

Flood Risk Assessment

SITE NAME: FORMER ANCHOR INN PUBLIC HOUSE, GUNTHORPE

PREPARED FOR: MICA REDD LTD

DATE: 05/08/2022



FLOOD RISK ASSESSMENT
FORMER ANCHOR INN PUBLIC HOUSE, GUNTHORPE
FOR
MICA REDD LTD



47240-001

05 August 2022

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Job No. : 47240

Report Status : Interim

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Approved :



Andrew Allison

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Interim: 05 August 2022

EXECUTIVE SUMMARY

The project comprises the proposed redevelopment of a 0.28 hectare Brownfield site for commercial use.

The Environment Agency's Flood Map for Planning shows the site to lie within Flood Zone 3, at high risk of fluvial flooding. In accordance with current Planning Practice Guidance 'Flood Risk and Coastal Change', sequential testing should be considered. The planning consultant contacted carried out a sequential test for the site. Sites in Gunthorpe, Lowdham, Burton Joyce and East Bridgford were assessed. No suitable sites large enough or available were found.

The majority of the site is at very low risk of surface water flooding. A small area of low risk surface water ponding is present within the northern part of the site.

It is impractical to raise finished floor levels of new buildings (Units 1 and 2) since floodplain compensation would not be possible within the site. Therefore Units 1 and 2 will be designed to be appropriately flood resilient to 600 mm above the 1 in 100 year plus climate change flood level.

Finished floor levels of the existing buildings (Units 3 and 4) will be retained and the buildings will also be designed to be appropriately flood resilient to 600 mm above the 1 in 100 year plus climate change flood level. This level is to be determined following receipt of the Environment Agency Product 4 data.

Commercial owners should sign up for the Flood Warning scheme operated by the Environment Agency.

It is recommended that a Flood Evacuation Management Plan is produced for the site by following advice provided in the Environment Agency's document 'Flooding – Minimising the Risk, Flood Plan Guidance for Communities and Groups: Practical Advice to Help You Create a Flood Plan' as well as consulting the Emergency Planner at the LPA.

Surface water disposal is considered in accordance with the drainage hierarchy in Building Regulations Part H 2015 and Planning Practice Guidance 'Reducing the causes and impacts of flooding'.

Infiltration type SuDS such as soakaways are not considered to be viable on the site due to the expected presence of impermeable ground (clay) and deep made ground.

Surface water disposal will be via gravity to the 150 mm diameter public surface water sewer recorded in Main Street west of the site, restricted to the brownfield rate with 50% betterment of 19.5l/s or at the minimum practicable rate of 3.5l/s subject to confirmation by Severn Trent and the LLFA. Historical connections may be available to utilise.

Attenuation storage will be provided for rainfall events up to the return period of 1 in 100 year plus climate change. The total estimated storage volume based on a discharge rate of 19.5 l/s is 35 m³ while if the discharge rate is restricted to 3.5 l/s 79 m³ of attenuation will be required. The attenuation storage will be provided by proprietary below ground storage crates, subject to detailed design.

Foul effluent should discharge via gravity to the 150 mm diameter public foul sewer recorded in Main Street west of the site.

The drainage systems will be maintained by a private management company.

1.0 THE DEVELOPMENT & NATIONAL PLANNING POLICY

1.1 Introduction

This Flood Risk Assessment has been prepared in accordance with current National Planning Policy Framework¹ and Planning Practice Guidance 'Flood Risk and Coastal Change'² on the instruction of Mica Redd Ltd. Any other parties using the information in this report do so at their own risk, unless previously approved in writing.

The project comprises the redevelopment of an approximate 0.28 hectare Brownfield site for commercial use.

1.2 Site location & description

The site is located off Main Street in Gunthorpe, approximately 12 km north-east of Nottingham city centre and is centred on the coordinates 468197, 343837 (Appendix 1).

The site is bounded by Main Street to the west, residential dwellings and outbuildings to the north, open fields to the east, and a brasserie to the south. The surrounding area is predominantly occupied by residential dwellings. The site is accessed from Main Street to the west.

The site is currently occupied by the former Anchor Inn public house whose buildings are located at the northern end of the site. A car park occupies the southern part of the site.

The site falls slightly from north-east to south-west from 18.36 mAOD in the north-east corner to 17.31 mAOD in the south-west corner at an average gradient of 1 in 91 (Appendix 2).

Proposals are for a 4 unit commercial development with parking and access from Main Street. Unit 1 will serve as an office building and Unit 2 as a farm and butcher shop with first floor dental clinic and salon. Two existing buildings will be retained forming Unit 3 which will accommodate a café and Unit 4 which will house a farm shop (Appendix 3).

¹ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

² <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

1.3 Environment Agency - Flood Map for Planning

The Environment Agency's Flood Map for Planning (Figure 1 and Appendix 4) shows the site to lie within Zone 3 (high risk). Zone 3 refers to land having a greater than 1 in 100 annual probability of river flooding (1%).

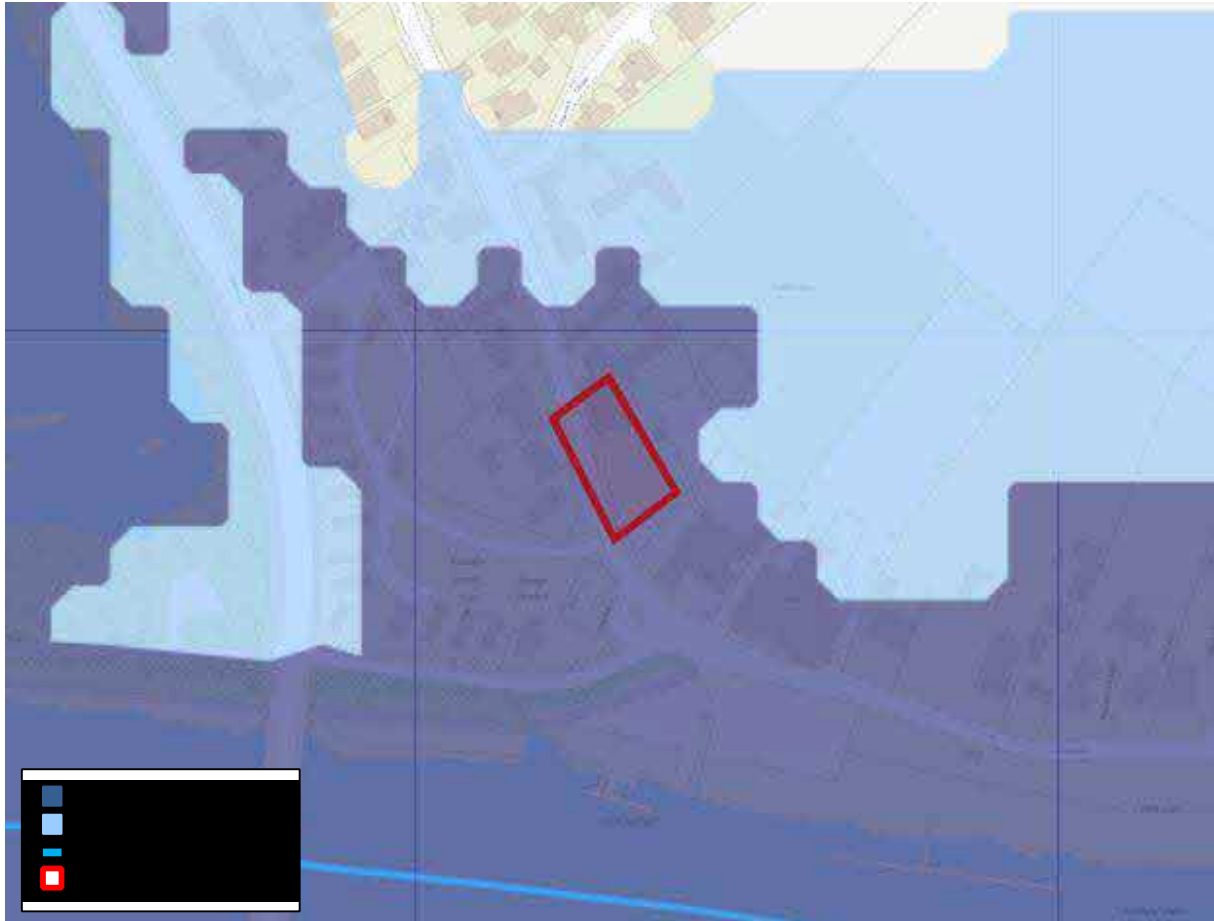


Figure 1: Environment Agency's Flood Map for Planning

1.4 Newark and Sherwood District Council Strategic Flood Risk Assessment

Newark and Sherwood District Council's Level 1 Strategic Flood Risk Assessment flood map is based on the Environment Agency's flood map and records the site to be in Flood Zone 3 (Appendix 5).

1.5 National Planning Policy Framework

National Planning Policy Framework (July 2021) sets out the principles for assessing the suitability of sites for development, in relation to flood risk, as part of the planning process.

1.5.1 Sequential Test

Initially a Sequential Test is applied to the allocation of land suitable for development. The test is required for any development proposed in Flood Zone 2 or 3 (and occasionally also in Flood Zone 1 where there are flood risks present which are not identified on the Environment Agency's' Flood Maps for Planning).

The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. Development should not be allocated or permitted if there are reasonably available sites, appropriate for the proposed development, in areas with a lower probability of flooding.

The site lies within Zone 3 and this report confirms that the site is at high risk of potential fluvial flooding and the sequential test should be considered.

The planning consultant contacted carried out a sequential test for the site. Sites in Gunthorpe, Lowdham, Burton Joyce and East Bridgford were assessed. No suitable sites large enough or available were found.

1.5.2 Exception Test

If, following application of the Sequential Test, it is not possible for the development to be located in zones with a lower probability of flooding the Exception Test can be applied if appropriate. Tables 2 and 3 of the Planning Policy Guidance "Flood Risk and Coastal Change"³ list flood risk vulnerability and flood zone compatibility. These tables are used to determine whether the Exception Test is appropriate for the development.

Table 2 of the Planning Policy Guidance⁴ classes residential use as "More Vulnerable" and commercial use as "Less Vulnerable".

Table 3 of the Guidance⁵ classes "Less Vulnerable" development as compatible in Zone 3a. "More Vulnerable" development is classed as compatible in Zone 3a if the Exception Test can

³ <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

⁴ <https://www.gov.uk/guidance/flood-risk-and-coastal-change#Table-2-Flood-Risk-Vulnerability-Classification>

⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/575184/Table_3_-

be passed. The proposed residential apartment will be located at first floor level thus removing it from Flood Zone 3 satisfying Planning Policy Guidance and exception testing will not be required.

1.5.3 Climate change

An issue emphasised in the Planning Policy Guidance is the requirement to take account of potential climate change effects. New development is generally accepted as having a 100 year design life for flood risk purposes. The Environment Agency's report 'Flood risk assessments: climate change allowances'⁶, published in February 2016, recommends a 20 to 40% increase in peak rainfall intensity is taken into account for small and urban catchments for design horizons up to 2115. For the purposes of this Flood Risk Assessment, a 30% increase in peak rainfall intensity has been used for assessing storage requirements; 30% being an average between the "central" and "upper end" of the data range given in the report. It is recommended that the potential effects of a peak rainfall increase of 40% are considered in detailed design.

Climate change allowances for peak river flow are to be selected based on the assigned values for the relevant management catchment assigned to the flood zone and vulnerability classification of the development. For "less vulnerable" developments in flood zone 2 and 3 within the Lower Trent and Erewash Management catchment, the central allowance for peak river flows of 29% should be used.

[_Flood_risk_vulnerability_and_flood_zone__compatibility_.pdf](#)

⁶ <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#table-2>

2.0 FLOOD RISK

2.1 Potential sources of flooding

The Environment Agency and Strategic Flood Risk Assessment maps are intended for general guidance on flood risk and it is also necessary to consider other, more detailed, sources in relation to local factors.

2.1.1 Fluvial

The nearest watercourse is the River Trent, a main river, located approximately 80 m south of the site. The River Trent is not defended at Gunthorpe.

The site is elevated approximately 1 - 2 m relative to the River Trent.

River levels

Product 4 detailed flood risk data was requested from the Environment Agency on 8th June 2022. At the time of writing a response was pending.

2.1.2 Surface water

The Environment Agency surface water flood risk map (Figure 2 and Appendix 4) shows the majority of the site is at very low risk of surface water flooding. An area at the northern end of the site between the existing buildings is at low risk of surface water ponding.

Very low risk refers to land having less than a 1 in 1,000 annual exceedance probability of flooding (0.1% AEP). Low risk refers to land having between a 1 in 1,000 and 1 in 100 annual exceedance probability of flooding (0.1% - 1% AEP).

Surface water ponding depths for extreme rainfall events between the 1 in 100 and 1 in 1000 year return would be below 300 mm (Appendix 4).



Figure 2: Environment Agency – Risk of surface water flooding map

2.1.3 Groundwater

Groundwater is a potential flood risk to areas which are low lying and on permeable ground or, occasionally, to areas of higher ground in the vicinity of springs. Groundwater can occur in alluvium deposits surrounding watercourses. The Newark and Sherwood District Council SFRA states that both the council and the Environment Agency hold no record of groundwater flooding for Gunthorpe.

2.1.4 Sewerage

The surrounding public sewer network is owned and maintained by Severn Trent Water. There is no public record of any flood risk to the site associated with these sewers.

2.2 Historical Flooding

The Newark and Sherwood District Council SFRA mapping records the site to be within a historical flood outline dated 1947 from the River Trent. There are also numerous approximate locations of historical fluvial flooding recorded on the SFRA mapping in Gunthorpe, including the site.

The Environment Agency records the site to fall within three historical flood outlines dated 8th November 2000, March 1947, and 1932 when the channel capacity of the River Trent was exceeded (no raised defences) on each occasion (Appendix 4).

2.3 Residual Flood Risk

The site is at high risk of fluvial flooding from the River Trent for events up to the 1 in 100 year.

The site is at very low to low risk of surface water flooding.

These risks are not a development constraint and will be managed on the site within the surface water drainage strategy and by the mitigation measures in Section 2.4.

2.4 Flood Mitigation Measures

It is impractical to raise finished floor levels of new buildings (Units 1 and 2) since floodplain compensation would not be possible within the site. Therefore Units 1 and 2 will be designed to be appropriately flood resilient to 600 mm above the 1 in 100 year plus climate change flood level. Finished floor levels of the existing buildings (Units 3 and 4) will be retained and the buildings will also be designed to be appropriately flood resilient to 600 mm above the 1 in 100 year plus climate change flood level. This level is to be determined following receipt of the Environment Agency Product 4 data. Flood resilient and resistant measures recommended are listed below:

- Use flood resistant materials that have low permeability

- Make sure any doors, windows or other openings are flood resistant

- Use flood resistant materials (e.g. lime-based plaster)

- Raise all sensitive electrical equipment, wiring and sockets

- Make it easy for water to drain away after flooding (e.g. install a sump and pump)

- Make sure there is access to all spaces to enable drying and cleaning

- Ensure soil pipes are protected from back-flow (e.g. by using non-return valves)

Commercial occupiers should sign up for the Flood Warning scheme operated by the Environment Agency.

It is recommended that a Flood Evacuation Management Plan is produced for the site by following advice provided in the Environment Agency's document 'Flooding – Minimising the Risk, Flood Plan Guidance for Communities and Groups: Practical Advice to Help You Create a Flood Plan' as well as consulting the Emergency Planner at the LPA.

3.0 DRAINAGE STRATEGY

3.1 Existing drainage

There is a 150 mm diameter public surface water sewer lining the western side of Main Street west of the site. There is a 150 mm diameter public foul sewer and a foul rising main in Main Street running to / from a Severn Trent Water sewage pumping station located 20 m south-west of the site. Severn Trent Water sewer plans are included in Appendix 6.

As the site is developed it is likely that there are existing connections to the public combined sewers in Main Street. A CCTV drainage survey should be carried out to investigate this.

3.2 Consultation with Severn Trent Water

Pre-planning advice has been received from Severn Trent Water (Appendix 6); letter reference 1052000 dated 28th July 2022. The main points of the advice are summarised below.

The site is likely to have an existing connection to the public sewer, it might be possible to utilise the existing connection if this is in a convenient location and in good condition.

It is proposed to utilize the existing connection from the previous site and connect gravity foul flows into the existing 150mm public foul sewer west of the site in Main Street at MH1801. The proposed foul flows from the site is likely to be similar to the flows from the existing site. As a result, this will not have an adverse impact on the receiving network. In this instance, a connection to this sewer would be acceptable at a new or existing manhole subject to formal S106 approval.

Under the terms of Section H of the Building Regulations 2000, the disposal of surface water by means of soakaways should be considered as the primary method. If this is not practical and no watercourse is available as an alternative, the use of sewerage should be considered. In addition, other sustainable drainage methods should also be explored before a discharge to the public sewerage system is considered.

In the event that following testing, it is demonstrated that soakaways would not be possible on the site; satisfactory evidence will need to be submitted. The evidence should be either percolation test results or a statement from the SI consultant (extract or a supplementary letter).

STW will need to be satisfied that all SUDs options have been exhausted before discharge to public sewer. Severn Trent Water expects all surface water from the development to be drained in a sustainable way to the nearest watercourse or land drainage channel, subject to the developer discussing all aspects of the developments surface water drainage with the Local Lead Flood Authority (LLFA). Any discharge rate to a watercourse or drainage ditch will be determined by the LLFA.

Subject to all the above, it is proposed to utilize the site's existing surface water connection at MH1802 on the public 150mm surface water sewer in Main Street. This sewer travels a short distance southwards before out falling to a small watercourse which eventually outfalls to the River Trent south of the site.

On all brownfield sites, Severn Trent propose a 50% reduction of surface water flows in comparison to the existing development's discharge. For us to be in a position to confirm your proposed discharge rate, please provide supporting evidence demonstrating the betterment of existing discharge rate.

Evidence should be in the form of a survey, demonstrating what flows positively discharged into the network (and which sewer) and supporting calculations showing the reduction. If former connections cannot be proved, greenfield rates of 5l/s/ha will apply which would equate to a maximum run-off of 1.25 l/s for the site. If flow rates exceed the agreed rate, then excess flows should be attenuated on site and discharged at the restricted agreed rate. Please consult the LLFA for an agreed flow rate as statutory consultee in the planning process.

3.3 Ground conditions

The British Geological Survey maps show the site to be underlain by gravel, sand, silt and clay Alluvium superficial deposits. The bedrock geology is recorded to comprise mudstone of the Gunthorpe Member.

Historical borehole logs close to the site available on the British Geological Survey are illegible.

Given that the site is currently developed it is likely that deep made ground will be present across the entire site.

3.4 Brownfield Calculations

Surface water runoff from the site is currently expected to drain to the public surface water sewer in Main Street. Subject to providing evidence of existing connections and drainage areas, and agreement with the water authorities, surface water discharge could be restricted to the brownfield rate with 50% betterment. For a pre-demolition area of 0.28 ha and 50 mm/hr rainfall this equates to an existing runoff flow of:

$$Q = 2.78 \times 50 \text{ mm/hr} \times 0.28 \text{ ha} = 38.9 \text{ l/s}$$

With 50% betterment, the attenuated runoff rate equals 19.5 l/s.

3.5 Drainage hierarchy

Surface water disposal should be in accordance with the drainage hierarchy in Building Regulations Part H 2015⁷ and Planning Practice Guidance 'Reducing the causes and impacts of flooding', paragraph 080. Disposal via SuDS methods should be considered as the first option. Disposal to the public sewer should be considered only when SuDS methods and disposal to the watercourse are shown to be unsuitable.

3.5.1 Sustainable Drainage Systems (SuDS)

SuDS methods include water infiltration systems such as soakaways, basins and filter strips, together with swales, pervious pavements, detention basins, ponds and other wetland solutions. The various methods are considered in detail in The SuDS Manual (CIRIA C753).

Infiltration type SuDS such as soakaways are not considered to be viable on the site due to the expected presence of impermeable clay and deep made ground.

Other SuDS methods may be applicable and their use is summarised in the appended SuDS checklist (Appendix 7).

3.5.2 Watercourse

The River Trent is located approximately 80 m south of the site. Discharge to the River Trent would require crossing third party land. Discharge to this watercourse is therefore discounted.

⁷https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/442889/BR_PDF_AD_H_2015.pdf

3.5.3 Public sewer

There is a 150 mm diameter public surface water sewer recorded in Main Street immediately west of the site. Historical connections may be available to utilise.

3.6 Proposals for surface water disposal

The final disposal strategy for surface water run-off requires detailed consideration and approval during the design phase of the project. The final design will need the approval of the relevant statutory bodies but will broadly follow these principles:-

Surface water disposal will be via gravity to the 150 mm diameter public surface water sewer recorded in Main Street west of the site. Historical connections may be available to utilise. This should be investigated by a CCTV drainage survey.

Surface water discharge should be restricted to the brownfield rate with 50% betterment of 19.5 l/s or 3.5 l/s as a minimum practicable rate subject to agreement with Severn Trent Water / the LLFA.

Attenuation storage will be provided for rainfall events up to the return period of 1 in 100 year plus climate change. The total estimated storage volume based on a discharge rate of 19.5 l/s is 35 m³ while if the discharge rate is restricted to 3.5 l/s 79 m³ of attenuation will be required. The attenuation storage will be provided by proprietary below ground storage crates, subject to detailed design. Attenuation calculations and an impermeable areas plan are included in Appendix 7.

The surface water drainage system will be maintained by a private management company.

3.7 Proposals for foul disposal

Foul effluent should discharge via gravity to the 150 mm diameter public foul sewer recorded in Main Street west of the site.

The foul drainage system will be maintained by a private management company.

3.8 Residual flood risk

There is a potential flood risk to site occupiers and to others from surface water runoff as a result of developing the site. The residual risk can be managed by the general flood mitigation measures outlined in Section 3.9.

3.9 Mitigation measures

The proposed surface water drainage system will be designed to current best practice and to the standards laid out in the publication 'Design and Construction Guidance for foul and surface water sewers' and Building Regulations Part H 2015.

In the event of surface water exceedance as a result of rainfall in excess of the design standard, the site is laid out so that surface water runoff is directed away from buildings, including those on neighbouring streets.

4.0 CONCLUSIONS

1. The site lies within Flood Zones 3 at high risk of fluvial flooding from the River Trent.
2. The majority of the site is at very low risk of surface water flooding. A small area of low risk surface water ponding is present within the northern part of the site.
3. It is impractical to raise finished floor levels of new buildings (Units 1 and 2) since floodplain compensation would not be possible within the site. Therefore Units 1 and 2 will be designed to be appropriately flood resilient to 600 mm above the 1 in 100 year plus climate change flood level.
4. Finished floor levels of the existing buildings (Units 3 and 4) will be retained and the buildings will also be designed to be appropriately flood resilient to 600 mm above the 1 in 100 year plus climate change flood level. This level is to be determined following receipt of the Environment Agency Product 4 data.
5. Commercial owners should sign up for the Flood Warning scheme operated by the Environment Agency.
6. It is recommended that a Flood Evacuation Management Plan is produced for the site by following advice provided in the Environment Agency's document 'Flooding – Minimising the Risk, Flood Plan Guidance for Communities and Groups: Practical Advice to Help You Create a Flood Plan' as well as consulting the Emergency Planner at the LPA.
7. Infiltration type SuDS such as soakaways are not considered to be viable on the site due to the expected presence of impermeable ground (clay) and deep made ground.
8. Surface water disposal will be via gravity to the 150 mm diameter public surface water sewer recorded in Main Street west of the site, restricted to the brownfield rate with 50% betterment of 19.5l/s or at the minimum practicable rate of 3.5l/s subject to confirmation by Severn Trent and the LLFA. Historical connections may be available to utilise.
9. to the brownfield rate with 50% betterment of 19.5l/s. Historical connections may be available to utilise.
10. Attenuation storage will be provided for rainfall events up to the return period of 1 in 100 year plus climate change. The total estimated storage volume based on a discharge rate of 19.5 l/s is 35 m³ while if the discharge rate is restricted to 3.5 l/s 79 m³ of attenuation will

be required. The attenuation storage will be provided by proprietary below ground storage crates, subject to detailed design.

11. Foul effluent should discharge via gravity to the 150 mm diameter public foul sewer recorded in Main Street west of the site.
12. The drainage systems will be maintained by a private management company.
13. The level of risk and safeguards available are considered appropriate to this class of development.

APPENDICES

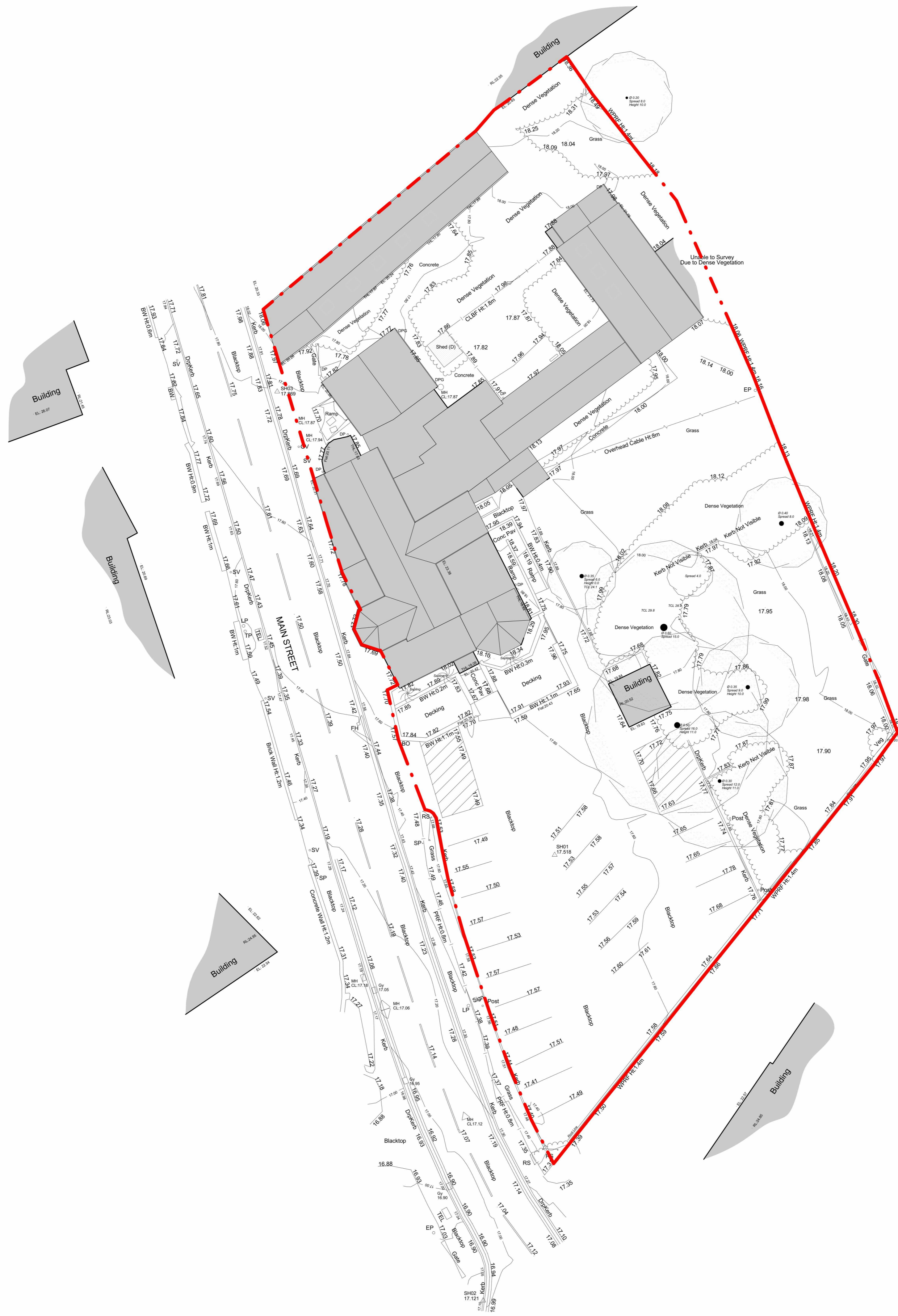
APPENDIX 1



APPENDIX 2

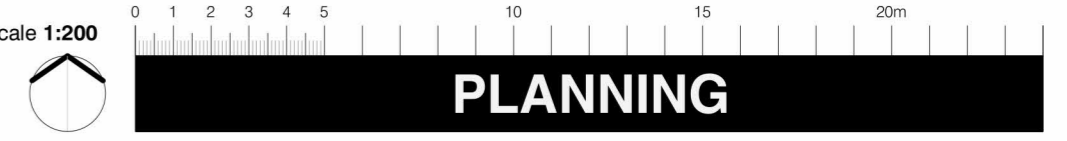
All 20 Series Drawings should be read in conjunction with full planning PL Series drawings to the latest revision. Construction details to be confirmed and supplied prior to commencement of work on site and to be agreed between client, architect, contractor, and approved building control inspector.

Rev	Description	Date	By
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APPENDIX 3

Graphical Scale 1:200



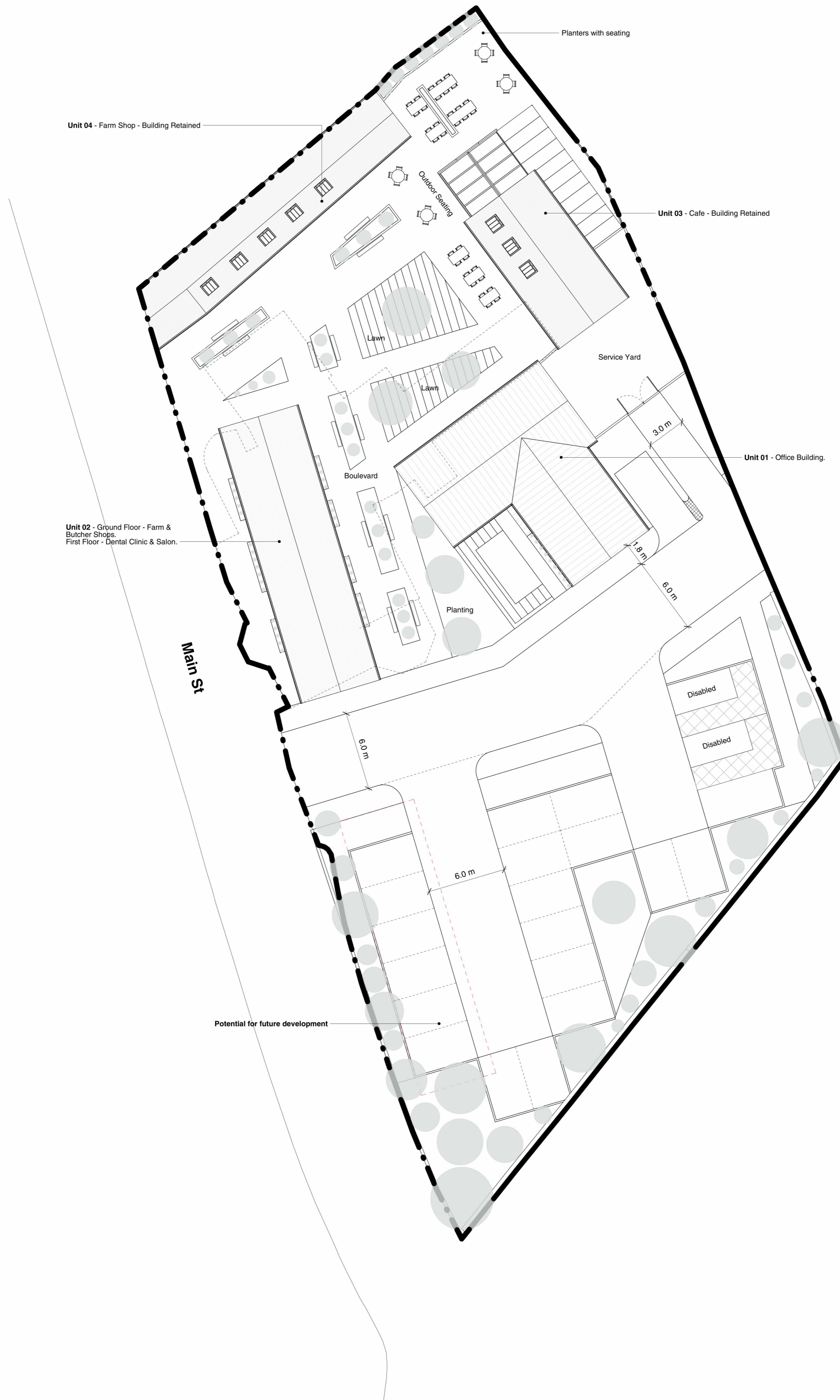
PLANNING

Information Comment Approval Tender Construction As-Built

All 20 Series Drawings should be read in conjunction with full planning PL Series drawings to the latest revision. Construction details to be confirmed and supplied prior to commencement of work on site and to be agreed between client, architect, contractor, and approved building control inspector.

Rev	Description	Date	By
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- Application Boundary
- Demolished Building
- Potential Future Development



PROPOSED SITE PLAN
1 : 200



Drawn by DT Date 04/07/22 Scale 1 : 200 Sheet Size A1

Client Undisclosed Project 1000 - 105 THRIVE OFFICE, Gunthorpe

Draw No. GUN - BAR - PL - 005 Rev.

PROPOSED SITE PLAN

APPENDIX 4

Flood map for planning

Your reference	Location (easting/northing)	Created
Anchor Inn, Gunthorpe	468193/343831	22 Jun 2022 16:10

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

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

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

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

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

Flood map for planning

Your reference

Anchor Inn, Gunthorpe

Location (easting/northing)

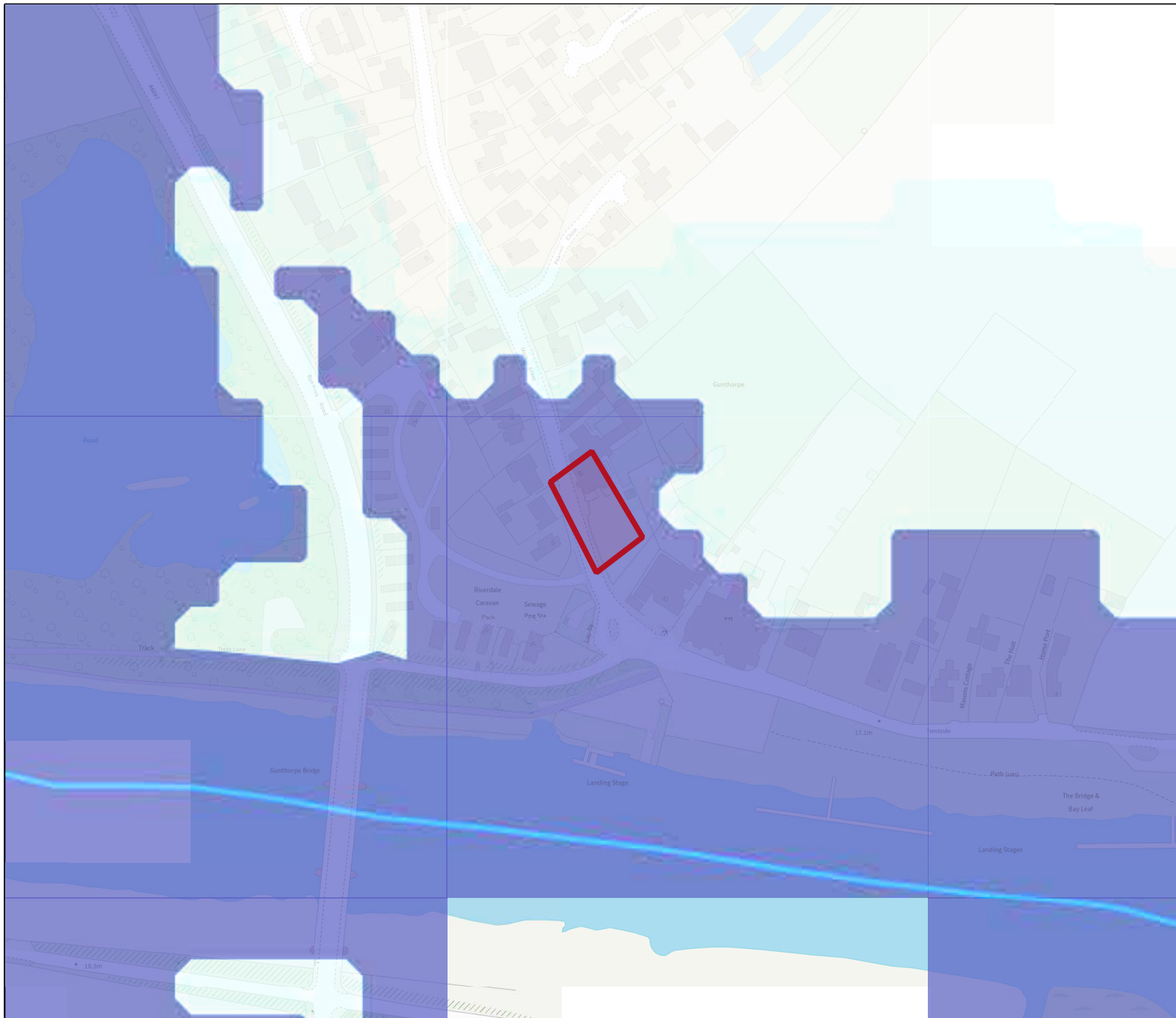
468193/343831

Scale

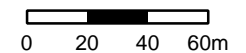
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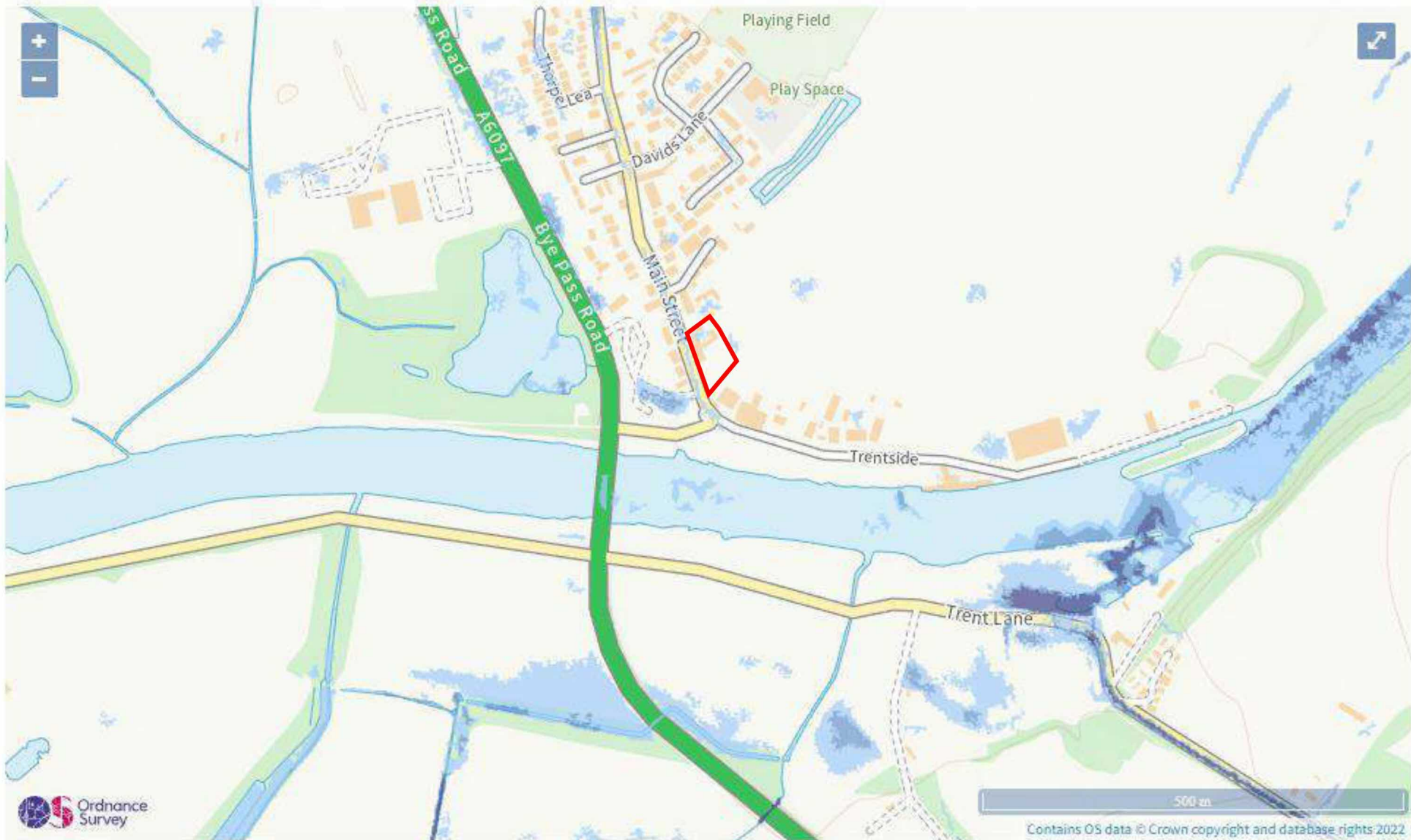
Created

22 Jun 2022 16:10



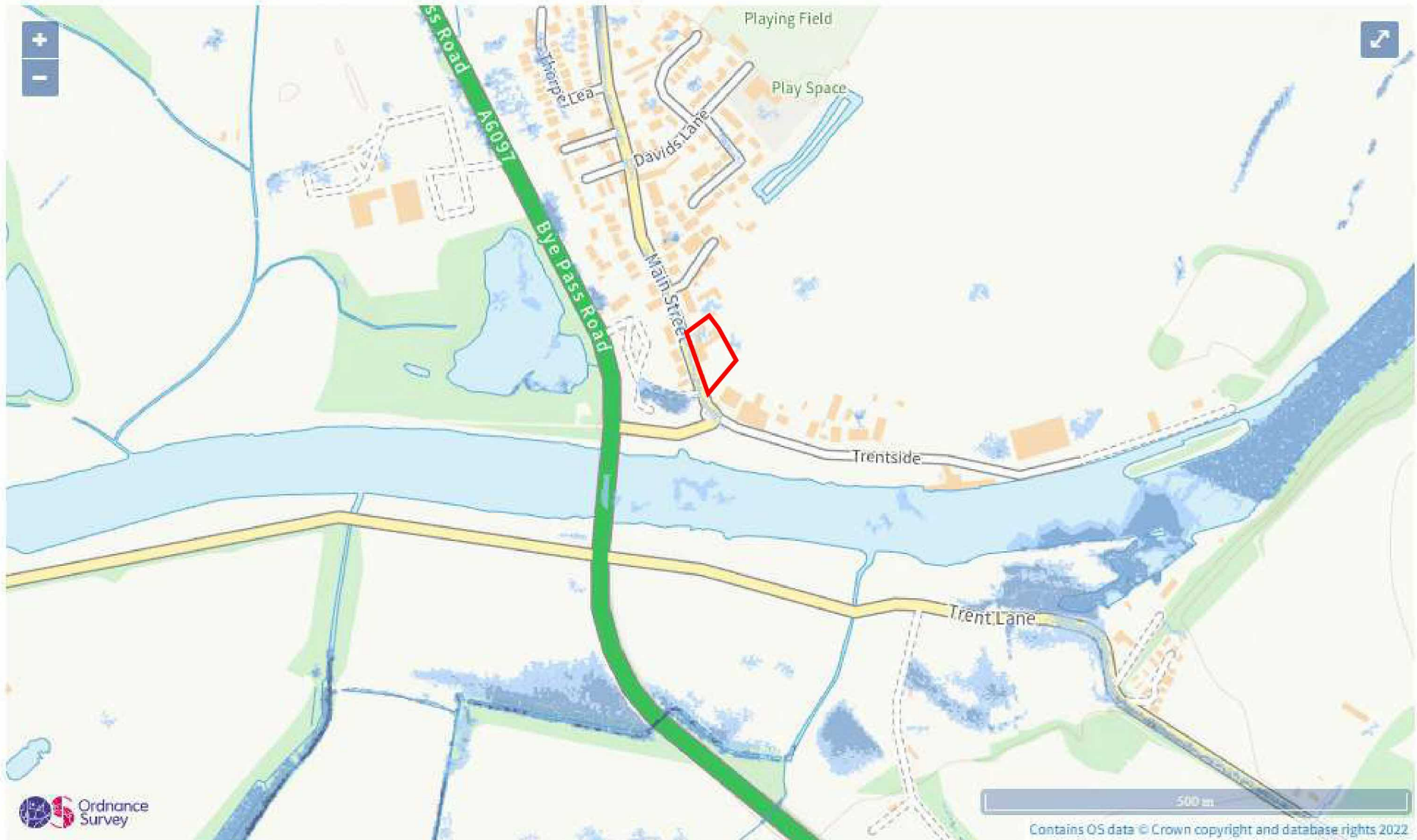
-  Selected area
-  Flood zone 3
-  Flood zone 3: areas benefiting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area





Extent of flooding from surface water

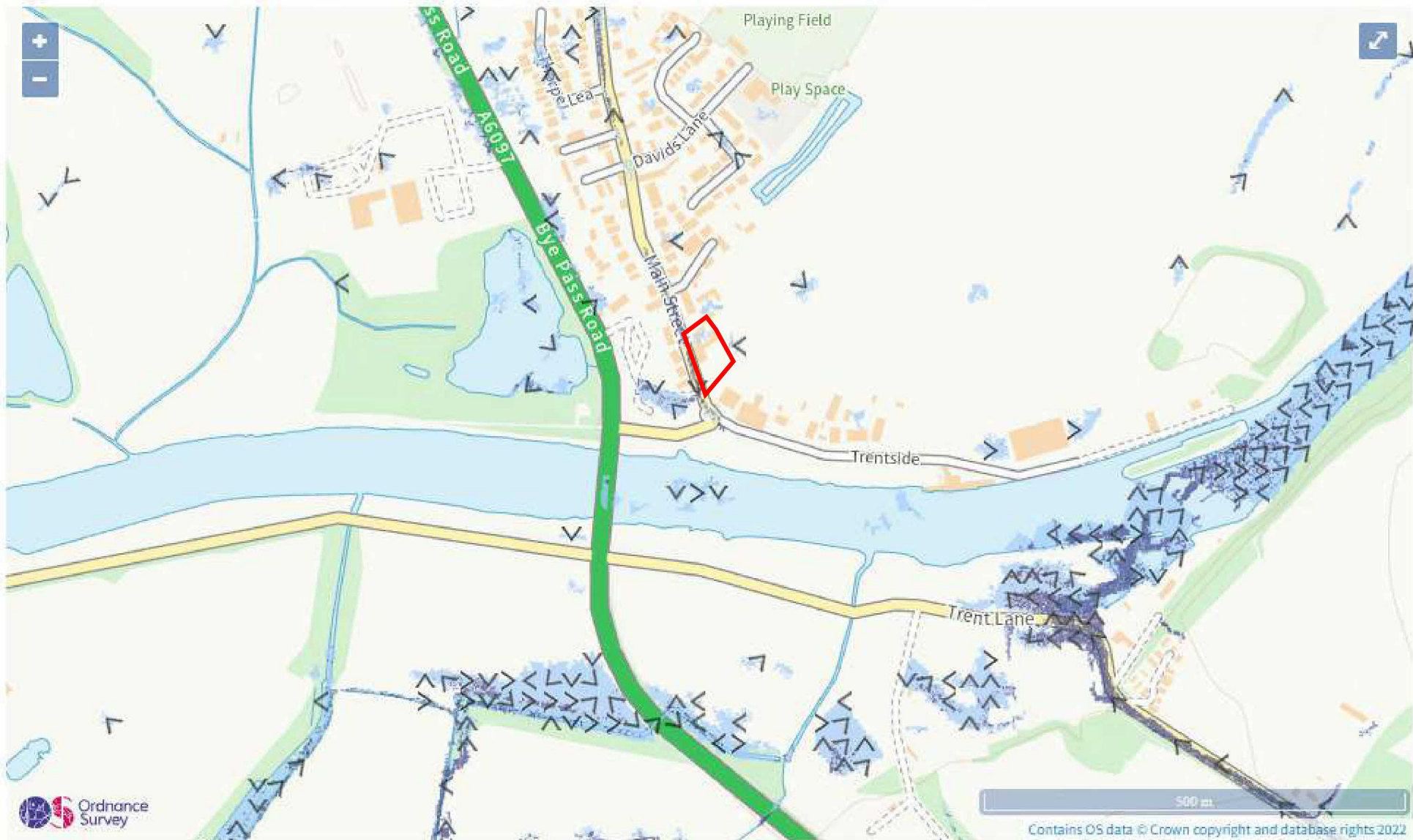
- High
- Medium
- Low
- Very low
- ⊕ Location you selected



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

Flood depth (millimetres)

- Over 900mm
- 300 to 900mm
- Below 300mm
- Location you selected

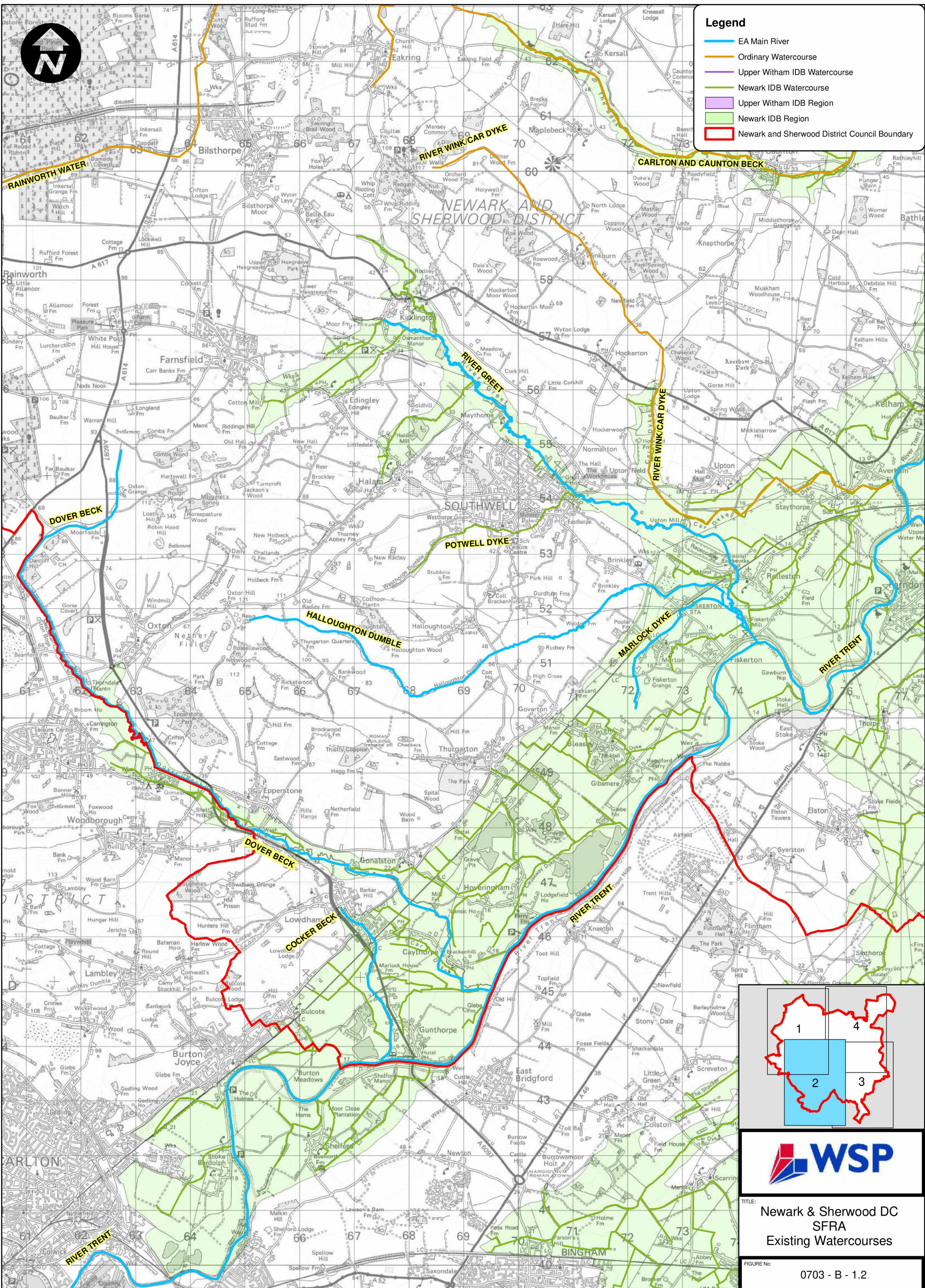


Surface water flood risk: water velocity in a low risk scenario

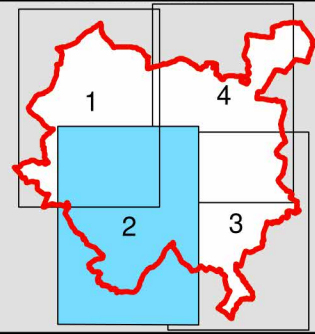
Flood velocity (metres/second)

- Over 0.25 m/s
- Less than 0.25 m/s
- Direction of water flow
- Location you selected

APPENDIX 5



- Legend**
- EA Main River
 - Ordinary Watercourse
 - Upper Witham IDB Watercourse
 - Newark IDB Watercourse
 - Upper Witham IDB Region
 - Newark IDB Region
 - Newark and Sherwood District Council Boundary



TITLE: Newark & Sherwood DC
SFRA
Existing Watercourses

FIGURE No: 0703 - B - 1.2

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SCALE: 1:60,000



Legend

Modelled Flood Outlines: River Greet

-  1 in 20 Year Flood Outline
-  1 in 100 Year Flood Outline
-  1 in 100+CC Year Flood Outline
-  1 in 1000 Year Flood Outline



Modelled Flood Outlines: River Maun

-  1 in 20 Year Flood Outline
-  1 in 100 Year Flood Outline
-  1 in 100+CC Year Flood Outline
-  1 in 1000 Year Flood Outline



Modelled Flood Outlines: River Maun

-  1 in 25 Year Flood Outline
-  1 in 100 Year Flood Outline
-  1 in 100+CC Year Flood Outline
-  1 in 1000 Year Flood Outline

Modelled Flood Outlines: River Trent (Fluvial)


-  1 in 25 Year Flood Outline (Inc Def)
-  1 in 100+CC Year Flood Outline (Inc Def)

Modelled Flood Outlines: River Trent (Tidal)

-  1 in 200 Year Flood Outline
-  1 in 1000 Year Flood Outline

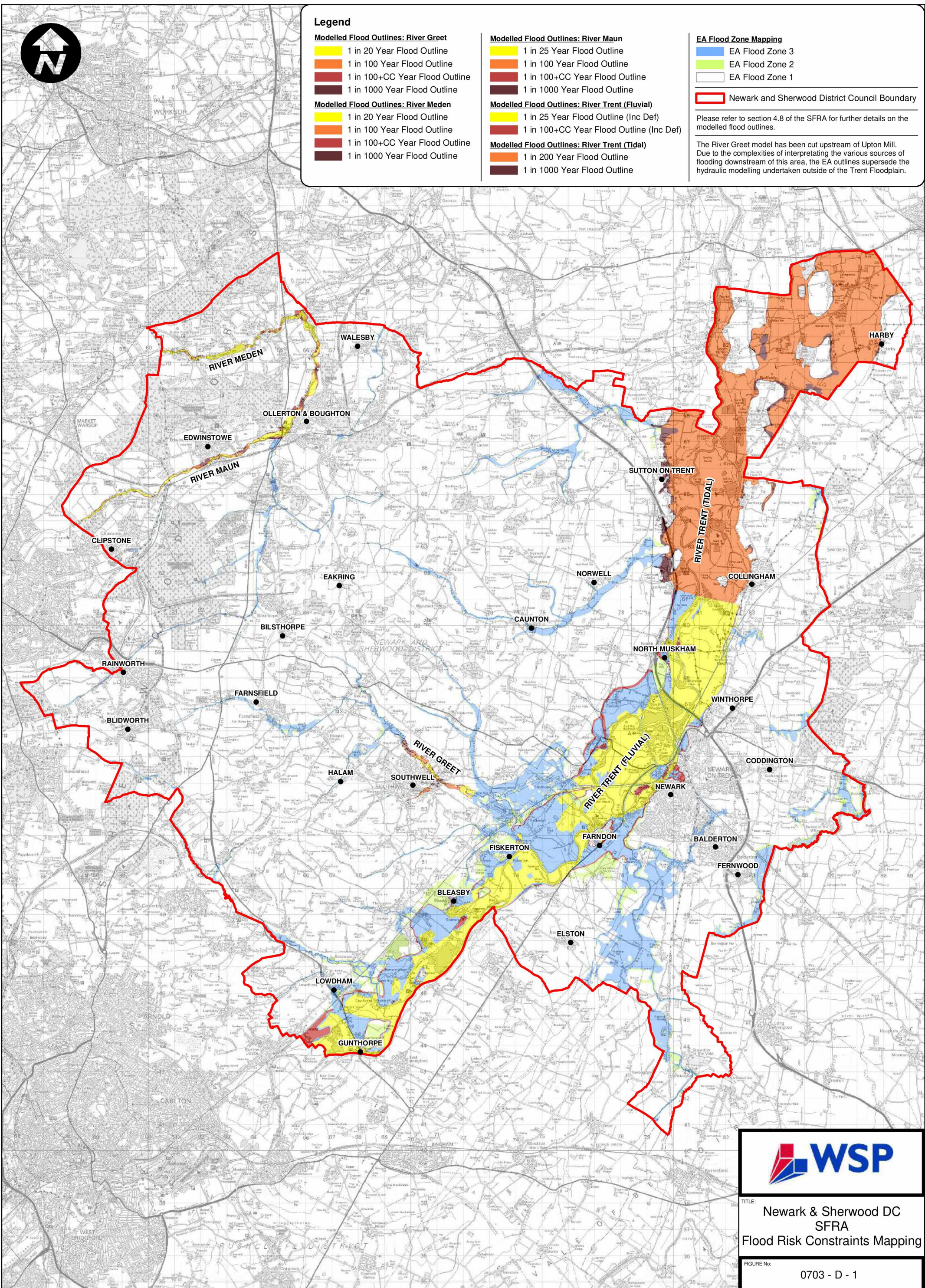
EA Flood Zone Mapping

-  EA Flood Zone 3
-  EA Flood Zone 2
-  EA Flood Zone 1

 Newark and Sherwood District Council Boundary

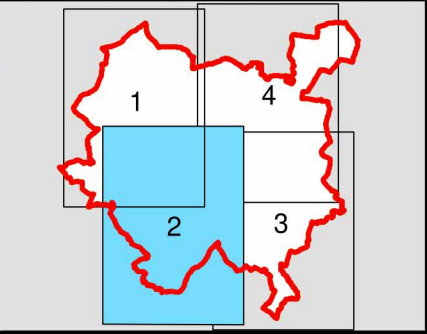
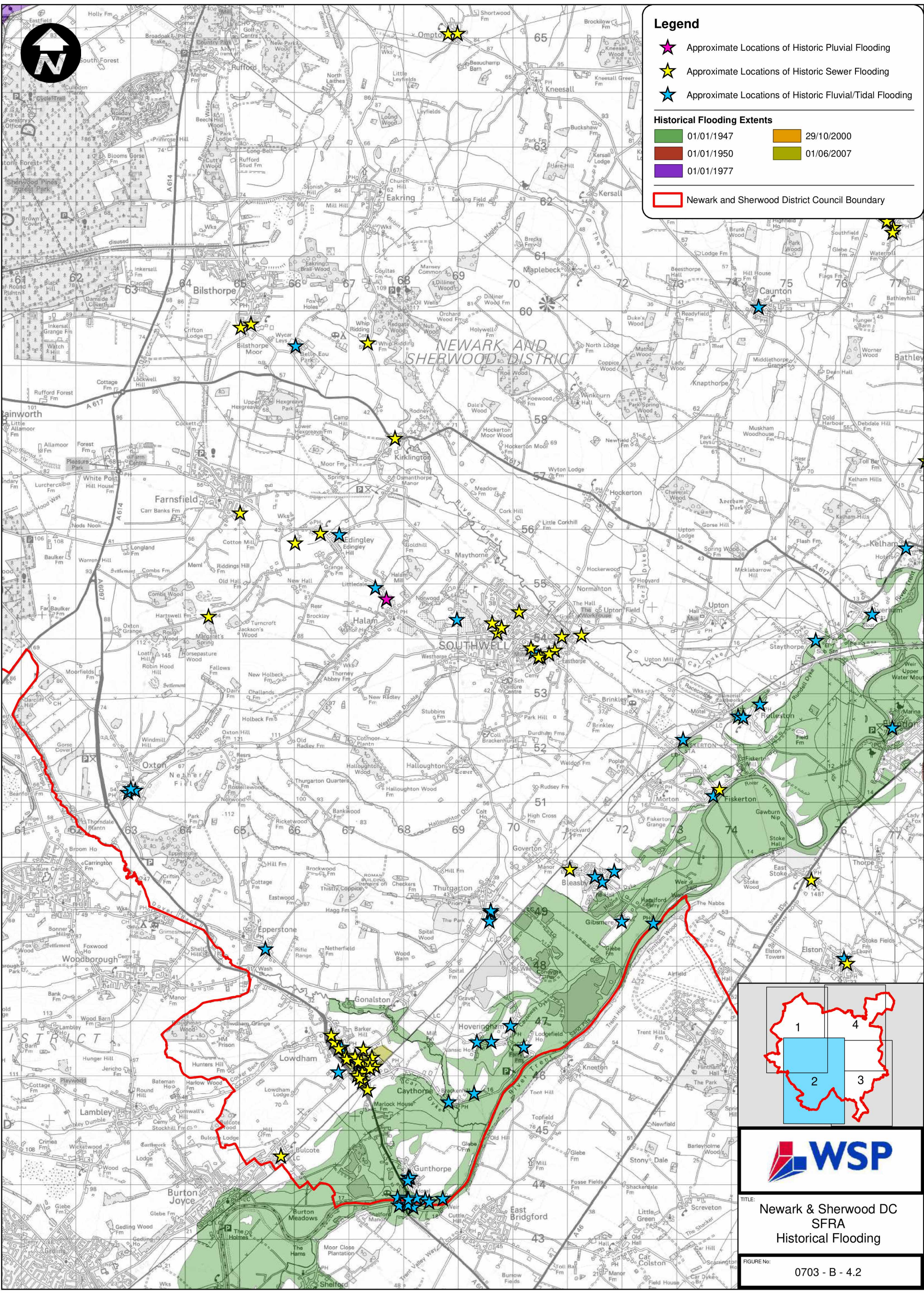
Please refer to section 4.8 of the SFRA for further details on the modelled flood outlines.

The River Greet model has been cut upstream of Upton Mill. Due to the complexities of interpreting the various sources of flooding downstream of this area, the EA outlines supersede the hydraulic modelling undertaken outside of the Trent Floodplain.



TITLE: Newark & Sherwood DC SFRA Flood Risk Constraints Mapping

FIGURE No: 0703 - D - 1



WSP

TITLE: Newark & Sherwood DC SFRA Historical Flooding

FIGURE No: 0703 - B - 4.2

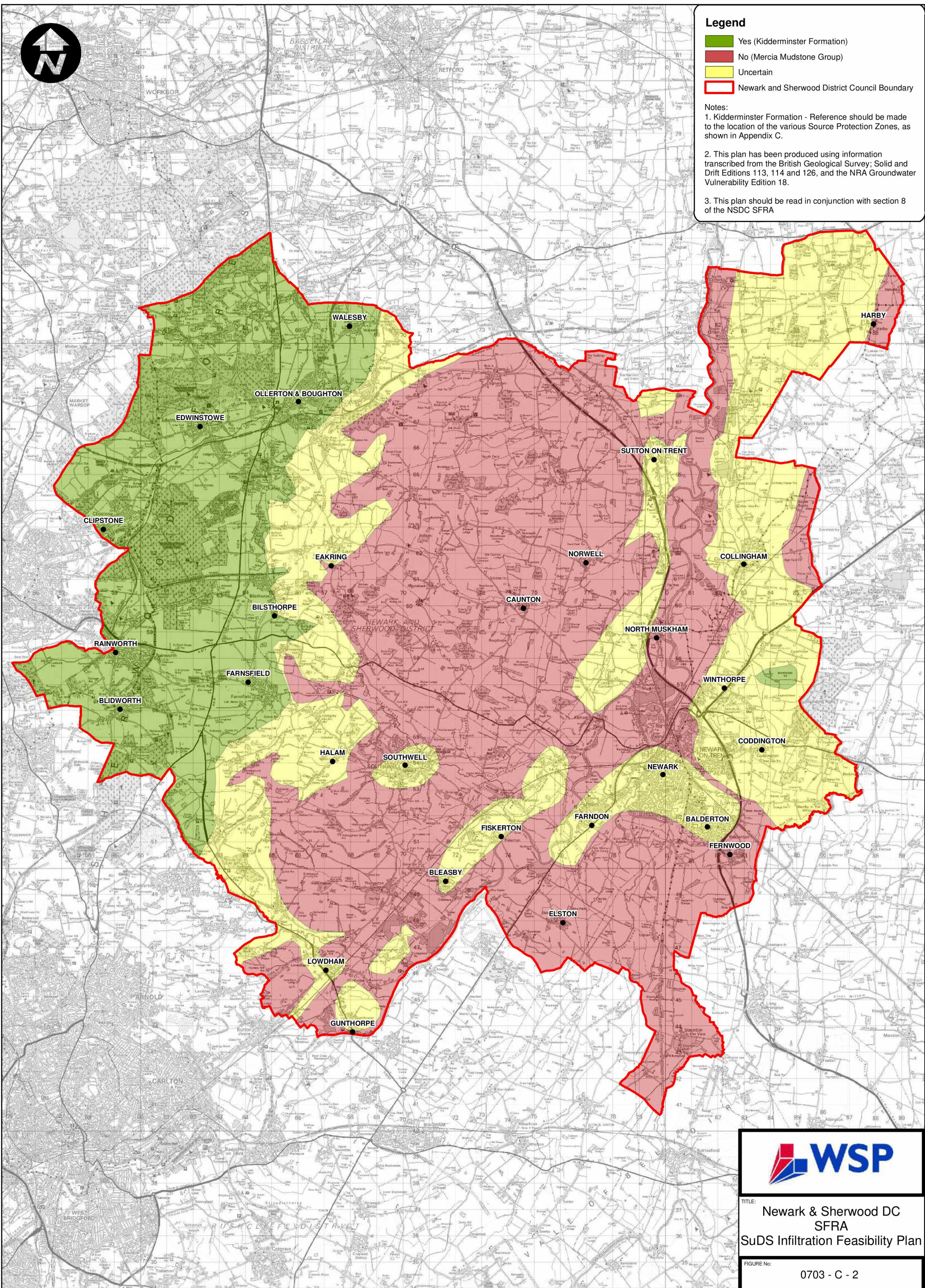


Legend

- Yes (Kidderminster Formation)
- No (Mercia Mudstone Group)
- Uncertain
- Newark and Sherwood District Council Boundary

Notes:

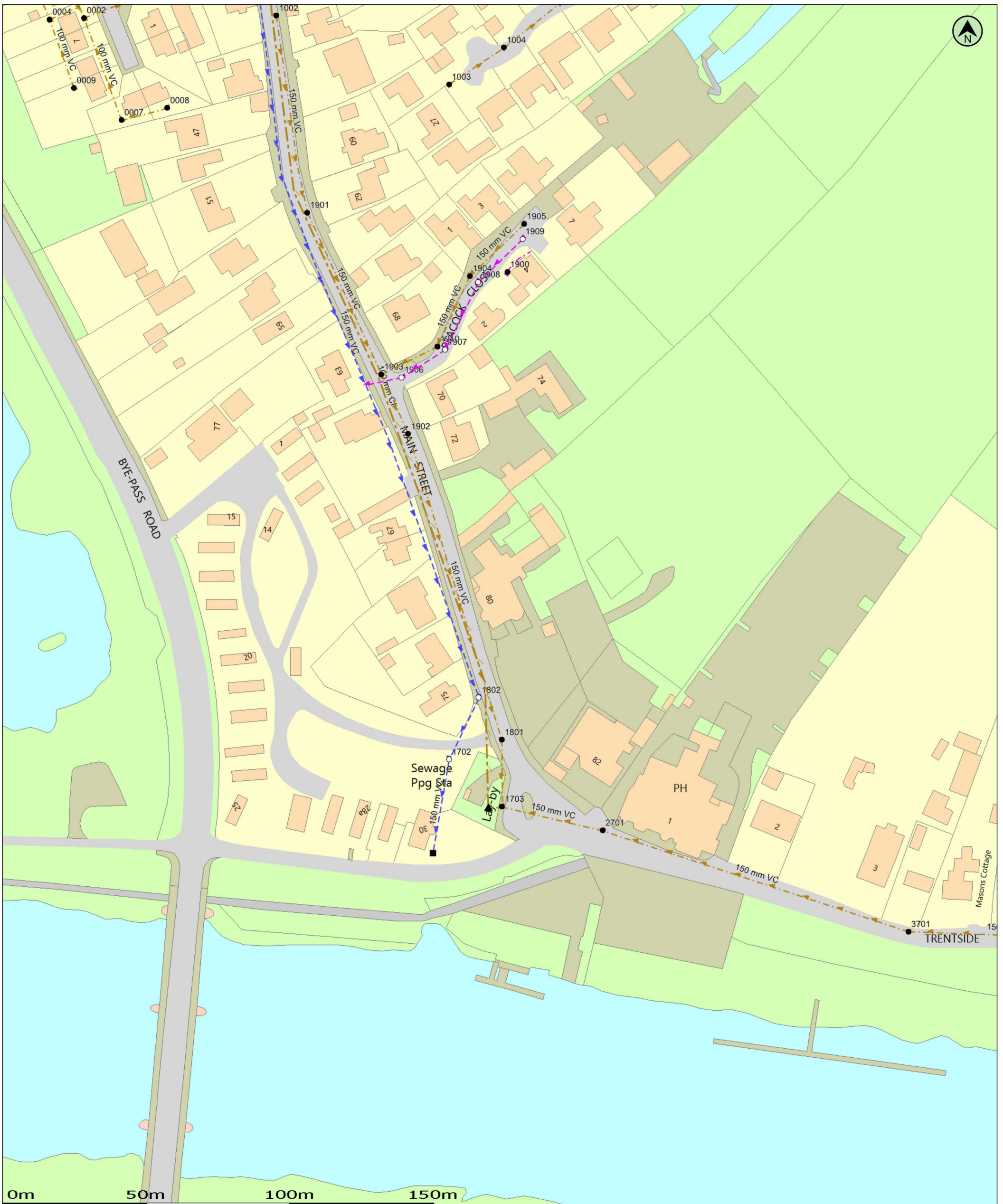
1. Kidderminster Formation - Reference should be made to the location of the various Source Protection Zones, as shown in Appendix C.
2. This plan has been produced using information transcribed from the British Geological Survey; Solid and Drift Editions 113, 114 and 126, and the NRA Groundwater Vulnerability Edition 18.
3. This plan should be read in conjunction with section 8 of the NSDC SFRA



TITLE: Newark & Sherwood DC
SFRA
SuDS Infiltration Feasibility Plan

FIGURE No: 0703 - C - 2

APPENDIX 6



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 Data updated: 14/06/22

Scale: 1:1250
 Map Centre: 468191,343848

Date: 28/06/22
 Our Ref: 888737 - 1

Wastewater Plan A3
 Powered by digdat

Public Foul Gravity/Lateral Drain		Highway Drain		Manhole Foul	
Public Combined Gravity/Lateral Drain		Overflow Pipe		Manhole Surface	
Public Surface Water Gravity/Lateral Drain		Disposal Pipe		Abandoned Pipe	
Pressure Foul		Culverted Water Course		Chamber	
Pressure Combined		Pumping Station			
Pressure Surface Water		Fitting			

Section 104 sewers are shown in green
 Private sewers are shown in magenta

mail@eastwoodandpartners.com

47240



Do not scale off this Map. This plan and any information supplied with it is furnished as a general guide, is only valid at the date of issue and no warranty as to its correctness is given or implied. In particular this plan and any information shown on it must not be relied upon in the event of any development or works (including but not limited to excavations) in the vicinity of SEVERN TRENT WATER assets or for the purposes of determining the suitability of a point of connection to the sewerage or distribution systems. On 1 October 2011 most private sewers and private lateral drains in Severn Trent Water's sewerage area, which were connected to a public sewer as at 1 July 2011, Transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on 1 October 2012. Private pumping stations, which form part of these sewers or lateral drains, will transfer to ownership of Severn Trent Water on or before 1 October 2016. Severn Trent Water does not possess complete records of these assets. These assets may not be displayed on the map. Reproduction by permission of Ordnance Survey on behalf of HMSO. © Crown Copyright and database right 2004. All rights reserved. Ordnance Survey licence number: 100031673. Document users other than SEVERN TRENT WATER business users are advised that this document is provided for reference purpose only and is subject to copyright, therefore, no further copies should be made from it.

GENERAL CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ADJACENT TO SEVERN TRENT WATER'S APPARATUS

Please ensure that a copy of these conditions is passed to your representative and/or your contractor on site. If any damage is caused to Severn Trent Water Limited (STW) apparatus (defined below), the person, contractor or subcontractor responsible must inform STW immediately on:

0800 783 4444 (24 hours)

- a) These general conditions and precautions apply to the public sewerage, water distribution and cables in ducts including (but not limited to) sewers which are the subject of an Agreement under Section 104 of the Water Industry Act 1991 (a legal agreement between a developer and STW, where a developer agrees to build sewers to an agreed standard, which STW will then adopt); mains installed in accordance with an agreement for the self-construction of water mains entered into with STW and the assets described at condition b) of these general conditions and precautions. Such apparatus is referred to as "STW Apparatus" in these general conditions and precautions.
- b) Please be aware that due to The Private Sewers Transfer Regulations June 2011, the number of public sewers has increased, but many of these are not shown on the public sewer record. However, some idea of their positions may be obtained from the position of inspection covers and their existence must be anticipated.
- c) On request, STW will issue a copy of the plan showing the approximate locations of STW Apparatus although in certain instances a charge will be made. The position of private drains, private sewers and water service pipes to properties are not normally shown but their presence must be anticipated. This plan and the information supplied with it is furnished as a general guide only and STW does not guarantee its accuracy.
- d) STW does not update these plans on a regular basis. Therefore the position and depth of STW Apparatus may change and this plan is issued subject to any such change. Before any works are carried out, you should confirm whether any changes to the plan have been made since it was issued.
- e) The plan must not be relied upon in the event of excavations or other works in the vicinity of STW Apparatus. It is your responsibility to ascertain the precise location of any STW Apparatus prior to undertaking any development or other works (including but not limited to excavations).
- f) No person or company shall be relieved from liability for loss and/or damage caused to STW Apparatus by reason of the actual position and/or depths of STW Apparatus being different from those shown on the plan.

In order to achieve safe working conditions adjacent to any STW Apparatus the following should be observed:

1. All STW Apparatus should be located by hand digging prior to the use of mechanical excavators.
2. All information set out in any plans received from us, or given by our staff at the site of the works, about the position and depth of the mains, is approximate. Every possible precaution should be taken to avoid damage to STW Apparatus. You or your contractor must ensure the safety of STW Apparatus and will be responsible for the cost of repairing any loss and/or damage caused (including without limitation replacement parts).
3. Water mains are normally laid at a depth of 900mm. No records are kept of customer service pipes which are normally laid at a depth of 750mm; but some idea of their positions may be obtained from the position of stop tap covers and their existence must be anticipated.
4. During construction work, where heavy plant will cross the line of STW Apparatus, specific crossing points must be agreed with STW and suitably reinforced where required. These crossing points should be clearly marked and crossing of the line of STW Apparatus at other locations must be prevented.
5. Where it is proposed to carry out piling or boring within 20 metres of any STW Apparatus, STW should be consulted to enable any affected STW Apparatus to be surveyed prior to the works commencing.
6. Where excavation of trenches adjacent to any STW Apparatus affects its support, the STW Apparatus must be supported to the satisfaction of STW. Water mains and some sewers are pressurised and can fail if excavation removes support to thrust blocks to bends and other fittings.
7. Where a trench is excavated crossing or parallel to the line of any STW Apparatus, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the STW Apparatus. In special cases, it may be necessary to provide permanent support to STW Apparatus which has been exposed over a length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfill in contact with the STW Apparatus.
8. No other apparatus should be laid along the line of STW Apparatus irrespective of clearance. Above ground apparatus must not be located within a minimum of 3 metres either side of the centre line of STW Apparatus for smaller sized pipes and 6 metres either side for larger sized pipes without prior approval. No manhole or chamber shall be built over or around any STW Apparatus.
9. A minimum radial clearance of 300 millimetres should be allowed between any plant or equipment being installed and existing STW Apparatus. We reserve the right to increase this distance where strategic assets are affected.
10. Where any STW Apparatus coated with a special wrapping is damaged, even to a minor extent, STW must be notified and the trench left open until the damage has been inspected and the necessary repairs have been carried out. In the case of any material damage to any STW Apparatus causing leakage, weakening of the mechanical strength of the pipe or corrosion-protection damage, the necessary remedial work will be recharged to you.
11. It may be necessary to adjust the finished level of any surface boxes which may fall within your proposed construction. Please ensure that these are not damaged, buried or otherwise rendered inaccessible as a result of the works and that all stop taps, valves, hydrants, etc. remain accessible and operable. Minor reduction in existing levels may result in conflict with STW Apparatus such as valve spindles or tops of hydrants housed under the surface boxes. Checks should be made during site investigations to ascertain the level of such STW Apparatus in order to determine any necessary alterations in advance of the works.
12. With regard to any proposed resurfacing works, you are required to contact STW on the number given above to arrange a site inspection to establish the condition of any STW Apparatus in the nature of surface boxes or manhole covers and frames affected by the works. STW will then advise on any measures to be taken, in the event of this a proportionate charge will be made.
13. You are advised that STW will not agree to either the erection of posts, directly over or within 1.0 metre of valves and hydrants,
14. No explosives are to be used in the vicinity of any STW Apparatus without prior consultation with STW.

TREE PLANTING RESTRICTIONS

There are many problems with the location of trees adjacent to sewers, water mains and other STW Apparatus and these can lead to the loss of trees and hence amenity to the area which many people may have become used to. It is best if the problem is not created in the first place. Set out below are the recommendations for tree planting in close proximity to public sewers, water mains and other STW Apparatus.

15. Please ensure that, in relation to STW Apparatus, the mature root systems and canopies of any tree planted do not and will not encroach within the recommended distances specified in the notes below.
16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW Apparatus.
17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW Apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear. Asset Protection Statements Updated May 2014
18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other

STW Apparatus.

19. In certain circumstances, both STW and landowners may wish to plant shrubs/bushes in close proximity to a sewer, water main or other STW Apparatus for screening purposes. The following are shallow rooting and are suitable for this purpose: Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quickthorn, Snowberry, and most ornamental flowering shrubs.

WONDERFUL ON TAP



Eastwood Consulting
Engineers,
St Andrews House,
23 Kingfield Road,
Nether Edge,
Sheffield,
S11 9AS.

Severn Trent Water Ltd
Leicester Water Centre
Gorse Hill
Anstey
Leicester
LE7 7GU

www.stwater.co.uk
Network.Solutions@severntrent.co.uk



Our ref: 1052000

FAO Ian Hopkinson

28th July 2022

Dear Mr Hopkinson,

Proposed Commercial Development (4 x Commercial Units consisting of Farm Shop, Café, Office & Butchers) at: Former Anchor Inn public house, Main Street, Gunthorpe, Nottingham, NG14 7EY

X: 4682000 / Y: 343841

I refer to your Development Enquiry Request submitted in respect of the above site. Please find enclosed the sewer records that are included in the fee together with the Supplementary Guidance Notes (SGN) referred to below.

Public Sewers in Site – Required Protection

There are no public sewers crossing the proposed site area.

Due to a change in legislation on 1 October 2011, there may be former private sewers on the site which have transferred to the responsibility of Severn Trent Water which are not shown on the statutory sewer records but are located in your client's land. These sewers would also have protective strips that we will not allow to be built over. If such sewers are identified to be present on the site, please contact us for further guidance.

Foul Water Drainage

The site is likely to have an existing connection to the public sewer, it might be possible to utilise the existing connection if this is in a convenient location and in good condition.

WONDERFUL ON TAP



It is proposed to utilize the existing connection from the previous site and connect gravity foul flows into the existing 150mm public foul sewer west of the site in Main Street at MH1801.

The proposed foul flows from the site is likely to be similar to the flows from the existing site. As a result, this will not have an adverse impact on the receiving network. In this instance, a connection to this sewer would be acceptable at a new or existing manhole subject to formal S106 approval.

Please Note: For brownfield developments, STW's preference is that all proposed foul discharges from the site reflect the existing drainage discharge routes where possible.

Surface Water Drainage

Under the terms of Section H of the Building Regulations 2000, the disposal of surface water by means of soakaways should be considered as the primary method. If this is not practical and no watercourse is available as an alternative, the use of sewerage should be considered. In addition, other sustainable drainage methods should also be explored before a discharge to the public sewerage system is considered.

In the event that following testing, it is demonstrated that soakaways would not be possible on the site; satisfactory evidence will need to be submitted. The evidence should be either percolation test results or a statement from the SI consultant (extract or a supplementary letter).

STW will need to be satisfied that all SUDs options have been exhausted before discharge to public sewer. Severn Trent Water expects all surface water from the development to be drained in a sustainable way to the nearest watercourse or land drainage channel, subject to the developer discussing all aspects of the developments surface water drainage with the Local Lead Flood Authority (LLFA). Any discharge rate to a watercourse or drainage ditch will be determined by the LLFA.

Subject to all the above, it is proposed to utilize the site's existing surface water connection at MH1802 on the public 150mm surface water sewer in Main Street. This sewer travels a short distance southwards before out falling to a small watercourse which eventually outfalls to the River Trent south of the site.

WONDERFUL ON TAP



On all brownfield sites, Severn Trent propose a 50% reduction of surface water flows in comparison to the existing development's discharge. For us to be in a position to confirm your proposed discharge rate, please provide supporting evidence demonstrating the betterment of existing discharge rate.

Evidence should be in the form of a survey, demonstrating what flows positively discharged into the network (and which sewer) and supporting calculations showing the reduction. If former connections cannot be proved, greenfield rates of 5l/s/ha will apply which would equate to a maximum run-off of 1.25 l/s for the site. If flow rates exceed the agreed rate, then excess flows should be attenuated on site and discharged at the restricted agreed rate. Please consult the LLFA for an agreed flow rate as statutory consultee in the planning process.

New Connections

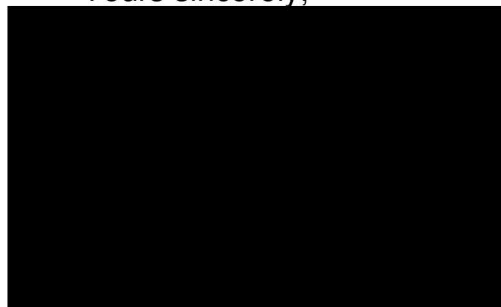
For any new connections including the use, reuse and indirect to the public sewerage system, the developer will need to submit Section 106 application. Our Developer Services department are responsible for handling all such enquiries and applications. To contact them for an application form and associated guidance notes please call 0800 707 6600, email new.connections@severntrent.co.uk or download from www.stwater.co.uk

Please quote the above reference number in any future correspondence (including e-mails) with STW Limited. Please send **all correspondence** to the network.solutions@severntrent.co.uk email inbox address, a response will be made within 15 days.

If you require a VAT receipt for the application fee please email MISCINCOME.NC@SEVERTRENT.CO.UK quoting the above Reference Number.

Please note that Developer Enquiry responses are only valid for 6 months from the date of this letter.

Yours sincerely,



WONDERFUL ON TAP



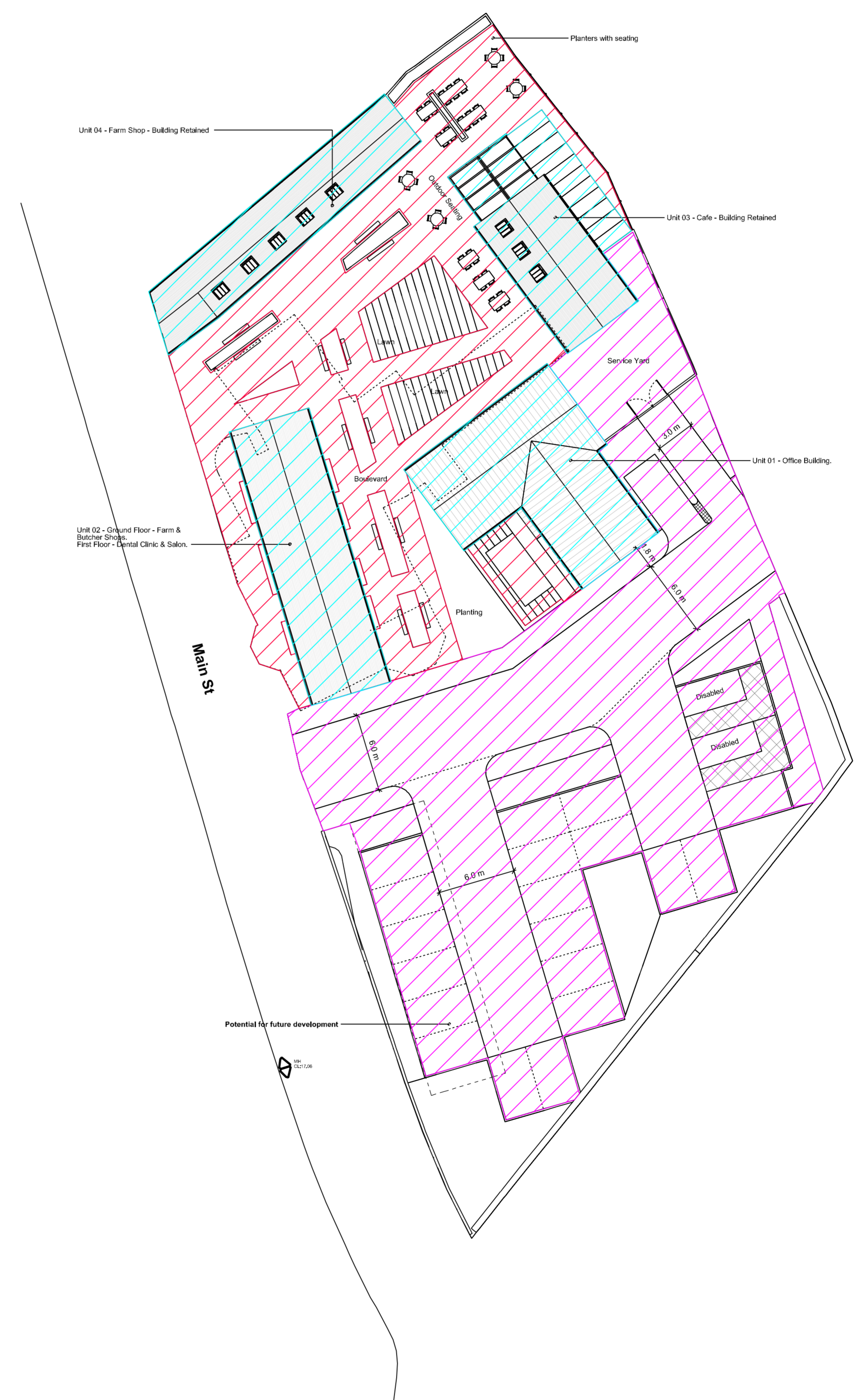
Emma Nowak.
Senior Evaluation Technician
Network Solutions
Developer Services

APPENDIX 7

EXISTING



PROPOSED



INFORMATION WITHIN THIS DRAWING IS NOT NECESSARILY PRODUCED TO SCALE. ALWAYS USE FIGURED DIMENSIONS AND CO-ORDINATES - IF IN DOUBT, ASK.

NOTES	
KEY	
Existing Impermeable Areas (1762m ²)	
	Roofs (650m ²)
	Hardstanding (1112m ²)
Proposed Impermeable Areas (2290m ²)	
	Roofs (571m ²)
	Hardstanding (560m ²)
	Parking (1157m ²)

A	First Issue.			
REV	DESCRIPTION	SIG	CHK	DATE

MICA REDD LTD

ANCHOR INN, GUNTHORPE

EXISTING AND PROPOSED IMPERMEABLE AREAS

Eastwood
CONSULTING ENGINEERS

St Andrew's House
23 Kingfield Road
Sheffield, S11 9AS

T: 0114 255 4554
E: mail@eastwoodce.com
eastwoodce.com

SCALE WHEN PLOTTED AT 1:250		DRAWING STATUS	
		PRELIMINARY	

DRAWN	CHECKED	DATE	DRAWING NUMBER	REV
IH	KBE	20.07.22	47240/001	A

SUDS Type	SUDS Technique	Description	Suitable	Comments
Source Control	Green roof	Vegetated roof that reduces runoff volume and rate	No	Expected planning requirement for traditional pitched roofs to match neighbouring buildings.
	Rainwater harvesting/rainwater butts	Rainwater is stored and re-used	Possible	Individual water butts could be used for landscape watering.
	Permeable paving	Paving which allows inflow of rainwater into underlying construction/soil	Possible	Type C permeable paving could be used subject to layout.
Infiltration	Soakaway	Pit or trench which stores and disposes of water to the ground	No	Expected presence of impermeable ground (clay) and made ground.
	Filter Drain	Trench which conveys and/or disposes of water to the ground.	No	Expected presence of impermeable ground (clay) and made ground.
	Infiltration Basin	Shallow basin which stores and disposes of water to the ground	No	Expected presence of impermeable ground (clay) and made ground.
Conveyance	Swale	Shallow vegetated depression which conducts and retains water	No	Difficulties of adoption and lack of space.
Detention	Subsurface storage	Traditional underground pipes, tank storage, or modular systems	Yes	Area available in central part of the site for an attenuation tank.
	Detention Basin	Normally dry but may have small permanent water pools at the inlet and outlet. They can function as POS	No	Poor infiltration rate due to clay and deep impermeable bedrock resulting in residual water and siltation in the basin. Inefficient use of POS.
	Pond	Permanent body of water	No	Lack of suitable public open space.
	Wetland	Permanent body of shallow water or marsh	No	

Eastwood

CONSULTING ENGINEERS

