

AtkinsRéalis



**Flood Risk Assessment
– Land off New Road,
Havant, PO9 3BB**

Trant Engineering Ltd.

May 2026

RACTON BOOSTER STATION

Notice

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Client signoff

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Glossary of terms

Term	Description
AEP	Annual Exceedance Probability
BGS	British Geological Survey
DG5	Director General 5, a sewer flooding register
FFL	Finished Floor Level
Flood Zone 1	Area with a low probability of flooding from either rivers or the sea (< 1 in 1,000 annual probability of flooding).
Flood Zone 2	Area with a medium probability of flooding from either rivers (1 in 100 – 1 in 1,000 annual probability of flooding) or the sea (1 in 200 – 1 in 1000 annual chance of flooding).
Flood Zone 3	Area with a high probability of flooding from either rivers (> 1 in 100 annual probability of flooding) or the sea (> 1 in 200 annual probability of flooding).
FRA	Flood Risk Assessment
NaFRA	National Flood Risk Assessment (recently updated to NaFRA 2)
NGR	National Grid Reference
LFRMS	Local Flood Risk Management Strategy
NPPF	National Planning Policy Framework
SFRA	Strategic Flood Risk Assessment
RoFSW	Risk of Flooding from Surface Water
RoFRS	Risk of Flooding from Rivers and Sea
SWMP	Surface Water Management Plan

Executive Summary

Site Name and Address Racton Booster Station New Road, Havant, PO9 3BB

Grid Ref SU 71151 06832 Size 915.2 m² (building footprint 81.74 m²)

I
Current Use Amenity grassland
Area of amenity grassland. Proposed use Water booster station
The construction of a booster station.

Flood Zone 3b
Vulnerability class Water Compatible
Is it compatible? Yes

Application of the Sequential test. A portion of the site boundary lies within Flood Zone 3; however, hydraulic modelling supplied by the Environment Agency shows that all Scheme-related operational structures are outside the 0.1% AEP (1 in 1000 annual probability) event flood extent. During pre-application discussions, the Environment Agency confirmed that this is acceptable given the Scheme's water-compatible classification. Therefore, the Sequential Test is considered satisfied.

Exception test? Pass The Scheme is classed as 'Water Compatible' and all operational structures, including access and egress routes, lie outside modelled 0.1% AEP (1 in 1000 annual probability) event flood extents. This means it is expected to remain safe and functional throughout its lifetime. Additionally, the Scheme is not anticipated to increase flood risk elsewhere, as it does not result in any loss of floodplain storage or obstruct flood flows.

Overview Statement

The purpose of this Flood Risk Assessment (FRA) is to support the planning application for the Racton booster station building and associated hardstanding areas. This report is intended for submission with the planning application. This FRA provides a qualitative assessment of the flood risks to the site and any increase or decrease in flood risk arising from the Scheme.

The site area lies partially within Environment Agency Flood Zone 3b which is considered a high level of fluvial flood risk. This includes the proposed booster station building which has a high likelihood of flooding along its northern and western sides. This is applicable over the lifetime of the development (assumed to be 60 years) taking climate change into account. Although a small portion of the booster station building lies in Flood Zones 2–3b, a review of modelled extents from the Havant Flood Mapping



(2008) show building footprint of the booster station, and all roads, are outside of the 0.1% AEP (1 in 1000 annual probability). The Scheme is expected to remain safe and operational during extreme weather, is unlikely to increase flood risk elsewhere, and is unlikely to affect floodplain storage or flows. The Exception Test is passed provided that relocating the site, or at least the booster station building, has been considered first.

High level groundwater emergence susceptibility mapping indicates the site is located in an area with elevated susceptibility to groundwater emergence. As a precautionary approach the site is considered at moderate risk of flooding from groundwater.

Furthermore, any proposed works are not expected to increase groundwater flood risk.

There are no other known sources of flooding that pose a significant risk to the site, or that would alter as a result of the Scheme. This remains true both under present day conditions and taking climate change into account over the lifetime of the development.

1. Introduction

1.1 Background

AtkinsRéalis has prepared an updated Flood Risk Assessment (FRA) on behalf of Trant Engineering Limited for a proposed new water booster station building to be located on land off New Road, Havant (henceforth referred to as 'the Scheme').

The Scheme will comprise of a water booster station building with associated ancillary development. Scheme drawings are provided in Appendix A.

Previous assessments using NaFRA mapping identified that the original proposed design locations for the new water booster station were within Flood Zone 3. Subsequently, the proposed location was adjusted and moved 50m east, placing it within Flood Zone 1. Following the release of NaFRA 2 mapping, the proposed location has been reassessed to understand current flood risk to the Scheme.

1.2 Site Location

The general Scheme area, as shown in Figure 1-1 and in Appendix A, is an area of amenity grassland in the town of Havant, approximately 630m northwest of Havant Railway Station. The approximate Ordnance Survey National Grid Reference at the centre of the site is SU 71151 06832. The site is an approximate rectangular area of land of 915.2m², with New Road in the south, Stockheath Lane in the west and Brookfield Close to the east. The site comprises grassed areas, trees, and vegetated hedgerows.

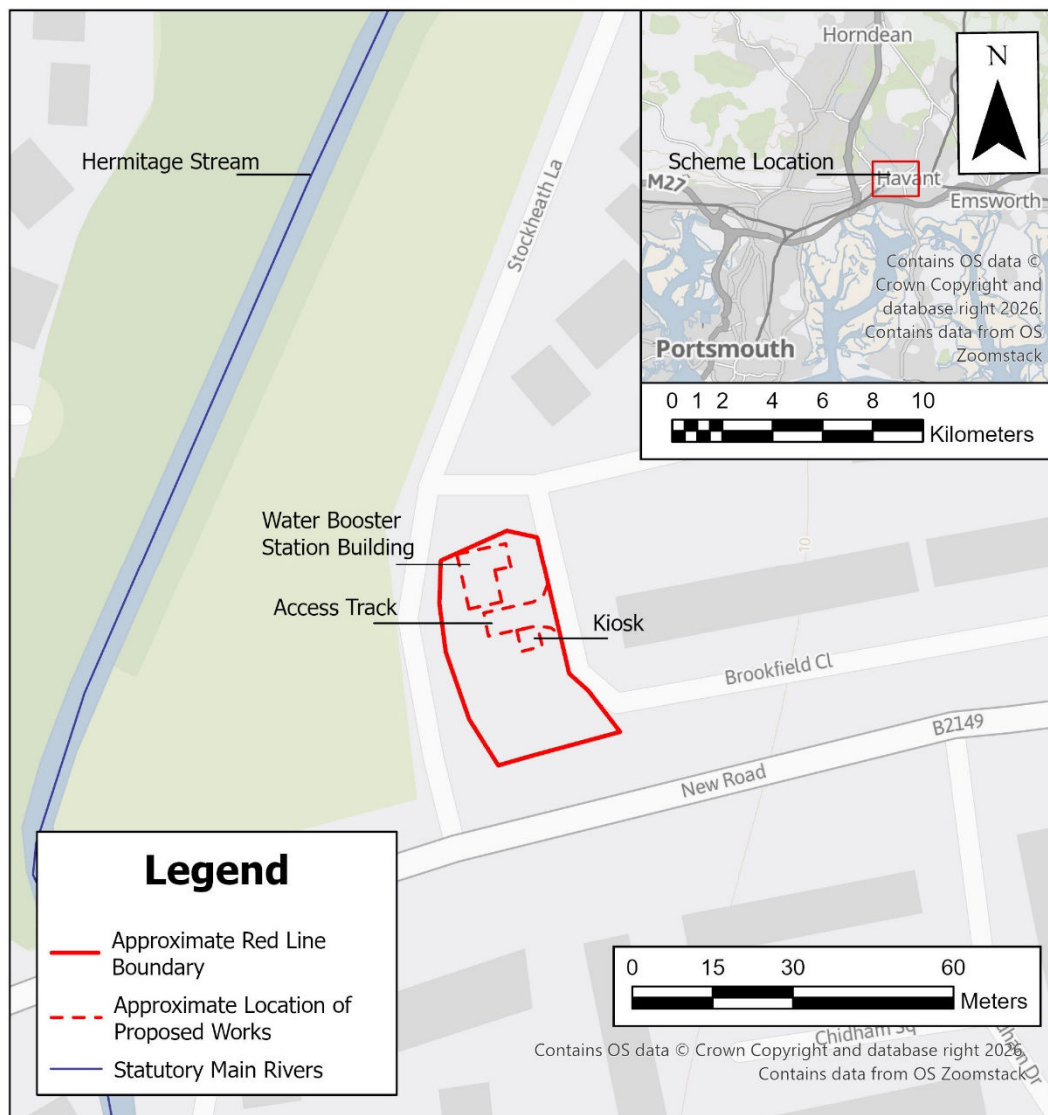


Figure 1-1 – Scheme Location

1.2.1 Ground Conditions

The geology underlying the site area is based on available British Geological Survey (BGS) mapping information. No Made Ground is indicated to be present at the site; however, considering the developments adjacent to the site there is a potential for Made Ground to be present.

Superficial deposits underlying the site comprise Head Deposits, described as variable deposits of sandy silty clay, locally gravelly, chalky and flinty in dry valleys. The underlying bedrock beneath the site comprises the London Clay Formation, described as 'silty clay and sand'.

1.2.2 Watercourses

In accordance with the Environment Agency Main Rivers Map (2023), watercourses in proximity to the Scheme are as follows:

- The Hermitage Stream, a statutory Main River and is located approximately 50m west from the Scheme, flowing north to south;

- The Rivers Lane Stream, a statutory Main River and is located approximately 300m north from the Scheme, flowing north to south; and
- The Lavant Stream, a statutory Main River and is located approximately 850m east of the Scheme, flowing north to south.

1.2.3 Existing Site Drainage Systems

The site area does not have any existing formal drainage systems. There are a number of existing buried services (power cables, communication cables, Portsmouth Water water mains etc.) in the vicinity of the site and there is a nearby Southern Water foul sewer network serving the local houses. Details of the existing road drainage system are not currently known. The Scheme will involve the installation of new water mains to and from the water booster station, and the detailed design and construction work of these new pipelines will mean that the existing drainage systems are not affected by the new construction works.

1.3 Proposed Development

The proposed water booster station and associated access track footprint areas are as follows:

- Water booster station building and concrete hardstanding (10.6 x 9.5 m);
- Kiosk (2.8 x 3.1 m); and
- Access track to the Scheme's operational structures (formed of permeable ground).

Construction of the development is anticipated to be undertaken over a duration of 48 weeks. During this construction period, the following additional temporary units will be installed on the site:

- Site Storage Area (5m x 5m, 25m²); and
- Two site welfare units, double stacked with an approximate height of 5m when stacked (total area: 60.46m²).

All temporary site areas will be returned to their natural state post-construction. Temporary buildings are also expected to be located outside Flood Zones so that they do not impede surface water flows or increase the risk of surface water flooding. Some Scheme details can be found in Appendix A. A full description of the proposals can also be found in the Planning, Design and Access Statement submitted with the planning application.

1.4 Previous Studies

1.4.1 Flood Risk Assessments

Previous FRAs were undertaken in 2019 and 2024 in which the original proposed design location for the new water booster station was found to be in Flood Zone 3b. As a result, the proposed location of the Scheme was adjusted and moved 50m east to an area in Flood Zone 1. Recent changes to the design of the Scheme and the release of NaFRA 2 indicate that small parts of the site are now within Flood Zone 3b.

1.5 Scope and data

This FRA has been completed in line with current national policy in relation to flood risk and development, namely the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2025) and the associated technical guidance. The level of detail provided in this FRA is considered suitable given the scale and nature of the development and the identified flood risk. This FRA makes use of readily available and requested information comprising:

- Publicly available information on the Environment Agency website (Environment Agency, NA);
- Partnership for South Hampshire Level 1 Strategic Flood Risk Assessment for Havant Borough Council (Havant Borough Council, 2024).
- Havant Flood Mapping Study: Hydraulic model outputs and associated reporting (Environment Agency, 2008), from the products 5 and 6 request made as part of this FRA.

2. Assessment of Flood Risk

As outlined within the NPPF, flood risk from all sources must be addressed within the FRA so that potential flood risk has been considered during the development design and proposed works. Therefore, this section outlines all the potential sources of flood risk to the site, a quantification of the risk, and the implications these risks have on the development. It is also necessary to outline any records of previous flooding events as these may identify areas vulnerable to flooding.

2.1 Historical flooding

The identification of past flood events can often indicate areas that are vulnerable to flooding and thus areas that have the potential to flood in the future.

The Environment Agency's historic flood outline indicates that no historical flooding has been recorded at this site. There has been no additional information found in the Strategic FRA for Havant Borough Council (Havant Borough Council, 2024) to state that flooding has occurred at this location.

2.2 Flooding from rivers

Flooding from rivers (fluvial flooding) occurs following exceedance of the flow capacity of river channels, leading to overtopping of the riverbanks and inundation of the surrounding land.

The Environment Agency publish mapping showing Flood Zones. Flood Zone 1 represents areas at a low risk (flooding less frequently than the 1 in 1000 annual probability); Flood Zone 2 represents medium risk (flooding between the 1 in 100 and 1 in 1000 annual probability) and Flood Zone 3 represents high risk (flooding more frequently than 1 in 100 annual probability).

The Scheme is situated in Flood Zone 3b meaning there is a high risk from fluvial flooding as shown in Figure 2-1. Hermitage Stream is located approximately 50m west of the site, and there is high likelihood of flood waters inundating the Scheme from the northern and western site boundary. It also indicates that the booster station building located to the north of the site is likely to be at a high risk of fluvial flooding.

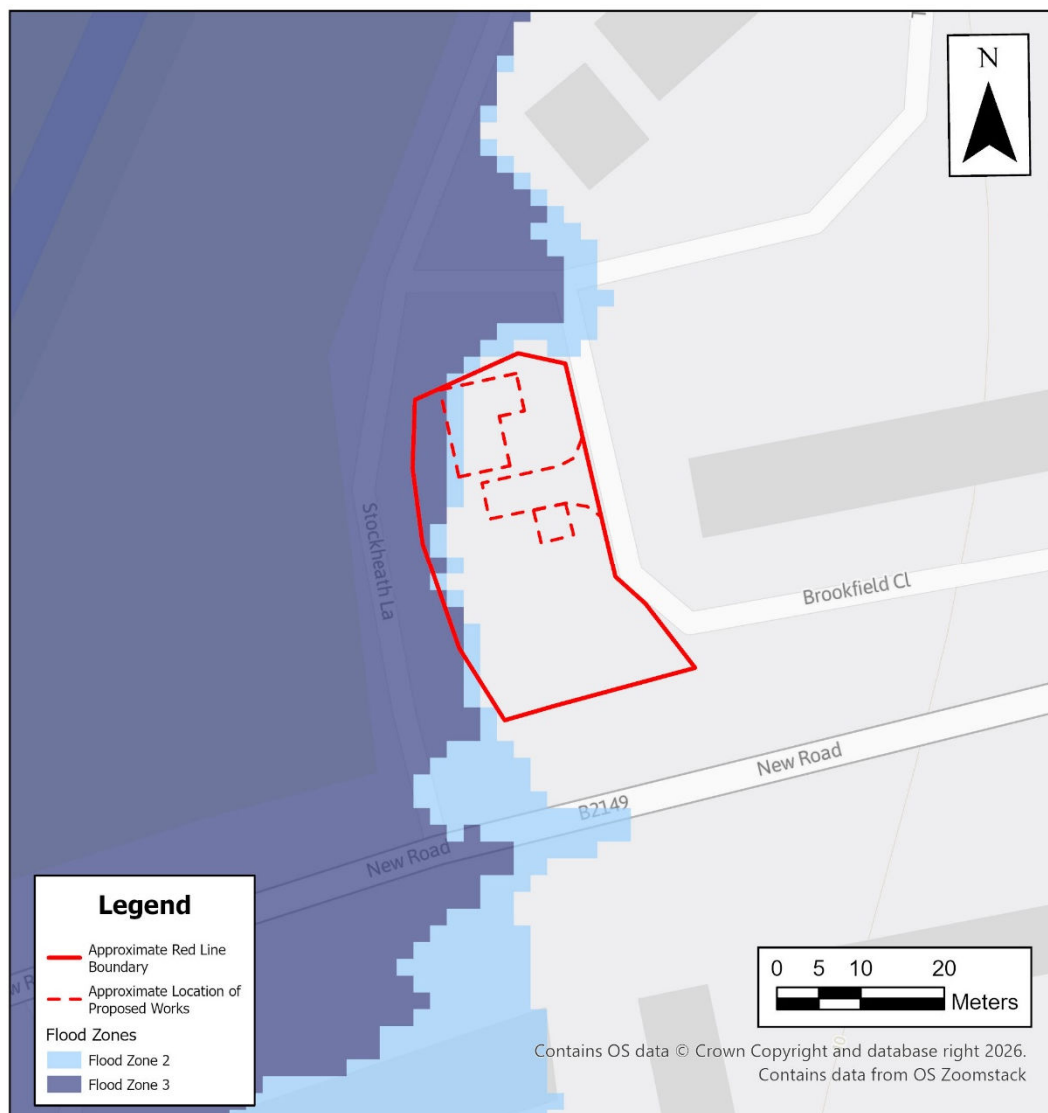


Figure 2-1 – Flood Map for Planning Flood Zones

The NaFRA 2 risk of flooding from rivers and sea mapping has also been reviewed, providing information on fluvial flood risk under both present-day and future climate change conditions up to and including the 0.1% annual exceedance probability (AEP) (1 in 1000 annual probability) event. This is consistent with the Flood Map for Planning; risk of flooding from rivers and sea mapping indicates that the northern and western boundaries of the Scheme are at high likelihood of flooding (Figure 2-2). There is also a medium likelihood (and potentially a high likelihood) of flooding from the Hermitage Stream where the booster station is proposed to be located.

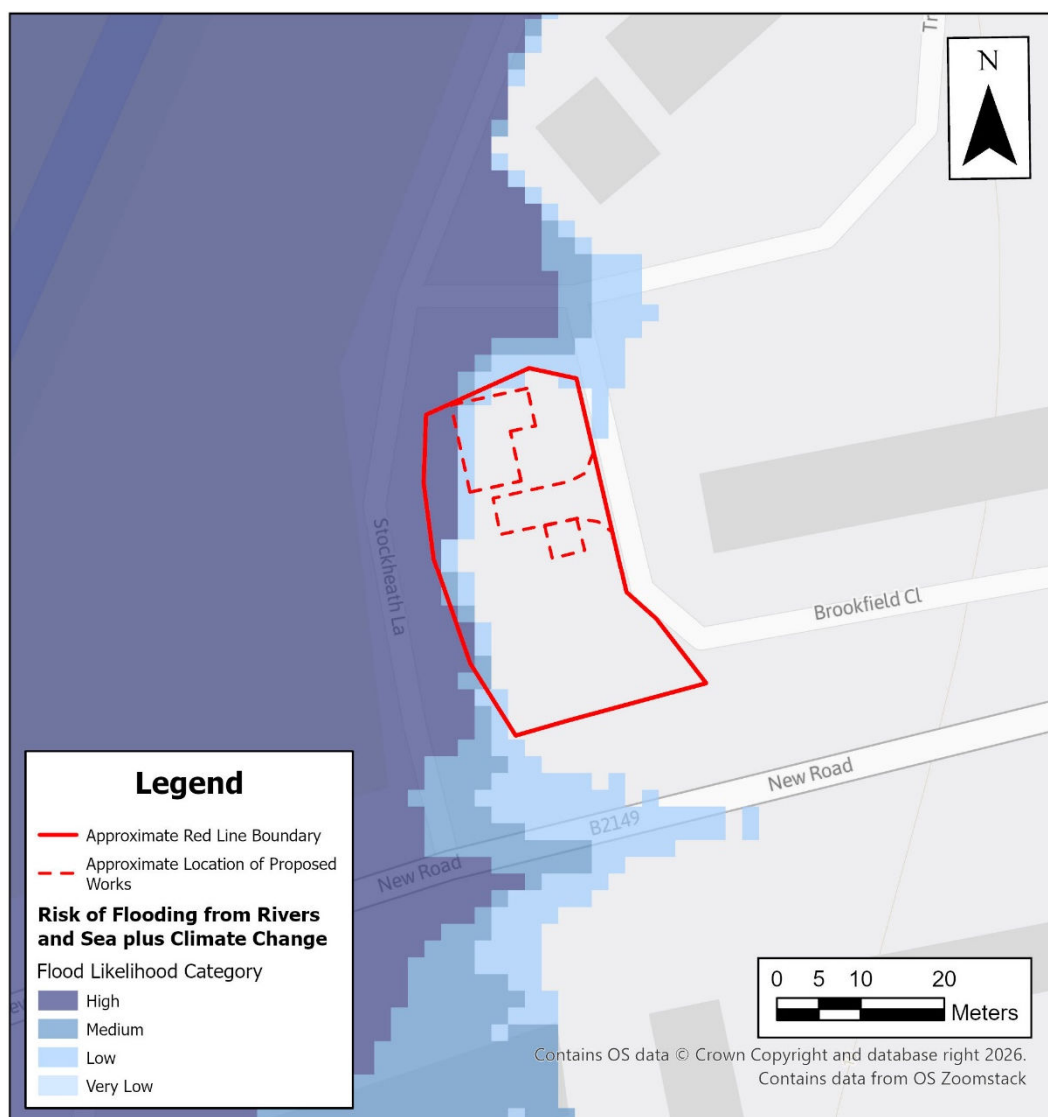


Figure 2-2 – Extent of flooding from rivers and the sea plus climate change

In order to understand the depths and levels of Flood Zone 3 adjacent to the site, product information was requested from the Environment Agency. This region of Havant is covered by the hydraulic model produced as part of the Havant Flood Mapping Study (2008). The model report and outputs were received from an Environment Agency flood product request. Figure 2-3 illustrates the 0.1% AEP (1 in 1000 annual probability) event; this event was selected to provide a precautionary assessment that accounts for the updated climate change allowances for the East Hampshire Management Catchment. This is because, while current 2080s central allowances recommend a 37% uplift, the hydraulic model applies a 20% uplift to the 1% AEP (1 in 100 annual probability) event.

As shown in Figure 2-3, the Scheme lies within the 0.1% AEP (1 in 1000 annual probability) model extents, however all operational structures, as well as access and egress routes are expected to lie outside the modelled flood extents. LiDAR flown in 2022 (1m-resolution) from the Environment Agency website indicate that the flood waters for this event are contained approximately within the 7.8 mAOD contour, while Finished Floor Levels (FFLs) are proposed to be at least 8.6 mAOD. Therefore, any increase in flooding due to factors such as climate change are unlikely to result in flooding of the operational structures as this would require an increase of approximately 800 mm in the 0.1% AEP (1 in 1000 annual probability) flood levels.

It should be noted that a limitation to this assessment is that the hydraulic model was issued in 2008 and therefore does not incorporate the most up-to-date data such as LiDAR. This was queried with the Environment Agency during a pre-application process in December 2025 (reference: ENVPAC/1/SSD/00377), in which they confirmed that the product data should be used.



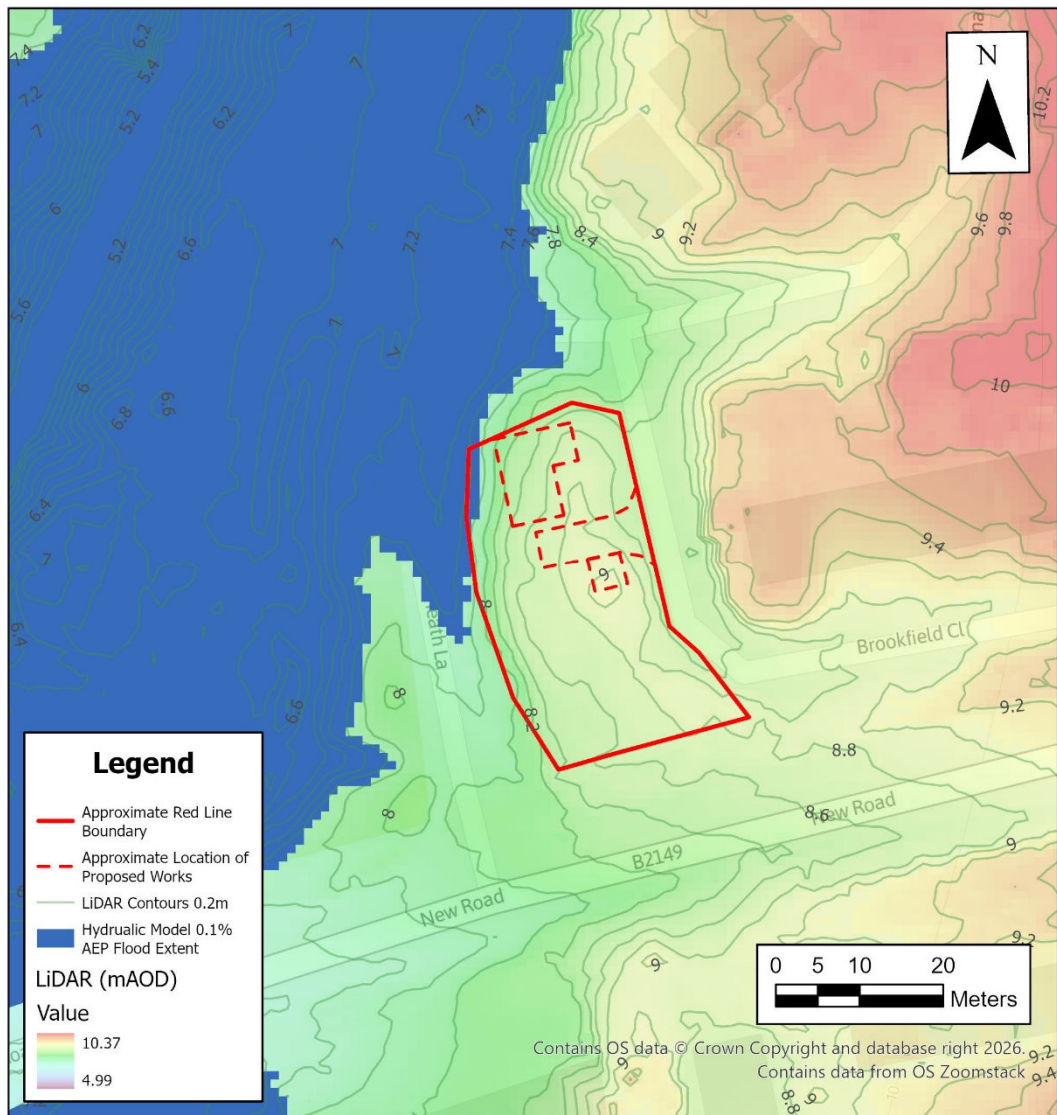


Figure 2-3 - 2008 hydraulic model results (received from the EA)

2.3 Flooding from the sea

Inundation by high tides, storm surges and waves along coastal regions is described as coastal flooding. The propagation of high tides and storm surges up estuarine channels can lead to overtopping of the riverbanks and inundation of the surrounding land. This is referred to as tidal flooding. Although the site is located in Havant, adjacent to the coast, the Hermitage Stream at this location does not appear to be tidally influenced, based on the Havant Gauge, located 50m west of the proposed site location.

According to the risk of flooding from rivers and the sea mapping, as shown in Figure 2-2, the site and booster station building is at high risk of flooding. The SFRA for Havant reports no historic records of tidal flooding at this location, and coastal modelling undertaken for the SFRA shows that the site lies outside the flood extents for the 0.1% AEP (1 in 1000 annual probability) event and undefended scenario (Appendix B.1).

2.4 Surface water flood risk

Surface water flooding occurs when rainfall intensities exceed the infiltration capacity such that water collects on the ground surface. Therefore, there is a greater risk of flooding from this source within urbanised areas where there is a higher proportion of impermeable surface.

The surface water mapping flood extent from the Environment Agency's website is shown in Figure 3-2 below. The map indicates that the site is at very low risk of surface water flooding with less than a 0.1% AEP (1 in 1000 annual probability) event.

To reduce residual risk relating to surface water runoff or failure of the drainage system, any proposed development will incorporate features that mitigate this residual risk by providing flow paths which divert water away from buildings or critical infrastructure. This will be achieved through general landscaping to make sure that any surface water runs away from the proposed building. The proposed designs for the development site should also incorporate, where possible, the natural flow paths of the site.

The proposed surface water drainage strategy will ensure:

- Connection the drainage to the surface water sewer network (with following discussions needed with Southern Water); and
- A majority of the booster station hard standing areas will be formed of an appropriate permeable material.

The drainage strategy for the Scheme will be refined and further developed as part of the detailed design stage.

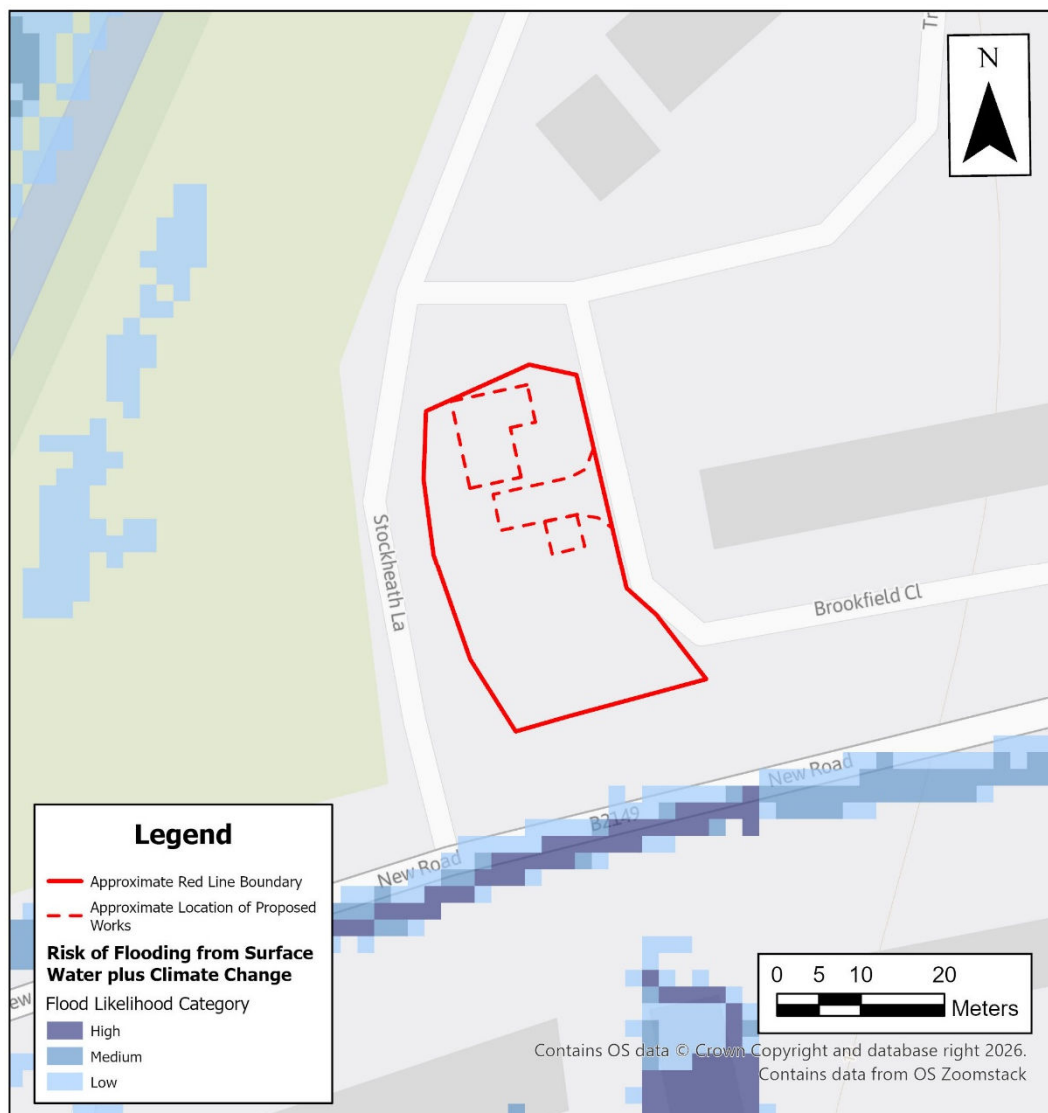


Figure 2-4 – Extent of flooding from surface water plus climate change

2.5 Flooding from groundwater

Groundwater flooding normally occurs where the water table meets the ground surface in low lying areas which are underlain by permeable rock known as an aquifer. Groundwater flooding tends to follow long periods of sustained rainfall but can also be caused by local obstructions to groundwater flow (e.g., following the placement of engineering structures or buildings with foundations) or by the rebound of groundwater levels after a decrease in abstraction or dewatering.

It is important to recognise that the risk of groundwater flooding is typically highly variable and heavily dependent on local geological, topographical, weather conditions and climate change. Groundwater flooding is hard to predict and challenging to mitigate. Longer periods of dry weather may reduce risk, but higher intensity and more frequent storms may increase risk.

A review of BGS ‘Susceptibility to Groundwater Flooding’ maps produced for the Havant SFRA (2024) show groundwater has the potential to reach the surface (Appendix B.2). This is also consistent with the Environment Agency’s national ‘Areas Susceptible to Groundwater Flooding’ dataset, also used in the Havant SFRA (Appendix B.3), which classifies the site as being within an area with $\geq 75\%$ susceptibility to groundwater emergence. It should be noted that the Environment Agency dataset reflects the proportion of 1km grid squares where geological and

hydrogeological conditions suggest groundwater could emerge; it doesn't show the likelihood of groundwater flooding.

Both datasets are derived from broad geological, hydrogeological, and topographic information and are therefore not site-specific. The Havant SFRA advises that these maps serve as an initial screening tool to identify where further investigation may be useful. Furthermore, the SFRA reports no historical groundwater flooding within close proximity of the Scheme site.

As shown in Figure 2-3, the operational structures will be positioned on higher-elevation areas of the site, with the booster station's FFLs set to 8.6 mAOD, providing additional elevation above potential low points in the landscape. Therefore, the development of the Scheme site above the ground level (and mitigated for surface water / fluvial flood risk reasons) would be at an acceptable level of groundwater flood risk. The Scheme will also not involve deep or linear foundations that would impact on groundwater movements. Hence, the Scheme would not cause an increase in risk from this source to third party receptors.

As described in Section 1.2.1, the underlying bedrock beneath the Scheme comprises of 'silty clay and sand'. A ground inspection would be needed to further ascertain the ground conditions at the site. Given this uncertainty, a precautionary approach has been adopted, and the Scheme is considered to be at moderate risk of groundwater flooding. Ground conditions should be taken into consideration during construction.

2.6 Other sources of flood risk

2.6.1 Flooding from reservoirs

The Environment Agency reservoir inundation mapping (2026) indicates that the site and areas within 1km of the site boundary are not at risk of inundation following reservoir failure. Therefore, the risk of flooding from this source is low.

2.6.2 Flooding from sewers

The water and sewerage network has the potential to cause a flood risk to the site. Water companies are required to maintain records of internal property flooding which has occurred as a result of hydraulic overloading of sewers. These records are known as the Director General 5 (DG5) register.

The nearby existing Southern Water sewerage system may present a risk of flooding if the capacity of the system is exceeded, or if the system suffers structural or operational failure. Blockages and structural failure incidents tend to be isolated and unpredictable. However, the site area topography is such that the proposed water pumping station is unlikely to be at risk from sewer flooding.

2.6.3 Flooding from canals

The site is not at risk of flooding from canals.

2.6.4 Other sources of flood risk

There are no other known sources of flood risk that pose a flood risk to the site, or that would be impacted as a result of the Scheme.



3. Planning policy

3.1 Background

The NPPF is the overarching planning policy document in relation to development and flood risk and sets out the Government's policy on development relating to flood risk. The aim of the NPPF is to ensure that development is not at an unacceptable risk of flooding. Where development is unavoidable in areas at risk from flooding, the NPPF aims to ensure that the development is safe without increasing flood risk elsewhere and where possible reducing flood risk overall.

In accordance with the NPPF, a site-specific FRA should be provided for all development in Flood Zones 2 (medium fluvial risk) and 3 (high fluvial risk) (the definitions of Flood Zones are provided in Section 3).

A site-specific FRA is also required for development in Flood Zone 1 (low fluvial risk), where:

1. proposals involve sites of 1 hectare or more;
2. land which has been identified as having critical drainage problems. This is identified through reviewing flood risk documents, including the strategic flood risk assessment (SFRA), the surface water management plan (SWMP) and the Local Flood Risk Management Strategy (LFRMS);
3. land identified in a SFRA as being at increased flood risk in future; or
4. land that may be subject to other sources of flooding (as determined through the sources listed in bullet 2, informed by the client or local knowledge of the area), where its development would introduce a more vulnerable use.

3.2 Flood risk vulnerability classification

The NPPF assigns vulnerability type to land use in terms of vulnerability to the impact of flooding. The vulnerability types range from water-compatible to essential infrastructure. More vulnerable development, for example residential, would be unsuitable for construction in areas at risk from flooding, however water-compatible development types such as water-based recreation might be considered acceptable (if the development does not increase flood risk elsewhere). The definitions for vulnerability type, and Flood Zone compatibility, are available on the UK Ministry of Housing, Communities and Local Government website (2025).

The proposed Scheme is classed as 'Water Compatible' which infers the development might be acceptable in Flood Zones 1, 2, and 3a, and potentially in Flood Zone 3b after applying the Exception Test.

Table 3-1 Flood risk vulnerability classification

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 †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ * This development

Key:

✓ Exception test is not required

X Development should not be permitted

† In Flood Zone 3a, essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* In Flood Zone 3b (functional floodplain), essential infrastructure that has to be there and has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- Remain operational and safe in times of flood,
- Result in no net loss of floodplain storage,
- Not impede water flows and not increase flood risk elsewhere.

3.3 Sequential Test

The purpose of the Sequential Test is to promote development within areas at lowest flood risk. Therefore, areas for development in Flood Zone 1 should be sought in the first instance. If there are no practicable areas for the development in Flood Zone 1, then areas in Flood Zone 2 should be sought, and so on.

A portion of the Scheme lies within in Flood Zone 3b as shown in Figure 2-1, however, hydraulic model outputs received from the Environment Agency indicate that all operational structures applicable to the Scheme do not lie within the 0.1% AEP (1 in 1000 annual probability) event flood extents. Pre-application discussions with the Environment Agency on the approval of this Scheme in these circumstances concluded that this would be sufficient considering the 'Water Compatible' vulnerability classification. On this basis the Sequential Test is considered to have been met.

3.4 Exception Test

A passed Exception Test is required when there is a need to demonstrate wider benefits that outweigh flood risk, and that the development will be safe from flooding without increasing risk elsewhere.

According to SFRA (Havant Borough Council, 2024), The Scheme is situated in Flood Zone 3b and therefore an Exception Test is required. Following the guidance in Section 3.2, the Scheme is classified as 'Water Compatible' due to its intended function, and that none of the operational structures, including access and egress routes in the Scheme are located in modelled 0.1% AEP (1 in 1000 annual probability) event flood extents. As such, the Scheme is expected to remain safe and operational throughout its lifetime. The Scheme is also unlikely to increase flood risk elsewhere, as it is not expected to cause any loss of floodplain storage or impede flood flows, therefore the Exception Test is passed.

In addition to the NPPF, the following local plans/policies and regulations have been reviewed and considered:

- Flood Risk Sequential Test & Exception Test, January 2026 (Havant Borough Council, 2026).
- Havant Borough Core Strategy. Local Development Framework, March 2011 (Havant Borough Council, 2011).

3.5 Climate Change

Climate change over the lifetime of the development is expected to increase rainfall intensity leading to higher fluvial flows and surface water runoff rates, which could increase flood risk to and from the site.

As the development is considered 'Water Compatible' and lies within Flood Zone 3b, the applicable climate change allowances for fluvial flood risk in the East Hampshire Management Catchment are 37% for the central scenario in the 2080s epoch. For pluvial (rainfall) and surface water management purposes, the design criteria for central and upper end allowances for rainfall are 25% and 45% respectively (Environment Agency, 2022).

The Scheme lies within the modelled 0.1% AEP (1 in 1000 annual probability) event outline, however the operational structures as well as access and egress routes lie outside of these extents. Although climate change may increase the risk of fluvial flooding at the site, these changes are not expected to inundate any operational structures. As noted in Section 2.2, the assessment uses the 0.1% AEP (1 in 1000 annual probability) event, which represents a conservative approach in lieu of the most recent climate change allowance applied to the 1% (1 in 100 annual probability) AEP. Furthermore, a review of LiDAR data indicates that any future increase in flood levels due to factors such as climate change are unlikely to result in flooding to the operational structures as this would require an approximately 800 mm increase in flood level.

The impact on groundwater flood risk as a result of climate change is challenging to predict. Longer periods of dry weather will reduce risk, but higher intensity storms may increase risk. Nevertheless, any development above the ground level (and mitigated for surface water / fluvial flood risk reasons) would be at an acceptable level of groundwater flood risk.

3.6 Summary of flood risk

Table 3-2 below provides a summary of flood risk at the site and result from the Scheme.

Table 3-2 Summary of flood risk

Flood Risk	Baseline risk	Post development risk	Mitigation required	Commentary
Fluvial	High: Within the Scheme red line boundary Low: To operational structures within the Scheme	Low: From any works as part of the Scheme	No	The Scheme is within Flood Zone 3b however, modelled flood extents show that none of the works lie within the 0.1% AEP (1 in 1000 annual probability) event flood extents and therefore the Scheme will not increase flood risk from this source.
Tidal	No risk	No risk	No	No risk to the site as it is inland and not tidally influenced. The Scheme will not impact on this source of flood risk.
Surface Water	Low	Low	No	The Scheme is at low risk of surface water flooding, and the proposed works would not cause an increase in risk from this source. The Scheme incorporates an



				appropriate permeable material for the booster station access track and drainage connected to the surface water sewer network to mitigate risk of surface water flooding.
Groundwater	Moderate	Low: From any works as part of the Scheme	No	The Scheme is at moderate risk of groundwater flooding, and the proposed works would not cause an increase in risk from this source.
Other sources	Low	Low	No	The Scheme is not at risk from reservoir inundation, canal failure or any other known sources of flood risk. Furthermore, the Scheme will not cause an increase in flood risk from any other known source.
Climate Change	High: Within the Scheme red line boundary Low: To operational structures within the Scheme	Low: From any works as part of the Scheme	No	Climate change has the potential to increase surface water flooding and therefore suitable allowances for climate change should be incorporated into the drainage design. As the Scheme is at a high risk of fluvial flooding, the impact of climate change has the potential to increase this risk throughout the Scheme's lifetime, hydraulic modelling demonstrates the operational structures within the Scheme are at an acceptable level of risk, taking climate change into account. The Scheme is at either at low or no risk from all other known sources of flooding. Therefore, it is considered that the Scheme will be at an acceptable level of risk over the lifetime of the development taking climate change into account.

4. Conclusions & Recommendations

4.1 Conclusions

The conclusions that have been made from this FRA are:

- The Scheme, Racton water booster station, is classified as 'Water Compatible'.
- The northern and western boundaries of the Scheme are situated in Flood Zones 2 and 3. Previous hydraulic modelling of the region show that the operational structures do not lie within the 0.1% AEP (1 in 1000 annual probability) event modelled flood extents. The Scheme is not expected to reduce floodplain storage, nor increase flood risk elsewhere. Therefore, it can be considered at low risk of fluvial flooding.
- The site is situated in an area classified as having $\geq 75\%$ susceptibility to groundwater emergence. While this classification does not represent the actual likelihood of groundwater flooding occurring, there are no historical records of groundwater flooding at the site. The booster station building will be constructed above existing ground levels. Therefore considered to be at moderate risk of groundwater flooding.
- The site is at low risk of surface water flooding.
- Climate change has the potential to increase surface water and fluvial flooding. Suitable allowances for climate change have been incorporated into the drainage design to account for surface water, and increases in fluvial flooding due to climate change is unlikely to increase risk to the operational structures
- There are no other known sources of flood risk to the site.

4.2 Recommendations

The recommendations for the Scheme based on this FRA are:

- Given that the site boundary lies within Flood Zone 3b and is in close proximity to Hermitage Stream, a watercourse which is expected to flood during extreme events, site operators should keep up to date with flood warnings for the area.
- Temporary buildings installed during the construction phase should be located outside Flood Zones so that they do not impede surface water flows or increase the risk of surface water flooding.
- Given that the site lies within an area where national datasets show elevated susceptibility to groundwater emergence, it is recommended that site-specific groundwater investigations are undertaken in order to have a better understanding of groundwater flood risk.
- This FRA is revisited should any alterations be made to the development red line boundary or proposed drainage works / surface water drainage strategy.



5. Reference List

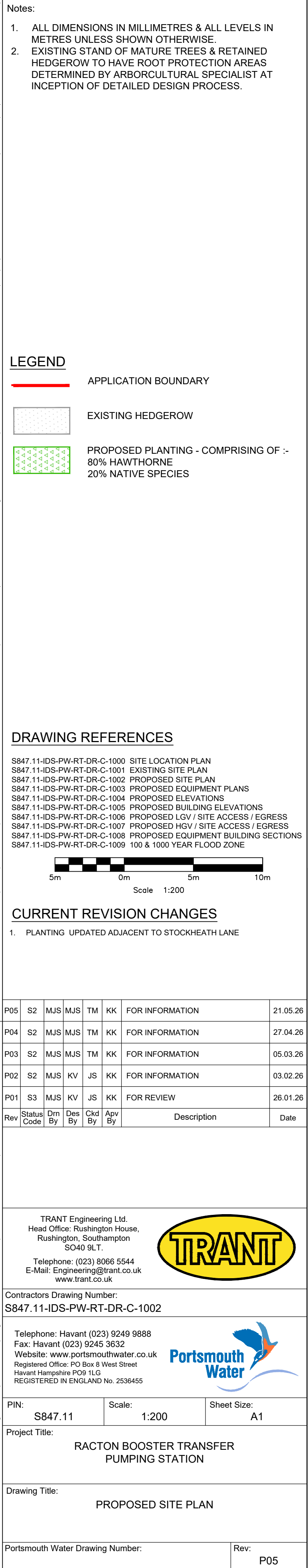
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APPENDICES

Appendix A. Proposed Drawings

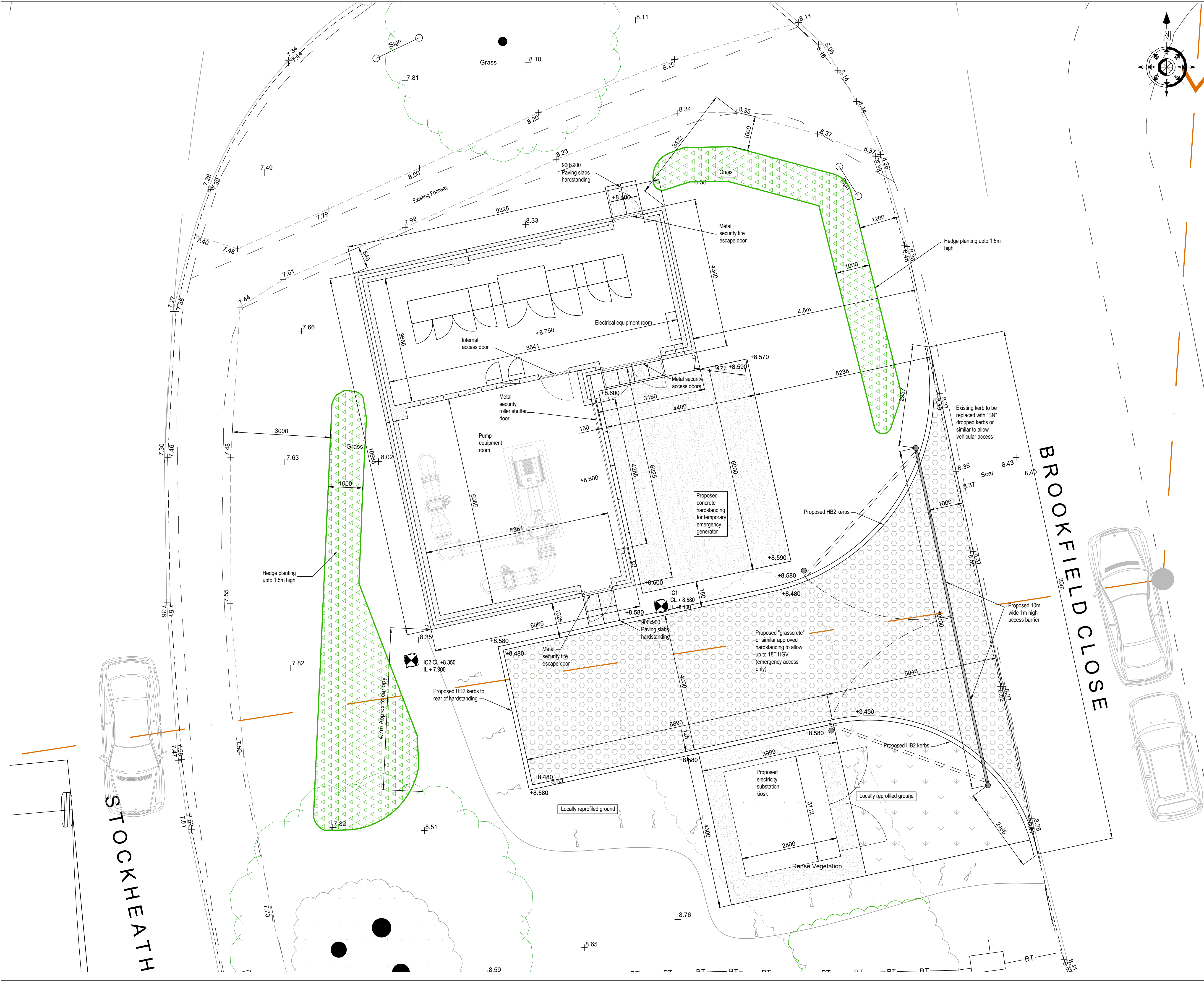
A.1 Proposed Site Plan





A.2 Proposed Equipment Plan





Notes:
1. ALL DIMENSIONS IN MILLIMETRES & ALL LEVELS IN METRES UNLESS SHOWN OTHERWISE.

LEGEND

PROPOSED PLANTING - COMPRISING OF :-
80% HAWTHORNE
20% NATIVE SPECIES

EXISTING SOUTHER WATER FOUL SEWER ROUTE

DRAWING REFERENCES

S847.11-IDS-PW-RT-DR-C-1000 SITE LOCATION PLAN
S847.11-IDS-PW-RT-DR-C-1001 EXISTING SITE PLAN
S847.11-IDS-PW-RT-DR-C-1002 PROPOSED SITE PLAN
S847.11-IDS-PW-RT-DR-C-1003 PROPOSED EQUIPMENT PLANS
S847.11-IDS-PW-RT-DR-C-1004 PROPOSED ELEVATIONS
S847.11-IDS-PW-RT-DR-C-1005 PROPOSED BUILDING ELEVATIONS
S847.11-IDS-PW-RT-DR-C-1006 PROPOSED LGV / SITE ACCESS / EGRESS
S847.11-IDS-PW-RT-DR-C-1007 PROPOSED HGV / SITE ACCESS / EGRESS
S847.11-IDS-PW-RT-DR-C-1008 PROPOSED EQUIPMENT BUILDING SECTIONS
S847.11-IDS-PW-RT-DR-C-1009 100 & 1000 YEAR FLOOD ZONE

Scale 1:50

CURRENT REVISION CHANGES
1. PLANTING UPDATED ADJACENT TO STOCKHEATH LANE

P06	S2	MJS	MJS	TM	KK	FOR INFORMATION	21.05.26
P05	S2	MJS	MJS	TM	KK	FOR INFORMATION	14.05.26
P04	S2	MJS	MJS	TM	KK	FOR INFORMATION	27.04.26
P03	S2	MJS	MJS	TM	KK	FOR INFORMATION	05.03.26
P02	S2	MJS	KV	JS	KK	FOR INFORMATION	03.02.26
P01	S3	MJS	KV	JS	KK	FOR REVIEW	26.01.26
Rev	Status	Drn	Des	Ckd	App	Description	Date
	Code	By	By	By	By		

TRANT Engineering Ltd.
Head Office: Rushington House,
Rushington, Southampton
SO40 9LT.
Telephone: (023) 8066 5544
E-Mail: Engineering@trant.co.uk
www.trant.co.uk

Contractors Drawing Number:
S847.11-IDS-PW-RT-DR-C-1003

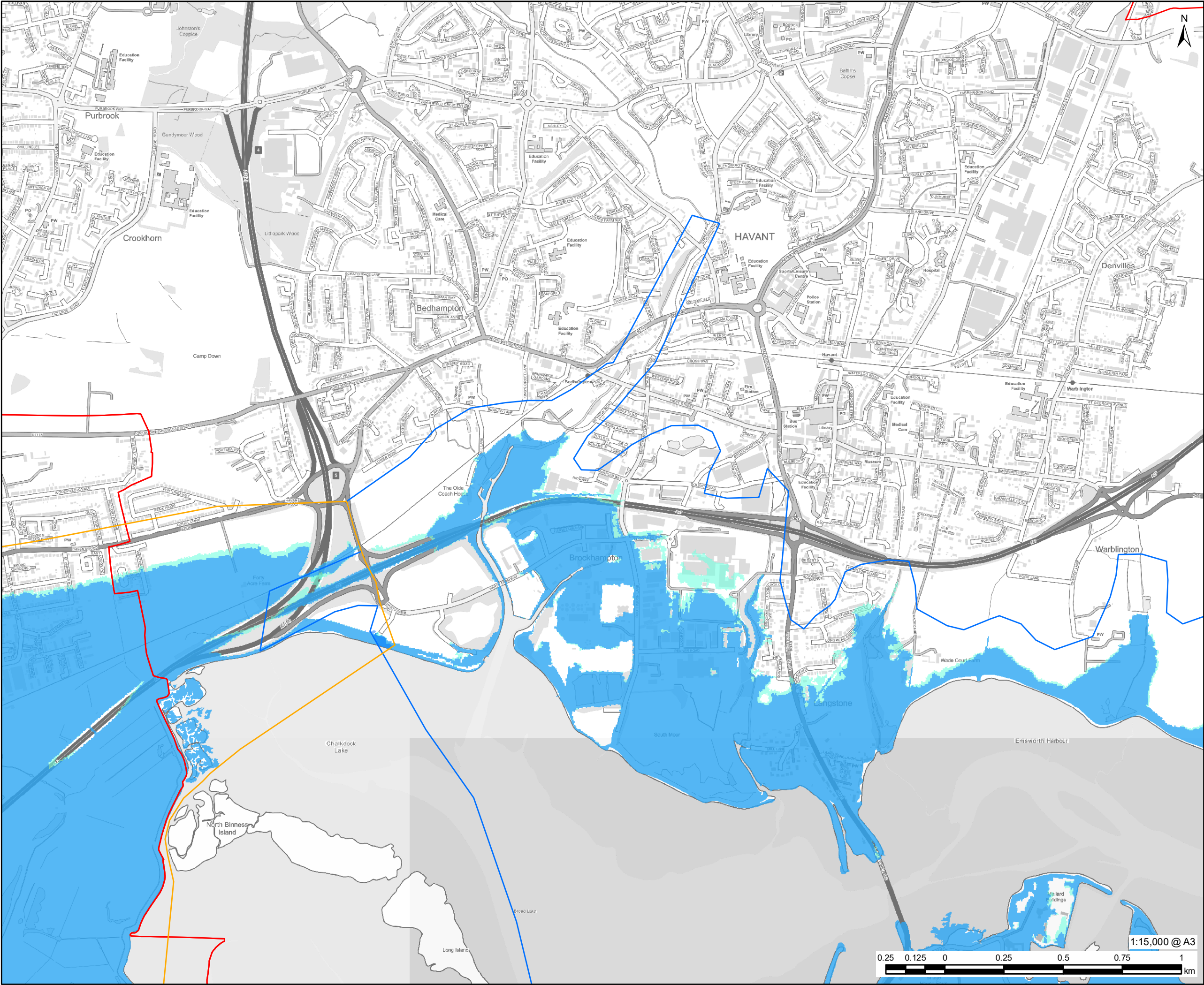
Telephone: Havant (023) 9249 9888
Fax: Havant (023) 9245 3632
Website: www.portsmouthwater.co.uk
Registered Office: PO Box 8 West Street
Havant Hampshire PO9 1LG
REGISTERED IN ENGLAND No. 2536455

PIN:	S847.11	Scale:	1:50	Sheet Size:	A1
Project Title: RACTON BOOSTER TRANSFER PUMPING STATION					
Drawing Title: EQUIPMENT / BUILDING & LAYOUT PLAN					
Portsmouth Water Drawing Number:				Rev:	P06

Appendix B. Strategic Flood Risk Assessment for Havant Borough Council

B.1 Future Coastal Flood Zones





PROJECT

Partnership for South Hampshire
Strategic Flood Risk Assessment

CLIENT

Portsmouth City Council on behalf of
Havant Borough Council

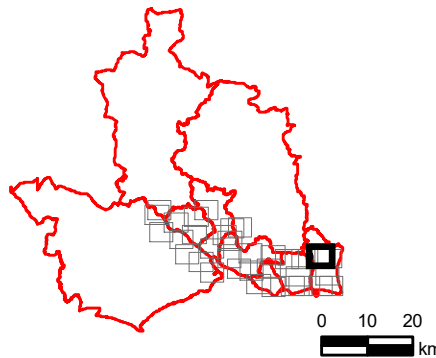
CONSULTANT

AECOM Limited
Sunley House
4 Bedford Park
Croydon, CR0 2AP
www.aecom.com

LEGEND

- Local Authority Boundary
- Portsmouth Model Extent
- Haying Island Model Extent
- Flood Zone 2 2122 (Maximum flood extent from Undefended and Defended scenarios for 0.1% AEP 2122)
- Flood Zone 3a 2122 (Maximum flood extent from Undefended and Defended scenarios for 0.5% AEP 2122)

OVERVIEW



NOTES

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ISSUE PURPOSE

For Information

PROJECT NUMBER

60653132

FIGURE TITLE

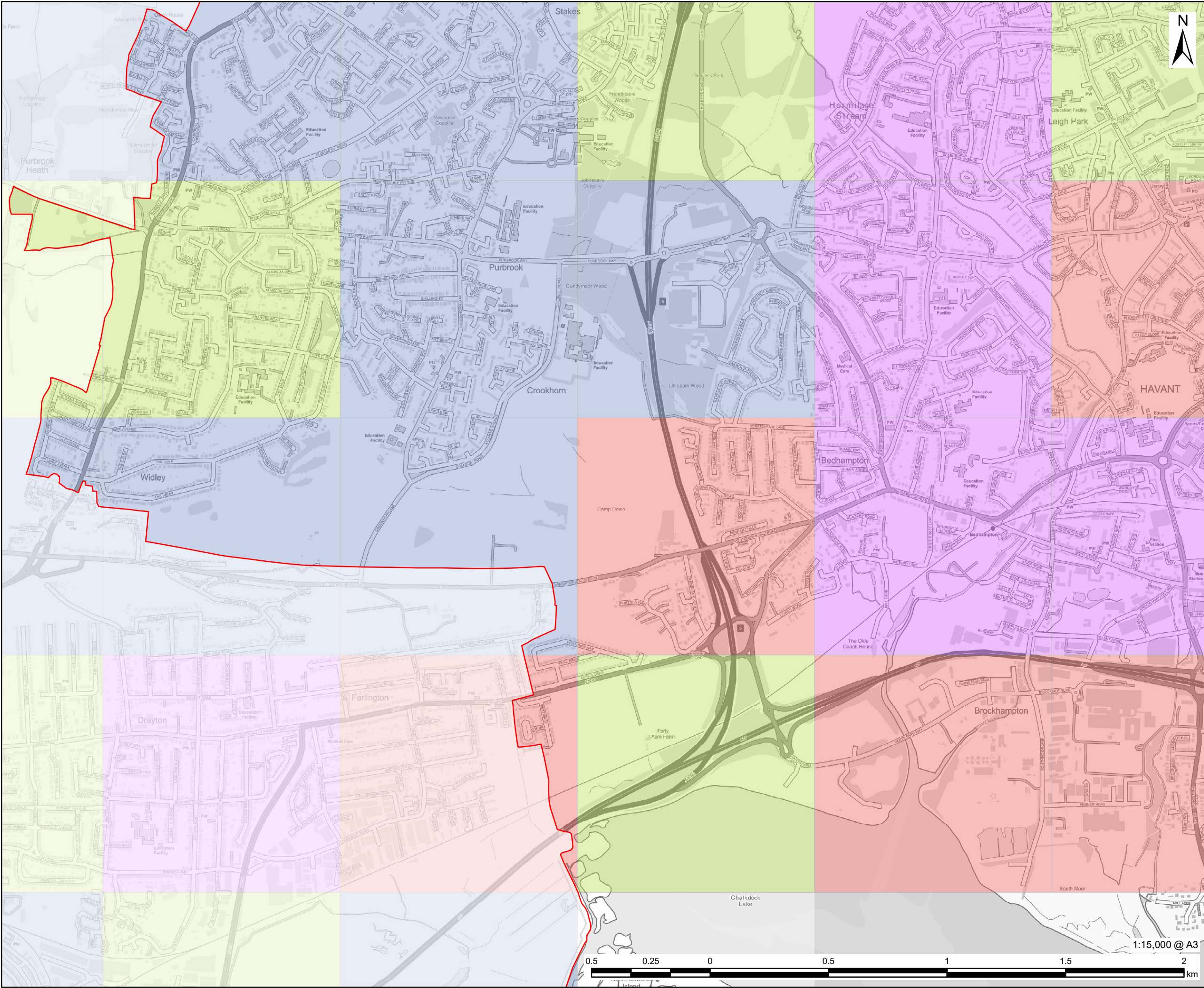
Future Coastal Flood Zones
Sheet 5 of 5

FIGURE NUMBER

Figure 2

B.2 Susceptibility to Groundwater Flooding (Environment Agency dataset)





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AECOM

PROJECT
Partnership for South Hampshire
Strategic Flood Risk Assessment

CLIENT
Portsmouth City Council on behalf of
Havant Borough Council

CONSULTANT
AECOM Limited
Sunley House
4 Bedford Park
Croydon, CR0 2AP
www.aecom.com

LEGEND

Havant Borough Boundary

Areas Susceptible to Groundwater Flooding

< 25%

>= 25% < 50%

>= 50% < 75%

>= 75%

Elsewhere: Not considered to be prone to groundwater flooding: based on rock type.

OVERVIEW

0 2.5 5 km

NOTES

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ISSUE PURPOSE
For Information

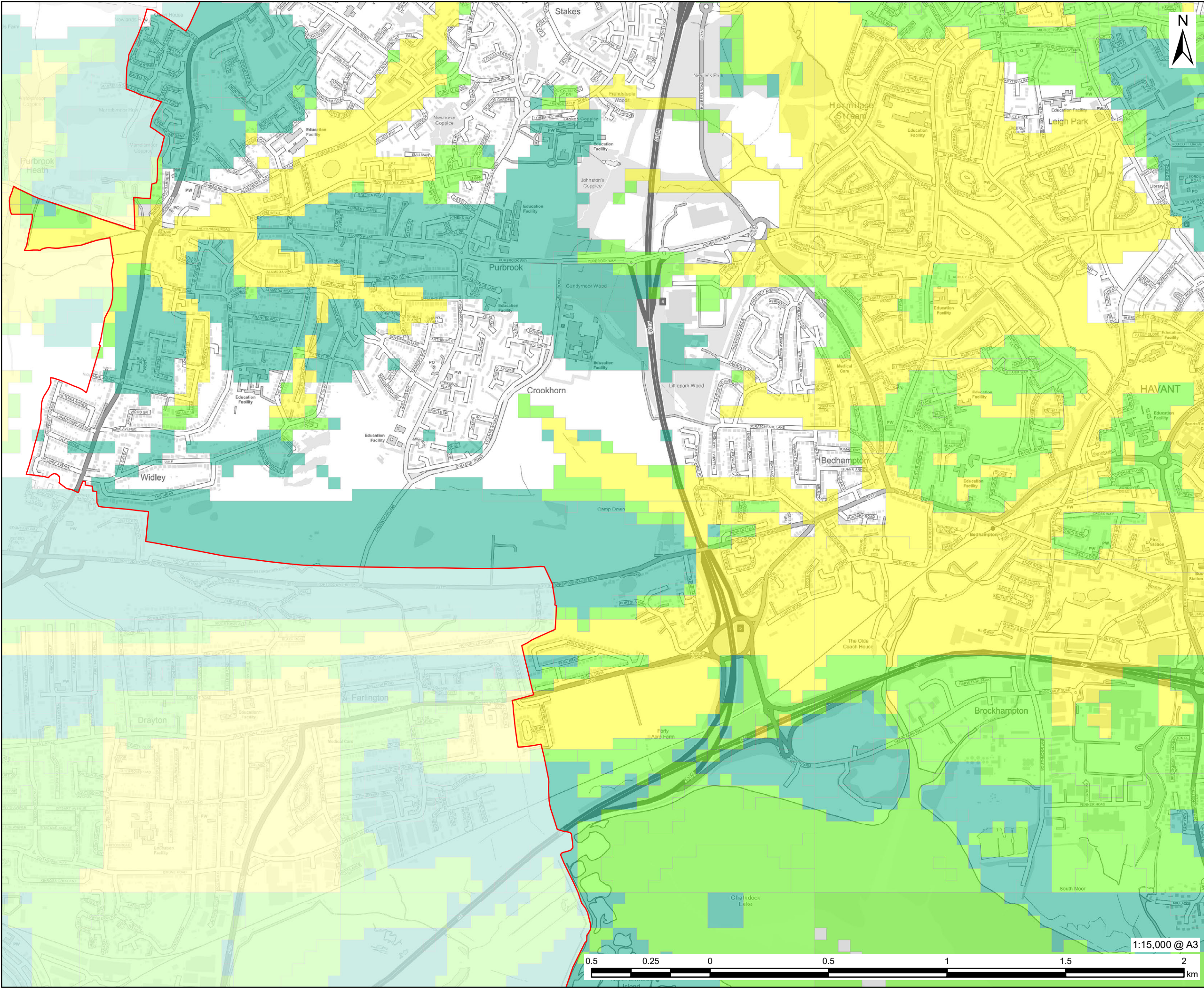
PROJECT NUMBER
60653132

FIGURE TITLE
Area Susceptible to Groundwater Flooding
Sheet 3 of 7

FIGURE NUMBER
Figure 4C

B.3 Susceptibility to Groundwater Flooding (British Geological Survey)





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PROJECT

Partnership for South Hampshire
Strategic Flood Risk Assessment

CLIENT

Portsmouth City Council on behalf of
Havant Borough Council

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LEGEND

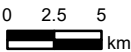
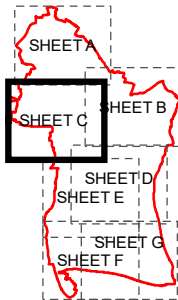
Havant Borough Boundary

Susceptibility to Groundwater Flooding

- Limited potential for groundwater flooding to occur
- Potential for groundwater flooding of property situated below ground level
- Potential for groundwater flooding to occur at surface

Elsewhere: Not considered to be prone to groundwater flooding: based on rock type.

OVERVIEW



NOTES

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ISSUE PURPOSE

For Information

PROJECT NUMBER

60653132

FIGURE TITLE

Susceptibility to Groundwater Flooding
Sheet 3 of 7

FIGURE NUMBER

Figure 5C

1:15,000 @ A3



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