

Foam Converters, Todmorden Road, OL15 9EG

Reference: R0844 FRA-v1

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FLOOD RISK ASSESSMENT

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All Environment Agency mapping data used under special licence. Data is current as the data on the correspondence given by the Environment Agency and is subject to change.

The information presented and conclusions drawn are based on statistical data and are for guidance purposes only. The study provides no guarantee against flooding of the study site or elsewhere, nor of the absolute accuracy of water levels, flow rates and associated probabilities.

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Purpose of this report

- 1.1 RIDA Reports Ltd has been appointed to undertake a Level 2 – Scoping Study Flood Risk Assessment for a development located at OL15 9EG.

Objectives

- 1.2 The objectives of this FRA are to demonstrate the following:
- Whether the proposed development will likely be affected by current or future flooding.
 - Whether the proposed development will increase flood risk elsewhere.
 - Whether the flood risks associated with the proposed development can be satisfactorily managed.
 - Whether the measures proposed to deal with the flood risk are sustainable.

Documents Consulted

- 1.3 To achieve these objectives, the following documents have been consulted and referenced:

The National Planning Policy Framework (NPPF)
CIRIA C753 document The SuDS Manual, 2015
Local Flood Risk Management Strategy (LFRMS)
Level 1 Strategic Flood Risk Assessment (SFRA)
Aerial photographs and topographical survey of the site
British Geological Society Records
Local Council flood Maps
Environment Agency flood maps
The CIRIA publication 'C635 Designing for exceedance in urban drainage Good practice'



Development Site and Location

- 2.1 The site is located at Todmorden Road, Littleborough. The nearest postcode is OL15 9EG. Refer to appendix A for site location plan.
- 2.2 The current use of the site is a Foam supplier industry. The current user vulnerability classification of the site is Less vulnerable . The site is located in the River Flood Zone 3. Refer to Appendix B for more details.

Development Proposals

- 2.3 The proposed development includes the construction of two blocks with a total of 11 dwellings. Refer to Appendix B for the layout of the proposed development.
- 2.4 The vulnerability classification of the proposed development is More vulnerable with an estimated lifetime between 50 and 100 years.

Site Hydrology and Hydrogeology

- | | | |
|------------------------|-----|---|
| Hydrology | 2.5 | The Rochdale Canal is located approximately 1 m away from the development. |
| Aquifer | 2.6 | The development is located within a secondary aquifer type A. Aquifers type A consist of permeable layers capable of supporting water supplies at a local rather than strategic scale. They are generally aquifers formerly classified as minor aquifers. |
| Source Protection Zone | 2.7 | The site is not located within a Source Protection Zone. |
| Groundwater Levels | 2.8 | The ground water levels for this site are unknown. |

Site Geology

- | | | |
|----------------------|------|--|
| Bedrock | 2.9 | The British Geological Survey records of the site show that it is located within the Woodhead Hill Rock - Sandstone. |
| Superficial Deposits | 2.10 | The British Geological Survey records show that the superficial deposits are Alluvium - Clay, Silt, Sand and Gravel. |



National Planning Policy Framework (NPPF)

- 3.1 The NPPF and its technical guidance is a set of planning policies with the key objective of contributing to sustainable development. As part of it, they ensure that flood risk and sustainability are considered during the planning process. This ensures that developments are not located in flood risk areas and directs developments to lower risk areas. The NPPF applies a sequential risk-based approach to determining land suitability for development in flood risk areas. The NPPF also encourages developers to seek opportunities to reduce the overall level of flood risk through the development layout and the application of Sustainable Drainage Systems (SuDS).

The Flood and Water Management Act (2010)

- 3.2 The Flood and Water Management Act aims to reduce the flood risk associated with extreme weather events. It provides robust flood risk management for people, homes and businesses and encourages using SuDS for developments. A robust SuDS strategy should consider the recommendations in this Flood Risk Assessment.

Strategic Flood Risk Assessment (SFRA)

- 3.3 Planning policy with regard to development and flood risk in the area is detailed in the Rochdale Borough's Strategy for Flood Risk Management 2014-2024 (RBSFRM 2014-2024) which was published in 2014. The proposed development site is located within the administrative boundary of the Rochdale Borough Council.
- 3.4 The SFRA commits to direct new development to locations at the lowest flood risk. The SFRA provides information on the levels and flood hazards that could result from flooding. The Environment Agency flood zone maps and the SFRA ignore the presence of existing flood defences when defining the potential extent of flooding.
- 3.5 This report follows the guidance given in the Rochdale Borough's Strategy for Flood Risk Management 2014-2024 by evaluating the flood risk and providing relevant flood mitigation.



- 4.1 The NPPF guidance states that the sequential test "is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding."

Applicability of the Sequential Test

- 4.2 The flood risks were determined by identifying all the sources of flooding and assessing their possible impact and likelihood to development. It is confirmed that the development is:

- In Flood Zone 3, based on the Planning Flood Risk Map
- In Flood Zone 3b, based on the Flood Level information Provided by the Environment Agency
- At Low risk of surface flooding
- At high risk of groundwater flooding
- Outside of a critical drainage area
- Outside of an area with sewer flooding

- 4.3 Due to the flood risk on the development, a sequential test is required. For this development, the sequential assessment was completed for the area within the red line of the planning application. The development has been located at the lowest flood risk. Regarding looking at other reasonably available sites, it is unlikely that other areas are available in lower flood risk probability as the development is small and can only be located within the proximity of the existing land use and land ownership. It is concluded that the current proposals pass the sequential test.

Exception Test

- 4.4 Fluvial flood risk was assessed using the Environment Agency Flood Zone Maps and the sequential risk-based approach recommended in the NPPF guidance. The exception test requirement considers the flood risk vulnerability of land uses about the flood zone categorisation. These parameters are assessed to determine whether the development requires an exception test or is inappropriate.

- Step 1** 4.5 The proposed development falls within The Environment Agency (EA) Flood Zone 3. The Flood Zone 3 is considered to have a high probability of flooding
- Flood Zone categorisation



with a 100 years or greater annual probability or >1%AEP.

Flood risk vulnerability	Step 2	4.6	Within Table 2 (Flood Risk Vulnerability Classification) of the NPPF Planning Practice Guide, the proposed development is classified as 'More vulnerable '.
	Step 3	4.7	The Flood Risk vulnerability and Flood Zone incompatibility table of the NPPF Planning Practice Guide states that More vulnerable developments are required to pass the Exception Test in this area.
Flood Zone incompatibility			

The Exception Test

4.8 The development requires passing the Exception Test. To pass the exception test, they should be demonstrated the following:

(a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and

(b) the development will be safe for its lifetime, taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Both elements of the exception test should be satisfied for development to be allocated or permitted.

4.9 The development reduces flood risk to the wider community through the provision of or financial contribution to flood risk management infrastructure. It also offers multifunctional Sustainable Drainage Systems that integrate with green infrastructure, significantly exceeding the National Planning Policy Framework policy requirements for Sustainable Drainage Systems.

4.10 The development reduces the flood risk overall and demonstrates that the measures go beyond just managing the flood risk resulting from the development. Reductions could be achieved, for example by:

- Incorporating green infrastructure within the layout and form of development to make additional space for the flow and storage of flood water;
- Providing Sustainable Drainage Systems that manage flood risk beyond the proposed site and above the usual standard, such as by removing surface water from existing combined sewers;
- Providing or making contributions to flood risk management infrastructure that will provide additional benefits to existing communities and/or safeguarding the land needed to deliver it.

4.11 The following sections of this flood risk assessment demonstrate that the



proposed development can be safely established with an adequate standard of flood protection, including allowance for climate change, and that proposed surface water management provisions may contribute to the reduction in flood risk elsewhere. On this basis, it is concluded that the proposed development passes the Exception Test.



7.1

The NPPF specifically stipulates that consideration should be given to potential off-site flood impacts of any proposed development. These off-site impacts are in relation to the following:

- Surface water management
- Flood flow conveyance, storage and climate change

Surface Water Management

7.2

The surface water run-off will be disposed of using SuDS techniques. The aim is to provide a sustainable design that accommodates the proposed attenuation volume and replicates the existing drainage regime using the SuDS hierarchy. See drainage strategy produced for this project for more information.

7.3

With no increase in the rate of surface water discharge from the site, compared to the site in its current configuration, the proposed development would have no adverse impact on surface water flood risk at the site or surrounding area. The SuDS should be designed at the detailed project stage.

The SuDS Hierarchy (Source:EA Thames region, SuDS a practical guide)

Most Sustainable	SUDS technique	Flood Reduction	Pollution Reduction	Landscape & Wildlife Benefit
	Living roofs	✓	✓	✓
	Basins and ponds - Constructed wetlands - Balancing ponds - Detention basins - Retention ponds	✓	✓	✓
	Filter strips and swales	✓	✓	✓
	Infiltration devices - soakaways - infiltration trenches and basins	✓	✓	✓
	Permeable surfaces and filter drains - gravelled areas - solid paving blocks - porous paviers	✓	✓	
	Tanked systems - over-sized pipes/tanks - storms cells	✓		
Least Sustainable				



Flood Flow conveyance and storage

- 7.5 The proposed development fully compensates for the flood volume taken from the flood zone. See Appendix D for details.
- 7.6 The new development contributes positively to the flood zone by increasing its capacity.



- 8.1 This flood risk assessment has identified the potential flooding mechanisms that could affect the site. As part of this, the following residual risks have been evaluated.

Public safety and Site Access

- 8.2 This assessment has demonstrated that the proposed development will have no adverse impact on flood risk in the area surrounding the site. Available evidence indicates that the development would not change surface water generation. Therefore, there is no basis to indicate that, with respect to flood risk, the proposed development would adversely impact public safety.
- 8.3 It will be necessary to ensure that all building users are fully informed of procedures to be implemented during the threat of imminent flooding.

Flood Warning and evacuation

- 8.4 The site is located within an area covered by the Environment Agency Flood Alert service. It is recommended that the users of the proposed development are registered with this service to receive early warning of imminent flooding.
- 8.5 The occupants of the site are encouraged to sign up for the alerts. An appropriate Flood Management and Evacuation Plan tailored to the use of the site should be in place before the site occupation. Table 4 below shows the actions that will be taken for each flood warning.
- 8.6 Action to be taken in the event of an Alarm being Raised or a Flood Warning Received:
- Raise the alarm and evacuate the site following the established Fire Drill procedures. The main assembly is as per the main house fire drill assembly point.
 - Contact Emergency Fire Services (999) if necessary and Environment Agency Floodline: (0845 988 1188) if the event is unexpected.
 - If safe to do so, locate and turn off critical services, e.g. water, gas & electricity.
 - Follow the routes below to evacuate the site altogether.



Actions that will be taken for each flood warning

Warning	Message	Timing	Action
 FLOOD ALERT	Flooding is possible. Be prepared.	2 hours to 2 days in advance of flooding.	- Be prepared for flooding. - Prepare a flood kit.
 FLOOD WARNING	Flooding is expected. Immediate action required.	Half an hour to 1 day in advance of flooding.	- Act now to protect your property. - Block doors with flood boards or sandbags and cover airbricks and other ventilation holes. - Move pets and valuables to a safe place. - Keep a flood kit ready. - Move any critical equipment and information to a safe location
 SEVERE FLOOD WARNING	Severe flooding. Danger to life.	When flooding poses a significant threat to life and different actions are required.	- Be ready should you need to evacuate from the property. - Co-operate with the emergency services and call 999 if you are in immediate danger.
Warning Removed	No further flooding is currently expected for your area.	Issued when a flood warning is no longer in force.	- Flood water may still be around and could be contaminated. - If you've been flooded, ring your buildings and contents insurance company as soon as possible.

Useful local phone numbers

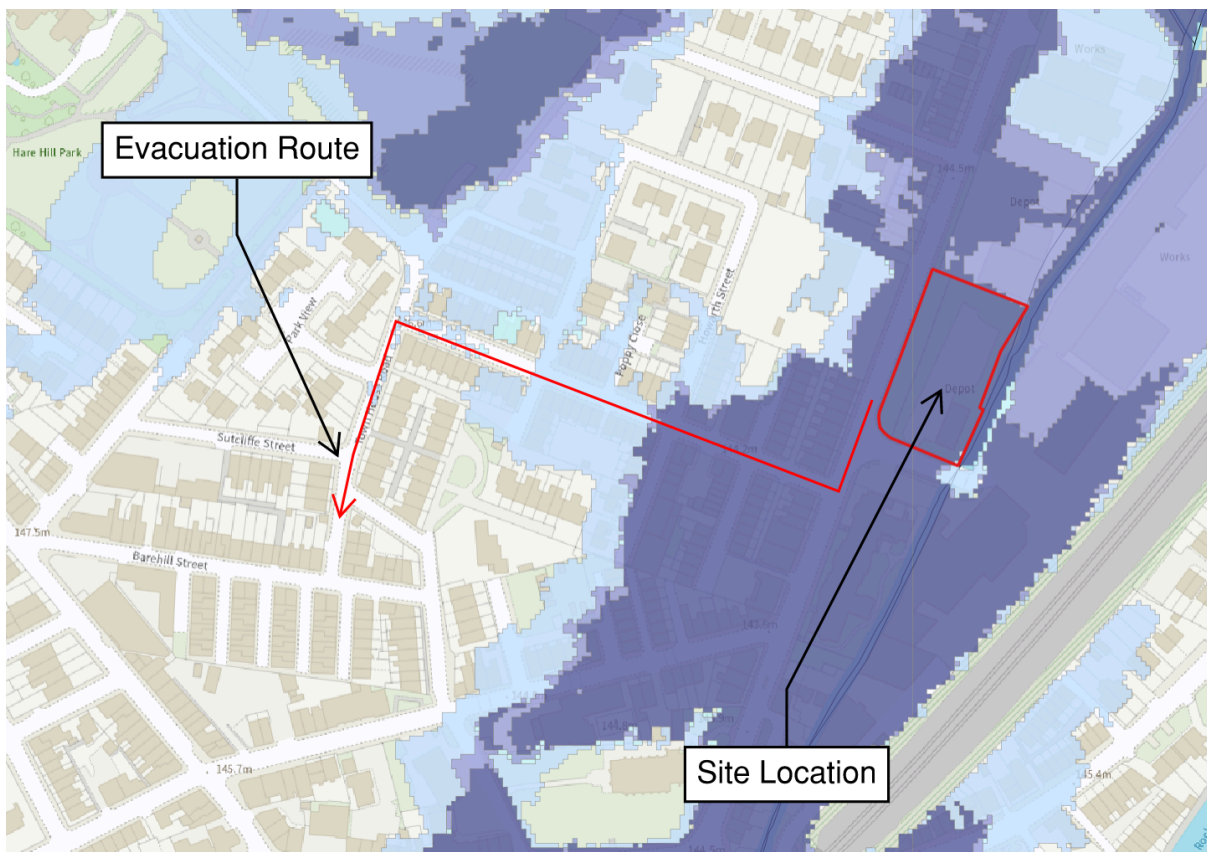
Please write your local phone numbers in the space provided below. Make sure they are easy to find in the event of a flood.

	Local authority:
	Local police:
	Gas and electricity company:
	Insurance company and policy details:
	Doctor:
	Pharmacy:
	Electrician:
	Gas safe engineer:
	Plumber:
	Builder:



- 8.7 The proposed evacuation route below shows how the development could be evacuated before the 1 in 1000 or 0.1% annual probability of flooding extreme flood occurs. Safe egress is achievable by following Todmorden Road, up to Newall Street, then following and reaching Town House Road which is shown to be beyond the extent of flooding. See figure below for details.

Evacuation Route



- 9.1 It is concluded that subject to the proposed mitigation measures, the site can be developed in accordance with the provisions of the NPPF and the requirements of the Environment Agency and the local planning authority.
- 9.2 This report demonstrates that the proposal will be safe, in terms of flood risk, for its design life and will not increase the flood risk elsewhere.
- 9.3 It is proposed that a formal Flood Warning and Emergency Response Plan is developed for the proposed development to communicate flood emergency response procedures to all the occupants of the site.

