

**FLOOD RISK ASSESSMENT
FOR
GOODMANS METAL WORKS LTD**

**PRIVATE ROAD NO. 7, COLWICK,
NETHERFIELD, NOTTINGHAM NG4 2JW**

DATE: 26 OCT 2023

OUR REF: A7269/FRA

REPORT DETAILS

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Appendix A Environment Agency Flood Data

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1.0 INTRODUCTION

1.1 Terms of Reference

1.1.1 This Flood Risk Assessment (FRA) has been written in line with the requirements of the National Planning Policy Framework 2012, National Planning Policy Technical Guidance document dated 2012.

1.1.2 The report is referring to the planned redevelopment of the existing Private Road no. 7, Colwick consisting of office/trade building.

1.1.3 The report is based on the following information:

- (i)** Topographic survey
- (ii)** Environment Agency mapping and consultation
- (iii)** Severn Trent Water mapping and consultation
- (iv)** Nottingham-Left-Bank-FAS-2011 by Black and Veatch
- (v)** Nottinghamshire Level 1 Minerals Strategic Flood Risk Assessment
- (vi)** Greater Nottingham Strategic Plan – Preferred Approach Consultation January 2023
- (vii)** Nottingham Trent Left Bank FAS Environmental Statement – Appendix D, Colwick, dated October 2008
- (viii)** British Geological Survey
- (ix)** Design and Access Statement P1 by Rees CM Architectural Design, dated 17.08.2023

2.0 DETAILS OF SITE

2.1 Site Location

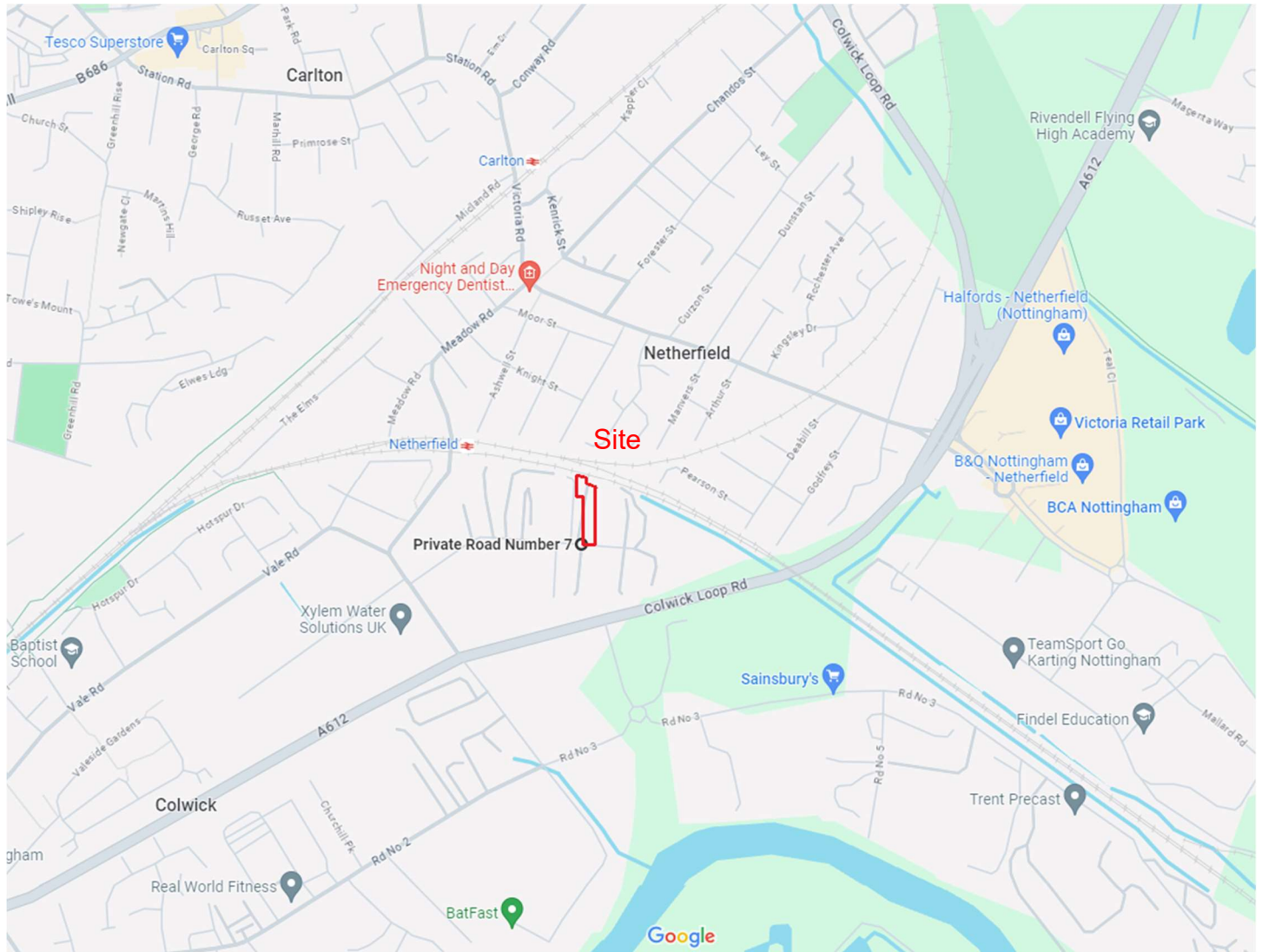
2.1.1 The proposed development site is located approximately 5km east from the Nottingham City Centre and circa 480m north west of the River Trent and circa 500m south west of Ouse Dyke.

A location plan is shown in Figure 1.

Table 1 – Site Summary

Project Name	PRIVATE ROAD NO. 7
Address	COLWICK, NETHERFIELD, NOTTINGHAM
OS NGR	E: 462091 N: 340752
Site Area	0.405ha
Development Type	Industrial
EA Development Control Area	Mids East
Local Planning Authority	Nottingham County Council

Figure 1 – Site location plan (source maps.google.pl)



Description of Existing Site

2.1.2 The site is gently sloping towards the centre and close to the northern boundary. However, large majority of area is flat with levels AOD ranging from 21.43 in the south along the footway, 20.91 in the northern boundary to 20.85 in the middle of the site. Levels differences do not exceed 0.6m. The western part of site is approximately level with west boundary, but central part is lower than eastern boundary, rail embankment to the north and Private Rd Number 7 to the south. The site currently consists of impermeable hard standing.

Figure 2 - Aerial Photos (source maps.google.com)



2.2 Development Proposals

2.2.1 The development proposal comprises of an office/industrial building to be built, a development plan is shown in figure 3.

Figure 3 – Development Proposals (source Rees CM Architectural Design ref. R0333 – 002 – P3 - Proposed Site Plan)



3.0 INITIAL ASSESSMENT

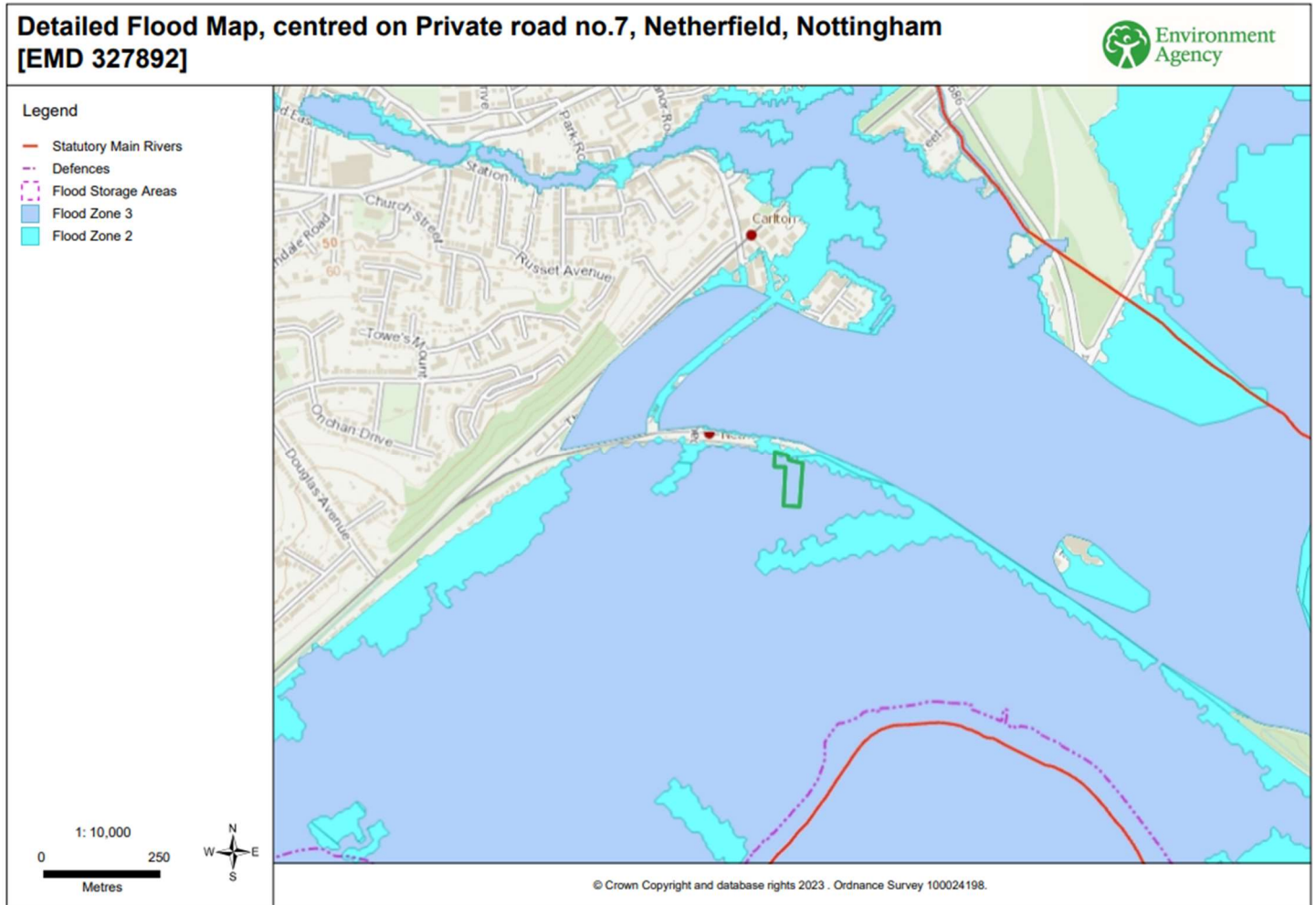
3.1 Flood Zone Classification and Historical Flooding

Figure 4 below indicates the approximate floodplain plan as per the Environment Agency Website. Majority of the site is situated within Zone 3a, the rest of the site to the north is within Zone 2.

As per Nottinghamshire Strategic Flood Risk Assessment; level 1 - Zone 3a high probability description “Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding – (Land shown in dark blue on the Flood Map).” Therefore, it is concluded the site is situated within Zone 3a.

As indicated in Environmental Agency data - Modelled Extents Map centered on Colwick, Nottingham - created 04 October 2023 Ref: [EMD 327892] – see Appendix A – majority of the site is within a 1 in 100 year Modelled Extent (with 100 year flow on River Trent), which is 1%. It is to be noted the presence of Flood Alleviation Scheme (FAS) flood defences is not taken into consideration in this map. It is not in a functional flood plain, and remains within Flood Zone 3a.

Figure 4 - Environment Agency Detailed Flood Map



3.2 Possible Flood Mechanisms

The possible sources of flood risk to the site are presented below. The significance of these sources is investigated further in section 4.0 of this report where applicable.

Table 2 – Possible Flood Mechanisms

Flood Report	Presence	Description
Flooding from Rivers (Fluvial)	✓	The site is adjacent to the River Trent and is affected by rivers flooding. As indicated in Nottinghamshire SFRA the site is located within Flood Zone 3a (1 in 100 years). Nottingham City council and the Environment Agency implemented the Flood Alleviation Scheme (FAS). According to Nottingham Left Bank FAS 2011 “the FAS has been designed to protect 16,000 homes and businesses on the left bank of the River Trent against a flood with a 1% (1-in-100) annual probability of occurrence. The works has been split into six sections: Sawley; Trent Meadows; Attenborough; Rylands; Meadows; and Colwick.”
Flooding from the Sea (Tidal)	X	The site is not affected by tidal flooding.
Flooding from Groundwater	X	The site is gently sloping towards the centre. British Geological Survey (BGS) shows 1.5m deep groundwater. The water level could be verified in ground investigation. According to Nottinghamshire SFRA the site is within groundwater flood zone with 25-50% probability of flooding and “Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers), usually associated with chalk, sandstone and limestone catchments that allow groundwater to rise to the surface through permeable subsoil following long periods of wet weather. High water tables may result in standing water on low lying ground that is unable to reach a ditch or watercourse and is unable to percolate through the ground due to seasonally high perched groundwater levels.” What is more, as demonstrated by google earth image (Figure 5.1), the site is not located in a bottom of a valley, therefore based on given information, it is concluded that the risk from groundwater flooding is considered moderate low.
Flooding from Sewers	X	There is a sewer within Private Rd Number 7. The site is lower than closest manhole, therefore there is a chance for sewer flooding. However, Private Rd Number 7 is sloping towards west and what is more, back of footway and vehicular access levels are higher than manhole’s cover level, therefore low chance for flooding the site from sewers.
Overland flow originating off site	X	The site is gently sloping towards the centre and close to the northern boundary, however large majority of area is flat with levels AOD ranging from 21.43 in the south along the footway, 20.91 in the northern boundary to 20.85 in the

		<p>middle of the site. Levels differences do not exceed 0.6m. The site is approximately level with west boundary, but is lower than eastern boundary, rail embankment to the north and Private Rd Number 7 to the south. According to EA Surface Water Map the site is not affected by surface flooding from events 1 in 100 year and more frequent.</p>
Development Drainage	✓	<p>The development drainage will need to consider the risk of flooding both on and offsite.</p>
Reservoirs canals and other artificial sources	X	<p>According to Nottinghamshire SFRA “Flood risk posed by the canals is un-quantified at present. However, it is widely acknowledged that canals may present potential flood risks. Canals are considered to be controlled water bodies so flood risk is deemed to be minimal unless overtopped in storm conditions. There is, however, a residual risk of structural failure.” However “Reservoirs in the UK have an extremely good safety record. The Environment Agency is the regulatory authority for the Reservoirs Act 1975 in England and Wales. All large reservoirs must be inspected and supervised by reservoir panel engineers on an annual basis.”</p> <p>The tributaries to the Trent river carry reservoirs upstream of the development although it is expected separate safeguards are to be installed to minimize impact on the site within all reasonable circumstances.</p>

The primary source of flood risk is from the River Trent.



Figure 5 British Geological Survey borehole log (source <https://api.bgs.ac.uk/sobi-scans/v1/borehole/scans/items/234356>)

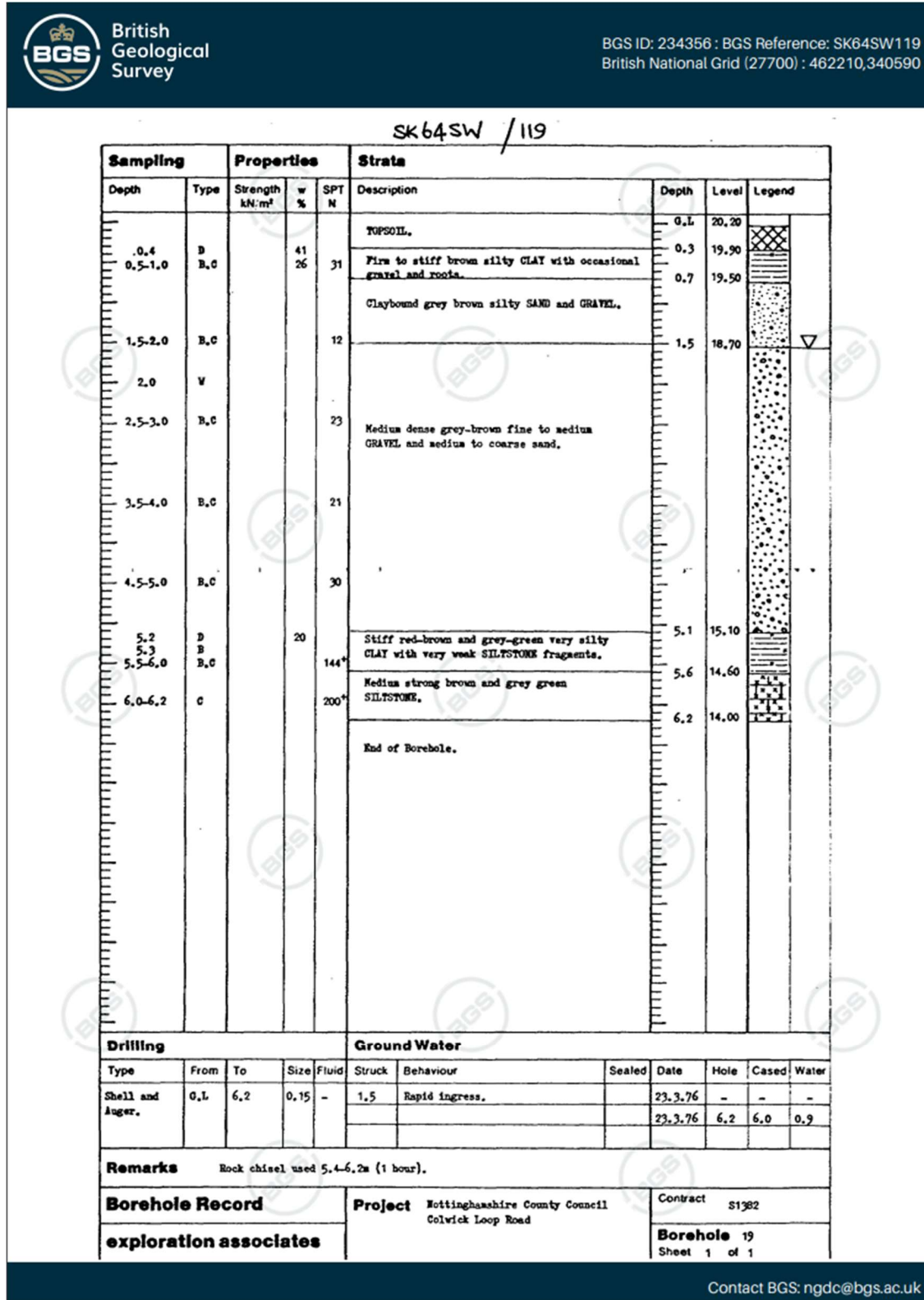


Figure 5.1 Cross-sections of site (source Google Earth Pro)



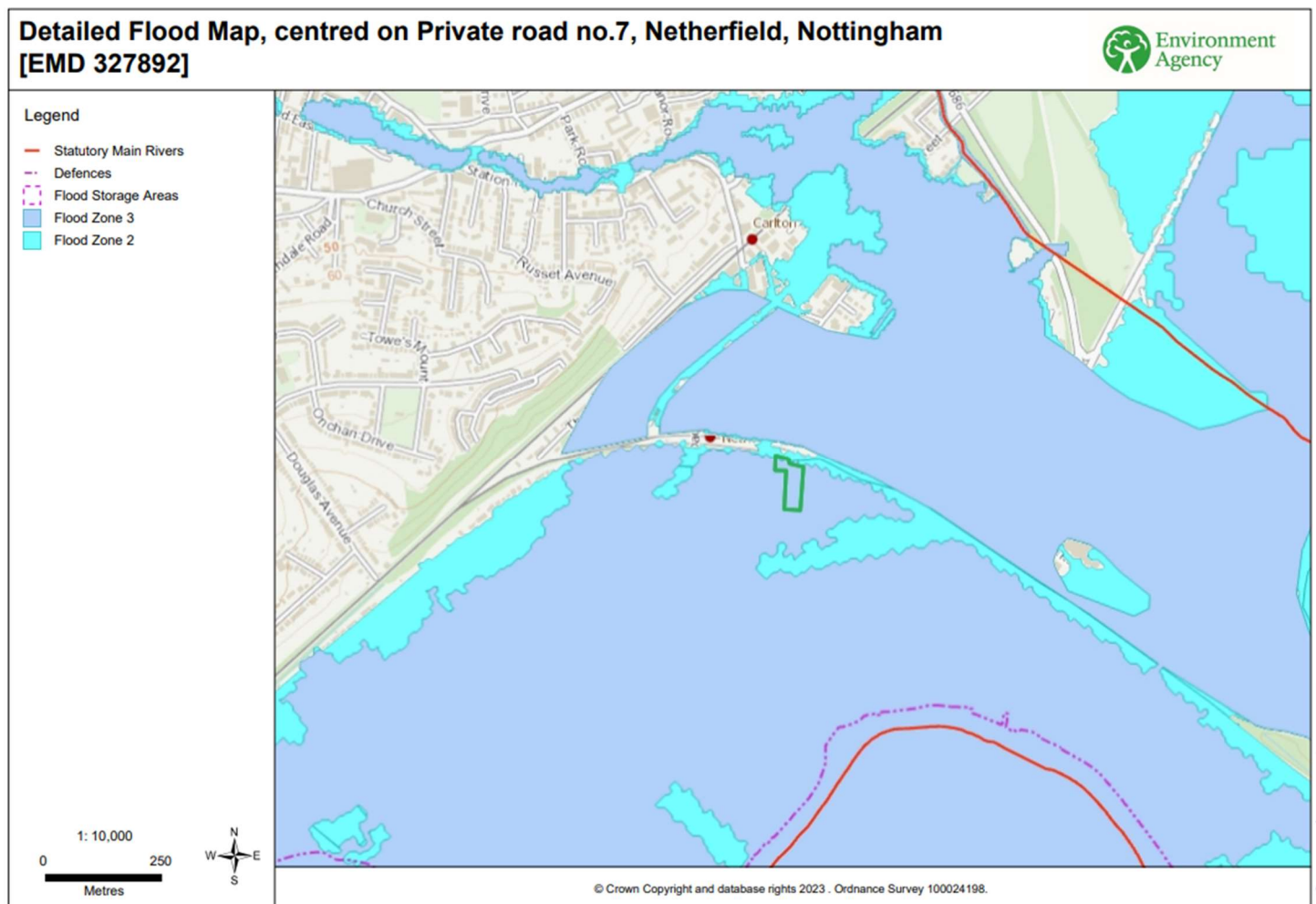
4.0 FLOOD RISK ASSESSMENT

4.1 Flooding from Rivers (Fluvial)

The Environment Agency’s flood map illustrates the development area is positioned within the **Flood Zone 3a** which is understood to be land at a high probability of flooding (external to the 1 in 30 year floodplain but situated within the 1 in 100 year floodplain).

Comprehensive plans with flood levels obtained from the Environmental Agency show the site to be within Zone 3. However, this area is benefiting from flood defences FAS. See Figure 6 below.

Figure 6 Environment Agency Detailed Flood Map



As indicated in Nottinghamshire City Strategic Flood Risk Assessment, Level 2, “There have been numerous historical flood events in Nottinghamshire. A GIS layer of the Environment Agency’s Historic Flood Map (HFM) was obtained through the OGL to support this SFRA Update and is illustrated within Figures D1-D13 (Appendix D).

In the LFRMS (Local Flood Risk Management Strategies), NCC compiled a table with priority flood risk locations where recorded flood events from numerous sources were included.” There have been 32 recorded flood incidents in Carlton area between January 2012 and February 2015 and according to Nottinghamshire SFRA the site is within historical flood zone.”

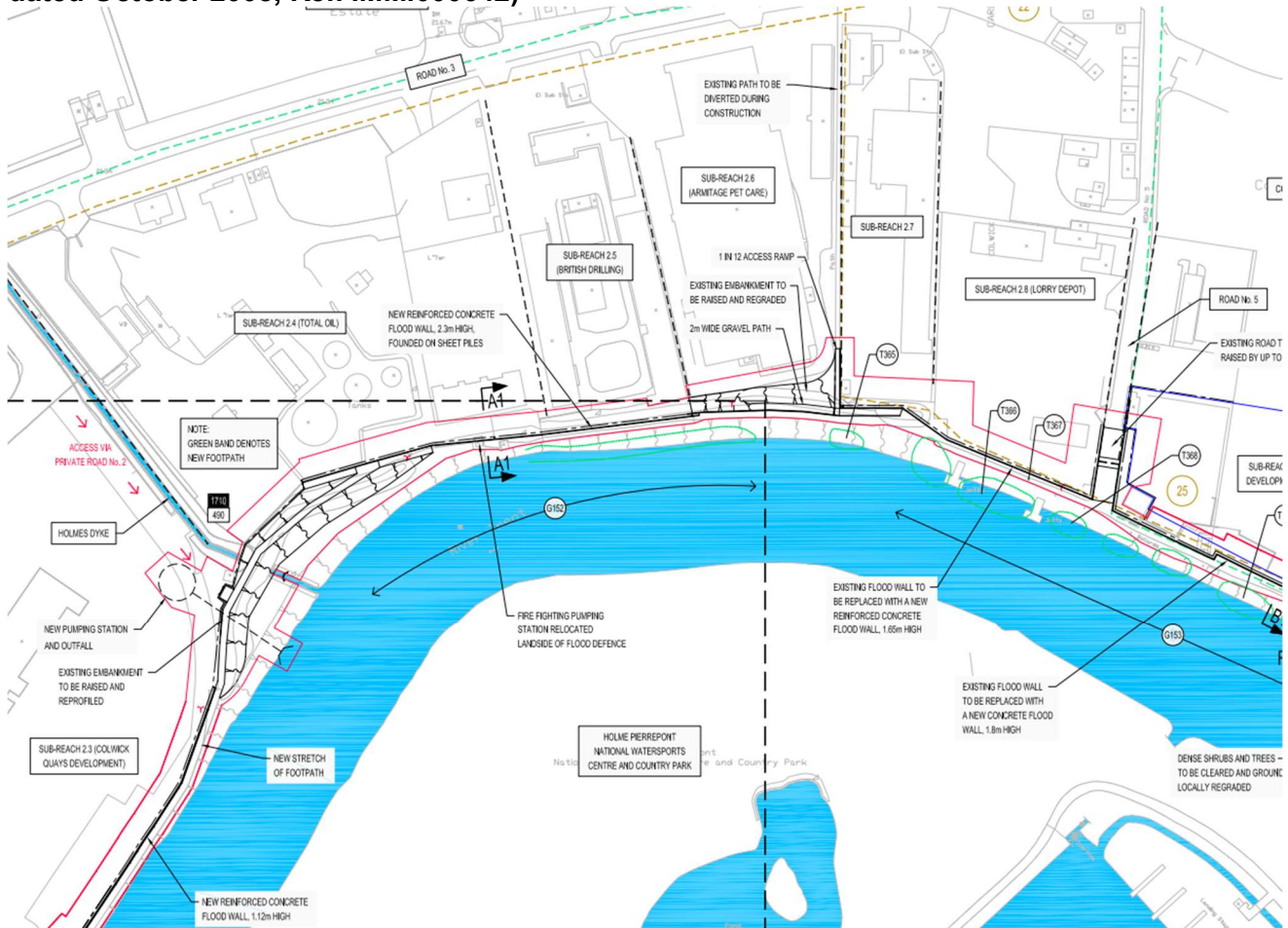
As indicated in Nottinghamshire SFRA “The Nottingham Trent Left Bank FAS was designed to reduce the risk of flooding to 16,000 homes and businesses along a 27km stretch of the River Trent. The scheme, which was completed and fully operational in 2012 at a cost of £45 million, raised existing flood defences from Sawley to Colwick in order to provide a minimum 1 in 100 year Standard of Protection (SoP) along the left bank of the River Trent. However, the River Trent Climate Change and Breach modelling (2016) identifies new areas at a residual risk of flooding.”

Flood levels for the 1 in 100 year, 1 in 100 year event + climate change and 1 in 1000 year event are received from Environment Agency (EA) plans and can be found in appendix A. Despite the fact this information is relevant to the Existing Colwick Model and include modelling of flood resulting from breaching flood defences it does not include modelling carried out in support of the Flood Alleviation Scheme carried out by Nottingham City Council and the Environment Agency, while indicating flood zone. (Appendix B of SFRA)

The FAS has an impact on reducing flood levels in frequent events as a result of increasing the river corridor width and/or raising existing embankments and replacing or building new walls. However, the implementation of defences on the boundary of the new corridor causes the flood levels to be raised in less frequent events.

Nottingham Trent Left Bank FAS Environmental Statement by Black and Veatch shows FAS scheme defences. The defences adjacent to the site are summarized in figure 7 on the next page.

Figure 7 – Black and Veatch modelled flood defence – Nottingham Trent Left Bank Flood Alleviation Scheme (source Nottingham Trent Left Bank FAS Environmental Statement, Appendix D – Colwick, dated October 2008, Ref. IMMI000642)

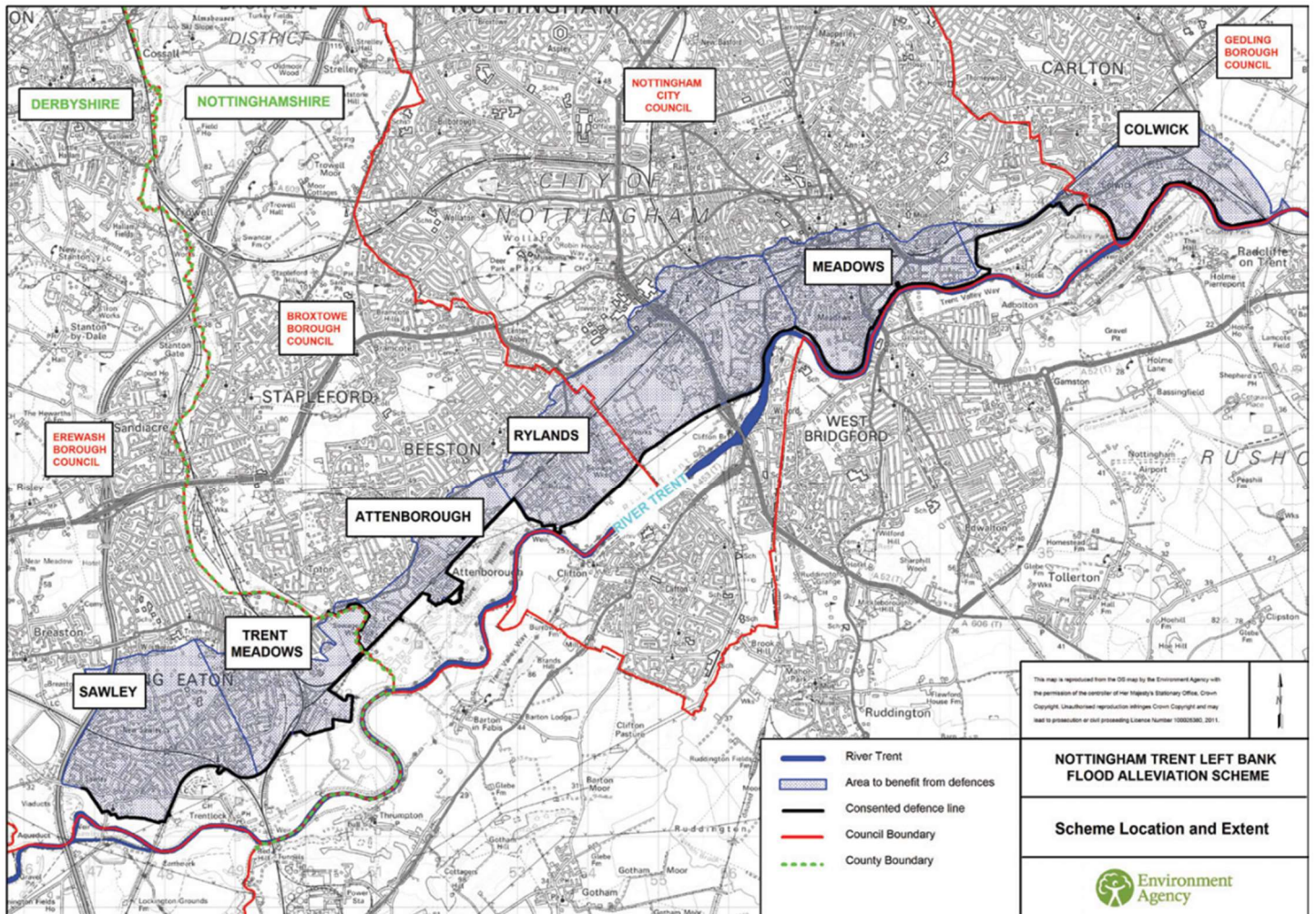


ENVIRONMENTAL CONSTRAINTS LEGEND	PHASE 1 HABITAT SURVEY LEGEND	WOODLAND AND SCRUB	GRASSLAND AND MARSH
<ul style="list-style-type: none"> SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI) LOCAL WILDLIFE SITE (LWS) / SITE OF INTEREST FOR NATURE CONSERVATION (SINC) LOCAL NATURE RESERVE ER037 LWS REFERENCE NUMBER AND NAME CONSERVATION AREA REGISTERED / HISTORIC PARKS AND GARDENS TREE PRESERVATION ORDER SMR / ARCHAEOLOGICAL CONSTRAINT AREA * SMR / ARCHAEOLOGICAL CONSTRAINT AREA * SCHEDULED MONUMENT AREA PUBLIC RIGHT OF WAY PUBLIC RIGHT OF WAY REFERENCE NUMBER CYCLE PATH LISTED BUILDING WATER VOLE BURROW (DESK STUDY RECORD) OTTER (DESK STUDY RECORD) GREAT CRESTED NEWT (DESK STUDY) BAT RECORD (DESK STUDY) COUNTY RARE PLANT SPECIES (DESK STUDY RECORD) COUNTY SCARCE PLANT SPECIES (DESK STUDY RECORD) JAPANESE KNOTWEED HIMALAYAN BALSAM GIANT HOGWEED NEW FOOTPATH * ONLY SITES POTENTIALLY AFFECTED BY THE SCHEME SHOWN 	<ul style="list-style-type: none"> BOUNDARIES FENCE INTACT HEDGE (NATIVE SPECIES-RICH) INTACT HEDGE (SPECIES-POOR) HEDGE AND TREES (NATIVE SPECIES-RICH) DRY DITCH OPEN WATER STANDING WATER RUNNING WATER WOODLAND AND SCRUB CONTINUOUS SCRUB SCATTERED SCRUB SEMI-NATURAL BROADLEAVED WOODLAND TALL HERB AND FERN TALL RUDERAL MISCELLANEOUS ARABLE GRASSLAND AND MARSH UNIMPROVED ACID GRASSLAND SEMI-IMPROVED ACID GRASSLAND UNIMPROVED NEUTRAL GRASSLAND SEMI-IMPROVED NEUTRAL GRASSLAND IMPROVED GRASSLAND MARSHY GRASSLAND SPECIES POOR SEMI-IMPROVED GRASSLAND 	<ul style="list-style-type: none"> ENGINEERING LEGEND WALL SHEET PILING EMBANKMENT DRAINAGE LINE OF HIGH GROUND TEMPORARY EASEMENT / WORKING AREA ACCESS ROUTE CROSS SECTION 	<ul style="list-style-type: none"> TREE SURVEY LEGEND T1 TREE SURVEY REFERENCE G1 TREE SURVEY REFERENCE (GROUP OF TREES) T2 TREE TO BE LOST G2 GROUP OF TREES TO BE LOST H2 SECTION OF HEDGE TO BE LOST T INDIVIDUAL OR SMALL GROUP OF TREES G GROUP OF TREES

NOTES

- THE AMOUNT THAT EXISTING DEFENCES NEED TO BE RAISED IN mm, IN A PARTICULAR AREA IS DENOTED BY THE CLEAR BOXED NUMBER, e.g. [50]. THE EXISTING AVERAGED HEIGHT OF THE DEFENCE IN (mm) IS DENOTED BY THE BLACK BOXED NUMBER, e.g. [150].
- EXACT LOCATION OF SITE COMPOUNDS TO BE AGREED.

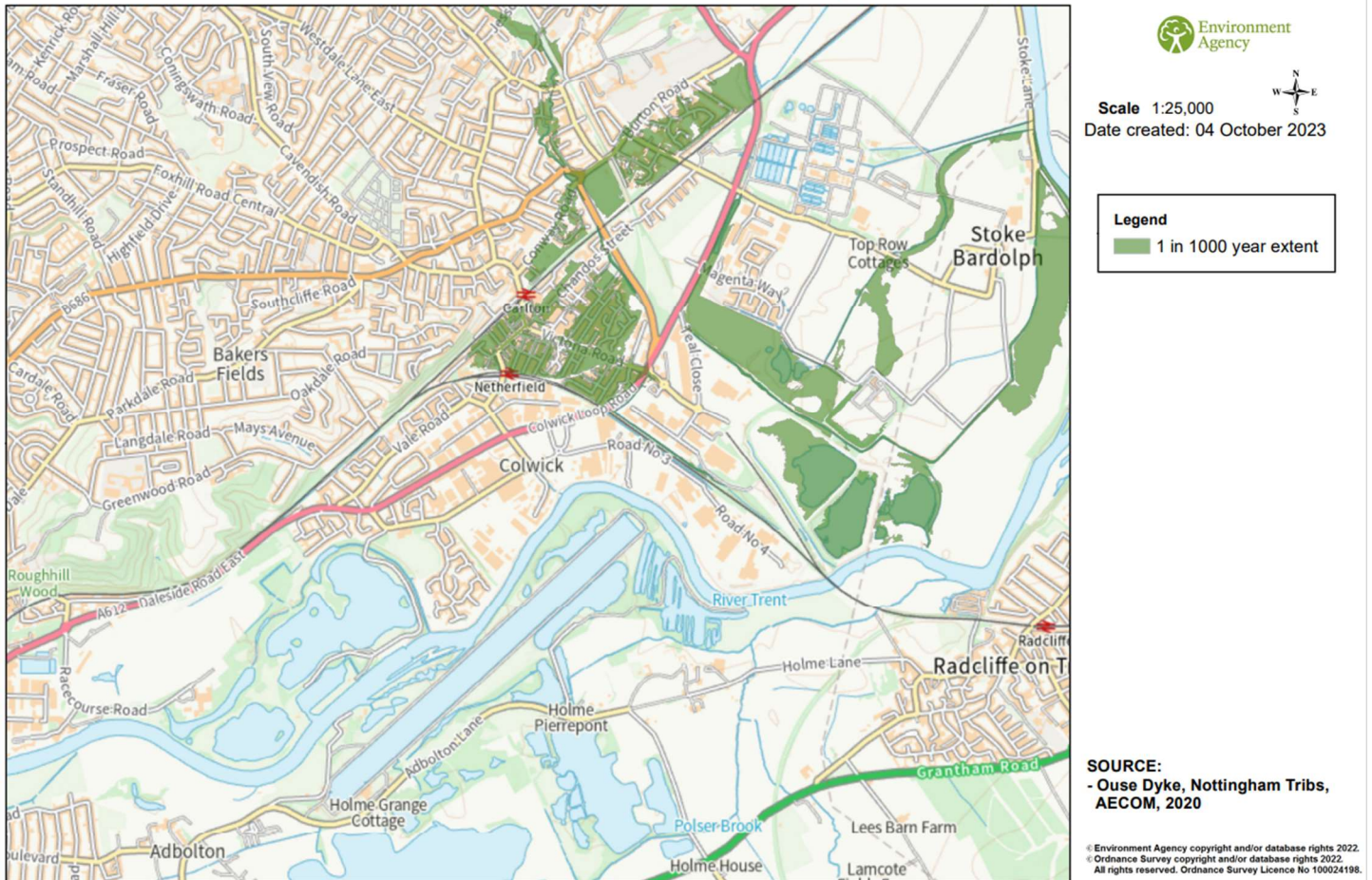
Figure 8 – Nottingham Left Bank FAS 2011 (source https://waterprojectsonline.com/wp-content/uploads/case_studies/2011/Nottingham-Left-Bank-FAS-2011.pdf)



Site Location Plan: Located between the M1 at Sawley and Colwick, a distance of 27km, the works has been split into six sections: Sawley; Trent Meadows; Attenborough; Rylands; Meadows; and Colwick - Courtesy of Black & Veatch

Figure 9 – Predicted flooding impact from the River Ouse Dyke 1:1000 year Ref: [EMD327892] (source EA)

**Modelled Flood Extents Map, centred on
Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]**



As stated in Nottingham Trent Left Bank FAS since FAS has been implemented flood water is held by improved defences, therefore 16,000 properties are no longer at risk from flooding and consequently the impact upon homes and businesses is minimized. This is hugely beneficial for a significant number of people.

According to Nottingham Left Bank FAS Environmental Statement Appendix D - Colwick, 3 main roads and access roads to industrial estate are protected by either raised existing embankments or new ones.

Taking into account what was said above including road network open for evacuation and emergency services after implementation of FAS it can be said that defences would effectively take the site out

from Flood Zone 3 (having a 1 in 100 or greater annual probability of river flooding (>1%)) to Flood Zone 2 (having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%)).

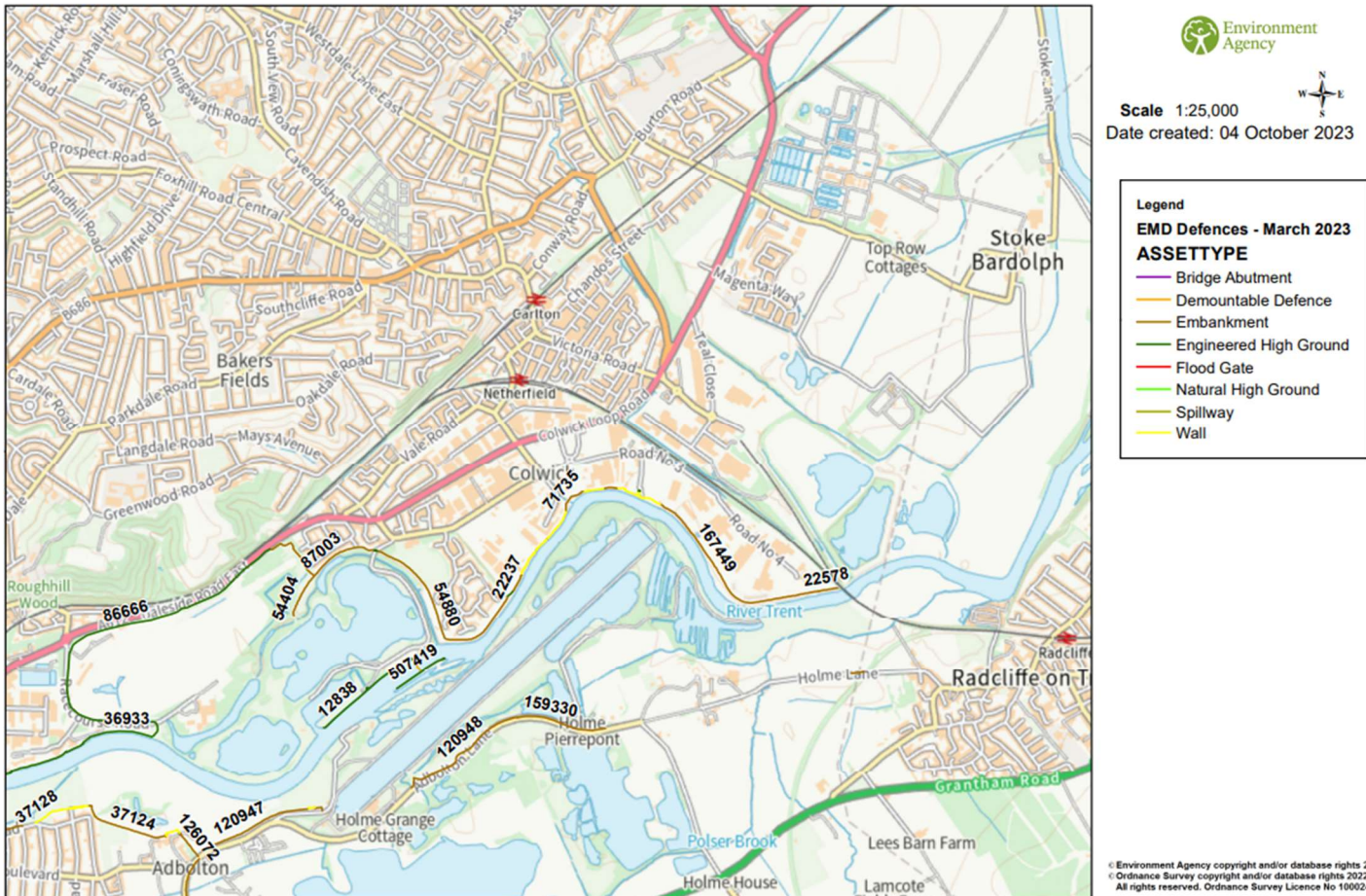
Finished floor levels to the Proposed Unit is to be built similar to existing site levels to avoid steep gradients.

The flood data obtained from Environmental Agency clearly do not take into account FAS defences as it is shown on Flood Defence Map centred on Colwick, Nottingham - created 04 October 2023 Ref: [EMD327892] which defences are included (see Figure 7).



Figure 10 – Flood Defence Map centred on Private Rd No. 7, Netherfield, Nottingham, NG4 2JW - created 04 October 2023 Ref: [EMD327892] (source Environmental Agency)

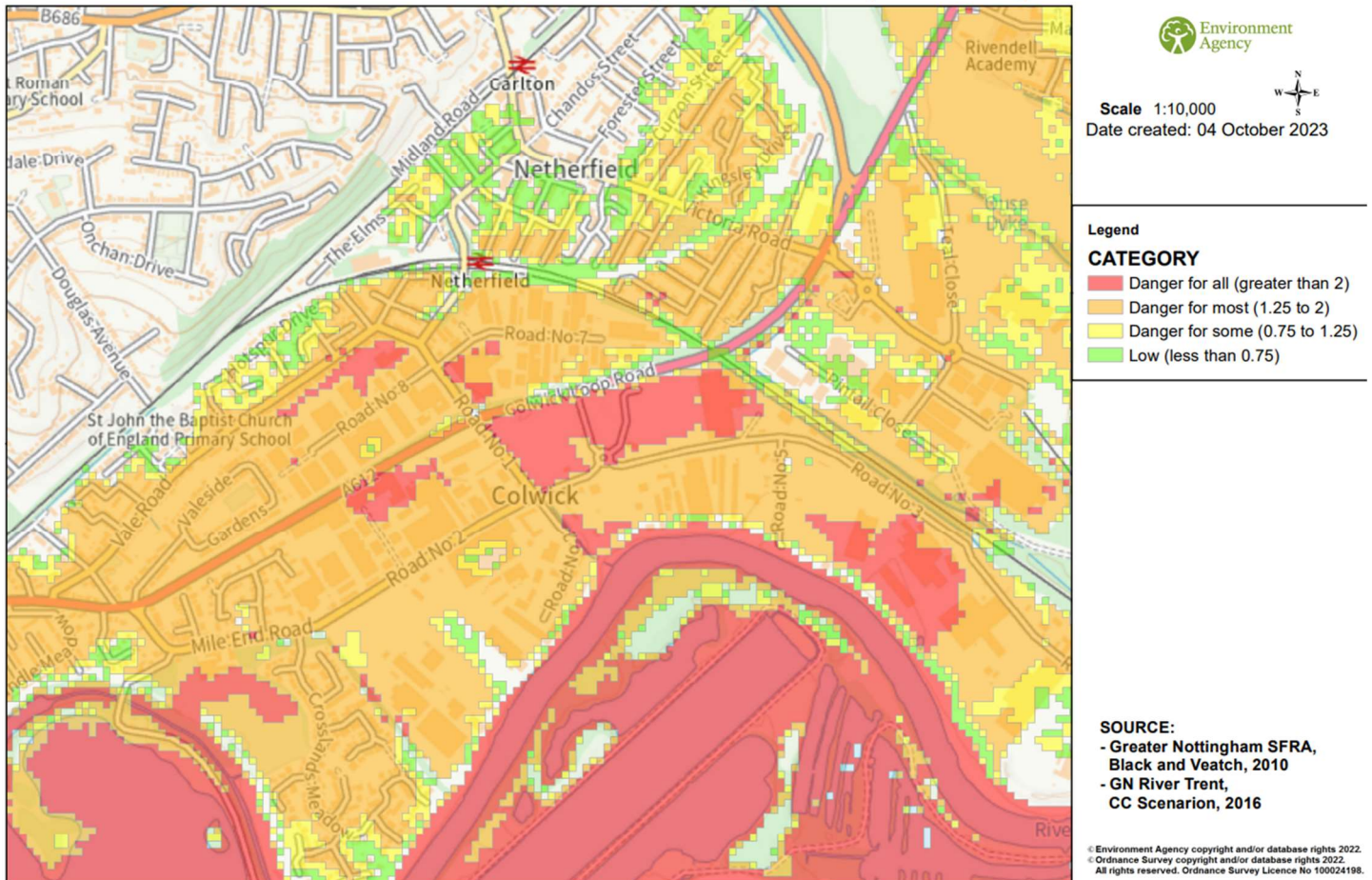
Flood Defence Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



Additionally, Flood Hazard Map centred on Private Rd No. 7, Netherfield, Nottingham - created 04 October 2023 Ref: [EMD327892] obtained from Environmental Agency shows the proposed building to be in the zone defined as Danger for Most with depth of water 1.25-2m and Danger for Some to northern part along the boundary for Hazard Rating (FD2320) 1 in 100 year +30%CC Flood Breach Scenario. What is more, based on available data from nodes and velocities from channels it can be very conservatively assumed that the proposed building to be in the flood zone defined as Danger for All with depth of water 0.96-1.37m for Hazard Rating (FD2320) 1 in 100 year and 1 in 1000 year. The conservative approach is due to taking node levels as flood levels on site for relevant flood scenario, and velocities from the river channel are taken as equal to those in a floodplain, where they normally should be lower. It is to be noted that the depths shown above refer to the lowest point on site, whereas depths to FFLs they may be circa 0.38m lower (up to 1m depth).

Figure 11 – Flood Breach Hazard Map centred on Private Rd No. 7, Netherfield, Nottingham - created 04 October 2023 Ref: [EMD327892] (source Environmental Agency)

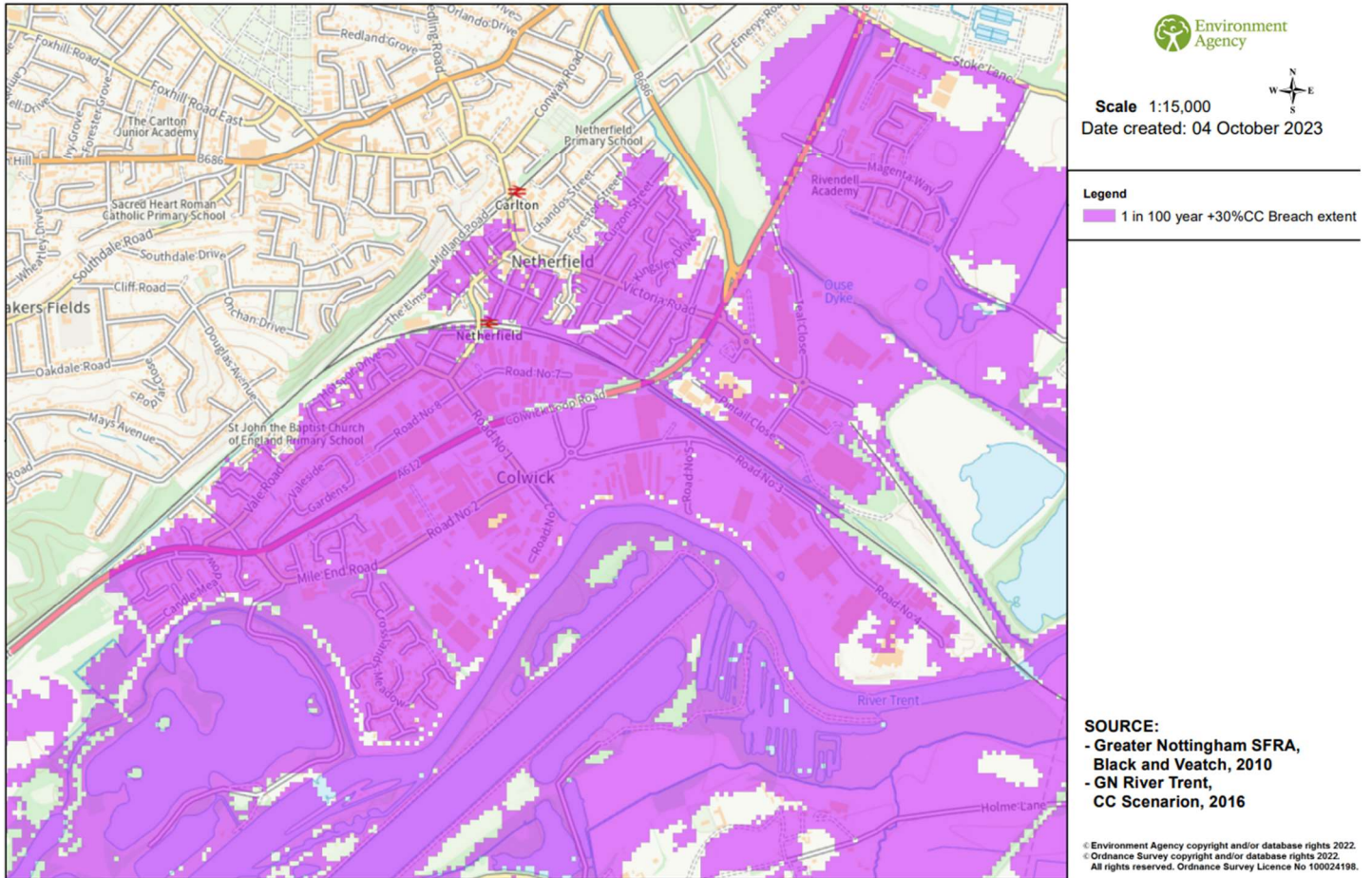
**1 in 100 year +30%CC Flood Breach Hazard Map,
centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]**



Therefore mitigation measures for the building and evacuation plan should be considered.

Figure 12 – Modelled Flood Extents Map Private Rd No. 7, Netherfield, Nottingham - created 04 October 2023 Ref: [EMD327892] (source Environmental Agency)

**Modelled Flood Extents Breach Map,
centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]**



Mitigation Measures

Max water height for event 1 in 1000 year with breach scenario expected to be around 1.37m and for event 1 in 100 year with breach to be 0.96m and for overtopping scenario height to be 1.56m. Heights were estimated by subtracting node point modelled level and the lowest existing site level (20.85 AOD). The development has been assessed to be at risk of flooding from the River Trent with potential flood. The maximum water level on site during the 1% AEP event is 21.81m AOD. For the proposed buildings to be flood free during the 1% AEP + CC event, floor levels would need to be raised by circa 0.6m above proposed building floor levels which is not a practical option.

The recommendations from the EA document 'Damage Limitation'; the RIBA publication 'Improving the flood performance of new buildings' (May 2007) and the ODPM publication 'Preparing for Floods' (October 2003) should be implemented as much as reasonably practicable.

This should include:

- Waterproof and flood resilient paints and renders to be used where applicable
- Solid flooring e.g. concrete or tiled floors to be used on ground floor level
- Non-return valves on all foul drains and for storm drains at points where they connect to existing sewers
- Electrical sockets and control units to be installed as high as practical
- Stainless steel and plastic fixtures and fittings to be used and wooden alternatives to be avoided
- A high-level refuge area within the proposed unit to be provided. Safe refuge should be built at a minimum of 22.11m AOD (300mm above the 1% AEP + CCA flood level) and could be provided in the form of a mezzanine unless the refuge area is provided. The safe refuge area is a form of last resort for site users in the event where flooding occurs without prior warning.

As thanks to FAS the site is effectively outside 1 in 1000 year flood as per Figure 14 and would be useful in very unlikely breach scenario, then the mezzanine refuge is a recommendation rather than necessity. However, if flood occurred and refuge area was needed, it can be found on the first floor of the nearest adjacent building to the west.

The flood resilience measures should minimize the negative consequences of flooding to the site during a breach event.

Flood Warning and Evacuation

The area where the development is located is covered by Environment Agency's Floodline Warnings Direct Service. Floodline Warnings Direct is a free of charge service which issues flood warnings directly by telephone, mobile, email, SMS text message and fax. It is recommended that the property owners or users register for this service. Thanks to this, site users will be given warning prior to fluvial flood event.

The property owners or managers should provide a Flood Plan, informing users of the flood risk to the site and instructing them what to do in the event of a flood. The plan should have information on a safe evacuation route. The example direction of the evacuation could be to the higher area around Chaworth Road Bridge. Seek rescue waiting there or if possible move to Victoria Rd or alternatively towards overpass on Colwick Loop Road which goes above the railways. All places are free from flooding even for 1:100 year + 30%CC with breach scenario as indicated in the Figure 13.

If flooding comes without warning and evacuation proves impossible site users should take shelter within the buildings in a designated safe refuge area such as top floor of the building and wait for help. However, the details of evacuation should be discussed further in the Flood Plan.

Figure 13 – Example destination/direction of evacuation (source Environmental Agency)

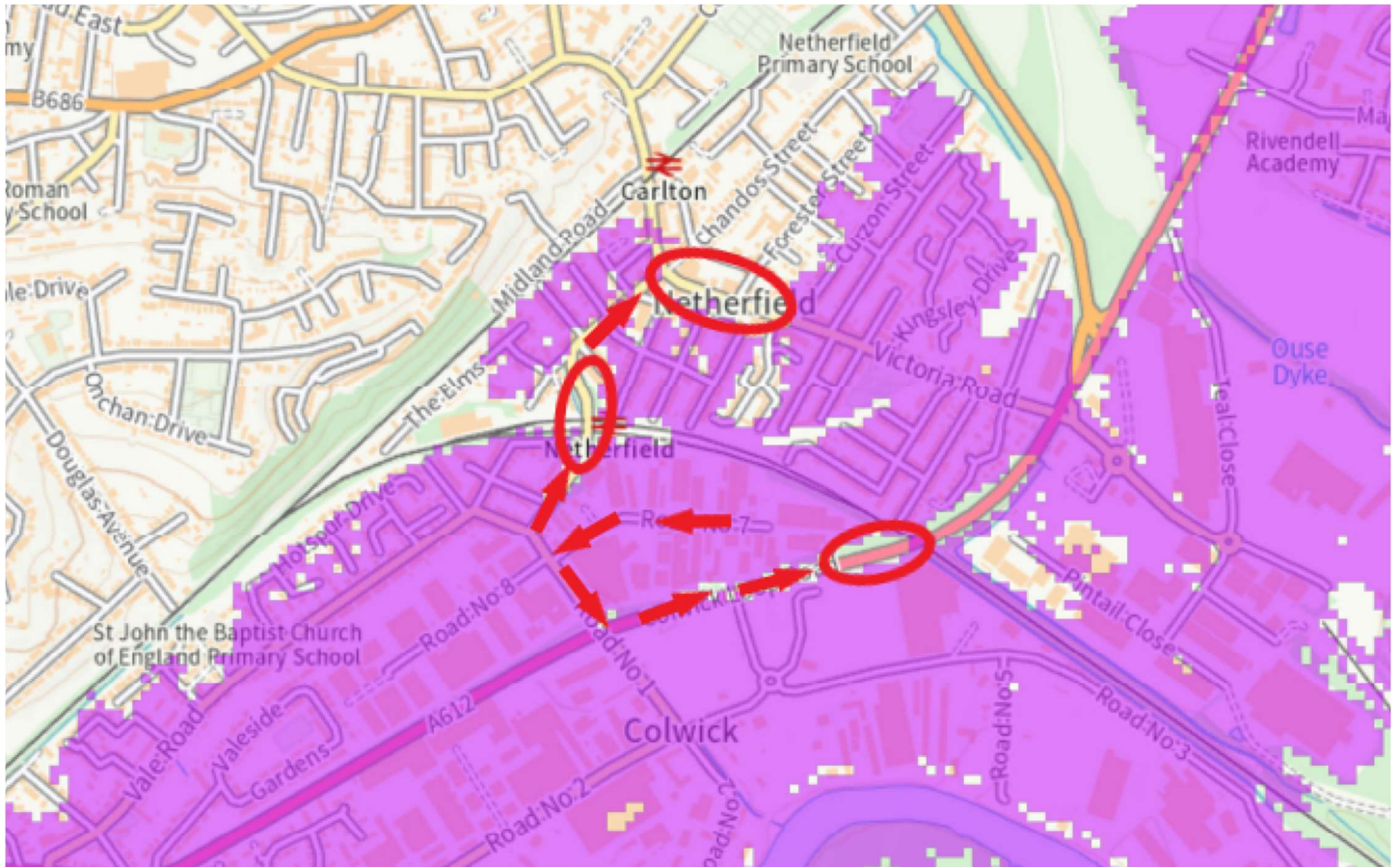


Figure 14 – EA Flood 1 in 100 years and 1 in 1000 years events (source Environmental Agency)

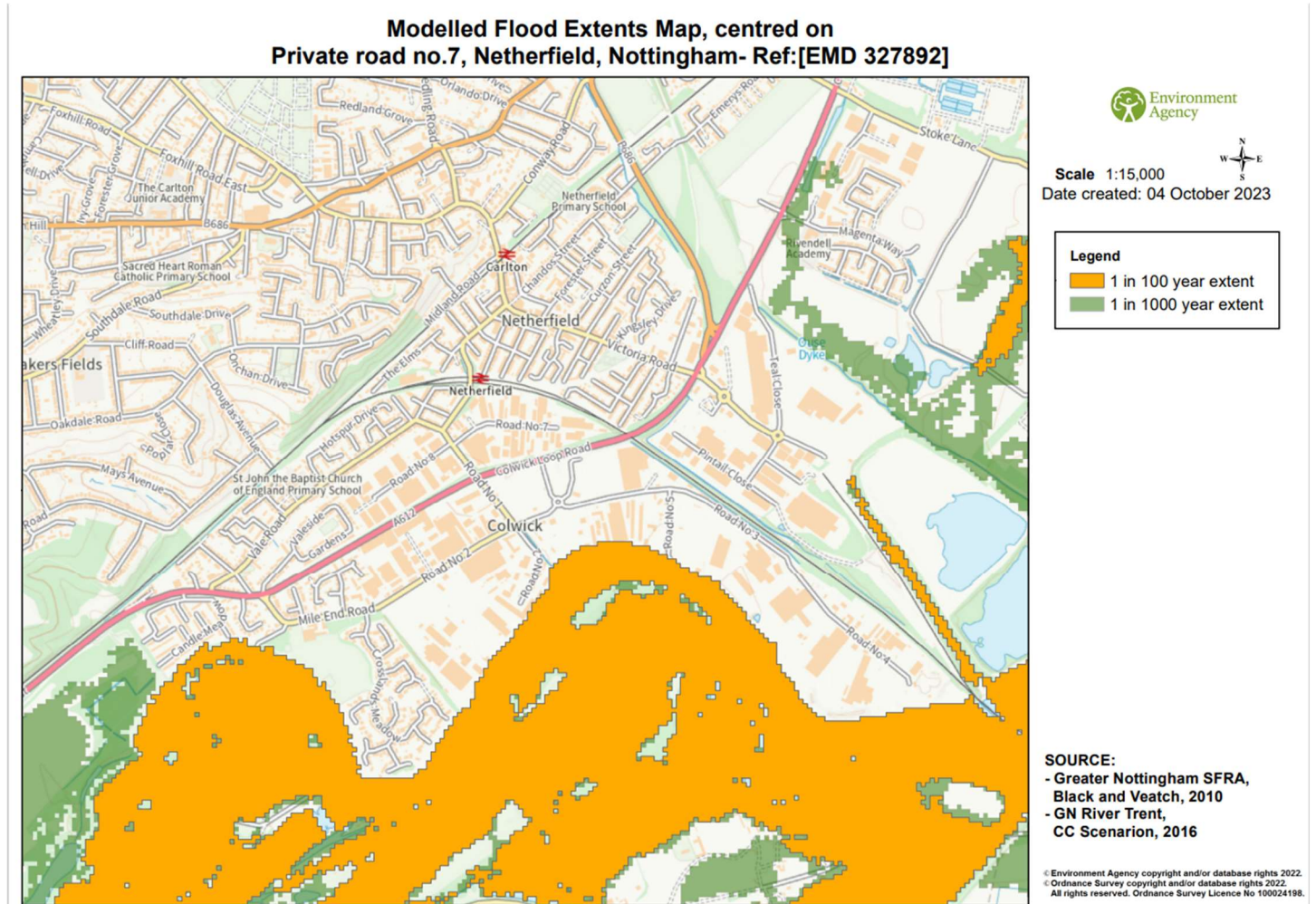
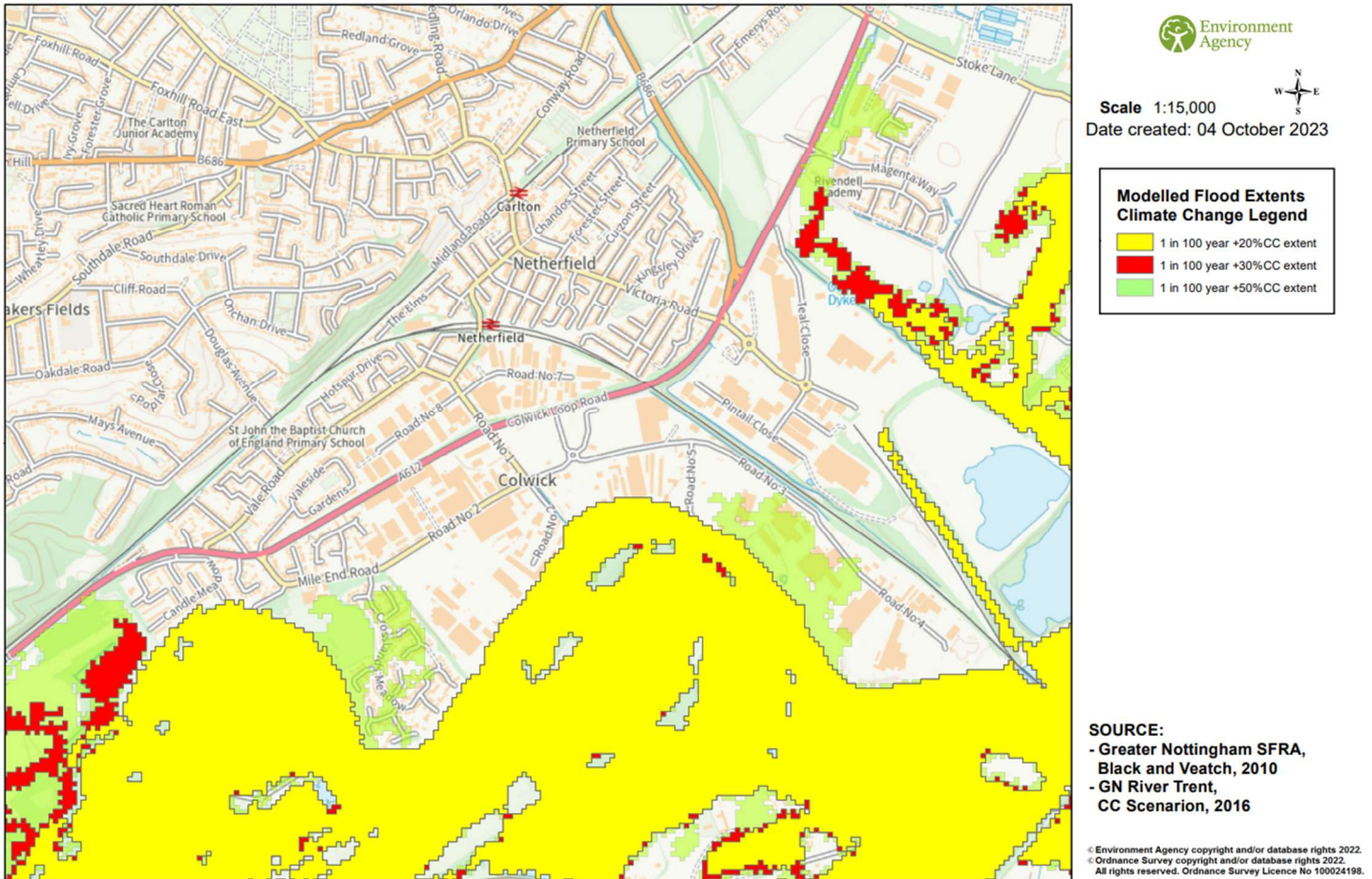


Figure 15 – EA Flood 1 in 100 years event including Climate Change (source Environmental Agency)
Modelled Flood Extents Map, centred on
Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



Flood levels for 1 in 100, and 1 in 1000. Levels specific to the site are 21.81 and 22.22 respectively – and they are all well above the proposed FFL of the building on site (21.23). However, taking into account the fact the site benefits from FAS flood defences – and considering flood resilience measures and flood evacuation plan – the proposed finished floor level is acceptable.

The node points on the Trent River are as per Table 3 below.

Table 3 – River Trent reference node levels

Node point reference	Location	0.1% (1 in 1000 year) modelled level (mAOD)	1% (1 in 100 year) modelled level (mAOD)
404011810	SK 62188 40119	22.22	21.81
404011560	SK 62390 40237	22.17	21.74

The node levels are above existing and proposed Unit FFLs. However, the nodes levels were relevant only before Left Bank Flood Alleviation Scheme defences are finished and the proposed building floor level is acceptable for reasons discussed above.

Due to proposed building to be built on existing site, FFL to be set at 21.23 AOD.

To conclude the analysis of fluvial flood risk it is recommended Finished Floor Level of Proposed Unit to be set at 21.23. This level is below maximum flood level from event 1:100+30%cc with breach scenario as provided by Environmental Agency Data. It is to be noted that the entrance area around Private Rd Number 7 benefits from FAS flood defences, therefore it is expected the proposed floor level of 21.23 would be under water level only for less frequent events than the 1:100+cc year.

It is to be noted this is a minimum level and the Developer may choose higher FFLs if required.

4.2 Flooding from the Sea (Tidal)

Not Applicable

4.3 Flooding from Groundwater

The site is gently sloping towards the centre.

British Geological Survey (BGS) shows 1.5m deep groundwater. The water level could be verified in ground investigation.

According to Nottinghamshire SFRA the site is within groundwater flood zone with 25-50% probability of flooding and “Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers), usually associated with chalk, sandstone and limestone catchments that allow groundwater to rise to the surface through permeable subsoil following long periods of wet weather. High water tables may result in standing water on low lying ground that is unable to reach a ditch or

watercourse and is unable to percolate through the ground due to seasonally high perched groundwater levels.” What is more, as demonstrated by google earth image (Figure 5.1), the site is not located in a bottom of a valley, therefore based on given information, it is concluded that the risk from groundwater flooding is considered moderate low.

4.4 Flooding from Sewers

Sewer records from Severn Trent Water (STW) have been received and the plans are presented in Figure 16. A private sewer is present in Private Rd Number 7 flowing to the west. The closest cover level is higher than the site and the sewer is flowing to the south-west. The map covers the area where the site is located. Top of run to the east of site is not shown on the map – however read in conjunction with topographical survey and google earth which shows the closest manhole is most likely situated at the highest level of the road, therefore the sewer in proximity of site to the south is most likely top of run and tends to run in off-site direction. Therefore, sewers close to the proposed building are deemed unlikely to flood.

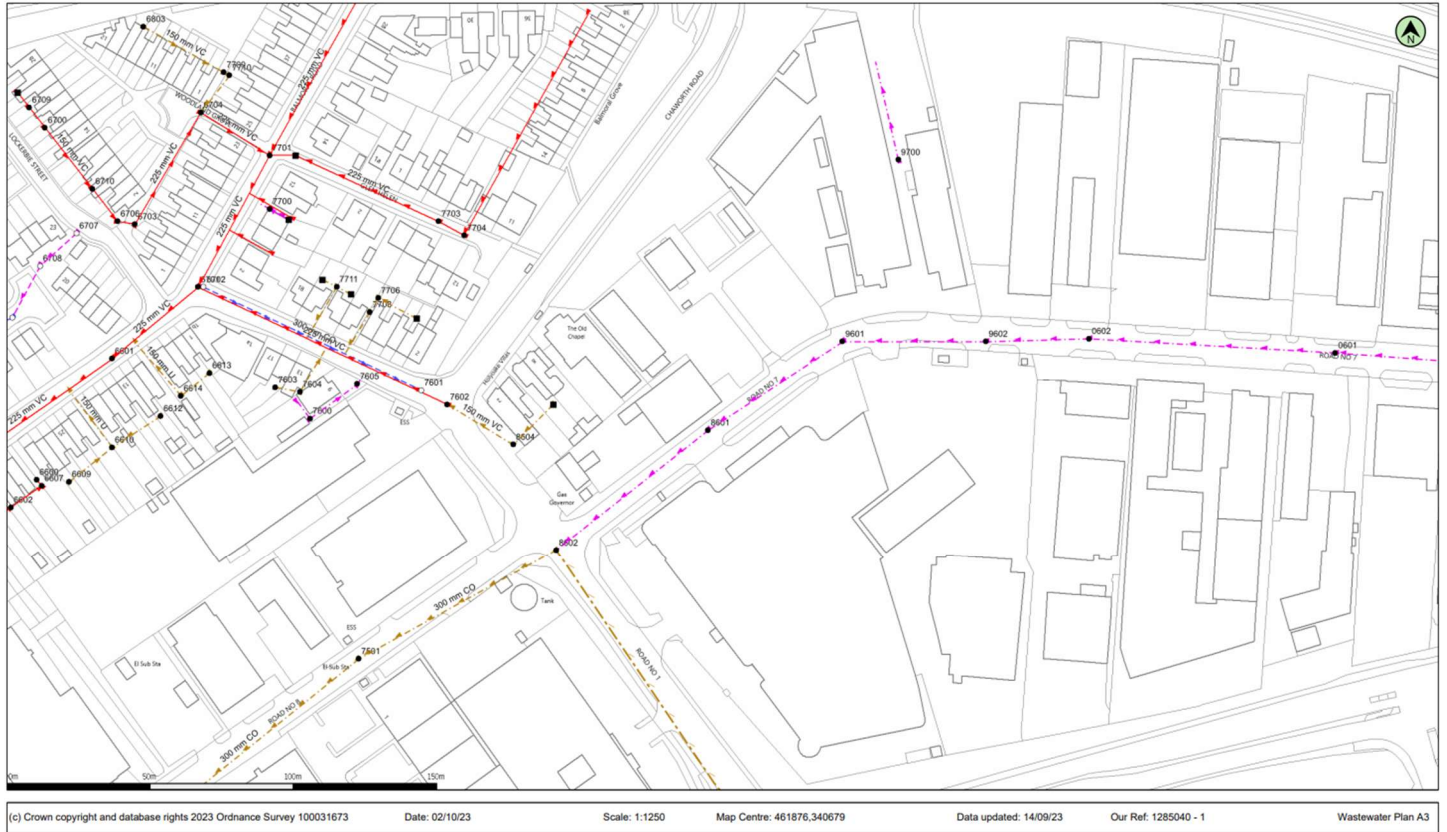
The highest cover level within Private Rd Number 7 located to the south, adjacent to the site shows 21.32, and the highest gully is 21.31, which are all higher than FFL set at 21.23 and the road has crossfall towards the site. According to EA’s Surface Water Map there is standing water on the road on event 1:1000. However, Private Rd Number 7 has back of footway and back of vehicular access levels higher than the road and road itself is sloping to the west off the building creating effective dam with levels always circa 60mm higher than CL. Therefore, it is anticipated rare event of overtopping sewers should not affect any building on site and flood water will flow towards west.

In addition, according to EA’s Surface Water Map there is a small amount of standing water on the edge of the road, however it is caused by direction of crossfall and water seems to be within the road boundary without overtopping to the site, as a result of higher back of footway and back of vehicular access levels (topography).

Therefore, similarly to surface water, sewers close to the proposed building are deemed unlikely to flood the building on site.

To conclude flood risk from sewers is considered very low.

Figure 16 – Sewer Records (source Severn Trent Water)



4.5 Overland flow

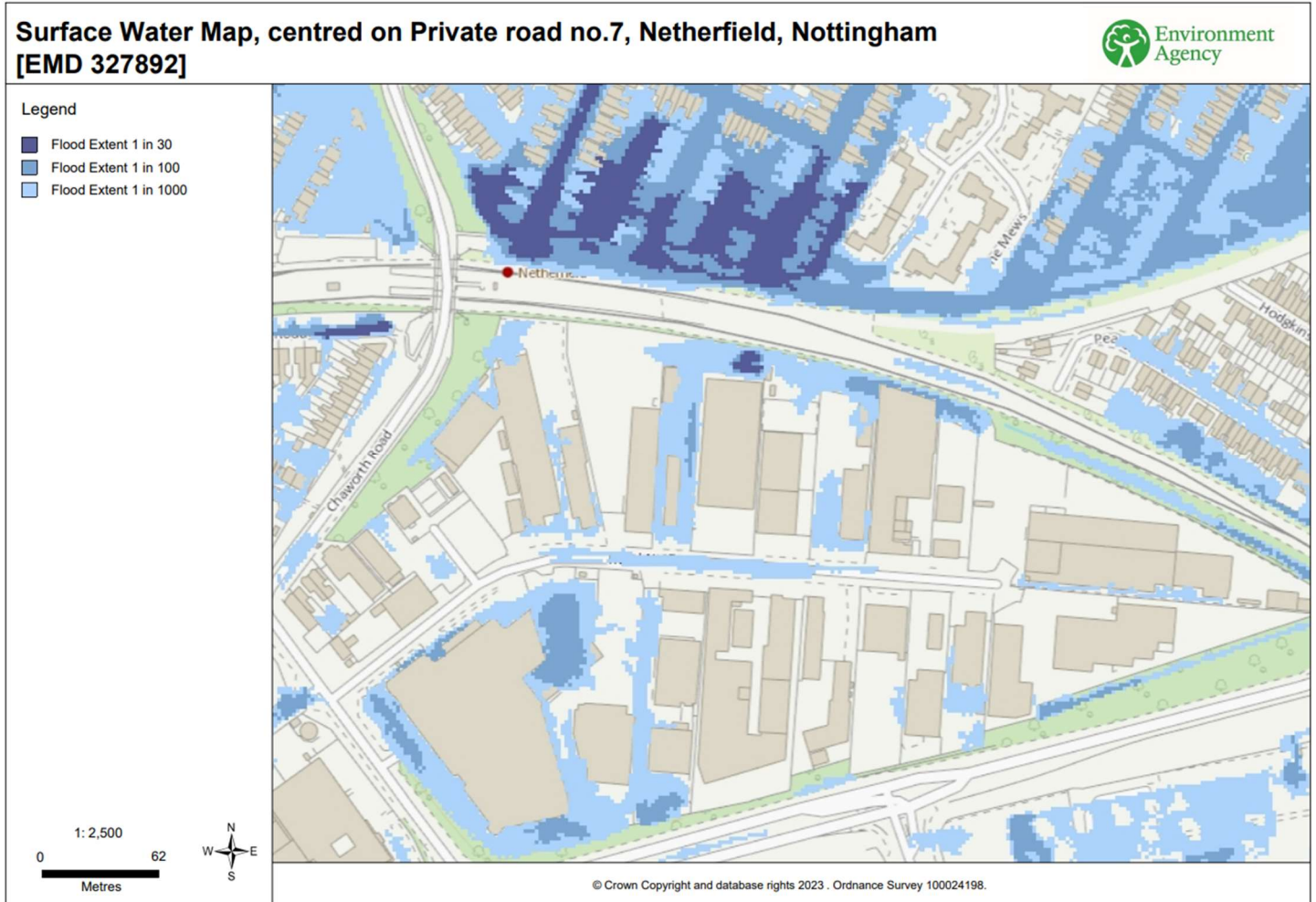
The site is gently sloping towards the centre and close to the northern boundary, however large majority of area is flat with levels AOD ranging from 21.43 in the south along the footway, 20.91 in the northern boundary to 20.85 in the middle of the site. Levels differences do not exceed 0.6m. The western part of site is approximately level with western boundary, but central part is lower than boundary to the west and east, rail embankment to the north - which can produce substantial runoff only on event 1:1000 year - and Private Rd Number 7 to the south, however a back of footway and back of vehicular access levels close to the site's boundary are higher than road levels protecting the site from run off. According to EA Surface Water Map the site is not affected by surface flooding from events 1 in 100 year and more frequent.

The site currently consists of impermeable hard standing.

There is a rail embankment adjacent to the north side. However, risk of producing substantial runoff is considered low on events more frequent than 1:1000 year.

Additionally, surface water only on event 1 in 1000 year partially affects the site as shown in Figure 17.

Figure 17 – Flood from Surface Water (source Environmental Agency)



4.6 Development Drainage

The drainage proposal for the site are outside the scope of this report and may be provided in a separate drainage strategy document.

4.7 Flooding from Reservoirs, Canals and Other Artificial Sources

Not applicable

5.0 SEQUENTIAL AND EXCEPTION TEST

- 5.1 The development proposals discuss a mix of commercial/ industrial use which is in line with the Technical Guidance accompanying the National Planning Policy Framework classification is classified as a **less vulnerable**.
- 5.2 As explained in section 4.1 the majority of development is located in flood zone 3a as per definition from the National Planning Policy Framework Technical Guidance. The site benefits from FAS Flood Defences.
- 5.3 With respect to the requirements of the National Planning Policy Framework Technical Guidance listed in Tables 4 and 5 below, the development is compatible with the sites flood zone.
- 5.4 The existing use of the site is adequate to a nature of the development area which is classed as industrial site as described in Greater Nottingham Strategic Plan dated January 2023
“The Teal Close strategic site located on the eastern side of the Nottingham urban area is part of a strategic mixed use urban extension and along with the nearby Colwick Industrial Estate, which is one of the largest industrial estates in the Plan area, is well located to accommodate new and relocating manufacturing and warehousing operations and assist in supporting the regeneration of Colwick, Netherfield and surrounding areas.”

Colwick Industrial Estate is understood to be one of Employment Locations reading the Nottingham City Local Plan – Greater Nottingham Strategic Plan January 2023. Taking into account the proposed office/general industry end use as defined in the local plan and as the development type is compatible with the flood zone, the office/general industry development can be classified as sequentially preferable following a stage 1 assessment. As the site is located in compatible zone and the nature of proposed building makes it impossible to be placed in alternative locations - the development passes the sequential test.

5.5 According to Design and Access Statement:

“Policy LPD 44 - Planning permission will be granted for the expansion, conversion or redevelopment of land and premises for employment uses on allocated employment sites and protected employment areas as shown on the Policies Map and the employment use is within Use Classes B1 – B8 and uses of a similar nature or is an employment use that is compatible with the nature of the employment site

and the proposal would not cause a significant adverse impact on the amenity of nearby occupiers and cause detrimental effect on highway safety.”

And “The development complies with local and national planning policy”. Therefore, it is concluded again that the site is within employment area and the sequential test is passed.

5.6 Following stipulation of the National Planning Policy Framework Technical Guidance an **exception test** is **not** required.



Office/General Industry Development

Table 4: Flood Risk Vulnerability Classification (NPPF)

Essential Infrastructure	Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk, and strategic utility infrastructure, including electricity generating power stations and grid and primary substances.
Highly Venerable	Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk, and strategic utility infrastructure, including electricity generating power stations and grid and primary substances.
More Vulnerable	<p>Hospitals.</p> <p>Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.</p> <p>Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels.</p> <p>Non-residential uses for health services, nurseries and educational establishments.</p> <p>Landfill and sites used for waste management facilities for hazardous waste. 20 Sites used for holiday or short-let caravans and camping , subject to a specific warning and evacuation plan.</p>
Less Vulnerable	<p>Building used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non-residential institutions not included in 'more vulnerable'; and assembly and leisure.</p> <p>Land and buildings used for agriculture and forestry.</p> <p>Waste treatment (except landfill and hazardous waste facilities).</p> <p>Minerals working and processing (except for sand and gravel working).</p> <p>Water treatment plants.</p> <p>Sewage treatment plants (if adequate pollution control measures are in place).</p>
Water compatible Development	<p>Flood control infrastructure.</p> <p>Water transmission infrastructure and pumping stations.</p> <p>Sewage transmission infrastructure and pumping stations.</p> <p>Sand and gravel workings.</p> <p>Docks, marinas and wharves.</p> <p>Navigation facilities.</p> <p>MOD defence installations.</p> <p>Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.</p> <p>Water-based recreation (excluding sleeping accommodation).</p> <p>Lifeguard and coastguard stations.</p> <p>Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.</p> <p>Essential ancillary sleeping or residential accommodation for staff required by uses in this category, Subject warning and evacuation plan.</p>

Table 5: Flood Risk Vulnerability and Flood Zone ‘Compatibility’ (NPPF)

Flood Risk Vulnerability classification (see Table D2)		Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone (see D.1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Required Exception Test	✓	✓
	Zone 3a	Required Exception Test	✓	x	Required Exception Test	✓
	Zone 3b @Functional Floodplain'	Required Exception Test	✓	x	x	x

6.0 SUMMARY

- 6.1** The proposed development is compatible with the site flood zone when assessed in accordance with the National Planning Policy Framework Technical Guidance. Additionally, the Office/General Industry use and the development location corresponds with the Existing Commercial and Industrial allocation within the Local Plan – the development is considered to pass sequential test through a stage 1 assessment.
- 6.2** As proposed finished floor levels for other sites in Nottingham such as of the presence of FAS should be the leading factor in flood risk assessment and criteria of acceptance for the site under consideration. As mentioned earlier in the report taking into account benefits of FAS including road network open for evacuation and emergency services after implementation of FAS it can be said that FAS defences have effectively taken the site out from Flood Zone 3 (having a 1 in 100 or greater annual probability of river flooding (>1%)) to Flood Zone 2 (having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%)). Hence, the Finished Floor Levels for the proposed Unit to be deemed acceptable by Nottingham County Council and the Consultees.
- 6.3** Despite the fact the site will be benefitting from FAS flood defences, prior to completion of the scheme considering flood resilience measures and flood evacuation plan discussed in the report – the proposed finished floor level is acceptable.
- 6.4** The finished floor level was also assessed against other possible flood sources as indicated in Table 2 at point 3.2 within this report.

To conclude it is recommended Finished Floor Level of Proposed Unit to be set at 21.23 AOD as the minimum.

It is to be noted this is a minimum level and the developer may choose a higher FFL if required.

Signed:



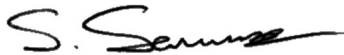
Date: 26/10/2023

Pawel Kukiela

Civil and Structural Engineer BEng(Hons)

Checked:

Date: 26/10/2023



Steve Sammans BEng (Hons) IEng AMIStructE

For and on behalf of AJS Structural Design Ltd



Appendix A Environment Agency Flood Data

EMD 327892

Date: 04/10/2023

Flood Map for Planning: The Flood Map for Planning is now classed as Open Data. As such it can be downloaded free of charge under an open data licence from the following addresses:

- <https://data.gov.uk/publisher/environment-agency>
- <https://flood-map-for-planning.service.gov.uk/>

Your development is in **flood zone 3**.

The flood zones on this map:




- refer to the land at risk of flooding and do not refer to individual properties refer to the probability of river and sea flooding.
- ignore the presence of defences,
- do not take into account potential impacts of climate change.
- This data is updated on a quarterly basis as better data becomes available.
- The NaFRA 2 will be completed Summer 2024 and the flood zones will then be updated [NaFRA2](#) (As such we are not accepting any flood map challenges at this time).

Zone 1: Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone2: Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a: High Probability	Land having a 1% (1 in 100) or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
Zone 3b: Functional Floodplain	<ul style="list-style-type: none"> • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). • Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. • (Not separately distinguished from Zone 3a on the Flood Map)

Probability	Percentage chance of flooding each year
1 in 2 year	50%
1 in 5 year	20%
1 in 20 year	5%
1 in 50 year	2%
1 in 100 year	1%
1 in 1000 year	0.1%
Surface Water Flooding	
1 in 30	High Risk
1 in 100	Medium Risk
1 in 1000	Low Risk

Updated Climate Change Guidance: On 19th February 2016, the [Flood risk assessments: climate change allowances](#) was published on www.gov.uk website. It has replaced previous guidance [Climate Change Allowances for Planners](#). The climate change guidance can be found at: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

The climate change allowances for this location are:

-  **29% (central)**
-  **39% (higher central),**
-  **62% (upper)**

Modelled Information: Greater Nottingham SFRA, Black and Veatch, 2010

Node point reference	Location	5% (1 in 20 year) modelled level (mAOD)	5% (1 in 20 year) modelled flow (m³/s)	1% (1 in 100 year) modelled level (mAOD)
404012070	SK 62026 39921	21.10	588.52	21.84
404011810	SK 62188 40119	21.04	593.29	21.81
404011560	SK 62390 40237	20.93	593.36	21.74
404011310	SK 62623 40149	20.89	593.20	21.70

Node point reference	Location	1% (1 in 100 year) modelled flow (m³/s)	0.1% (1 in 1000 year) modelled level (mAOD)	0.1% (1 in 1000 year) modelled flow (m³/s)
404012070	SK 62026 39921	671.24	22.23	729.83
404011810	SK 62188 40119	649.93	22.22	677.47
404011560	SK 62390 40237	648.83	22.17	675.69
404011310	SK 62623 40149	655.20	22.12	696.69

Please note: The flows provided represent **in channel flow only** and do not take into account flow on the floodplain.

All data is discussed as metres above Ordnance Datum (mAOD). This is based on the Ordnance Datum Newlyn in Cornwall. Tide gauges have been used over time to calculate a mean sea level datum point. This point is marked as height zero on maps in Britain. For more information please see: [Ordnance Datum Newlyn reaches 100 years | Blog | Ordnance Survey](#)

Defence Information Flood defence data is routinely updated and freely available at: [AIMS Spatial Flood Defences \(inc. standardised attributes\) - data.gov.uk](#) and [AIMS Asset Bundle - data.gov.uk](#).

The Nottingham Left and Right Bank schemes offer a 1 in 100 year (1% chance of occurring in any given year) standard of protection in this area.

Historic Information: We have records of historic fluvial flooding at this location in 1932, 1946 and 1947. Please note that we may or may not hold the original records in question. We do not make any claim as to the reliability of recorded flood extents or that all flood events in the area have been recorded. Please also be aware that flood defences may have been built subsequent to these historic flood events. Note - This information relates to the area the above named property is in, and is not specific to the property itself - it **does not** provide an indicator of flood risk **at individual property level**.

Surface Water & Drainage: The Environment Agency (empowered under the Water Resources Act 1991) concentrates on the major elements of the drainage system, managing flood risk arising from designated "main rivers" and the sea. The Flood & Water Management Act (2010) has given Lead Local Flood Authorities (LLFAs) responsibility for the management of local flood risk, which includes surface runoff, groundwater and flooding from ordinary watercourses (smaller rivers and streams). The LLFA for this area is **Nottinghamshire County Council**, and we recommend that you contact them with concerns about any flooding issues for this area.

Further information and maps for surface water, ordinary watercourses, and reservoir flooding can be found here: <https://www.gov.uk/check-long-term-flood-risk> ; [Reservoir flood maps: when and how to use them - GOV.UK \(www.gov.uk\)](#)

Open Data Information: Many datasets are now classed as Open Data and as such can be downloaded free of charge under an open data licence from the following address: <https://data.gov.uk/publisher/environment-agency>

Permitting Information: Under the Environmental Permitting (England and Wales) Regulations 2016, any permanent or temporary works in, over or under a designated main river will require an Environmental Permit for Flood Risk Activities from the Environment Agency. Any permanent or temporary works within 8 metres of the top of bank of a designated main river, or landward toe of a flood defence may require an Environmental Permit for Flood Risk Activities from the Environment Agency. In addition, any permanent or temporary works within the floodplain of a designated main river may also require an Environmental Permit for Flood Risk Activities. To find out whether your activity requires a permit or falls under a relevant exclusion, exemption or standard rule please follow this link: <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>. The Environment Agency require access to the watercourse and free movement up to 8m from the river bank/ defence for maintenance purposes.

Please note that a permit is separate to and in addition to any planning permission granted.

Strategic flood risk assessments: We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment. This should give you information about: the potential impacts of climate change in this catchment areas defined as functional floodplain flooding from other sources, such as surface water, ground water and reservoirs. This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood Risk Assessment Advisory: All guidance on how to complete a full site specific Flood Risk Assessment (FRA) can be found here: [Flood risk and coastal change - GOV.UK \(www.gov.uk\)](#). Furthermore professional assistance can be provided by our planning officers, by contacting planning.trentside@environment-agency.gov.uk.

Detailed Flood Map, centred on Private road no.7, Netherfield, Nottingham [EMD 327892]

Legend

- Statutory Main Rivers
- - - Defences
- ▭ Flood Storage Areas
- Flood Zone 3
- Flood Zone 2



Detailed River Network Map, centred on Private road no.7, Netherfield, Nottingham [EMD 327892]



Legend

Detailed River Network

- Primary River
- Secondary River
- Tertiary River
- Lake / Reservoir
- Canal
- Canal Tunnel
- Extended Culvert
- Multiple Channel Culvert
- Underground River (potential sewer)
- Underground River (inferred)
- Underground River (local knowledge)
- Undefined

Offline Drainage features

Detailed River Network

- Primary River
- Secondary River
- Tertiary River
- Lake / Reservoir
- Canal
- Canal Tunnel
- Extended Culvert
- Multiple Channel Culvert
- Underground River (potential sewer)
- Underground River (inferred)
- Underground River (local knowledge)
- Undefined






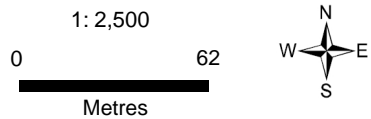
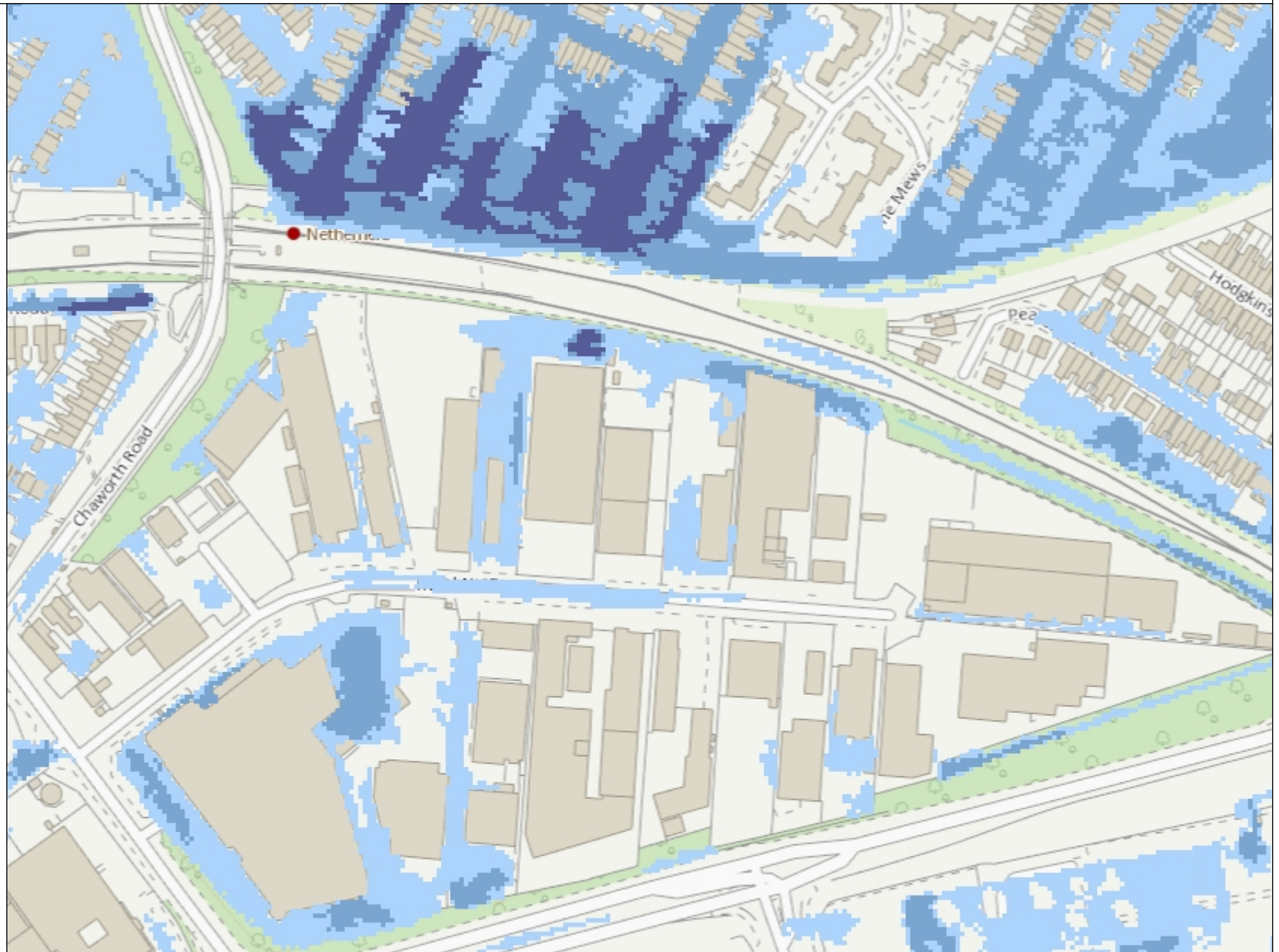
1 : 10,000



Surface Water Map, centred on Private road no.7, Netherfield, Nottingham [EMD 327892]

Legend

-  Flood Extent 1 in 30
-  Flood Extent 1 in 100
-  Flood Extent 1 in 1000

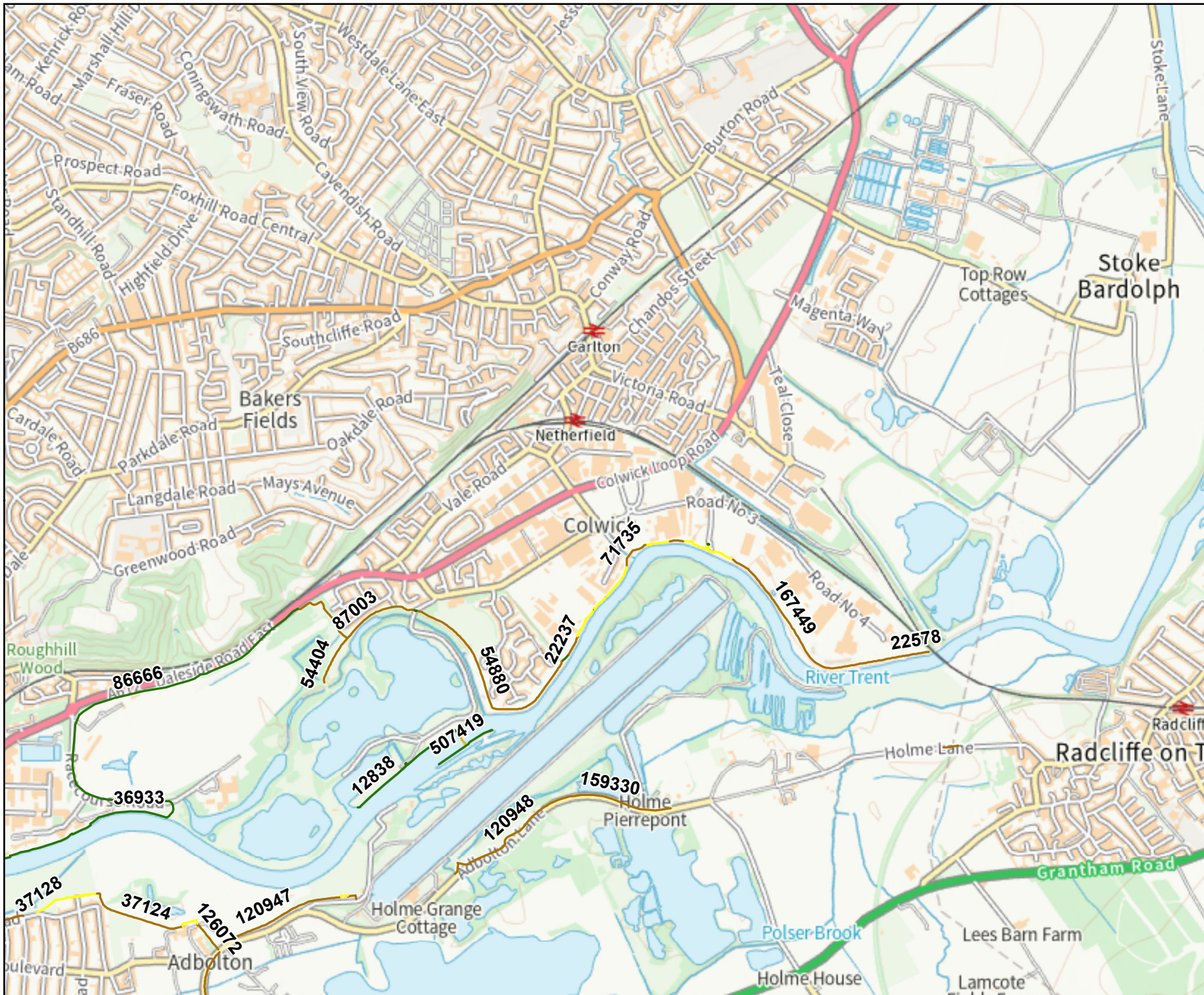


Flood Defence Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



Scale 1:25,000
Date created: 04 October 2023

- Legend**
- EMD Defences - March 2023**
- ASSETTYPE**
- Bridge Abutment
 - Demountable Defence
 - Embankment
 - Engineered High Ground
 - Flood Gate
 - Natural High Ground
 - Spillway
 - Wall



Modelled Nodes Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



Scale 1:10,000
Date created: 04 October 2023

Legend

- Modelled Nodes_Ouse Dyke
- Modelled Nodes_R.Trent



SOURCE:
 - Greater Nottingham SFRA, Black and Veatch, 2010
 - Ouse Dyke, Nottingham Tribs, AECOM, 2020


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Modelled Flood Extents Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



Scale 1:25,000
Date created: 04 October 2023

Legend

 1 in 1000 year extent



SOURCE:
- Ouse Dyke, Nottingham Tribs,
AECOM, 2020

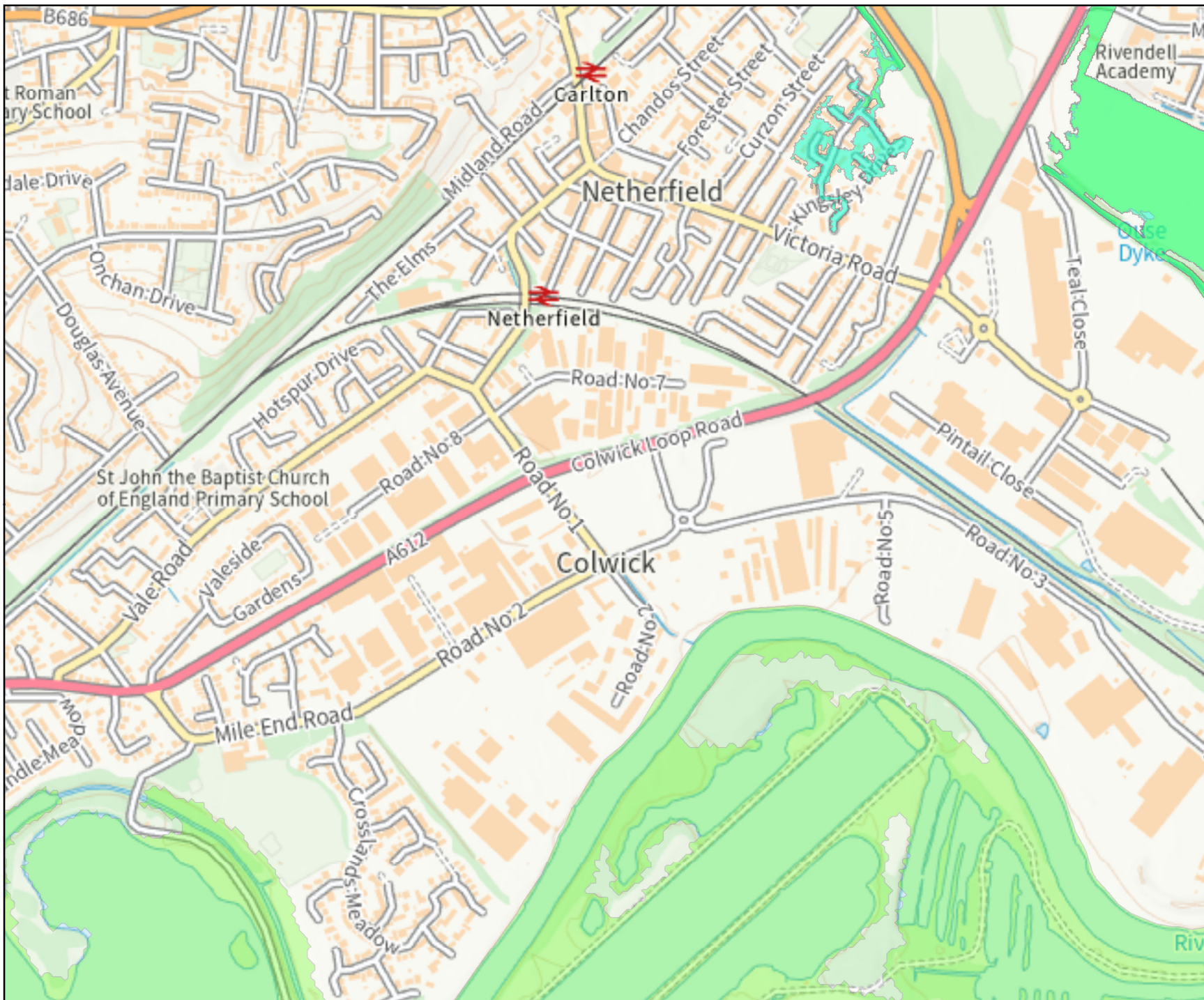
Floodplain Extents Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



Scale 1:10,000
Date created: 04 October 2023

Legend

- 20 Year functional floodplain
- 30 Year Functional Floodplain



Modelled Flood Extents Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



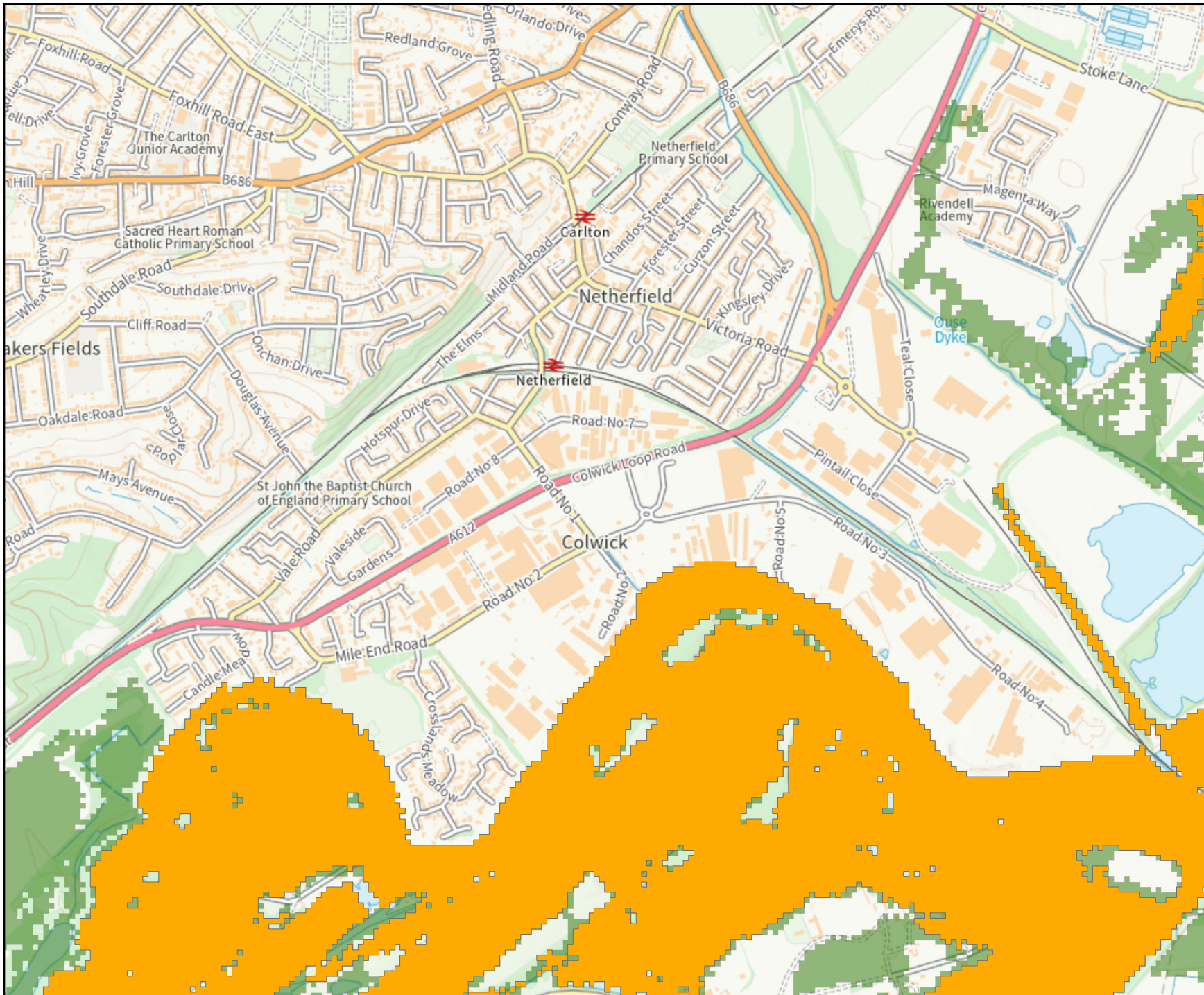
Scale 1:15,000
Date created: 04 October 2023

Legend

- 1 in 100 year extent
- 1 in 1000 year extent

SOURCE:

- Greater Nottingham SFRA, Black and Veatch, 2010
- GN River Trent, CC Scenarion, 2016



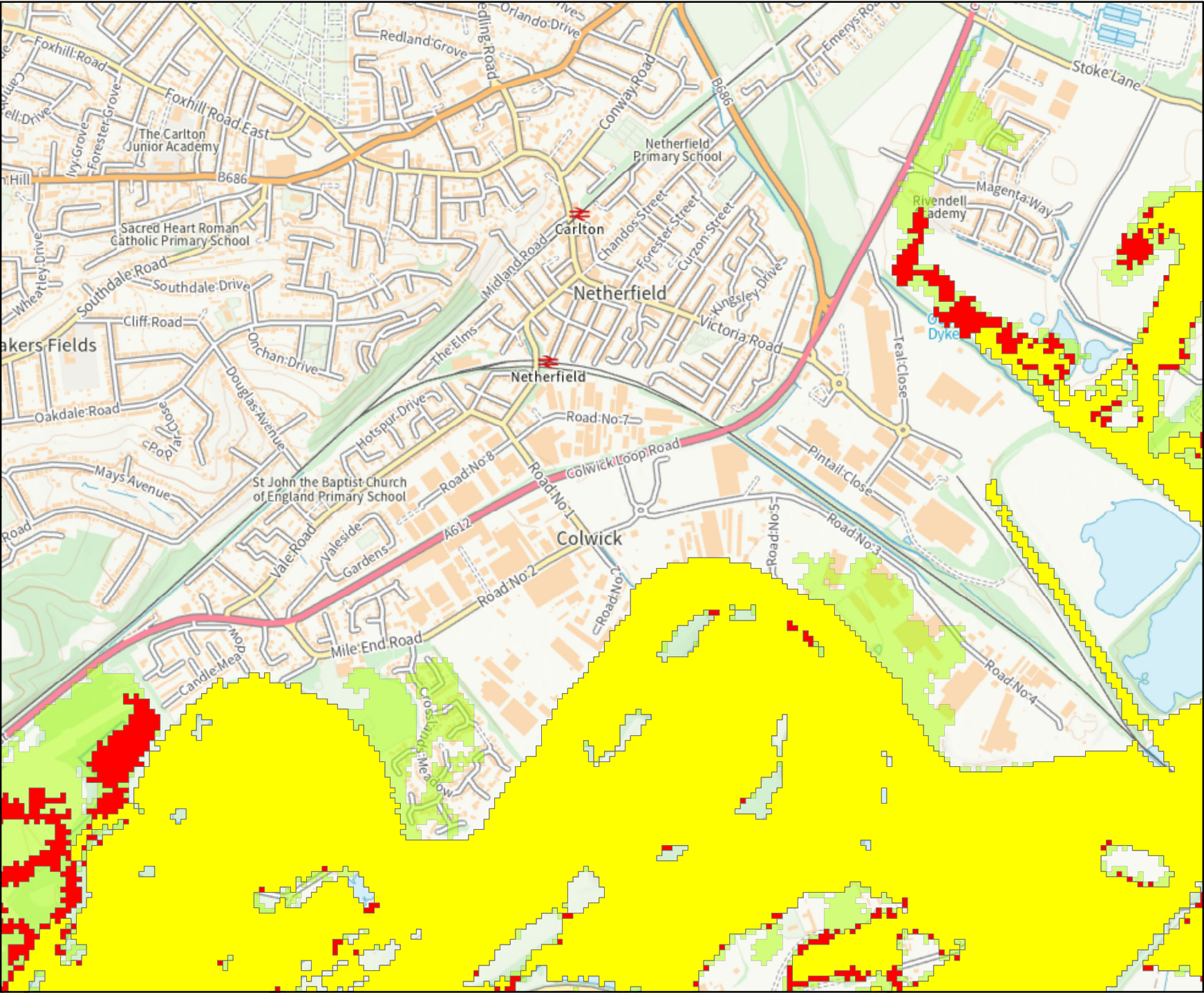
Modelled Flood Extents Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



Scale 1:15,000
Date created: 04 October 2023

Modelled Flood Extents Climate Change Legend

- 1 in 100 year +20%CC extent
- 1 in 100 year +30%CC extent
- 1 in 100 year +50%CC extent



SOURCE:
- Greater Nottingham SFRA,
Black and Veatch, 2010
- GN River Trent,
CC Scenarion, 2016

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
1 in 100 year +30%CC Flood Hazard Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



Scale 1:10,000
Date created: 04 October 2023

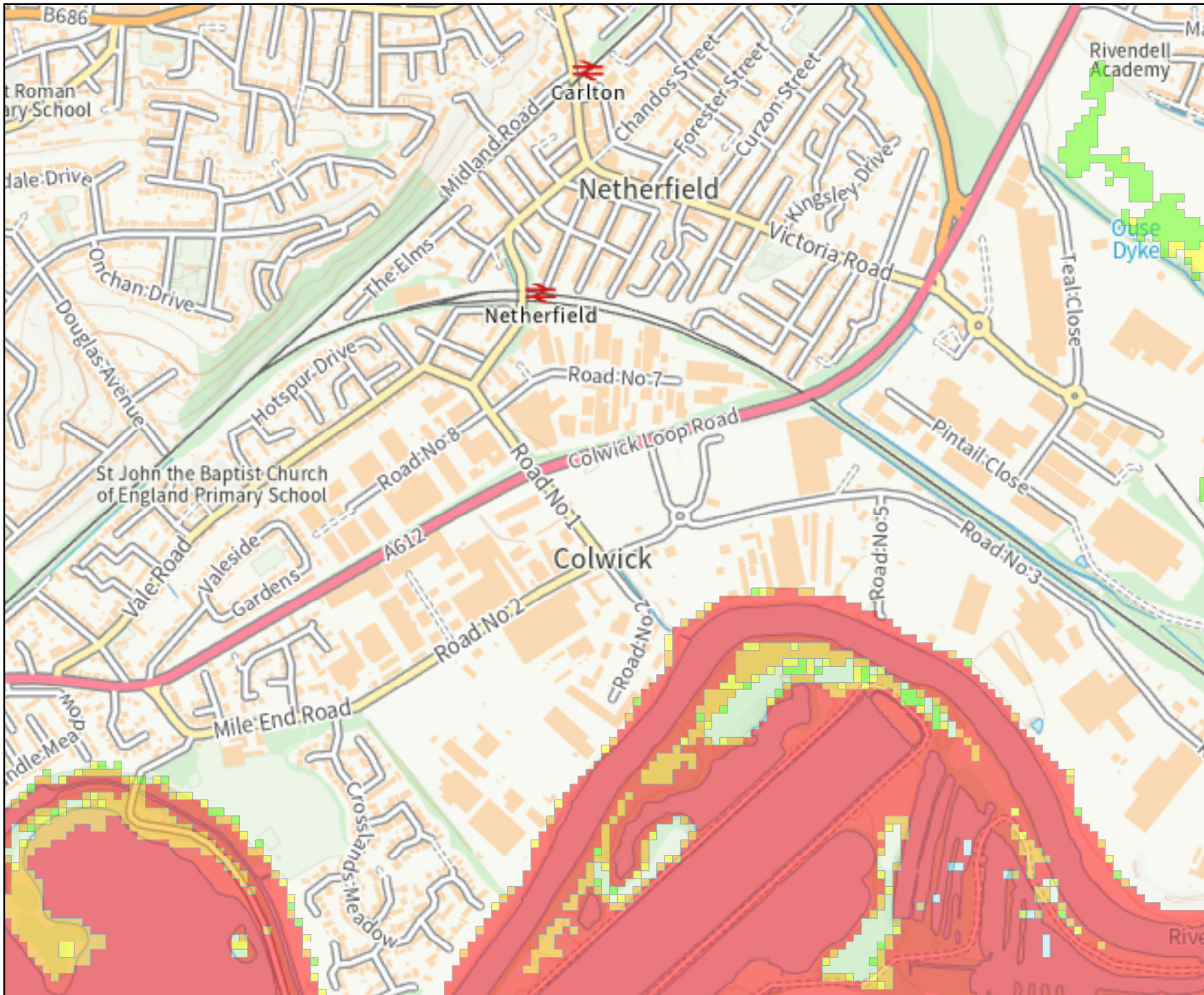
Legend

CATEGORY

-  Danger for all (greater than 2)
-  Danger for most (1.25 to 2)
-  Danger for some (0.75 to 1.25)
-  Low (less than 0.75)

SOURCE:

- Greater Nottingham SFRA, Black and Veatch, 2010
- GN River Trent, CC Scenarion, 2016



Modelled Flood Extents Breach Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]

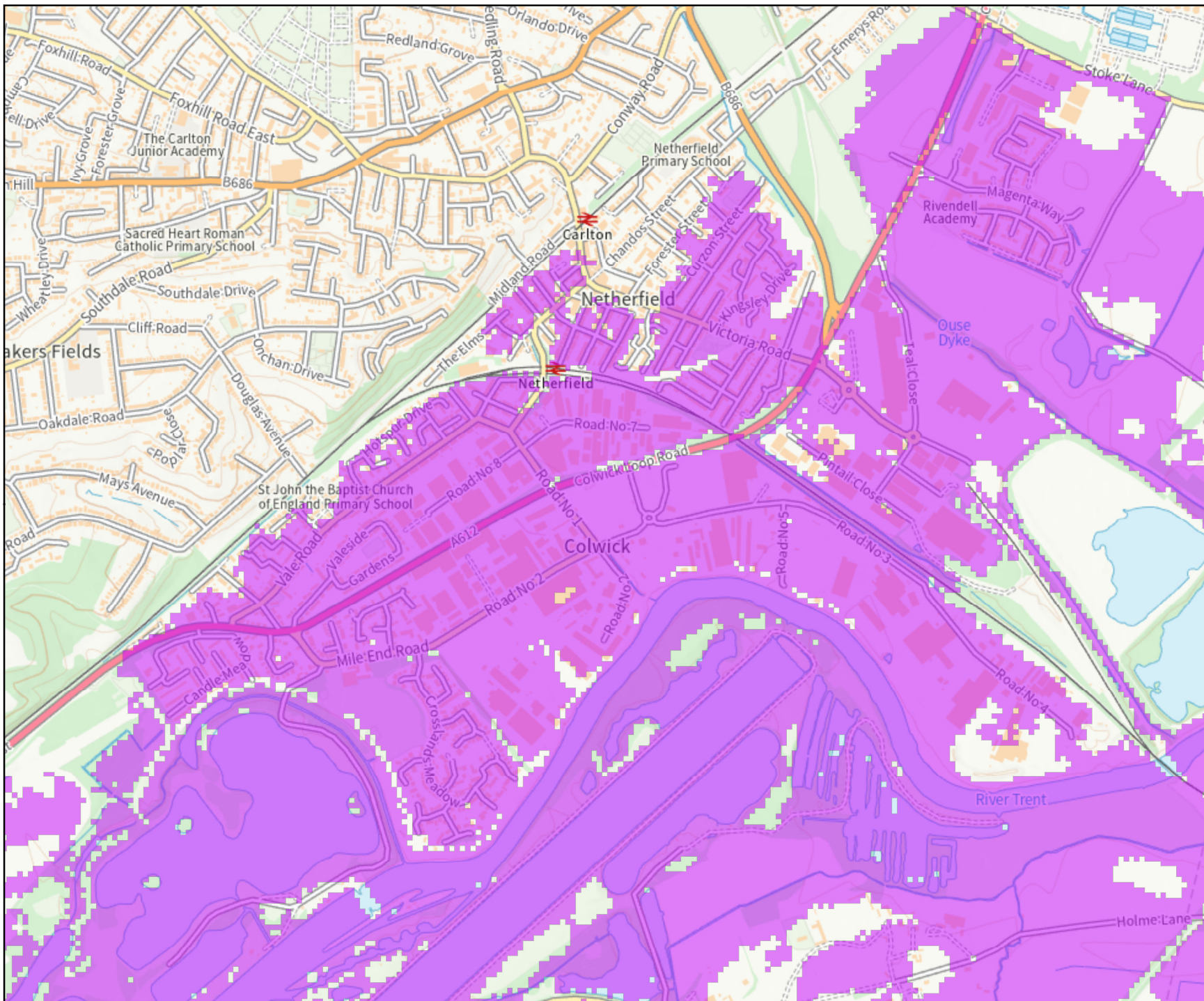


Scale 1:15,000
Date created: 04 October 2023

Legend
1 in 100 year +30%CC Breach extent

SOURCE:
- Greater Nottingham SFRA,
Black and Veatch, 2010
- GN River Trent,
CC Scenarion, 2016

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

1 in 100 year +30%CC Flood Breach Hazard Map, centred on Private road no.7, Netherfield, Nottingham- Ref:[EMD 327892]



Scale 1:10,000
Date created: 04 October 2023

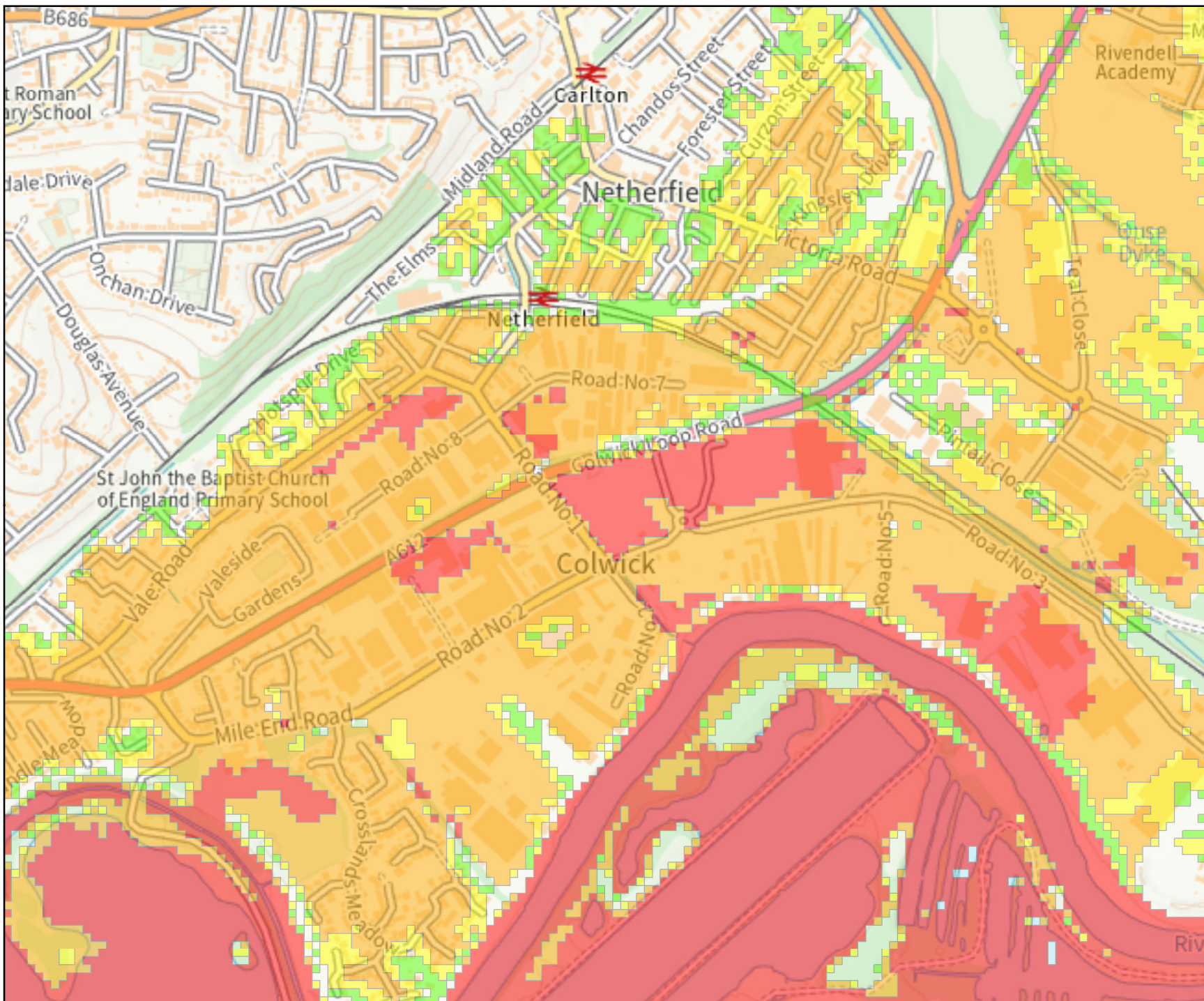
Legend

CATEGORY

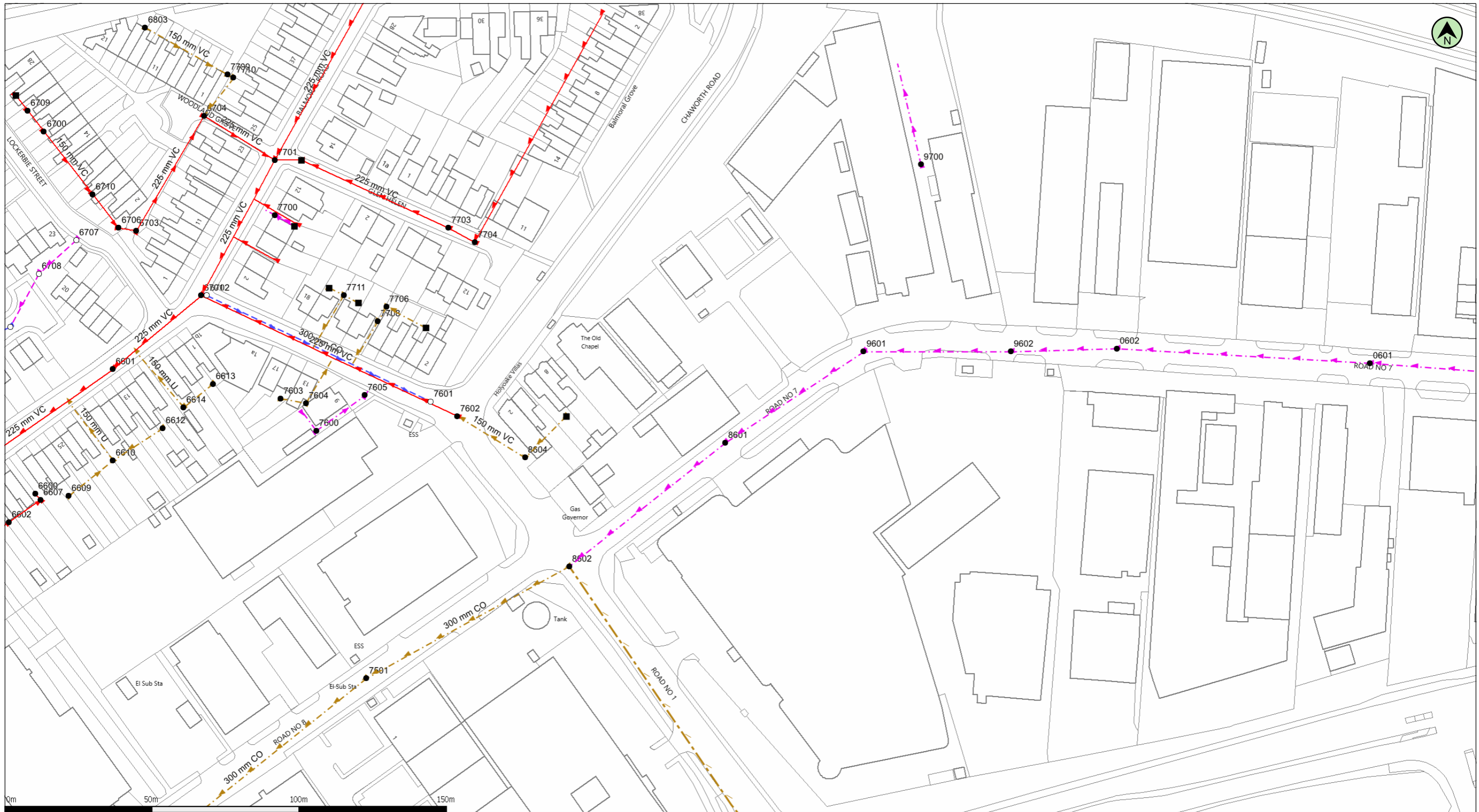
-  Danger for all (greater than 2)
-  Danger for most (1.25 to 2)
-  Danger for some (0.75 to 1.25)
-  Low (less than 0.75)

SOURCE:

- Greater Nottingham SFRA, Black and Veatch, 2010
- GN River Trent, CC Scenarion, 2016



Appendix B Sewers Records



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Date: 02/10/23

Scale: 1:1250

Map Centre: 461876,340679

Data updated: 14/09/23

Our Ref: 1285040 - 1

Wastewater Plan A3

Do not scale off this map. The 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. Reproduction by permission of Ordnance Survey on behalf of HMSO. ©Crown Copyright and database rights 2023 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.

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	▲ ▲ ▲ ▲	Section 104 sewers are shown in green	
Pressure Surface Water	→ → → →	Fitting	■	Private sewers are shown in magenta	

ben@ajs-structural.com
Colwick



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.

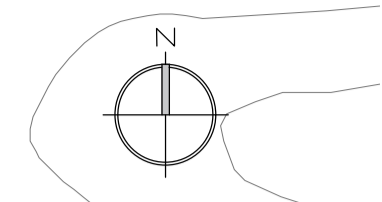
17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW Apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear. Asset Protection Statements Updated 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.

Appendix C Proposed Site Plan

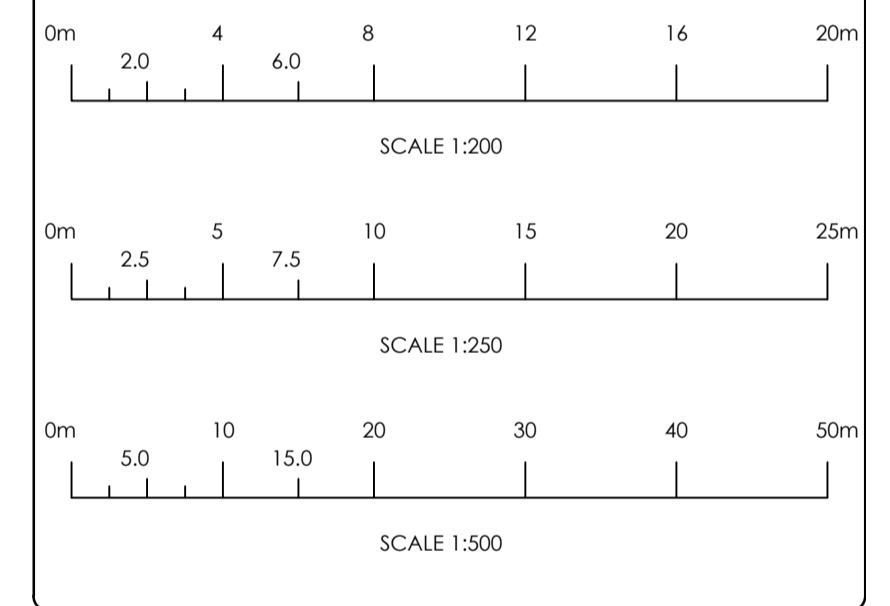
Proposed Site Plan
Scale 1 : 250



PLANNING PURPOSES ONLY.

Notes:

- 1) The contractor to confirm details of the existing structure are correct prior to commencement of any works. If there are any discrepancies please contact us.
- 2) Soakaways to be a minimum of 5.0m away from any building and 10.0m away from any water course.
- 3) All drainage details are indicative and should there be any discrepancies, please contact us to review or agree with the building control officer.
- 4) In any project in which a building over a public sewer agreement is required, it is the contractor/ client responsibility to obtain the relevant approval. This is to be obtained prior to commencement on site.
- 5) Contractor to locate the position of any existing services prior to excavation.
- 6) In any project in which a Party Wall Agreement is required, it is the contractor/ client responsibility to obtain the relevant approval. In this circumstance boundary foundations may be required.
- 7) Unless noted otherwise, Rees Construction Management have not identified any significant risks associated with the design intent shown on this drawing which could not be managed safely by a competent contractor.



Status: **PLANNING**

Revisions:	drn	chk	date
P0 Initial issue.	JG	LT	29/06/23
P1 Revised to client feedback.	JG	LT	30/06/23
P2 Planning notes added.	JG	LT	10/07/23
P3 Revised to planning issue.	JG	LT	17/08/23

Client: **Mr R Goodman**
Colwick Industrial Estate, Private Road Number 7, Netherfield, Nottingham, NG4 2JW

Project: **Industrial Development**

Drawing: **Proposed Site Plan**

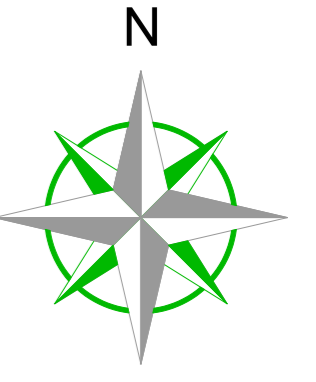
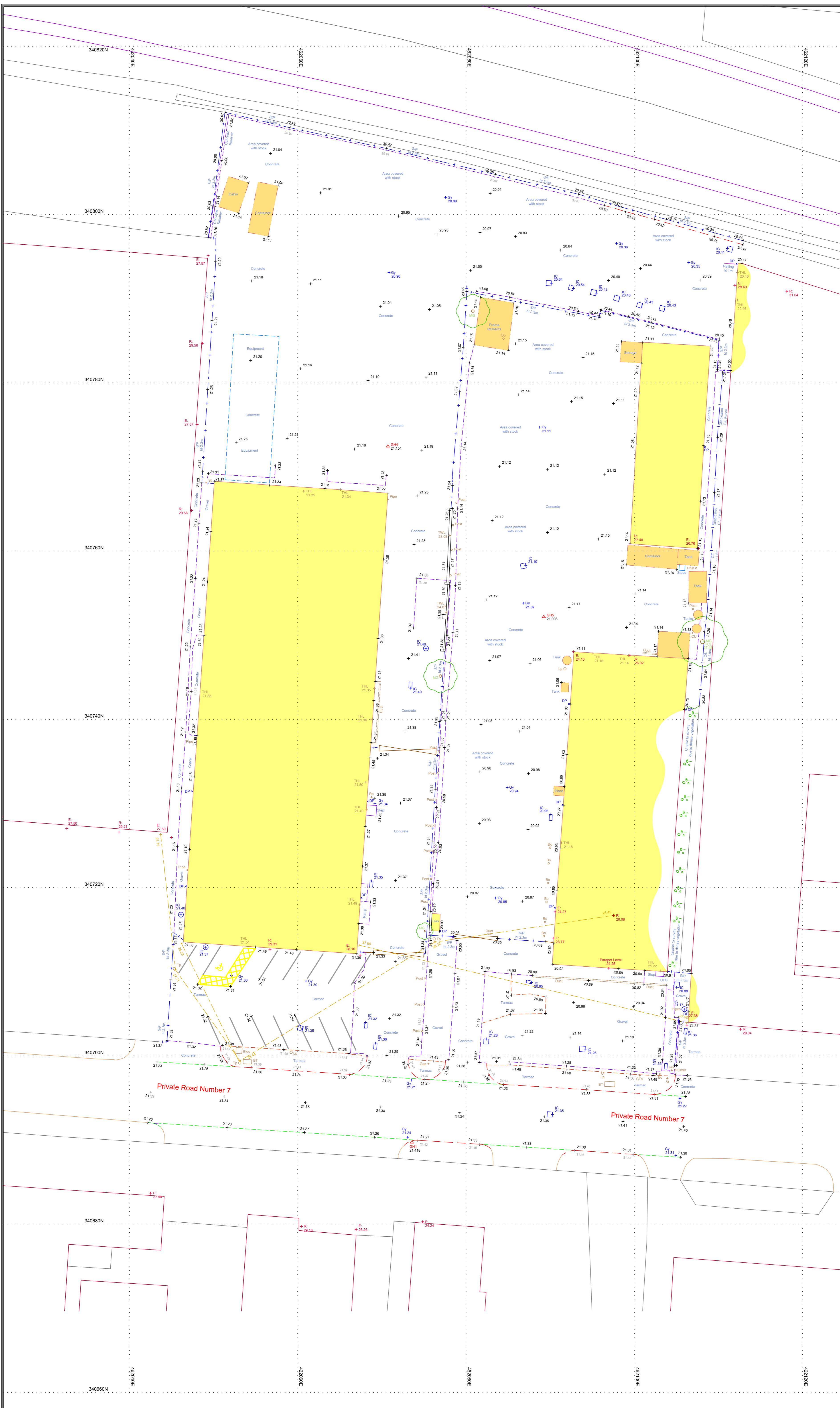
Drawn by: JG Date: June 2023 Scale: As Shown @ A1.



Address: 60 Carter Street, Ulltoter, Staff. S114 8EU. Tel: 01889 227127

Drawing No: **R0333 - 002** P3

Appendix D Topographic Survey



Station Information:

Station	Easting (m)	Northing (m)	Level (m)
GH1	462073.576	340689.724	21.418
GH2	462002.685	340702.531	21.338
GH3	462138.667	340694.333	21.477
GH4	462070.725	340772.449	21.154
GH5	462089.254	340752.184	21.093

OS Note:
 Some services may have been omitted due to parked vehicles. The Ordnance Survey tile is to be used as a guide only.

OS Buildings Surveyed Buildings

This survey has been orientated to the Ordnance Survey (O.S.) National Grid OSG36(15) via Global Navigation Satellite Systems (GNSS) and the O.S. Active Network (OS Net).

A true OSG36 coordinate has been established near to the site centre via a transformation using the OSTN15GB & OSGM15GB transformation models.

The survey has been correlated to this point and a further one or more OSG36 (15) points established to create a true O.S. bearing for angle orientation.

Please refer to Survey Station Table to enable establishment of the on-site grid and datum.

Legend:

Overhead Cable	IC	Cover (green)	SD	Storage shed
Wall	WB	Concrete edge	SW	Subsoil
Roof line	RL	Concrete edge	SL	Illuminated bollard
Line marking	LM	Concrete edge	SL	Retain bin
Centre line	CL	Concrete edge	SL	Waste pipe
Top of bank	TOB	Concrete edge	SL	Ground light
Station and name	SN	Concrete edge	SL	Letter box
100,000	100K	Concrete edge	SL	Tree stump
Station Level	SL	Concrete edge	SL	Tree stump
Area of Undergrowth	AO	Concrete edge	SL	Tree stump
Wooded	W	Concrete edge	SL	Tree stump
Ridge Level	RL	Concrete edge	SL	Tree stump
Eaves Level	EL	Concrete edge	SL	Tree stump
Flat Roof Level	FL	Concrete edge	SL	Tree stump
Gate	G	Concrete edge	SL	Tree stump
Water meter	WM	Concrete edge	SL	Tree stump
Gas meter	GM	Concrete edge	SL	Tree stump
Air valve	AV	Concrete edge	SL	Tree stump
Iron Railings	IR	Concrete edge	SL	Tree stump
Wire Mesh	WM	Concrete edge	SL	Tree stump
Foot & Hand	FH	Concrete edge	SL	Tree stump
Foot & Hand	FH	Concrete edge	SL	Tree stump
Chain Link	CL	Concrete edge	SL	Tree stump
Wooden Panels	WP	Concrete edge	SL	Tree stump
Close Boarded	CB	Concrete edge	SL	Tree stump
Steel Palisade	SP	Concrete edge	SL	Tree stump

greenhatch group

- Topographical Surveys
- Site Engineering
- Utility / CCTV Surveys
- Measured Building Surveys
- 3D Laser Scanning
- Revit & BIM Models

Rowan House
 Duffield Road
 Little Eaton
 Derby
 DE21 5DR
 Tel: 01332 830044
 admin@greenhatch-group.co.uk
 www.greenhatch-group.co.uk

CLIENT
Rees Construction Management

PROJECT
Goodmans Metal Works Private Road No.7 Nottingham, NG4 2JW

TITLE
Topographical Survey

SCALE A1@ 1:200	DATE SURVEYED 05.06.23
DRAWN MR	QUALITY REF GH17192

Level datum: See note
 Grid orientation: See note
 Job number: 47465
 Drawing No: **47465_T** Rev: **0**

Comments:
 This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.
 All dimensions should be checked on site prior to design and construction.
 Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

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