

TEMPORARY CONSTRUCTION COMPOUND AT M62 JUNCTION 19 FLOOD RISK ASSESSMENT

HE548642-JAC-EGN-SII_MLT-RP-LE-0041 | P02
16/10/25

Document Control

Project Manager:	Bernardo Begonha
Originator (Company):	Jacobs
Document Number:	HE548642-JAC-EGN-SII_MLT-RP-LE-0041
Rev Number:	P02
Date:	16/10/25
Document Status:	S4 - SUITABLE FOR STAGED APPROVAL
Client Ref Number (PIN):	HE548642

Document history and status

Revision	Date	Description	By	Check	Review	Approved
P02	16/10/25	SECOND DRAFT	JM	DS	MW	BB
P01	05/10/25	FIRST DRAFT	JM	DS	DS	AP

The original format of this document is copyright to National Highways.

Contents

1.	Introduction	2
1.1	Overview	2
1.2	Aims and Objectives	2
1.3	Synopsis.....	2
2.	Application Site Setting	4
2.1	Overview	4
2.2	Existing Application Site	4
2.3	J19 Temporary Compound.....	8
3.	Planning Policy Review	9
3.1	Overview	9
3.2	National Planning Policy.....	9
3.3	The Sequential Test	9
3.4	Climate Change Allowances	10
3.5	Local Planning Policy	12
3.6	Relevant Studies and Reports.....	14
4.	Assessment of Risk to the Proposed Development	15
4.1	Tidal Flood Risk	15
4.2	Fluvial Flood Risk.....	15
4.3	Surface Water Flood Risk	17
4.4	Groundwater Flood Risk.....	18
4.5	Flood Risk from Reservoirs	19
4.6	Flood Risk from Sewers and Artificial Drainage Systems	20
5.	Assessment of Risk from the Development	22
5.1	Overview	22
5.2	Impact on Fluvial Flood Risk	22
5.3	Impact on Surface Water Flood Risk.....	22
5.4	Impact on Groundwater Flood Risk.....	22
5.5	Impact on Reservoir Flood Risk	23
5.6	Impact on Sewers and Artificial Drainage Systems.....	23
6.	Flood Risk Mitigation Measures	24
6.1	Summary of Flood Risk.....	24
6.2	Surface Water Flood Risk	24
7.	Residual Risk.....	25
8.	Conclusions.....	26

Executive Summary

This Flood Risk Assessment has been developed for the establishment of a temporary construction compound at M62 Junction 19.

This assessment of flood risk covers all sources, including river, sea, surface water, groundwater, sewers and artificial drainage systems, and reservoirs. This assessment has considered the flood risks associated with the Development and the potential impacts the development may have in exacerbating flood risk to third parties.

This assessment has found the M62 Junction 19 temporary compound to be at negligible risk from tidal flood risk. It was also found to be at a low risk from fluvial, reservoirs, groundwater, and artificial drainage systems. No mitigation measures are deemed necessary.

A Drainage Strategy has also been prepared in support of the M62 Junction 19 temporary compound. The Drainage Strategy demonstrates how surface water generated by the M62 Junction 19 temporary compound will be managed in accordance with best practice avoiding exacerbation of surface water flood risk to third parties.

There is a residual risk to the Application Site of a larger than design event occurring and overwhelming the surface water drainage system resulting in surface water flooding within the boundary of the Application Site or uncontrolled runoff off site.

1. Introduction

1.1 Overview

- 1.1.1 This Flood Risk Assessment (FRA) has been developed for the establishment of a temporary construction compound at M62 Junction 19 (J19) (hereafter the 'J19 Temporary Compound').
- 1.1.2 This FRA considers the risk to the Application Site (area within the J19 Temporary Compound red line boundary) from a range of flood sources, as well as the risk arising to third parties as a consequence of the J19 Temporary Compound's interaction with flood sources. This FRA complies with the National Planning Policy Framework (NPPF) produced by the Ministry of Housing, Communities & Local Government (MHCLG), published in 2012 and most recently updated in 2024 (MHCLG, 2025), which states that developments above 1 hectare and located in Flood Zone 1 are required to have Flood Risk Assessment.

1.2 Aims and Objectives

- 1.2.1 This FRA provides an assessment of flood risk to and arising from the J19 Temporary Compound. This FRA has achieved this by:
- Reviewing information available in the public domain from various websites (outlined in Section 4) in combination with information on local planning policy;
 - Undertaking a qualitative assessment of flood risk to and arising from the J19 Temporary Compound accounting for information supplied by Risk Management Authorities and that available in the public domain;
 - Undertaking a quantitative assessment of fluvial and surface water flood risk to and arising from the J19 Temporary Compound; and,
 - Where necessary identifying measures to mitigate for flood risk to and arising from the J19 Temporary Compound, including preparation of a Drainage Strategy to comply with local policy/regulator requirements.

1.3 Synopsis

- 1.3.1 The FRA is structured as follows:
- Chapter 2 describes the setting of the Application Site in relation to local features significant for the assessment of flood risk and provides a description of the J19 Temporary Compound;
 - Chapter 3 outlines the planning policies relevant to the J19 Temporary Compound with respect to flood risk;
 - Chapter 4 presents information on the flood risk to the J19 Temporary Compound;
 - Chapter 5 assesses how flood risk may change in the surrounding area as a result of the J19 Temporary Compound;
 - Chapter 6 describes the measures proposed to mitigate unacceptable flood risks;

- Chapter 7 outlines flood risks remaining after all inherent risks have been reduced by control measures to a practicable level; and,
- Chapter 8 summarises the FRA presenting the key information about the J19 Temporary Compound for consideration through design development.

2. Application Site Setting

2.1 Overview

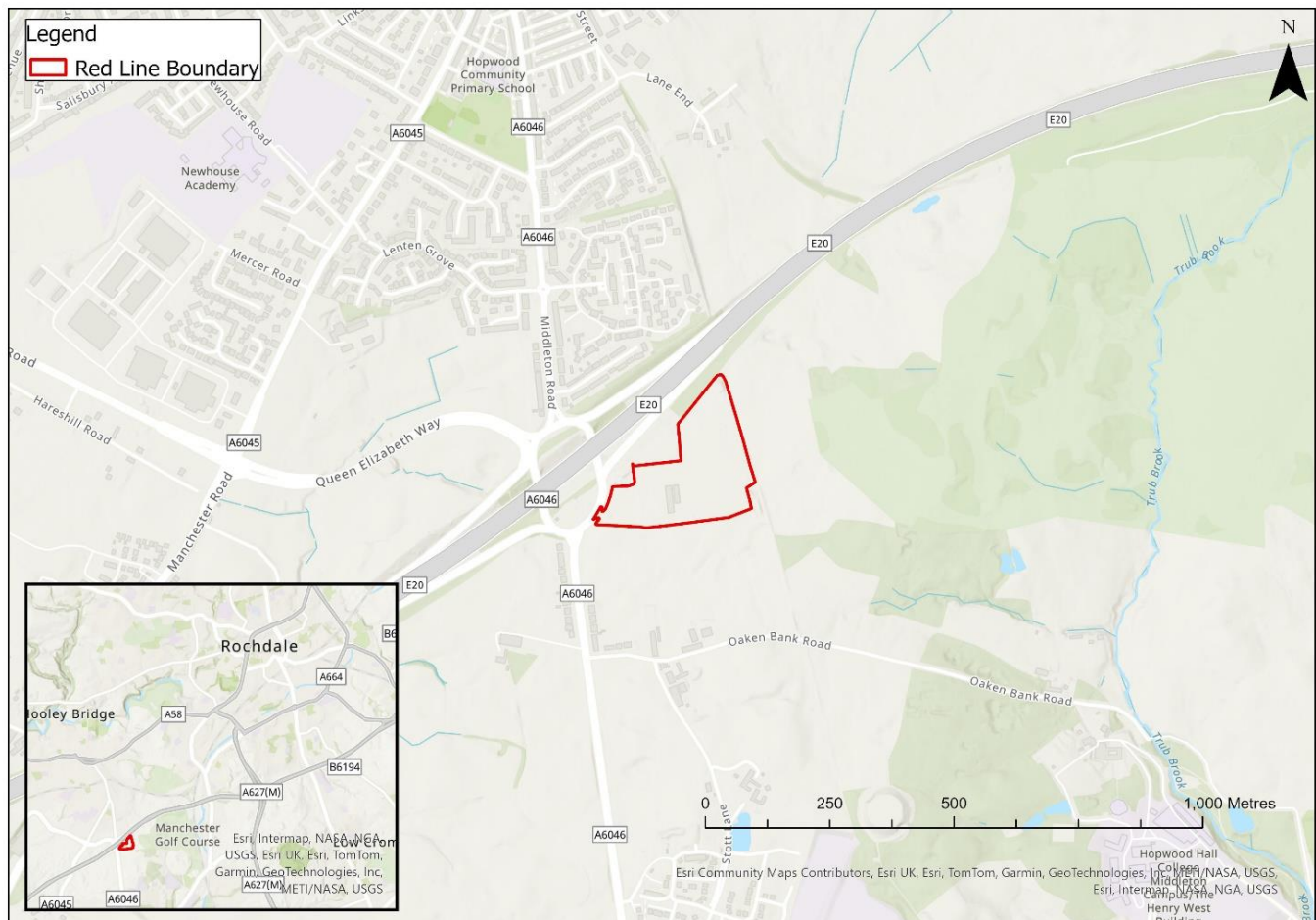
2.1.1 This section provides details of the existing site, relevant to the assessment of flood risk, and details of the J19 Temporary Compound.

2.2 Existing Application Site

Application Site Description

2.2.1 The Application Site occupies approximately 5 hectares (ha) of land approximately 5 kilometres (km) west of Rochdale, Greater Manchester. The Application Site is centred at National Grid Reference (NGR) SD 86651 08845. The nearest postcode is OL10 2WE. Figure 2-1 shows the position of the Application Site.

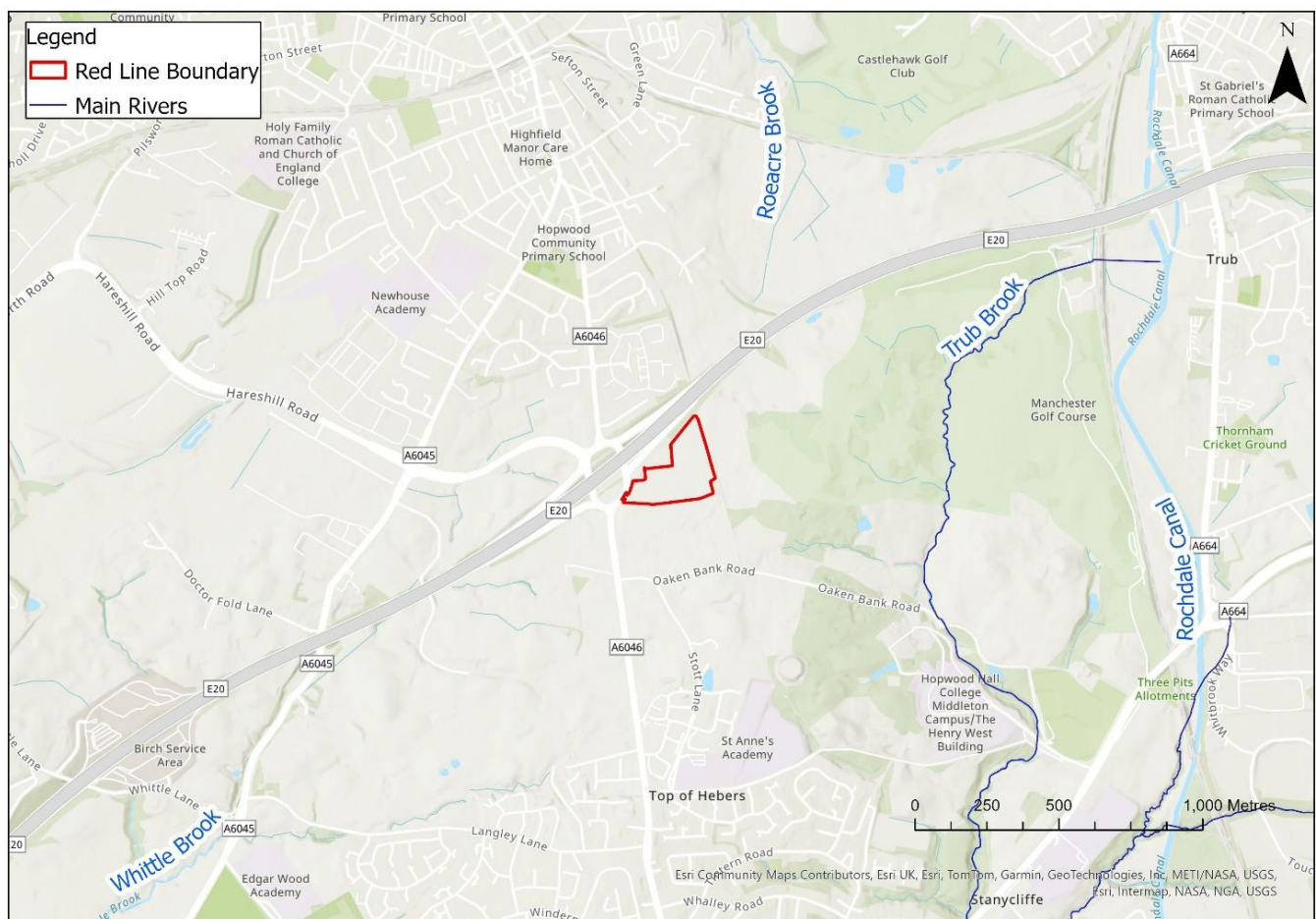
Figure 2-1 Application Site Location and Red Line Boundary



Hydrology

- 2.2.2 The Trub Brook is located approximately 800 metres (m) east of the Application Site, flowing north to south. The watercourse is a Main River meaning that it is regulated by the Environment Agency. At Oaken Bank Road the Trub Brook has a catchment of approximately 3.7 square km (km²) (UK Centre For Ecology & Hydrology, 2025).
- 2.2.3 The headwaters of the Whittle Brook are located approximately 500m west of the Application Site. The Whittle Brook is classed as an ordinary watercourse. However, downstream of Birch it is designated as a Main River. As the Whittle Brook passes the M60 it has a catchment area of approximately 1.7km² (UK Centre For Ecology & Hydrology, 2025).
- 2.2.4 Roeacre Brook lies approximately 500m northwest of the Application Site. The Roeacre Brook is classed as an ordinary watercourse until it passes under the A58 in Heywood. At the point at which the Roeacre becomes a Main River it has a catchment area of 2.1km² (UK Centre For Ecology & Hydrology, 2025).
- 2.2.5 The Rochdale Canal is located approximately 1.5km east of the Application Site. The Rochdale Canal is managed by the Canal & River Trust.
- 2.2.6 Figure 2-2 presents the location of the above hydrology in relation to the Application Site.

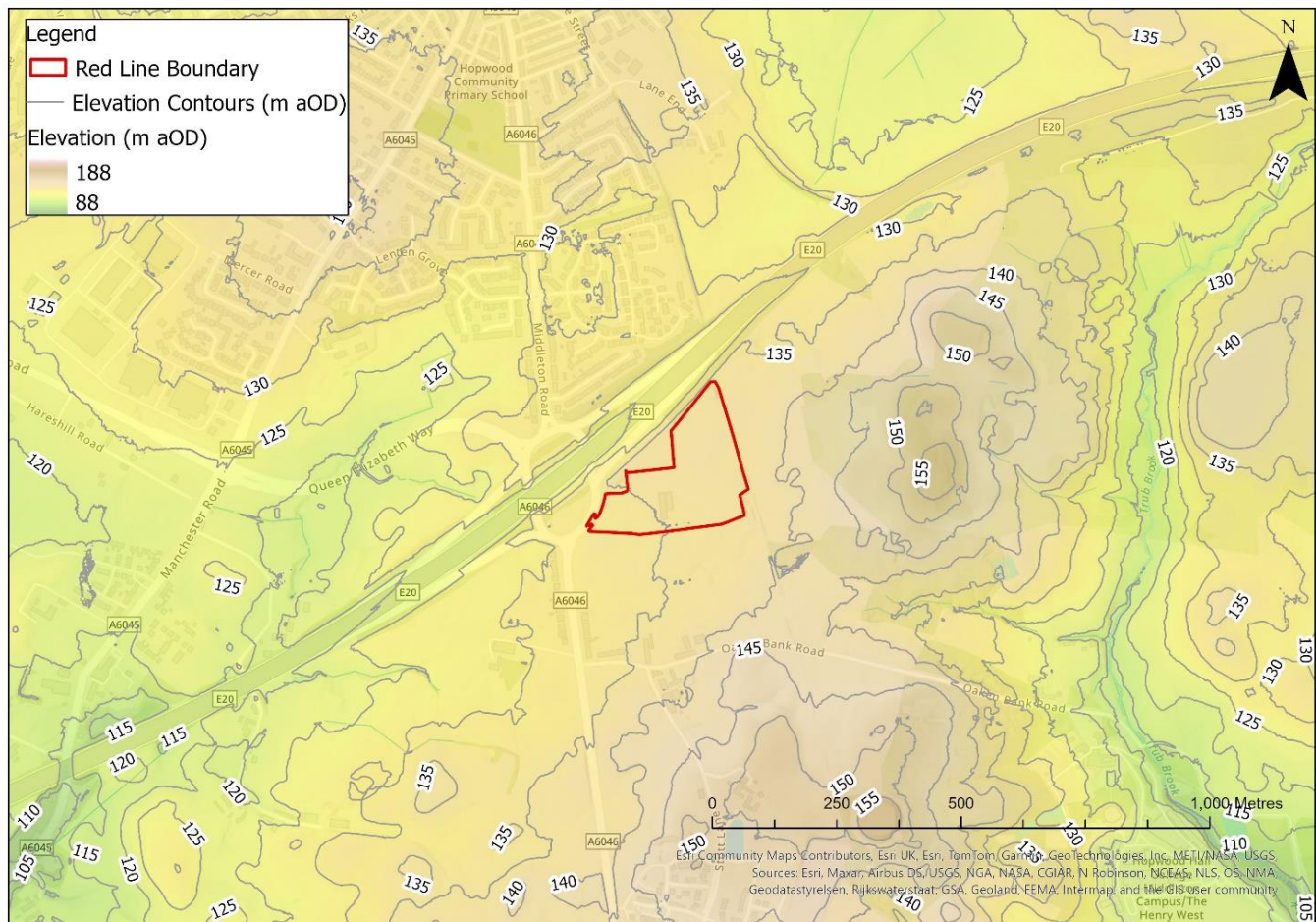
Figure 2-2 Watercourses in the vicinity of the Application Site



Topography

- 2.2.7 The Department for Environment, Food & Rural Affairs (DEFRA) 1m resolution Lidar Composite Dataset (2022) Digital Terrain Model (DTM) indicates that the Application Site predominantly slopes west. The highest point is located in the eastern part of the Application Site, at approximately 137m above ordnance datum (aOD). The lowest point lies in the southwestern corner, at approximately 132m aOD.

Figure 2-3 Lidar composite 2022 DTM presenting the existing ground levels (DEFRA, 2022)



Geology & Hydrogeology

- 2.2.8 The British Geological Survey (BGS) online mapping indicates that the Application Site is underlain by Till superficial deposits (BGS, 2025). BGS mapping shows the bedrock geology is Pennine Lower Coal.
- 2.2.9 The bedrock under the Application Site is designated: “Secondary A Aquifer” (permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of baseflow to rivers. These are generally aquifers formerly classified as minor aquifers).
- 2.2.10 The nearest source protection zone (SPZ3) for groundwater abstraction is located approximately 8km to the east of the Application Site.
- 2.2.11 BGS online mapping does not have any borehole records within the Application Site.

Land Use

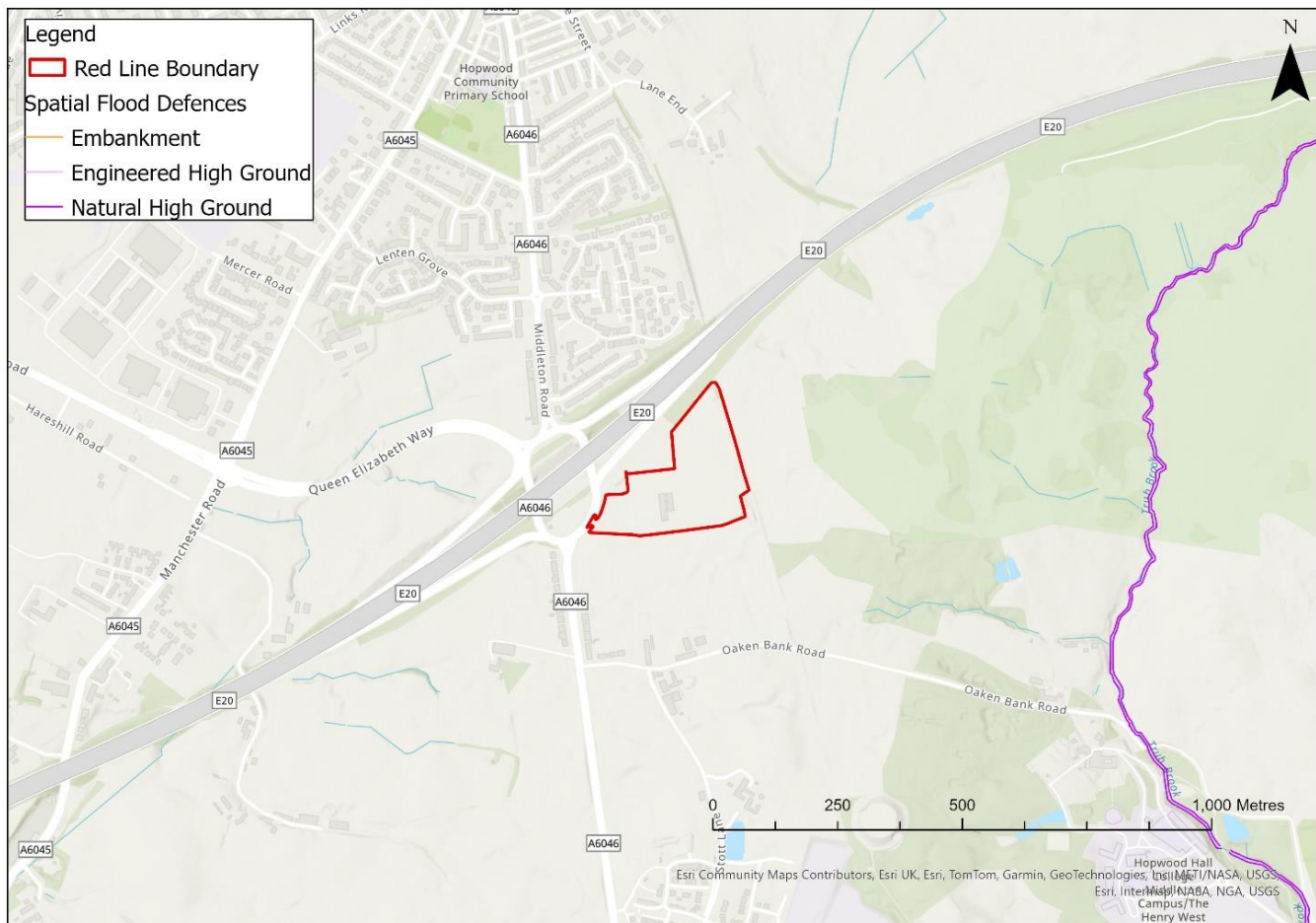
2.2.12 The M62 is located north of the Application Site. Beyond the M62 is the town of Heywood. Directly west of the Application Site runs the A6046. South of the site is the Greater Manchester suburban area Top of Hebers. Manchester Golf Club is located to the east of the Application Site.

2.2.13 Between October 2022 and May 2023, a construction compound was formed on land previously used for agriculture, adjacent to the M62 J19 to service the National Highways M62 J20-25 Safety Enhancements Scheme. The compound was occupied from May 2023 and was expected to be operated for three years, but due to the cancellation of the Safety Enhancements Scheme the compound was closed later in 2023 and the office cabins were moved off site in February 2024. Except for the office cabins, all the other infrastructure was left on site by agreement with the landowner and the land was returned to the landowner.

Flood Defences

2.2.14 Figure 2-4 presents the Environment Agency assets in the vicinity of the Application Site. According to the Environment Agency asset map, both banks of Trub Brook are classified as natural high ground.

Figure 2-4 Environment Agency Flood Defence Assets



2.3 J19 Temporary Compound

- 2.3.1 The J19 Temporary Compound is located to the south of the M62 at J19, positioned to provide access to the Strategic Road Network rather than use the Local Road Network.
- 2.3.2 The Application Site already includes access onto the J19 Heywood Interchange via an existing bell mouth onto the section of the A6046 Middleton Road, which forms part of the interchange circulatory. The site has previously been used temporarily as a site compound, so it already comprises existing hardstanding, car parking, and utility infrastructure. There will be no change in the area of impermeable surfaces within the Application Site.
- 2.3.3 The J19 Temporary Compound includes:
- Site offices and welfare facilities.
 - Car parking for staff and visitors.
 - A security hut and access control point.
 - Materials storage areas (structures, lighting, traffic management, drainage materials etc). Note that there will be no storage of earthworks materials or aggregates at the J19 Temporary Compound.
 - Secure compounds for traffic management equipment.
 - Fuel storage.
 - Material testing laboratory and stores buildings.
- 2.3.4 The maximum level of the J19 Temporary Compound is 138.5m aOD, located in the north of the Application Site. Levels drop towards the southwest, with a minimum level of 132.8m aOD. Two topsoil bunds are present on the J19 Temporary Compound, comprised of excess material generated by levelling the Application Site.
- 2.3.5 Decommissioning of the J19 Temporary Compound is expected to commence from July 2029. Subject to a timescale agreed through a condition of any permission granted, the Application Site will be reinstated to an agricultural field utilising the existing topsoil storage bunds which have been retained on the Application Site.
- 2.3.6 The Site Layout Plan (HE548642-COS-LDC-SII_MLT-DR-W-0003) accompanies the planning application.

3. Planning Policy Review

3.1 Overview

- 3.1.1 This section presents those aspects of national and local planning policy relevant to the assessment of flood risk for the J19 Temporary Compound.

3.2 National Planning Policy

- 3.2.1 Flood risk in England is normally considered through the planning process in accordance with the NPPF written by the MHCLG. The NPPF states that site-specific FRAs are required for all developments that are;

- in Flood Zone 2 or 3 including minor development and change of use; or
- more than 1ha in Flood Zone 1; or
- less than 1ha in Flood Zone 1, including a change of use in development type to a more vulnerable class. (for example, from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs); or
- in an area within Flood Zone 1 which has critical drainage problems as notified by the Environment Agency.

- 3.2.2 The Application Site is 5ha and lies predominantly in Flood Zone 1 and within an area of high surface water flood risk, therefore a FRA is required.

- 3.2.3 A key part of the NPPF is that the applicant for development must provide evidence that a sequential approach has been followed. This requires demonstration that new development is steered to areas with the lowest probability of flooding. This is known as the Sequential Test. Only where development can be demonstrated to not be possible in areas of lower flood risk, an additional test known as the Exception Test may need to be applied to demonstrate and help ensure that flood risk to people and property will be managed satisfactorily, allowing necessary development to go ahead.

3.3 The Sequential Test

- 3.3.1 The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding and to demonstrate that, where developing in areas at risk of flooding is unavoidable, the J19 Temporary Compound is appropriate in terms of flood risk.
- 3.3.2 Table 2 in the Technical Guidance of the NPPF identifies the flood risk vulnerability classifications for various development types (MHCLG, 2024). The J19 Temporary Compound is considered to fall within the 'less vulnerable' vulnerability definition.
- 3.3.3 Table 3 of the Flood Risk and Coastal Change Planning Practice Guidance (MHCLG, 2022), reproduced here as Table 3-1, defines less vulnerable infrastructure as appropriate in Flood Zones 1, 2, and 3a. Furthermore, it establishes that the Exception Test not required for the J19 Temporary Compound.

Table 3-1 Flood Risk Vulnerability Classification (reproduced from Table 3 MHCLG, 2022)

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water-compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	✗	Exception Test required	✓	✓
Zone 3b	Exception Test required	✗	✗	✗	✓

✓ The J19 Temporary Compound is appropriate

✗ The J19 Temporary Compound should not be permitted

3.3.4 The J19 Temporary Compound is still required to pass the Sequential Test. The J19 Temporary Compound is in Flood Zone 1. The Risk of Flooding from Surface Water mapping shows the site to be at risk of surface water flooding, however, subsequent drainage installed as part of previous site usage is likely to have reduced the risk from that shown.

3.3.5 The J19 Temporary Compound, previously used as a construction compound, offers a ready-to-use base for the M60 Simister Scheme, utilising existing infrastructure such as access roads, cabin foundations, and utilities. Relocating some activities from the main site compound to J19 would also reduce the need for temporary works at Mode Hill Lane, freeing up space for storage and reducing traffic from staff vehicles. The J19 Compound also provides flexibility for off-site tasks like administration, equipment servicing, and safety checks. There are no alternative sites that offer all of these benefits and use of an alternative site outside of all areas of flood risk is therefore not considered practicable. The J19 Temporary Compound has been designed such that most vulnerable aspects of the J19 Temporary Compound (the site buildings) are in areas at low risk. Therefore, it passes the Sequential Test.

3.4 Climate Change Allowances

3.4.1 The NPPF also requires new developments to consider the potential impacts of climate change on flood risk.

3.4.2 In the UK, projections of future climate change indicate that more frequent short-duration, high-intensity rainfall and more periods of long-duration rainfall can be expected. These kinds of changes will have implications on river flooding and localised flash flooding.

3.4.3 In February 2016 (updated in 2022), the Environment Agency released 'Flood risk assessments: climate change allowances' guidance to support the NPPF (Environment Agency, 2022). In accordance with current guidance the central allowance is the most appropriate to determine if vulnerable infrastructure in Flood Zone 1 is at risk of being brought into Flood Zone 2 due to climate change.

- 3.4.4 The Application Site lies in the Irwell Management Catchment. The J19 Temporary Compound has an expected lifespan of 5 years, therefore it is suitable to use the 2020 epoch. For the consideration of flood risk to and arising from the J19 Temporary Compound in relation to fluvial flood sources the appropriate 2020 epoch higher central peak river flow allowance of 12% has been considered.

3.5 Local Planning Policy

- 3.5.1 The Application Site falls within the administrative area of Rochdale Borough Council, who are the Lead Local Flood Authority.

Strategic Flood Risk Assessments

- 3.5.2 JBA has produced a Level 1 Strategic Flood Risk Assessments (SFRA) for the Greater Manchester Authority (JBA Consulting, 2019). The document identifies the Application Site to be in a significant location in meeting Greater Manchester future development needs.
- 3.5.3 The Level 1 SFRA presents a summary of previous breach modelling conducted for the Rochdale Canal. Breaches are most likely within the centre of Rochdale, where the canal freeboard has subsided. Breach modelling did not indicate the Application Site would be at risk if the canal breached.
- 3.5.4 The Level 1 SFRA presents a map of historic flood incidents, none of which are located within the Application Site.
- 3.5.5 Data is also provided by United Utilities with information on historic incidents of flooding from the sewer network, due to hydraulic failure. None of which are shown to have occurred on the Application Site.

Local Flood Risk Management Strategy

- 3.5.6 Rochdale Borough Council has prepared a flood risk management strategy (FRMS) for 2014 to 2024 (Rochdale Borough Council, 2014), which highlights Rochdale as vulnerable to surface water flooding and outlines potential mitigation strategies.
- 3.5.7 The strategy states that the River Roch and its network of tributaries pose the most significant fluvial flood threat across the borough. High-risk zones for both residential and commercial properties include Littleborough, Milnrow, and Heywood.
- 3.5.8 Additionally, the FRMS presents the Environment Agency's groundwater susceptibility mapping, indicating that the Application Site is at low risk of groundwater emergence.
- 3.5.9 The document does not contain any information specific to the Application Site.

Core Strategy and Local Plan

- 3.5.10 Places for Everyone, a strategic plan for nine Local Planning Authorities in Greater Manchester, was adopted in March 2024 and provides the most up to date planning policy for Rochdale Borough. Policy JP-S4 is the most relevant policy to this FRA, which states:

“An integrated catchment-based approach will be taken to protect the quantity and quality of water bodies with reference to the North West River Basin Management Plan and managing flood risk, by:

1. Returning rivers to a more natural state, where practicable;

2. Working with natural processes and adopting a natural flood management approach to slow the speed of water drainage and intercept water pollutants;

3. Locating and designing development so as to minimise the impacts of current and future flood risk, including retrofitting or relocating existing developments, infrastructure and places to increase resilience to flooding;

4. Expecting developments to manage surface water run-off through sustainable drainage systems and as close to source as possible. Development should achieve greenfield run-off rates unless it is demonstrated to be impracticable. District local plans should consider setting more detailed surface water drainage policies to reflect local circumstances, including alternative surface water discharge rates, such as in areas with critical drainage issues;

5. Ensuring that sustainable drainage systems:

i. Are designed to provide multifunctional benefits wherever possible, including for water quality, nature conservation and recreation;

ii. Avoid adverse impacts on water quality and any possibility of discharging hazardous substances to ground;

iii. Are delivered in a holistic and integrated manner, including on larger sites split into different phases; and

iv. Are managed and maintained appropriately to ensure their proper functioning over the lifetime of the development.

6. Securing the remediation of contaminated land and the careful design of developments to minimise the potential for urban diffuse pollution to affect the water environment; and

7. As a minimum, residential development should meet the mandatory water efficiency standard of 125 litres/person/day as set out in Building Regulations. District local plans may and should consider setting a tighter water efficiency standard of 110 litres/person/day where there is a clear local need with reference to national guidance on housing optional technical standards.”

3.5.11 The Rochdale Borough Council Core Strategy was adopted in 2016 and will run until 2028 (Rochdale Borough Council, 2016). Policy G8 is in response to flood risk. The policy emphasises NPPF requirements and further states:

“G8 - Managing water resources and flood risk We will ensure that new development (including flood risk mitigation measures) does not lead to any form of increased flooding locally or further downstream, does not impede natural water and flood risk management, is not detrimental to existing or potential flood storage areas, contributes where possible to alleviating existing flood risk, is itself well protected from flood risk and ensures prudent use of water resources. We will require:

a. Compliance with a ‘sequential’ approach to new development and flood risk, directing development away from areas of high risk, in accordance with the National Planning Policy Framework;

- b. Full regard to and compliance with the advice of the Environment Agency (or equivalent agency) and the objectives and priorities for flood risk management set out in the Local Flood Risk Management Strategy, including any mitigation measures recommended for particular sites;*
- c. Full regard to the published evidence of local flood risk and its significance as included in Strategic Flood Risk Assessments, Surface Water Management Plans and other recognised sources of flood risk data and the production of additional Flood Risk Assessments (FRAs) as appropriate;*
- d. Incorporation of appropriate measures for the management of surface and flood water, including flood storage areas, Sustainable Urban Drainage Systems (SUDS) and the protection of 'overland flow paths';*
- e. Compliance with any Surface Water Management Plan or drainage strategies produced, such as for the identified critical drainage areas of Littleborough and Heywood;*
- f. The avoidance of culverting, and support the opening up of existing culverts wherever possible;*
- g. The incorporation of measures for the conservation of water to minimise potable water consumption, including rainwater collection measures, which should be integral to the design of buildings and spaces;*
- h. Development that does not directly or indirectly lead to pollution of existing water resources such as watercourses and groundwater or the derogation of the quantity of groundwater;*
- i. The incorporation of measures to improve water quality; and*
- j. The taking of opportunities to improve the habitat value of watercourses and water bodies.*

In addition, we will identify additional flood storage areas which will be protected from development”.

3.6 Relevant Studies and Reports

Section 19

- 3.6.1 Rochdale Borough Council, as the Lead Local Flood Authority, has a responsibility under Section 19 of the Flood and Water Management Act 2010 to investigate significant flood incidents in its area. However, Rochdale Borough Council often works as part of Greater Manchester Combined Authority (GMCA).
- 3.6.2 While two Section 19 reports by the GMCA were identified (GMCA, 2020) and (GMCA, 2015), neither provided reports of flooding on the Application Site.

4. Assessment of Risk to the Proposed Development

4.1 Tidal Flood Risk

- 4.1.1 The Application Site is approximately 40km away from the nearest coastline and the minimum elevation of the Application Site is approximately 132m aOD. Due to these factors, there is no source of tidal flooding to impact the Application Site. Therefore, this source is not considered further in this assessment.

4.2 Fluvial Flood Risk

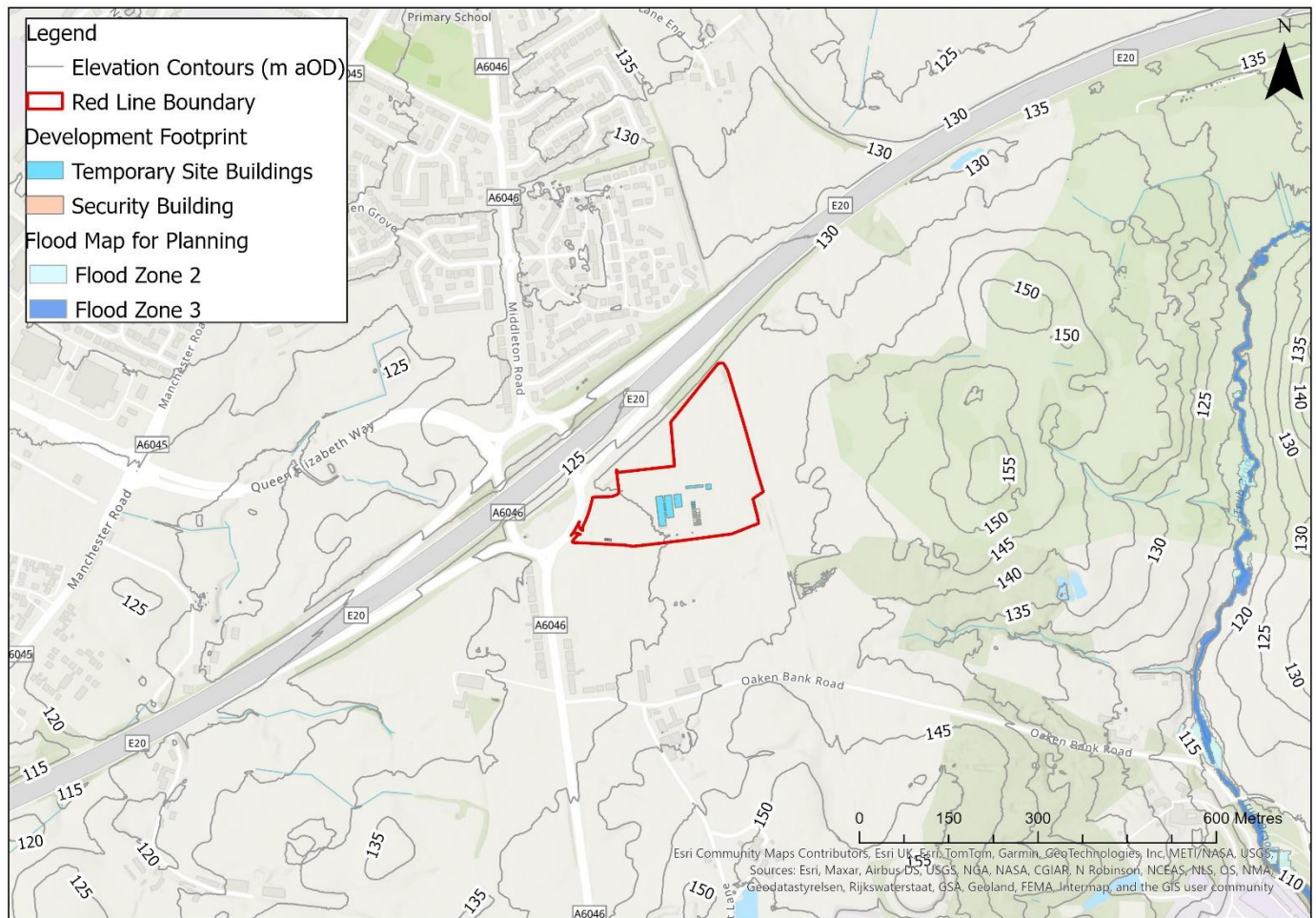
- 4.2.1 Fluvial flooding is defined as flooding that arises when the water level in a river, lake or stream rises and overflows onto the surrounding banks, shores and neighbouring land. It occurs when excessive rainfall causes a waterbody to exceed its capacity. The Application Site lies between three rivers (Trub Brook, Roeacre Brook, and Whittle Brook).

Flood Map for Planning

- 4.2.2 The flood risk from fluvial flooding is assessed through the use of the Environment Agency Flood Map for Planning (Environment Agency, 2025a). This map defines three zones of different flood risk, the third of which is subdivided into two categories:
- Zone 1 “Low probability of flooding” – This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1% Annual Exceedance Probability (AEP));
 - Zone 2 “Medium probability of flooding” – This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1% AEP), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1% AEP) in any year;
 - Zone 3a “High probability of flooding” – This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1% AEP), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5% AEP) in any year;
 - Zone 3b “Functional floodplain” – A sub-part of Zone 3, this zone comprises land where water has to flow or be stored in times of flood. This zone is not normally included within the national Flood Map for Planning, but may be defined as part of the local SFRA.
- 4.2.3 The Environment Agency Flood Map for Planning is designed to support FRAs in line with Planning Practice Guidance.
- 4.2.4 Figure 4-1 presents the Flood Map for Planning Flood Zones 2 and 3 during the defended scenario. The Application Site is located in Flood Zone 1, meaning it has less than a 1 in 1000 annual probability of river flooding. The majority of the flood plain for the Trub Brook is confined to the channel and does not pose a risk to the Application Site due to the raised elevation between it and the Application Site.

- 4.2.5 No Flood Zones are related to the Whittle Brook and Roeacre, indicating that neither watercourse poses a risk to the Application Site, likely due to their small catchment size. However, there is a potential that the upstream reaches of the Whittle Brook and Roeacre Brook have not been modelled for the Flood Map for Planning. Instead, it is possible that the Risk of Flooding from Surface Water (see Section 4.3) provides a more accurate representation of flood risk from the Whittle Brook and Roeacre Brook.

Figure 4-1 Flood Map for Planning – Defended Scenario (Environment Agency, 2025a)



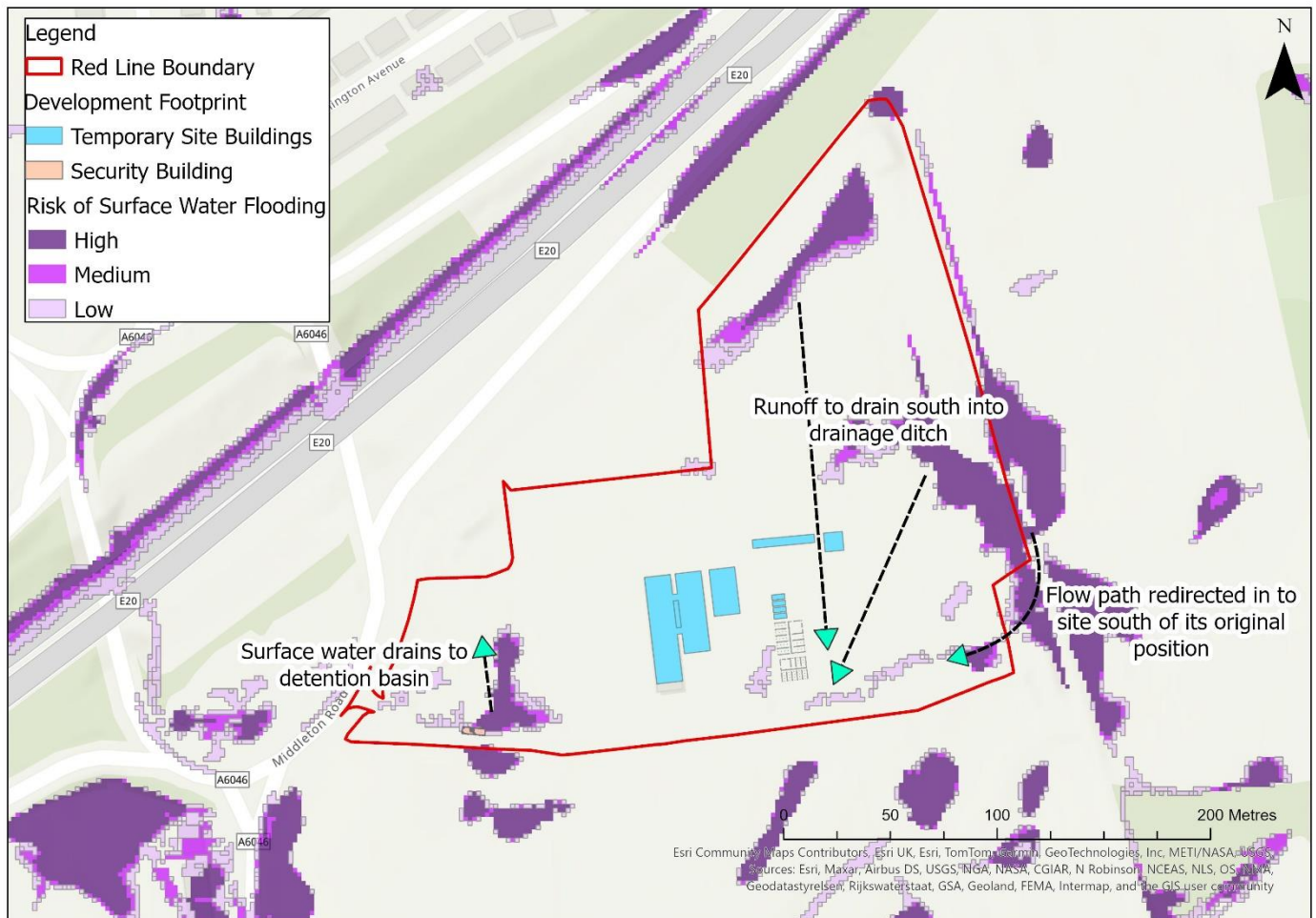
Impacts due to Climate Change over the Lifetime of the J19 Temporary Compound

- 4.2.6 Fluvial flood risk is anticipated to change as a result of climate change. However, due to the topography of the land between the Application Site and Trub Brook (shown in Figure 4-1), any significant increases in flood extent would likely only occur in the east as the ground there is lower than the west.
- 4.2.7 Figure 4-1 demonstrates that the risk to the Application Site from rivers is very low and that risks to the J19 Temporary Compound would remain very low when accounting for the effects of climate change.

4.3 Surface Water Flood Risk

- 4.3.1 Surface water flooding typically occurs during or following intense periods of rainfall where the ground's ability to absorb rainfall is overwhelmed. As more runoff is expected from developed (impermeable) areas where rainfall is less able to infiltrate into the soil, developed areas tend to be more susceptible to flooding from surface water or overwhelmed sewer networks.
- 4.3.2 The Environment Agency Risk of Flooding from Surface Water (RoFSW) mapping (Environment Agency, 2025b) can be used to assess the risk of surface water flooding. The RoFSW data sets provide an overview of areas at risk of surface water flooding based on national scale mapping. This classifies the risk of surface water flooding as:
- High risk: areas with yearly chance of flooding at 3.3% or greater.
 - Medium risk: areas with a yearly chance of flooding between 1% and 3.3%.
 - Low risk: areas with a yearly chance of flooding between 0.1% and 1%.
 - Very low risk: areas with a yearly chance of flooding lower than 0.1%.
- 4.3.3 Figure 4-2 presents the Environment Agency's RoFSW mapping. The mapping shows several areas within the Application Site to be at a high risk of surface water flooding. Interrogation of the areas at risk against Lidar indicates that the surface water flooding is likely linked to surface water build up in topographical depressions. However, the Application Site has been reprofiled during prior works (see Section 2.2), these depressions no longer exist. Instead, surface water runs south, into the drainage ditch located at the south of the Application Site (indicated in Figure 4-2).
- 4.3.4 On the east of the J19 Temporary Compound is a 105m long bund. The bund may have the potential to interrupt surface water flow paths coming from the northeast on to the Application Site. However, due to the topography, the surface water flow path will likely migrate approximately 25m south before flowing back onto the Application Site and into the drainage ditch, where it will be managed through the Drainage Strategy .

Figure 4-2 Risk of Flooding from Surface Water (Environment Agency, 2025b)



Impacts due to Climate Change over the Lifetime of the J19 Temporary Compound

- 4.3.5 As with risks from fluvial sources, surface water flood risks are also anticipated to change as a result of climate change. In the context of surface water flood risks to the Application Site and the J19 Temporary Compound, climate change is expected to increase the frequency and duration of rainfall events, likely leading to an increase in surface water flood risk at the Application Site.
- 4.3.6 The risk to the Application Site and the J19 Temporary Compound from surface water sources is therefore considered to be high, however the risk has been lowered by previous works and further risk will be mitigated by the Drainage Strategy presented in Section 6.2.

4.4 Groundwater Flood Risk

- 4.4.1 Groundwater flooding is caused by the emergence of water from beneath the ground at either point or diffuse locations when the natural level of the water table rises above ground level. This can result in deep and long-lasting flooding of low lying land and/or below ground infrastructure such as underpasses and basements. Groundwater flooding can cause significant damage to property due to it typically occurring over a period of weeks to months.

- 4.4.2 As stated in Section 2.2, no borehole records were available for the Application Site to determine groundwater levels. However, the Environment Agency's Long Term Flood Risk service (Environment Agency, 2021) states that flooding from groundwater is unlikely to occur at the Application Site.

Impacts due to Climate Change over the Lifetime of the J19 Temporary Compound

- 4.4.3 Climate change is predicted to result in warmer wetter winters which could increase the volume of water available for groundwater recharge in the winter months. Therefore, the frequency of groundwater flooding events may increase.
- 4.4.4 Due to the elevation across the Application Site and the J19 Temporary Compound, the risk of groundwater emergence is unlikely to increase with climate change. However, if groundwater emergence did occur within the Application Site it would result in very shallow depths that drain south/south east into the drain at the south of the Application Site, where it would be controlled by the drainage system.
- 4.4.5 The risk of groundwater flooding to the Application Site and J19 Temporary Compound is considered to be low.

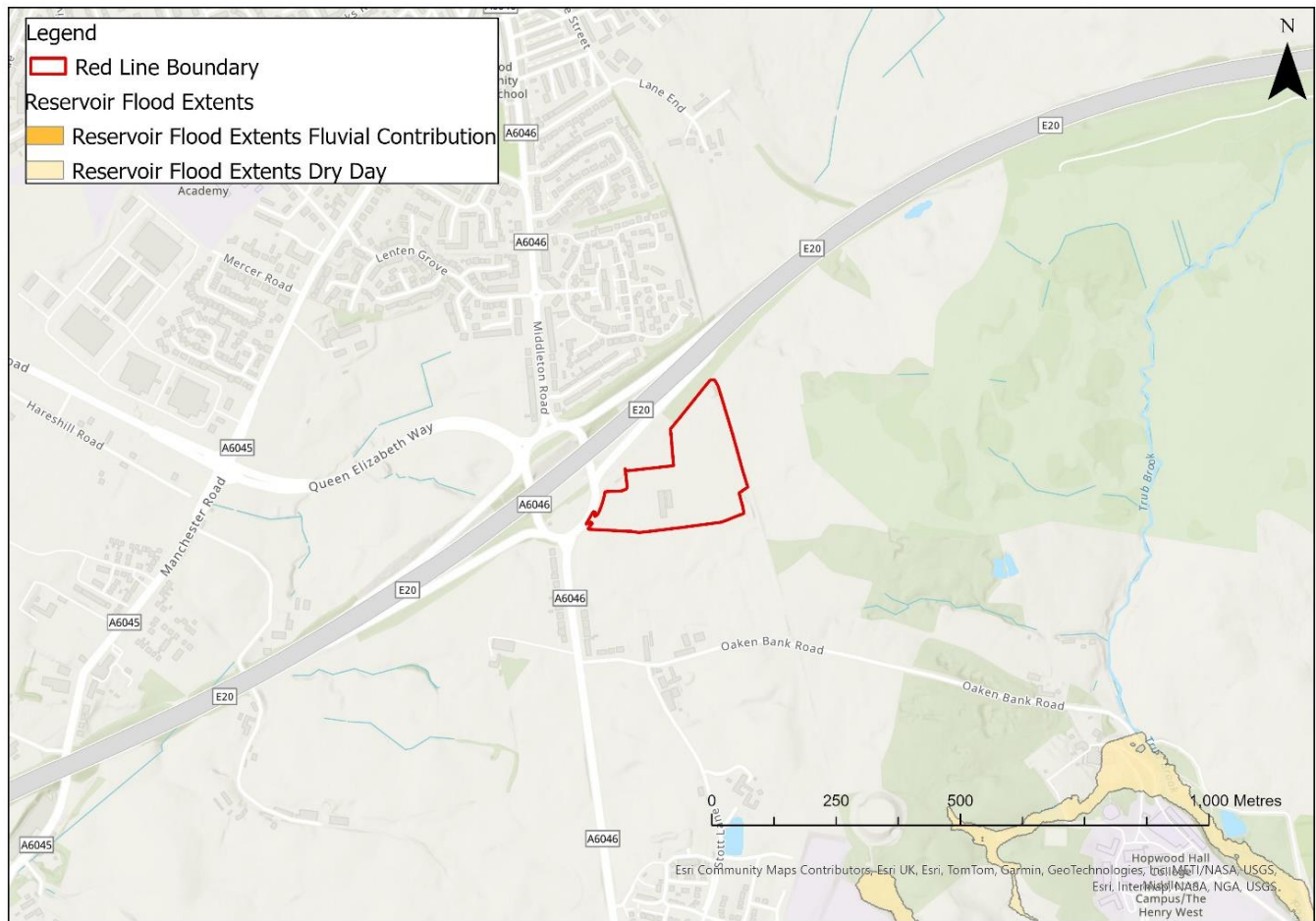
4.5 Flood Risk from Reservoirs

- 4.5.1 Reservoir failure can be a particularly dangerous form of flooding as it results in the sudden release of large volumes of water that can travel at high velocity. Reservoir flooding can result in deep and widespread flooding, potentially resulting in significant damage. However, the likelihood of a large, raised reservoir (>25,000 cubic metres) flood occurring is very low due to the requirements for regular inspections and maintenance as set out in the Reservoirs Act 1975.
- 4.5.2 The data sets provided by the Environment Agency to appraise this risk consider the result of a catastrophic failure (removal) of the impounding structure on a wet day (when there is also fluvial flooding), and a dry day (when rivers are at normal levels). Figure 4-3 provides the flood extents for both wet and dry days in the vicinity of the Application Site. The mapping indicates that the Application Site and J19 Temporary Compound would not experience flooding during the Dry and Wet day scenarios.

Impacts due to Climate Change over the Lifetime of the J19 Temporary Compound

- 4.5.3 Due to the legal requirement to ensure reservoirs remain safe over their lifetime there is not expected to be any consequences for flood risk from this source due to climate change.
- 4.5.4 The risk to the Application Site from reservoir sources is therefore considered to be low. The risk to the J19 Temporary Compound is considered low due to its elevated position relative to the floodplain. Therefore, no additional mitigation measures are considered necessary.

Figure 4-3 Reservoir Flood Extents (Environment Agency, 2021)



4.6 Flood Risk from Sewers and Artificial Drainage Systems

- 4.6.1 Flooding from surface water sewers most commonly occurs when the flow entering the sewer exceeds the capacity of the receiving system. Other causes include blocked drains and the inability of sewers to discharge into receiving watercourses. This results in flooding from manholes and drains.
- 4.6.2 At the time of writing no drainage or sewer plans were available to identify nearby sewers or drains. However, as the land was previously used for agriculture it is unlikely that a public sewer system exists on or in close proximity to the Application Site.
- 4.6.3 The J19 Temporary Compound will be using a separate foul water system which drains into a cess pit while works on a Klargest BioDisc package treatment plant are completed and consent is applied for discharge. The foul water system is not connected to any surface water drains therefore is not at risk of being overwhelmed during storms. The sewer system has been designed in line with the J19 Temporary Compound's peak staff numbers, which is anticipated to be approximately 200 people at any one time. Once consent to discharge from the treatment plant has been granted, effluent flows will be discharged the southern surface water ditch and then to the National Highways Network at a rate of 22.5m³/day (0.26l/s).

- 4.6.4 As there are no public sewers on or in the vicinity of the Application Site the site is at a low risk of flooding from externally owned sewers.
- 4.6.5 The J19 Temporary Compound sewer will discharge into the surface water drainage which could put the sewer system at risk of backing up during a combination event, however the risk of this is low (see Section 7).
- 4.6.6 The risk of treated discharge causing flooding to the highways network once a connection is made is considered low given the very low volume of discharge anticipated. It is assumed that should the receiving network be at capacity, consent to discharge will not be forthcoming.

Impacts due to Climate Change over the Lifetime of the J19 Temporary Compound

- 4.6.7 Climate change is unlikely to change risks associated with the potable water main and sewers.
- 4.6.8 The risk of flooding to the Application Site and J19 Temporary Compound from local sewers and artificial drainage systems is considered to be low and no mitigation measures are considered necessary.

5. Assessment of Risk from the Development

5.1 Overview

- 5.1.1 This chapter provides an assessment of the potential impact the J19 Temporary Compound may have on flood sources and potential consequences to third parties.

5.2 Impact on Fluvial Flood Risk

- 5.2.1 Section 4.2 establishes the Application Site and J19 Temporary Compound is at low risk of fluvial flooding. As the Application Site is not impacted by fluvial flooding, the J19 Temporary Compound will not displace flood waters to third parties.
- 5.2.2 For this reason, the J19 Temporary Compound presents a very low risk of exacerbating fluvial flooding to third parties and no mitigation measures are considered necessary.

5.3 Impact on Surface Water Flood Risk

- 5.3.1 Section 4.3 establishes that the risk of surface water flooding to the Application Site is high, however, risk to the J19 Temporary Compound is low as it will be mitigated in the Drainage Strategy. The Drainage Strategy (see Section 6.2) states that discharge from the Application Site will be limited to 33l/s which is below the greenfield runoff rate. Therefore, there will be no increase in surface water flows leaving the Application Site.
- 5.3.2 As discussed in Section 4.3, the bund located on the east boundary of the Application Site may direct the surface water flow path approximately 25m south of its original alignment, leading to a marginal increase in flood extent within open land. Any change is likely to be minor and restricted to significant rainfall events. Redirected flows are expected to re-enter the Application Site and discharge into the existing drainage ditch. Given the temporary nature of the J19 Temporary Compound, surface water flow paths are anticipated to revert to their original configuration following decommissioning.
- 5.3.3 For the reasons above, the J19 Temporary Compound is at a low risk of significantly exacerbating surface water flooding to third parties.

5.4 Impact on Groundwater Flood Risk

- 5.4.1 Section 4.4 discussed groundwater flood risk and concluded that there a low risk of groundwater flooding within the Application Site. The J19 Temporary Compound does not consist of any significant below ground works. Therefore, it is unlikely that that the J19 Temporary Compound will interrupt groundwater connectivity and exacerbate groundwater flood risk.
- 5.4.2 Due to the reasons above, the J19 Temporary Compound is considered to be at low risk of exacerbating groundwater flooding to third parties.

5.5 Impact on Reservoir Flood Risk

- 5.5.1 Section 4.5 determined the Application Site to be at low risk of reservoir flooding. As the J19 Temporary Compound is not within the extent of reservoir flooding it is unlikely that it will displace reservoir flooding resulting in impacts to third parties.
- 5.5.2 There is a very low risk that the J19 Temporary Compound will exacerbate reservoir flooding.

5.6 Impact on Sewers and Artificial Drainage Systems

- 5.6.1 As identified in Section 4.6, the risk of flooding from sewers and artificial drainage systems is low. Foul water created by the Application Site will be stored in a cess pit and removed twice a week as required until consent is gained to discharge to the National Highways Network. As the J19 Temporary Compound will not be connected to any foul water systems, the risk of increasing flooding from sewers and drainage systems is low.

6. Flood Risk Mitigation Measures

6.1 Summary of Flood Risk

6.1.1 Sections 4 and 5 have discussed flood risk to and from the Application Site and J19 Temporary Compound. Section 6.1 summarises these risks. Table 6-1 indicates a change in the risk to and from the Application Site and J19 Temporary Compound.

Table 6-1 Flood risk to and from the Application Site / J19 Temporary Compound

Flood Source	Risk to Application Site	Risk to the J19 Temporary Compound	Risk from the J19 Temporary Compound	Mitigation needed
Fluvial	Very low	Very low	Very low	No
Surface water	High	Low	Moderate	In place (see Section 6.2)
Reservoir	Very low	Very low	Very low	No
Groundwater	Low	Low	Low	No
Sewers and artificial drains	Low	Low	Low	No

6.1.2 Where risks to or arising from the J19 Temporary Compound are moderate or greater, mitigation measures are considered appropriate for inclusion. The following sections define the flood mitigation measures that are already in place within the J19 Temporary Compound.

6.2 Surface Water Flood Risk

6.2.1 Planning applications for new developments are required to provide a Drainage Strategy in order to comply with the NPPF. The Drainage Strategy for the J19 Temporary Compound accompanies the planning application. The drainage has been designed to the 1 in 10-year event as the J19 Temporary Compound has an expected lifespan of approximately 5 years.

6.2.2 The surface water drainage strategy has adopted surface water management infrastructure that has been in place on the Application Site prior to this planning application. Therefore, an assessment to discharge to ground has not been undertaken.

6.2.3 For the purposes of assessment, the J19 Temporary Compound is assumed to be greenfield land to reflect its previous agricultural use, therefore allowable discharge rates have been limited to the greenfield runoff rate. The Application Site currently has an existing drainage ditch used by previous developments. The drainage ditch drains into an existing outfall chamber which connects into the National Highways Drainage Network.

6.2.4 To allow for surface water to be discharged below the greenfield run off rate, surface water will be attenuated within the drainage basin on the Application Site. The drainage storage volume has been determined for the 1 in 10-year rainfall event.

7. Residual Risk

- 7.1.1 Residual risk is the risk left over after inherent risks have been reduced by mitigation measures to an acceptable level.
- 7.1.2 For all sources of flood risk, there is the residual risk that an extreme event greater than that for which mitigation measures are designed to manage may occur. There is also the risk of a combination event. Notwithstanding the unpredictability of such events the elevated position of the J19 Temporary Compound relative to likely sources of flood risk will afford it a high degree of protection from such events.
- 7.1.3 For the J19 Temporary Compound, the main residual risk is associated with the capacity of the surface water drainage system during surface water flooding events. Any surface water flooding on the Application Site will be limited to the southern end of the Application Site due to the site topography. Surface water is most likely to flow west towards the A6046. The risk of flooding of this magnitude is low during the short duration that the J19 Temporary Compound will be in place and therefore further mitigation, or assessment has not been undertaken.
- 7.1.4 In addition, if an event larger than the 1 in 10 year event occurred which prevented the sewer system from discharging into the drainage ditch (due to it being at capacity) there is the low risk that surcharging of the sewer system occurs. Surface water events are usually flashy, lasting for a short amount of time. If surcharging occurred, it would be expected to only affect the Application site and would be managed by the contractor.

8. Conclusions

- 8.1.1 This Flood Risk Assessment has been developed for temporary construction compound located at Junction 19 on the M62. This Flood Risk Assessment encompasses a screening of a range of sources of flood risk. It has considered the risk to the J19 Temporary Compound, as well as the risk arising to third parties as a consequence of the J19 Temporary Compound's interaction with local flood sources and pathways.
- 8.1.2 Given the Application Site's inland location and elevated topography, there is no tidal flood source that could impact the Application Site, and therefore tidal flooding is not considered a risk.
- 8.1.3 Flood risk to the J19 Temporary Compound from rivers, reservoirs, groundwater, and sewers has been assessed, all are considered to present a low risk to the J19 Temporary Compound. The J19 Temporary Compound also presents a low risk of exacerbating flooding from groundwater, reservoirs and sewers to third parties.
- 8.1.4 While the Application Site was shown to have a high risk of surface water flooding caused by pooling of rainfall. However, the Application Site was previously reprofiled so that the topographic depressions causing pooling no longer exist. The J19 Temporary Compound Drainage Strategy demonstrates how sufficient storage can be provided within the J19 Temporary Compound to limit discharge rates to greenfield runoff rates. With these mitigation measures in place the J19 Temporary Compound has a low risk of exacerbating surface water flooding to third parties.
- 8.1.5 In accordance with the National Planning Policy Framework, the Sequential Test has been applied to the J19 Temporary Compound. The J19 Temporary Compound is in Flood Zone 1. The Risk of Flooding from Surface Water mapping shows the Application Site to be at risk of surface water flooding, however, subsequent drainage is likely to have reduced the risk.
- 8.1.6 The J19 Temporary Compound is reestablishing use at a site that has previously been used for the same purpose. The J19 Compound provides established areas for car parking, storage and access preventing the need to construct these elsewhere (and increase the area of hardstanding). The J19 Temporary Compound has been designed such that most vulnerable aspects of the J19 Temporary Compound are in areas at low risk. Therefore, it is considered that it should pass the Sequential Test.
- 8.1.7 The Places for Everyone strategic plan Policy JP-S4 has been considered in development of the J19 Temporary Compound proposals. The J19 Temporary Compound is considered to be consistent with the policy.
- 8.1.8 Decommissioning of the J19 Temporary Compound is expected to commence from July 2029. The Application Site will be reinstated to an agricultural field utilising the existing topsoil storage bunds which have been retained on the Application Site. Following restoration of the Application Site to its original condition, any temporary alterations to surface water flow paths will revert to their pre-development configuration.

Appendix A. References

- British Geological Survey. 2025. "GeoIndex (onshore)." Accessed 2025. <https://www.bgs.ac.uk/map-viewers/geoindex-onshore/>.
- Department for Environment, Food & Rural Affairs. 2022. "National LIDAR Programme." Accessed 2025. <https://www.data.gov.uk/dataset/f0db0249-f17b-4036-9e65-309148c97ce4/national-lidar-programme>.
- Environment Agency. 2021. Risk of Flooding from Reservoirs - Maximum Flood Extent . Accessed 2025. <https://www.data.gov.uk/dataset/44b9df6e-c1d4-40e9-98eb-bb3698ecb076/risk-of-flooding-from-reservoirs-maximum-flood-extent-web-mapping-service>.
- Environment Agency. 2022. Flood risk assessments: climate change allowances. Accessed 2025. <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.
- Environment Agency. 2025a. Flood Map for Planning - Flood Zones. Accessed 2025. <https://www.data.gov.uk/dataset/104434b0-5263-4c90-9b1e-e43b1d57c750/flood-map-for-planning-flood-zones1>.
- Environment Agency. 2025b. Risk of Flooding from Surface Water. Accessed 2025. <https://environment.data.gov.uk/dataset/b5aaa28d-6eb9-460e-8d6f-43caa71fbe0e>.
- Greater Manchester Combined Authority. 2015. Flood Investigation Report.
- Greater Manchester Combined Authority. 2020. Greater Manchester Flood Event Report - Storm Ciara and Dennis.
- JBA Consulting. 2019. Level 1 Strategic Flood Risk Assessment for Greater Manchester.
- Ministry of Housing, Communities & Local Government. 2022. "Flood risk and coastal change." Accessed 2025. <https://www.gov.uk/guidance/flood-risk-and-coastal-change>.
- Ministry of Housing, Communities & Local Government. 2025. "National Planning Policy Framework." Accessed 2025. <https://www.gov.uk/guidance/national-planning-policy-framework>.
- Rochdale Borough Council. 2014. Rochdale Borough's Strategy for Flood Risk Management 2014-2024.
- Rochdale Borough Council. 2016. Rochdale Core Strategy.
- UK Centre For Ecology & Hydrology. 2025. Flood Estimation Handbook Web Service. Accessed 2025. <https://fehweb.ceh.ac.uk/Map>.