FLOOD RISK ASSESSMENT

FOR

ELSECAR HERITAGE CENTRE
PROPOSED DRAINAGE WORKS

ON BEHALF OF

BARNSLEY METROPOLITAN
BOROUGH COUNCIL

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Flood Risk Assessment for Elsecar Heritage Centre Proposed Drainage Works NW182/01r1			
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C O N T E N T S

		Page
1.0	Introduction	4 – 5
2.0	Site Description	6 – 7
3.0	Consultation and Data Review	8 – 11
4.0	Climate Change	12 - 13
5.0	Development Proposals	14
6.0	Material Consideration in Respect of NPPF	15 – 21
7.0	Summary	22

APPENDICES

Appendix A	Site Location Plan
Appendix B	Site Topography
Appendix C	Environment Agency Data
Appendix D	Development Proposals

1.0 INTRODUCTION

1.1 Barnsley Metropolitan Borough Council ("the Client") is proposing the construction of significant drainage improvement works to support the continued development of the Elsecar Heritage Centre.

1.2 Part 14 of the National Planning Policy Framework (NPPF) (Communities and Local Government, December 2023), and the associated Guidance for flood risk and coastal change (Communities and Local Government, August 2022), aim to steer development towards the lowest areas of flood risk, whilst ensuring proposals also do not increase flood risk elsewhere. Planning policy requires new development of over 1 hectare (ha) in size, or those in areas at risk of flooding or in areas that may be affected in the future, to be subject to a Flood Risk Assessment (FRA) at the planning application stage. This assessment should consider the risk of flooding from all potential sources and make recommendations for any necessary flood mitigation measures for the lifetime of the development.

1.3 A significant area of the site is located within Flood Zone 2 and 3, and the site is greater than 1 ha in size, therefore a FRA is required to support the planning application. ARP Associates has been appointed to implement appropriate consultations, carry out an assessment of the site, and prepare a Flood Risk Assessment report, in accordance with the requirements of NPPF.

1.4 The appraisal was carried out between December 2024 and February 2025. The findings of this report are based on data available at the time of the study and may require review if new data becomes available or relevant policy/guidance is updated prior to development proposals being approved.

1.5 The report has been initially prepared for the use and reliance of the Client only. The report shall not be relied upon or transferred to any other parties without the written agreement of ARP Associates. For the avoidance of any doubt, where ARP Associates enters into a letter of reliance for the benefit of a third party, that third party will be permitted to rely on the report. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party without ARP Associates consent.

1.6 It should be noted that the undertaking of a Flood Risk Assessment, or the granting of planning permission, does not guarantee the availability of flood insurance for new development. The insurance industry may use different tests and flood risk data in determining insurability and insurance premiums. The Client is advised to contact their insurers or the Association of British Insurers, to seek advice prior to considering development in any area which may be at risk of flooding.

1.7 Attention is drawn to the requirements of the Construction Design and Management Regulations 2015, and in particular, the duties and obligations of the Clients.

2.0 SITE DESCRIPTION

General

2.1 The site, which is centred on Ordnance Survey Grid Reference 438565, 399879 is located at Elsecar Heritage Centre, Wath Road, Elsecar, Barnsley S74 8HJ. A site location plan is presented in **Appendix A**.

2.2 The site is located between the B6057 Wath Road on the west and the Elsecar Heritage Railway on the east. To the north and south of the site are existing residential properties, car parks, and open space.

2.3 The site extends to an area of approximately 1.85 ha, with overall dimensions of approximately 150m (north - south) by 130m (east - west).

2.4 The existing site comprises a number of historic industrial buildings, now forming part of the Elsecar Heritage Centre. The buildings are surrounded by large areas of hardstanding, some of which is used as car parking with the remainder of the area used for pedestrian circulation.

Topography

2.5 A plan showing the topography of the site (produced from LiDAR ground level data) is included in **Appendix B** for reference. Generally, the site falls towards the northeast. Levels in the west of the site are of the order of 56.0m Above Ordnance Datum (AOD), and in the southeast of the order of 55.0mAOD. Levels in the northeast of the site are of the order of 53.7mAOD.

Hydrology

2.6 The Elsecar Reservoir is located approximately 380m southwest of the site. The reservoir receives flow into its southwestern side from the Harley Dike, an 'Ordinary Watercourse'. Under

normal conditions flow leaves the reservoir on its northeastern side via the Knoll Beck, also an 'Ordinary Watercourse'.

2.7 Knoll Beck flows in a northeasterly direction towards the site, predominantly in open channel, before entering a culvert to the southwest of Forge Lane. The culvert continues in a northeasterly direction, passing beneath the site and continuing on this general trajectory for approximately 650m, before re-emerging in an open channel.

2.8 Approximately 150m northeast of the site begins the Elsecar Branch Canal. The canal flows away from the area towards the northeast.

Existing Drainage

2.9 Surrounding the site there is a foul public sewer flowing southwest in Wath Lane to the west of the site, which is joined by a combined public sewer which flows west in Forge Lane to the south of the site.

2.10 The site is served by existing systems of foul and surface water drainage, which are largely separate. Surface wate is drained by a combination of gullys and channel drains, and it is understood that the majority of surface water drains to the culverted watercourse which passes through the site. Foul drainage discharges to one of the public sewers to the south and west of the site. The drainage systems rely on a number of pumps to lift flow between sections of drainage in order to achieve the final discharges.

2.11 It is noted that the main focus of the proposed development is the improvement of the on-site drainage systems, and these proposals are described in more detail in **Section 5.**

3.0 CONSULTATION AND DATA REVIEW

Environment Agency

3.1 A flood data request was made to the Environment Agency and a copy of its full response is presented in **Appendix C** for reference. Additional publicly available Environment Agency data has also been reviewed for reference, from which extracts are also included in **Appendix C**, including plans prepared from OpenData. The data is summarised below.

3.2 The Environment Agency Flood Map for Planning shows areas of land considered to be at risk of flooding from rivers or the sea. These areas do not take into account flood defences, as water can overtop them or they can fail in extreme conditions, or the projected impacts of climate change. The Flood Zone classifications used are as follows:

Flood Zone 1 - 'Low Probability' is assessed as having a less than 1 in 1,000 annual probability of river or sea flooding in any year (less than 0.1%).

Flood Zone 2 - 'Medium Probability' is assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding in any year (1% - 0.1%) and between a 1 in 200 and 1 in 1,000 annual probability of flooding from the sea (0.5% - 0.1%).

Flood Zone 3 - 'High Probability' is assessed as having a 1 in 100 or greater annual probability of river flooding in any year (greater than 1%) and a 1 in 200 chance or greater annual probability of flooding from the sea (less than 0.5%).

3.3 The Flood Map for Planning confirms that a swathe of land through the east of the site is located within Flood Zone 3, with areas of Flood Zone 2 around its fringes. A small area in the west of the site is also within Flood Zone 2. The remaining areas of the site are within Flood Zone 1.

3.4 The Environment Agency response confirms that there are no formal flood defences in the area of interest. i.e the site is not afforded protection by any formal defences.

3.5 The response includes a plan showing 'recorded flood outlines' from past flood events. This data suggests that the western corner of the site, and the area outside of the site to the south, was impacted by flooding in June 2007, but this did not impact upon the majority of the site. There are no recorded past flood extents across the remainder of the site, however, it should be noted that this information is not necessarily comprehensive, and flooding may have occurred elsewhere without being recorded.

3.6 As part of the response, modelled flood data taken from the 2008 'Don CFMP Knoll Beck' model has been provided. This is limited to a plan showing the modelled flood extents for a number of different return periods. This plan shows that the swathe of land through the east of the site is predicted to be impacted by the 1 in 20 year (5% AEP) flood event and all greater return period events, with little variation in the predicted extent in each event.

3.7 The 1 in 100 year (1% AEP) and 1 in 1000 year (0.1% AEP) event outlines correlate with the Flood Zone 3 and Flood Zone 2 extents respectively. The small area of Flood Zone 2 in the east of the site is not shown to be within the modelled flood extent, and it is therefore likely that this was classified as Flood Zone 2 based on the historic flood extent of the June 2007 flood.

3.8 The Environment Agency Risk of Flooding from Rivers and Sea map is a more refined mapping product which represents the risk of flooding taking into account the presence and condition of flood risk management assets, and the chance of them overtopping or failing. The risk is categorisation used is as follows:

Very low - This area has a chance of flooding of less than 1 in 1000 (0.1%) in any given year.

Low - This area has a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%) in any given year.

Medium - This area has a chance of flooding between 1 in 100 (1%) and 1 in 30 (3.3%) in any given year.

High - This area has a chance of flooding greater than 1 in 30 (3.3%) in any given year.

3.9 The Risk of Flooding from Rivers and Sea map (plan NW182/01/SK01 in **Appendix C**) suggests that the site is at a 'very low' risk of flooding in the present day, but that the majority of the site is likely to be at a 'low' risk of flooding in the future due to the projected impacts of climate change.

3.10 The Environment Agency Risk of Flooding from Surface Water map shows areas which may be at risk of flooding from surface water flow paths or surface water ponding during a significant rainfall event. The mapping makes an allowance for the effects of existing drainage systems in urban areas but does not accurately represent existing drainage systems. The classifications used for risk for surface water flooding are as follows:

Very low - This area has a chance of flooding of less than 1 in 1000 (0.1%) in any given year.

Low - This area has a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%) in any given year.

Medium - This area has a chance of flooding between 1 in 100 (1%) and 1 in 30 (3.3%) in any given year.

High - This area has a chance of flooding greater than 1 in 30 (3.3%) in any given year.

3.11 The Risk of Flooding from Surface Water map (plan NW182/01/SK02 in **Appendix C**) suggests that a significant area in the centre of the site is at a 'low' to 'high' risk of flooding in the present day. The area of high risk is concentrated on the centre of the site, and areas around the vehicular access points in the north and south. The map suggests that the flood risk probability is likely to increase in the future due to the projected impacts of climate change, however the extent of flooding is not expected to be significantly different that the present day extent.

3.12 The Environment Agency Flood Risk of Flooding from Reservoirs map has also been reviewed as part of this study. This mapping shows the expected inundation area should a reservoir fail and release its capacity. There are two flooding scenarios shown on theses maps:

Dry Day - The 'dry-day' scenario predicts the flooding that would occur if the dam or reservoir failed when downstream watercourses are at 'normal' levels.

Wet Day - The 'wet day' scenario predicts how much worse the flooding might be if downstream watercourses are already experiencing an extreme natural flood.

3.13 The Risk of Flooding from Reservoirs map (plan NW182/01/SK03 in **Appendix C**) indicates that the site is likely to be at risk of flooding in the event of a breach of the Elsecar Reservoir, located approximately 380m southwest of the site. The majority of the site is shown to be at risk in the 'dry day' scenario, and the whole site is shown to be at risk in the 'wet day' scenario.

3.14 The online Environment Agency Risk of Flooding from Groundwater data suggests that flooding from groundwater is unlikely in this area.

4.0 CLIMATE CHANGE

4.1 NPPF requires that the projected impacts of climate change are taken into account over the lifetime of a development. Studies have projected that the Global sea level will continue to rise and there will be an increase in river flows and rainfall intensity across the country, with the degree of change depending on greenhouse gas emissions and the sensitivity of the climate system.

4.2 Recommended allowances for assessment are set out in Environment Agency publication 'Flood risk assessments: climate change allowances' (published February 2016; last updated May 2022). Within this guidance, a regionalised approach is adopted to climate change impacts based upon the river Management Catchment within which the proposed development site falls, and the intended design life of the development.

4.3 The site is situated within the 'Don and Rother' Management Catchment area. As the development relates to a heritage asset which is likely to be in use for many years to come, the development lifetime should be taken as 100 years as a precautionary approach.

4.4 Impact on River Flooding – With respect to river flows, the applicable allowances are also influenced by the flood risk vulnerability of the proposed development and the present-day Flood Zone classification of the site. With reference to NPPF Annex 3: 'Flood risk vulnerability classification' the development would fall under the 'Less Vulnerable' classification. For 'Less Vulnerable' development in Flood Zone 2 or 3a, the 'central' climate change scenario (50th percentile of potential scenarios) should be considered.

4.5 Within this Management Catchment, the 'central' climate change scenario is predicted to lead to an increase in peak river flows of up to 28%, during the 1 in 100 year (1% annual exceedance probability) flood event, over the lifetime of the development.

4.6 Impact on Rainfall Intensity - In accordance with the current guidance, assuming a conservative design life of at least 100 years, the impact of the 'upper end' allowance should be used for a development with a lifetime beyond 2100.

4.7 Within this Management Catchment, this is predicted to lead to an increase in rainfall intensity of up to 40% in the 1 in 30 year (3.33% annual exceedance probability) rainfall event, and up to 40% in the 1 in 100 year (1% annual exceedance probability) rainfall event.

5.0 DEVELOPMENT PROPOSALS

5.1 The development proposals are for the construction of significant drainage improvement works to support the continued development of the Elsecar Heritage Centre. The proposals are shown in the Curtins plan titled 'Site Wide Drainage Option B' within **Appendix D**. Further information on the drainage proposals is provided within Curtins technical note reference 84010-CUR-00-XX-RP-C-0001.

5.2 In summary, the surface water drainage works consist of:

- Retention of a number of existing surface water drains, and existing surface water gullies and channel drains.
- Re-laying of a number of existing surface water drains which have been determined to be unserviceable.

5.3 In summary, the foul drainage works consist of:

- Retention of a number of existing foul water drains and contributing sanitary appliances.
- Re-laying of a number of existing foul drains which have been determined to be unserviceable.
- Construction of a new foul drain in the east of the site to re-route existing foul flows from the eastern-most building and thus reduce internal maintenance requirements.
- Construction of a new foul pumping station in the northeast of the site, with appropriate emergency storage, to facilitate the discharge of the above drainage into the existing foul pumping station in the northwest of the site.
- Replacement of an existing sump pump in the centre of the site.
- Installation of a grease trap to serve a commercial kitchen in the west of the site.
- Construction of a new foul drain in the west of the site to re-route existing foul flows from the western-most building and increase the pipe gradient.
- Upsizing of the pump in the existing foul pumping station in the northwest of the site, which facilitates final discharge to a foul public sewer in Wath Road.
- Replacement of pump in existing foul pumping station in the south of the site, with appropriate emergency storage, and replacement of downstream rising main, to facilitate the continued discharge of foul flows from the south of the site into the public sewer in Wath Road.

6.0 MATERIAL CONSIDERATIONS IN RESPECT OF NPPF

Flood Sources

6.1 Flooding from the Sea (Tidal Flooding) – Although the Environment Agency Flood Map for Planning confirms that the site is located partially within 'Flood Zone 2' and ' Flood Zone 3' indicating a 'medium' to 'high' probability of flooding from rivers or the sea, the site is not located near to any potential source of tidal flood risk. Therefore, the risk from this source is considered to be low.

6.2 Flooding from Rivers (Fluvial Flooding) – The Knoll Beck, an 'Ordinary Watercourse', flows beneath the site in culvert. The beck conveys flows out of the Elsecar Reservoir to the southwest of the site, which in turn is fed by the upstream Harley Dike. The culverted beck continues beyond the site for approximately 650m, before re-emerging in an open channel.

6.3 The Environment Agency Flood Map for Planning confirms that the site is located partially within 'Flood Zone 2' and ' Flood Zone 3' indicating a 'medium' to 'high' probability of flooding from rivers. There is a swathe of land through the east of the site is located within Flood Zone 3, with areas of Flood Zone 2 around its fringes. A small area in the west of the site is also within Flood Zone 2. The remaining areas of the site are within Flood Zone 1.

6.4 Modelled flood data, taken from the 2008 'Don CFMP Knoll Beck' model, has been provided by the Environment Agency as part of its consultation response. This data is limited to a plan showing the modelled flood extents for a number of different return periods, and does not include predicted flood levels and flows. The plan shows that the swathe of land through the east of the site, following the route of the culverted watercourse, is predicted to be impacted by the 1 in 20 year (5% AEP) flood event and all greater return period events, with little variation in the predicted extent in each event.

6.5 Based on the topography of the site and little variation in flood extents, it is likely that the modelling is predicting relatively shallow flooding within the site. However, as the model is a

Catchment Flood Management Plan (CFMP) model, it is possible that the focus of the modelling may have been a more broad scale understanding of the general risk to the catchment, and the model may not take full account of the effect of the culvert. Thus it is possible the model used to generate the flood zone outlines is simplifying and over-predicting the risk to the site.

6.6 In contrast to the above mode, the recently released Environment Agency Risk of Flooding from Rivers and Sea map is a more refined mapping product which represents the risk of flooding taking into account the presence and condition of flood risk management assets, and the chance of them overtopping or failing. Mapping for the 'present day' scenario (plan NW182/01/SK01.1 in **Appendix C**) suggests that the site is at a 'very low' risk of flooding in the present day, and that flooding is limited to areas upstream of the culverted section of watercourse, and areas downstream of the site.

6.7 The mapping for the 'future' climate change scenario (plan NW182/01/SK01.2 in **Appendix C**) suggests that the majority of the site is likely to be at a 'low' risk of flooding in the future due to the projected impacts of climate change. This is likely to be due to the capacity of the culvert being exceeded at its upstream end, with resulting flood flows passing across the site following the natural topography towards the north east.

6.8 On balance, the more recent Risk of Flooding from Rivers and Sea mapping is likely to provide a more accurate representation of risk to the site. Although the risk to the site in the present day is low, the risk is likely to become more significant in the future, with the majority of the site potentially affected by flows of floodwater through the site.

6.9 Although the buildings on site may be at risk of flooding as set out above, which may be relevant to the management of the site, the development proposals considered herein are for improvement works to the drainage of the site and flood risk should be considered in that context. The proposed drainage works include the making of a number of new connections to the culverted watercourse within the site to facilitate the efficient discharge of surface water runoff. As the majority of the site is understood to discharge to the watercourse already, and considering the likely wider upstream catchment of the watercourse, minor changes to the

surface water drainage regime are considered unlikely to have a significant impact upon the flows in the watercourse, and therefore unlikely to have a significant impact on the flood risk upstream, downstream or within the site.

6.10 High flows/levels in the watercourse may temporarily impede the discharge of surface water from the site during a flood event, however this is not likely to be made worse by the proposed changes being brought about by the current development (drainage works), and is unlikely to be significant in the context of flooding which may occur on the surface in this scenario.

6.11 On the above basis, although the site may be at risk of flooding from the watercourse in the future, the proposed works are unlikely to have any significant impact upon risk of flooding, and the risk of flooding is unlikely to have any significant impact on the proposed works. The risk of adverse fluvial flooding impacts associated with the scheme is therefore considered to be low.

6.12 Flooding from Surface Water (Pluvial Flooding) - The Environment Agency Risk of Flooding from Surface Water maps give an indication of the likely areas of significant ponding and significant overland flow paths which could be expected during large rainfall events. This mapping suggests that a significant area in the centre of the site is at a 'low' to 'high' risk of flooding in the present day scenario (plan NW182/01/SK02.1 in **Appendix C**). The area of high risk is concentrated on the centre of the site, and areas around the vehicular access points in the north and south.

6.13 The mapping suggests that the risk may increase in the future due to the projected impacts of climate change (plan NW182/01/SK02.2 in **Appendix C**), however the extent of flooding is not expected to be significantly different that the present day extent.

6.14 Similar to the fluvial flood risk, although the buildings and external areas on site may be at risk of flooding as set out above, which may be relevant to the management of the site, the development proposals considered herein are for improvement works to the drainage of the site and flood risk should be considered in that context. The proposed drainage works are

designed to improve the drainage of the site, making the removal of surface water more effective. On this basis the proposed development (drainage works) is not likely to have an adverse impact on the existing risk of flooding, and may in fact lead to a reducing in flood risk due to the more efficient removal of surface water. The risk of adverse pluvial flooding impacts associated with the scheme is therefore considered to be low.

6.14 Flooding from Groundwater - Groundwater is water held in rocks and soil below ground. Flooding from groundwater can happen when groundwater levels are high. This may be due to rainfall in the groundwater source area, but can also happen on floodplains if river levels are held above the level of the flood plain by embankments.

6.15 The Gov.uk online 'Check your long-term flood risk' service states that flooding from groundwater is unlikely in this area, and the risk associated with groundwater is therefore considered to be low.

6.16 Flooding from Reservoirs – The Environment Agency Risk of Flooding from Reservoir map (plan NW182/01/SK03 in **Appendix C**) shows the expected inundation area should a reservoir fail and release its capacity, under both 'dry' conditions, and in the event that this occurs at the same time as river flooding in 'wet' conditions.

6.17 The mapping confirms that the site is within an area which is considered to be at risk of flooding in the event of a reservoir breach in both scenarios. The majority of the site is shown to be at risk in the 'dry day' scenario, and the whole site is shown to be at risk in the 'wet day' scenario. The risk of flooding is associated with the nearby Elsecar Reservoir, located approximately 380m southwest of the site. The reservoir is owned and operated by Barnsley Metropolitan Borough Council.

6.18 Although the site is shown to be at risk of flooding in the event of a reservoir breach, reservoir safety is highly regulated under the Reservoirs Act, and there has been no loss of life in the UK from reservoir flooding since 1925. Regular inspections by suitably qualified specialist engineers are mandatory, and reservoir operators are required to maintain the structures to a

high standard. Therefore, although the *consequences* of flooding due to reservoir breach may be significant, the *likelihood* of this occurring is very low. As risk is a product of both consequence and likelihood, the *risk* of flooding from reservoirs is generally considered to be low.

6.19 Notwithstanding the above, the development proposals (drainage works) will not lead to any change in the risk associated with the nearby reservoir, and will not be significantly affected in the unlikely event of reservoir failure, therefore the risk of reservoir flooding is considered to be low.

Flooding from Other Artificial Sources

6.20 The Elsecar Branch Canal is located to the northeast of the site. Water levels in canals are generally well-regulated, and the main risk from a canal is that associated with breach of embankments. However, the canal is not embanked above the site at this point, and lies at a lower height than the site. The proposed development (drainage works) would not be expected to lead to any adverse physical impact upon the canal or the water levels within it. On this basis the risk of flooding associated with other artificial sources is low.

6.21 Flooding from Drains and Sewers – As set out in **Section 2**, there are existing foul and surface water drainage networks within the site. All drainage systems pose a risk of flooding in the event of blockage or exceedance of capacity, and thus there is an inherent residual risk of flooding from drains and sewers. However, the proposed development (drainage works) is intended to improve the current drainage regime to ensure adequate performance of the drainage systems into the future, therefore the development is likely to lead to a reduction in the risk associated with this source.

6.22 It is a requirement of the NPPF to ensure that surface water run-off from any proposed development is managed sustainably, with negligible consequence on downstream areas either in terms of impact upon downstream sewer capacity or flood risk impacts due to discharge to a watercourse. As discussed above, it is not envisaged that the proposed drainage

improvement works will lead to any significant detrimental impact on flood risk outside of the site due to changes in flow regimes. Therefore, this risk is considered to be low.

6.23 As with all drainage systems, there remains a residual risk that any blockage or failure of the on-site surface water drainage system, including exceedance of the surface water drainage system capacity, could result in surcharging of the surface water drains and flooding on site. Regular inspection and maintenance will be required in order that the capacity of the drainage system is not compromised and reduce the likelihood of problems occurring.

6.24 In addition to the above, Yorkshire Water is responsible for the maintenance of the existing local public sewer systems, including the combined sewer to the south of the site and the foul sewer to the west of the site, and would be expected to undertake proactive and reactive maintenance as necessary to minimise the risk of sewer flooding. The potential for sewer flooding to occur within roads adjacent to the site cannot be ruled out, for example if a blockage occurs. However, based on site topography, any flooding would most likely flow through the site towards the northeast, and would most likely affect external areas. On the above basis, the risk of flooding from existing sewers is considered to be low.

Flood Mitigation

6.25 The report has demonstrated that the risk from the majority of potential flood sources is low. However, there is a need to consider the residual risk of surface water flooding due to blockage or exceedance of drainage system capacity. The following precautionary mitigation measures are, therefore, recommended:

- A regime of regular inspection and maintenance of drainage systems should be implemented, so that performance to the design standard is maintained over the lifetime of the development.

Sequential Test

6.26 As set out in the NPPF, the aim of the Sequential Test is to steer new development to areas with the lowest risk of flooding from any source. As a significant area of the site lies within Flood Zone 3, the reservoir flood extents, and the area at risk of surface water flooding, the Sequential Test is deemed to be applicable to the development.

6.27 However, it must be recognised that the proposed scheme cannot be separated from the existing permanent usage of the site, i.e. the proposed development cannot be located elsewhere, as it is specifically designed to serve the site itself.

6.28 On this basis it is suggested that the Sequential Test should be considered passed for the development and no further sequential assessment should be required.

Exception Test

6.29 When applying NPPF Annex 3, the flood risk vulnerability classification shows that the proposed end use is considered to be “Less Vulnerable'' development. When the proposed development is evaluated in accordance with Table 2 of the PPG, it can be seen that there is no requirement to apply the Exception Test to “More Vulnerable” development in Flood Zone 3a.

7.0 SUMMARY

7.1 The report has demonstrated that the risk from the majority of potential flood sources is low. However, there is a need to consider the residual risk of surface water flooding due to blockage or exceedance of drainage system capacity. The following precautionary mitigation measures are, therefore, recommended:

- A regime of regular inspection and maintenance of drainage systems should be implemented, so that performance to the design standard is maintained over the lifetime of the development.

7.2 It is noted that there remains a risk of fluvial flooding and pluvial flooding to the site, which may require additional management, but the proposed development (drainage works) considered herein is considered unlikely to have any adverse impact on this existing risk, and is unlikely to be adversely affected by the existing risk.

7.3 The report demonstrates that the Sequential Test is satisfied in respect to the development, and application of the Exception Test is not required.

7.4 Subject to compliance with the above, it is envisaged that the proposed development can satisfy the requirements of the National Planning Policy Framework and the Planning Practice Guidance in relation to flood risk. The findings of this report are subject to the approval of the Regulatory Authorities.

APPENDIX A
Site Location Plan

Key

- Approximate Site Boundary
- Approximate Route of Culverted Watercourse
- Open Channel Watercourse

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Project
ELSECAR HERITAGE CENTRE (DRAINAGE IMPROVEMENTS)

Client
BARNSLEY METROPOLITAN BOROUGH COUNCIL

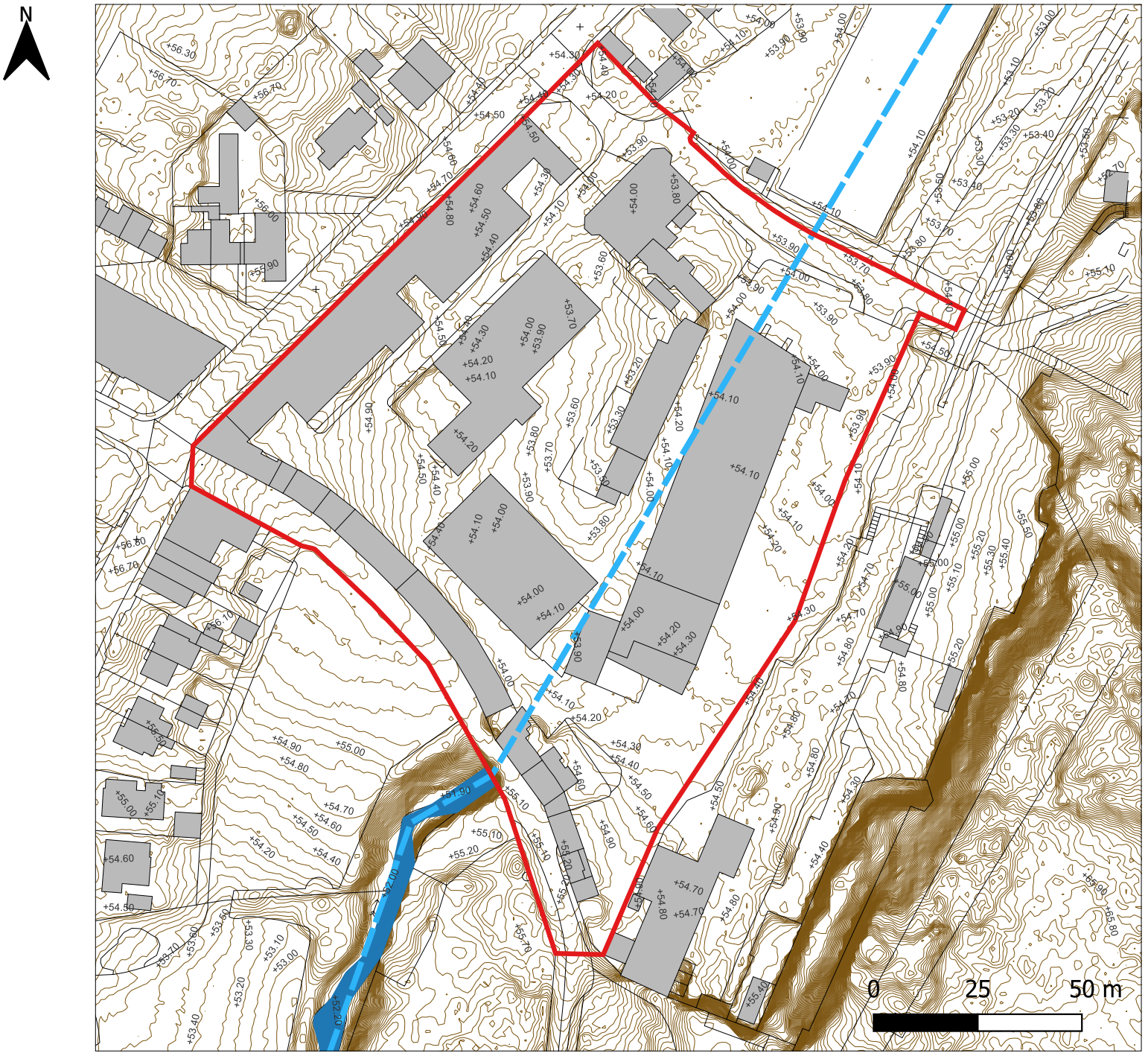
Title
LOCATION PLAN

Date
FEBRUARY 2025

Drawn	
MGW	AS SHOWN

Job No.
NW182/01/SK04

APPENDIX B
Site Topography



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Project
ELSECAR HERITAGE CENTRE (DRAINAGE IMPROVEMENTS)

Client
BARNSLEY METROPOLITAN BOROUGH COUNCIL

Title
SITE TOPOGRAPHY

Date
FEBRUARY 2025

Drawn
MGW

AS SHOWN

Job No.
NW182/01/SK05

APPENDIX C
Environment Agency Data

Flood map for planning

Your reference	Location (easting/northing)	Created
Elsecar HC	**438565/399879**	**4 Dec 2024 11:49**

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

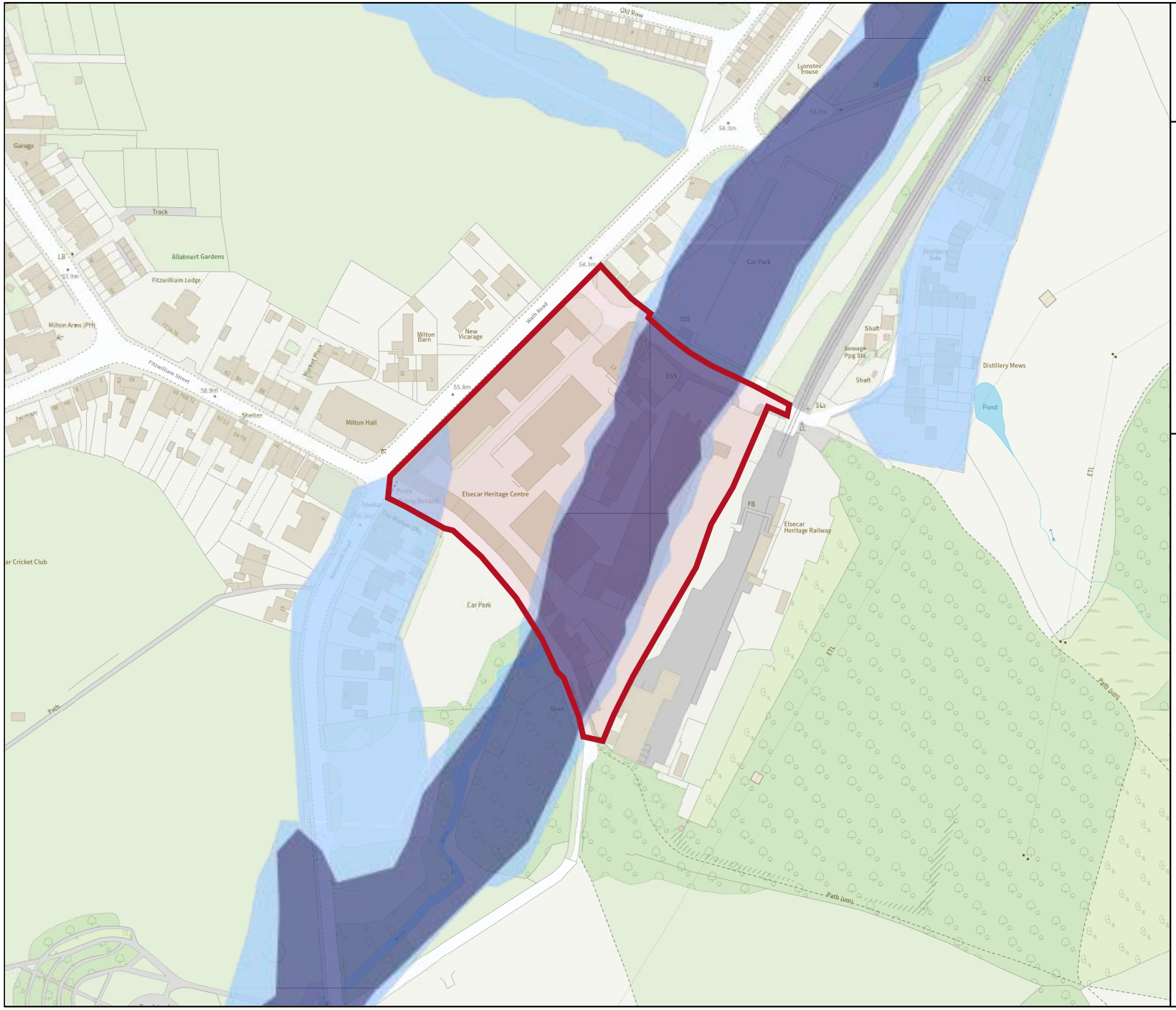
This means:

- 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.



Environment Agency

Flood map for planning

Your reference
Elsecar HC

Location (easting/northing)
438565/399879

Scale
1:2500

Created
4 Dec 2024 11:49

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m

Flood risk assessment data

Location of site: 438566 / 399889 (shown as easting and northing coordinates)
Document created on: 4 December 2024
This information was previously known as a product 4.
Customer reference number: Y6BMBXFVPH5F

Map showing the location that flood risk assessment data has been requested for.

How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

> **We recommend that you work with a flood risk consultant to get your flood risk assessment.**

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- past floods
- modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Information that's unavailable

This document **does not** contain:

- flood defences and attributes
- climate change modelled data

We aren't able to display flood defence locations and attributes as there are no formal flood defences in the area of interest.

There is not any modelled climate change data for this location. This is because detailed modelling hasn't been carried out in this area. You will need to consider the latest flood risk assessment climate change allowances and factor in the new allowances to demonstrate the development will be safe from flooding.

Surface water and other sources of flooding

Use the long term flood risk service to find out about the risk of flooding from:

- surface water
- ordinary watercourses
- reservoirs

Or you can contact your Lead Local Flood Authority for further information.

Your Lead Local Flood Authority is Barnsley District.

For information about sewer flooding, contact the relevant water company for the area.

About the models used

Model name: Don CFMP Knoll Beck
Scenario(s): No defences exist fluvial
Date: 31 December 2008

This model contains the most relevant data for your area of interest.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occuring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

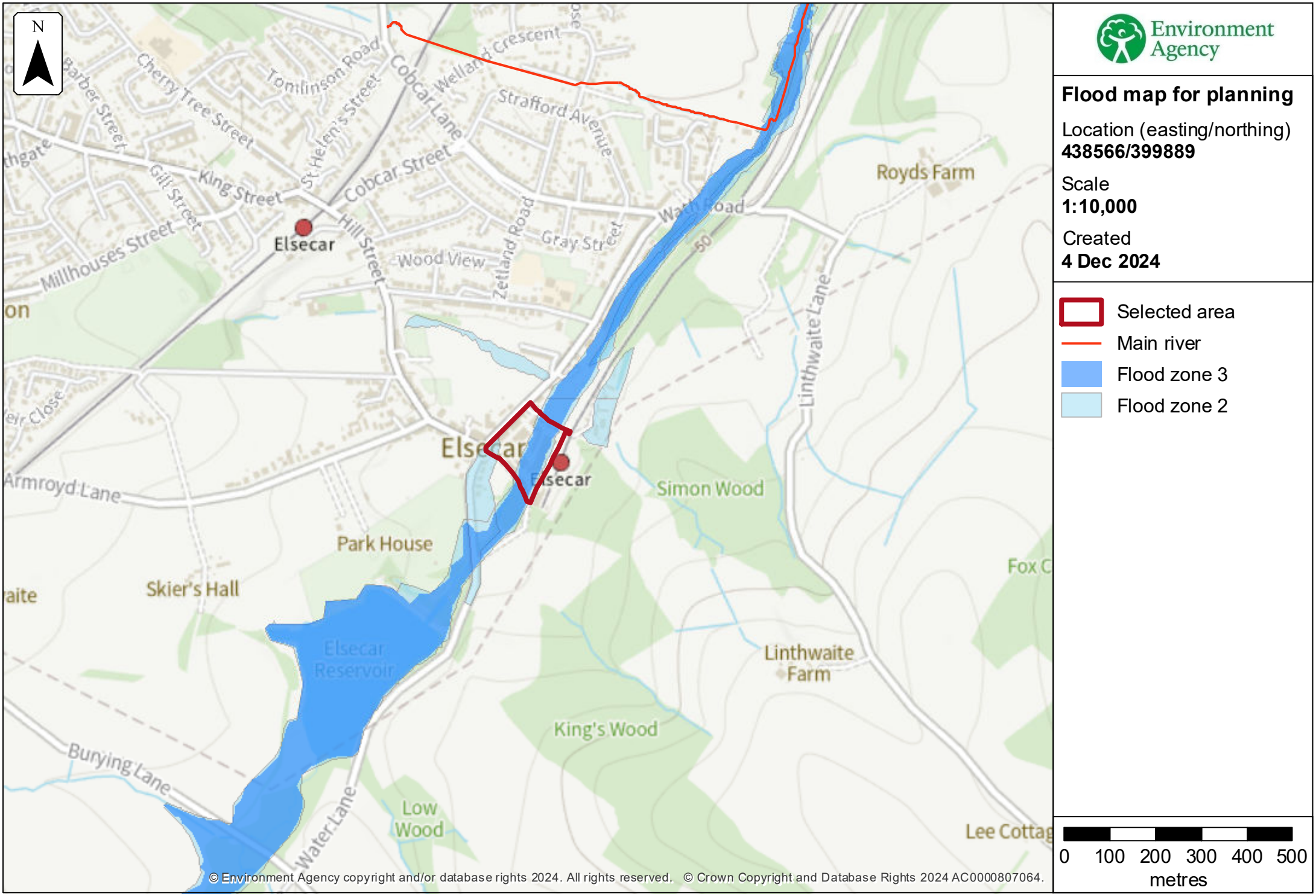
Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that 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, ignoring the presence of defences
- do not take into account potential impacts of climate change

The flood zones are not currently being updated. The last update was in November 2023. Some of the flood zones may have changed, however all source data is included in the models below.


N
Environment Agency
Flood map for planning
Location (easting/northing)
438566/399889
Scale
1:10,000
Created
4 Dec 2024
Selected area
Main river
Flood zone 3
Flood zone 2
0 100 200 300 400 500
metres
Elsecar
Elsecar
Elsecar
Royds Farm
Simon Wood
Park House
Skier's Hall
Elsecar Reservoir
Linthwaite Farm
King's Wood
Low Wood
Lee Cottag
Fox C
Tomlinson Road
Cobcar Lane
Wellard Crescent
Strafford Avenue
Cherry Tree Street
Barber Street
King Street
Gill Street
St Helen's Street
Cobcar Street
Hill Street
Millhouses Street
Wood View
Zetland Road
Gray Street
Linthwaite Lane
Armroyd Lane
Burying Lane
Water Lane
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Past floods

Past flood events included in this document

The recorded flood outlines included in this document are for areas of land local to your site location that have been flooded by any of these sources:

- ephemeral water
- main rivers
- ordinary watercourses
- the sea

Data limitations

The outlines do not include flooding from:

- drainage where rainfall has led to surface water ponding or overland runoff
- artificial, water-bearing sewer, water supply and wastewater treatment pipelines

Changes to flood defences

The defences (also known as assets) that were in place may also have changed. For example, assets may have been built more recently than the last recorded flood outline.

What the recorded flood outlines dataset is

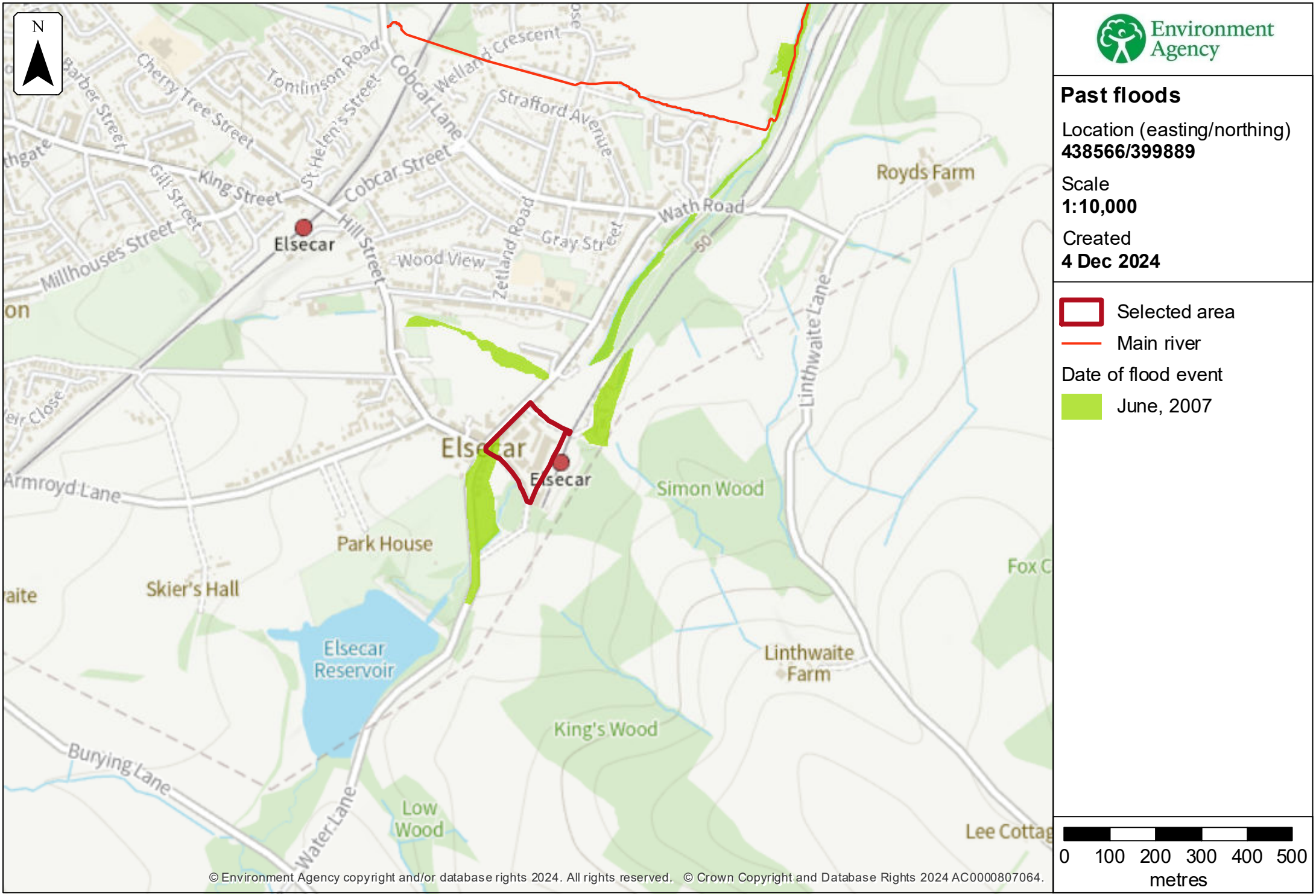
The recorded flood outlines are a geographical information system (GIS) data layer that show our verified records of areas that have flooded in the past from:

- rivers
- the sea
- groundwater
- surface water

Download the complete recorded flood outlines dataset, which includes data quality flags for outlines recorded after April 2020. This indicates the confidence we have in an outline.

Get flood information from other organisations

Contact Barnsley District Lead Local Flood Authority (LLFA) and your drainage board to get information about past flooding caused by surface water or drainage systems.



Environment Agency

Past floods

Location (easting/northing)
438566/399889

Scale
1:10,000

Created
4 Dec 2024

Selected area

Main river

Date of flood event

June, 2007

0 100 200 300 400 500
metres

Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
25 June 2007	26 June 2007	main river	unknown	Yes

Modelled data

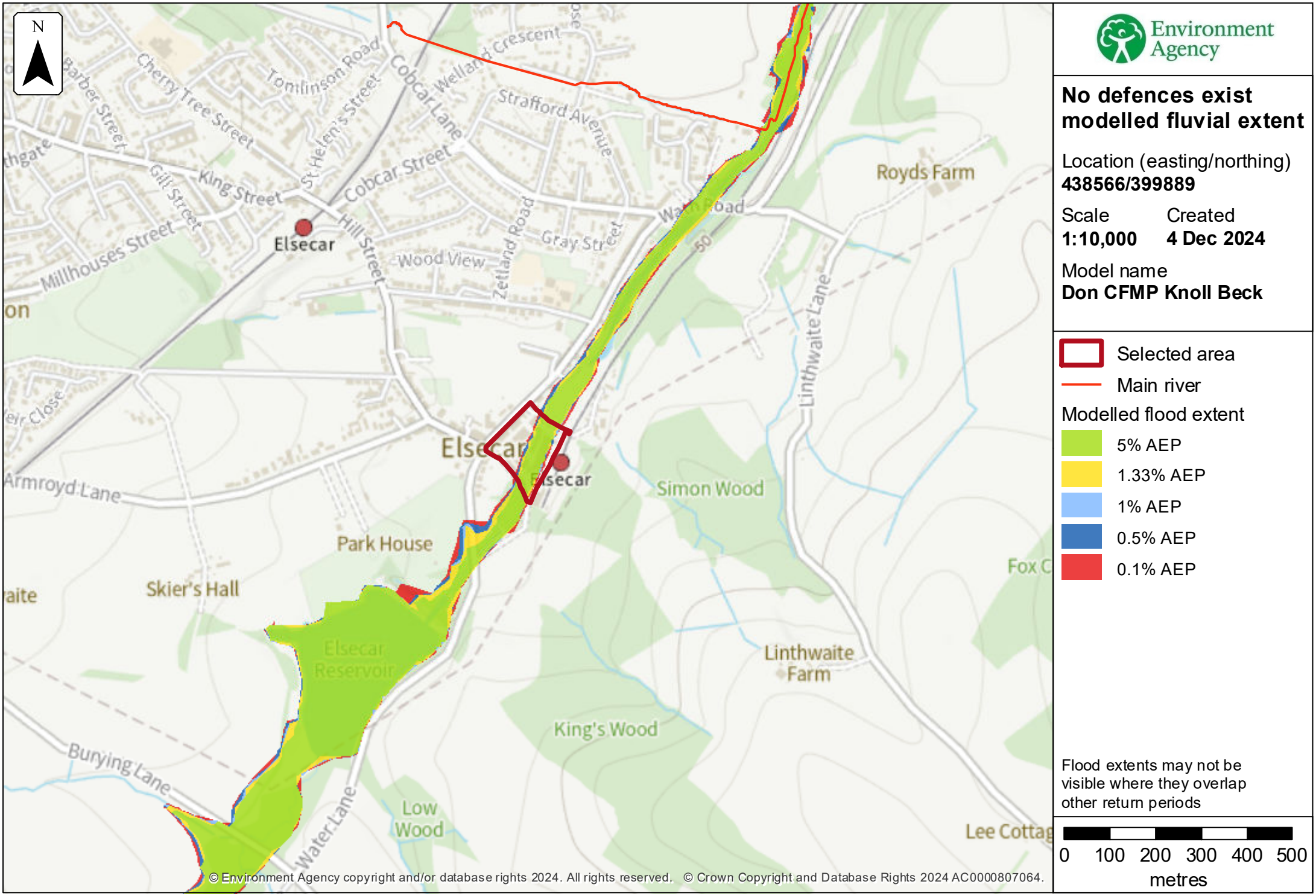
This section provides details of different scenarios we have modelled and includes the following (where available):

- outline maps showing the area at risk from flooding in different modelled scenarios

Modelled scenarios

The following scenarios are included:

- No defences exist modelled fluvial: risk of flooding from rivers where there are no flood defences


N
Environment Agency
No defences exist modelled fluvial extent
Location (easting/northing)
438566/399889
Scale
1:10,000
Created
4 Dec 2024
Model name
Don CFMP Knoll Beck
Selected area
Main river
Modelled flood extent
5% AEP
1.33% AEP
1% AEP
0.5% AEP
0.1% AEP
Flood extents may not be visible where they overlap other return periods
0 100 200 300 400 500
metres
Elsecar
Royds Farm
Simon Wood
Park House
Skier's Hall
Linthwaite Farm
King's Wood
Low Wood
Elsecar Reservoir
Tomlinson Road
Cobcar Lane
Wellard Crescent
Strafford Avenue
Cherry Tree Street
Barber Street
King Street
Gill Street
St Helen's Street
Cobcar Street
Hill Street
Millhouses Street
Wood View
Zetland Road
Gray Street
Linthwaite Lane
Armroyd Lane
Burying Lane
Water Lane
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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

Your Lead Local Flood Authority is Barnsley District.

About this data

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 activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

Find out more about flood risk activity permits

Help and advice

Contact the Yorkshire Environment Agency team at neyorkshire@environment-agency.gov.uk for:

- more information about getting a product 5, 6, 7 or 8
- general help and advice about the site you're requesting data for

The Flood Map for Planning

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

What is the Flood Map for Planning?

The Flood Map for Planning provides information on flooding from rivers and the sea for England and Wales. The Flood Map also has information on flood defences and the areas benefiting from those flood defences.

The Flood Map for Planning shows the following:

1. Flood Zone 3 (dark blue area on the enclosed map): natural flood plain area that could be affected by flooding from rivers and/or the sea – not taking into account the presence of any flood defences
   - For flooding from rivers the map indicates the extent of a flood with a 1% (1 in 100) chance of happening each year;
   - For flooding from the sea the map shows the extent of a flood with a 0.5% (1 in 200) chance of happening each year.

2. Flood Zone 2 (light blue area): natural flood plain area that could be affected by flooding from rivers and/or the sea – not taking into account the presence of any flood defences. Flood Zone 2:
   - indicates the extent of a flood with a 0.1% (1 in 1000) chance of happening each year.
   - and/or indicates the greatest recorded historic flood, whichever is greater.

3. Flood defences built in the last five years to protect against river floods with a 1% (1 in 100) chance of happening each year, together with some natural or constructed entities which retain, store or channel water and which may protect against smaller floods.

4. Areas benefiting from flood defences - areas that benefit from the flood defences shown, in the event of a river flood with a 1% (1 in 100) chance of happening each year, or a flood from the sea with a 0.5% (1 in 200) chance of happening each year. If the defences were not there, these areas would flood.

Flood History (if applicable)

See the attached map showing the flood history for this site. The extent of flooding, and/or flood level information is only shown for those watercourses surveyed after the flood. Other flooding may have occurred which is not shown. This is the best information currently available. Please note that for this reason, we are unable to confirm if flooding has occurred at a property scale. The Flood History Map PDF we have provided shows the area of land that has flooded rather than any individual property.
Please refer to the attached table detailing the causes of those past floods.

In the attached data, there may be outlines which have not been included; these have a Flood Map or Historical Flood Map status of “Considered and Rejected”. This could be for various reasons, including but not limited to the outline consisting of flooding from surface water, overland flow, or sewage. It could also be a result of the data being of very poor quality, or in some cases, where changes in the area make a historical flood outline no longer representative of the flood risk, e.g. ground raising or flow path changes. This data can be supplied on request, where it is available.

Water causing flooding can come from different places, for example from rivers or the sea; surface water (i.e. rainwater flowing over or accumulating on the ground before it is able to enter rivers or the drainage system); overflowing or backing up of sewers or drainage systems which have been overwhelmed or from groundwater rising up from underground aquifers.

Please note that this record doesn’t include all the flooding that may have occurred including and since 1st November 2023. Given the process of recording, verifying and updating our record from major floods is extensive and may take a considerable amount of time.

Assets (if applicable)

Asset Location Map
Please find attached asset map(s) showing the location of all (Agency and non-Agency maintained) flood defences.

Description of Works
See attached table with description of the defences shown on the above drawing, including condition ratings, upstream and downstream crest levels, where available.

Risk of Flooding – Environment Agency Defences
The risk of flooding in this area is now reduced by the presence of flood defences that we maintain, but there still is a residual risk of flooding if these were to breach or be overtopped by a flood greater than that for which they were designed.

Risk of Flooding – Privately Maintained Defences
You will see that the Environment Agency does not maintain any of those defences. However, we undertake regular risk based visual inspections. We do not hold design levels and have no height information on these defences.

Asset Condition Ratings
The performance of a flood defence asset is recorded as the condition of the asset. Our asset inspectors subjectively assess the conditions of assets (during visual inspection site visits) with reference to a national standard template. Each asset is given a rating between one and five with one being very good condition and five being very poor. A condition rating of 3, or 'fair' is the minimal acceptable standard for a critical asset, such as a defence wall that protects properties. We are striving to improve all assets below 'fair' to an acceptable standard.
Asset inspections are done on average every six months, although some critical assets are assessed on a more regular basis. It is possible that adjacent assets are inspected on different dates, which may result in two assets of a similar state of repair having different condition ratings.
Condition ratings of assets may also be affected by the time of year the surveys are conducted, as vegetation may obscure the asset in the summer months, or accessibility may be an issue during winter months. These factors would not usually affect the recorded condition rating of an asset unless the asset is on a borderline between two ratings.

Asset Standard of Protection
Please note that the provided Design Standard of Protection is an estimate and should not be relied on. Please note that where available the defended flood extents provide more reliable information relating to the protection offered by the defence (i.e. at which return period the water levels are likely to overtop the defence). If available and required, the defended flood extents can be provided on request.

Modelling

Please note that whilst the information provided is our best available data, we do not guarantee that is sufficient for land use planning or other such purposes. It is the applicant's responsibility to assess the suitability of the provided model/data for their purposes.

Catchment Flood Management Plan (CFMP)

Unfortunately, we don't hold any water levels at this location as no detailed modelling has been undertaken for this area. The Flood Map for Planning was updated in 2012 with the results of our 2008 Catchment Flood Management Plan model, which have been produced by a re-run of NGM (National Generalized) JFLOW model with improved DTM (Digital Terrain Model) – LiDAR. This study has been undertaken on a large regional scale and no detailed results (such as water levels) have been produced.
They are not suitable for use in site specific Flood Risk Assessments or Strategic Flood Risk Assessments and must not normally be used for these studies.

Climate Change

Updated guidance on how climate change could affect flood risk to new development - 'Flood risk assessments: climate change allowances' was published on gov.uk on 19 February 2016. You should confirm the flood risk vulnerability classification and lifetime of your proposed development in line with NPPF and apply the appropriate climate change allowances.

Bespoke Flood Risk Assessment (FRA) advice:

If the pre-application advice is required with regards the preparation of a site-specific Flood Risk Assessment, this can be requested via the Yorkshire Sustainable Places team (email: sp-yorkshire@environment-agency.gov.uk). Charges may apply for any advice that is provided, this currently stands at £100 per hour per person. The .gov.uk pages provide a good starting point on what to include within a site-specific Flood Risk Assessment and can be accessed via https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications. A site-specific Flood Risk Assessment will need to consider flood risks from all sources, including those associated with defence failure (e.g. breach) and accounting for the predicted impacts as a result of climate change. Please contact the Sustainable Places team if you require advice on how to include these within a Flood Risk Assessment.

Other

Surface Water Map

Lead Local Flood Authorities (LLFA) are responsible for managing local flood risk from surface water flooding and groundwater flooding. You should check with the LLFA as they may have more up to date information regarding this type of flooding.
The Risk of Flooding from Surface Water Flood Map can be viewed and downloaded as a PDF file on GOV.UK by following this link: https://flood-warning-information.service.gov.uk/long-term-flood-risk

Surface Water Drainage

The Lead Local Flood Authority is the statutory consultee for planning matters relating to surface water drainage, therefore it is recommended they should be consulted separately regarding this.
Surface water discharge from new development should ideally 'mimic' the pre-development situation using a sustainable drainage system so that the flow and volume of water in watercourses is not increased.

A permit may be required, under the Environmental Permitting Regulations 2016 from the Environment Agency for any proposed works or structures in, under, over or within eight metres of a 'main river' (e.g., a new outfall). A permit is separate to and in addition to any planning permission granted. Further details and guidance are available on the GOV.UK website:
https://www.gov.uk/guidance/flood-risk-activities-environmental-permits

Risk of Flooding from Reservoirs Map

Outlines and simplified depth and velocity maps can be viewed on our website:

https://flood-warning-information.service.gov.uk/long-term-flood-risk/#x=438988&y=406600&scale=2

Please, zoom into the location of interest, and then click on the inundated location for details. As a result a list of reservoirs will be provided with supporting information and a links to other data, such as estimated depths and speed of flooding, at the bottom of the result page.
A map of showing the outlines can also be provided on request.

Flood Warning

The site may be covered by a Flood Warning. To register to receive this service, you can call Floodline 24 hours a day on 0845 988 1188.

LIDAR Data

Please note that our LiDAR data is now available free of charge (Open Data) from https://environment.data.gov.uk/survey (once zoomed to the relevant location the available LiDAR products will be listed below the map).

Two LIDAR products are available:

1. Tiled LIDAR data - The full tiled dataset consists of historic LIDAR data which has been gathered since 1998. For some areas we have carried out repeat surveys and data is available in a range of resolutions.
2. Composite LIDAR data - The composite dataset is derived from a combination of our full tiled dataset which has been merged and re-sampled to give the best possible spatial coverage.

Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground. This technique results in the production of an accurate, cost-effective terrain model suitable for assessing flood risk and other environmental applications.
The Environment Agency owns two LIDAR systems, which are installed in a survey aircraft along with its other operational remote sensing instruments.
The aircraft is positioned and navigated using Global Positioning System (GPS) corrected to known ground reference points. The aircraft typically flies at a height of about 800 metres above ground level and a scanning mirror allows a swath width of about 600 metres to be surveyed during a flight.

The Rights & Responsibilities of a Riverside Owner

The owner of property adjacent to a watercourse is usually deemed to be the riparian owner and, as such, has both riparian rights and responsibilities regarding the watercourse within their ownership.

For more information on Rights and Responsibilities of a riverside owner, you can visit our website at:

Your Watercourse: Rights and Roles,

Ordnance Survey Data

Under the terms of our licence agreement with the Ordnance Survey, we are unable to supply the OS data. Under this agreement we can only supply OS data to consultants/contractors carrying out work on our behalf.

Did you know?

You can now request flood risk assessment data (also known as a Product 4) online at https://flood-map-for-planning.service.gov.uk/

Planning advice for developers – FAQs

Introduction

Local planning authorities (LPAs) across Yorkshire are required to consult us on certain planning applications which affect flood risk, groundwater, waste, or water quality.

If your development falls into one of these categories, we'll be invited to comment on your planning application. Your LPA, when considering your application, will take our comments into account.

We've produced this guidance to summarise the environmental issues we're responsible for. The guidance forms part of our free advice service; if you require site-specific or face-to-face advice, we'll need to recover our costs through our charged advice service. Engaging with us early can help you identify the big issues, reduce the chances of subsequent delays and help you design a more sustainable and attractive development.

Development and flood risk

Is my development proposal at risk of flooding?

The flood map for planning shows where flooding from rivers and the sea may occur. Whilst this map isn't suitable for a detailed flood risk assessment, it'll show which flood zone your development is located within and therefore will indicate whether further assessment is needed. You should also refer to your LPA's strategic flood risk assessment which will provide additional local information on flood risk, including the location of functional floodplain and areas which are susceptible to other sources of flooding such as from surface water or reservoirs.

Will my application need to pass the sequential and exception tests?

Local planning authorities apply the sequential test to steer development towards areas at the lowest risk of flooding. If your proposal is located within flood zones 2 or 3, you should contact your LPA to discuss the sequential test **before** submitting your application. The LPA may require you to submit information with your application in support of the sequential test.

If the LPA confirm that the sequential test has ruled out steering the development to lower risk sites, the development may also need to pass the exception test by demonstrating that its sustainability benefits outweigh flood risk and that it can be made safe for its lifetime, through the production of a site-specific flood risk assessment. Planning practice guidance advises when an exception test will be required, which will depend on the vulnerability of the development and the flood zone it lies within.

Do I need to submit a flood risk assessment with my planning application?

You'll need to submit a flood risk assessment if your application lies within flood zones 2 or 3 or is over 1 hectare within flood zone 1. You'll also need to submit an assessment if your proposal could be affected by sources of flooding other than from rivers or the sea. For certain lower risk applications, we've provided 'flood risk standing advice' which enables local planning authorities to assess flood risk assessments without the need to consult us.

What information should I include in my flood risk assessment?

We recommend that you refer to the checklist for a site-specific flood risk assessment for detailed advice on what to include in your flood risk assessment. Alongside referring to your LPA's strategic flood risk assessment, you should contact your LPA to find out whether there are any development guidelines which are specific to your locality.

Can I undertake my own flood risk assessment?

Your FRA must be appropriate to the scale, nature and location of the development whilst being credible and fit-for-purpose. Whilst it's possible to undertake your own assessment, most applicants employ suitably experienced professionals. We're not able to recommend specific consultants, but a simple web search should help you source a competent individual or company.

Do I need to consider how climate change will affect my proposal's flood risk?

Yes, you should demonstrate how flood risk will be managed now and over the development's lifetime, taking climate change into account. Please refer to the following guidance when undertaking your flood risk assessment. In some cases we'll hold the climate change flood data you need. In others you'll need to undertake your own analysis to understand the impacts.

Where can I get modelled or historic flood levels from?

Email our Customers and Engagement team (neyorkshire@environment-agency.gov.uk) to find out whether we have any modelled or historic flood levels available for your development site. A list of the packages of information we're able to provide can be found under the 'get information to complete an assessment' section of the planning practice guidance. They'll aim to provide this information within 20 days. We no longer charge for providing this information.

The risk portrayed by your flood map doesn't seem to reflect the site's actual risk. How do I 'challenge' your flood map?

If you have evidence suggesting that our flood map is inaccurate, please contact our Customers and Engagement team (neyorkshire@environment-agency.gov.uk) who will provide you with any existing data we hold. To formally contest our flood zones, you'll need to submit supporting evidence, such as digital copies of a topographic survey or modelling for quality assurance purposes. Digital files of the proposed new flood zones in ArcMap or MapInfo format should also be supplied. Any new outline data you submit must conform to our flood zones policy, copies of which are available on request.

Whilst we'll usually be happy to review any topographical survey or model prior to the application being submitted, we would have to recover our costs for this work. In some cases where work to review and update our existing models is already underway, we may decline to consider a challenge.

As we have to be certain that the data which informs our flood map is fit-for-purpose, any revisions will need to meet stringent quality checks.

SURFACE WATER AND DRAINAGE

Who's responsible for managing surface water?

Lead local flood authorities are responsible for providing advice on the management of surface water resulting from new major development. Internal drainage boards, where established, have permissive powers to manage water levels within their drainage districts, so also play a key role in managing surface water.

Will I need to provide surface water storage and limit the discharge rate?

You should contact your lead local flood authority to discuss surface water discharge rates and storage requirements. Typically, they'll ask that your development does not increase run-off and limits the discharge to the existing greenfield run-off rate (usually 1.4l/s/ha if not calculated).

Do I need to install sustainable drainage systems?

Sustainable Drainage Systems (SuDS) should always be carefully considered in discussion with your lead local flood authority. A SuDS scheme can reduce flood risk, improve water quality, create better habitats for wildlife, and produce pleasant, more amenable places for people.

Infiltration drainage must not, however, pose a risk to groundwater quality. All infiltration SuDS must:

- Meet the groundwater protection criteria set out on GOV.UK
- Not be constructed in ground affected by contamination

Who should I contact about connecting my development to the mains sewer?

Talk to your water company about connecting to their sewerage system. Here are some contact details for water companies operating in the Yorkshire Environment Agency area:

Yorkshire Water	planningconsultation@yorkshirewater.co.uk
Northumbrian Water	developmentenquiries@nwl.co.uk
Severn Trent Water	new.connections@severntrent.co.uk

My development is a long way from the mains sewer. Can I install a 'non-mains' drainage system, such as a package treatment plant?

New development should connect to the public mains sewer wherever possible. Individual treatment plants can deteriorate local water quality and are more challenging to monitor and regulate. If you can't connect to the mains sewer, your planning submission should outline how you will deal with foul drainage discharge. You should include evidence as to why it is not possible to connect to the mains system, including details of any prohibitive costs. Please note that some 'non-mains' foul water drainage systems will require an environmental permit, irrespective of any planning approval.

OTHER ENVIRONMENTAL CONSIDERATIONS

What other environmental issues will you consider with my planning application?

Your planning application will need to demonstrate that any environmental risks can be managed, through design and construction, for the development's lifetime. Alongside flood risk, the key environmental risks we'll consider are:

- **Land Contamination**
  We're mainly interested in those sites where there is a risk of pollution to controlled waters. You should investigate any contamination to see whether the environmental risk or cost of clean-up (remediation) would hinder your proposal. If contamination is known or suspected, a desktop study, investigation, remediation and other works may be required to enable safe development. Our model procedures for the management of land contamination provide further information.

- **Pollution prevention**
  Your application should demonstrate how you'll minimise the risk of pollution from all aspects of your development, including construction and

operation phases. Groundwater can be vulnerable to pollution, as well as rivers and streams. Some areas (source protection zones and aquifers) are especially sensitive to pollutants as they typically supply public drinking water. To find out whether your development is located in an area sensitive to groundwater pollution, visit our interactive maps. Advice on groundwater protection can be found on GOV.UK

- **Fisheries, biodiversity, geomorphology and protected species**
  If your proposal is likely to affect the ecology of a main river, you'll need to carry out a risk assessment. This assessment should show that your development can proceed without demonstrable harm, and should propose mitigation, compensation or enhancements where required. A survey should be carried out if any protected species are thought to be nearby. If this survey confirms the presence of protected species or their habitat, measures should be taken to manage the development's risks. Natural England are the statutory consultee for other biodiversity-related matters. Further information on their remit can be found on GOV.UK

- **Water framework directive**
  If your proposal affects ground or surface waterbodies, you'll need to consider the Water Framework Directive (WFD) and the actions set out in the Humber River Basin Management Plan. You'll also need to submit a WFD Assessment demonstrating how the development will prevent deterioration and improve the waterbody's ecological status.

- **River buffer zone**
  Your development should ensure that an 8m strip of land (planted with locally appropriate, native species) is left undisturbed next to the bank of any main river. This 'river corridor' will improve habitat connectivity and will ensure we're able to access the bank for any future flood defence construction and maintenance.

- **Culverting**
  We're opposed to culverting. Culverts degrade watercourses' ecology and prevent the movement of wildlife and fish. As culverts can easily become blocked, they increase flood risk. They're also difficult to inspect and maintain. We may object to any planning applications involving culverting on a main river and may refuse to grant an environmental permit. Existing culverts should be removed and the river channel and bankside habitat reinstated to restore the ecological continuity of the river channel and its corridor.

Will I need any other Environment Agency permits for my development?

You might need an environmental permit if your development manages or produces waste or emissions that pollute the air, water or land or is work that affects a main river or a sea defence. The lead local flood authority is responsible for any consents relating to ordinary watercourses.

The Environmental Permitting Regulations (England and Wales) 2015 cover water discharges, groundwater activities, flood risk activities, radioactive substances, waste, mining waste and installations. They also include provision for a number of directives including batteries. Further information, including contact details for further permitting related enquiries, can be found here.

As planning and permitting decisions are often closely linked, we have issued detailed guidance for developments requiring planning permission and environmental permits. This guidance explains how, when responding to planning consultations that require environmental permits, we will advise of three possible positions:

- No major permitting concerns
- More detailed consideration is required and parallel tracking is recommended
- Don't proceed – unlikely to grant a permit.

PRE-APPLICATION ADVICE

Can you provide site-specific advice, review a submission document, or attend a site meeting before I submit my planning application?

We encourage you to seek pre-application advice as it can help you solve key environmental issues early, reduce the chance of an objection and help you design a more sustainable development. If you'd like to take advantage of this service, please email our Sustainable Places team so that we can provide further details and estimated costs.

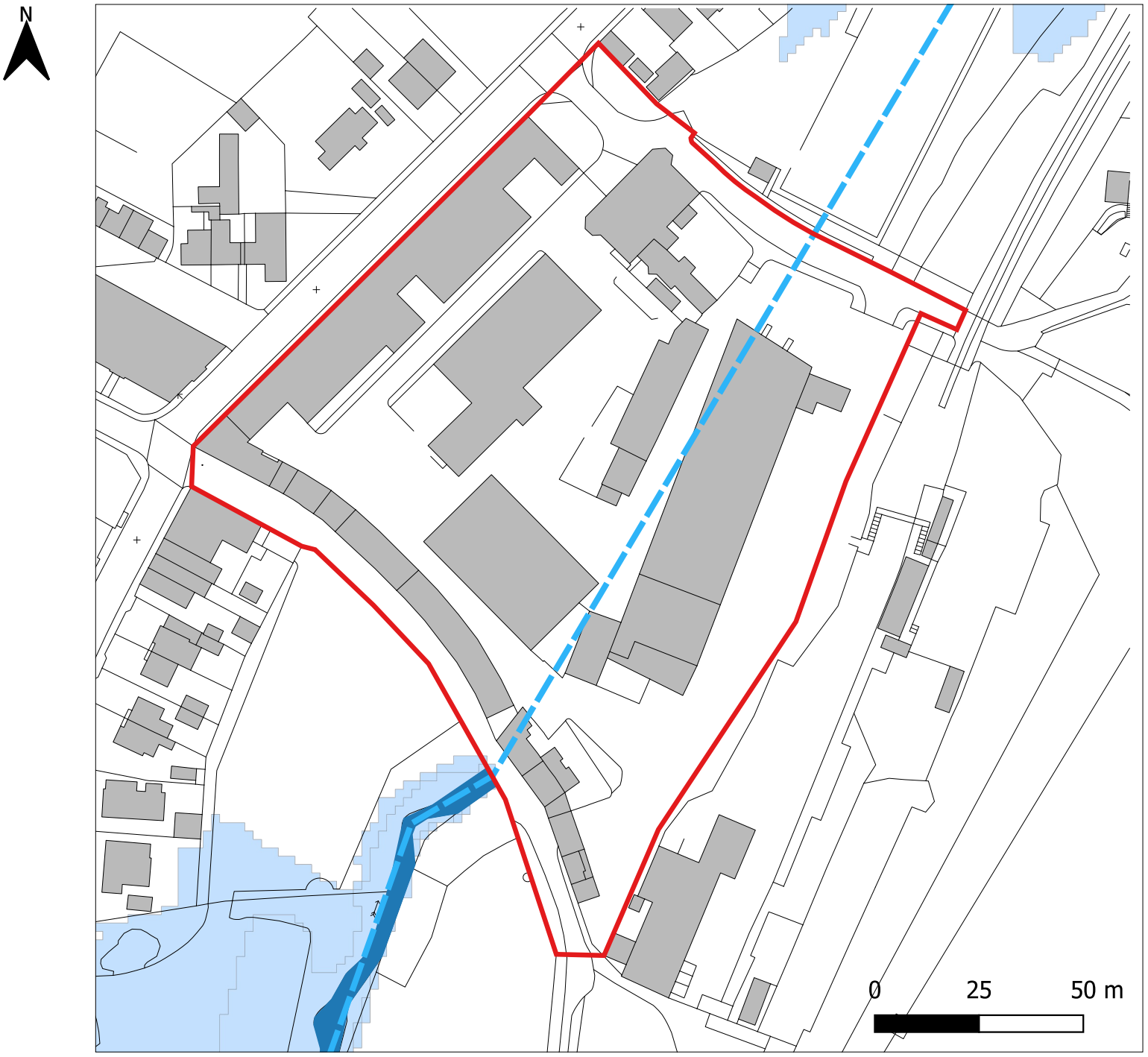
Please note that any pre-application guidance we provide doesn't represent our final view in relation to any future planning application. We recommend that you seek your own expert advice prior to submitting your application.

Who should I contact for further information?

Yorkshire planning enquiries: sp-yorkshire@environment-agency.gov.uk

General enquiries: 03708 506 506

Environment Agency, Lateral, 8 City Walk, Leeds LS11 9AT
https://www.gov.uk/government/organisations/environment-agency



Key

- Approximate Site Boundary
- Approximate Route of Culverted Watercourse
- Open Channel Watercourse

Risk of Flooding from Rivers & Sea:

- High
- Medium
- Low
- Very low
- Unavailable

ARP ASSOCIATES
Chartered Consulting Engineers
Northwest House, 5-6 Northwest Business Park, Servia Hill, Leeds LS6 2QH
Telephone: 0113 245 8498 E-Mail: leeds@arpassociates.co.uk
www.arpassociates.co.uk

Project
ELSECAR HERITAGE CENTRE (DRAINAGE IMPROVEMENTS)

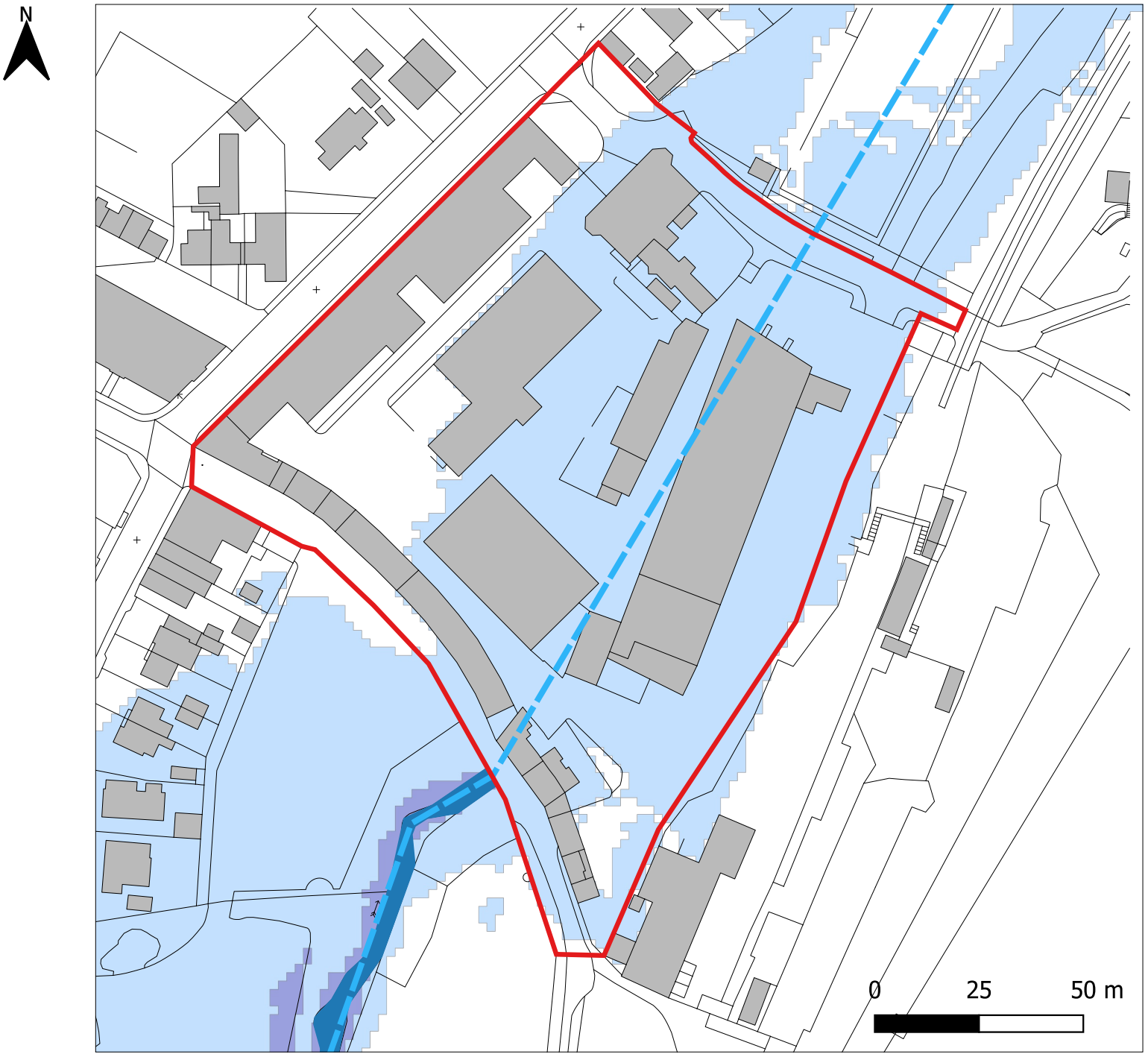
Client
BARNSLEY METROPOLITAN BOROUGH COUNCIL

Title
RISK OF FLOODING FROM RIVERS & SEA (PRESENT DAY)

Date
FEBRUARY 2025

Drawn	
MGW	AS SHOWN

Job No.
NW182/01/SK01.1



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Project
ELSECAR HERITAGE CENTRE (DRAINAGE IMPROVEMENTS)

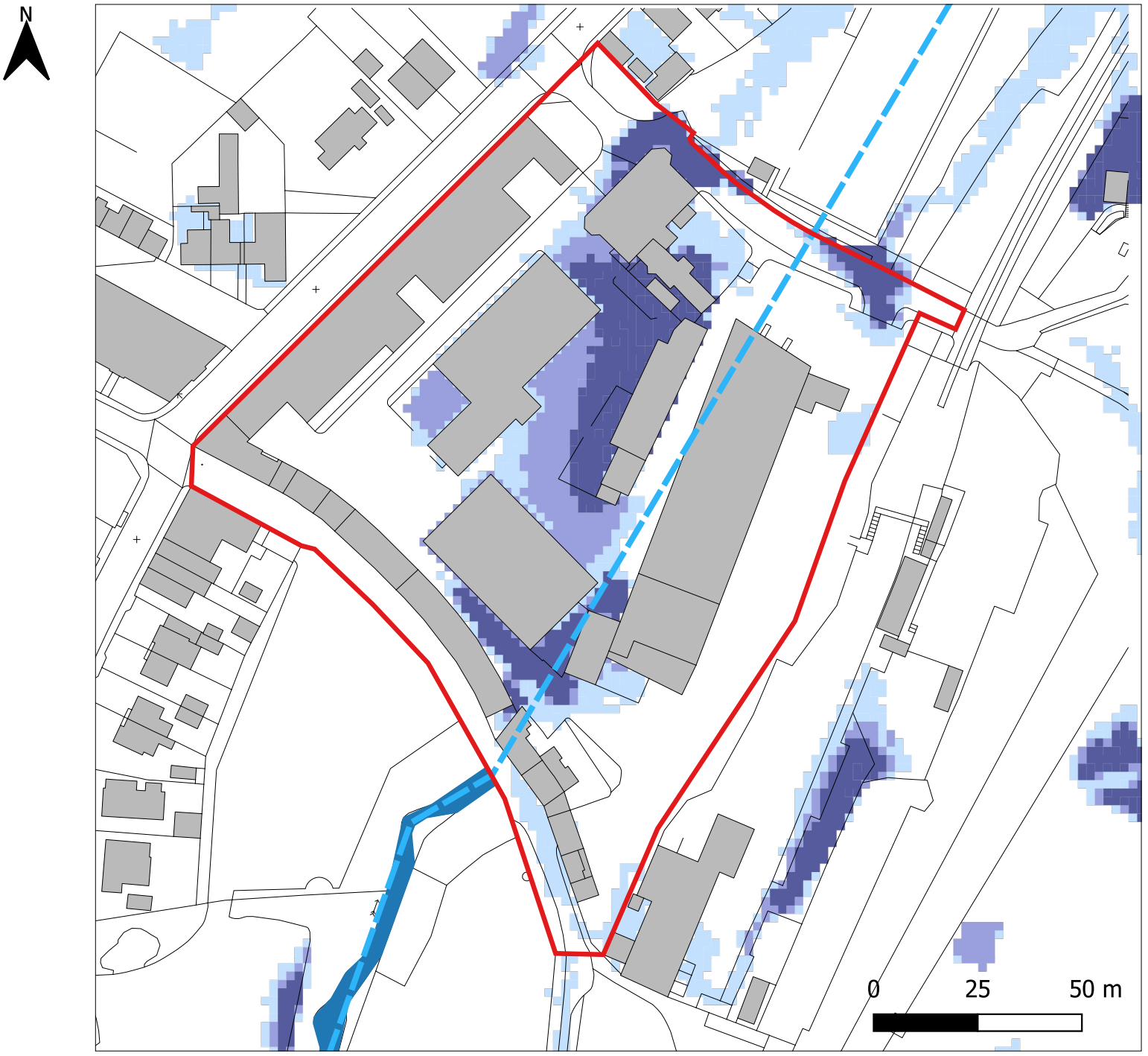
Client
BARNSLEY METROPOLITAN BOROUGH COUNCIL

Title
RISK OF FLOODING FROM RIVERS & SEA (CLIMATE CHANGE)

Date
FEBRUARY 2025

Drawn	
MGW	AS SHOWN

Job No.
NW182/01/SK01.2



Key

- Approximate Site Boundary
- Approximate Route of Culverted Watercourse
- Open Channel Watercourse

Risk of Flooding from Surface Water:

- High
- Medium
- Low
- Unavailable

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Project
ELSECAR HERITAGE CENTRE (DRAINAGE IMPROVEMENTS)

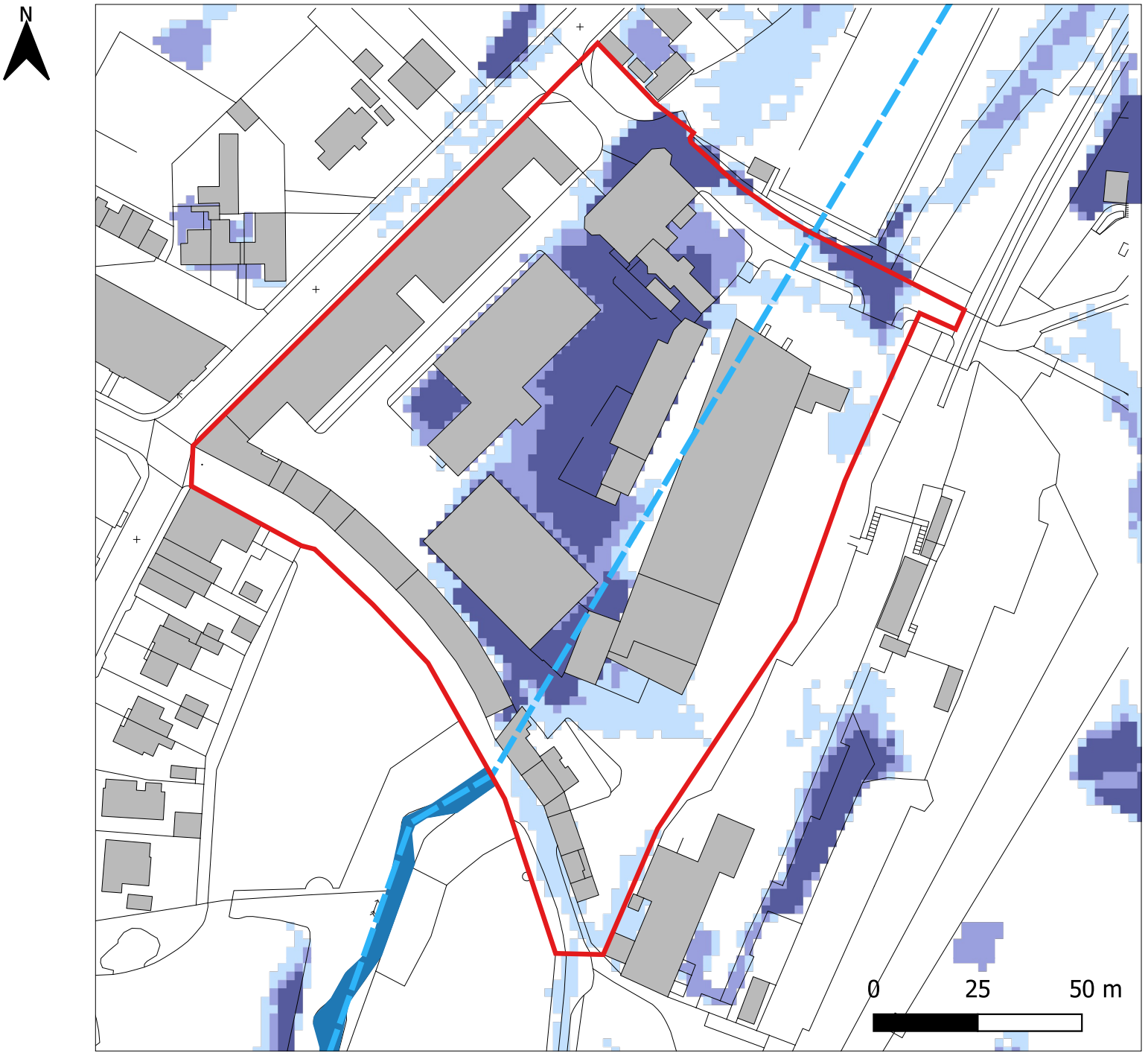
Client
BARNSLEY METROPOLITAN BOROUGH COUNCIL

Title
RISK OF FLOODING FROM SURFACE WATER (PRESENT DAY)

Date
FEBRUARY 2025

Drawn	
MGW	AS SHOWN

Job No.
NW182/01/SK02.1



Key

- Approximate Site Boundary
- Approximate Route of Culverted Watercourse
- Open Channel Watercourse

Risk of Flooding from Surface Water:

- High
- Medium
- Low
- Unavailable

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Project
ELSECAR HERITAGE CENTRE (DRAINAGE IMPROVEMENTS)

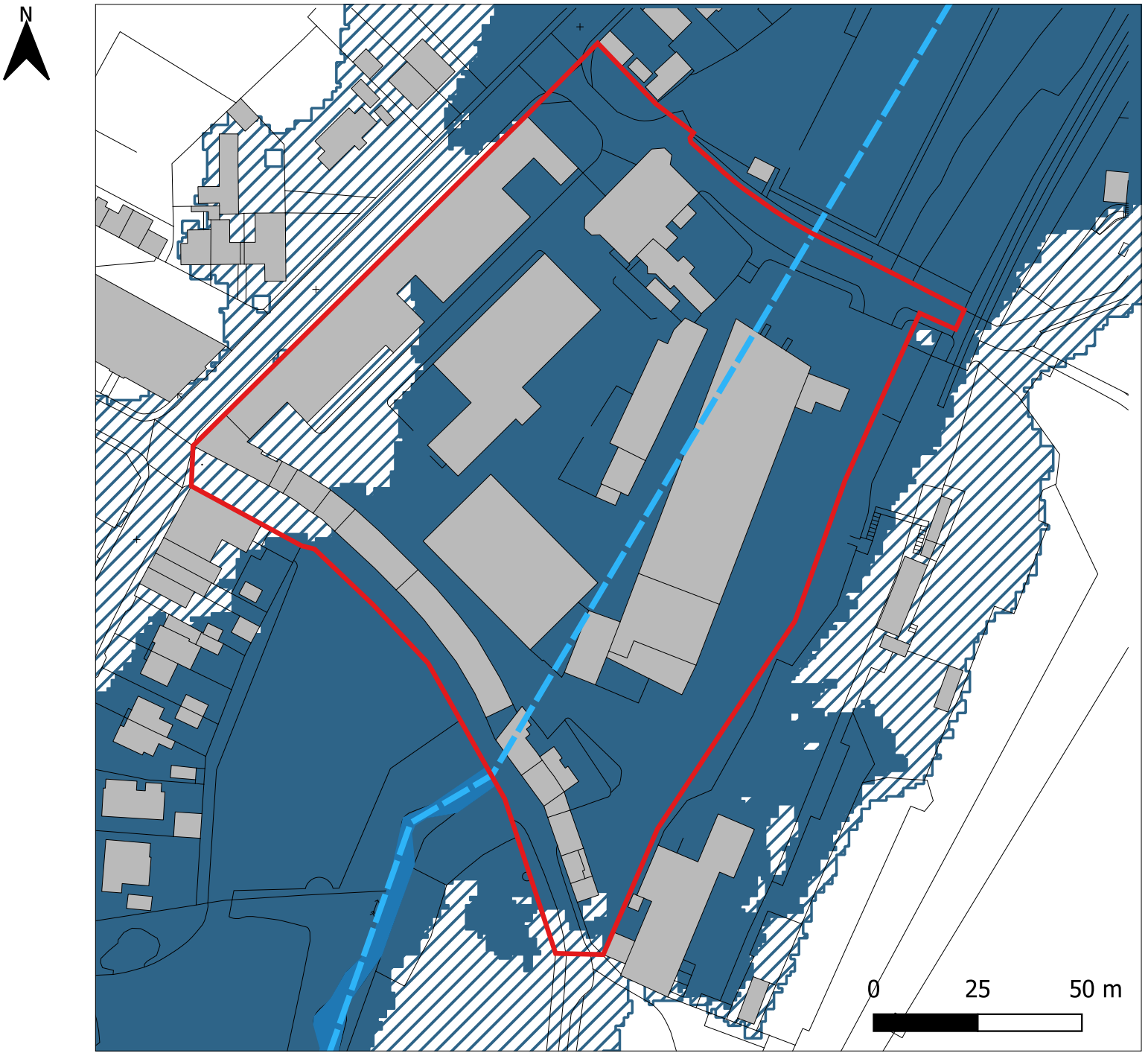
Client
BARNSLEY METROPOLITAN BOROUGH COUNCIL

Title
RISK OF FLOODING FROM SURFACE WATER (CLIMATE CHANGE)

Date
FEBRUARY 2025

Drawn	
MGW	AS SHOWN

Job No.
NW182/01/SK02.2



Key

- Approximate Site Boundary
- Approximate Route of Culverted Watercourse
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Reservoir Flood Extents:

- Dry Day Scenario
- Wet Day Scenario

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Project
ELSECAR HERITAGE CENTRE (DRAINAGE IMPROVEMENTS)

Client
BARNSLEY METROPOLITAN BOROUGH COUNCIL

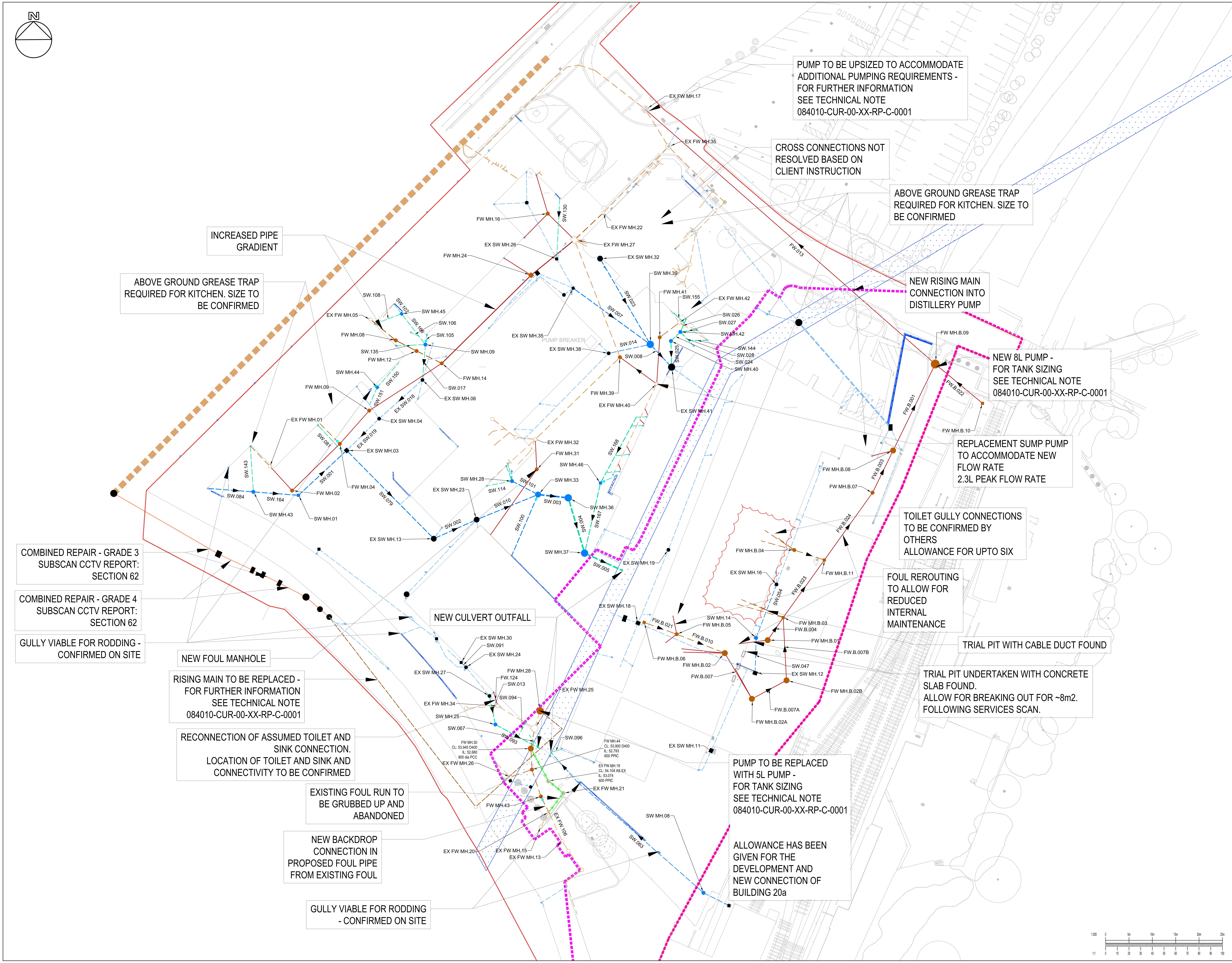
Title
RISK OF FLOODING FROM RESERVOIRS

Date
FEBRUARY 2025

Drawn	
MGW	AS SHOWN

Job No.
NW182/01/SK03

APPENDIX D
Development Proposals


PUMP TO BE UPSIZED TO ACCOMMODATE ADDITIONAL PUMPING REQUIREMENTS - FOR FURTHER INFORMATION SEE TECHNICAL NOTE 084010-CUR-00-XX-RP-C-0001
CROSS CONNECTIONS NOT RESOLVED BASED ON CLIENT INSTRUCTION
ABOVE GROUND GREASE TRAP REQUIRED FOR KITCHEN. SIZE TO BE CONFIRMED
INCREASED PIPE GRADIENT
ABOVE GROUND GREASE TRAP REQUIRED FOR KITCHEN. SIZE TO BE CONFIRMED
NEW RISING MAIN CONNECTION INTO DISTILLERY PUMP
NEW 8L PUMP - FOR TANK SIZING SEE TECHNICAL NOTE 084010-CUR-00-XX-RP-C-0001
REPLACEMENT SUMP PUMP TO ACCOMMODATE NEW FLOW RATE 2.3L PEAK FLOW RATE
TOILET GULLY CONNECTIONS TO BE CONFIRMED BY OTHERS ALLOWANCE FOR UPTO SIX
FOUL REROUTING TO ALLOW FOR REDUCED INTERNAL MAINTENANCE
TRIAL PIT WITH CABLE DUCT FOUND
TRIAL PIT UNDERTAKEN WITH CONCRETE SLAB FOUND. ALLOW FOR BREAKING OUT FOR ~8m2. FOLLOWING SERVICES SCAN.
COMBINED REPAIR - GRADE 3 SUBSCAN CCTV REPORT: SECTION 62
COMBINED REPAIR - GRADE 4 SUBSCAN CCTV REPORT: SECTION 62
GULLY VIABLE FOR RODDING - CONFIRMED ON SITE
NEW CULVERT OUTFALL
NEW FOUL MANHOLE
RISING MAIN TO BE REPLACED - FOR FURTHER INFORMATION SEE TECHNICAL NOTE 084010-CUR-00-XX-RP-C-0001
RECONNECTION OF ASSUMED TOILET AND SINK CONNECTION. LOCATION OF TOILET AND SINK AND CONNECTIVITY TO BE CONFIRMED
EXISTING FOUL RUN TO BE GRUBBED UP AND ABANDONED
NEW BACKDROP CONNECTION IN PROPOSED FOUL PIPE FROM EXISTING FOUL
GULLY VIABLE FOR RODDING - CONFIRMED ON SITE
PUMP TO BE REPLACED WITH 5L PUMP - FOR TANK SIZING SEE TECHNICAL NOTE 084010-CUR-00-XX-RP-C-0001
ALLOWANCE HAS BEEN GIVEN FOR THE DEVELOPMENT AND NEW CONNECTION OF BUILDING 20a
PUMP BREAKER

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.

KEY:

- EXISTING SURFACE WATER
- PROPOSED RE-LAID SURFACE WATER
- PROPOSED NEW SURFACE WATER
- EXISTING FOUL
- PROPOSED RE-LAID FOUL
- PROPOSED NEW FOUL
- EXISTING COMBINED
- PROPOSED BACKDROP
- EXISTING RWP
- EXISTING GULLY
- ASSUMED CULVERT LINE
- SCHEDULED ANCIENT MONUMENT
- RETAINED CHANNEL DRAIN

Rev:	Description:	Date:	By:	Chkd:
P06	RE-ROUTE OF FOUL DRAINAGE TO AVOID MINE SHAFT	06/11/24	LT	LB
P05	AMENDED TO COMMENTS	30/09/24	LT	LB
P04	LABELS AMENDED	12/06/24	LT	LB
P03	REVISED ISSUE	20/05/24	JWP	LB
P02	REVISED ISSUE	18/04/24	JWP	JS
P01	FIRST ISSUE	28/03/24	JWP	JS

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Rose Wharf Ground Floor 78-80 East Street Leeds LS9 8EE
0113 274 8509
leeds@curtins.com
www.curtins.com

Status: SUITABLE FOR AUTHORIZATION S4

Project: ELSECAR FORGING AHEAD

Drg Title: SITE WIDE DRAINAGE OPTION B

Drawn By	Designed By	Checked By
JWP	JWP	JS
	Date: 28/03/24	Scales @ A0: 1:250

Project No - Originator - Function - Spatial - Form - Discipline - Number	Revision
084010 - CUR - 00 - ZZ - D - C - 92201	P06

\\le-fs-1\Projects\084010 Elsecar Forging Ahead - CDF\Q4-Production\4A-Models-Drawings\C\CAD\92\