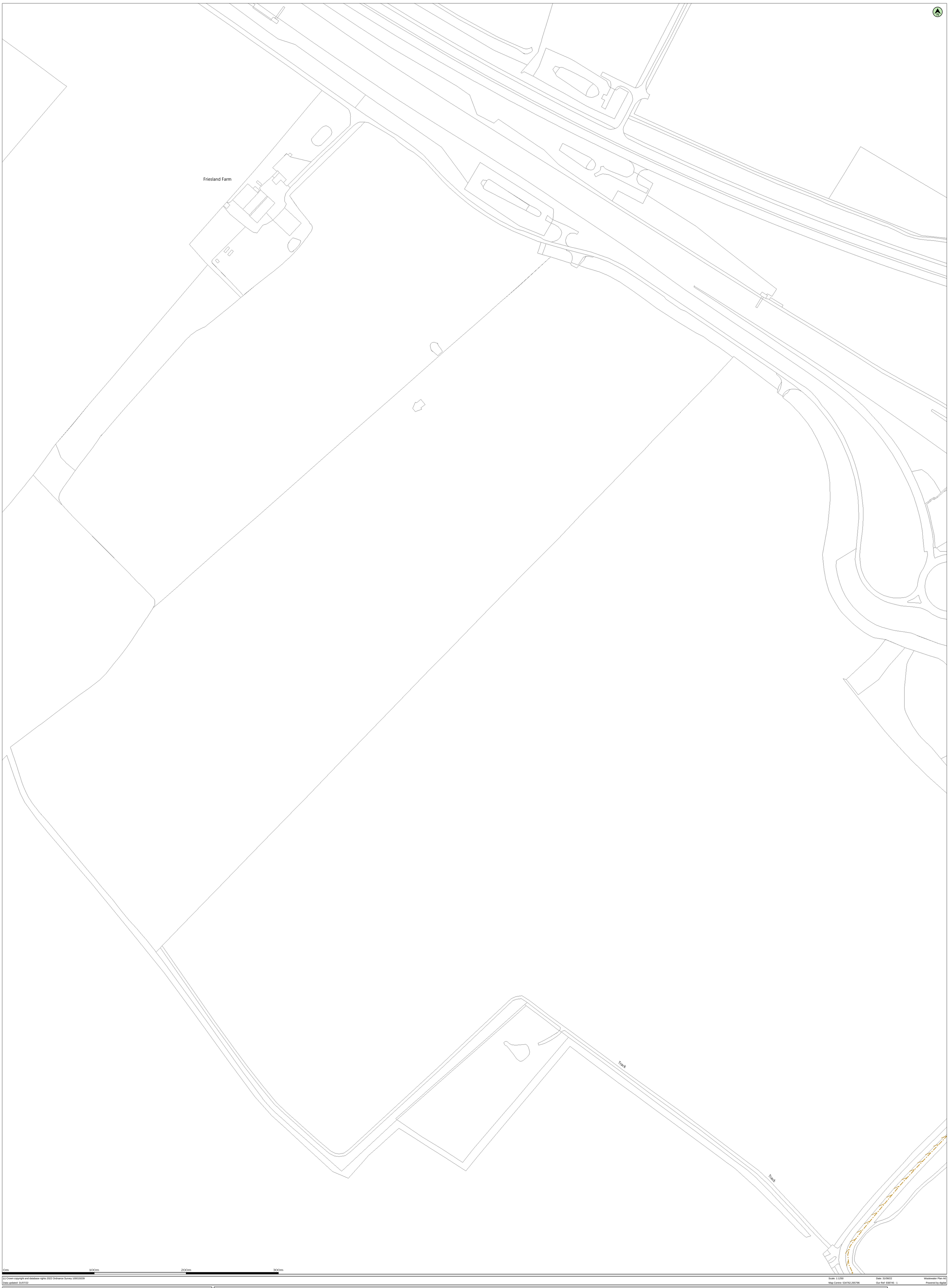
Document Path: J:\332210779 - Cambridge Gateway, Boxworth\GIS\Workspaces\332210779 017 Site Visit Locations.mxd

Appendix D Sources of Information

D.1.1 The findings of this Flood Risk Scoping Technical Note are based on a desktop assessment of the following available information:

- Anglian Water (AW) Correspondence;
- AW Sewer Plans, obtained via digdat, August 2022;
- Cambridge County Council (CCC) Cambridgeshire Flood Risk Management Strategy 2021-2027 report;
- CCC Cambridgeshire Preliminary Flood Risk Assessment – Final Report, March 2011;
- CCC Flood Investigation Report – Swavesey, December 2020, September 2021;
- CCC Pre-Application Advice, July 2022;
- Environment Agency (EA) Correspondence;
- EA Great Ouse Catchment Flood Management Plan, Summary Report, January 2011;
- EA Open-Source Flood Mapping;
- EA recorded flood outlines database;
- Greater Cambridge Shared Planning (GCSP) Climate Change Topic Paper – Topic paper published alongside the First Proposals (Regulation 18: The Preferred Options) Consultation 2021, September 2021;
- GCSP Correspondence;
- GCSP Development Strategy Topic Paper – Topic paper published alongside the First Proposals (Regulation 18: The Preferred Options) Consultation 2021, September 2021;
- GCSP Level 1 Strategic Flood Risk Assessment (SFRA) – Final Report, July 2021;
- Highways England (now National Highways) A14 Cambridge to Huntingdon Improvements Scheme – Development Consent Order Application, Environmental Statement Appendix 17.1 Update: Flood Risk Assessment, November 2015;
- Highways England (now National Highways) Fluvial Hydraulic Modelling Report – A14 Utton's Drove, November 2015;
- National Highways Correspondence;
- South Cambridgeshire District Council (SCDC) Adopted Local Plan, published September 2018;
- SCDC Correspondence;
- Stafsuv Land Surveyors Topographical Survey, completed on behalf of Newlands Developments UK Ltd, July 2021;
- Swavesey Internal Drainage Board Correspondence;

Appendix E Anglian Water Sewer Plans



(c) Crown copyright and database rights 2022 Ordnance Survey 100019209
Data updated: 31/07/22

Scale: 1:1250
Map Centre: 534762,265796

Date: 31/08/22
Our Ref: 938745 - 1

Wastewater Plan A0
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)

max.davison@stantec.com

Boxworth Sewers 2

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 (c) Crown copyright and database rights 2022 Ordnance Survey 100022432.This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses 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.

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: 31/07/22

Scale: 1:1250
Map Centre: 535698,265698
Date: 31/08/22
Our Ref: 938745 - 2
Wastewater Plan A0
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)

max.davison@stantec.com
Boxworth Sewers 1

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 (c) Crown copyright and database rights 2022 Ordnance Survey 100022432.This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses 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.

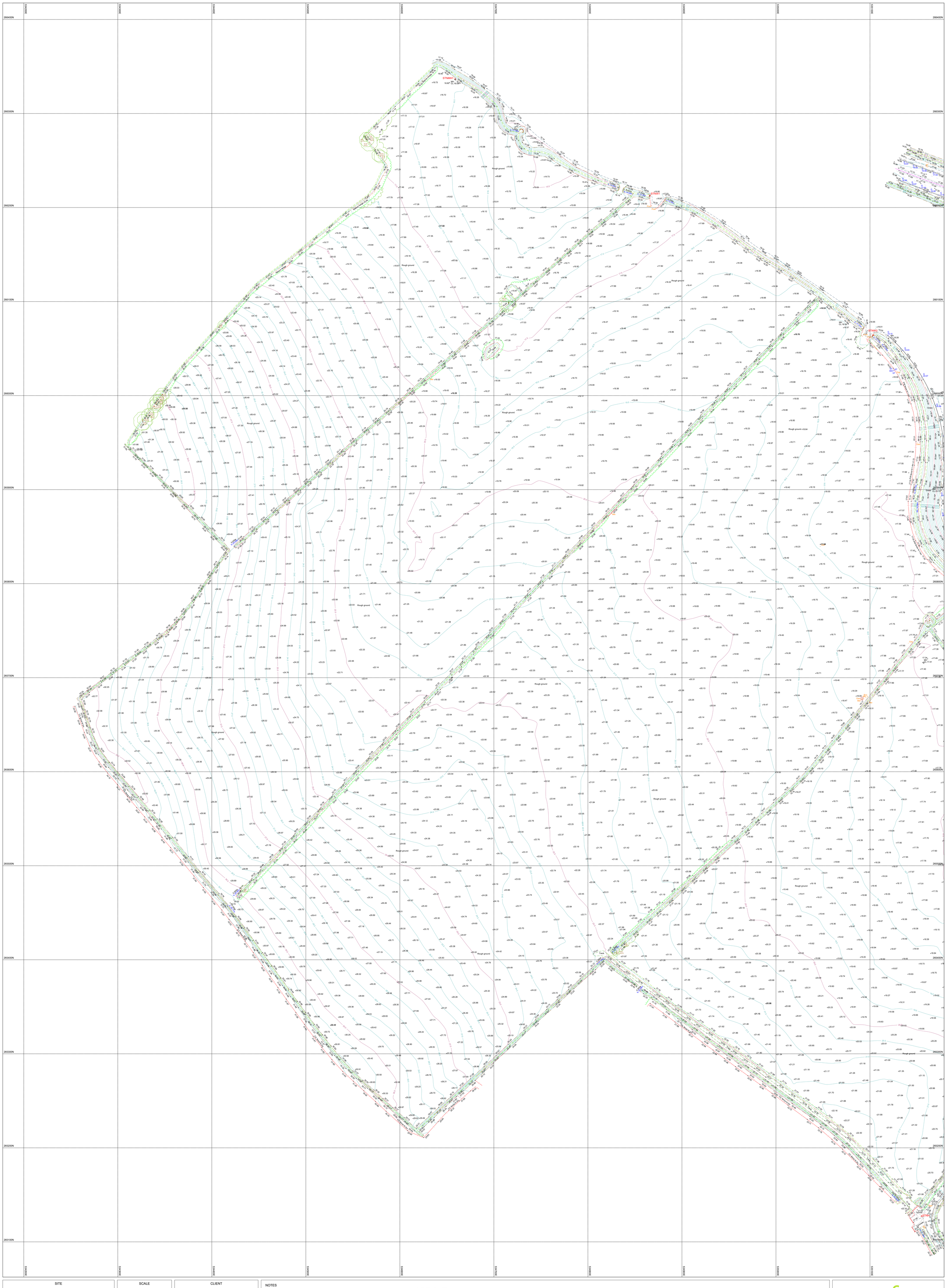
Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0700	536007	265801	F	-	-	-
0701	536042	265777	F	-	-	-
0702	536084	265748	F	-	-	-
1700	536135	265714	F	-	-	-
1701	536145	265707	F	-	-	-
8000	535832	266011	F	-	-	-
8001	535856	266045	F	-	-	-
8002	535892	266011	F	-	-	-
8900	535804	265963	F	-	-	-
8901	535899	265909	F	-	-	-
8902	535881	265927	F	-	-	-
9800	535923	265883	F	-	-	-
9801	535964	265886	F	-	-	-
9802	535982	265818	F	-	-	-
9803	535967	265843	F	-	-	-
9900	535915	265982	F	-	-	-
9901	535952	265913	F	-	-	-
9902	535949	265918	F	-	-	-
9903	535987	265965	F	-	-	-
0751	536042	265781	S	-	-	-
0752	536083	265752	S	-	-	-
0851	536004	265806	S	-	-	-
0852	536047	265891	S	-	-	-
0853	536092	265861	S	-	-	-
1751	536139	265714	S	-	-	-
1752	536184	265800	S	-	-	-
1851	536138	265831	S	-	-	-
7951	535795	265915	S	-	-	-
7952	535794	265937	S	-	-	-
7953	535800	265963	S	-	-	-
8051	535828	266009	S	-	-	-
8052	535853	266050	S	-	-	-
8053	535892	266016	S	-	-	-
8951	535881	265930	S	-	-	-
9851	535926	265883	S	-	-	-
9852	535969	265875	S	-	-	-
9853	535970	265841	S	-	-	-
9854	535984	265819	S	-	-	-
9951	535915	265986	S	-	-	-
9952	535944	265901	S	-	-	-
9953	535955	265913	S	-	-	-
9954	535973	265942	S	-	-	-
9955	535959	265905	S	-	-	-
9956	535984	265933	S	-	-	-
9957	535989	265939	S	-	-	-

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

Appendix F Topographical Survey



SITE	SCALE	CLIENT
Brickyard Farm Boxworth	1:1250 @ A0	newlands developments
PROJECT	DATE	
Topographical Survey	16/07/2021	
	DRAWING No.	
	11747T-1	

NOTES

Boundaries surveyed are physical features and may not necessarily represent the legally conveyed ownership.

Tree Spreads, Girths and Heights are approximate, any tree species identified should not be relied upon and checked by a specialist if critical

Underground drainage depths, pipe sizes and runs have been recorded from the surface and may have been estimated or assumed

Features surveyed off site such as buildings and trees may have been recorded remotely and may not be shown in full detail due to access / sighting restrictions

SURVEY CONTROL

THIS SURVEY IS ORIENTATED TO ORDNANCE SURVEY GRID NORTH WITH A TRUE OSGB36 CO-ORDINATE NEAR THE CENTRE OF THE SURVEY.

THE SURVEY IS PLOTTED TO A FLAT PLANE GRID. HORIZONTAL MEASUREMENTS TAKEN FROM THIS SURVEY WILL BE TRUE DISTANCES

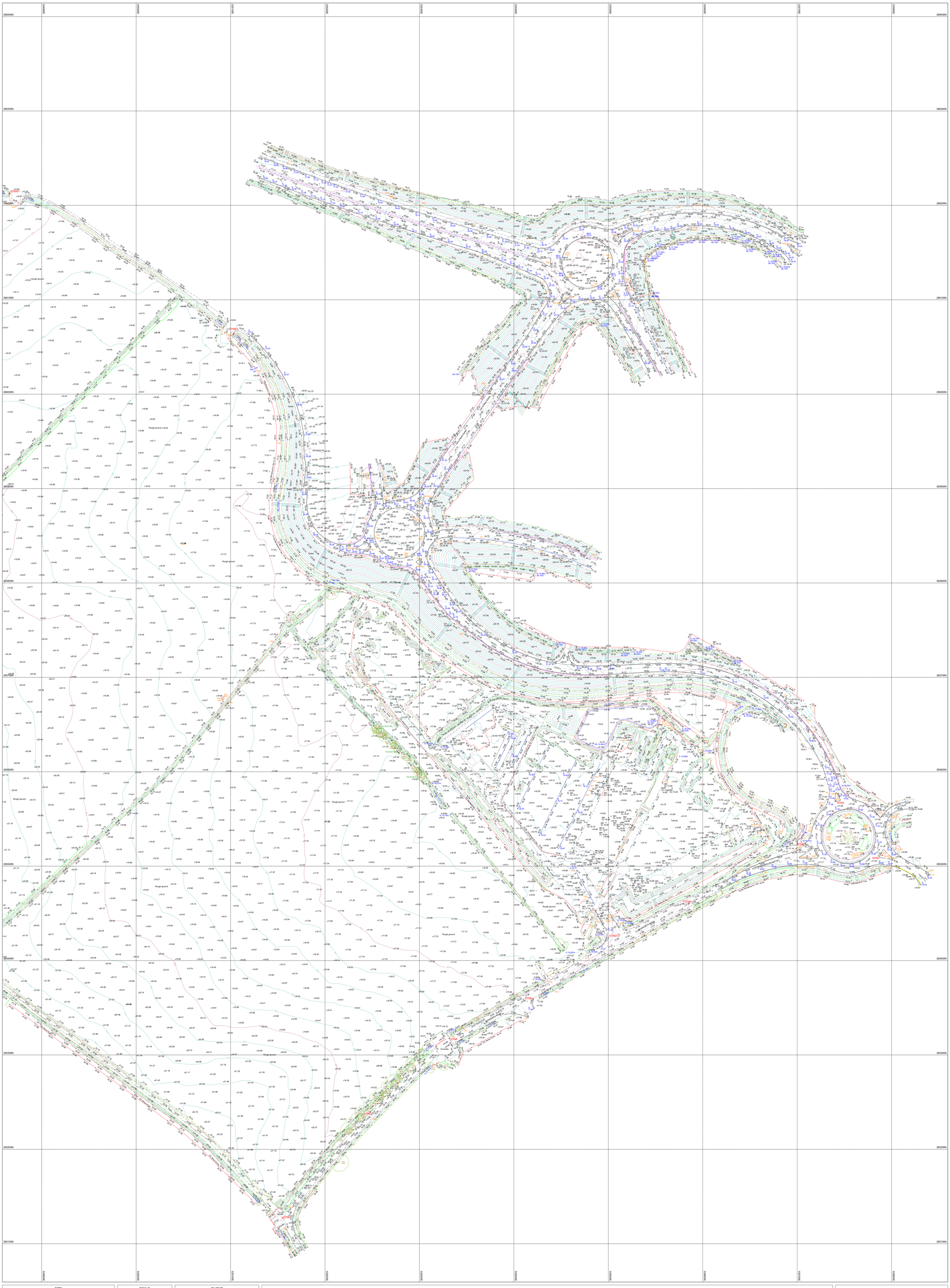
REFER TO SURVEY CONTROL STATION LISTING FOR RE-ESTABLISHING CONTROL ON SITE

LEVELS RELATE TO ODN

SURVEY STATIONS

Name	Easting	Northing	Height
STNA	535740.614	265569.082	17.824
STNC	535790.091	265511.580	17.323
STNB	535700.409	265524.567	17.334
STND	535579.299	265463.058	17.439
STNE	535420.138	265359.741	17.729
STND1	535511.293	265427.515	17.694
STNF	535331.800	265317.497	18.793
STNG	535247.595	265239.476	19.532
STNH	535155.017	265127.388	21.808
STNI	535178.315	265041.619	23.073
STNW1	534865.973	266212.804	16.489
STNMH1	534658.884	266336.665	16.567
STNW2	535103.367	266064.271	18.340

stafsurv LAND SURVEYORS
www.stafsurv.com
Vernon Courtyard, Main Road, Sudbury, Derbyshire. DE6 5HS
T 01283 584800 · F 01284 584844 · E info@stafsurv.com



SITE	SCALE	CLIENT
Brickyard Farm Boxworth	1:1250 @ A0	newlands developments
	DATE 16/07/2021	
PROJECT Topographical Survey	DRAWING No. 11747T-2	

NOTES

Boundaries surveyed are physical features and may not necessarily represent the legally conveyed ownership.

Tree Spreads, Girths and Heights are approximate, any tree species identified should not be relied upon and checked by a specialist if critical

Underground drainage depths, pipe sizes and runs have been recorded from the surface and may have been estimated or assumed

Features surveyed off site such as buildings and trees may have been recorded remotely and may not be shown in full detail due to access / sighting restrictions

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STND	535079.299	265463.058	17.439
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STNI	535178.315	265041.619	23.073
STNW1	534865.973	266212.804	16.489
STNMH1	534658.884	266336.665	16.567
STNW2	535103.367	266064.271	18.347

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T 01283 584800 F 01284 584844 E info@stafsurv.com

Appendix G Stakeholder Correspondence

Environment Agency

Davison, Max

From: Davison, Max
Sent: 16 June 2022 14:55
To: Enquiries, Unit
Subject: Boxworth Flood Risk Enquiry
Attachments: 332210779 001a Site Location_Report.jpg; 332210779 004 Flood Risk from Surface Water (Flood Extents)_Report.jpg; 332210779 003 Flood Zones_Report.jpg

Dear Sir/Madam,

Stantec has been commissioned to undertake a Flood Risk Assessment and Environmental Statement for a site adjacent to junction 24 on the A14, to the northwest of Cambridge services near Boxworth (National Grid Ref: TL 34870 65693). The area of interest is shown in the attached site location plan.

The site is in Flood Zone 1 according to the EA Flood Map for Planning. However, parts of the site are shown to be at high risk of surface water flooding, therefore we will be consulting the LLFA. See attached plans showing the flood zones and surface water flood extents.

We would be grateful if you could provide the following information:

- Any records of previous flooding of the site
- The latest modelled flood levels, depth and rate of flooding for the Great Ouse in the vicinity, and the other watercourse if available, with and without climate change allowance if available.
- Regional groundwater level and flow direction data.
- Any EA apparatus within the site?
- Any Water Framework Directive related assessments required to be undertaken to support planning application.

Additionally, it would be beneficial if you could answer these questions please:

- Will hydraulic modelling be required to form the basis for a site-specific Flood Risk Assessment at this site, and if so, what works would be required;
- What scope of work will be required for the flood risk assessment;
- What mitigation measures would be acceptable at the site.

Kind regards,

Max Davison
BSc(Hons) MSc GradCIWEM
Assistant Engineer

3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH
Direct | +44 1223 802939
Office | +44 1223 882000
max.davison@stantec.com

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Please consider the environment before printing this email.

Davison, Max

From: Fuhrmann, George <George.Fuhrmann@environment-agency.gov.uk>
Sent: 21 September 2022 13:37
To: Davison, Max
Subject: EAN/2022/268926-1

Dear Max,

Apologies for the long delay responding to your follow-up enquiry.

The modelling that took place as a result of the A14 scheme is currently undergoing a flood map challenge.

This is the process where we determine whether the modelling is fit to update the gov.uk flood map for planning.

The challenge is still in its early stages and is unlikely to be complete until beyond 2023.

In the meantime the RoFSW maps are unfortunately the best available and as you stated, unlikely to correctly represent the flood risk for this area.

If you have any other questions please let me know.

Kind regards,

George Fuhrmann
Flood Risk Officer
Partnerships and Strategic Overview Team
East Anglia Area (Great Ouse catchment)
Environment Agency | Brampton Office, Bromholme Ln, Brampton, Huntingdon PE28 4NE

Team Email: PSO.EastAnglia@Environment-agency.gov.uk

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Please refer to the Open Government Licence available here http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ which explains the permitted use of this information.

Please get in touch if you have any further queries or contact us within two months if you would like us to review the information we have sent.

From: Davison, Max <Max.Davison@stantec.com>
Sent: 15 September 2022 09:27
To: PSOEastAnglia <PSO.EastAnglia@environment-agency.gov.uk>
Cc: Knowles, Stephanie <stephanie.knowles@stantec.com>
Subject: FW: EAN/2022/268926-1

> You don't often get email from max.davison@stantec.com. Learn why this is important

Good morning,

Please can you provide an update on the below enquiry regarding surface water modelling and the recent A14 works, originally sent on 8th August 2022.

The reply states we should have had a response by the 22nd August, it's now the 15th September.

Any help is greatly appreciated.

Kind regards,

Max Davison
BSc(Hons) MSc GradCIWEM
Assistant Engineer

3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH
Direct | +44 1223 802939
Office | +44 1223 882000
max.davison@stantec.com

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From: Enquiries_EastAnglia <Enquiries_EastAnglia@environment-agency.gov.uk>
Sent: 09 August 2022 12:20
To: Davison, Max <Max.Davison@stantec.com>
Cc: Knowles, Stephanie <stephanie.knowles@stantec.com>
Subject: EAN/2022/268926-1 adjacent to junction 24 on the A14, to the northwest of Cambridge services near Boxworth (National Grid Ref: TL 34870 65693)

Dear Max

Thank you for your enquiry of 8 August 2022.

Your enquiry has been passed to Partnership and Strategic Overview Team and they will respond to you as soon as possible, but by no later than 22 August 2022. This is in accordance with our Service Commitment.

Please contact, Partnership and Strategic Overview Team directly by email at: PSO.eastanglia@environment-agency.gov.uk if you have any further enquiries regarding this matter.

Please do contact us if you need anything further or if we can be of any help, quoting the above reference number.

Kind regards

Tim Prior
Customers & Engagement Officer, Customers & Engagement Team, East Anglia Area
Environment Agency | Bromholme Lane, Brampton, Huntingdon, Cambridgeshire, PE28 4NE
Environment Agency | Iceni House, Cobham Road, Ipswich IP3 9JD

enquiries_eastanglia@environment-agency.gov.uk
External: 0203 02 55472

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From: Davison, Max <Max.Davison@stantec.com>
Sent: 08 August 2022 16:14
To: Enquiries_EastAnglia <Enquiries_EastAnglia@environment-agency.gov.uk>
Cc: Knowles, Stephanie <stephanie.knowles@stantec.com>
Subject: RE: EAN/2022/268926 adjacent to junction 24 on the A14, to the northwest of Cambridge services near Boxworth (National Grid Ref: TL 34870 65693)

Dear Vicki,

Thank you for sending this information through last month, it is much appreciated.

We have a couple more queries, we would be grateful if you could please answer the below.

The Risk of Flooding from Surface Water (RoFSW) maps indicate that runoff from the upstream catchment currently collects in low-lying areas adjacent to the A14. However, from comparing these extents with base-mapping and available LiDAR information, it seems the RoFSW extents do not represent the recent A14 improvement works – suggesting the modelling and subsequent extents are out-of-date.

Does the EA know of any new/updated modelling for this area, as a result of the recent A14 improvements works and associated infrastructure (e.g. new culverts / drainage features)? Or do you know if there are any model updates are currently underway to address this issue?

Any help is greatly appreciated.

Kind regards,

Max Davison
BSc(Hons) MSc GradCIWEM
Assistant Engineer

3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH
Direct | +44 1223 802939

Office | +44 1223 882000
max.davison@stantec.com

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From: Enquiries_EastAnglia <Enquiries_EastAnglia@environment-agency.gov.uk>
Sent: 15 July 2022 16:16
To: Davison, Max <Max.Davison@stantec.com>
Subject: EAN/2022/268926 adjacent to junction 24 on the A14, to the northwest of Cambridge services near Boxworth (National Grid Ref: TL 34870 65693)

Dear Max

Thank you for your enquiry which was received on 15 June 2022.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

The Product 4 information we hold and a copy of the Flood Risk Assessment (FRA) advisory note is attached to my email.

Name	Product 4
Description	Detailed Flood Risk Assessment Map for Paradise Farm, Clophill, Bedfordshire, MK45 4BA
Licence	Open Government Licence
Information Warnings	*The maps provided are to be used in conjunction with the **Datasheet**. Please read the Datasheet and take note of information contained within the **'Important Information'** section.*
Information Warning - OS background mapping	*The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.*
Attribution	Contains Environment Agency information © Environment Agency and/or database rights.

	Contains Ordnance Survey data © Crown copyright 2022 Ordnance Survey 100024198.

Unfortunately, we do not hold detailed modelling in this area. The flood map here is the only information available. The flood zones are the result of broadscale JFLOW modelling and this is the best information we have available.

For your information, JFLOW datasets are available for download under an open licence. Please find below a link to the 1% AEP and 0.1% AEP JFLOW outlines for the TL national grid square;

- 1% AEP - https://data.gov.uk/dataset/modelled-fluvial-flood-depth-data-created-2004-1-percent-annual-chance-for-grid-reference-tl
- 0.1% AEP - https://data.gov.uk/dataset/modelled-fluvial-flood-depth-data-created-2004-0-1-percent-annual-chance-for-grid-reference-tl

The section of relevance to this area is: TL36NE & TL36SE

However, please note that JFLOW modelling is indicative only and is not suitable for identifying whether an individual property will flood, for detailed decision making or for use in site specific Flood Risk or Strategic Flood Risk Assessments. Where this data is used for anything other than broad catchment or Shoreline Management Plan scale further evidence, verification and studies should be undertaken.

We have no historic flood event information for this area. It is possible that other flooding may have occurred that we do not have records for, and other organisations such as: local authorities or IDBs may have records.

Information on site-specific Flood Risk Assessments can be found at :https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications. The chosen site is not within a flood zone.

Flood Map for Planning (Rivers and Sea)

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**

Long Term Flood Risk Information

Long term flood risk mapping including: ***Risk of Flooding from Rivers or the Sea***, ***Flood Risk from Surface Water*** and ***Flood Risk from Reservoirs*** can be viewed on GOV.UK: **https://flood-warning-information.service.gov.uk/long-term-flood-risk/map**

Climate Change Allowances

For information on the use climate change allowances in Flood Risk Assessments, please see the attached document - **East_Anglian_External Climate Change Allowances Guidance_March2022.pdf**.

The guidance 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, which varies depending on which

management catchment a site lies within. It advises on which allowances to use for assessing the impact of climate change on fluvial flood risk based on vulnerability classification, flood zone and development lifetime.

The site lies within the catchment of the Fen Drayton Drain Waterbody. This waterbody is currently at Good Ecological Status under the Water Framework Directive (WFD). The waterbody currently fails the WFD chemical status test for priority hazardous substances due to the presence of Polybrominated diphenyl ethers (PBDE). Details of this classification can be viewed on the Catchment data Explorer here Fen Drayton Drain | Catchment Data Explorer | Catchment Data Explorer

The developer will have to consider the objectives for this waterbody under the WFD and have regard for these when designing the development. The development must not cause deterioration of waterbody status, should not compromise the ability of others to implement measures to improve waterbody status and, where possible, should contribute to waterbody improvements by the implementation of improvement measures within the development site or adjacent land within the developers control. More guidance on the relationship between WFD and Town and Country Planning can be found in the National Planning Policy Framework 2021 (NPPF) National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) and on the Planning Inspectorate website Advice Note Eighteen: The Water Framework Directive | National Infrastructure Planning (planninginspectorate.gov.uk)

The Fen Drayton Drain is designated as a Heavily Modified Waterbody under the WFD. Mitigation Measures (measures identified to improve ecology, in mitigation of the modified nature of the channel) have been identified, some implemented and some are not possible without significantly adversely impacting the designated use of the waterbody.

Measures that have been identified to improve this waterbody at this location are habitat creation, habitat management and Countryside Stewardship measures to improve water quality. We would be pleased to see the developer consider and implement such measures as part of the development, and in accordance with the principle of achieving Biodiversity Net Gain through development. A WFD assessment should be completed for the development, to include WFD screening, Scoping and Impact Assessment, as recommended by the guidance referenced above. Guidance on implementing mitigation measures on Heavily Modified Waterbodies can be found on the Association of Drainage Authorities (Ada) website here Environment - Association of Drainage Authorities (ada.org.uk)
Guide_GEP_Fenland_Water_Bodies_web.pdf (wlma.org.uk)

Regional groundwater level and flow direction data

According to BGS mapping the site is underlain by low permeability (unproductive) strata. We do not hold records of groundwater levels and flow directions in the area. The customer may wish to consult borehole records and scanned hydrogeology maps - available online at Geology of Britain viewer | British Geological Survey (BGS) and Viewer for scanned hydrogeology maps of the UK | British Geological Survey (BGS) - for indications of groundwater conditions.

We do not have any hydrometry or hydrology apparatus in the specified area.

If you require any further information from them (for example, a meeting or the detailed review of a technical document) they will need to set up a charging agreement. Further information can be found on our website.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind regards

Vicki Clemence
Customers & Engagement Officer, Customers & Engagement Team, East Anglia Area
Environment Agency | Bromholme Lane, Brampton, Huntingdon, Cambridgeshire, PE28 4NE

Cambridge County Council

Davison, Max

From: Rebekah Dowd (she/her) <Rebekah.Dowd@cambridgeshire.gov.uk>
Sent: 07 July 2022 16:50
To: Davison, Max
Cc: FR Planning
Subject: Pre-application Response- Boxworth A14 Compound
Attachments: 201107771.pdf

Good Afternoon Max,

Please find attached the LLFAs pre-application advice for the proposed development at Boxworth A14 Compound High Street Boxworth Cambridge CB23 4AA.

Please don't hesitate to contact me with any questions.

Kind regards,

Rebekah Dowd
(She/her) Why do I share my pronouns?
SuDS & Flood Risk Officer
M: 07442942105
Flood Risk Team

NEWLY UPDATED Surface Water Planning Guidance!
Check out our newly updated Surface Water Planning Guidance document, which can be accessed HERE. This expands on our previous version to assist developers and consultants with producing flood risk assessments and surface water drainage strategies for new developments in Cambridgeshire. The latest version includes a number of updates and additional information on the LLFA's surface water drainage strategy requirements as a statutory consultee for all major development proposals.

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Our ref: PREFR/22-000010
Date: 07/07/2022
Doc no: 201107771
Officer: Rebekah Dowd
E Mail: Rebekah.Dowd@cambridgeshire.gov.uk

Cambridgeshire County Council

Steve Cox: Executive Director
Place and Economy
Planning, Growth & Environment

New Shire Hall
Emery Crescent
Enterprise Campus
Alconbury Weald
PE28 4YE

Mr Max Davison
3rd Floor, 50-60 Station Road
STATION ROAD
CB1 2JH

PROPOSAL: Non-residential development located at Boxworth A14 Compound High Street Boxworth Cambridge CB23 4AA

Dear Sir,

Thank you for your enquiry. As Lead Local Flood Authority (LLFA), Cambridgeshire County Council has a lead responsibility for managing the risk of flooding from surface water. Responsibility for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea remains with the Environment Agency (EA); therefore our response focuses on surface water management in relation to the above proposed development.

We have prepared the below advice on the basis approximate site boundary in Figure 1, provided to the LLFA by the applicant.