FLOOD RISK ASSESSMENT
FOR INDUSTRIAL DEVELOPMENT
WEST BANK, SUTTON BRIDGE

FINAL REPORT

ECL1872/G R MERCHANT

DATE JULY 2026

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1.0 INTRODUCTION

This Flood Risk Assessment has been prepared in accordance with National Planning Policy Framework (NPPF) and supporting planning practice guidance (PPG) on Flood Risk and Coastal Change.

In areas at risk of flooding or for sites of 1 hectare or more, developers are required to undertake a site-specific Flood Risk Assessment to accompany an application for planning permission. This Flood Risk Assessment has been produced on behalf of G R Merchant in respect of a development that consists of a soil grader for materials processing at West Bank, Sutton Bridge.

A planning application for the proposed development is to be submitted by G R Merchant.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is located at Roffe's Transport Ltd, West Bank, Sutton Bridge, Lincolnshire, PE12 9QH. The National Grid Reference of the site is 54828/32152.

The location of the site is shown in Figure 1.

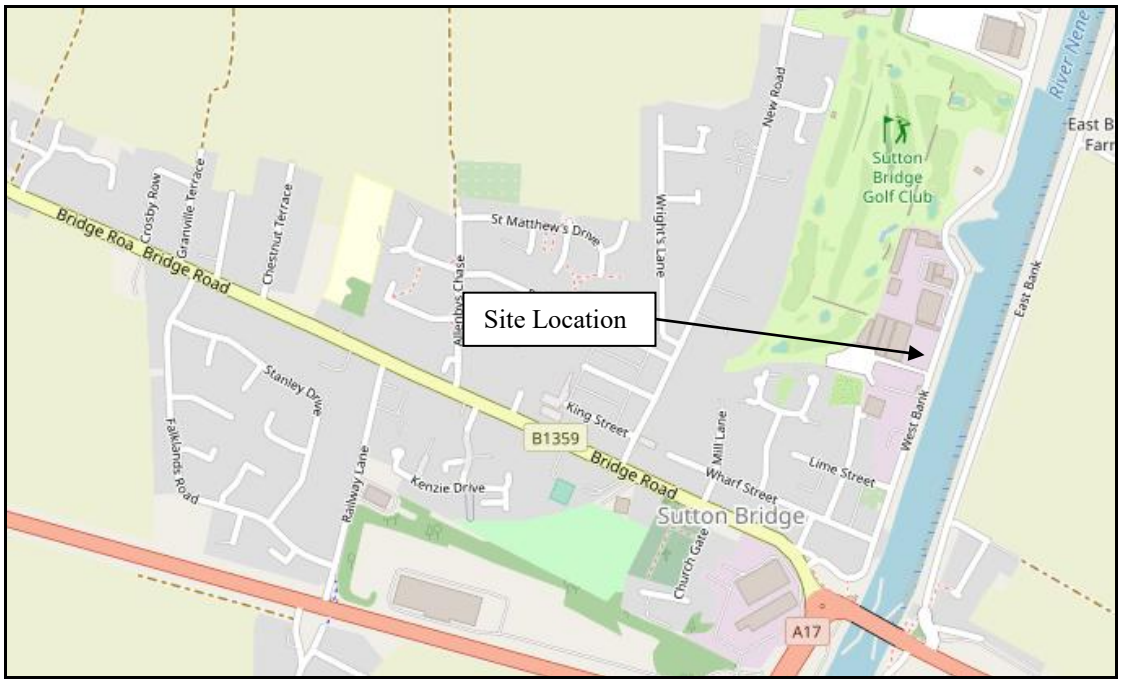


Figure 1 – Location Plan (© OpenStreetMap contributors)

2.2 Existing Site

The site is on the western side of West Bank. The site is within a transportation and distribution business that comprises warehouses and hardstanding areas. The development is located within the north eastern part of the business. There is industrial development to the north of the site. The area of development is 0.41 hectares.

Environment Agency LiDAR shows that ground levels in the northern part of the site where the soil grader is to be located are between +6.0m OD and +6.2m OD. The carriageway level of West Bank alongside the site is +6.3m OD.

The site is in the South Holland Internal Drainage Board (IDB) District. Surface water at the site naturally drains through soakaway and hence to the IDB drain system. There is an IDB High Priority Pipeline approximately 900m north west of the site.

The online British Geological Survey maps indicate that the site is likely to be underlain by Ampthill Clay Formation mudstone. The bedrock is shown to be overlain with superficial deposits of clay and silt.

2.3 Proposed Development

The proposed development consists of a soil grader for materials processing. Details of the proposed development are shown in Attachment 1.

2.4 Local Development Documents

The South East Lincolnshire Local Plan 2011 – 2036, adopted in March 2019, is the Local Plan for the district. Policy 4: Approach to Flood Risk states the requirements for flood risk reduction.

The South East Lincolnshire Level 1 and Level 2 Strategic Flood Risk Assessment (SFRA) was prepared in June 2017.

The Joint Lincolnshire Flood Risk and Drainage Management Strategy has been prepared by Lincolnshire County Council as the Lead Local Flood Authority. The purpose of the Strategy is to increase the safety of people across Lincolnshire by reducing the number of people at risk of flooding, increasing the resilience of local communities, and reducing the impact of flooding.

2.5 Flood Zones

An extract from the Environment Agency Flood Map for Planning is shown in Figure 2. The site is located within Flood Zone 2, an area with a medium probability of flooding.

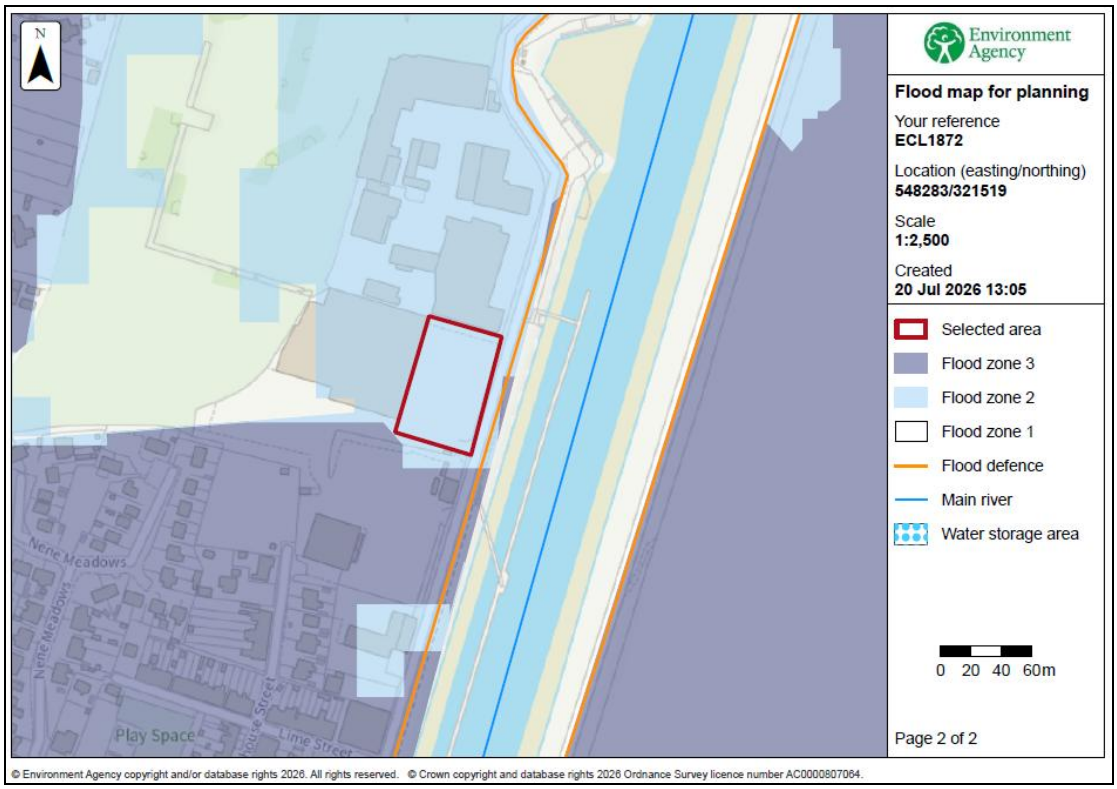


Figure 2 – Environment Agency Flood Map for Planning

The Flood Map for Planning shows that the area where the soil grader is to be located is at risk of surface water flooding during the 1 in 100 annual likelihood event. The flood depths are between 0.0m and 0.15m. When climate change is considered, there is a wider area with flood depths between 0.0m and 1.5m and isolated areas with flood depths between 0.15m and 0.3m.

The Environment Agency Long Term Flood Risk maps provide an indication of the risk from the primary sources of flooding. The map shows that the site is outside of the area at risk of reservoir flooding.

Table 1 shows the level of risk at the site within the South East Lincolnshire SFRA.

SFRA Map	Present Day	Year 2116
Residual Flood Hazard Map for the 1% fluvial and 0.5% tidal event	Part of the site is in the 'Danger for Some' area	Part of the site is in the 'Danger for All' area
Residual Peak Depth Map for the 1% fluvial and 0.5% tidal	The peak flood depth is between 0.25m and 0.5m	The peak flood depth is between 1.0m and 2.0m.

Table 1 – Flood Risk within SFRA Maps

3.0 FLOOD RISK VULNERABILITY

3.1 The Sequential and Exception Test

The NPPF requires the application of a Sequential Test to ensure that new development is in areas with the lowest probability of flooding.

The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available.

3.2 Vulnerability Classification

Annex 3of the PPG Flood Risk and Coastal Change categorises different types of uses and development according to their vulnerability to flood risk. The proposed development is covered by the description of general industry and is classified as 'Less Vulnerable'.

Table 2 of the PPG Flood Risk and Coastal Change sets out Flood Risk Vulnerability and flood zone 'compatibility'. The site is in Flood Zone 2 and the development is 'Less Vulnerable' therefore it is not necessary to complete the Exception Test.

PPG Flood Risk and Coastal Change defines that the lifetime of the development in terms of flood risk and coastal change is 100 years.

3.3 Application of the Sequential Test

It is for the Local Planning Authority, using the evidence provided and taking advice from the Environment Agency as appropriate, to consider whether an application passes the Sequential Test.

Large parts of the South Holland district that are near the River Nene lie within Flood Zone 3. As such, the opportunities to undertake the development at an alternative site with a lower flood risk are limited. At this location it is not possible to position the development on higher ground within the proposed site.

The River Nene has defences that provide protection during the 0.5% annual probability (1 in 200 chance each year) event including climate change. Therefore the 'actual risk' of flooding at the site is low and the proposal is considered to pass the Sequential Test.

4.0 SITE SPECIFIC FLOOD RISK

4.1 Local Flood Assets

The site is 50m west of the tidal River Nene. The site is protected by the River Nene tidal defences through Sutton Bridge. The River Nene is the responsibility of the Environment Agency.

There is a long-term strategy for the maintenance of the Environment Agency defences which is reviewed and updated periodically.

There is an extensive local drainage network managed by South Holland IDB. There is an IDB High Priority Pipeline approximately 900m north west of the site. The site and the surrounding land are within the Westmere catchment and discharge to the tidal River Nene at the Westmere Tidal Sluice. The site is 1.5km north of the South Holland Main Drain.

During the operation and maintenance of its pumping stations, associated structures, and channel systems, the IDB seeks to maintain a general standard capable of providing flood protection to its district. A routine maintenance programme is in place to ensure that the Boards assets are commensurate with the standard of protection that is sought.

Current maintenance standards of the South Holland Internal Drainage Board and the Environment Agency are generally good.

4.2 Sources of Flooding

A summary of the sources of flooding is provided in Table 2.

Source of Flooding	Level of Risk
Drainage Network Flooding	The risk is assessed in Section 4.3.
Surface Water Flooding	Isolated parts of the site where the soil grader is to be located are at risk during the 1 in 100 annual likelihood event with depths between 0.15m and 0.3m.
Fluvial Flooding	The risk is assessed in Section 4.3 & 4.5.
Tidal Flooding	The risk is assessed in Section 4.3, 4.5 & 4.6.
Reservoir Flooding	The site is not at risk of reservoir flooding.
Groundwater Flooding	There is no evidence to suggest the site is at risk of groundwater flooding.

Table 2 – Sources of Flooding

4.3 Probability of Flooding

The probability of flooding associated with blockages in the South Holland IDB drainage system is low due to the maintenance standards achieved and managed by the IDB. Failure of Westmere Tidal Sluice could lead to an increased level of risk in the IDB catchment.

Through the operation and maintenance of the pumping stations and the channel system the Board seek to maintain a general standard capable to providing flood protection to agricultural land and developed areas of 1 in 20 years and 1 in 100 years respectively. The risk associated with flood events that exceed the standard of protection provided is lowered due to the South Holland IDB main drains incorporating freeboard. This freeboard provides storage during the exceedance events.

The site benefits from defences on the River Nene that provide protection during a 0.5% annual probability (1 in 200 chance each year) tidal event and a 1% annual probability (1 in 100 chance each year) fluvial event.

4.4 Historic Flooding

During the preparation of this assessment, no evidence was discovered of the site being flooded.

4.5 Climate Change

Climate change is likely to impact the site through increased rainfall intensity and duration affecting the local drainage network and increased flood levels in the River Nene.

The River Nene tidal defences have been designed to include an allowance for climate change. In summary the site is not at risk for the design life of the development (i.e., 100 years).

4.6 Residual Risk

There is a residual risk of flooding at the site should a breach of the tidal defences occur. The South East Lincolnshire SFRA includes maps demonstrating the residual peak depth in 2115. When climate change allowances are applied to the 1% annual probability (1 in 100 chance each year) fluvial event and 0.5% annual probability (1 in 200 chance each year) tidal event the peak breach depth in the area where the soil grader is to be located is between 0.5m and 1.0m. An extract from this map is shown in Figure 3.

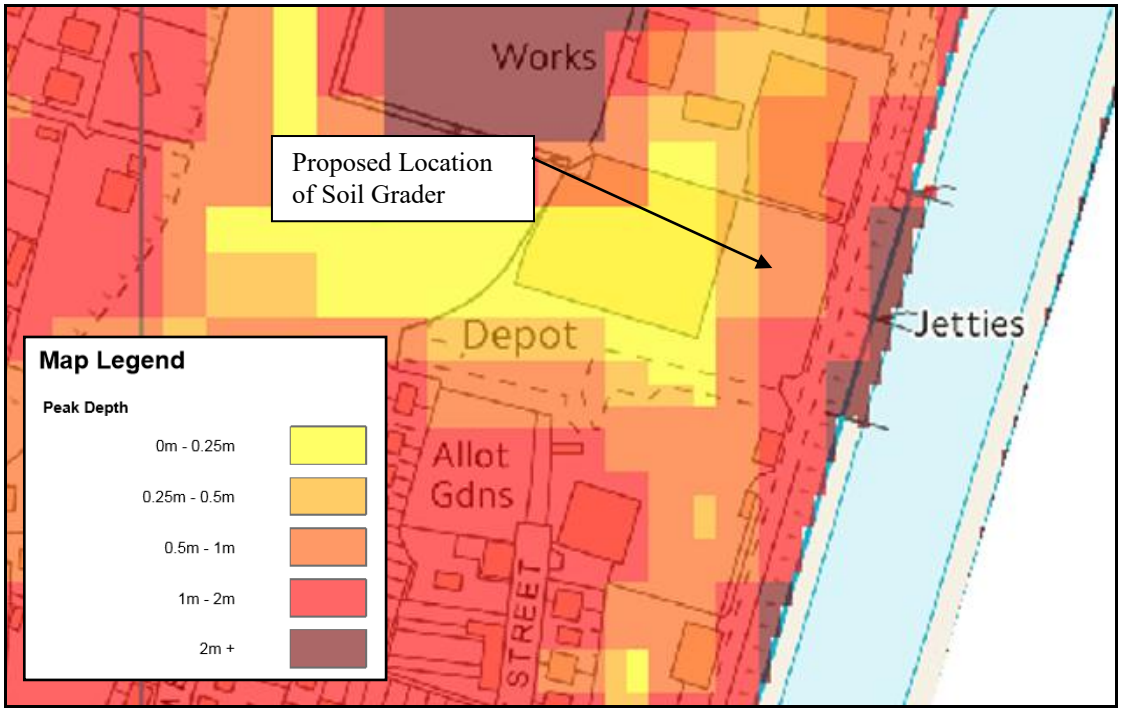


Figure 3 – SFRA 2115 Residual Peak Depth Map

5.0 FLOOD RISK MITIGATION

5.1 Summary of Risks

The probability of this development flooding from localised drainage systems is low. Failure of Westmere Tidal Sluice could lead to an increased level of risk within the IDB catchment.

The probability of the site flooding from any Environment Agency system is less than 1% annual probability (1 in 100 chance each year) because of the standards of the existing flood defences. Over time there will be a gradual increase in risk to the site due to climate change. During the design life of the development, it is not anticipated that the site would flood.

The SFRA considers the residual risk associated with overtopping and a breach in the defences in 2115. The peak flood depth in the area where the soil grader is to be located is between 0.5m and 1.0m

There will be no increase in impermeable area associated with the development so there is no potential that flood risk will be increased elsewhere.

5.2 Mitigation Measures

Considering the nature of the proposed development and the level of flood risk to the site there are no specific mitigation measures proposed associated with the development.

The developer should ensure that the user of the site is sufficiently aware of the risk of flooding, and the standard of the existing defences. The Environment Agency operates a flood warning system for properties at risk of flooding to enable householders to protect life or take actions to manage the effect of flooding on property. Floodline Warnings Service is a national system run by the Environment Agency for broadcasting flooding warnings. The user of the site should register to receive flood warnings.

Should there be a failure of Westmere Tidal Sluice and conditions were such to put properties and land at risk of flooding, the Internal Drainage Board would take emergency action to maintain the drainage level of service by using temporary pumping equipment.

It is recommended that surface water run-off is managed so that stormwater from the development will not affect any adjoining properties or increase the flood risk elsewhere.

6.0 CONCLUSION

As a result of the assessment, the following conclusions have been reached.

- The proposed development consists of a soil grader for materials processing at Roffe's Transport Ltd, West Bank, Sutton Bridge.

- The site is located within an Internal Drainage Board catchment and through the operation and maintenance of the pumping stations and the channel system the Board seek to maintain a general standard capable to providing flood protection to agricultural land and developed areas of 1 in 20 and 1 in 100 years respectively.

- The proposed development is in Flood Zone 2. The River Nene tidal defences provide protection during the 0.5% annual probability (1 in 200 chance each year) event. During the design life of the development, including an allowance for climate change, it is not anticipated that there would be flooding at the site.

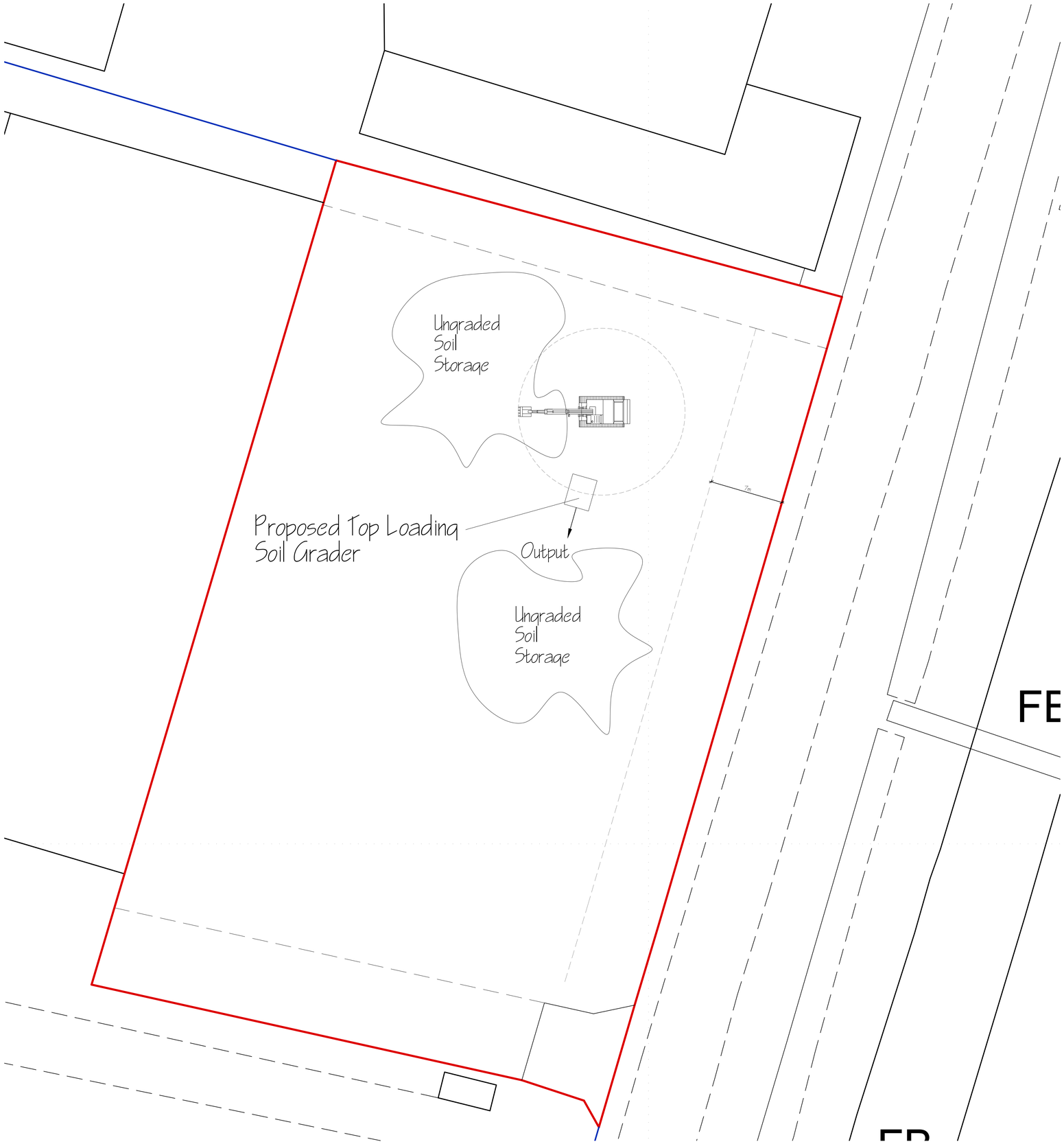
- The maximum breach depth during the 0.5% annual probability (1 in 200 chance each year) tidal event in 2115 is between 0.5m and 1.0m.

- There are no specific recommendations associated with the soil grader for materials processing to reduce the risk of flooding to the development.

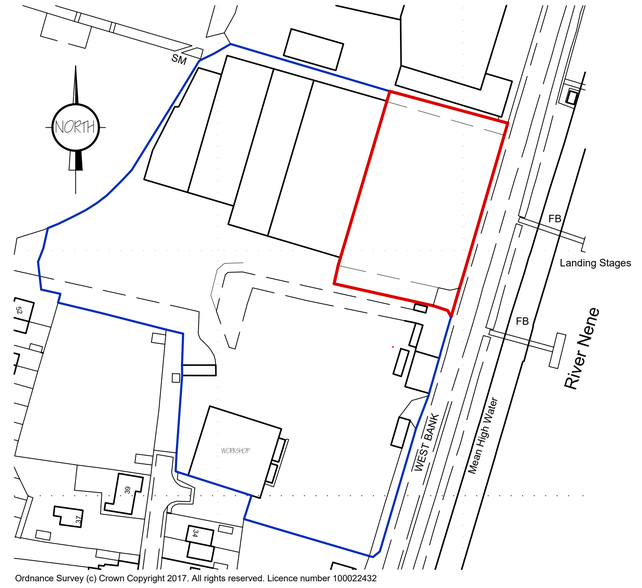
- The development passes the Sequential Test and is therefore suitable for the proposed location.

ATTACHMENT 1

SITE PLAN PROPOSED, LOCATION PLAN
(DWG 4519-26 01A)



SITE PLAN 1:200



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LOCATION PLAN 1:1250

ref.	revision	date
A	RED LINE REVISED	JJ.

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Project
PROPOSED SOIL GRADER
WEST BANK
SUTTON BRIDGE
SPALDING, LINCS.

Client
ROFFE 'S TRANSPORT LTD

Drawing
SITE PLAN - PROPOSED
LOCATION PLAN

Job Ref.	Drawing No.
4519-26	01A
Date	**Drawn**
JUNE 2026	SLB

Scales
1:50 & 1:100 (Unless Otherwise Stated)

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