

PROTIUM GREEN HYDROGEN SUPPLY LIMITED



**FLOOD CONSEQUENCE ASSESSMENT FOR
HYDROGEN PRODUCTION FACILITY ON LAND OFF
CENTRAL AVENUE, PORT TALBOT, SA12 7BT**

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Purpose

This document was prepared as a Flood Consequence Assessment (FCA) for Protium Green Hydrogen Supply Limited (Protium) to support a planning application for a Hydrogen Production Facility (HPF) on land off Central Avenue, Port Talbot, SA12 7BT.

Sirius Environmental Limited (Sirius) accepts no responsibility or liability for any use, that is made of this document, other than by the Client for the purposes for which it was originally commissioned and prepared.

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1 INTRODUCTION

1.1 General

Sirius Environmental Limited (Sirius) were appointed by Protium Green Hydrogen Supply Limited to carry out a Flood Consequence Assessment (FCA) to support a planning application, for a proposed Hydrogen Production Facility (HPF) (herein referred to as the Proposed Development).

The Proposed Development is located on land located off Central Avenue, Port Talbot, SA12 7BT. The Site entrance is at Ordnance Survey (OS) grid reference **SS 791 862**. The Site is situated approximately 3km to the northwest of the town of Port Talbot in South Wales.

This Flood Consequence Assessment (FCA) has been carried out in accordance with Technical Advice Note 15 : Development and Flood Risk (TAN15) published on the 1st April 2025.

Developments that are designed without due care and attention to flood risk may lead to damages to existing and proposed developments, damage to the local environment, cause additional financial resources for any remedial works following a flood event and cause disruption the wider community.

The key objectives of this Flood Consequence Assessment are:

- To assess the flood risk to the Proposed Development and demonstrate that appropriate mitigation measures can be implemented so that any residual risks from flooding are safely managed; and
- To assess the potential impact to the surrounding business units to demonstrate that the Proposed Development does not increase the flood risk elsewhere.

2 PLANNING POLICY AND GUIDANCE

2.1 Planning Policy Wales

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. There is a section which outlines the Welsh Government's objectives in terms of addressing the flood risk. It states that development proposals located in areas classified as being in a high risk should only be considered when:

- New development can be justified in that location, even though it is likely to be at risk from flooding;
- The development proposal would not result in the intensification of existing development which may itself be at risk; and
- New development would not increase the potential adverse impacts of a flood event.

2.2 Technical Advice Note 15 : Development and Flood Risk

Planning Policy Wales is supplemented by a series of Technical Advice Notes (TAN). Technical guidance for developments and flood risk is provided by TAN15. TAN15 was originally introduced in 2004 with an update published in 2025 which replaced the original 2004 TAN15 on the 1st April 2025.

One of the key aims of TAN15 is to ensure that flood risk is taken into account at all stages of the planning process; to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk.

One key change from the original TAN15 to the current updated guidance is that new development in certain flood zones is now very much prohibited.

Natural Resource Wales (NRW) produce a set of Flood Zones which refer to the probability of flooding from Rivers and Seas in a given year assuming no defences are in place. The NRW Flood Zones are as follows:

- Flood Zone 1 – Less than 1 in 1000 (0.1%) (plus climate change) chance of flooding in a given year.
- Flood Zone 2 – Less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year from fluvial sources or less than 1 in 200 (0.5%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year from tidal sources.

- Flood Zone 3 – A greater than 1 in 100 (1%) chance of flooding from fluvial sources in a given year or a greater than 1 in 200 (0.5%) chance of flooding from tidal sources in a given year.

The Welsh Government produces Development Advice Maps (DAM) to accompany TAN15. These maps illustrate the degree of flood risk which is to be applied to a site to determine the suitability for the Proposed Development. These DAM's are based on the NRW flood maps. However, these could be altered if there was available information presented, for example an hydraulic model. The DAM zones are presented below:

- Zone A – Areas considered to be at little or no risk of fluvial or tidal/coastal flooding. Flood risk within this zone does not need to be considered further.
- Zone B – Areas known to have been flooded in the past evidenced by sedimentary deposits. Areas within this zone are further checked against the 0.1% flood level.
- Zone C1 – Based on the NRW 0.1% flood outline and are areas of the floodplain developed served by significant flood defence infrastructure.
- Zone C2 - Based on the NRW 0.1% flood outline and areas of the floodplain without significant flood defence infrastructure.

These development advice maps have now been superseded by the Natural Resource Wales (NRW) flood maps for planning which were updated on the 31st March 2025.

TAN15 requires an FCA to support a planning application which should be proportionate to the risk and appropriate to the scale, nature and location of the Proposed Development. The following elements need to be considered and included in an FCA:

- The consequence of flooding to the Proposed Development;
- The consequence to flooding elsewhere as a result of the Proposed Development;
- The mitigation measures that are proposed to deal with the risks are suitable and sufficient for the Proposed Development; and
- The Proposed Development must satisfy the requirements of the justification test as stated in TAN15.

3 SITE DESCRIPTION

3.1 Location

The Proposed Development is located off Central Avenue in Port Talbot, approximately 3km to the north west of the town of Port Talbot. The Site is bounded to the north, east and west by existing commercial developments, to the south it is bound by existing trees and the main road of Central Avenue.

Access to the Site is via a private access road located off Central Avenue at Grid Reference SJ 743 923. The Site falls within administrative area of Neath and Port Talbot County Borough Council. Figure 1 below shows the site location in relation to the surrounding areas, along with the planning application boundary.

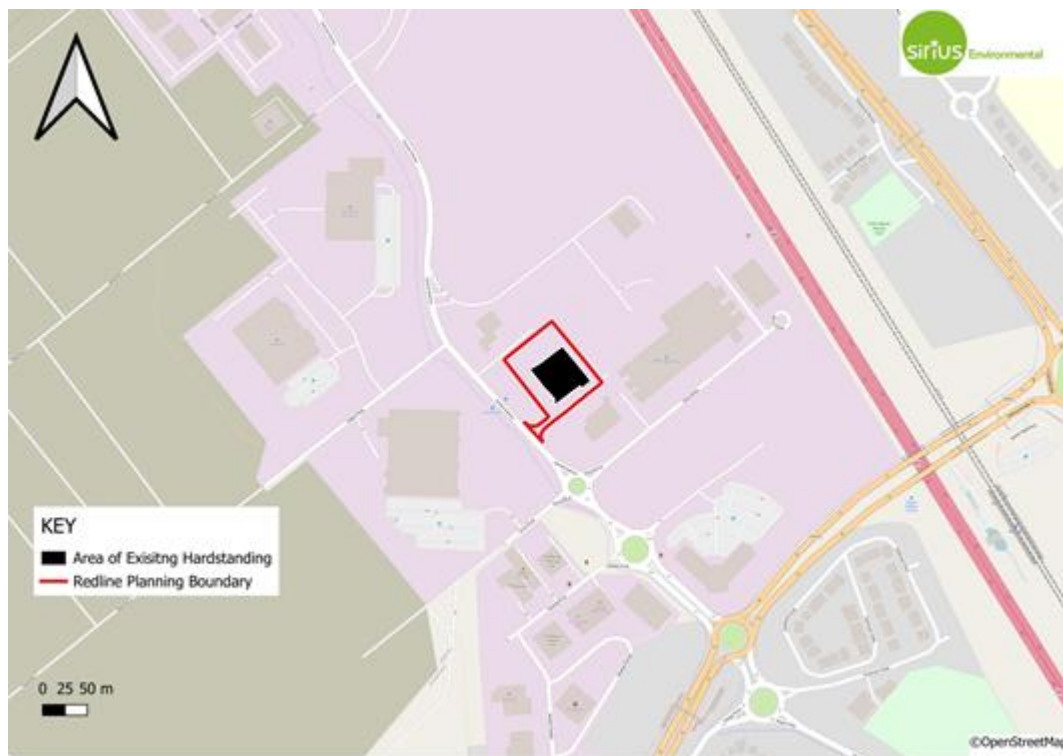


Figure 1 - Site Location Plan (OpenStreet Map, 2025)

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The Site is previously developed and has been successfully used for various commercial/industrial purposes over the years. Most recently the Site has been used as a storage yard to store numerous containers and building materials.

A topographical survey of the Site was conducted in January 2025. Generally, the Site falls in a northwest to southeast direction. The northwestern corner of the Site has the highest elevation with a level of approximately 6.26mAOD, with the lowest elevation occurring at the Site entrance toward the southeastern corner, with an elevation of approximately 5.49mAOD.

A detailed description of the Site is outlined in Chapter 2 of the accompanying Planning Statement.

4 SITE GEOLOGY

4.1 Geological Stratigraphy

As part of this Flood Consequence Assessment (FCA), the British Geology Survey (BGS) maps have been studied to determine the underlying geology for the Site and specifically the Proposed Development area. The BGS maps show that the superficial deposits are Tidal Flat Deposits comprising either clay, silt or sand. The bedrock geology is formed from the South Wales Middle Coal Measures formation which comprises mudstones, siltstones and sandstones.

Borehole records from in and around the vicinity of the Site have been reviewed. The borehole records that have been reviewed are the ones that are freely and publicly available on the BGS borehole viewer. These boreholes show that the ground is variable with generally interbedded layers of sand and silty clays. The sand is generally indicated to be close to the surface extending down to a depth of around 1.5m/1.6m.

A review of recently submitted planning applications surrounding the Site has also been undertaken as part of this drainage strategy. This shows that the Site directly to the north-east of the Proposed Development (occupied by E.G. Lewis) has a permitted soakaway to deal with the surface water runoff.

These findings indicate that infiltration maybe a suitable means for dealing with surface water runoff generated from the Proposed Development. Site specific infiltration testing will be included within any necessary SAB application (following pre-application discussions with SAB) to ensure that the ground conditions are conducive to infiltration.

4.2 Groundwater Levels

Excavation pits have been undertaken at the Site and groundwater was encountered at approximately 1.6m below ground level (BGL).

5 FLOOD ZONES

5.1 Flood Maps for Planning

Natural Resource Wales (NRW) have recently updated all of their flood maps to coincide with the update to TAN15. NRW have published flood maps for fluvial flooding, sea flooding and surface water and small watercourses flooding. The maps also illustrate where flood defences are in place and provide protection to home owners and businesses.

The flood risk maps for planning shows that the majority of the Site is located in Flood Zone 3 for fluvial flooding. Figure 2 below shows the extent of flood zones in relation to fluvial flooding for the Proposed Development with the planning boundary shown in red.

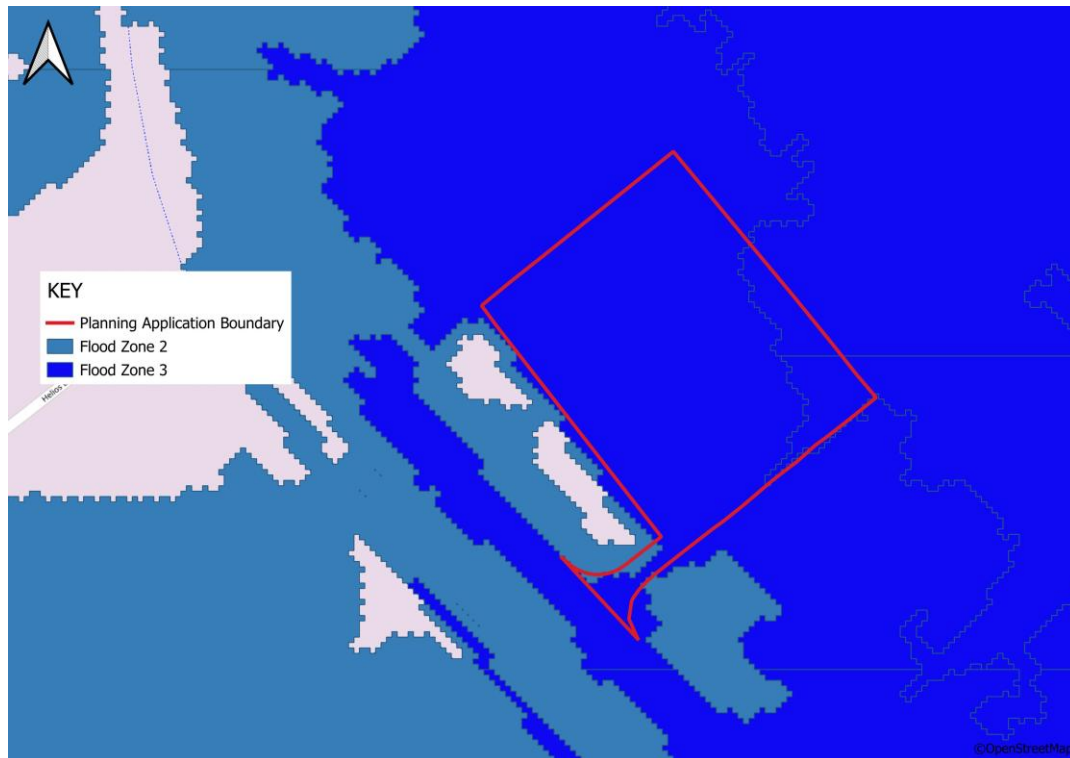


Figure 2 - Site Location Plan with Fluvial Flood Zones (OpenStreet Map & NRW, 2025)

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The flood risk maps for planning shows that part of the Site, in the south western corner is located in Flood Zone 2 and 3 for tidal flooding.

Figure 3 below shows the extent of Flood Zone 2 (light green) and Flood Zone 3 (dark green) in relation to tidal flooding with the planning boundary shown in red.

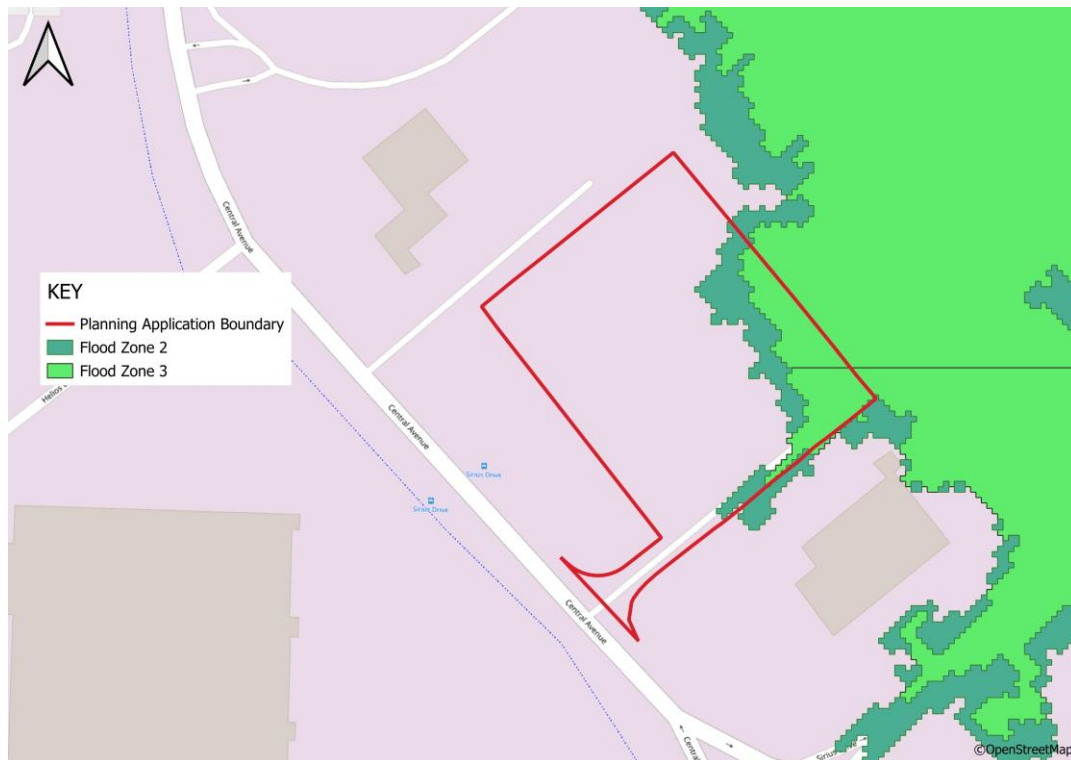


Figure 3 - Site Location Plan with Tidal Flood Zones (OpenStreet Map & NRW, 2025)

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6 WATER FEATURES IN THE VICINITY OF THE SITE

6.1 Baglan Brook

Baglan Brook is located approximately 300m to the north east of the Site.

6.2 Swansea Bay

Swansea Bay is located approximately 2km to the south west of the Site.

6.3 Historic Flooding

From a review of the Natural Resources Wales historic flood risk dataset, the area has not been subjected to any recorded flooding events.

6.4 Existing Site Drainage

The existing Site contains minimal surface water drainage infrastructure from a visible inspection. The only visible features are some small gully grates/chambers.

There is a combined sewer which is believed to be running under the Site. This is believed to run in an approximate northwest to southeast direction through the Site.

It appears from a visual inspection, that the current impermeable hardstanding areas have minimal surface water control installed and it is likely that the runoff currently drains into the underlying strata by infiltration.

7 DEVELOPMENT PROPOSALS

7.1 General

Planning permission is being sought by Protium to install a Hydrogen Production Facility comprising the following:

- An Electrolytic Hydrogen Production Facility (HPF) and associated compression and storage; and
- A Hydrogen Tube-Trailer Filling Station (HTTFS);

The HPF shall be installed on the existing hardstanding impermeable areas and shall not significantly increase the runoff post development compared with the current situation.

The Proposed Development layout is shown on Drawing PRO1013/01/03 presented in Appendix 1.

A detailed description of the Proposed Development is outlined in Chapter 3 of the accompanying Planning Statement.

7.2 Vulnerability to Flooding

Technical Advice Note 15 categorises development types according to their vulnerability in the event of flooding. There are three categories of vulnerability; Highly vulnerable development, less vulnerable development and water compatible development. The types of development in each vulnerability category is shown in Table 1 below.

Table 1 – Development Vulnerability Categories	
Vulnerability Category	Types
Highly Vulnerable Development	• All residential premises (including hotels, Gypsy and Traveller sites, caravan parks and camping sites). • Schools and childcare establishments, colleges and universities. • Hospitals and GP surgeries. • Especially vulnerable industrial development (e.g.

	power generating and distribution elements of power stations, transformers, chemical plants, incinerators), and waste disposal sites. • Emergency services, including: ambulance stations, fire stations, police stations, command centres, emergency depots. • Buildings used to provide emergency shelter in time of flood.
Less Vulnerable Development	• General industrial, employment, commercial and retail development. • Transport and utilities infrastructure. • Car parks. • Mineral extraction sites and associated processing facilities (excluding waste disposal sites). • Public buildings including libraries, community centres and leisure centres (excluding those identified as in Highly Vulnerable category and emergency shelters). • Places of worship. • Cemeteries. • Equipped play areas. • Renewable energy generation facilities (excluding hydro generation).
Water Compatible Development	• Boatyards, marinas and essential works required at mooring basins. Development associated with canals. Flood defences and management infrastructure. • Open spaces (excluding equipped play areas). • Hydro renewable energy generation.

The definitions of 'highly vulnerable development' are those considered in Figure 4 of TAN15 (dated 31st March 2025). TAN15 confirms that highly vulnerable development is development where the ability of occupants to decide on whether they wish to accept the risks to life and property associated with flooding, or be able to manage the consequences of such a risk, is limited. The Proposed Development is not an emergency service and will have minimal people involved (existing 3 staff members retained and additional 3 highly specialised technicians). The proposal is not considered to be classed as especially vulnerable industrial development given the limited nature of the proposal and given if the site was flooded, there would be no attendant risk to the public or water environment. All key equipment for the HPF will be located 800mm above ground level ensuring that the facility remains flood resilient. In the case of flooding onsite, electrical equipment can be shut down immediately. It should also be noted that the site is allocated as an Existing Employment Site within the Local Development Plan, already serves as a general industrial site and is surrounded by industrial uses.

It is therefore considered that the vulnerability of the development is low and should be classed as within the 'less vulnerable development' category both from the development use type and the minimal staff associated. In the event of the Site flooding, there would be no attendant risk to the public or water environment.

8 SURFACE WATER DRAINAGE STRATEGY

8.1 General

The general concept of the surface water drainage strategy comprises of surface water being collected and transferred to an infiltration trench which shall then discharge the surface water into the underlying strata. The underlying strata at the Site is considered to be permeable and suitable for infiltration. This is in accordance with the SuDS hierarchy and the Standards contained within the Sustainable Drainage (SuDS) Statutory Guidance.

8.2 Drainage Strategy

A detailed drainage strategy has been produced to accompany the planning application and is contained within Appendix 2 of this Flood Consequence Assessment.

9 POTENTIAL SOURCE AND IMPACT OF FLOODING

9.1 General

The flood risk associated with the Proposed Development on land off Central Avenue, Port Talbot have been assessed against the following types of flooding events;

- Fluvial Flooding;
- Tidal Flooding;
- Reservoir Flooding;
- Groundwater Flooding;
- Canal Flooding; and
- Pluvial Flooding (Surface Water and Small Watercourse).

9.2 Fluvial Flooding General

The location of the Site is situated mainly within Flood Zone 3, with a small area of the Site indicated to be within Flood Zone 2 from fluvial sources. However, the Site is situated in a TAN15 defended zone.

9.2.1 Flood Defences

The Site is defended from fluvial sources from the Baglan Brook to the standard 1% Annual Exceedance Probability (AEP) event.

The fluvial defences which protect Port Talbot are noted on the Natural Resources Wales flood map for planning portal as being a walled structure, 476m in length, maintained by Natural Resources Wales.

Although not a formal flood defence, from the hydraulic modelling report, produced by JBA Consulting Limited, The Seaway Parade pumping station prevents any flooding upstream of the pumping station.

The Site would appear to be well defended from fluvial flooding at the present day.

9.2.2 Fluvial Flood Modelling

Modelled flood levels and flood extents for fluvial sources have been requested by Sirius as part of this FCA and provided by Natural Resources Wales under data request reference ATI – 28306a. The flood modelling that has been provided is from the Port Talbot Harbourside PAR 2016 flood model which had a subsequent update in 2017.

Flood modelling outputs for fluvial sources have been provided for the undefended and defended events up to the 0.1% Annual Exceedance Probability Event, with the climate change allowance being added to the 1% and 0.1% AEP fluvial event.

The output flood maps for the Site show that in the situation where there are no fluvial flood defences present, which is not the case, the Site is at risk from flooding for events up to an including the 1% AEP event with an additional allowance for climate change. The outputs show that the predicted depth of flood water for a 1% AEP event with climate change allowance, where flood defences are not present is 1058mm.

When the flood defences are considered the output from the flood modelling shows that the Site is not located in the extents of the 1% AEP fluvial event with an additional allowance for climate change. The flood modelling outputs show that the Site is at risk from the a 0.1% AEP event with an additional allowance for climate change. For a 0.1% AEP event with an additional allowance for climate change the maximum depth of flooding predicted for the Site is 511mm.

The depths of predicted fluvial flooding for the Site are summarised in Table 2 below.

Table 2 – Modelled Fluvial Flooding Depths from Hydraulic Models

Scenario Assessed	1% AEP Flood Depth (mm)	0.1% AEP Flood Depth (mm)
Defended (2116)	0	511
Undefended (2116)	1058	2115

TAN15 requires that new developments are flood free for various annual exceedance probability events depending on the vulnerability classification. Table 3 summarises the flood event in which developments must remain flood free for:-

Table 3 – Flood Events which Developments must be Flood Free

Vulnerability Classification		Minimum Fluvial Flood Event Required to be Flood Free
Highly Vulnerable Development	Emergency Services (Command Centres & Hubs)	0.1% + Climate Change Allowance
	All Other Types of Development	1% + Climate Change Allowance
Less Vulnerable Development		1% + Climate Change Allowance
Water Compatible Development (Potentially Occupied by People)		1% + Climate Change Allowance

Given the less vulnerable classification of the Proposed Development and the requirement stated in Table 3 above, the flood modelling data presented in Table 2 shows that the Proposed Development shall remain flood free for the 1% AEP fluvial event with an additional allowance for climate change. Therefore this is in accordance with TAN15.

Figure 4 to Figure 7 below shows the fluvial flooding extents for the four scenarios summarised in tables above.

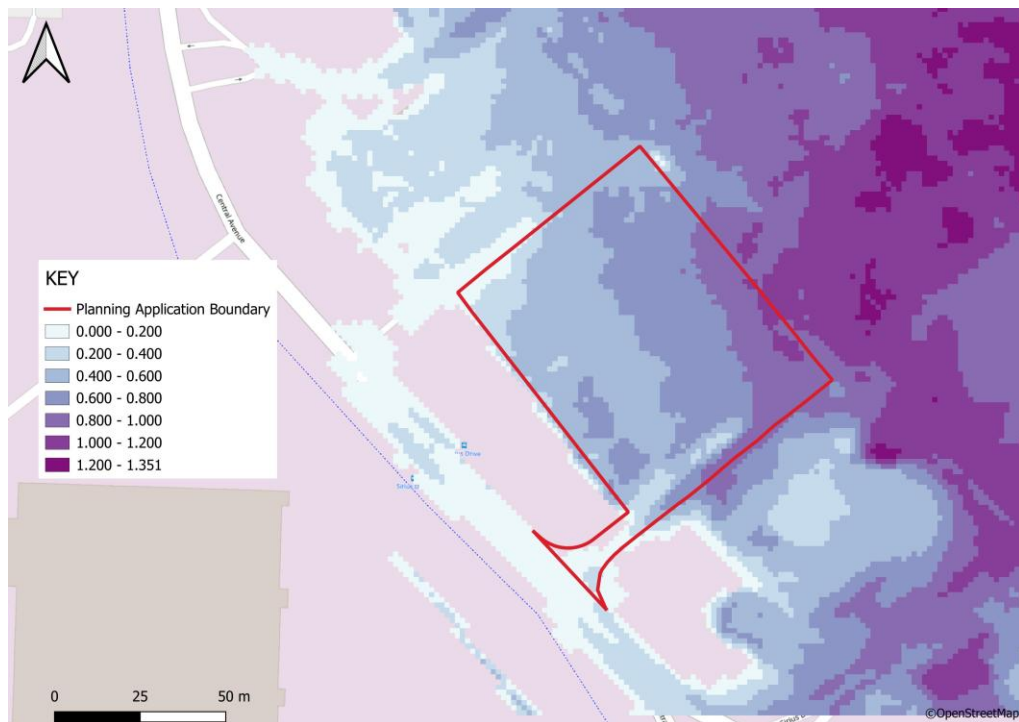


**Figure 4 – Q₁₀₀ Fluvial Undefended Modelled Flood Extents and Depth
(OpenStreet Map & NRW, 2025)**

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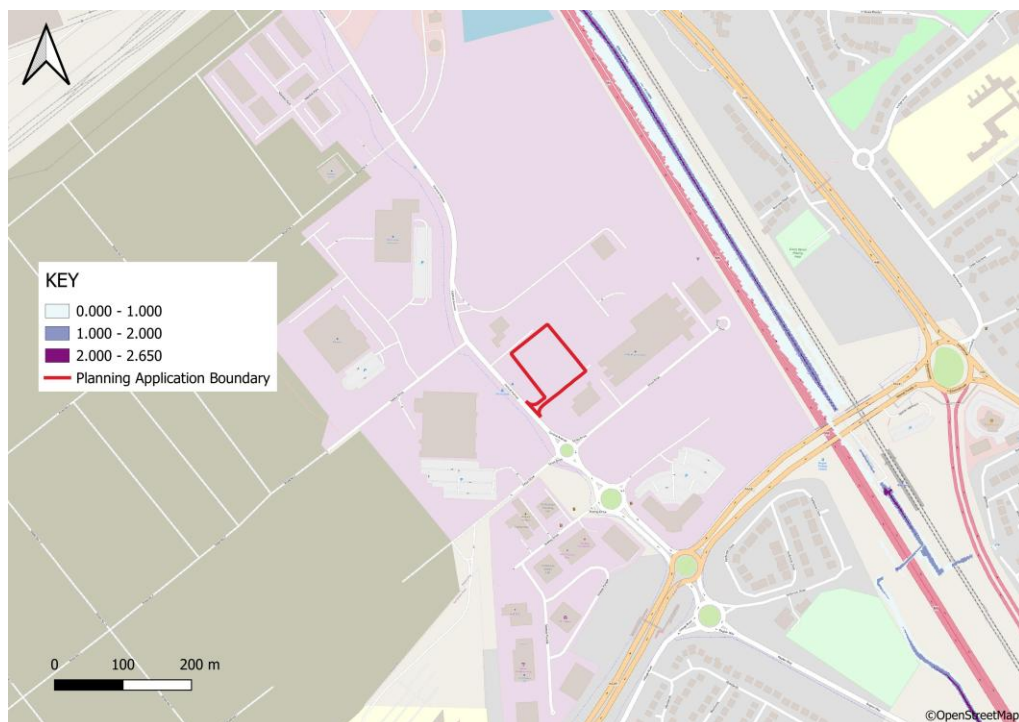


**Figure 5 – Q₁₀₀ Fluvial Defended Modelled Flood Extents and Depth
(OpenStreet Map & NRW, 2025)**

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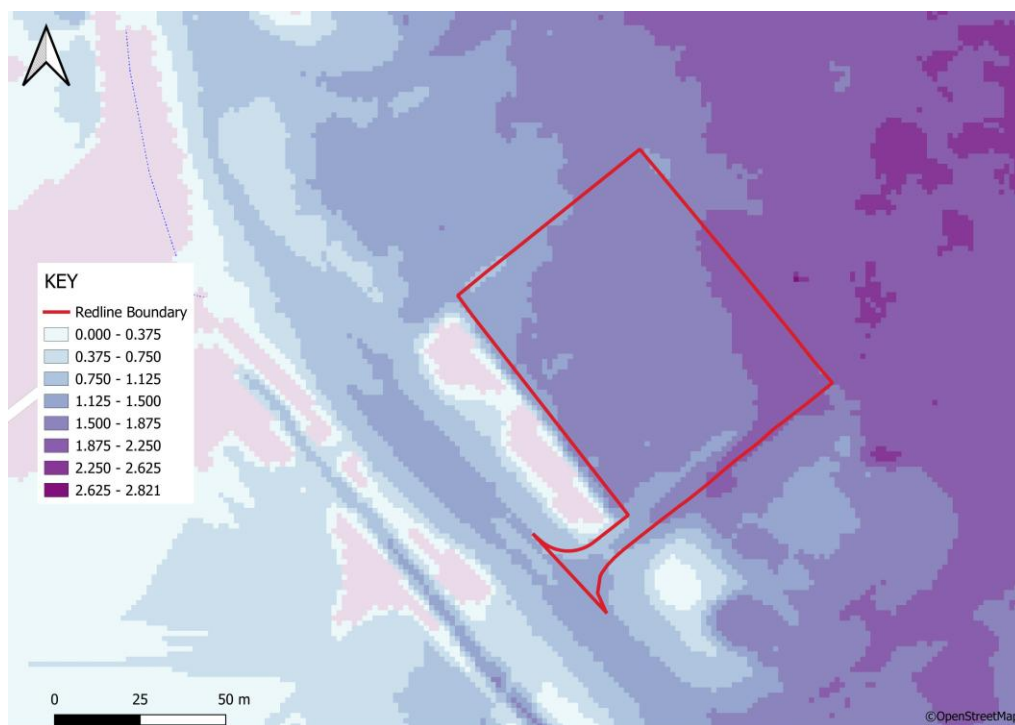


Figure 6 – Q_{1000} Fluvial Undefended Modelled Flood Extents and Depth
(OpenStreet Map & NRW, 2025)

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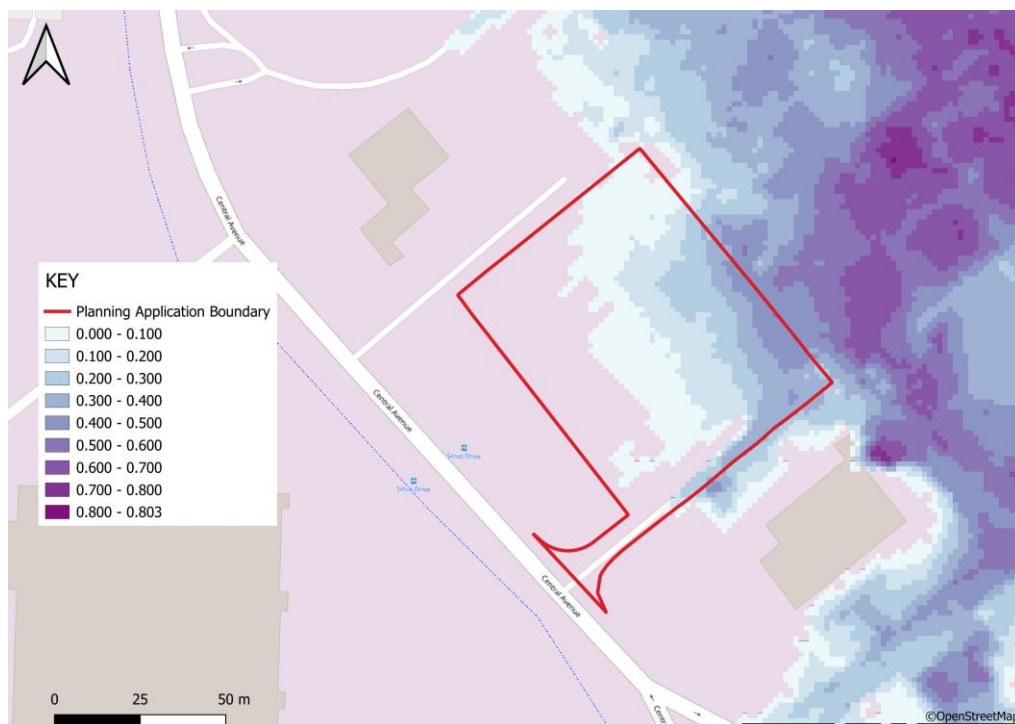


Figure 7 – Q_{1000} Fluvial Defended Modelled Flood Extents and Depth
(OpenStreet Map & NRW, 2025)

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The correspondence relating to the flood modelling data received from Natural Resources Wales is presented in Appendix 1.

Given the results of the flood modelling for the defended situation the flood risk to the Proposed Development from fluvial sources is considered low.

9.2.3 Fluvial Mitigation Measures

The Proposed Development is located in an area that is defended by flood defences. These flood defences will protect the Proposed Development, which is illustrated by the flood modelling for the defended situation and shows that no flooding is expected to occur within the Site for the 1% AEP event.

Given that these flood defences are owned and maintained by Natural Resources Wales, these will be maintained regularly and are less likely to experience a breach.

All key operating equipment for the HPF will be located at least 800mm above ground level which shall be approximately 600mm above the predicted 0.1% AEP fluvial flooding event. This will ensure that the Proposed Development remains flood resilient for all events up to and including the 0.1% AEP with an additional allowance for climate change.

In accordance with building regulations all electrical fixture and fittings, within the welfare buildings, shall be located 450mm above the finished floor level. Again this is above the predicted 0.1% AEP flood level and therefore will ensure the welfare buildings remain flood resilient for all events up to and including the 0.1% AEP event with an additional allowance for climate change.

The electrical substation is located outside of the predicted extents for the 0.1% AEP event within an additional allowance for climate change in the defended situation. Therefore due to the defended nature of the Site, the substation will be protected from any future flooding event due to the Proposed Development being in a defended zone provided there is no breach of any defences in the future.

9.2.4 Flood Warning System

The Proposed Development is located outside the area covered by Natural Resources Wales flood warning and alert system. This is likely to be because the Site is at low risk from flooding.

The operator of the Proposed Development should manually check the Natural Resources Wales flood warnings issued following a heavy rainfall event. The issued flood warnings can be found at the following web address: <https://flood-warning.naturalresources.wales/?culture=en-GB>.

9.2.5 Justification Test

The implementation of the revised Technical Advice Note 15 on the 1st April 2025 outlines what development can and cannot be built within certain flood zones. TAN15 states that applications of all types of development, change of use or conversion are acceptable in principle for developments located with Flood Zone 1. For developments located within defended areas, applications for new developments on greenfield sites are not appropriate unless the land is allocated within local development plans. On brownfield sites located within defended zones, the redevelopment proposals must not intensify the use neither should they reduce the areas ability to absorb flood water or cause increase in the risk with flooding elsewhere. Planning applications in Flood Zone 2 require careful consideration and must be accompanied by a Flood Consequence Assessment which describes the flood risks and how these are acceptable. Applications for highly vulnerable development on greenfield land within Flood Zone 2 are only appropriate where the site has been allocated in the adopted development plan. Redevelopment on brownfield land of any vulnerability will need to be assessed, and be consistent with, the Development Plan strategy to regenerate an existing settlement or achieve key economic or environmental objectives. Where residential use is proposed in redevelopment, this should not occur at ground level and will need to exhibit flood resilient design and ensure compliance with the tolerable condition stated in TAN15. For development within Flood Zone 3, no new highly vulnerable development on greenfield land should be permitted. Redevelopment proposals will only be acceptable if they are essential to the development plan strategy to regenerate an existing settlement or achieve key economic or environmental objectives. Any redevelopment proposal must be consistent with the acceptability considerations contained within TAN15.

The Proposed Development is located on previously developed land, within an Existing Employment Area as allocated in the Local Development Plan, and is not considered to intensify the use of the Site for general industrial purposes. The Proposed Development will not reduce the Sites ability to absorb flood water as there will be very limited changes to the amount of impermeable surfacing present or changes in level from the current arrangement. The Proposed Development will not increase the flood risk elsewhere given that the HPF will not alter the conveyance of flood flows. Therefore the Proposed Development is in accordance with the requirements outlined in Section 10 of TAN15.

9.2.6 Flood Plain Storage

TAN15 requires development that is to be located in areas of the flood plain which are undefended, but outside of the functional floodplain, have their impacts assessed to other surrounding uses resulting from land raising/development in these areas. Raising existing ground levels can lead to a reduction in the capacity available within the flood plain which can lead to an increase in flood risk to others by increasing the depth of flooding or extending the floodplain extents to others outside the normal extents of the floodplain. Flood storage capacity can be maintained by lowering the ground levels within the development or elsewhere within the floodplain, in order to maintain the same capacity.

Even for developments located within areas that are protected by flood defences, the residual impact on flood risk to other properties and businesses needs to be assessed. This is because development within areas benefiting from flood defences can increase the residual risk if these are breached or overtopped. Development has the potential to alter the conveyance routes for the flow paths which need to be assessed.

As the Proposed Development is located in an area that is protected by flood defences, and it is currently developed and being used for industrial purposes, it is unlikely that the proposed redevelopment of the Site is going to increase the residual risk to other properties/businesses. Nevertheless, this has been assessed in this Flood Consequence Assessment.

Currently the Site comprises the storage of shipping containers and building materials. From calculations undertaken from aerial photographs, it is apparent that shipping containers have currently and previously occupied approximately 1130m² within the planning application boundary. The Proposed Development, including the associated substation and welfare facilities as shown on the Proposed Layout Drawing (Appendix 3) will occupy a much smaller area of approximately 425m². It is therefore considered that the Proposed Development will not increase the residual risk to other properties and business and no additional flood plain storage is required.

9.3 Tidal Flooding

9.3.1 General

The Natural Resources Wales (NRW) flood maps show that the Site is located partly within Flood Zone 2 and Flood Zone 3 for tidal flooding. The areas of the Site that are at risk from tidal flooding are mainly located in the far south east corner of the Site.

9.3.2 Tidal Flood Modelling

Modelled flood levels and flood extents for tidal sources has been requested by Sirius as part of this FCA and provided by Natural Resources Wales under data request reference ATI – 28306a. The tidal flood modelling that has been provided is from the Port Talbot Harbourside PAR flood modelling dated December 2022.

Flood modelling outputs for tidal sources have been provided for the undefended and defended events up to the 0.1% Annual Exceedance Probability Event, with the climate change allowance being added to the 0.5% and 0.1% AEP fluvial event.

The output flood maps for the Site show that in the situation where there are no tidal flood defences present, the Site is at risk from flooding for events greater than and including the 0.5% AEP event with an additional allowance for climate change. The outputs show that the predicted depth of flood water for a 0.5% AEP event with climate change allowance, where flood defences are not present is 203mm.

When the flood defences are present (as is the case for the Site) the outputs from the flood modelling shows that the Site is at risk from tidal flooding for events greater than and including the 0.5% AEP event with an additional allowance for climate change. The outputs show that the predicted depth of flood water for a 0.5% AEP event with climate change allowance, where flood defences are present is 63mm. The location of the flooding is noted to be within the south east corner of the Site. As can be seen on the proposed layout for the Proposed Development (Appendix 3), no plant or electrical equipment is proposed in this area. Therefore, the Proposed Development will not be at risk from the predicted tidal flooding.

Figure 8 to Figure 11 below show the tidal flooding extents for the four scenarios summarised in tables below.

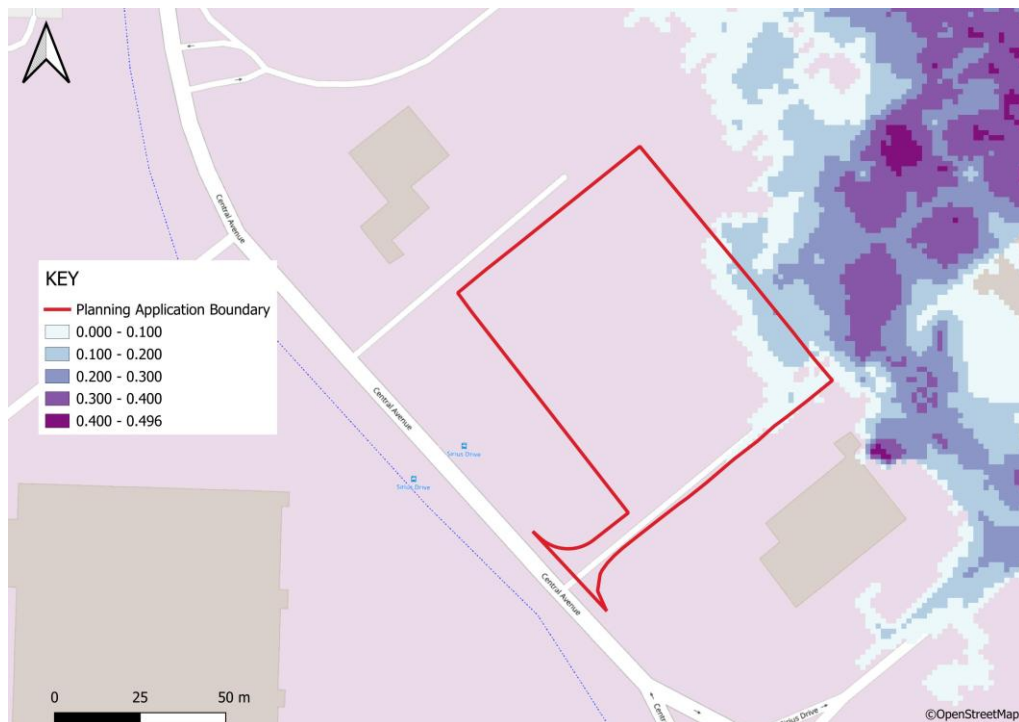


**Figure 8 – Q₂₀₀ Tidal Undefended Modelled Flood Extents and Depth
(OpenStreet Map & NRW, 2025)**

Data available under Open Database Licence - openstreetmap.org/copyright
Contains public sector information licensed under the Open Government Licence v3.0

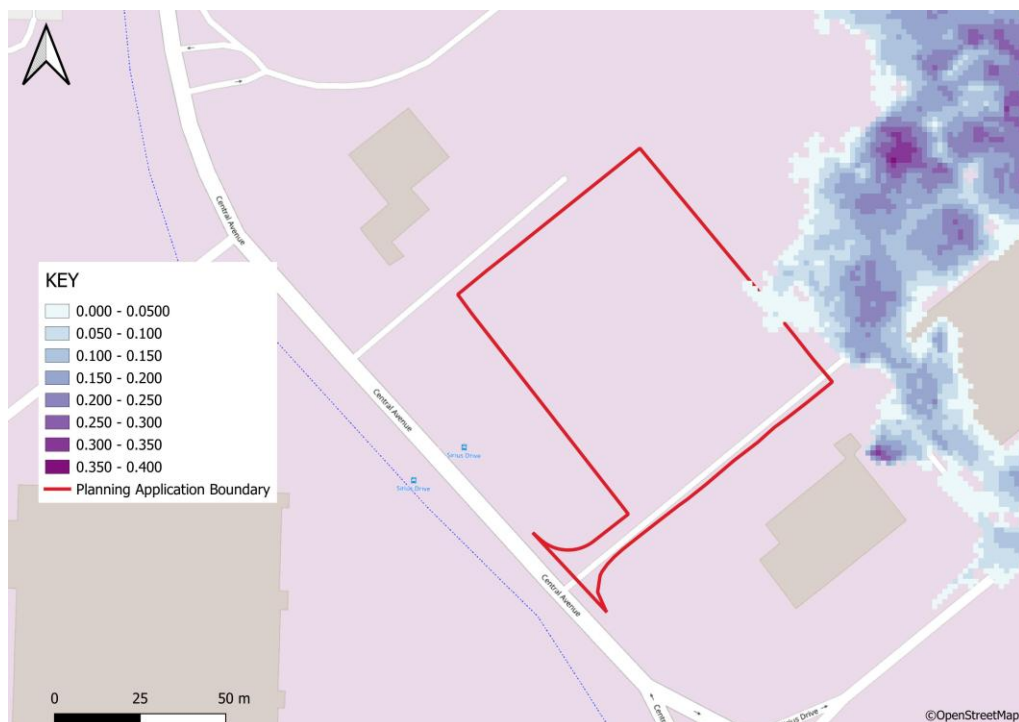


**Figure 9 – Q₂₀₀ Tidal Defended Modelled Flood Extents and Depth
(OpenStreet Map & NRW, 2025)**

Data available under Open Database Licence - openstreetmap.org/copyright
Contains public sector information licensed under the Open Government Licence v3.0

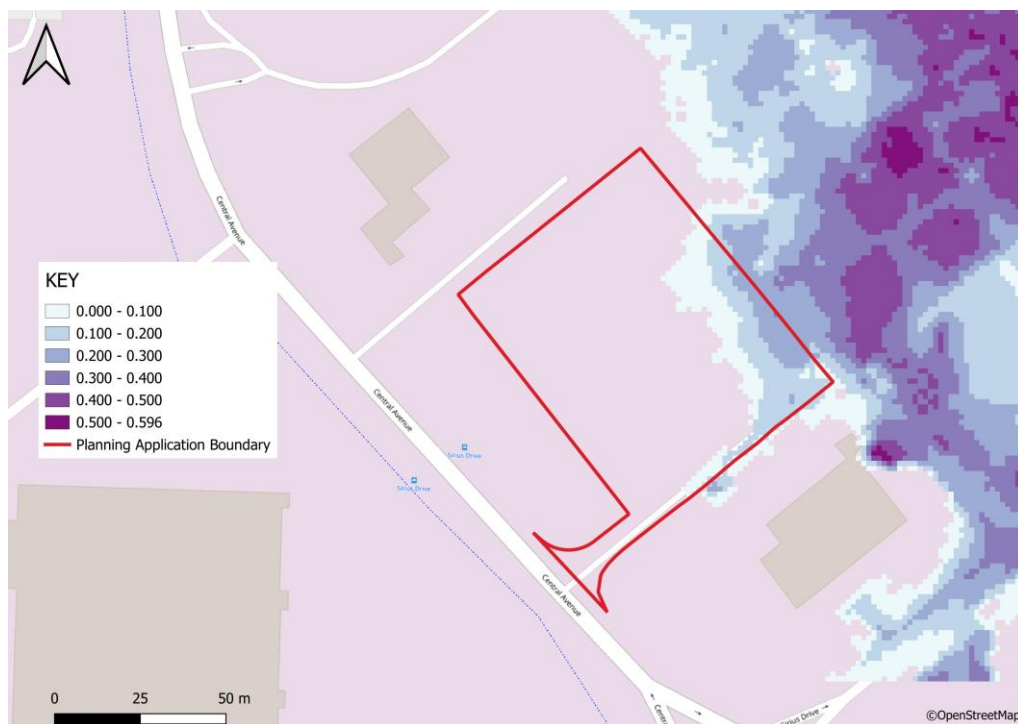


**Figure 10 – Q₁₀₀₀ Tidal Undefended Modelled Flood Extents and Depth
(OpenStreet Map & NRW, 2025)**

Data available under Open Database Licence - openstreetmap.org/copyright
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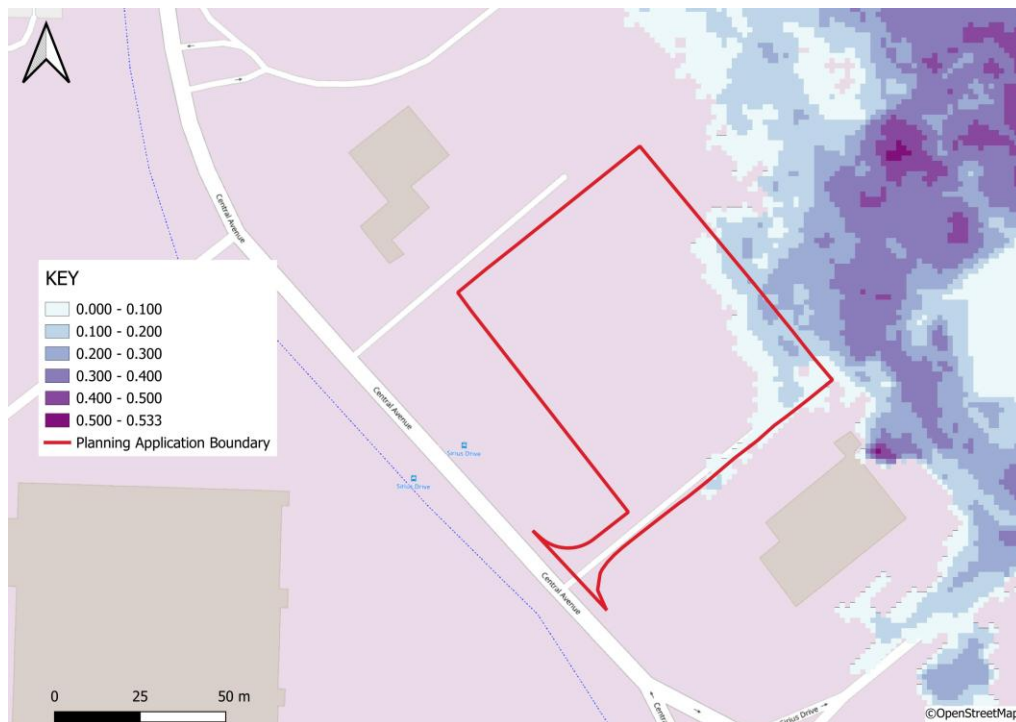


**Figure 11 – Q₁₀₀₀ Tidal Defended Modelled Flood Extents and Depth
(OpenStreet Map & NRW, 2025)**

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The depths of predicted tidal flooding for the Site are summarised in Table 4 below.

Table 4 – Modelled Tidal Flooding Depths from Hydraulic Models		
Scenario Assessed	0.5% AEP Flood Depth (mm)	0.1% AEP Flood Depth (mm)
Defended (2122)	63	241
Undefended (2122)	203	304

9.4 Pluvial Flooding from Surface Water Flows

Pluvial flooding risk is classed as the risk of flooding that may arise from surface water flow and overland flow that is generated from rainfall events.

Flooding from pluvial events may occur when there is an intense rainfall event which exceeds the capacity of the drainage system and ground infiltration rates.

Natural Resources Wales have developed a surface water flood risk map which provides a general understanding of where pluvial flood waters are likely to affect the Site. It can be seen from the surface water flood map that the Site is not within an area of surface water flood risk.

Figure 12 below shows the Surface Water Flood Risk Map in relation to the Site.

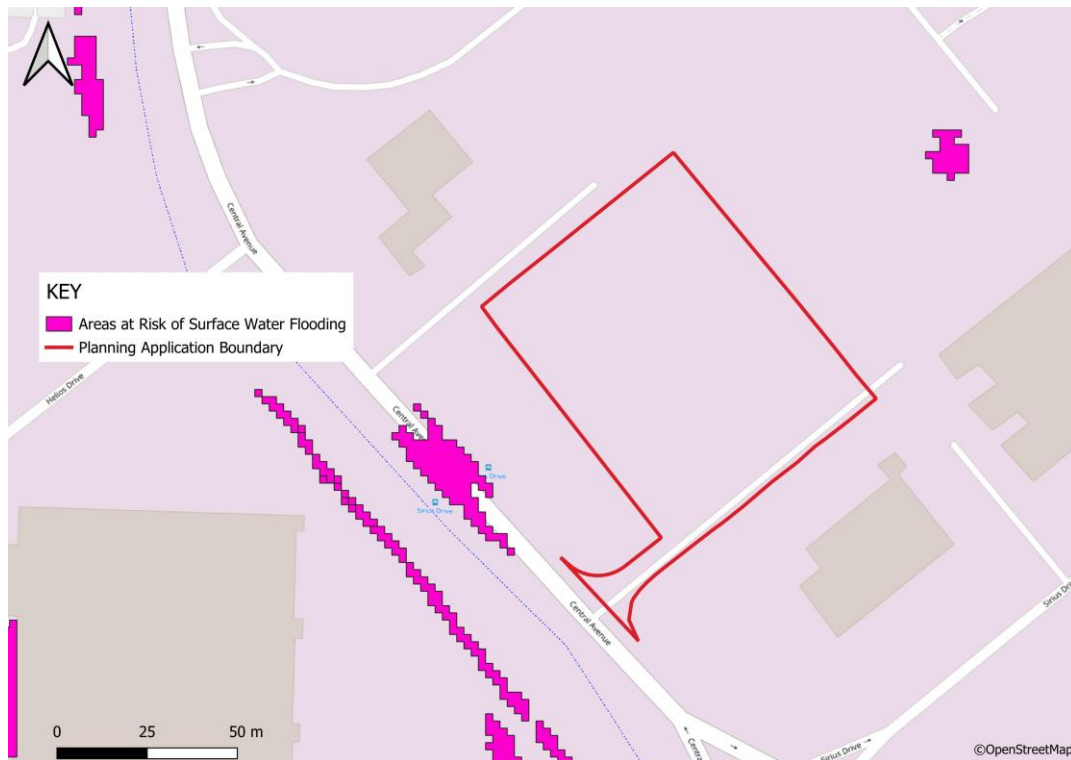


**Figure 12 – Surface Water Flood Risk Map
(OpenStreet Map & NRW, 2025)**

Data available under Open Database Licence - openstreetmap.org/copyright
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As part of the Proposed Development, a surface water drainage scheme shall be implemented. An outline surface water drainage strategy accompanies the planning application and can be found in Appendix 2.

Considering all the above, the risk to the Proposed Development from pluvial flooding is considered low.

9.5 Historic Flooding

No historic flooding is noted in the vicinity of the Site on the Natural Resources Wales recorded flood extents dataset.

9.6 Safe Egress Route

In accordance with TAN15, there is a requirement for a safe egress route to be present for all users and occupiers of the Proposed Development.

Within TAN15 there are tolerance values for which it is deemed tolerable and will not impact human life or cause structural damage to buildings. The tolerable conditions are summarised in Table 5 below.

Table 5 – Tolerable Conditions in an Extreme Flood Event

Types of Development	Maximum Depth of Flooding (mm)	Maximum Velocity of Flood Waters (m/s)
Highly Vulnerable Development	600	0.15
Less Vulnerable Development	600	0.3
Infrastructure Associated with Highly Vulnerable Development (e.g. Car Parks, Access, Paths and Roads)		
Water Compatible Development (Limited to those built elements to be occupied by people)		

The proposed safe egress route from the Proposed Development would be along the public highway. The route would be exiting the Site via the site entrance and along the access road to where this meets Central Avenue. From the junction with Central Avenue turn right and head north west and follow Central Avenue until this meets the A48 where various routes can be taken. Central Avenue and the A48 lie outside both the fluvial and tidal predicted 0.1% AEP event with an additional allowance for Climate Change. The proposed safe egress route is shown on Figure 13 below.



Figure 13 – Safe Egress Route (OpenStreet Map, 2025)
Data available under Open Database Licence - openstreetmap.org/copyright

9.7 Canal Flooding

There are no canals located in the immediate vicinity of the Site. Therefore the risk from canal flooding to the Proposed Development is considered low.

9.8 Reservoir Flooding

A review of the reservoir flood risk maps published by Natural Resources Wales indicate that the Proposed Development is not at risk from reservoir flooding.

9.9 Groundwater Flooding

Trial excavations have been undertaken at the Site to determine the groundwater level. Groundwater was encountered at 1.6mBGL.

The Proposed Development will be located on the existing impermeable surface which is present at the Site. This impermeable surfacing will limit the upward migration of any groundwater and prevent this from penetrating the surface and causing groundwater flooding.

Given the groundwater level encountered from the trial holes, there is likely to be a significant area of unsaturated ground between the groundwater level and the ground surface.

The existing impermeable surfacing shall significantly restrict the upward migration of any groundwater should the groundwater significantly rise in the future.

Therefore the Proposed Development from groundwater flooding is considered low.

10 CONCLUSIONS AND RECOMMENDATIONS

This Flood Consequence Assessment (FCA) is compliant with the requirements set out in the Technical Advice Note 15 (TAN15) which was updated and published on 1st April 2025 and the associated flood risk guidance. This FCA has been produced on behalf of Protium Green Hydrogen Supply Limited to support a planning application in regard the proposals to construct a Hydrogen Production Facility at land off Central Avenue, Port Talbot, SA12 7BT.

This report demonstrates that the Proposed Development is at an acceptable level of flood risk and where necessary the suggested mitigation measures are implemented within the Proposed Development. The identified risks are presented in Table 6 below along with the proposed mitigation measures. The Table 6 below shows the risk with no mitigation measures and the risk and impact from a flood event once the mitigation measures are imposed.

Table 6 - Summary of Flood Risk Assessment			
Type of Flood Risk Assessed	Initial Risk before Control Measures	Control Measure	Residual Risk and Impact from Flooding following Control Measure
Fluvial	High	The Site is protected from fluvial flooding by flood defences and the Site is located in a TAN15 defended zone. All electrical fixtures and fittings within the welfare building shall be set a minimum of 450mm above finished floor level as this is requirement within building regulations. The Proposed Development will have all key and sensitive equipment placed 800mm above ground level which is above the predicted 0.1% AEP event.	Low
Tidal	High	The location of the proposed Developable area, where the HPF plant will be located, is outside the area shown to be at risk from tidal flooding.	Low
Pluvial/Drainage System	Low	Ensure that regular maintenance is undertaken on any required proposed drainage scheme to be agreed with the SAB department.	Low
Reservoir	Low	None required	Low
Canal Breach	Low	None required	Low
Groundwater	Low	None required	Low

In compliance with the requirements of the Technical Advice Note 15, and subject to the mitigation measures proposed above (where necessary), the Proposed Development could proceed without being subject to significant flood risks given the classification of the

Proposed Development. Moreover, the Proposed Development will not increase the fluvial or pluvial flood risk to the surrounding area and businesses.

APPENDIX 1

NATURAL RESOURCES WALES CORRESPONDENCE

From: [Data Distribution](#)
To: [Jack Davies](#)
Subject: ATI 28306a - Central Drive , Port Talbot, SA12 7BT
Date: 24 April 2025 10:50:31
Attachments: [image001.png](#)
[28306a_P5_Licence.pdf](#)

Hi Jack

Your data request has been logged with the above reference.

The models covering your site of interest are: Port_Talbot_5_V3.2_2022 and Port_Talbot_5_V3.1_2021. Model build data can be provided at a cost of £180.00 including VAT (payable in advance) if required.

We can provide you with model report and outputs data for free. The model report is provided under licence. Below are the links to download the model outputs data. Please download the data within 30 days as the links will expire.

Port_Talbot_5_V3.2_2022

Outputs – <https://cyfoethnaturiolcymru.sharefile.eu/d-sf99fde04f8a244b5ad706ae0bb1358a8>

Port_Talbot_5_V3.1_2021

Outputs - <https://cyfoethnaturiolcymru.sharefile.eu/d-s03a972d139384b06826d9a67ae6d0a81>

Please note results are split between two folders. The most up to date results can be found in Port_Talbot_5_V3.1_2021, these supersede any equivalent results within Port_Talbot_5_V3.2_2022. For additional results, if required, please refer to folder Port_Talbot_5_V3.2_2022.

As all flood model reports contain flood flow estimates data, there is a licensing requirement to cover the re-use. Therefore, can you please sign Section 3 of the attached licence (by means of a scanned signature) and return to me. I can then finalise your licence, and send you links to download the Port_Talbot_5_V3.2_2022 report.

Please note that the model was built for specific NRW requirements and might not meet your needs. In addition, since the time of modelling, there may have been changes that may impact the suitability of the model which means the model may no longer comply with present day standards. For example, there may have been changes to:

- The methodology for calculating hydrological flows,
- Hydraulic modelling software (e.g. improvements in the way that in channel structures such as bridges and weirs are represented in the hydraulic model),
- Tidal boundary,
- LIDAR,
- OS MasterMap™,
- Changes to the channel or within the floodplain,
- Climate change allowances.

This is not an exhaustive list, and it is the responsibility of the user to ensure the model is suitable for their use.

Regards

Kathy Banner

Swyddog Trwyddedu Data / Data Licensing Officer
Cyswllt Cyfoeth / Customer Hub

Ffôn/Phone: 03000 654384

Dyddiau gweithio / Working day: Tues - Thurs

Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi.

Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.



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Naturiol
Cymru
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Wales**

**Byd natur a phobl
yn ffynnu gyda'n gilydd**

**Nature and people
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**cyfoethnaturiol.cymru
naturalresources.wales**

From: Cyfoeth Naturiol Cymru / Natural Resources Wales <noreply@smartsurveyuser.co.uk>

Sent: 04 April 2025 13:48

To: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>

Subject: Data request form submitted

Rhybudd: Deilliodd yr e-bost hwn o'r tu allan i'r sefydliad. Peidiwch â chlicio dolenni, atodiadau agored nac sganio codau QR oni bai eich bod yn cydnabod yr anfonwr ac yn gwybod bod y cynnwys yn ddiogel.

Caution: This email originated from outside of the organisation. Do not click links, open attachments or scan QR Codes unless you recognise the sender and know the content is safe.

Completed data request form attached.

From: [Data Distribution](#)
To: [Jack Davies](#)
Subject: ATI 28306a - Central Drive , Port Talbot, SA12 7BT
Date: 29 April 2025 11:28:50
Attachments: [image001.png](#)
[28306a_P5 Licence signed.pdf](#)

Hi Jack

Signed licence attached for your records and link to download the model report below. Please download the data within 30 days as the link will expire.

Port_Talbot_5_V3.2_2022

Report – <https://cyfoethnaturiolcymru.sharefile.eu/d-s437f3b3ffe4413d9e8e4407fe8e1d09>

Regards

Kathy Banner

Swyddog Trwyddedu Data / Data Licensing Officer

Cyswllt Cyfoeth / Customer Hub

Ffôn/Phone: 03000 654384

Dyddiau gweithio / Working day: Tues - Thurs

Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi.

Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.



From: Cyfoeth Naturiol Cymru / Natural Resources Wales <noreply@smartsurveyuser.co.uk>

Sent: 04 April 2025 13:48

To: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>

Subject: Data request form submitted

Rhybudd: Deilliodd yr e-bost hwn o'r tu allan i'r sefydliad. Peidiwch â chlicio dolenni, atodiadau agored nac sganio codau QR oni bai eich bod yn cydnabod yr anfonwr ac yn gwybod bod y cynnwys yn ddiogel.

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Completed data request form attached.

APPENDIX 2

DRAINAGE STRATEGY

PROTIUM GREEN HYDROGEN SUPPLY LIMITED



DRAINAGE STRATEGY FOR
HYDROGEN PRODUCTION FACILITY
AT LAND OFF
CENTRAL AVENUE, PORT TALBOT, SA12 7BT

Document Reference: PRO1017/DS/01
March 2025



Project Quality Assurance

Report Reference : PRO1017/DS/01

Report Date : March 2025

Prepared for : Protium Green Hydrogen Supply Limited
180 Borough High Street
London
SE1 1LB

Issued by : Sirius Environmental Limited
4245 Park Approach
Thorpe Park
Leeds
LS15 8GB

Rev	Date Issued	Amendment Details	Author	Reviewer
1	01/04/2025	Amendments following Client Review	JD	AK

Purpose

This document was prepared as a Drainage Strategy for Protium Green Hydrogen Supply Limited (Protium) to support a planning application for a Hydrogen Production Facility (HPF) at land off Central Avenue, Port Talbot, SA12 7BT.

Sirius Environmental Limited (Sirius) accepts no responsibility or liability for any use, that is made of this document, other than by the Client for the purposes for which it was originally commissioned and prepared.

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1 INTRODUCTION

1.1 General

Sirius Environmental Limited (Sirius) were commissioned by Sirius Planning Limited (SPL) on behalf of Protium Green Hydrogen Supply Limited (The Applicant), to produce a drainage strategy to support the planning application for a Hydrogen Production Facility (HPF) (herein referred to as the Proposed Development).

The Proposed Development is located on land located off Central Avenue, Port Talbot, SA12 7BT. The Site entrance is at Ordnance Survey (OS) grid reference **SS 791 862**. The Site is situated approximately 3km to the northwest of the town of Port Talbot in South Wales.

Figure 1 below shows the Site location with the planning application boundary in red (the Application Boundary and Site) and areas of existing hardstanding shown in black. A detailed description of the Site is outlined in Chapter 2 and a description of the Proposed Development is outlined in Chapter 3 of the accompanying Planning Statement.

This drainage strategy details the proposed methods for dealing with any surface water generated as a result of the Proposed Development.

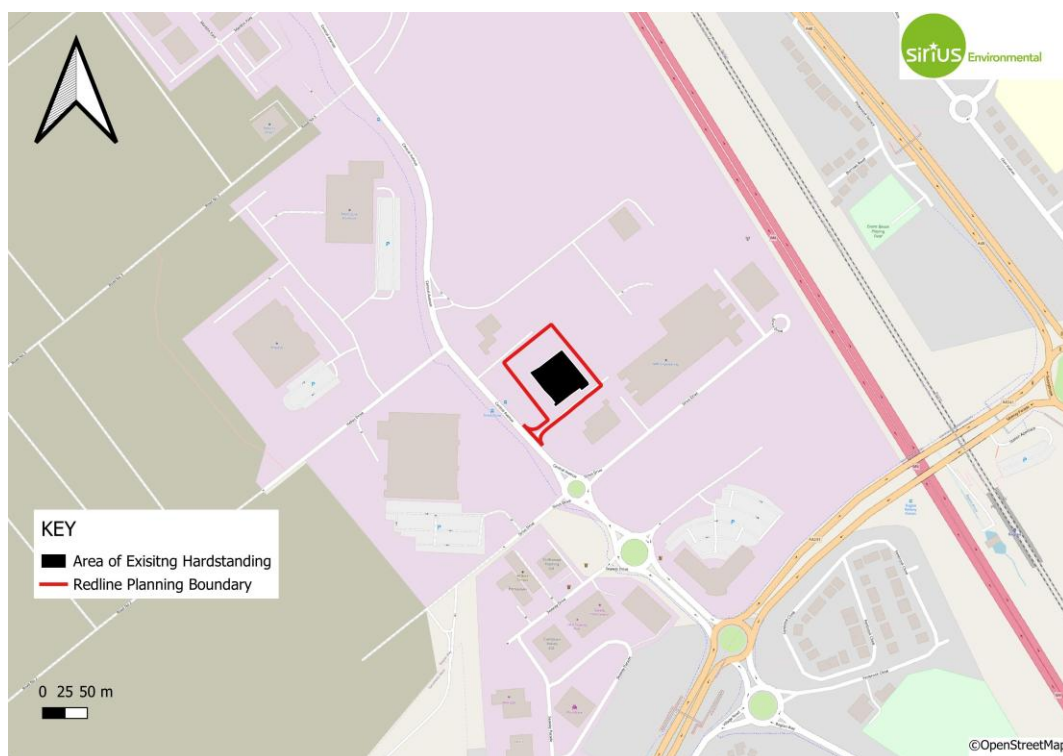


Figure 1 – Site Location Plan

Data available under Open Database Licence - openstreetmap.org/copyright

1.2 Current Surface Water Drainage Guidance

In Wales the flood and water management Act 2010, known as Schedule 3, came into force on the 7th of January 2019 and requires all new developments to include Sustainable Drainage Systems (SuDS) features to manage any surface water generated. As a result of Schedule 3 being implemented, a set of statutory standards were developed which must be followed when undertaking drainage design for new developments within Wales.

The six standards are as follows;

1. Standard S1 – Surface Water Runoff Destination;
2. Standard S2 – Surface Water Hydraulic Control;
3. Standard S3 – Surface Water Quality;
4. Standard S4 – Amenity;
5. Standard S5 – Biodiversity; and
6. Standard S6 - Design of drainage for Construction, Operation and Maintenance and Structural Integrity.

These statutory standards must be followed where the proposed development area equals or exceeds 100m².

As part of the Schedule 3 implementation, the introduction of SuDS Approval Body (SAB) was created. Prior to the commencement of construction, approval for the drainage scheme will be obtained from the SAB (where this is deemed necessary by the SuDS Approval Body).

2 DEVELOPMENT PROPOSALS

Planning permission is being sought by Protium to install a Hydrogen Production Facility comprising the following:

- An Electrolytic Hydrogen Production Facility (HPF) and associated compression and storage; and
- A Hydrogen Tube-Trailer Filling Station (HTTFS);

The HPF shall be installed on the existing hardstanding impermeable areas and shall not increase the runoff post development compared with the current situation.

The Proposed Development layout is shown on Drawing PRO1013/01/03 presented in Appendix 1.

3 TOPOGRAPHY

A topographical survey of the Site was conducted in January 2025. Generally, the site falls in a northwest to southeast direction. The northwestern corner of the Site has the highest elevation with a level of approximately 6.26mAOD, with the lowest elevation occurring at the Site entrance toward the southeastern corner, with an elevation of approximately 5.49mAOD.

4 SURFACING

This section details the existing surfacing which exists on the site. There is approximately 2000m² of existing hardstanding impermeable surfacing along with areas of existing gravelled areas. These areas are shown on Drawing PRO1013/01/03 presented in Appendix 1.

5 GEOLOGY

As part of this drainage strategy, the British Geology Survey (BGS) maps have been studied to determine the underlying geology for the Proposed Development area. The BGS maps show that the superficial deposits are Tidal Flat Deposits comprising either clay, silt or sand. The bedrock geology is formed from the South Wales Middle Coal Measures formation which comprises mudstones, siltstones and sandstones.

Borehole records from in and around the vicinity of the Site have been reviewed. The borehole records that have been reviewed are the ones that are freely and publicly available on the BGS borehole viewer. These boreholes show that the ground is variable with generally interbedded layers of sand and silty clays. The sand is generally indicated to be close to the surface extending down to a depth of around 1.5m/1.6m.

A review of recently submitted planning applications surrounding the Site has also been undertaken as part of this drainage strategy. This shows that the Site directly to the north-east of the Proposed Development (occupied by E.G. Lewis) has a permitted soakaway to deal with the surface water runoff.

These findings indicate that infiltration maybe a suitable means for dealing with surface water runoff generated from the Proposed Development. Site specific infiltration testing shall be undertaken prior to any necessary SAB application (following pre-application discussions with SAB) to ensure that the ground conditions are conducive to infiltration.

6 EXISTING SITE SURFACE WATER DRAINAGE

The existing Site contains minimal surface water drainage infrastructure from a visible inspection. The only visible features are some small gully grates/chambers.

There is a combined sewer which is believed to be running under the Site. This is believed to run in an approximate northwest to southeast direction through the Site.

It appears from a visual inspection, that the current impermeable hardstanding areas have minimal surface water control installed and it is likely that the runoff currently drains into the underlying strata by infiltration.

7 PROPOSED SURFACE WATER DRAINAGE

7.1 General

As stated in previous sections of this drainage strategy, in 2019 Schedule 3 was implemented in Wales meaning that SuDS drainage systems have to be included within all new development.

Therefore, the surface water drainage design associated with the Hydrogen Production Facility is based on the principles stated within the “Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems”.

This section documents the proposed strategy for dealing with any surface water runoff generated as a result of the Proposed Development, as well as detailing how the six standards referred to in Section 7.2 below, will be achieved.

Formal SAB pre-app consultation has yet to be undertaken. However, the outline drainage strategy has been developed to ensure compliance with the guidance requirements. Pre-application discussions with SAB will be undertaken to understand whether a full SAB application will be required. Following this the detailed drainage design for the development will then be produced.

7.2 SuDS Standards Compliance

7.2.1 Standard S1 – Surface Water Runoff Destination

This standard considers where the generated surface water from a development is discharged too. Within the guidance the locations available for surface water discharge are split into 5 levels, with level 1 being the preferred option and level 5 being the least preferred option, which should only be used in exceptional circumstances.

Level 1 is collecting surface water for reuse. As there are no water supply concerns it is deemed that to install a rainwater harvesting system would not be cost effective for the Proposed Development. Also, the area that is being drained shall be an external area which is deemed to not be suitable for rainwater harvesting systems. Therefore, a level 2 or greater disposal method shall be considered.

Level 2 is infiltrating surface water runoff into the ground. A review of the British Geological Survey maps shows that there are Tidal Flat Deposits comprising clay, silt and sand present within the vicinity of the development area. These deposits from a review of nearby borehole logs are shown to be sand and are around 1.6m in depth. As these are recorded as sand it would seem that these deposits would be receptive to infiltration of surface water and therefore for the purpose of this drainage strategy it is deemed that surface water shall be dealt with via infiltration subject to this being assessed through infiltration tests..

As part of any required SAB application (if necessary for this Proposed Development) infiltration tests shall be undertaken in accordance with Building Research Establishment (BRE) Digest 365 document to confirm the infiltration rate. Any changes to infiltration structure sizing resulting from the infiltration testing shall be undertaken as part of the detailed surface water design.

Level 3 is surface water runoff is discharged to a surface water body. There are no surface water bodies directly adjacent to the Site and therefore this is deemed that this is not a suitable option for discharge of surface water.

Level 4 is surface water is discharged to a surface water sewer, highway drain or other drainage system. It is thought that there is no surface water sewers close to the Site that could be utilised for discharge of surface water. Therefore, this is not an option for the disposal of surface water. However highway gullies are present within the access road at the site entrance which would suggest there is a highways drain within the vicinity of the proposed development. Discharge to this will be explored as an option for disposal of surface water if infiltration is not feasible. This will be explored further in the SAB pre-application.

Level 5 is surface water is discharged to a combined sewer. It is believed that there is a combined sewer in the immediate vicinity of the Site which could be used to discharge surface water runoff from the Site should the infiltration option prove not to be viable following infiltration testing. This would need to be discussed and approved by Welsh Water at the detailed design stage and should only be an option as a last resort.

7.2.2 Standard S2 – Surface Water Hydraulic Control

This standard looks at ensuring that the discharge rate from any proposed development does not exceed the greenfield runoff rate for proposed development, pre-development, or does not exceed the current brownfield rate if a site is already developed.

Although the Site is re-developed there appears to be no formal surface water control on the Site, therefore, to prevent any flooding downstream if the Proposed Development was to discharge to a sewer network, the discharge rate would be restricted to the greenfield runoff rate.

The greenfield runoff rates for the area to be occupied by the HPF and associated substation, have been calculated and are presented in Table 1 below.

Table 1 – Calculated Greenfield Runoff Rates (HPF Facility and Substation)	
	Runoff Rate (l/s)
Q _{Bar}	1.0
Q ₁	0.9
Q ₃₀	1.8
Q ₁₀₀	2.2

Table 2 below shows the greenfield runoff rate for the proposed welfare/warehouse containers.

Table 2 – Calculated Greenfield Runoff Rates (Welfare Unit)	
	Runoff Rate (l/s)
Q _{Bar}	0.0
Q ₁	0.0
Q ₃₀	0.0
Q ₁₀₀	0.1

Should the infiltration testing confirm the underlying strata to be suitable for infiltration no formal attenuation storage is required. If the surface water has to be discharged to a sewer, formal attenuation would be required to restrict this to the calculated greenfield runoff rate.

The proposed infiltration/attenuation structure/structures shall be sized to cater for the 1% Annual Exceedance Probability (AEP) event with an additional allowance of 40% for climate change in accordance with the allowances stated in the Welsh Governments document “*Flood Consequences Assessments: Climate Change Allowances*”. Where possible the infiltration structures shall meet the half drain time requirements for all events up to and including the 1% AEP event with an additional allowance of 40% for climate change. However, if the infiltration rate is equal to or lower than $K=1 \times 10^{-6}\text{m/s}$, it is likely that it will not be possible to achieve the half drain time for the 1% AEP event without making the structures excessively large. Therefore, in accordance with Ciria C753, the half drain time for a lower infiltration rate would be achieved for the 3.3% AEP event.

Urban creep is not considered appropriate for this drainage strategy as any future extensions shall be regulated through the planning process.

7.2.3 Standard S3 – Surface Water Quality

The methodology for assessing surface water quality uses the Simple Index Approach (SIA) which is set out in the SuDS manual (CIRIA C753). The SIA uses a pollution hazard index which varies for each pollution hazard level and then mitigation indices for each component within the treatment train or the characteristics of material overlying infiltration structure. To ensure that the surface water quality is maintained for any proposed development the mitigation indices must exceed the pollution hazard index for the pollution hazard level within which the proposed development falls.

The proposed HPF shall be installed on the existing impermeable hardstanding areas and shall be subject to minimal heavy goods vehicles (HGV) movements on a daily basis (8 per day). This situation falls into the land use “Commercial yard and delivery area” as stated in the SuDS manual. As a result, the pollution hazard level is classified as medium.

The area where the proposed welfare/warehouse containers and substation and HPF are to be located will only be draining the roofs of containers. Therefore, in accordance with the land use stated with the SuDS manual, these shall be classified as commercial roofs. The pollution hazard level for these areas of the Proposed Development is therefore low.

For the areas which are being trafficked these will have the following pollution hazard indices as stated in Table 3 below.

Table 3 – Pollution Hazard Indices for Trafficked Areas

Land Use	Pollution Hazard Indices	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Commercial Yard and Delivery Area	Medium	0.7	0.6	0.7

For the area where the proposed welfare/warehouse containers, substation and HPF plant are to be located, these will have the following pollution hazard indices as stated in Table 4 below.

Table 4 – Pollution Hazard Indices for Building Roof and Plant Areas

Land Use	Pollution Hazard Indices	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Commercial/Industry Roof	Low	0.3	0.2	0.05

The areas which contain only the roofs of the containers and the HPF plant shall discharge into the underlying strata via the existing deposits acting as a filter drain. Table 5 below shows the mitigation indices for the proposed drainage features.

Table 5 – Mitigation Indices for Building Roofs and Plant Area

Proposed Mitigation Indices			
SuDS Feature	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Filter Drain	0.4	0.4	0.5
Total	0.4	0.4	0.5

The areas which are being trafficked will pass through an oil interceptor or treatment structure to ensure sufficient treatment for hydrocarbons. This would then discharge into the filter drain (provided by the existing deposits) into the underlying strata. Table 6 below shows the mitigation indices for the proposed drainage features. For the purpose of this outline drainage strategy the mitigation has been assumed to be provided by the separator however as part of the detailed design the water quality calculations will be reproduced to ensure sufficient water quality measures are provided.

Table 6 – Mitigation Indices for Trafficked Areas			
	Proposed Mitigation Indices		
SuDS Feature	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Oil Separator*	0.756	0.567	0.96
Filter Drain**	0.4 (0.2)	0.4(0.25)	0.5(0.25)
Total	0.956	0.817	1.21

*Oil Separator Mitigation Indices Provided by Kingspan Klargester

**Mitigation indices for secondary SuDS features reduced by 50% as per CIRIA C753 requirements

The total mitigation indices shall exceed the pollution hazard index and ensure that the surface water quality is maintained. The exact SuDS features shall be designed at the detailed design stage.

7.2.4 Standard S4 – Amenity

The Site shall not be accessible to the public, however as part of the Proposed Development there will be some enhancements to the grassland on the private access road verge. The site woodland plantation adjacent to the Site is out with the Application Boundary and will not be affected by the Proposed Development.

7.2.5 Standard S5 – Biodiversity

The enhancements proposed to the grassland on the private access road verge will attract a variety of insects and birds to the Site and will provide terrestrial habitats.

7.2.6 Standard S6 – Design of Drainage for Construction, Operation and Maintenance and Structural Integrity

All SuDS features have been designed in accordance with the requirements set out in the SuDS manual CIRIA C753 and shall be constructed in accordance with the requirements stated in Ciria C768.

To minimise the risk to personnel, the surface water drainage system for the Proposed Development has been designed to operate with minimal human interaction. The drainage features shall remain in private ownership and any maintenance/remedial requirements shall be the responsibility of the Applicant's.

The surface water system associated with the Proposed Development shall require maintenance from time to time to ensure the surface water drainage system remains effective at dealing with the surface water runoff generated. Table 7 below shows the potential maintenance requirements for the surface water drainage features. A full management and maintenance plan for the surface water scheme would be produced for the Proposed Development as part of any necessary SAB application (if required).

Table 7 – Maintenance Requirements for Infiltration Structure		
Maintenance Schedule	Required Actions	Typical Frequency
Regular Maintenance	Cut grass above infiltration structure	Half yearly minimum or as required during spring and summer months
	Inspect infiltration structure for sediment and debris accumulations on the top surface of the infiltration structure	Once a year minimum
	Trimming any roots that maybe causing blockages within the infiltration structure	Once a year (or as required)
	Remove any litter or debris that may have collected on top of the infiltration structure	Monthly
Occasional Maintenance	Remove sediment from top surface of the infiltration structure if required based on inspections	As required based on inspections
Remedial Actions	Reconstruct infiltration structure and/or replace or clean void fill, if performance deteriorates or failure occurs	As required
	Replacement of clogged geotextile (will require reconstruction of infiltration structure)	As required
Monitoring	Check infiltration structure to ensure that the structure is emptying correctly	Once a year

*Table recreated from SuDS manual (Ciria C753) for infiltration structures.

All maintenance on the proposed surface water drainage system shall be undertaken by the Applicant.

7.3 Overview of Infiltration Structure Sizing

To ensure the infiltration structure is of sufficient size to deal with the Proposed Development, drainage calculations were undertaken in Microdrainage 2020.1. The drainage calculations were analysed for events up to and include the 1% Annual Exceedance Probability (AEP) with an additional allowance of 40% for climate change in accordance with the allowances stated in the Welsh Governments document “*Flood Consequences Assessments: Climate Change Allowances*”. Within the Microdrainage calculations a runoff coefficient (Cv) of 1 has been used, in accordance with latest guidance, to ensure that all runoff generated from the impermeable areas shall enter the drainage system.

The infiltration rate of the surrounding strata has been assumed, for the purpose of this drainage strategy, to be 2.3×10^{-4} m/s. This value has been based on our recent experience with similar geology and is considered conservative. Full infiltration testing shall be undertaken as part of the detailed design.

The drainage strategy for the Site proposes that two infiltration trenches will be utilised, one along the north eastern boundary of the site and the other in the western part of the Site. The infiltration trench in the north eastern area of the Site will be the larger of the two and will be approx. 75m by 6.2m – its location is shown on Drawing PRO1017/01/01 presented in Appendix 1. The larger structure shall drain the areas which are trafficked by Hydrogen Tube Trailers and the HPF compound. This catchment area of the larger infiltration trench will be approximately 2000m². The smaller infiltration trench will drain the roofs of the welfare/warehouse containers and will have a catchment of approximately 60m². The smaller infiltration trench will be 6.6m wide and 9m long.

Based on an infiltration rate of 2.3×10^{-4} m/s the larger infiltration trench shall need provide a volume of approximately 77m³, with the smaller structure providing a volume of approximately 2m³. A porosity of 30% has been assumed for the infiltration trenches based on these being filled with gravel that is already existing on site. The Microdrainage calculations show that there is no flooding predicted for either of the infiltration trenches, for any events analysed, up to and including the 1% AEP event with an additional allowance of 40% for climate change. Therefore, indicating that the infiltration trenches are of sufficient size based on the predicted infiltration rate. The outline Microdrainage calculations are presented in Appendix 3.

Given that the Site has been developed for a number of years and has very little in the way of surface water management systems and the Proposed Development is not increasing the total amount of impermeable surfacing significantly, the risk from the failure of one of these structures would not increase the risk to the Proposed Development or neighbouring sites from that currently on Site. Therefore, it is deemed that failure of the infiltration system is unlikely to cause flooding that would materially affect the Proposed Development or cause any damage given that the current situation is not causing these. Therefore, in accordance with Table 25.2 of the SuDS manual a factor of safety of 1.5 has been applied to the calculations where the SuDS manual method is used. Where the BRE365 method is used no infiltration is assumed through the based and the factor of safety used is set to 1.

The half drain time calculated within the Microdrainage calculations for the 1% AEP event with additional allowance of 40% for climate change is less than 1440 minutes. Therefore this meets the requires of the SuDS manual.

The details of the proposed surface water scheme and infiltration structures are shown on Drawing PRO1017/01/01 presented in Appendix 1.

7.4 Overview of Attenuation Structure Sizing

Should infiltration testing prove that the underlying strata is not suitable for infiltration as a method for dealing with surface water runoff, the runoff shall need to be discharged to a water body, surface water drain or combined sewer which will require the discharge rate to be restricted and controlled.

Based on total impermeable area from the Proposed Development including the existing hardstanding impermeable area, the calculated Q_{Bar} rate (Greenfield Runoff Rate) is 1l/s.

For a 1% AEP event with an additional allowance of 40% for climate change a total rainfall volume of 354m³ shall be produced. This means that 86.4m³ can be discharged in 24 hours, therefore, to restrict the discharge rate to 1l/s results in 268m³ of attenuation volume being required.

Greenfield runoff calculations are presented in Appendix 2.

8 CONCLUSIONS

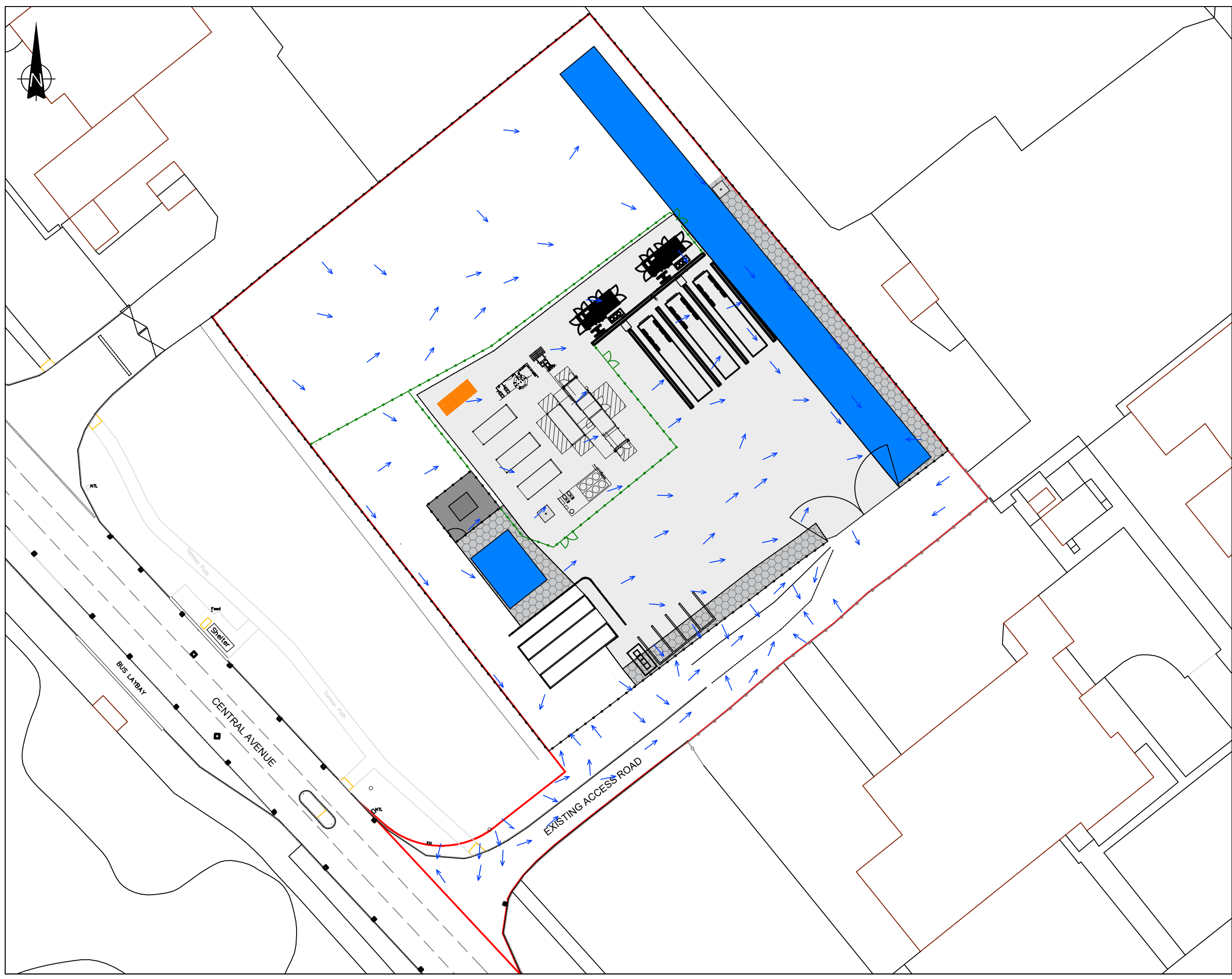
This drainage strategy has assessed how the introduction of the Proposed Development will change the surface water volumes generated at the Site. The geology in the area, from the geological maps and borehole data, show that it is likely to be suitable for infiltration into the surrounding strata. This coupled with the fact that the adjacent businesses have successfully been permitted to install infiltration structures as part of the surface water management strategies for their properties.

The outline calculations show the requirements that would be necessary at the detailed drainage design stage for both options, Option 1 where infiltration is suitable or Option 2 where discharge off Site is required at a restricted rate.

Whilst the drainage system shall potentially remain subject to SAB approval (following pre-application discussions with SAB), this drainage strategy has shown that surface water can be effectively managed and follows the principles of a SAB compliant surface water drainage system, with sufficient detail to support the Planning Application for the Proposed Development.

APPENDIX 1

DRAWINGS



THIS INFORMATION IS CONFIDENTIAL AND THE PROPERTY OF SIRIUS. IT IS RELEASED ON CONDITION THAT NONE OF THE INFORMATION SHALL BE DISCLOSED TO ANY THIRD PARTY OR REPRODUCED IN WHOLE OR PART WITHOUT THE PRIOR CONSENT IN WRITING OF SIRIUS.

NOTES

1. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.

2. DO NOT SCALE FROM THIS DRAWING.

3. ANY ANOMALIES IDENTIFIED WITH THE DETAILS SHOWN ON THIS DRAWING ARE TO BE BROUGHT TO THE ATTENTION OF SIRIUS ENVIRONMENTAL PRIOR TO CONSTRUCTION WORKS COMMENCING.

KEY

- PLANNING APPLICATION BOUNDARY
- EXISTING 1.8m HIGH HERAS FENCE
- EXISTING 2.4m HIGH PALISADE FENCE
- PROPOSED 2.4m HIGH PALISADE FENCE
- PROPOSED ARMCO BARRIER
- EXISTING TARMAC
- PROPOSED CONCRETE
- PROPOSED PERMEABLE AREAS
- INDICATIVE SOAKAWAY LOCATIONS
- EXCEEDANCE ROUTES

REV	DESCRIPTION	DATE	BY

CLIENT

PROTIUM

sirius Environmental

4245 Park Approach, Thorpe Park, Leeds. LS15 8GB. 0113 264 9960

JOB TITLE

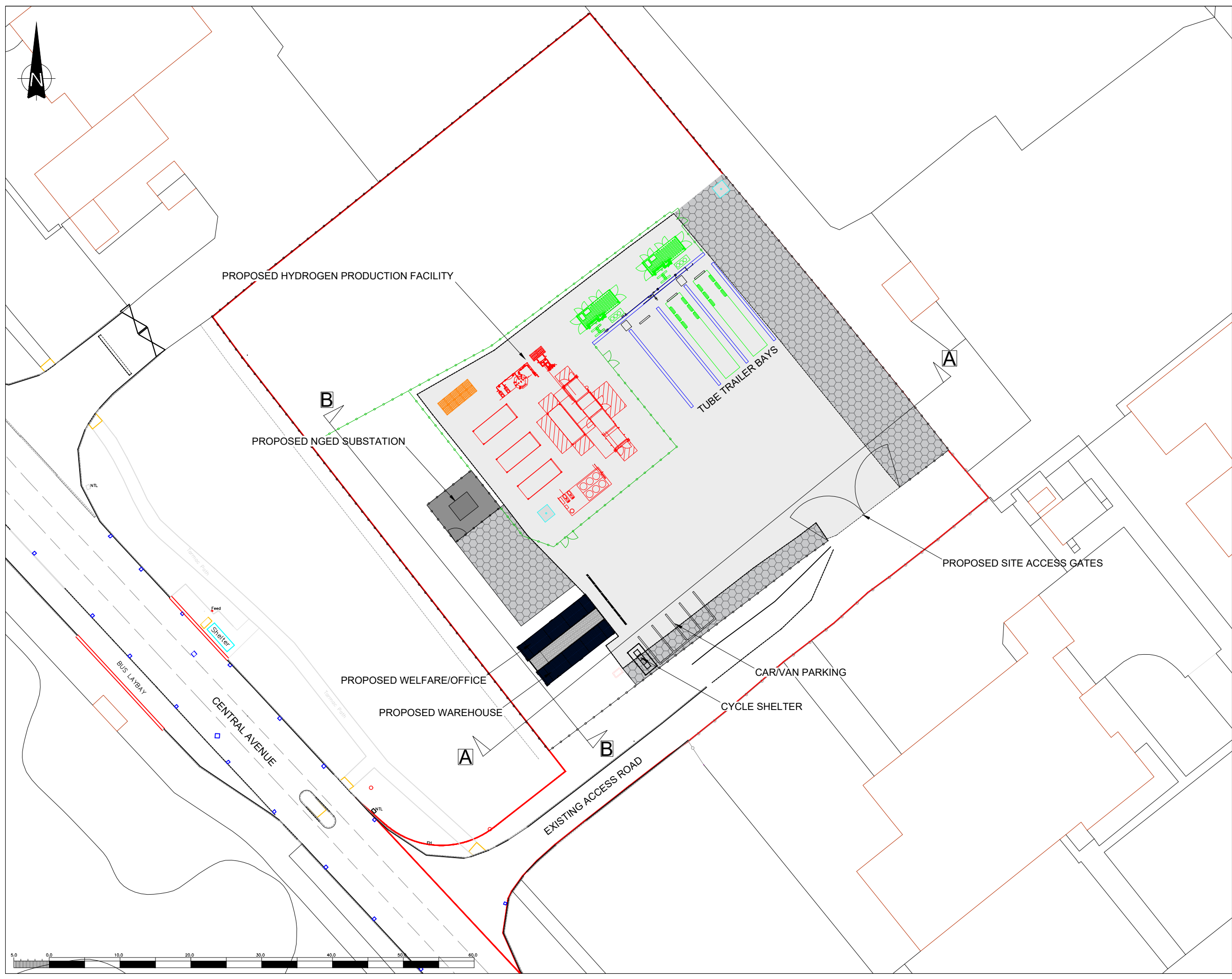
RE PLANT, PORT TALBOT
Proposed Hydrogen Production Facility

DRAWING TITLE

Proposed Soakaway Locations
General Arrangement

DRAWN	DATE	APPROVED	DATE
M.C	28/03/2025	J.D	28/03/2025

SCALE	SHEET	DRAWING NUMBER	REVISION
1:500	A3L	PRO1017/01/01	0



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NOTES

1. SEE DRAWING NUMBER PRO1013/01/06 FOR SECTIONS

KEY

- PLANNING APPLICATION BOUNDARY
- EXISTING 1.8m HIGH HERAS FENCE
- EXISTING 2.4m HIGH PALISADE FENCE
- PROPOSED 2.4m HIGH PALISADE FENCE
- PROPOSED ARMCO BARRIER
- EXISTING TARMAC
- PROPOSED CONCRETE
- EXISTING PERMEABLE AREAS

REV	DESCRIPTION	DATE	BY

CLIENT

PROTIUM

sirius Planning

4245 Park Approach, Thorpe Park, Leeds. LS15 8GB. 0113 264 9960

JOB TITLE

RE PLANT, PORT TALBOT
PROPOSED HYDROGEN
PRODUCTION FACILITY

DRAWING TITLE

PROPOSED SITE LAYOUT

DRAWN	DATE	APPROVED	DATE
S.T	31/3/2025	F.W	31/3/2025

SCALE	SHEET	DRAWING NUMBER	REVISION
1:500	A3L	PRO1013/01/03	0

APPENDIX 2

GREENFIELD RUNOFF CALCULATIONS

Sirius Environmental Ltd		Page 1
4245 Park Approach Leeds LS15 8GB		
Date 25/03/2025 14:03 File	Designed by jdavies Checked by	
Innovyze	Source Control 2020.1	
ICP SUDS Mean Annual Flood Input Return Period (years) 100 Soil 0.370 Area (ha) 0.225 Urban 0.000 SAAR (mm) 1059 Region Number Region 9 Results 1/s QBAR Rural 1.0 QBAR Urban 1.0 Q100 years 2.3 Q1 year 0.9 Q30 years 1.8 Q100 years 2.3		
©1982-2020 Innovyze		

APPENDIX 3

OUTLINE DRAINAGE CALCULATIONS

Sirius Environmental Ltd				Page 1																																																																																																																																																																																																																			
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Innovyze		Source Control 2020.1																																																																																																																																																																																																																					
<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 46 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>0.333</td><td>0.333</td><td>12.4</td><td>46.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>0.426</td><td>0.426</td><td>15.9</td><td>59.4</td><td>O K</td></tr><tr><td>60 min Summer</td><td>0.503</td><td>0.503</td><td>18.8</td><td>70.2</td><td>Flood Risk</td></tr><tr><td>120 min Summer</td><td>0.547</td><td>0.547</td><td>20.4</td><td>76.3</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>0.543</td><td>0.543</td><td>20.3</td><td>75.7</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>0.524</td><td>0.524</td><td>19.6</td><td>73.0</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>0.484</td><td>0.484</td><td>18.1</td><td>67.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>0.447</td><td>0.447</td><td>16.7</td><td>62.3</td><td>O K</td></tr><tr><td>600 min Summer</td><td>0.415</td><td>0.415</td><td>15.5</td><td>57.9</td><td>O K</td></tr><tr><td>720 min Summer</td><td>0.388</td><td>0.388</td><td>14.5</td><td>54.1</td><td>O K</td></tr><tr><td>960 min Summer</td><td>0.343</td><td>0.343</td><td>12.8</td><td>47.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>0.282</td><td>0.282</td><td>10.5</td><td>39.3</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>0.225</td><td>0.225</td><td>8.4</td><td>31.4</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>0.188</td><td>0.188</td><td>7.0</td><td>26.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>0.146</td><td>0.146</td><td>5.4</td><td>20.3</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>0.120</td><td>0.120</td><td>4.5</td><td>16.8</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>0.103</td><td>0.103</td><td>3.9</td><td>14.4</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>0.091</td><td>0.091</td><td>3.4</td><td>12.7</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>0.082</td><td>0.082</td><td>3.1</td><td>11.4</td><td>O K</td></tr><tr><td>15 min Winter</td><td>0.334</td><td>0.334</td><td>12.5</td><td>46.6</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>106.218</td><td>0.0</td><td>17</td></tr><tr><td>30 min Summer</td><td>75.024</td><td>0.0</td><td>29</td></tr><tr><td>60 min Summer</td><td>50.812</td><td>0.0</td><td>44</td></tr><tr><td>120 min Summer</td><td>33.194</td><td>0.0</td><td>78</td></tr><tr><td>180 min Summer</td><td>25.392</td><td>0.0</td><td>112</td></tr><tr><td>240 min Summer</td><td>20.788</td><td>0.0</td><td>144</td></tr><tr><td>360 min Summer</td><td>15.697</td><td>0.0</td><td>210</td></tr><tr><td>480 min Summer</td><td>12.831</td><td>0.0</td><td>272</td></tr><tr><td>600 min Summer</td><td>10.960</td><td>0.0</td><td>334</td></tr><tr><td>720 min Summer</td><td>9.629</td><td>0.0</td><td>396</td></tr><tr><td>960 min Summer</td><td>7.838</td><td>0.0</td><td>520</td></tr><tr><td>1440 min Summer</td><td>5.847</td><td>0.0</td><td>764</td></tr><tr><td>2160 min Summer</td><td>4.346</td><td>0.0</td><td>1124</td></tr><tr><td>2880 min Summer</td><td>3.514</td><td>0.0</td><td>1476</td></tr><tr><td>4320 min Summer</td><td>2.609</td><td>0.0</td><td>2204</td></tr><tr><td>5760 min Summer</td><td>2.113</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.796</td><td>0.0</td><td>3672</td></tr><tr><td>8640 min Summer</td><td>1.573</td><td>0.0</td><td>4400</td></tr><tr><td>10080 min Summer</td><td>1.408</td><td>0.0</td><td>5136</td></tr><tr><td>15 min Winter</td><td>106.218</td><td>0.0</td><td>17</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	0.333	0.333	12.4	46.5	O K	30 min 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2880 min Summer	3.514	0.0	1476																																																																																																																																																																																																																				
4320 min Summer	2.609	0.0	2204																																																																																																																																																																																																																				
5760 min Summer	2.113	0.0	2936																																																																																																																																																																																																																				
7200 min Summer	1.796	0.0	3672																																																																																																																																																																																																																				
8640 min Summer	1.573	0.0	4400																																																																																																																																																																																																																				
10080 min Summer	1.408	0.0	5136																																																																																																																																																																																																																				
15 min Winter	106.218	0.0	17																																																																																																																																																																																																																				
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Date 01/04/2025 13:02		Designed by jdavies			
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Innovyze		Source Control 2020.1			
Summary of Results for 100 year Return Period (+40%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	0.429	0.429	16.0	59.8	O K
60 min Winter	0.499	0.499	18.6	69.6	O K
120 min Winter	0.525	0.525	19.6	73.2	Flood Risk
180 min Winter	0.506	0.506	18.9	70.5	Flood Risk
240 min Winter	0.476	0.476	17.8	66.4	O K
360 min Winter	0.422	0.422	15.8	58.8	O K
480 min Winter	0.377	0.377	14.1	52.6	O K
600 min Winter	0.341	0.341	12.7	47.5	O K
720 min Winter	0.311	0.311	11.6	43.4	O K
960 min Winter	0.265	0.265	9.9	37.0	O K
1440 min Winter	0.207	0.207	7.7	28.9	O K
2160 min Winter	0.158	0.158	5.9	22.1	O K
2880 min Winter	0.130	0.130	4.8	18.1	O K
4320 min Winter	0.097	0.097	3.6	13.6	O K
5760 min Winter	0.079	0.079	3.0	11.0	O K
7200 min Winter	0.067	0.067	2.5	9.4	O K
8640 min Winter	0.059	0.059	2.2	8.2	O K
10080 min Winter	0.053	0.053	2.0	7.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	75.024	0.0	29		
60 min Winter	50.812	0.0	46		
120 min Winter	33.194	0.0	84		
180 min Winter	25.392	0.0	120		
240 min Winter	20.788	0.0	154		
360 min Winter	15.697	0.0	218		
480 min Winter	12.831	0.0	282		
600 min Winter	10.960	0.0	346		
720 min Winter	9.629	0.0	408		
960 min Winter	7.838	0.0	530		
1440 min Winter	5.847	0.0	778		
2160 min Winter	4.346	0.0	1128		
2880 min Winter	3.514	0.0	1496		
4320 min Winter	2.609	0.0	2208		
5760 min Winter	2.113	0.0	2936		
7200 min Winter	1.796	0.0	3672		
8640 min Winter	1.573	0.0	4392		
10080 min Winter	1.408	0.0	5136		
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Innovyze	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 0.600

Infiltration Trench Structure

Infiltration Coefficient Base (m/hr)	0.00000	Trench Width (m)	6.2
Infiltration Coefficient Side (m/hr)	0.82800	Trench Length (m)	75.0
Safety Factor	1.0	Slope (1:X)	0.0
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	0.000	Cap Infiltration Depth (m)	0.000

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<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 4 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>0.161</td><td>0.161</td><td>56.5</td><td>22.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>0.176</td><td>0.176</td><td>56.8</td><td>24.6</td><td>O K</td></tr><tr><td>60 min Summer</td><td>0.147</td><td>0.147</td><td>56.2</td><td>20.5</td><td>O K</td></tr><tr><td>120 min Summer</td><td>0.080</td><td>0.080</td><td>55.0</td><td>11.1</td><td>O K</td></tr><tr><td>180 min Summer</td><td>0.048</td><td>0.048</td><td>52.5</td><td>6.8</td><td>O K</td></tr><tr><td>240 min Summer</td><td>0.040</td><td>0.040</td><td>43.8</td><td>5.7</td><td>O K</td></tr><tr><td>360 min Summer</td><td>0.031</td><td>0.031</td><td>34.0</td><td>4.3</td><td>O K</td></tr><tr><td>480 min Summer</td><td>0.026</td><td>0.026</td><td>28.0</td><td>3.6</td><td>O K</td></tr><tr><td>600 min Summer</td><td>0.022</td><td>0.022</td><td>24.2</td><td>3.1</td><td>O K</td></tr><tr><td>720 min Summer</td><td>0.019</td><td>0.019</td><td>20.9</td><td>2.7</td><td>O K</td></tr><tr><td>960 min Summer</td><td>0.016</td><td>0.016</td><td>17.1</td><td>2.2</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>0.012</td><td>0.012</td><td>12.8</td><td>1.6</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>0.009</td><td>0.009</td><td>9.5</td><td>1.3</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>0.007</td><td>0.007</td><td>7.9</td><td>1.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>0.005</td><td>0.005</td><td>5.7</td><td>0.8</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>0.005</td><td>0.005</td><td>5.2</td><td>0.7</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>0.004</td><td>0.004</td><td>4.1</td><td>0.6</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>0.003</td><td>0.003</td><td>3.5</td><td>0.5</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>0.003</td><td>0.003</td><td>3.5</td><td>0.5</td><td>O K</td></tr><tr><td>15 min Winter</td><td>0.152</td><td>0.152</td><td>56.3</td><td>21.2</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>106.218</td><td>0.0</td><td>12</td></tr><tr><td>30 min Summer</td><td>75.024</td><td>0.0</td><td>21</td></tr><tr><td>60 min Summer</td><td>50.812</td><td>0.0</td><td>36</td></tr><tr><td>120 min Summer</td><td>33.194</td><td>0.0</td><td>66</td></tr><tr><td>180 min Summer</td><td>25.392</td><td>0.0</td><td>94</td></tr><tr><td>240 min Summer</td><td>20.788</td><td>0.0</td><td>124</td></tr><tr><td>360 min Summer</td><td>15.697</td><td>0.0</td><td>184</td></tr><tr><td>480 min Summer</td><td>12.831</td><td>0.0</td><td>242</td></tr><tr><td>600 min Summer</td><td>10.960</td><td>0.0</td><td>302</td></tr><tr><td>720 min Summer</td><td>9.629</td><td>0.0</td><td>368</td></tr><tr><td>960 min Summer</td><td>7.838</td><td>0.0</td><td>486</td></tr><tr><td>1440 min Summer</td><td>5.847</td><td>0.0</td><td>726</td></tr><tr><td>2160 min Summer</td><td>4.346</td><td>0.0</td><td>1068</td></tr><tr><td>2880 min Summer</td><td>3.514</td><td>0.0</td><td>1424</td></tr><tr><td>4320 min Summer</td><td>2.609</td><td>0.0</td><td>2184</td></tr><tr><td>5760 min Summer</td><td>2.113</td><td>0.0</td><td>2912</td></tr><tr><td>7200 min Summer</td><td>1.796</td><td>0.0</td><td>3592</td></tr><tr><td>8640 min Summer</td><td>1.573</td><td>0.0</td><td>4248</td></tr><tr><td>10080 min Summer</td><td>1.408</td><td>0.0</td><td>5016</td></tr><tr><td>15 min Winter</td><td>106.218</td><td>0.0</td><td>13</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	0.161	0.161	56.5	22.5	O K	30 min Summer	0.176	0.176	56.8	24.6	O K	60 min Summer	0.147	0.147	56.2	20.5	O K	120 min Summer	0.080	0.080	55.0	11.1	O K	180 min Summer	0.048	0.048	52.5	6.8	O K	240 min Summer	0.040	0.040	43.8	5.7	O K	360 min Summer	0.031	0.031	34.0	4.3	O K	480 min Summer	0.026	0.026	28.0	3.6	O K	600 min Summer	0.022	0.022	24.2	3.1	O K	720 min Summer	0.019	0.019	20.9	2.7	O K	960 min Summer	0.016	0.016	17.1	2.2	O K	1440 min Summer	0.012	0.012	12.8	1.6	O K	2160 min Summer	0.009	0.009	9.5	1.3	O K	2880 min Summer	0.007	0.007	7.9	1.0	O K	4320 min Summer	0.005	0.005	5.7	0.8	O K	5760 min Summer	0.005	0.005	5.2	0.7	O K	7200 min Summer	0.004	0.004	4.1	0.6	O K	8640 min Summer	0.003	0.003	3.5	0.5	O K	10080 min Summer	0.003	0.003	3.5	0.5	O K	15 min Winter	0.152	0.152	56.3	21.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	106.218	0.0	12	30 min Summer	75.024	0.0	21	60 min Summer	50.812	0.0	36	120 min Summer	33.194	0.0	66	180 min Summer	25.392	0.0	94	240 min Summer	20.788	0.0	124	360 min Summer	15.697	0.0	184	480 min Summer	12.831	0.0	242	600 min Summer	10.960	0.0	302	720 min Summer	9.629	0.0	368	960 min Summer	7.838	0.0	486	1440 min Summer	5.847	0.0	726	2160 min Summer	4.346	0.0	1068	2880 min Summer	3.514	0.0	1424	4320 min Summer	2.609	0.0	2184	5760 min Summer	2.113	0.0	2912	7200 min Summer	1.796	0.0	3592	8640 min Summer	1.573	0.0	4248	10080 min Summer	1.408	0.0	5016	15 min Winter	106.218	0.0	13
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Sirius Environmental Ltd		Page 3
4245 Park Approach Leeds LS15 8GB		
Date 01/04/2025 13:02 File Larger Infiltration Tre...	Designed by jdavies Checked by	
Innovyze	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 0.600

Infiltration Trench Structure

Infiltration Coefficient Base (m/hr)	0.82800	Trench Width (m)	6.2
Infiltration Coefficient Side (m/hr)	0.82800	Trench Length (m)	75.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	0.000	Cap Infiltration Depth (m)	0.000

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Summer	0.111	0.111	0.8	2.0	O K	180 min Summer	0.106	0.106	0.8	1.9	O K	240 min Summer	0.100	0.100	0.7	1.8	O K	360 min Summer	0.089	0.089	0.6	1.6	O K	480 min Summer	0.081	0.081	0.6	1.4	O K	600 min Summer	0.074	0.074	0.5	1.3	O K	720 min Summer	0.068	0.068	0.5	1.2	O K	960 min Summer	0.059	0.059	0.4	1.1	O K	1440 min Summer	0.047	0.047	0.3	0.8	O K	2160 min Summer	0.037	0.037	0.3	0.7	O K	2880 min Summer	0.031	0.031	0.2	0.5	O K	4320 min Summer	0.023	0.023	0.2	0.4	O K	5760 min Summer	0.019	0.019	0.1	0.3	O K	7200 min Summer	0.016	0.016	0.1	0.3	O K	8640 min Summer	0.014	0.014	0.1	0.3	O K	10080 min Summer	0.013	0.013	0.1	0.2	O K	15 min Winter	0.074	0.074	0.5	1.3	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	106.218	0.0	16	30 min Summer	75.024	0.0	25	60 min Summer	50.812	0.0	42	120 min Summer	33.194	0.0	76	180 min Summer	25.392	0.0	108	240 min Summer	20.788	0.0	140	360 min Summer	15.697	0.0	202	480 min Summer	12.831	0.0	264	600 min Summer	10.960	0.0	326	720 min 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4320 min Summer	0.023	0.023	0.2	0.4	O K																																																																																																																																																																																																																			
5760 min Summer	0.019	0.019	0.1	0.3	O K																																																																																																																																																																																																																			
7200 min Summer	0.016	0.016	0.1	0.3	O K																																																																																																																																																																																																																			
8640 min Summer	0.014	0.014	0.1	0.3	O K																																																																																																																																																																																																																			
10080 min Summer	0.013	0.013	0.1	0.2	O K																																																																																																																																																																																																																			
15 min Winter	0.074	0.074	0.5	1.3	O K																																																																																																																																																																																																																			
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<u>Summary of Results for 100 year Return Period (+40%)</u> <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>30 min Winter</td><td>0.092</td><td>0.092</td><td>0.7</td><td>1.6</td><td>O K</td></tr><tr><td>60 min Winter</td><td>0.104</td><td>0.104</td><td>0.7</td><td>1.9</td><td>O K</td></tr><tr><td>120 min Winter</td><td>0.103</td><td>0.103</td><td>0.7</td><td>1.8</td><td>O K</td></tr><tr><td>180 min Winter</td><td>0.096</td><td>0.096</td><td>0.7</td><td>1.7</td><td>O K</td></tr><tr><td>240 min Winter</td><td>0.087</td><td>0.087</td><td>0.6</td><td>1.6</td><td>O K</td></tr><tr><td>360 min Winter</td><td>0.074</td><td>0.074</td><td>0.5</td><td>1.3</td><td>O K</td></tr><tr><td>480 min Winter</td><td>0.065</td><td>0.065</td><td>0.5</td><td>1.2</td><td>O K</td></tr><tr><td>600 min Winter</td><td>0.057</td><td>0.057</td><td>0.4</td><td>1.0</td><td>O K</td></tr><tr><td>720 min Winter</td><td>0.052</td><td>0.052</td><td>0.4</td><td>0.9</td><td>O K</td></tr><tr><td>960 min Winter</td><td>0.043</td><td>0.043</td><td>0.3</td><td>0.8</td><td>O K</td></tr><tr><td>1440 min Winter</td><td>0.033</td><td>0.033</td><td>0.2</td><td>0.6</td><td>O K</td></tr><tr><td>2160 min Winter</td><td>0.025</td><td>0.025</td><td>0.2</td><td>0.4</td><td>O K</td></tr><tr><td>2880 min Winter</td><td>0.021</td><td>0.021</td><td>0.1</td><td>0.4</td><td>O K</td></tr><tr><td>4320 min Winter</td><td>0.015</td><td>0.015</td><td>0.1</td><td>0.3</td><td>O K</td></tr><tr><td>5760 min Winter</td><td>0.012</td><td>0.012</td><td>0.1</td><td>0.2</td><td>O K</td></tr><tr><td>7200 min Winter</td><td>0.011</td><td>0.011</td><td>0.1</td><td>0.2</td><td>O K</td></tr><tr><td>8640 min Winter</td><td>0.009</td><td>0.009</td><td>0.1</td><td>0.2</td><td>O K</td></tr><tr><td>10080 min Winter</td><td>0.008</td><td>0.008</td><td>0.1</td><td>0.1</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>30 min Winter</td><td>75.024</td><td>0.0</td><td>26</td></tr><tr><td>60 min Winter</td><td>50.812</td><td>0.0</td><td>44</td></tr><tr><td>120 min Winter</td><td>33.194</td><td>0.0</td><td>80</td></tr><tr><td>180 min Winter</td><td>25.392</td><td>0.0</td><td>114</td></tr><tr><td>240 min Winter</td><td>20.788</td><td>0.0</td><td>146</td></tr><tr><td>360 min Winter</td><td>15.697</td><td>0.0</td><td>210</td></tr><tr><td>480 min Winter</td><td>12.831</td><td>0.0</td><td>272</td></tr><tr><td>600 min Winter</td><td>10.960</td><td>0.0</td><td>334</td></tr><tr><td>720 min Winter</td><td>9.629</td><td>0.0</td><td>396</td></tr><tr><td>960 min Winter</td><td>7.838</td><td>0.0</td><td>518</td></tr><tr><td>1440 min Winter</td><td>5.847</td><td>0.0</td><td>754</td></tr><tr><td>2160 min Winter</td><td>4.346</td><td>0.0</td><td>1108</td></tr><tr><td>2880 min Winter</td><td>3.514</td><td>0.0</td><td>1472</td></tr><tr><td>4320 min Winter</td><td>2.609</td><td>0.0</td><td>2204</td></tr><tr><td>5760 min Winter</td><td>2.113</td><td>0.0</td><td>2952</td></tr><tr><td>7200 min Winter</td><td>1.796</td><td>0.0</td><td>3568</td></tr><tr><td>8640 min Winter</td><td>1.573</td><td>0.0</td><td>4248</td></tr><tr><td>10080 min Winter</td><td>1.408</td><td>0.0</td><td>5136</td></tr></table>							Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	30 min Winter	0.092	0.092	0.7	1.6	O K	60 min Winter	0.104	0.104	0.7	1.9	O K	120 min Winter	0.103	0.103	0.7	1.8	O K	180 min Winter	0.096	0.096	0.7	1.7	O K	240 min Winter	0.087	0.087	0.6	1.6	O K	360 min Winter	0.074	0.074	0.5	1.3	O K	480 min Winter	0.065	0.065	0.5	1.2	O K	600 min Winter	0.057	0.057	0.4	1.0	O K	720 min Winter	0.052	0.052	0.4	0.9	O K	960 min Winter	0.043	0.043	0.3	0.8	O K	1440 min Winter	0.033	0.033	0.2	0.6	O K	2160 min Winter	0.025	0.025	0.2	0.4	O K	2880 min Winter	0.021	0.021	0.1	0.4	O K	4320 min Winter	0.015	0.015	0.1	0.3	O K	5760 min Winter	0.012	0.012	0.1	0.2	O K	7200 min Winter	0.011	0.011	0.1	0.2	O K	8640 min Winter	0.009	0.009	0.1	0.2	O K	10080 min Winter	0.008	0.008	0.1	0.1	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	30 min Winter	75.024	0.0	26	60 min Winter	50.812	0.0	44	120 min Winter	33.194	0.0	80	180 min Winter	25.392	0.0	114	240 min Winter	20.788	0.0	146	360 min Winter	15.697	0.0	210	480 min Winter	12.831	0.0	272	600 min Winter	10.960	0.0	334	720 min Winter	9.629	0.0	396	960 min Winter	7.838	0.0	518	1440 min Winter	5.847	0.0	754	2160 min Winter	4.346	0.0	1108	2880 min Winter	3.514	0.0	1472	4320 min Winter	2.609	0.0	2204	5760 min Winter	2.113	0.0	2952	7200 min Winter	1.796	0.0	3568	8640 min Winter	1.573	0.0	4248	10080 min Winter	1.408	0.0	5136
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Sirius Environmental Ltd		Page 3
4245 Park Approach Leeds LS15 8GB		
Date 01/04/2025 13:03 File Smaller Infiltration Tr...	Designed by jdavies Checked by	
Innovyze	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 0.600

Infiltration Trench Structure

Infiltration Coefficient Base (m/hr)	0.00000	Trench Width (m)	6.6
Infiltration Coefficient Side (m/hr)	0.82800	Trench Length (m)	9.0
Safety Factor	1.0	Slope (1:X)	0.0
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	0.000	Cap Infiltration Depth (m)	0.000

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K</td></tr><tr><td>600 min Summer</td><td>0.005</td><td>0.005</td><td>0.7</td><td>0.1</td><td>O K</td></tr><tr><td>720 min Summer</td><td>0.005</td><td>0.005</td><td>0.7</td><td>0.1</td><td>O K</td></tr><tr><td>960 min Summer</td><td>0.004</td><td>0.004</td><td>0.5</td><td>0.1</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>0.003</td><td>0.003</td><td>0.4</td><td>0.0</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>0.002</td><td>0.002</td><td>0.3</td><td>0.0</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>0.002</td><td>0.002</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>0.001</td><td>0.001</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>0.001</td><td>0.001</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>0.001</td><td>0.001</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>0.001</td><td>0.001</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>10080 min 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Summer</td><td>9.629</td><td>0.0</td><td>360</td></tr><tr><td>960 min Summer</td><td>7.838</td><td>0.0</td><td>480</td></tr><tr><td>1440 min Summer</td><td>5.847</td><td>0.0</td><td>710</td></tr><tr><td>2160 min Summer</td><td>4.346</td><td>0.0</td><td>1080</td></tr><tr><td>2880 min Summer</td><td>3.514</td><td>0.0</td><td>1448</td></tr><tr><td>4320 min Summer</td><td>2.609</td><td>0.0</td><td>2180</td></tr><tr><td>5760 min Summer</td><td>2.113</td><td>0.0</td><td>2808</td></tr><tr><td>7200 min Summer</td><td>1.796</td><td>0.0</td><td>3528</td></tr><tr><td>8640 min Summer</td><td>1.573</td><td>0.0</td><td>4320</td></tr><tr><td>10080 min Summer</td><td>1.408</td><td>0.0</td><td>4976</td></tr><tr><td>15 min Winter</td><td>106.218</td><td>0.0</td><td>11</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	0.024	0.024	3.3	0.4	O K	30 min Summer	0.023	0.023	3.3	0.4	O K	60 min Summer	0.019	0.019	2.7	0.3	O K	120 min Summer	0.014	0.014	2.0	0.3	O K	180 min Summer	0.011	0.011	1.6	0.2	O K	240 min Summer	0.009	0.009	1.3	0.2	O K	360 min Summer	0.007	0.007	1.0	0.1	O K	480 min Summer	0.006	0.006	0.9	0.1	O K	600 min Summer	0.005	0.005	0.7	0.1	O K	720 min Summer	0.005	0.005	0.7	0.1	O K	960 min Summer	0.004	0.004	0.5	0.1	O K	1440 min Summer	0.003	0.003	0.4	0.0	O K	2160 min Summer	0.002	0.002	0.3	0.0	O K	2880 min Summer	0.002	0.002	0.2	0.0	O K	4320 min Summer	0.001	0.001	0.2	0.0	O K	5760 min Summer	0.001	0.001	0.2	0.0	O K	7200 min Summer	0.001	0.001	0.2	0.0	O K	8640 min Summer	0.001	0.001	0.2	0.0	O K	10080 min Summer	0.001	0.001	0.2	0.0	O K	15 min Winter	0.022	0.022	3.0	0.4	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	106.218	0.0	11	30 min Summer	75.024	0.0	19	60 min Summer	50.812	0.0	34	120 min Summer	33.194	0.0	64	180 min Summer	25.392	0.0	94	240 min Summer	20.788	0.0	124	360 min Summer	15.697	0.0	184	480 min Summer	12.831	0.0	244	600 min Summer	10.960	0.0	300	720 min Summer	9.629	0.0	360	960 min Summer	7.838	0.0	480	1440 min Summer	5.847	0.0	710	2160 min Summer	4.346	0.0	1080	2880 min Summer	3.514	0.0	1448	4320 min Summer	2.609	0.0	2180	5760 min Summer	2.113	0.0	2808	7200 min Summer	1.796	0.0	3528	8640 min Summer	1.573	0.0	4320	10080 min Summer	1.408	0.0	4976	15 min Winter	106.218	0.0	11
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<u>Summary of Results for 100 year Return Period (+40%)</u> <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>30 min Winter</td><td>0.019</td><td>0.019</td><td>2.7</td><td>0.3</td><td>O K</td></tr><tr><td>60 min Winter</td><td>0.014</td><td>0.014</td><td>2.0</td><td>0.3</td><td>O K</td></tr><tr><td>120 min Winter</td><td>0.010</td><td>0.010</td><td>1.4</td><td>0.2</td><td>O K</td></tr><tr><td>180 min Winter</td><td>0.008</td><td>0.008</td><td>1.1</td><td>0.1</td><td>O K</td></tr><tr><td>240 min Winter</td><td>0.006</td><td>0.006</td><td>0.9</td><td>0.1</td><td>O K</td></tr><tr><td>360 min Winter</td><td>0.005</td><td>0.005</td><td>0.7</td><td>0.1</td><td>O K</td></tr><tr><td>480 min Winter</td><td>0.004</td><td>0.004</td><td>0.6</td><td>0.1</td><td>O K</td></tr><tr><td>600 min Winter</td><td>0.003</td><td>0.003</td><td>0.5</td><td>0.1</td><td>O K</td></tr><tr><td>720 min Winter</td><td>0.003</td><td>0.003</td><td>0.5</td><td>0.1</td><td>O K</td></tr><tr><td>960 min Winter</td><td>0.003</td><td>0.003</td><td>0.4</td><td>0.0</td><td>O K</td></tr><tr><td>1440 min Winter</td><td>0.002</td><td>0.002</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>2160 min Winter</td><td>0.002</td><td>0.002</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>2880 min Winter</td><td>0.001</td><td>0.001</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>4320 min Winter</td><td>0.001</td><td>0.001</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>5760 min Winter</td><td>0.001</td><td>0.001</td><td>0.1</td><td>0.0</td><td>O K</td></tr><tr><td>7200 min Winter</td><td>0.001</td><td>0.001</td><td>0.1</td><td>0.0</td><td>O K</td></tr><tr><td>8640 min Winter</td><td>0.001</td><td>0.001</td><td>0.1</td><td>0.0</td><td>O K</td></tr><tr><td>10080 min Winter</td><td>0.001</td><td>0.001</td><td>0.1</td><td>0.0</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>30 min Winter</td><td>75.024</td><td>0.0</td><td>19</td></tr><tr><td>60 min Winter</td><td>50.812</td><td>0.0</td><td>34</td></tr><tr><td>120 min Winter</td><td>33.194</td><td>0.0</td><td>64</td></tr><tr><td>180 min Winter</td><td>25.392</td><td>0.0</td><td>94</td></tr><tr><td>240 min Winter</td><td>20.788</td><td>0.0</td><td>118</td></tr><tr><td>360 min Winter</td><td>15.697</td><td>0.0</td><td>180</td></tr><tr><td>480 min Winter</td><td>12.831</td><td>0.0</td><td>240</td></tr><tr><td>600 min Winter</td><td>10.960</td><td>0.0</td><td>312</td></tr><tr><td>720 min Winter</td><td>9.629</td><td>0.0</td><td>360</td></tr><tr><td>960 min Winter</td><td>7.838</td><td>0.0</td><td>486</td></tr><tr><td>1440 min Winter</td><td>5.847</td><td>0.0</td><td>684</td></tr><tr><td>2160 min Winter</td><td>4.346</td><td>0.0</td><td>1104</td></tr><tr><td>2880 min Winter</td><td>3.514</td><td>0.0</td><td>1432</td></tr><tr><td>4320 min Winter</td><td>2.609</td><td>0.0</td><td>2064</td></tr><tr><td>5760 min Winter</td><td>2.113</td><td>0.0</td><td>2896</td></tr><tr><td>7200 min Winter</td><td>1.796</td><td>0.0</td><td>3616</td></tr><tr><td>8640 min Winter</td><td>1.573</td><td>0.0</td><td>3544</td></tr><tr><td>10080 min Winter</td><td>1.408</td><td>0.0</td><td>5176</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	30 min Winter	0.019	0.019	2.7	0.3	O K	60 min Winter	0.014	0.014	2.0	0.3	O K	120 min Winter	0.010	0.010	1.4	0.2	O K	180 min Winter	0.008	0.008	1.1	0.1	O K	240 min Winter	0.006	0.006	0.9	0.1	O K	360 min Winter	0.005	0.005	0.7	0.1	O K	480 min Winter	0.004	0.004	0.6	0.1	O K	600 min Winter	0.003	0.003	0.5	0.1	O K	720 min Winter	0.003	0.003	0.5	0.1	O K	960 min Winter	0.003	0.003	0.4	0.0	O K	1440 min Winter	0.002	0.002	0.2	0.0	O K	2160 min Winter	0.002	0.002	0.2	0.0	O K	2880 min Winter	0.001	0.001	0.2	0.0	O K	4320 min Winter	0.001	0.001	0.2	0.0	O K	5760 min Winter	0.001	0.001	0.1	0.0	O K	7200 min Winter	0.001	0.001	0.1	0.0	O K	8640 min Winter	0.001	0.001	0.1	0.0	O K	10080 min Winter	0.001	0.001	0.1	0.0	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	30 min Winter	75.024	0.0	19	60 min Winter	50.812	0.0	34	120 min Winter	33.194	0.0	64	180 min Winter	25.392	0.0	94	240 min Winter	20.788	0.0	118	360 min Winter	15.697	0.0	180	480 min Winter	12.831	0.0	240	600 min Winter	10.960	0.0	312	720 min Winter	9.629	0.0	360	960 min Winter	7.838	0.0	486	1440 min Winter	5.847	0.0	684	2160 min Winter	4.346	0.0	1104	2880 min Winter	3.514	0.0	1432	4320 min Winter	2.609	0.0	2064	5760 min Winter	2.113	0.0	2896	7200 min Winter	1.796	0.0	3616	8640 min Winter	1.573	0.0	3544	10080 min Winter	1.408	0.0	5176
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Innovyze	Source Control 2020.1	

Model Details

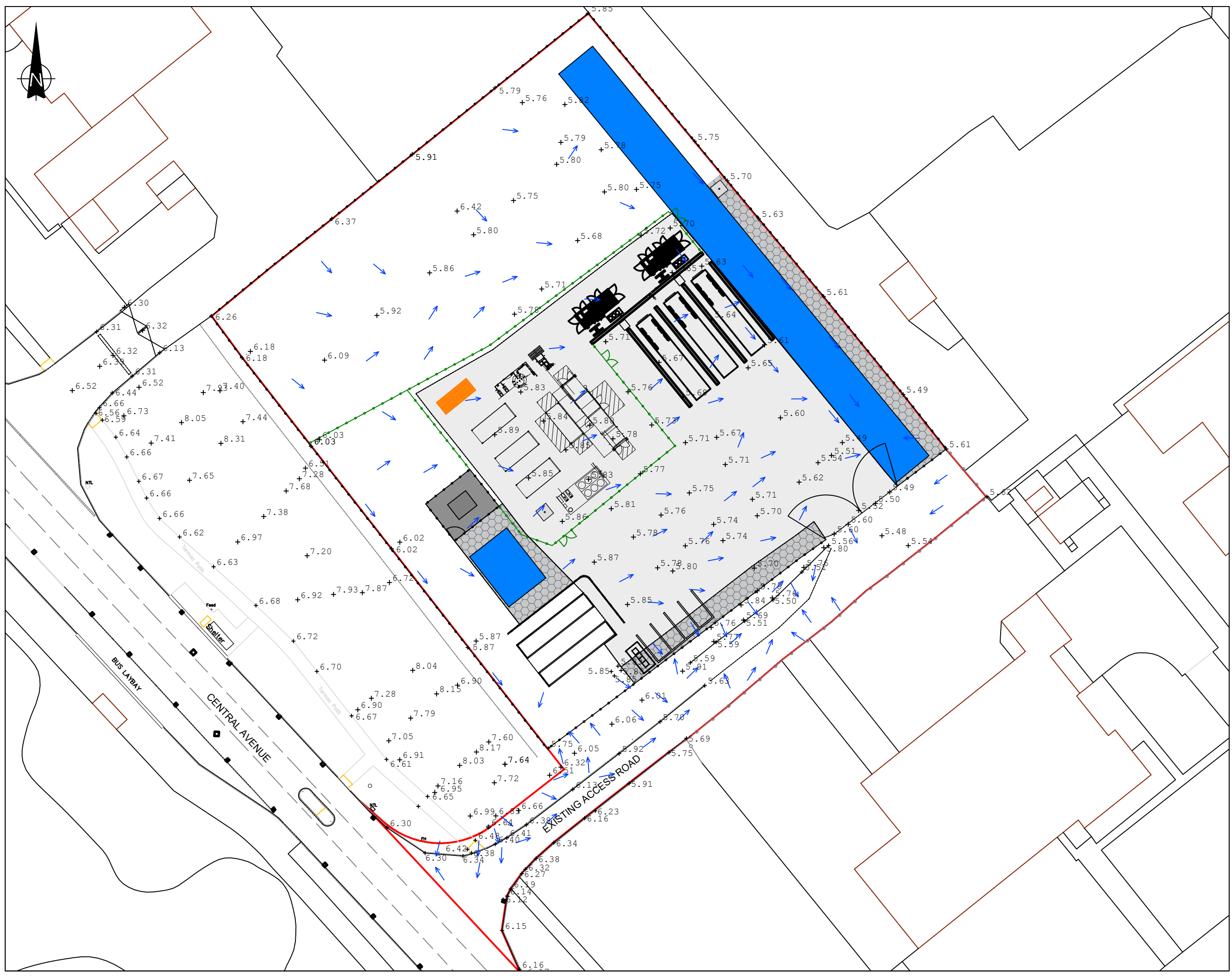
Storage is Online Cover Level (m) 0.600

Infiltration Trench Structure

Infiltration Coefficient Base (m/hr)	0.82800	Trench Width (m)	6.6
Infiltration Coefficient Side (m/hr)	0.82800	Trench Length (m)	9.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	0.000	Cap Infiltration Depth (m)	0.000

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APPENDIX 3
DRAWINGS



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NOTES

1. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
2. DO NOT SCALE FROM THIS DRAWING.
3. ANY ANOMALIES IDENTIFIED WITH THE DETAILS SHOWN ON THIS DRAWING ARE TO BE BROUGHT TO THE ATTENTION OF SIRIUS ENVIRONMENTAL PRIOR TO CONSTRUCTION WORKS COMMENCING.

KEY

- PLANNING APPLICATION BOUNDARY
- EXISTING 1.8m HIGH HERAS FENCE
- EXISTING 2.4m HIGH PALISADE FENCE
- PROPOSED 2.4m HIGH PALISADE FENCE
- PROPOSED ARMCO BARRIER
- EXISTING TARMAC
- PROPOSED CONCRETE
- PROPOSED PERMEABLE AREAS
- INDICATIVE SOAKAWAY LOCATIONS
- EXCEEDANCE ROUTES

REV	DESCRIPTION	DATE	BY

CLIENT

PROTIUM



4245 Park Approach, Thorpe Park, Leeds. LS15 8GB. 0113 264 9960

JOB TITLE

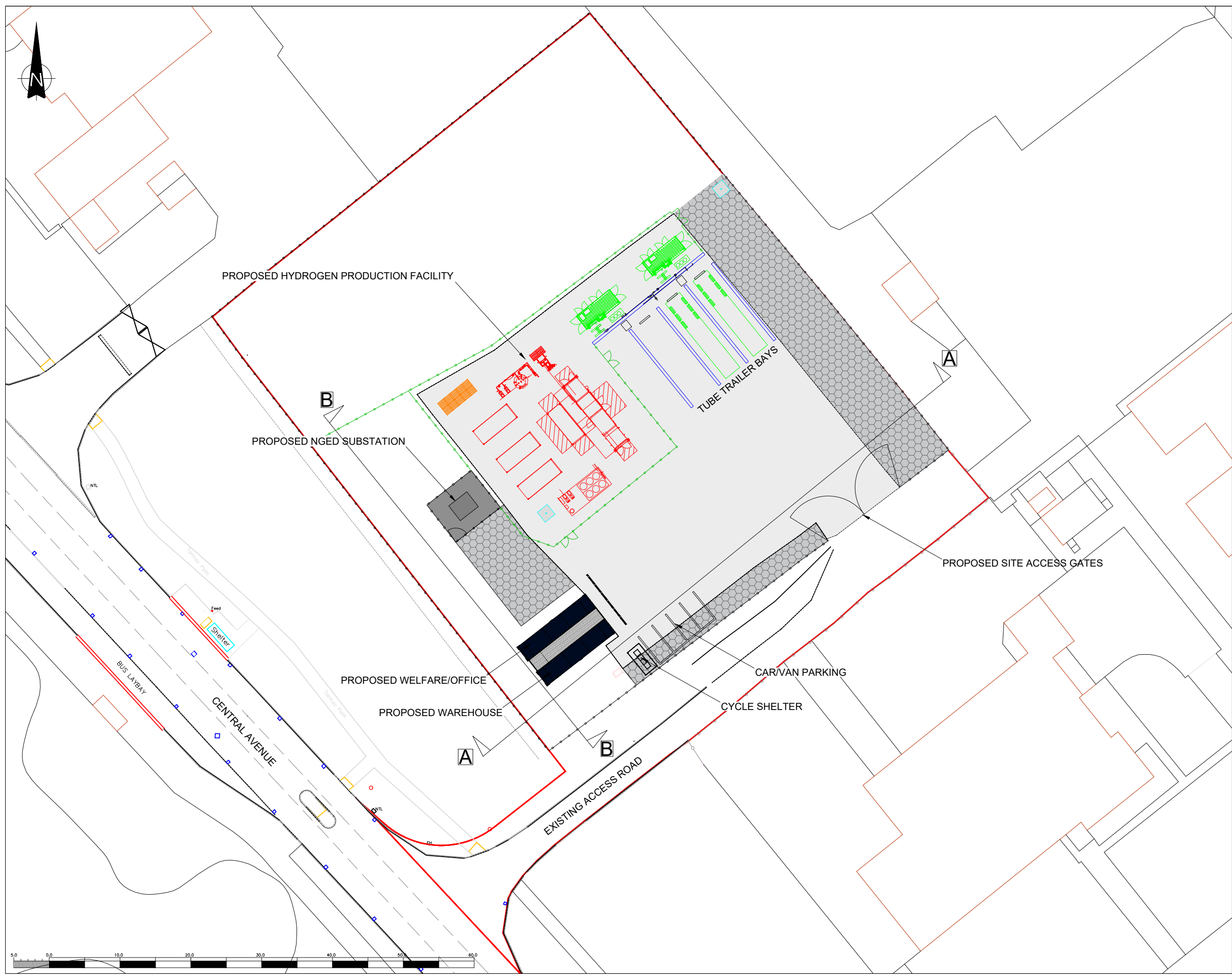
RE PLANT, PORT TALBOT
Proposed Hydrogen Production Facility

DRAWING TITLE

Proposed Soakaway Locations
General Arrangement

DRAWN	DATE	APPROVED	DATE
M.C	02/05/2025	J.D	02/05/2025

SCALE	SHEET	DRAWING NUMBER	REVISION
1:500	A3L	PRO1017/02/01	0



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NOTES

1. SEE DRAWING NUMBER PRO1013/01/06 FOR SECTIONS

KEY

- PLANNING APPLICATION BOUNDARY
- EXISTING 1.8m HIGH HERAS FENCE
- EXISTING 2.4m HIGH PALISADE FENCE
- PROPOSED 2.4m HIGH PALISADE FENCE
- PROPOSED ARMCO BARRIER
- EXISTING TARMAC
- PROPOSED CONCRETE
- EXISTING PERMEABLE AREAS

REV	DESCRIPTION	DATE	BY

CLIENT

PROTIUM

sirius Planning

4245 Park Approach, Thorpe Park, Leeds. LS15 8GB. 0113 264 9960

JOB TITLE

RE PLANT, PORT TALBOT
PROPOSED HYDROGEN
PRODUCTION FACILITY

DRAWING TITLE

PROPOSED SITE LAYOUT

DRAWN	DATE	APPROVED	DATE
S.T	31/3/2025	F.W	31/3/2025

SCALE	SHEET	DRAWING NUMBER	REVISION
1:500	A3L	PRO1013/01/03	0