



Redwood SEN, Middleton Flood Risk Assessment

**Job Number
FRA261090**

**Report Date
16th July 2026**

**Client
Rochdale Borough Council**



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Ground Investigation | Land Remediation | Project Management



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Report Title	Flood Risk Assessment
Job Number	FRA261090
Client	Rochdale Borough Council

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Written By	Alaikah Yusaf		
Checked By	Dan Percival		
Approved By	Dan Percival		

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EXECUTIVE SUMMARY

Scope and Background

LKC has prepared this FRA in line with the NPPF and Technical Guidance where appropriate.

In considering the proposals the following key principles have therefore been applied:

- Identification of flood risks.
- Protection of users of the new development.
- No increased flood risk to third parties.

Flood Risk

The site is considered to be at a negligible to low risk of flooding from all sources and no flood risk mitigation is considered to be required. Notwithstanding, it is recommended that finished floor levels of the proposed school are raised a minimum of 0.15m above external ground levels to further reduce the potential for the ingress of water. Safe access and egress to the site is available to the south via Heywood Old Road.

Surface water runoff will be attenuated on site through a combination of Sustainable Drainage Systems (SuDS), including permeable paving, swales, below-ground geocellular attenuation tanks and a detention basin, prior to discharge to Whittle Brook as per the Surface Water Drainage Strategy prepared by Harley Haddow Ltd. The drainage system has been designed to restrict runoff to a maximum rate of 9.6l/s.

Overall, it has been demonstrated that the site will be safe from flooding and will not result in an increase in flood risk elsewhere.

Access

Safe access and egress are considered to be available via Heywood Old Road to the southwest. In the event access is impeded, safe refuge will be available on site.

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1. Introduction

1.1. Background

LK Consult Ltd (LKC) were commissioned by Rochdale Borough Council (RBC) to prepare a Flood Risk Assessment (FRA) to support the planning application for the proposed construction of a Special Educational Needs (SEN) School at Land off Heywood Old Road, Middleton.

The report will address the vulnerability to flooding from all possible sources and will also consider the potential to increase flood risk elsewhere. The issues of actual flood risk are discussed in Section 4.

Government policy with respect to development in flood risk areas is contained within the Ministry of Housing Communities and Local Government National Planning Framework¹ (NPPF) and accompanying Planning Practice Guidance² (PPG). The guidance on Climate Change allowance issued by the Environment Agency in July 2021 has also been considered.

LKC has prepared this FRA in line with the NPPF and the PPG where appropriate. The level of detail entered into any flood risk assessment is dependent upon the scale and potential impact of the proposed development, and the vulnerability classification of the proposed land-use.

1.2. Site Details

A summary of the general site details is presented in Table 1-1. Figure 1 indicates the site location and boundary.

Location	Heywood Old Rd, Middleton, Heywood, OL10 2QN Centred at approximate NGR: 505249, 483203
Area	Approximately 3.5 ha
Current Site Use	<u>Site</u> The site comprises a parcel of undeveloped land located to the rear of residential properties located along Creton Way and Wrigley Fold. The site is accessed via Heywood Old Road. Existing site plans are included as Appendix A. <u>Surrounding Area/ Boundary Treatment</u> The site is situated on the western extent of Middleton and is located within a mixed residential and rural area. The land use surrounding the site is described below: • The site is bound to the north by Whittle Brook, beyond which lies undeveloped land and Langley Lane; • The site is bound to the east by residential dwellings associated with Creton Way, Wrigley Fold and Knight Crescent; • The site is bound to the south by an existing education facility and associated playing fields. • The site is bound to the west by Heywood Old Road (A6045) beyond which lies undeveloped land
Proposed Development	The proposed development is for a new 60 pupil SEN school facility with associated landscaping access and parking. Access to the site will be provided via Heywood Old Road. The proposed development plans are included in Appendix A

Table 1-1: Summary of site details.

2. Site Setting

2.1. Vulnerability

As an initial phase in identifying whether a site is potentially at risk of flooding, LKC has consulted the EA's Flood Map for Planning. This mapping is based on a combination of local flood model outputs, recorded flood outlines and national flood model information to identify areas that are at risk of fluvial and/or tidal flooding for strategic planning purposes.

The Flood Zones divide the floodplain into three categories of flood risk, and do not take flood defences into account. The PPG (Table 1: Flood Zones, Paragraph 78) defines the Flood Zones as:

- Flood Zone 1 – Very Low Risk, with annual probability of flooding from rivers and the sea of less than 0.1% (1 in 1000).
- Flood Zone 2 – Low Risk, with annual probability of flooding of 0.1 to 1.0% from rivers and 0.1 to 0.5% from the sea.
- Flood Zone 3 – Medium to High risk of flooding with an annual probability of flooding of 1.0% or greater from rivers, and 0.5% or greater from the sea.

The Flood Zone Mapping indicates the site as being within Flood Zone 1.

In addition to the above, LKC has undertaken a review of the EA Risk of Flooding from Surface Water dataset. This dataset provides an overview of where surface water flooding may occur and is derived from national scale modelling using local topography, rainfall patterns and historical data. The mapping categorises the 'chance' of surface water flooding as per the below:

- High – more than a 3.3% chance of a flood each year;
- Medium – between 1% and 3.3% chance of a flood each year;
- Low – between 0.1% and 1% chance of a flood each year;
- Very Low – Less than 0.1% chance of a flood each year.

A review of the EA Risk of Surface Water Flooding map indicates the site has a predominantly very low chance of surface water flooding during the present day and future climate change scenarios. Small areas of low to high chance surface water flooding are indicated in the southeastern and northern areas of the site, however, the proposed building will be sequentially located within the site to the area with a very low chance of flooding.

The proposed development comprises the construction of SEN school which is classified as 'more vulnerable' development as per Annex 3 of the NPPF.

2.2. The Sequential and Exception Tests

The Sequential Test aims to steer new development to areas at the lowest risk of flooding from all sources taking into account the impacts of climate change. The NPPF identifies that the Sequential Test should be applied to 'Major' and 'Non-Major' development proposes in areas at risk of flooding with paragraphs 175 and 176 setting out exemptions from the Test.

Paragraph 175 of the NPPF states that the Sequential Test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be located in an area that would be at risk of flooding from any source; both now and in the future.

Paragraph 27 of the updated Flood Risk and Coastal Change Planning Practice Guidance (published on 17th September 2025) states *"in applying paragraph 175 a proportionate approach should be taken. Where a site specific flood risk assessment demonstrates clearly that the proposed layout, design and*

mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere, then the Sequential Test need not be applied”.

This FRA demonstrates that the site is at a negligible to low risk of flooding from all sources therefore application of the Sequential Test is not considered to be required.

Table 2 of the PPG identify that ‘More Vulnerable’ development is acceptable within Flood Zone 1 without the requirement to apply the Exception Test.

2.3. Environmental Setting

LKC have previously undertaken a Phase 1 Preliminary Risk Assessment (PRA) for the site³ (reference: LKC251564-A1-PRA-Heywood Old Road R0, dated: November 2025).

Summary of the Environmental Setting			
Geology	Artificial Ground		No BGS recorded artificial ground.
	Superficial Deposits		Till (diamicton).
	Bedrock		Pennine Lower Coal Measures (Sandstone, siltstone, mudstone and coal).
	BGS Borehole Records		There are no BGS records within the vicinity of the site.
	Defra Soilscape Mapping		The north and northwestern area of the site is shown to be Soilscape 10: Freely draining slightly acid sandy soils. The central and southern areas are shown to be Soilscape 15: Naturally wet very acid sandy and loamy soils
Hydrogeology	Aquifer Designation	Superficial	Secondary Undifferentiated Aquifer.
		Bedrock	Secondary A Aquifer.
	Source Protection Zone (SPZ)		The site is not located within an SPZ.
Hydrology	All adjacent and internal surface water		A review of OS Mapping indicates the presence of an open section of Whittle Brook, adjacent to the northern boundary of the site. Whittle Brook is classified as an Ordinary Watercourse within the vicinity of the site and flows in a generally south westerly direction towards the M62 Motorway. Whittle Brook is classified as an EA Main River downstream of Heywood Old Road. An open section of the Langley Brook is c.180m southwest of the site. The watercourse is shown to flow in a south-westerly direction.

Table 2-1: Summary of the Environmental Setting.

2.4. Site and Access Levels

The topographic survey contained within the Site Location Plan provided by Equilibrium Architects (drawing reference: ED0064-00, dated: December 2024) included in Appendix A.

The site levels are summarised as follows:

- The southeastern area of the site appears to form a plateau at c.115m AOD with ground levels sloping to a level of approximately 111m AOD towards the southwestern area of the site and approximately 106m AOD towards the northern area;
- The site access via Heywood Old Road slopes from a level of approximately 104m AOD adjacent to the road to a level of approximately 106m AOD in the northwestern corner of the main site area.

A review of 1m resolution EA LiDAR data (included as Figure 2) indicates Whittle Brook is located approximately 2-3m below ground levels in the northern area of the site.

2.5. Site Investigation

LKC have previously undertaken a Phase 2 Geo-Environmental Investigation, Risk Assessment and Outline Remediation Strategy for the site⁴. The investigation was carried out between 2nd – 5th December 2025 and comprised the following:

- 1 no. cable percussion boreholes drilled to 25.05mbgl (ref. CP101).
- 12 no. trial pits (using JCB 3CX) excavated to 2.20-2.80mbgl (ref. TP101 to TP112).

- 8 no. cone penetration testing (CPT) tests including 4 no. tests to a depth of 20.00mbgl within the area of the proposed retaining wall and 4 no. tests to a depth of 25.00mbgl within the area of the proposed school building.
- 4 no. BRE365 Soakaway tests. (Ref: SA101 – SA104).

A summary of the ground conditions encountered during the site investigation is provided in Table xx.

Strata	Description
Made Ground	Made ground generally comprised slightly gravelly sandy silt with ceramic and brick fragments to depths of 0.20-0.50mbgl (ref: TP102, TP103, TP106, TP107, TP110, SA101 & CP101). Topsoil was noted within the other trial pits and BRE365 soakaway pits.
Natural Strata	Site comprised various superficial strata including: • Firm to stiff light brown gravelly sandy silty clay was encountered within TP101, TP105, TP108 & TP110. • Brown gravelly silty Sand was encountered within TP102, TP103, TP104, TP106, TP107, TP111, TP112, SA102, SA103, SA104 & CP101. • Brown gravelly sandy silt encountered within TP109 & SA101. • The CPT logs within the proposed road area (CPT101-CPT104) encountered refusals from 19.41mbgl to 19.97mbgl. CPTs carried out within the proposed school area (CPT105-CPT108) generally corroborated the profile logs with refusals encountered from c. 21.36mbgl to 24.97mbgl.

Table 2-2: A summary of Site Investigation findings

Groundwater strikes were recorded between 1.0mbgl to 5.50m bgl in TP102, TP107, TP108, TP109, TP112 and CP101. No groundwater strikes were recorded within the remainder of the trial pits.

A legacy borehole (labelled BH2) was identified within the area of the proposed building from a previous site investigation undertaken by Wardell Armstrong in 2020⁵. This identified groundwater at a depth of 4m bgl, rising to 2m bgl and was monitored on five subsequent occasions, with the groundwater level ranging between 1.24m and 3.21m bgl indicating a mobile, fluctuating water table.

3. Consultation

Information from all relevant consultees is summarised in Table 3-1 below.

Source	Details	
Environment Agency (EA)	The Environment Agency Flood Map for Planning indicates the site is in Flood Zone 1: There is no flood zone associated with the ordinary watercourse section in the Whittle Brook adjacent to the northern boundary of the site which suggests the upstream section of the watercourse has not been modelled. However, the EA designated main river section which is c.60m northwest of the site is shown to be Flood Zone 2 and 3.	
	Records of Flooding	The site is shown to have not been impacted by any historic, recorded flood events.
	Records of Flood Warning Service	The site is shown not to be located within a Flood Warning or Alert Area.
	Surface Water Flooding	The EA Risk of Flooding from Surface Water Map indicates the site is predominantly at a very low (less than 0.1% chance of a flood each year) chance of surface water flooding during the present day and the 2050s climate change scenario. However, there are small, isolated areas of low to high chance surface water flooding in the southeastern and northern areas of the site. A linear route of low to high chance surface water flooding is shown along Whittle Brook to the north of the site.
	Flooding from reservoirs	A review of the EA Long Term Reservoir Flood map indicates the site is located within an area that is not shown to be impacted by flooding in the event of reservoir failure.
United Utilities (UU)	Sewer Records	Public sewer records, including cover and invert level information, obtained from UU (included as Appendix B) indicate the following sewers within the vicinity of the site. • A 150mm diameter public surface water sewer is shown to be located adjacent to the western boundary of the site flowing in a southerly direction. There is no level data available for this sewer; • A 150mm diameter public surface water sewer is located adjacent to the western boundary of the site, beneath Heywood Old Road, flowing in a northerly direction and discharges into a culverted watercourse that is presumed to be the culvert of the Whittle Brook. There is no level data available for this sewer; • A 150mm diameter culvert of the Whittle Brook is shown to be located c.20m west of the site that flows west and discharges into the open section of the Whittle Brook c.90m west of the site. There is no level data available for this culvert; • A 150mm diameter public surface water sewer is located beneath Heywood Old Road adjacent to the western boundary of the site, flowing in a southerly direction. There is no level data available for this sewer; • A 150mm diameter public surface water sewer is shown beneath Langley Lane c.40m north of the site. There is no level data available for this sewer; • A 375mm diameter public surface water sewer is shown to be located c.90m northeast of the site, flowing in a south westerly direction and discharges into the open section of the Whittle Brook adjacent to the northern boundary of the site. There is no level data available for this sewer; • A 225mm diameter surface water sewer is located beneath Wrigley Fold c.30m west of the site. The sewer is shown to flow in a northerly direction and subsequently discharges into the

Source	Details
	open section of the Whittle Brook adjacent to the northern boundary of the site. Node 45501 is shown to have a CL: 117.24m AOD an IL: 114.14m AOD with a depth of 3.1m; and, • A 150mm diameter foul sewer is shown to be located beneath Wrigley Fold c.32m west of the site which flows in a northerly direction. There is no level data available for this sewer.
Rochdale Borough's Strategy for Flood Risk Management 2014-2024 (FRMS) ⁶	The Flood Risk Management Strategy (FRMS) provides a summary of sources of flood risk in Rochdale. The FRMS indicates the Rochdale Borough area is susceptible to various extents of surface water and fluvial flooding due to urbanisation being primarily concentrated around waterbodies. The surface water flood information within the FRMS is not site specific therefore no evaluation of risk to the site can be made based on this report. The groundwater flood susceptibility mapping (Figure 6 within the SFRA) indicates that the site lies within a 1km grid square categorised as having a high susceptibility to groundwater flooding (greater than 75% likelihood). While this dataset is produced at a coarse 1km scale and does not provide site-specific detail, it indicates that groundwater emergence could occur within the wider area. The risk of groundwater flooding is considered further in Section 4.1.

Table 3-1: Summary consultee information.

4. Assessment of Flood Risk

4.1. Sources of Flooding

The risk of flooding from the following flood sources has been considered:

Fluvial Flooding

A review of the EA Flood Map for Planning indicates the site is located within Flood Zone 1. However, the northern boundary of the site is located adjacent to Whittle Brook which flows in a westerly direction before passing beneath Heywood Old Road. Areas of Flood Zone 2 and 3 are shown along Whittle Brook downstream of Heywood Old Road which corresponds to the Brook being classified as an EA Main River as it extends from beneath the road. The upstream section of Whittle Brook adjacent to the northern boundary of the site is classified as an Ordinary Watercourse and does not appear to have been subject to detailed hydraulic modelling.

In lieu of detailed modelling, the EA surface water flood extents have been used as proxy for potential fluvial flooding from Whittle Brook. The surface water flood extents (included as Figure 3) indicate areas of low to high chance surface water flooding along the route of Whittle Brook during both the present day and future climate change scenarios, however, the flood extents appear to be contained within the channel or immediately adjacent land. There are limited areas of potential ingress along the northern boundary of the site, however, the majority of the site remains free from flooding.

A review of 1m resolution LiDAR data indicates ground levels in the northern area of the site raised approximately 2-3m above Whittle Brook thus reducing the potential for water to ingress into the site.

The proposed SEN school building will be located within part of the site where ground levels range between approximately 110 – 112m AOD; therefore, the building will be sufficiently raised above any potential flooding from Whittle Brook. There will be no displacement of flooding as a result of the proposed development and thus no increase in downstream flood risk.

Based on the above, the overall risk of fluvial flooding is considered to be low.

Tidal Flooding

The study area is remote from the sea and tidally influenced water bodies. Therefore, the flood risk associated with this source is considered negligible.

Surface Water Flooding and Overland Flow Paths

The EA Risk of Flooding from Surface Water Map indicates the site is predominantly at a very low (less than 0.1% chance of a flood each year) chance of surface water flooding during the present day and the 2050s climate change scenario.

However, there are small areas of localised flooding in the southeast and northern areas of the site shown to be at a low to high chance of flooding during the present day and 2050s climate change scenario. A review of the corresponding depth mapping (Figure 4) indicates the northern and southwestern ponding areas to be impacted up to 0.3m during all scenarios.

The Langley Brook, to the south of the site is shown to be low to high chance of surface water flooding during the present day and climate change scenario. The corresponding depth mapping for this flood risk indicates the area is at low to moderate chance of flooding up to 0.2m during the present day and low to high chance up to 0.2m during the climate change scenario with similar extents. Nonetheless the flooding appears to remain largely within channel with no impact to the site.

A Surface Water Drainage Strategy has been prepared by Harley Haddow Ltd for the proposed development. The strategy (included as Appendix C) proposes to restrict surface water runoff from the developed site to a maximum discharge rate of 9.6l/s. Surface water attenuation will be provided on-site through a range of SuDS features, including permeable paving, swales, below-ground geocellular

attenuation tanks and a detention basin, before discharging to Whittle Brook via a controlled outfall. By attenuating and restricting runoff, the proposed drainage strategy will ensure that the development does not increase downstream surface water flood risk.

Based on the above, the overall risk of surface water flooding is considered to be low.

Groundwater Flooding

The risk of groundwater flooding to the site has been assessed using the information presented in Section 2.5. The Site Investigation (SI) indicates that groundwater levels vary between approximately 1.0m and 5.5m bgl. The LKC SI did not identify any evidence of groundwater flooding within the vicinity of the proposed building footprint; however, previous third-party investigations recorded fluctuating groundwater levels across the area of the proposed building. LKC concluded that the locally and seasonally variable groundwater levels are indicative of a high and fluctuating water table.

Rochdale Borough's Strategy for Flood Risk Management includes Groundwater Flood Susceptibility Mapping (Figure 6), which identifies the site area as being at high risk of groundwater flooding. It is noted, however, that this mapping is based on relatively coarse data, and a significant number of exploratory holes undertaken during the Site Investigation recorded no groundwater.

Furthermore, the proposed building footprint and surrounding areas are to be constructed with impermeable finish, which would likely limit the potential for groundwater emergence at the surface.

On balance, the risk of groundwater flooding at surface level is considered to be low.

Sewer Flooding

The locations of public and private sewers within the vicinity of the site are described in Table 3-1.

United Utilities public sewer records indicate the presence of surface water sewers adjacent to the western boundary of the site and foul and surface water sewers located to the east of the site. In the event of surcharging of the surface water sewers to the west, there may be potential for limited ingress into the site. However, the presence of houses and other topographic features to the east of the site would likely preclude the ingress of foul or surface water flooding encroaching into the site in the event of sewer flooding.

In the event of surcharging of sewers within Heywood Old Road, it is anticipated that water would be contained within the road network given ground levels slope up into the site from the road.

Based on the above, the overall risk of sewer flooding is considered to be low.

Flooding from Artificial Sources

According to the EA's Long Term Flood Risk website, the site is shown to be located within an area that is not at risk of flooding in the event of reservoir failure. In addition, there are no canals or other artificial waterbodies within the vicinity of the site. Based on the above the overall risk of flooding from artificial sources is considered to be low.

4.2. Summary of Flood Risk

A summary of the risk of flooding from all sources is provided in Table 4-1

Source of Flooding	Risk Assessment Level
Fluvial	Low
Tidal	Negligible
Surface Water	Low
Groundwater	Low
Sewers	Low
Artificial Sources	Low

Table 4-1: Summary of Existing Risk Level.

5. Mitigation Measures

5.1. Proposed Site Levels and Development Level

The proposed development involves the construction of a new SEN school with access, landscaping and parking provisions.

The site is considered to be at a negligible to low risk of flooding from all sources and no flood risk mitigation is considered to be required. Notwithstanding, it is recommended that finished floor levels of the proposed school are raised a minimum of 0.15m above external ground levels to further reduce the potential for the ingress of water. Where level access is required, external ground levels should be graded to slope away from building entrances. Alternatively, cut off drains could be installed at building entrances.

5.2. Safe Access and Egress

Access to the site is provided via Heywood Old Road to the west. A review of the EA Flood Map for Planning and surface water flood mapping indicates that Heywood Old Road is predominantly located within Flood Zone 1 with a very low chance of surface water flooding to the south of the site.

5.3. Flood Resistance and Resilience

The development proposed may be subject to groundwater entering excavations for foundations and services due to the potentially shallow water table. Dewatering may be required for excavations and means of limiting flows in service trench bedding be incorporated.

The proposed development will comprise the installation of a retaining wall along the northern edge of the proposed access road. Consideration must be given to the depth of the water table below the retaining wall and to structural loads imposed from traffic using the road. Suitable drainage should be incorporated behind the retaining wall with seep holes installed to allow drainage and prevent the build-up of pore water pressure acting against the wall.

6. Conclusions

This FRA has been prepared to support the planning application for the proposed construction of a SEN school with associated access, parking and landscaping.

The site is considered to be at a negligible to low risk of flooding from all sources and no flood risk mitigation is considered to be required. Notwithstanding, it is recommended that finished floor levels of the proposed school are raised a minimum of 0.15m above external ground levels to further reduce the potential for the ingress of water. Safe access and egress to the site is available to the south via Heywood Old Road.

The Surface Water Drainage Strategy prepared by Harley Haddow Ltd demonstrates how the surface water runoff will be attenuated on site through a combination of Sustainable Drainage Systems (SuDS), including permeable paving, swales, below-ground geocellular attenuation tanks and a detention basin, prior to discharge to Whittle Brook. The drainage system has been designed to restrict runoff to a rate of 9.6l/s with runoff discharging into Whittle Brook. There will be no increase in downstream flood risk as a result of the proposed development.

Overall, it has been demonstrated that the site will be safe from flooding and will not result in an increase in flood risk elsewhere.

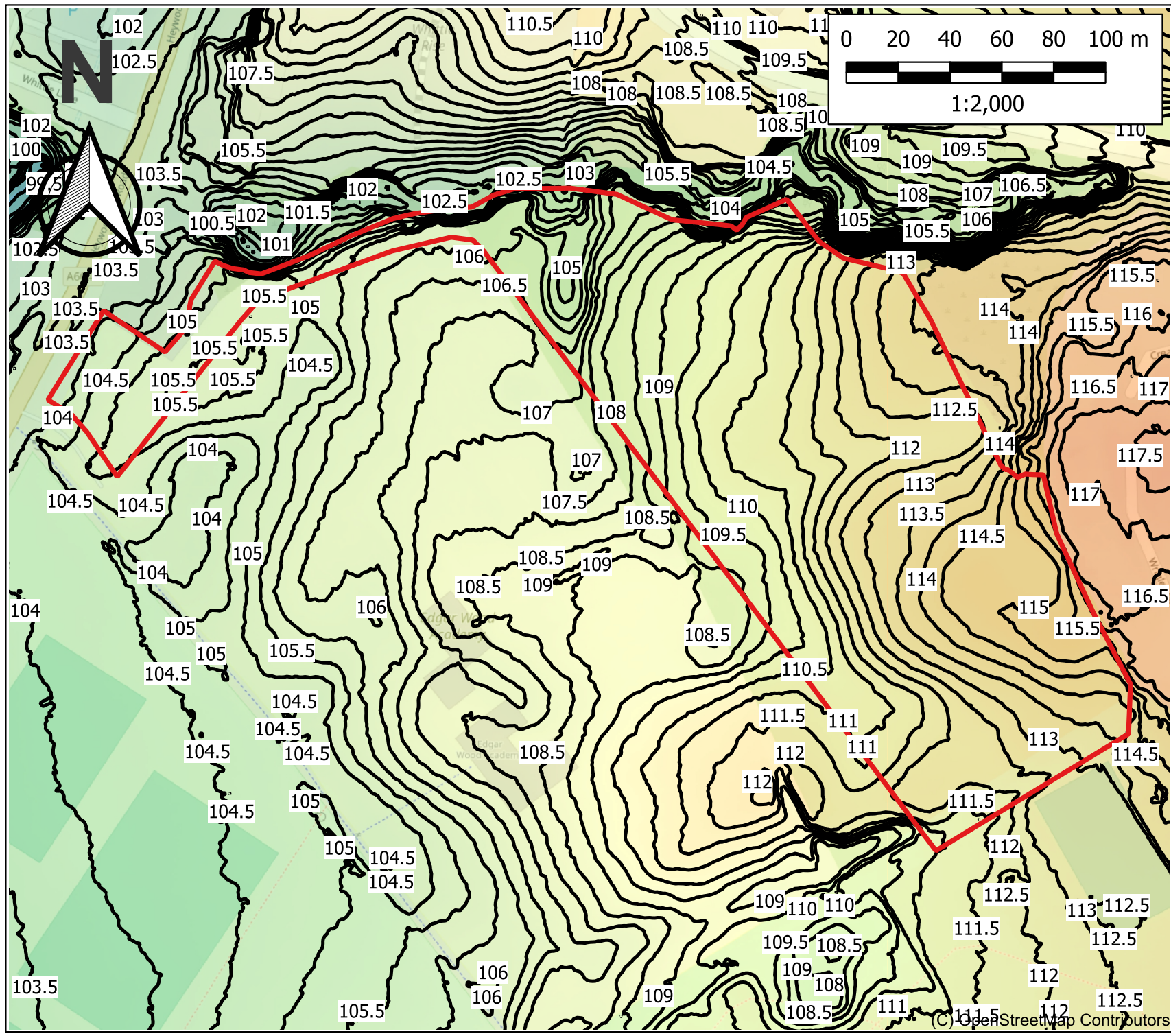
Figures

Figure 1 – Site Location and Boundary Plan



Client: Rochdale Borough Council				Title: Site Location & Boundary Plan		 LK CONSULT	
Site: Redwood SEN, Middleton				Scale (see scale bar): 1:20,000 & 1:3000 @ A4			
Drawing No.: FRA261090	Drawn By: AY	Checked By: DP	Drawn: June 2026	Figure: 1	Revision:		

Figure 2 – LiDAR Elevation Data



KEY

- Site Boundary
- Contours
- LiDAR DTM 1m
Level (m AOD)
 123.00
 96.50

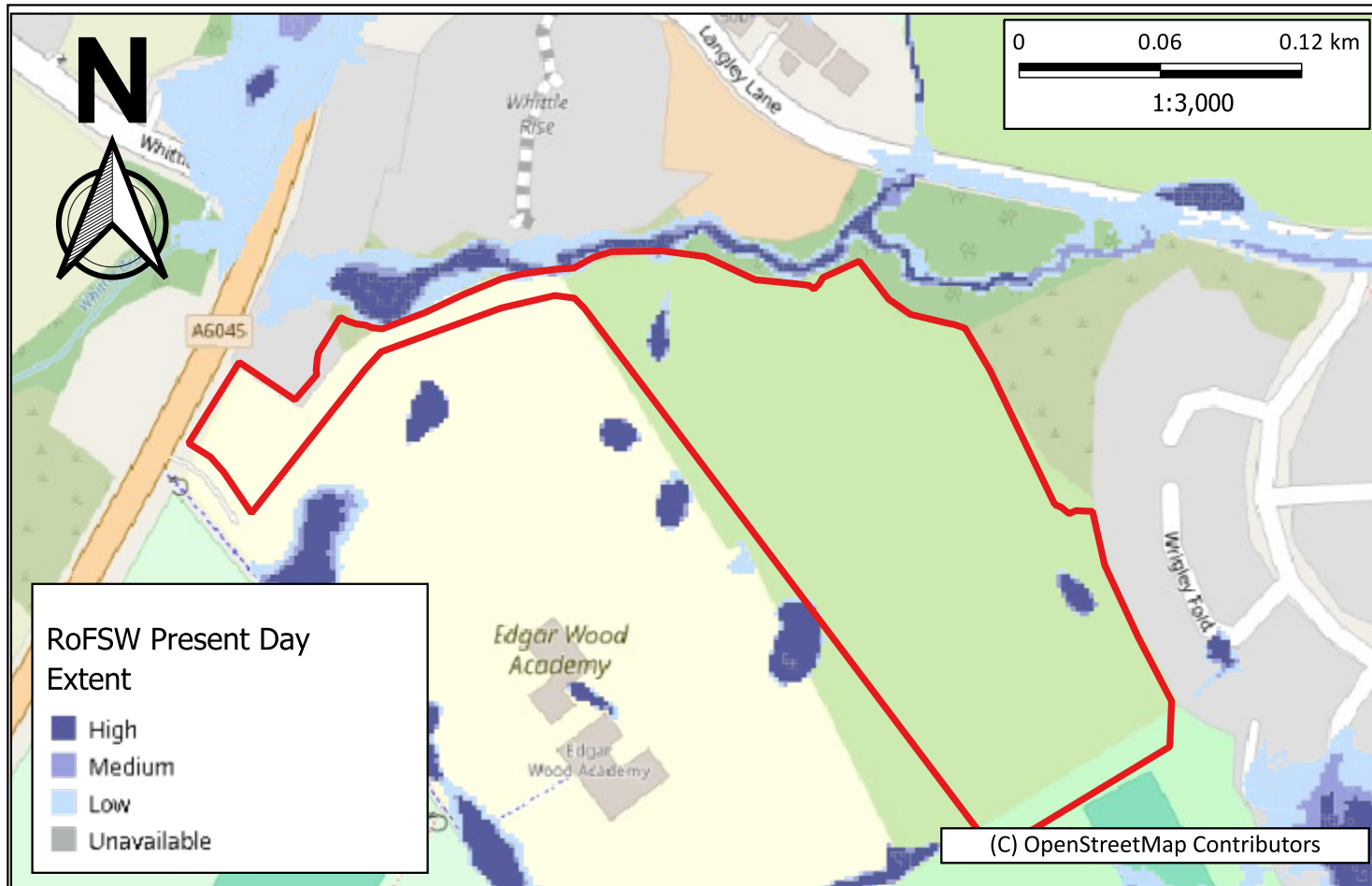
LiDAR data has been extracted from published the DEFRA Data Services. It should be noted that LiDAR data has a typically +/- 150mm error margin. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



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Client: Rochdale Borough Council			
Site: Redwood SEN, Middleton			
Title: LiDAR Elevation Data			
Job No.: FRA261090	Scale (see scale bar): 1:2000 @ A4	Figure: 2	Rev:
Drawn By: AY	Checked By: DP	Date: July 2026	

Figure 3 – Surface Water Flood Extents



Client: Rochdale Borough Council				Title: EA Risk of Flooding from Surface Water Extent			 LK CONSULT	
Site: Redwood SEN, Middleton				Scale (see scale bar): 1:20,000 & 1:3000 @ A4				
Drawing No.: FRA261090		Drawn By: AY	Checked By: DP	Figure: 3		Revision:		
Drawn: June 2026								

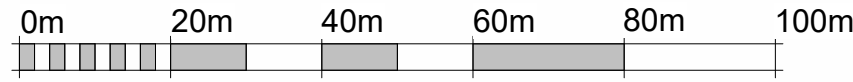
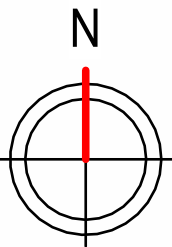
Figure 4 – Surface Water Flood Extent - 0.2m Depth Band



Client: Rochdale Borough Council				Title: EA Risk of Flooding from Surface Water Extent - 0.2m Depth Band		 LK CONSULT	
Site: Redwood SEN, Middleton				Scale (see scale bar): 1:20,000 & 1:3000 @ A4			
Drawn By: AY				Figure: 4			
Drawing No.: FRA261090		Checked By: DP		Drawn: June 2026		Revision:	

Appendices

Appendix A – Site Information



VISUAL SCALE 1:1000 @ A1

SITE LAYOUT
1:1000

NOTES:

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Do not scale from this drawing.

All dimensions are to be checked on site prior to construction, manufacture of any components and ordering of materials and equipment.

Any discrepancies are to be reported to the architect for clarification.

All materials and workmanship to be in accordance with the current British Standards and codes of practice.

This drawing is to be read in conjunction with all relevant Architectural, Structural Engineers, Mechanical Engineers, Electrical Engineers and Specialists drawings and specifications.

As with all construction projects the CDM 2015 regulations apply and the work on this project may require both the issue of a notification to the HSE (because of the duration of the works on site) and the client may also need to appoint a Principal Designer because there may be more than one contractor working on site.

The Principal Designer will be able to coordinate the pre-construction information and also ensure that all duty holders under CDM comply with their relevant duties.

The building owner is to serve a Party Wall Act Notice as applicable to adjoining property owners as outlined in The Party Wall Act 1996. The Building Contractor is to verify the thickness of the party walls prior to commencement of the proposed works.

DRAWING STATUS:			
Rev	Description	Check	Date
H	Increased classroom sizes		08.07.26
J	Revised floor plan to allow for larger classroom sizes		12.07.26

CLIENT:
Redwood SEN Hub

PROJECT:
Rochdale Borough Council

DRAWING:
Site Layout - Consultation

SCALE @ A1: 1 : 1000	DATE: 05/07/2024	DRAWN: KS	CHECKED: RS
DRAWING NO: ED0064-22	CAD REFERENCE NO:	REVISION: J	



1 Right
1 : 100



NOTES:

This drawing is the property of Equilibrium Architects and copyright is reserved by them. This drawing is not to be copied or disclosed by or to any unauthorised persons without the prior written consent of Equilibrium Architects.

Do not scale from this drawing.

All dimensions are to be checked on site prior to construction, manufacture of any components and ordering of materials and equipment.

Any discrepancies are to be reported to the architect for clarification.

All materials and workmanship to be in accordance with the current British Standards and codes of practice.

This drawing is to be read in conjunction with all relevant Architectural, Structural Engineers, Mechanical Engineers, Electrical Engineers and Specialists drawings and specifications.

As with all construction projects the CDM 2015 regulations apply and the work on this project may require both the issue of a notification to the HSE (because of the duration of the works on site) and the client may also need to appoint a Principal Designer because there may be more than one contractor working on site.

The Principal Designer will be able to coordinate the pre-construction information and also ensure that all duty holders under CDM comply with their relevant duties.

The building owner is to serve a Party Wall Act Notice as applicable to adjoining property owners as outlined in The Party Wall Act 1996. The Building Contractor is to verify the thickness of the party walls prior to commencement of the proposed works.

2 Rear
1 : 100



3 Front
1 : 100



4 Left
1 : 100



DRAWING STATUS:

Rev	Description	Check	Date
C	Floor plan amendments to allow for increased classroom spaces		12.07.26

CLIENT:

Rochdale Borough Council

PROJECT:

Redwood SEND

DRAWING:

Proposed Elevations

SCALE 1/41: 1 : 100	DATE: 01/14/26	DRAWN: KG	CHECKED: RS
DRAWING NO: ED0064-32	CAD REFERENCE NO:	REVISION: C	



Appendix B – United Utilities Public Sewer Records

LKGroup**Unit 29
Eton Hill Road,
Radcliffe,
m26 2zs****FAO:****How to contact us:****United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP****Telephone: 0370 7510101****E-mail: propertysearches@uuplc.co.uk****Your Ref: FRA261090
Our Ref: UUPS-ORD-737828
Date: 19/06/2026****Dear Sirs****Location: FRA261090 - Heywood**

I acknowledge with thanks your request dated 18/06/2026 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.



The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

Crown copyright and database rights 2025 Ordnance Survey 0000813445. Unauthorised reproduction will infringe these copyrights.

Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
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Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
------	-------	------	--------	--------	--------	-------	------	--------	------

LEGEND

Abandoned	Foul	Surface Water	Combined	Public Sewer
Private Sewer	Section 104	Rising Main	Sludge Main	Overflow
Water Course	Highway Drain			

All point assets follow the standard colour convention:
red - combined
blue - surface water
brown - foul
purple - overflow

Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock Chamber
Soakaway	Network Storage Tank
Gully	Sewer Overflow
Cascade	Ww Treatment Works
Flow Meter	Ww Pumping Station
Hatch Box	Septic Tank
Oil Interceptor	Control Kiosk
Summit	DNM Network Monitoring Point
Drop Shaft	Change of Characteristic
Orifice Plate	

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

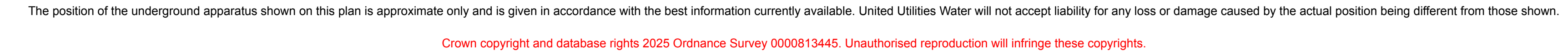
AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforced Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

FRA261090 - Heywood,

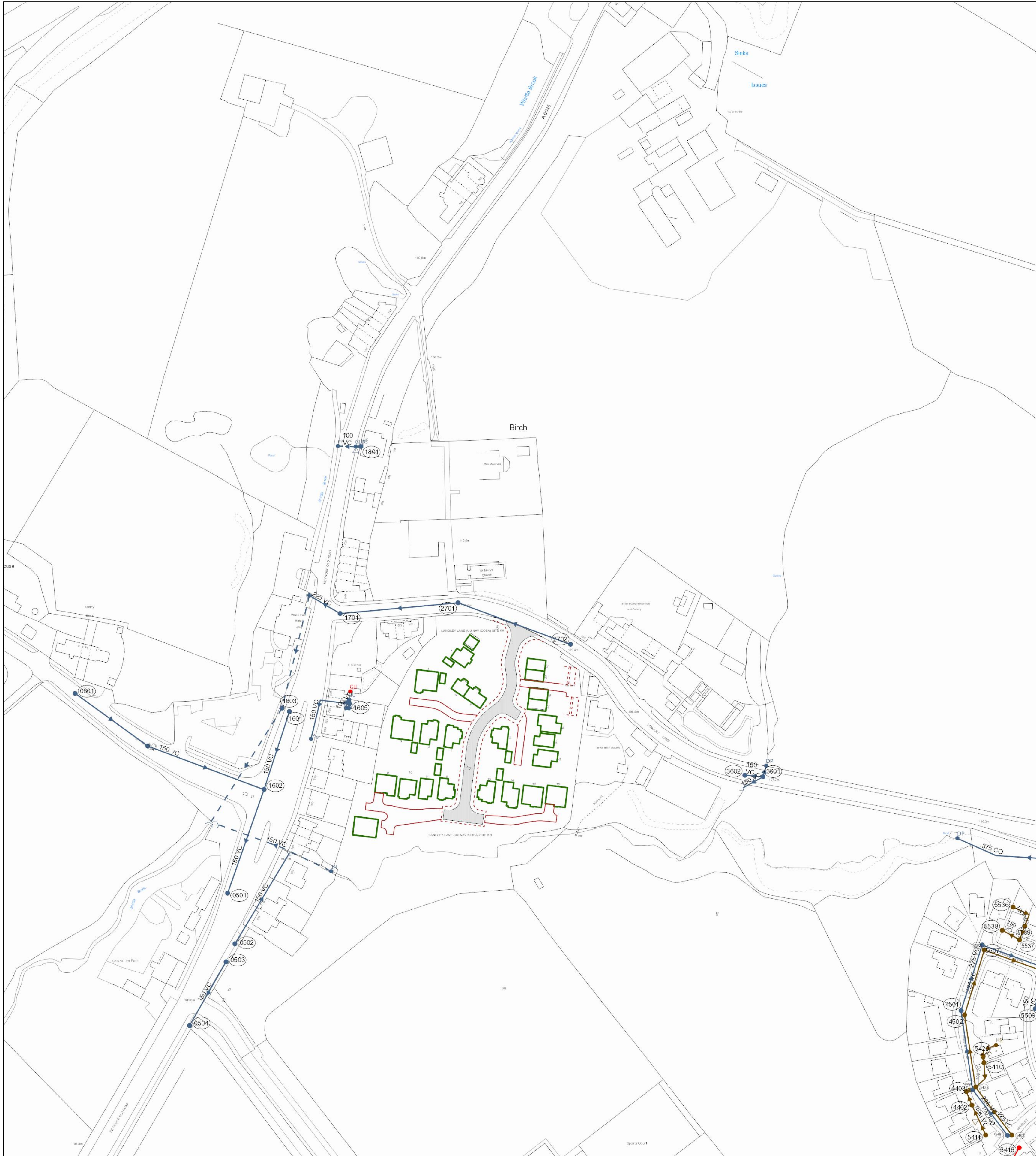
OS sheet Number: SD8407SE
Scale: 1:1250 Date: 19/06/2026
Nodes: 0
Sheet: 1 of 6

Printed by: Property Searches



Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
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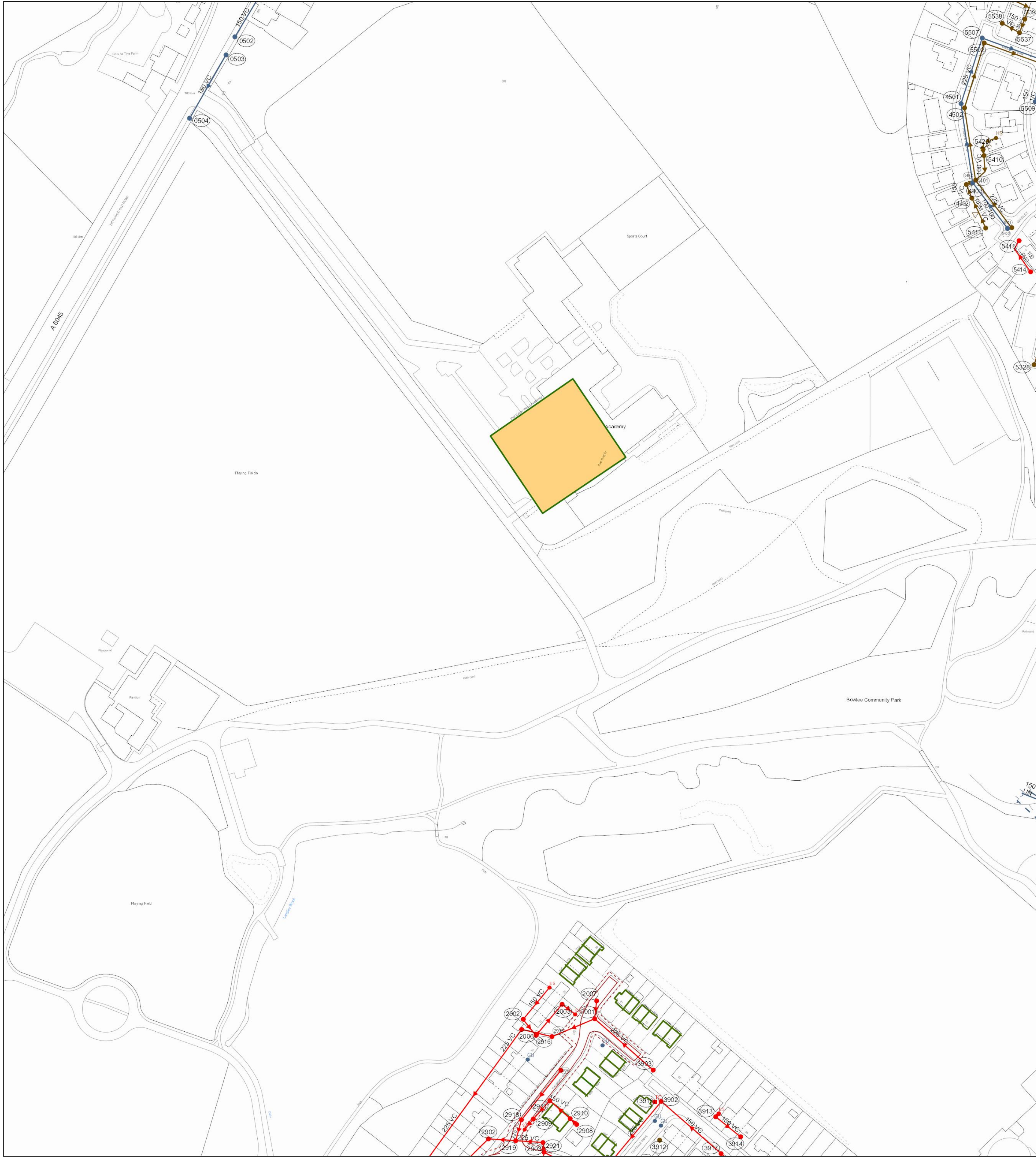


The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad	
3601	SW	0	150	10.04088	VC	10.04088	VC	16.6205		
5536	FO	100	100	100	VC	16.6205	VC	16.6205		
4502	117.25	FO	113.71	225	VC	37.43512	VC	37.43512	1 in 156	
4502	117.25	FO	113.71	225	VC	37.43512	VC	37.43512	1 in 156	
4502	117.25	FO	113.71	225	VC	37.43512	VC	37.43512	1 in 156	
5509	117.16	SW	115.87	150	VC	23.41785	VC	23.41785	1 in 10	
5509	117.16	SW	115.87	150	VC	23.41785	VC	23.41785	1 in 10	
5509	117.16	SW	115.87	150	VC	23.41785	VC	23.41785	1 in 10	
2701	SW	0	225	VC	65.27634	VC	65.27634			
1601	SW	0	150	VC	45.22158	VC	45.22158			
1701	SW	0	225	VC	19.72338	VC	19.72338			
3601	SW	0	150	VC	6.576668	VC	6.576668			
4403	FO	150	150	VC	5.606949	VC	5.606949			
4403	FO	150	150	VC	5.606949	VC	5.606949			
4403	FO	150	150	VC	5.606949	VC	5.606949			
5411	FO	100	100	VC	9.31902	VC	9.31902			
5411	FO	100	100	VC	9.31902	VC	9.31902			
5411	FO	100	100	VC	9.31902	VC	9.31902			
5401	116.11	SW	114.71	225	VC	31.87244	VC	31.87244	1 in 133	
5401	116.11	SW	114.71	225	VC	31.87244	VC	31.87244	1 in 133	
5401	116.11	SW	114.71	225	VC	31.87244	VC	31.87244	1 in 133	
5414	CO	100	100	PVC	20.51587	PVC	20.51587			
5414	CO	100	100	PVC	20.51587	PVC	20.51587			
1602	SW	0	150	VC	60.40955	VC	60.40955			
5502	116.17	FO	113.47	225	VC	35.29757	VC	35.29757	1 in 110	
5502	116.17	FO	113.47	225	VC	35.29757	VC	35.29757	1 in 110	
5502	116.17	FO	113.47	225	VC	35.29757	VC	35.29757	1 in 110	
5502	116.17	FO	113.47	225	VC	35.29757	VC	35.29757	1 in 110	
5539	FO	100	100	VC	8.095308	VC	8.095308			
5539	FO	100	100	VC	8.095308	VC	8.095308			
5539	FO	100	100	VC	8.095308	VC	8.095308			
5539	FO	100	100	VC	8.095308	VC	8.095308			
0503	SW	0	150	VC	40.31129	VC	40.31129			
0503	SW	0	150	VC	40.31129	VC	40.31129			
5537	FO	150	150	VC	10.83638	VC	10.83638			
5537	FO	150	150	VC	10.83638	VC	10.83638			
5537	FO	150	150	VC	10.83638	VC	10.83638			
4402	FO	150	150	VC	8.043816	VC	8.043816			
4402	FO	150	150	VC	8.043816	VC	8.043816			
4402	FO	150	150	VC	8.043816	VC	8.043816			
4402	FO	150	150	VC	8.043816	VC	8.043816			
4501	117.24	SW	114.14	225	VC	38.01358	VC	38.01358	1 in 136	
4501	117.24	SW	114.14	225	VC	38.01358	VC	38.01358	1 in 136	
4501	117.24	SW	114.14	225	VC	38.01358	VC	38.01358	1 in 136	
4501	117.24	SW	114.14	225	VC	38.01358	VC	38.01358	1 in 136	
2702	SW	0	225	VC	66.12866	VC	66.12866			
5403	116.07	FO	114.22	225	VC	33.00556	VC	33.00556	1 in 165	
5403	116.07	FO	114.22	225	VC	33.00556	VC	33.00556	1 in 165	
5403	116.07	FO	114.22	225	VC	33.00556	VC	33.00556	1 in 165	
5403	116.07	FO	114.22	225	VC	33.00556	VC	33.00556	1 in 165	
5507	116.11	SW	113.86	225	VC	35.26199	VC	35.26199	1 in 98	
5507	116.11	SW	113.86	225	VC	35.26199	VC	35.26199	1 in 98	
5507	116.11	SW	113.86	225	VC	35.26199	VC	35.26199	1 in 98	
5507	116.11	SW	113.86	225	VC	35.26199	VC	35.26199	1 in 98	
0501	SW	0	150	VC	49.40548	VC	49.40548			
0501	SW	0	150	VC	49.40548	VC	49.40548			
0503	SW	0	150	VC	68.35203	VC	68.35203			
3601	SW	0	150	VC	12.20996	VC	12.20996			
1605	SW	150	150	VC	37.86257	VC	37.86257			
1603	SW	0	225	VC	75.47185	VC	75.47185			
0502	SW	0	150	VC	58.30552	VC	58.30552			
0502	SW	0	150	VC	58.30552	VC	58.30552			
4401	116.77	SW	114.47	225	VC	44.03408	VC	44.03408	1 in 133	
4401	116.77	SW	114.47	225	VC	44.03408	VC	44.03408	1 in 133	
4401	116.77	SW	114.47	225	VC	44.03408	VC	44.03408	1 in 133	
4401	116.77	SW	114.47	225	VC	44.03408	VC	44.03408	1 in 133	
5511	112.64	SW	111.18	375	CO	82.7468	CO	82.7468		
5402	116.8	FO	114.02	225	VC	40.21687	VC	40.21687	1 in 130	
5402	116.8	FO	114.02	225	VC	40.21687	VC	40.21687	1 in 130	
5402	116.8	FO	114.02	225	VC	40.21687	VC	40.21687	1 in 130	
5402	116.8	FO	114.02	225	VC	40.21687	VC	40.21687	1 in 130	
5410	FO	100	100	VC	15.90215	VC	15.90215			
5410	FO	100	100	VC	15.90215	VC	15.90215			
5410	FO	100	100	VC	15.90215	VC	15.90215			

Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
3601	SW	0	150	10.04088	VC	10.04088	VC	16.6205	
5536	FO	100	100	100	VC	16.6205	VC	16.6205	
4502	117.25	FO	113.71	225	VC	37.43512	VC	37.43512	1 in 156
4502	117.25	FO	113.71	225	VC	37.43512	VC	37.43512	1 in 156
4502	117.25	FO	113.71	225	VC	37.43512	VC	37.43512	1 in 156
5509	117.16	SW	115.87	150	VC	23.41785	VC	23.41785	1 in 10
5509	117.16	SW	115.87	150	VC	23.41785	VC	23.41785	1 in 10
5509	117.16	SW	115.87	150	VC	23.41785	VC	23.41785	1 in 10
2701	SW	0	225	VC	65.27634	VC	65.27634		
1601	SW	0	150	VC	45.22158	VC	45.22158		
1701	SW	0	225	VC	19.72338	VC	19.72338		
3601	SW	0	150	VC	6.576668	VC	6.576668		
4403	FO	150	150	VC	5.606949	VC	5.606949		
4403	FO	150	150	VC	5.606949	VC	5.606949		
4403	FO	150	150	VC	5.606949	VC	5.606949		
5411	FO	100	100	VC	9.31902	VC	9.31902		
5411	FO	100	100	VC	9.31902	VC	9.31902		
5411	FO	100	100	VC	9.31902	VC	9.31902		
5401	116.11	SW	114.71	225	VC	31.87244	VC	31.87244	1 in 133
5401	116.11	SW	114.71	225	VC	31.87244	VC	31.87244	1 in 133
5401	116.11	SW	114.71	225	VC	31.87244	VC	31.87244	1 in 133
5401	116.11	SW	114.71	225	VC	31.87244	VC	31.87244	1 in 133
5414	CO	100	100	PVC	20.51587	PVC	20.51587		
5414	CO	100	100	PVC	20.51587	PVC	20.51587		
1602	SW	0	150	VC	60.40955	VC	60.40955		
5502	116.17	FO	113.47	225	VC	35.29757	VC	35.29757	1 in 110
5502	116.17	FO	113.47	225	VC	35.29757	VC	35.29757	1 in 110
5502	116.17	FO	113.47	225	VC	35.29757	VC	35.29757	1 in 110
5502	116.17	FO	113.47	225	VC	35.29757	VC	35.29757	1 in 110
5539	FO	100	100	VC	8.095308	VC	8.095308		
5539	FO	100	100	VC	8.095308	VC	8.095308		
5539	FO	100	100	VC	8.095308	VC	8.095308		
5539	FO	100	100	VC	8.095308	VC	8.095308		
0503	SW	0	150	VC	40.31129	VC	40.31129		
0503	SW	0	150	VC	40.31129	VC	40.31129		
0503	SW	0	150	VC	68.35203	VC	68.35203		
3601	SW	0	150	VC	12.20996	VC	12.20996		
1605	SW	150	150	VC	37.86257	VC	37.86257		
1603	SW	0	225	VC	75.47185	VC	75.47185		



Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
5328	FO	100					VC	18.83181	
5328	FO	100					VC	18.83181	
2911	CO	150					VC	13.73192	
4502	FO	113.71	225				VC	37.43512	1 in 156
4502	FO	113.71	225				VC	37.43512	1 in 156
4502	FO	113.71	225				VC	37.43512	1 in 156
4502	FO	113.71	225				VC	37.43512	1 in 156
3903	CO	0	225				VC	42.05439	0
3913	CO	150					VC	17.56256	
5401	SW	114.71	225				VC	31.87244	1 in 133
5401	SW	114.71	225				VC	31.87244	1 in 133
5401	SW	114.71	225				VC	31.87244	1 in 133
5401	SW	114.71	225				VC	31.87244	1 in 133
5539	FO	100					VC	8.095308	
5539	FO	100					VC	8.095308	
5539	FO	100					VC	8.095308	
5539	FO	100					VC	8.095308	
2921	CO	108.36	225				VC	5.419899	1 in 54
0503	SW	0	150				VC	40.31129	
0503	SW	0	150				VC	40.31129	
4402	FO	150					VC	8.043816	
4402	FO	150					VC	8.043816	
4402	FO	150					VC	8.043816	
4402	FO	150					VC	8.043816	
4501	SW	114.14	225				VC	38.01358	1 in 136
4501	SW	114.14	225				VC	38.01358	1 in 136
4501	SW	114.14	225				VC	38.01358	1 in 136
4501	SW	114.14	225				VC	38.01358	1 in 136
5507	SW	113.86	225				VC	35.26199	1 in 98
5507	SW	113.86	225				VC	35.26199	1 in 98
5507	SW	113.86	225				VC	35.26199	1 in 98
5507	SW	113.86	225				VC	35.26199	1 in 98
2007	SW	113.86	225				VC	9.965255	1 in 98
5536	FO	107.13	225				VC	16.6205	1 in 10
5536	FO	100					VC	16.6205	
2905	CO	225					VC	17.20861	
2901	CO	225					VC	25.49543	
2903	CO	105.92	225				VC	15.11956	1 in 23
2904	CO	105.9	225				VC	35.02387	1 in 164
5509	SW	115.87	150				VC	23.41785	1 in 10
5509	SW	115.87	150				VC	23.41785	1 in 10
5509	SW	115.87	150				VC	23.41785	1 in 10
5509	SW	115.87	150				VC	23.41785	1 in 10
2910	CO	150					VC	15.08219	
4403	FO	150					VC	5.606949	
4403	FO	150					VC	5.606949	
4403	FO	150					VC	5.606949	
4403	FO	150					VC	5.606949	
5411	FO	100					VC	9.31902	
5411	FO	100					VC	9.31902	
5411	FO	100					VC	9.31902	
5411	FO	100					VC	9.31902	
2908	CO	150					VC	4.808991	
5414	CO	100					PVC	20.51587	
5414	CO	100					PVC	20.51587	
5502	FO	113.47	225				VC	35.29757	1 in 110
5502	FO	113.47	225				VC	35.29757	1 in 110
5502	FO	113.47	225				VC	35.29757	1 in 110
5502	FO	113.47	225				VC	35.29757	1 in 110
5537	FO	150					VC	10.83638	
5537	FO	150					VC	10.83638	
5537	FO	150					VC	10.83638	
5537	FO	150					VC	10.83638	
2902	CO	104.9	225				VC	38.94193	1 in 31
2918	CO	106.01	225				VC	11.80796	
2006	CO	0	225				VC	88.61865	
5403	FO	114.22	225				VC	33.00556	1 in 165
5403	FO	114.22	225				VC	33.00556	1 in 165
5403	FO	114.22	225				VC	33.00556	1 in 165
5403	FO	114.22	225				VC	33.00556	1 in 165
5403	FO	114.22	225				VC	33.00556	1 in 165
2002	CO	150					VC	11.38454	
2909	CO	150					VC	7.317005	
5418	FO	100					VC	36.73372	
2916	CO	0	150				VC	22.36534	
2903	CO	225					VC	15.07962	
2003	CO	150					VC	9.189781	
0502	SW	0	150				VC	58.30952	
0502	SW	0	150				VC	58.30952	
4401	SW	114.47	225				VC	44.03408	1 in 133
4401	SW	114.47	225				VC	44.03408	1 in 133
4401	SW	114.47	225				VC	44.03408	1 in 133
4401	SW	114.47	225				VC	44.03408	1 in 133
3917	CO	0	225				VC	43.78971	
3902	CO	0	225				VC	50.94853	
5402	FO	114.02	225				VC	40.21687	1 in 130
5402	FO	114.02	225				VC	40.21687	1 in 130
5402	FO	114.02	225				VC	40.21687	1 in 130
5402	FO	114.02	225				VC	40.21687	1 in 130
5410	FO	100					VC	15.90215	
5410	FO	100					VC	15.90215	
5410	FO	100					VC	15.90215	
5410	FO	100					VC	15.90215	

LEGEND

Abandoned

Foul

Surface Water

Combined

Public Sewer

Section 104

Rising Main

Sludge Main

Overflow

Water Course

Highway Drain

All point assets follow the standard colour convention:

red - combined

blue - surface water

brown - foul

purple - overflow

Manhole

Head of System

Extent of Survey

Rodding Eye

Inlet

Discharge Point

Vortex

Penstock

Washout Chamber

Valve

Air Valve

Non Return Valve

Soakaway

Gully

Cascade

Flow Meter

Hatch Box

Oil Interceptor

Summit

Drop Shaft

Orifice Plate

Side Entry Manhole

Outfall

Screen Chamber

Inspection Chamber

Bifurcation Chamber

Lamp Hole

T Junction / Saddle

Catchpit

Valve Chamber

Vent Column

Vortex Chamber

Penstock Chamber

Network Storage Tank

Sewer Overflow

Ww Treatment Works

Ww Pumping Station

Septic Tank

Control Kiosk

DNM Network Monitoring Point

Change of Characteristic

MANHOLE FUNCTION

FO Foul

SW Surface Water

CO Combined

OV Overflow

SEWER SHAPE

CI Circular

EG Egg

OV Oval

FT Flat Top

RE Rectangular

SQ Square

TR Trapezoidal

AR Arch

BA Barrel

HO HorseShoe

UN Unspecified

SEWER MATERIAL

AC Asbestos Cement

BR Brick

PE Polyethylene

RP Reinforced Plastic Matrix

CO Concrete

CSB Concrete Segment Bolted

CSU Concrete Segment Unbolted

CC Concrete Box Culvert

PSC Plastic / Steel Composite

GRC Glass Reinforced Plastic

DI Ductile Iron

PVC Polyvinyl Chloride

CI Cast Iron

SI Spun Iron

ST Steel

VC Vitrified Clay

PP Polypropylene

PF Pitch Fibre

MAC Masonry, Coursed

MAR Masonry, Random

U Unspecified

Address or Site Reference:

FRA261090 - Heywood,

OS sheet Number: SD8507SW

Scale: 1:1250

Date: 19/06/2026

Nodes: 92

Sheet: 4 of 6

Printed by: Property Searches

SEWER RECORDS

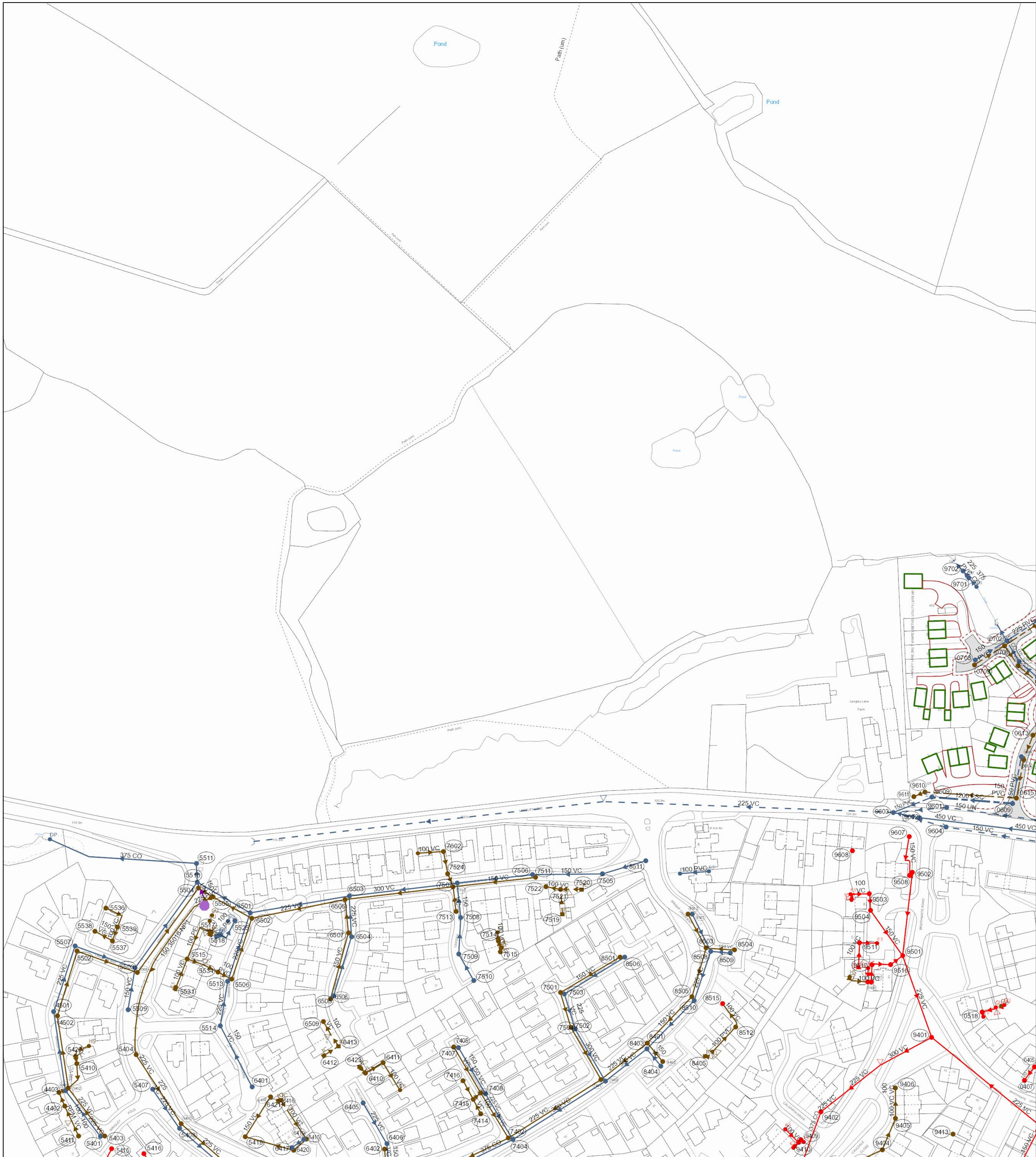


United Utilities

Water for the North West

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

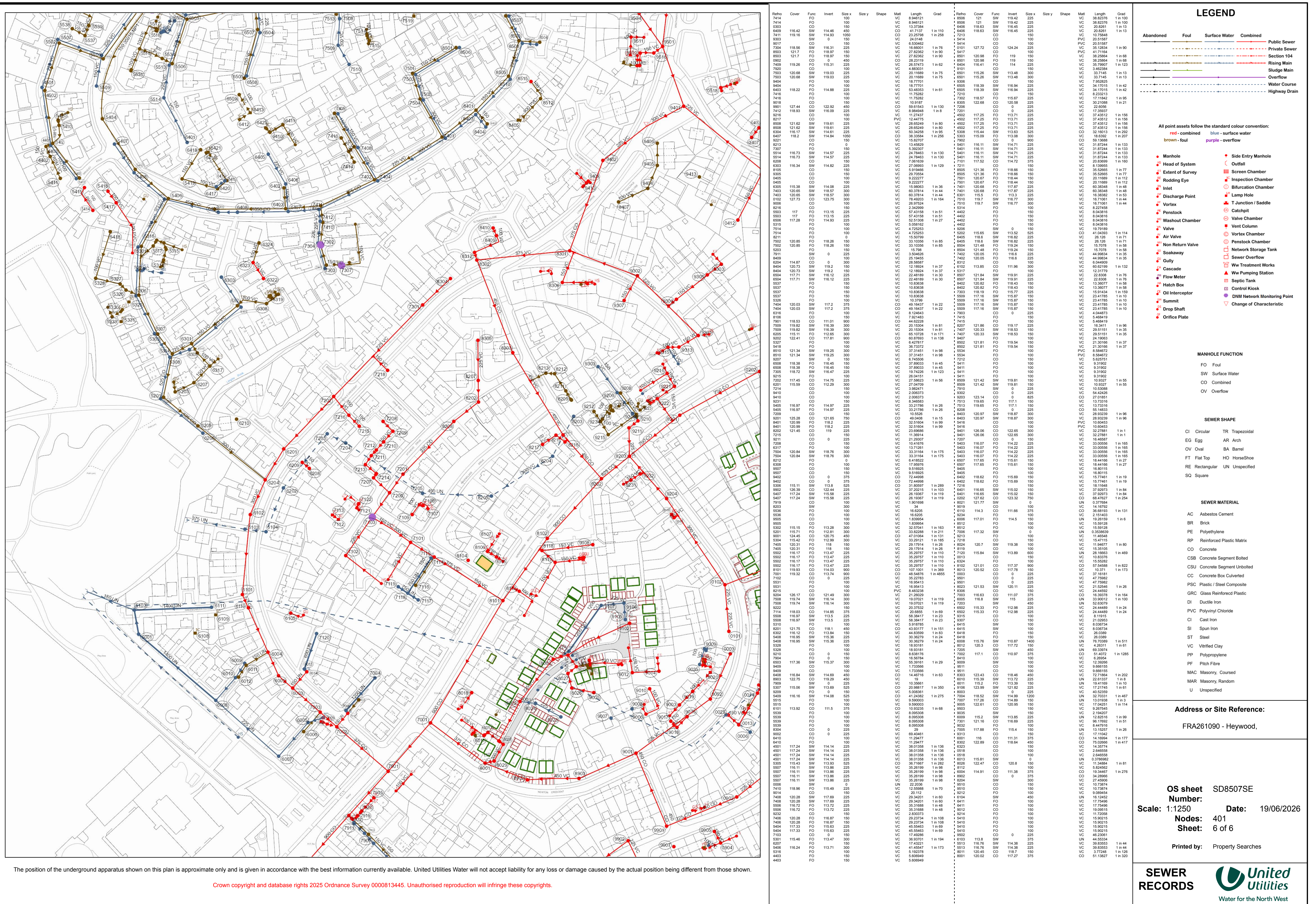
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The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad	Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad	
7414	FO		100	VC	8.946121		VC	8.946121	150	8607	CO		150	VC	23.63213		VC	17.75498	1 in 148	
7414	FO		100	VC	8.946121		VC	8.946121	150	6411	FO		100	VC	17.75498		VC	17.75498		
7506	120.8	SW	119.21	150	VC	41.78486	1 in 13	VC	41.78486	6411	FO		100	VC	17.75498		VC	17.75498		
5408	116.95	SW	115.36	225	VC	30.36279	1 in 24	VC	30.36279	1078	129.87	FO	127.55	100	VC	13.30986		VC	13.30986	
6503	117.26	SW	115.37	300	VC	30.36279	1 in 24	VC	30.36279	5410	FO		100	VC	15.90215		VC	15.90215		
9409	CO		100	VC	1.733566		VC	1.733566	5410	FO		100	VC	15.90215		VC	15.90215			
8503	121.7	FO	118.97	150	VC	27.82362	1 in 90	VC	27.82362	5410	FO		100	VC	15.90215		VC	15.90215		
8503	121.7	FO	118.97	150	VC	27.82362	1 in 90	VC	27.82362	5410	FO		100	VC	15.90215		VC	15.90215		
7503	120.68	SW	119.03	225	VC	20.11689	1 in 75	VC	20.11689	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44
7503	120.68	SW	119.03	225	VC	20.11689	1 in 75	VC	20.11689	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44
9404	FO		100	VC	18.77701		VC	18.77701	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
9404	FO		100	VC	18.77701		VC	18.77701	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
9404	FO		100	VC	18.77701		VC	18.77701	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
5515	FO		100	VC	9.590003		VC	9.590003	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
5515	FO		100	VC	9.590003		VC	9.590003	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
5515	FO		100	VC	9.590003		VC	9.590003	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
7416	FO		100	VC	11.75282		VC	11.75282	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
7416	FO		100	VC	11.75282		VC	11.75282	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
5539	FO		100	VC	8.095308		VC	8.095308	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
5539	FO		100	VC	8.095308		VC	8.095308	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
5539	FO		100	VC	8.095308		VC	8.095308	5513	116.76	SW	114.38	225	VC	38.83553		VC	38.83553	1 in 44	
8508	121.62	SW	119.61	225	VC	28.65249	1 in 80	VC	28.65249	5505	114.12	FO	111.97	225	VC	4.675965		VC	4.675965	1 in 4
8508	121.62	SW	119.61	225	VC	28.65249	1 in 80	VC	28.65249	5505	114.12	FO	111.97	225	VC	4.675965		VC	4.675965	1 in 4
6410	FO		100	VC	11.29477		VC	11.29477	6415	FO		100	VC	8.036734		VC	8.036734			
6410	FO		100	VC	11.29477		VC	11.29477	6415	FO		100	VC	8.036734		VC	8.036734			
6410	FO		100	VC	11.29477		VC	11.29477	6415	FO		100	VC	8.036734		VC	8.036734			
4501	117.24	SW	114.14	225	VC	38.01358	1 in 136	VC	38.01358	6415	FO		100	VC	8.036734		VC	8.036734		
4501	117.24	SW	114.14	225	VC	38.01358	1 in 136	VC	38.01358	6415	FO		100	VC	8.036734		VC	8.036734		
4501	117.24	SW	114.14	225	VC	38.01358	1 in 136	VC	38.01358	6415	FO		100	VC	8.036734		VC	8.036734		
5507	116.11	SW	113.86	225	VC	35.26199	1 in 98	VC	35.26199	6415	FO		100	VC	8.036734		VC	8.036734		
5507	116.11	SW	113.86	225	VC	35.26199	1 in 98	VC	35.26199	6415	FO		100	VC	8.036734		VC	8.036734		
5507	116.11	SW	113.86	225	VC	35.26199	1 in 98	VC	35.26199	6415	FO		100	VC	8.036734		VC	8.036734		
5514	116.73	SW	114.57	225	VC	24.74643	1 in 130	VC	24.74643	6415	FO		100	VC	8.036734		VC	8.036734		
5514	116.73	SW	114.57	225	VC	24.74643	1 in 130	VC	24.74643	6415	FO		100	VC	8.036734		VC	8.036734		
7408	120.28	SW	117.69	225	VC	29.34201	1 in 60	VC	29.34201	6415	FO		100	VC	8.036734		VC	8.036734		
7408	120.28	SW	117.69	225	VC	29.34201	1 in 60	VC	29.34201	6415	FO		100	VC	8.036734		VC	8.036734		
5506	116.72	FO	113.72	225	VC	35.31688	1 in 48	VC	35.31688	6415	FO		100	VC	8.036734		VC	8.036734		
5506	116.72	FO	113.72	225	VC	35.31688	1 in 48	VC	35.31688	6415	FO		100	VC	8.036734		VC	8.036734		
0405	CO		100	VC	9.222277		VC	9.222277	6415	FO		100	VC	8.036734		VC	8.036734			
0405	CO		100	VC	9.222277		VC	9.222277	6415	FO		100	VC	8.036734		VC	8.036734			
7403	120.65	SW	118.57	300	VC	60.37814	1 in 44	VC	60.37814	6415	FO		100	VC	8.036734		VC	8.036734		
7403	120.65	SW	118.57	300	VC	60.37814	1 in 44	VC	60.37814	6415	FO		100	VC	8.036734		VC	8.036734		
7406	120.28	FO	116.87	150	VC	29.23734	1 in 108	VC	29.23734	6415	FO		100	VC	8.036734		VC	8.036734		
7406	120.28	FO	116.87	150	VC	29.23734	1 in 108	VC	29.23734	6415	FO		100	VC	8.036734		VC	8.036734		
5503	117	FO	113.15	225	VC	57.43158	1 in 51	VC	57.43158	6415	FO		100	VC	8.036734		VC	8.036734		
5503	117	FO	113.15	225	VC	57.43158	1 in 51	VC	57.43158	6415	FO		100	VC	8.036734		VC	8.036734		
5401	117.33	FO	115.63	225	VC	45.59463	1 in 69	VC	45.59463	6415	FO		100	VC	8.036734		VC	8.036734		
5401	117.33	FO	115.63	225	VC	45.59463	1 in 69	VC	45.59463	6415	FO		100	VC	8.036734		VC	8.036734		
6506	117.28	FO	114.93	225	VC	4.752533		VC	4.752533	6415	FO		100	VC	8.036734		VC	8.036734		
7514	FO		100	VC	4.752533		VC	4.752533	6415	FO		100	VC	8.036734		VC	8.036734			
7514	FO		100	VC	4.752533		VC	4.752533	6415	FO		100	VC	8.036734		VC	8.036734			
7505	121.66	FO	119.59	150	VC	38.64376	1 in 102	VC	38.64376	6415	FO		100	VC	8.036734		VC	8.036734		
7502	120.85	FO	118.26	150	VC	33.10356	1 in 85	VC	33.10356	6415	FO		100	VC	8.036734		VC	8.036734		
7502	120.85	FO	118.26	150	VC	33.10356	1 in 85	VC	33.10356	6415	FO		100	VC	8.036734		VC	8.036734		
4403	FO		150	VC	5.609499		VC	5.609499	6415	FO		100	VC	8.036734		VC	8.036734			
4403	FO		150	VC	5.609499		VC	5.609499	6415	FO		100	VC	8.036734		VC	8.036734			
4403	FO		150	VC	5.609499		VC	5.609499	6415	FO		100	VC	8.036734		VC	8.036734			
8506	121	SW	119.42	225	VC	38.82376	1 in 100	VC	38.82376	6415	FO		100	VC	8.036734		VC	8.036734		
8506	121	SW	119.42	225	VC	38.82376	1 in 100	VC	38.82376	6415	FO		100	VC	8.036734		VC	8.036734		
6406	118.63	SW	116.45	225	VC	20.8261	1 in 13	VC	20.8261	6415	FO		100	VC	8.036734		VC	8.036734		
6406	118.63	SW	116.45	225	VC	20.8261	1 in 13	VC	20.8261	6415	FO		100	VC	8.036734		VC	8.036734		
5414	CO		100	VC	20.51587		VC	20.51587	6415	FO		100	VC	8.036734		VC	8.036734			
5414	CO		100	VC	20.51587		VC	20.51587	6415	FO		100	VC	8.036734		VC	8.036734			
5414	CO		100	VC	20.51587		VC	20.51587	6415	FO		100	VC	8.036734		VC	8.036734			
7511	120.8	FO	118.73	150	VC	45.60308	1 in 28	VC	45.60308	6415	FO		100	VC	8.036734		VC	8.036734		
8404	120.73	SW	119.2	150	VC	12.18624	1 in 37	VC	12.18624	6415	FO		100	VC	8.036734		VC	8.036734		
8404	120.73	SW	119.2	150	VC	12.18624	1 in 37	VC	12.18624	6415	FO		100	VC	8.036734		VC	8.036734		
7521	FO		100	VC	8.181055		VC	8.181055	6415	FO		100	VC	8.036734		VC	8.036734			
6504	117.71	SW	116.12	225	VC	22.48189	1 in 30	VC	22.48189	6415	FO		100	VC	8.036734		VC	8.036734		
6504	117.71	SW	116.12	225	VC	22.48189	1 in 30	VC	22.48189	6415	FO		100	VC	8.036734		VC	8.036734		
5537	FO		150	VC	10.83638		VC	10.83638	6415	FO		100	VC	8.036734		VC	8.036734			
5537	FO		150	VC	10.83638		VC	10.83638	6415	FO		100	VC	8.036734		VC	8.036734			
5537	FO		150	VC	10.83638		VC	10.												



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OS sheet SD8507SE
Number:
Scale: 1:1250 Date: 19/06/2026
Nodes: 401
Sheet: 6 of 6

Printed by: Property Searches

ER  U.I.

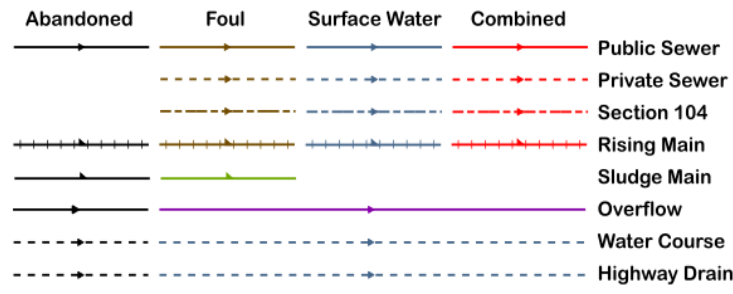
ER  Unit

RDS  Utilit

Water for the North

[illegible]

LEGEND



All point assets follow the standard colour convention:

red	- combined	blue	- surface water
brown	- foul	purple	- overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- DNM Network Monitoring Point
- Change of Characteristic

MANHOLE FUNCTION

- | | |
|----|---------------|
| FO | Foul |
| SW | Surface Water |
| CO | Combined |
| OV | Overflow |

SEWER SHAPE

- | | | | |
|----|-------------|----|-------------|
| CI | Circular | TR | Trapezoidal |
| EG | Egg | AR | Arch |
| OV | Oval | BA | Barrel |
| FT | Flat Top | HO | HorseShoe |
| RE | Rectangular | UN | Unspecified |
| SQ | Square | | |

SEWER MATERIAL

- | | |
|-----|---------------------------|
| AC | Asbestos Cement |
| BR | Brick |
| PE | Polyethylene |
| RP | Reinforced Plastic Matrix |
| CO | Concrete |
| CSB | Concrete Segment Bolted |
| CSU | Concrete Segment Unbolted |
| CC | Concrete Box Culverted |
| PSC | Plastic / Steel Composite |
| GRC | Glass Reinforced Plastic |
| DI | Ductile Iron |
| PVC | Polyvinyl Chloride |
| CI | Cast Iron |
| SI | Spun Iron |
| ST | Steel |
| VC | Vitrified Clay |
| PP | Polypropylene |
| PF | Pitch Fibre |
| MAC | Masonry, Coursed |
| MAR | Masonry, Random |
| U | Unspecified |

Address or Site Reference:

FRA261090 - Heywood,

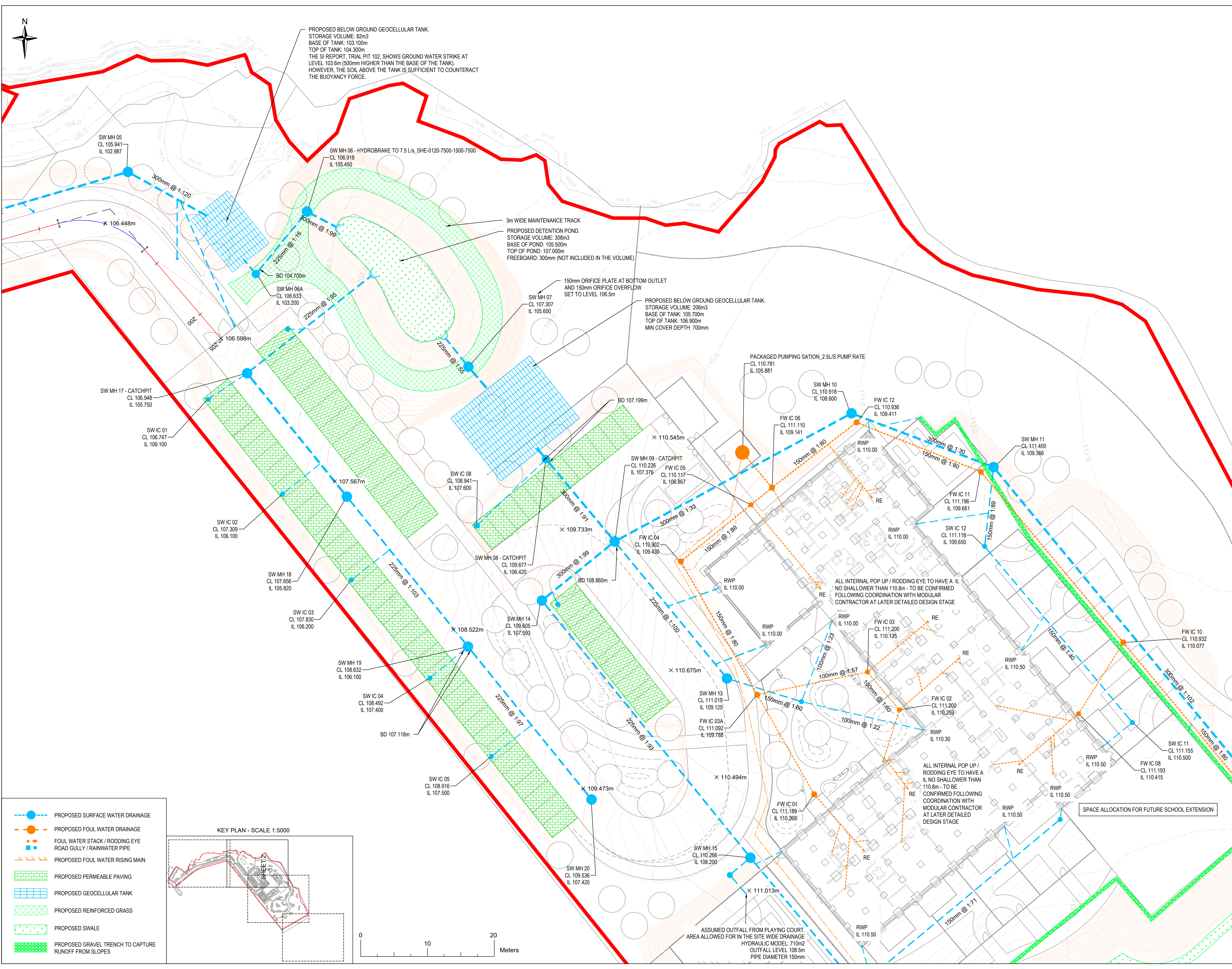
OS sheet SD8507SE
Number:
Scale: 1:1250 Date: 19/06/2026
Nodes: 48
Sheet: 6 of 6

Printed by: Property Searches

SEWER RECORDS



Appendix C – Drainage Information



NOTES:

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT AND ENGINEER DRAWINGS AND SPECIFICATION NOTES.

DO NOT SCALE FROM THIS DRAWING. FIGURED DIMENSIONS ONLY TO BE USED. HARLEY HADDOW DRAWINGS ARE FOR STRUCTURAL INFORMATION ONLY. FOR ALL SETTING OUT DIMENSIONS AND DETAILS REFER TO ARCHITECTS DRAWINGS.

UNDER THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015, HARLEY HADDOW ARE NOT ACTING AS THE PRINCIPLE DESIGNER, BUT HAVE DUTIES AS A DESIGNER. THE DESIGN PROPOSED DOES NOT HAVE ANY SPECIFIC RISKS THAT A COMPETENT CONTRACTOR WOULD NOT HAVE ALREADY COGNISANCE OF. IF THE CONTRACTOR REQUIRES ANY SPECIFIC GUIDANCE THEN THEY SHOULD CONTACT HARLEY HADDOW PRIOR TO UNDERTAKING THE ELEMENT OF WORK.

- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED. WHERE THERE APPEARS TO BE A CONFLICT BETWEEN DIMENSIONS OR WHERE DIMENSIONS CANNOT BE DETERMINED FROM THE DRAWINGS, CONSULT THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS AND SPECIFICATIONS.
- THIS DRAWING IS BASED ON:
 - TOPOGRAPHICAL SURVEY S250280-DR-T-001
 - SITE LAYOUT ED0064-22 - Rev F
 - EXISTING DRAINAGE DRAWING EWA-CUR-XX-00-DR-C-92500
- THE CONTRACTOR SHALL:
 - VERIFY EXISTING UTILITIES BEFORE STARTING WORKS.
 - VERIFY THE DIMENSIONS SHOWN ON THE DRAWINGS BEFORE FABRICATION, SETTING OUT OR EXCAVATION OF THE WORK, AND SHALL BE HELD RESPONSIBLE FOR ANY ERRORS OR INACCURACIES RESULTING FROM FAILURE TO DO SO.
 - CHECK AND VERIFY THE LOCATION AND LEVELS ALL EXISTING DRAINS, SEWERS, INSPECTION CHAMBERS AND MANHOLES AGAINST DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
- LOCATION OF INSPECTION CHAMBERS/MANHOLES IS INDICATIVE AND REQUIRED FURTHER COORDINATION DURING THE NEXT STAGES OF THE DESIGN.
- ALL DRAINAGE SHOULD BE STRUCTURED WALL PVC-u.
- ALL FOUL AND SURFACE WATER LATERAL DRAIN TO BE DN100 UNLESS OTHERWISE STATED. ALL STACK CONNECTIONS TO BELOW THE SLAB TO HAVE RODDABLE ACCESS ABOVE SLAB. ALL ROAD GULLIES OUTLET PIPE TO BE 150mm DIA. UNLESS OTHERWISE STATED.
- ALL INSPECTION CHAMBERS LOCATED ONTO THE PERMEABLE PAVING TO HAVE A OPEN GRATE COVER AND A 50mm ORIFICE PLATE FITTED AT OUTLET TO MAXIMIZE RETENTION INTO THE PAVING SUBBASE.
- CONTRACTOR TO PROVIDE ADEQUATE PROTECTION TO SHALLOW PIPES. PIPE PROTECTION DETAIL TO BE PROVIDED FOR PIPES WITH COVER LESS THAN 0.3m ABOVE THE CROWN OF THE PIPE FOR ROADS AND 0.6m FOR SOFT AND PEDESTRIAN AREAS.
- ROCKER PIPES ARE TO BE PROVIDED AT ALL CONCRETE CASED INTERFACES.
- ALL PROPRIETARY PRODUCTS / SYSTEMS TO BE VERIFIED BY THE MANUFACTURER AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION / DETAILS.
- ALL DRAINAGE TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH BS EN 12056-1:2000, BS EN 752:2017, AND BS EN 1610:2015.
- ALLOWANCE SHOULD BE MADE FOR PROVIDING A SUITABLE BEDDING AND COVER TO EXISTING SERVICES UNDER THE PROPOSED ROADS, FOOTWAYS AND SOFT LANDSCAPING, IF NECESSARY.
- WHERE COVERS AND INSPECTION CHAMBERS AND MANHOLES THAT WERE FORMERLY LOCATED IN THE FOOTWAY OR ISLANDS OR SOFT LANDSCAPE ARE LOCATED WITHIN NEW AREAS OF CARRIAGEWAY OR PARKING BAYS, RE-BUILDING AND/OR STRENGTHENING WORKS AND REPLACEMENT OF COVERS SHOULD BE UNDERTAKEN TO SUIT THE CARRIAGEWAY LOADING.
- EXISTING MANHOLE AND INSPECTION CHAMBER COVERS SHALL BE RAISED OR LOWERED TO BE FLUSH WITH PROPOSED ROAD AND FOOTWAY LEVELS.
- THRUST BLOCS TO BE BUILT AT ALL THE FOUL WATER RISING MAIN SHARP CHANGE IN DIRECTION.
- PIPE BEDDING TYPE:
 - WHERE COVER TO CROWN OF PIPE IS LESS THAN 900mm IN TRAFFICKED AREAS OR LESS THAN 600mm IN NON-TRAFFICKED AREAS - BED AND SURROUND CLASS Z.
 - WHERE COVER TO CROWN OF PIPE IS GREATER THAN 900mm IN TRAFFICKED AREAS OR GREATER THAN 600mm IN NON-TRAFFICKED AREAS - BED AND SURROUND CLASS S.

P03	STAGE 3	SZ	CB	12.06.2026
P02	FOR PLANNING	SZ	CB	12.06.2026
P01	PRELIMINARY ISSUE FOR COORDINATION	SZ	CB	06.03.2026
REV	DESCRIPTION	BY	ENG	DATE

Project Status:

STAGE 3

ENGINEERING POWERED BY THE PAST
BUILDING THE FUTURE

124-125 Princes Street
Edinburgh
EH2 4AD
T 44 (0) 131 226 3331
www.harleyhaddow.com

Project: 316553

**REDWOOD SEN HUB
ROCHDALE**

Drawing Title:
**PROPOSED BELOW GROUND
DRAINAGE - SHEET 2**

Scale at A1:	Date:	Technician:	Engineer:
1:250	MARCH 2026	SZ	SZ
Drawing No:		Revision	
316553-HAH-XX-00-D-C-00201		P03	



THIS DRAWING TO BE READ IN CONJUNCTION WITH
ALL RELEVANT ARCHITECT AND ENGINEER
DRAWINGS AND SPECIFICATION NOTES.

DO NOT SCALE FROM THIS DRAWING. FIGURED DIMENSIONS ONLY TO BE USED. HARLEY HADDOW DRAWINGS ARE FOR STRUCTURAL INFORMATION ONLY. FOR ALL SETTING OUT DIMENSIONS AND DETAILS REFER TO ARCHITECTS DRAWINGS.

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- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED. WHERE THERE APPEARS TO BE A CONFLICT BETWEEN DIMENSIONS OR WHERE DIMENSIONS CANNOT BE DETERMINED FROM THE DRAWINGS, CONSULT THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS AND SPECIFICATIONS.
- THIS DRAWING IS BASED ON:
- 3.1. TOPOGRAPHICAL SURVEY S250280-DR-T-001
 - 3.2. SITE EXCUT ID0004-ZZ - Rev F
 - 3.3. EWA-CR-0001 AND EWA-CR-0002
 - 3.4. EWA-CR-0003 AND EWA-CR-0004
 - 3.5. EWA-CR-0005 AND EWA-CR-0006
 - 3.6. EWA-CR-0007 AND EWA-CR-0008
 - 3.7. EWA-CR-0009 AND EWA-CR-0010
 - 3.8. EWA-CR-0011 AND EWA-CR-0012
 - 3.9. EWA-CR-0013 AND EWA-CR-0014
 - 3.10. EWA-CR-0015 AND EWA-CR-0016
 - 3.11. EWA-CR-0017 AND EWA-CR-0018
 - 3.12. EWA-CR-0019 AND EWA-CR-0020
 - 3.13. EWA-CR-0021 AND EWA-CR-0022
 - 3.14. EWA-CR-0023 AND EWA-CR-0024
 - 3.15. EWA-CR-0025 AND EWA-CR-0026
 - 3.16. EWA-CR-0027 AND EWA-CR-0028
 - 3.17. EWA-CR-0029 AND EWA-CR-0030
 - 3.18. EWA-CR-0031 AND EWA-CR-0032
 - 3.19. EWA-CR-0033 AND EWA-CR-0034
 - 3.20. EWA-CR-0035 AND EWA-CR-0036
 - 3.21. EWA-CR-0037 AND EWA-CR-0038
 - 3.22. EWA-CR-0039 AND EWA-CR-0040
 - 3.23. EWA-CR-0041 AND EWA-CR-0042
 - 3.24. EWA-CR-0043 AND EWA-CR-0044
 - 3.25. EWA-CR-0045 AND EWA-CR-0046
 - 3.26. EWA-CR-0047 AND EWA-CR-0048
 - 3.27. EWA-CR-0049 AND EWA-CR-0050
 - 3.28. EWA-CR-0051 AND EWA-CR-0052
 - 3.29. EWA-CR-0053 AND EWA-CR-0054
 - 3.30. EWA-CR-0055 AND EWA-CR-0056
 - 3.31. EWA-CR-0057 AND EWA-CR-0058
 - 3.32. EWA-CR-0059 AND EWA-CR-0060
 - 3.33. EWA-CR-0061 AND EWA-CR-0062
 - 3.34. EWA-CR-0063 AND EWA-CR-0064
 - 3.35. EWA-CR-0065 AND EWA-CR-0066
 - 3.36. EWA-CR-0067 AND EWA-CR-0068
 - 3.37. EWA-CR-0069 AND EWA-CR-0070
 - 3.38. EWA-CR-0071 AND EWA-CR-0072
 - 3.39. EWA-CR-0073 AND EWA-CR-0074
 - 3.40. EWA-CR-0075 AND EWA-CR-0076
 - 3.41. EWA-CR-0077 AND EWA-CR-0078
 - 3.42. EWA-CR-0079 AND EWA-CR-0080
 - 3.43. EWA-CR-0081 AND EWA-CR-0082
 - 3.44. EWA-CR-0083 AND EWA-CR-0084
 - 3.45. EWA-CR-0085 AND EWA-CR-0086
 - 3.46. EWA-CR-0087 AND EWA-CR-0088
 - 3.47. EWA-CR-0089 AND EWA-CR-0090
 - 3.48. EWA-CR-0091 AND EWA-CR-0092
 - 3.49. EWA-CR-0093 AND EWA-CR-0094
 - 3.50. EWA-CR-0095 AND EWA-CR-0096
 - 3.51. EWA-CR-0097 AND EWA-CR-0098
 - 3.52. EWA-CR-0099 AND EWA-CR-0100
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 - 3.59. EWA-CR-0113 AND EWA-CR-0114
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 - 3.86. EWA-CR-0167 AND EWA-CR-0168
 - 3.87. EWA-CR-0169 AND EWA-CR-0170
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 - 3.89. EWA-CR-0173 AND EWA-CR-0174
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 - 3.95. EWA-CR-0185 AND EWA-CR-0186
 - 3.96. EWA-CR-0187 AND EWA-CR-0188
 - 3.97. EWA-CR-0189 AND EWA-CR-0190
 - 3.98. EWA-CR-0191 AND EWA-CR-0192
 - 3.99. EWA-CR-0193 AND EWA-CR-0194
 - 4.00. EWA-CR-0195 AND EWA-CR-0196
 - 4.01. EWA-CR-0197 AND EWA-CR-0198
 - 4.02. EWA-CR-0199 AND EWA-CR-0200
 - 4.03. EWA-CR-0201 AND EWA-CR-0202
 - 4.04. EWA-CR-0203 AND EWA-CR-0204
 - 4.05. EWA-CR-0205 AND EWA-CR-0206
 - 4.06. EWA-CR-0207 AND EWA-CR-0208
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 - 4.08. EWA-CR-0211 AND EWA-CR-0212
 - 4.09. EWA-CR-0213 AND EWA-CR-0214
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 - 4.11. EWA-CR-0217 AND EWA-CR-0218
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 - 4.14. EWA-CR-0223 AND EWA-CR-0224
 - 4.15. EWA-CR-0225 AND EWA-CR-0226
 - 4.16. EWA-CR-0227 AND EWA-CR-0228
 - 4.17. EWA-CR-0229 AND EWA-CR-0230
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 - 4.19. EWA-CR-0233 AND EWA-CR-0234
 - 4.20. EWA-CR-0235 AND EWA-CR-0236
 - 4.21. EWA-CR-0237 AND EWA-CR-0238
 - 4.22. EWA-CR-0239 AND EWA-CR-0240
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 - 4.27. EWA-CR-0249 AND EWA-CR-0250
 - 4.28. EWA-CR-0251 AND EWA-CR-0252
 - 4.29. EWA-CR-0253 AND EWA-CR-0254
 - 4.30. EWA-CR-0255 AND EWA-CR-0256
 - 4.31. EWA-CR-0257 AND EWA-CR-0258
 - 4.32. EWA-CR-0259 AND EWA-CR-0260
 - 4.33. EWA-CR-0261 AND EWA-CR-0262
 - 4.34. EWA-CR-0263 AND EWA-CR-0264
 - 4.35. EWA-CR-0265 AND EWA-CR-0266
 - 4.36. EWA-CR-0267 AND EWA-CR-0268
 - 4.37. EWA-CR-0269 AND EWA-CR-0270
 - 4.38. EWA-CR-0271 AND EWA-CR-0

3	STAGE 3	SZ	CB	12.06.2023
2	FOR PLANNING	SZ	CB	12.06.2023
1	PRELIMINARY ISSUE FOR COORDINATION	SZ	CB	06.03.2023
V	DESCRIPTION	BY	ENG	DATE

Project Status

STAGE 3



ENGINEERING POWERED BY THE PAST
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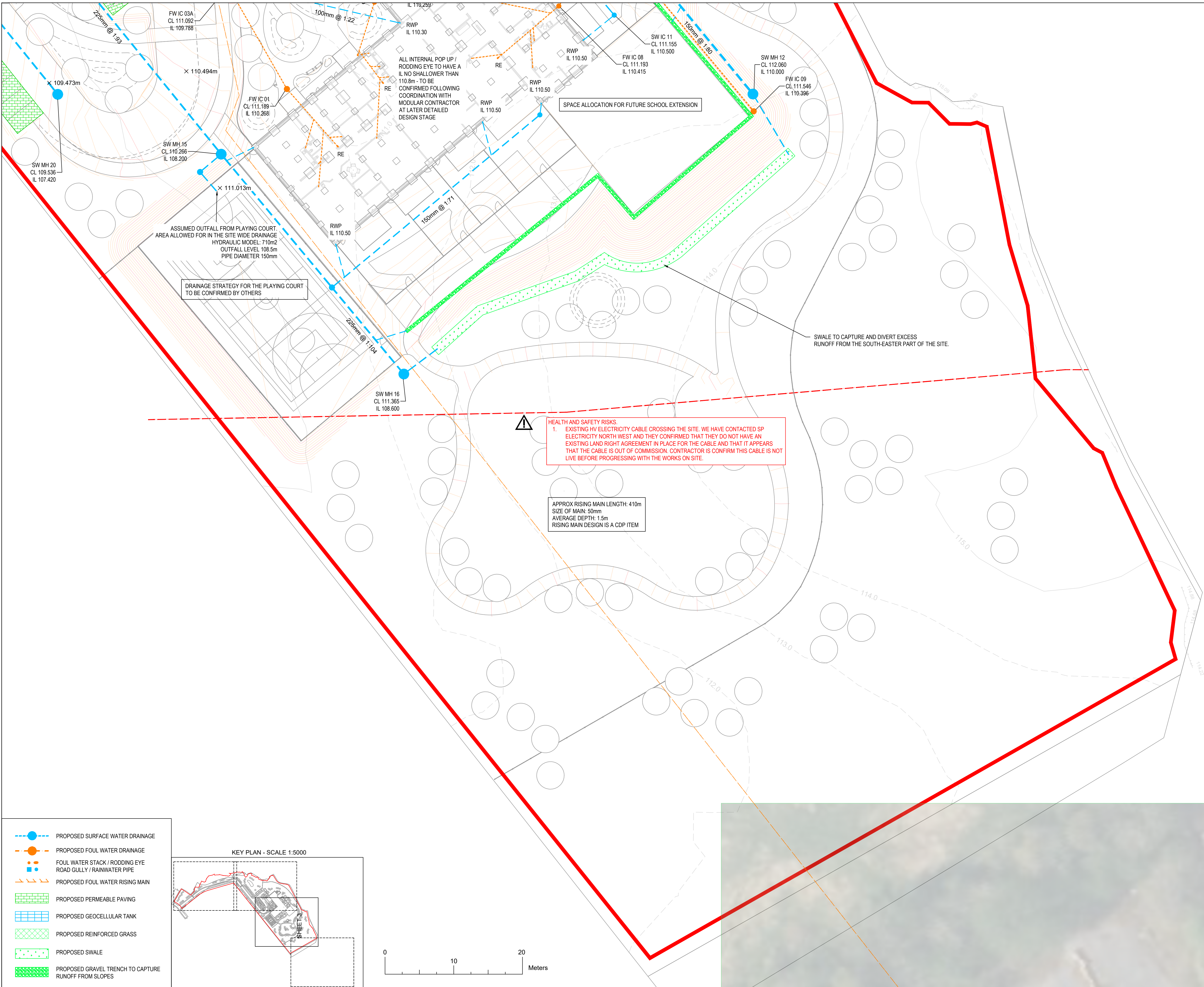
Project: 316553

REDWOOD SEN HUB
ROCHDALE

Drawing Title:

PROPOSED BELOW GROUND
DRAINAGE - SHEET 3

Scale at A1:	Date:	Technician:	Engineer:
1:250	MARCH 2026	SZ	SZ
Drawing No.			Revision
316553-HAH-XX-00-D-C-00202			P0





NOTES

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- THIS DRAWING IS BASED ON:
- 3.1 TOPOGRAPHIC SURVEY 5250280-DR-T-001
- 3.2 SITE LAYOUT E0604-22 - Rev F
- 3.3 EXISTING DRAINAGE DRAWING EWA-CUR-XX-00-DR-C-92500
- THE CONTRACTOR SHALL:
- 4.1 VERIFY EXISTING UTILITIES BEFORE STARTING WORKS.
- 4.2 VERIFY THE DIMENSIONS SHOWN ON THE DRAWINGS BEFORE FABRICATION, STARTING WORK OR EXCAVATION OF THE WORK, AND SHALL BE HELD RESPONSIBLE FOR ANY ERRORS OR INACCURACIES RESULTING FROM FAILURE TO DO SO.
- 4.3 CHECK AND VERIFY THE LOCATION AND LEVELS ALL EXISTING DRAINS, SEWERS, INSPECTION CHAMBERS AND MANHOLES AGAINST DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
- LOCATION OF INSPECTION CHAMBERS/MANHOLES IS INDICATIVE AND REQUIRED FURTHER COORDINATION DURING THE NEXT STAGES OF THE DESIGN.
- ALL DRAINAGE SHOULD BE STRUCTURED W/ALL PVC-U, 150mm, AND SURFACE WATER LATERAL DRAIN TO BE DN100 LESS OTHERWISSE STATED. ALL STACK CONNECTIONS TO BE ABOVE THE SLAB TO HAVE RODDABLE ACCESS ABOVE SLAB. ALL ROAD GULLIES OUTLET PIPE TO BE 150mm DIA. UNLESS OTHERWISE STATED.
- ALL INSPECTION CHAMBERS LOCATED ONTO THE PERMEABLE PAVING TO HAVE A OPEN GRATE COVER AND ROOFING OR GRIPPE PLATE FITTED AT OUTLET TO MAXIMIZE RETENTION INTO THE PAVING SUBBASE. CONTRACTOR TO PROVIDE ADEQUATE PROTECTION TO SHALLOW PIPES. PIPE PROTECTION DETAIL TO BE PROVIDED FOR PIPES WITH COVER LESS THAN 0.9m ABOVE THE CROWN OF THE PIPE FOR ROADS AND 0.6m FOR SOFT AND CEDESTIAN AREAS.
- ROOFING PIPES AND MANHOLES PROVIDED AT ALL CONCRETE C/PASED INTERFACES.
- ALL PROPRIETARY PRODUCTS / SYSTEMS TO BE VERIFIED BY THE MANUFACTURER AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION / DETAILS.
- ALL DRAINAGE TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH BS EN 12056-1:2000, BS EN 1252:2017, AND BS EN 12056-2:2000.
- ALLOWANCE SHOULD BE MADE FOR PROVIDING A SUITABLE BEDDING AND COVER TO EXISTING SERVICES UNDER THE PROPOSED ROADS, FOOTWAYS AND LANDSCAPING, IF NECESSARY.
- WHERE COVERS AND INSPECTION CHAMBERS AND MANHOLES THAT WERE FORMERLY LOCATED IN THE FOOTWAYS OR ROAD AND FOOTWAY LEVELS ARE LOCATED WITHIN NEW AREAS OF CARRIAGEWAY OR PARKING GAYS, RE-BUILDING AND/OR STRENGTHENING WORKS AND REPLACEMENT OF COVERS SHOULD BE UNDERTAKEN TO SUIT THE CARRIAGEWAY LOADING.
- EXISTING MANHOLE AND INSPECTION CHAMBER COVERS SHALL BE RAISED OR LOWERED TO BE FLUSH WITH THE ROAD OR FOOTWAY LEVELS.
- THRUST BLOCKS TO BE BUILT AT ALL THE FOUL WATER RISING MAIN SLOPE CHANGE IN DIRECTION.
- PIPE BEDDING TYPE:
- WHERE COVER TO CROWN OF PIPE IS LESS THAN 900mm IN TRAFFICKED AREAS OR LESS THAN 600mm IN NON-TRAFFICKED AREAS - BED AND SURROUND CLASS 2.
- WHERE COVER TO CROWN OF PIPE IS GREATER THAN 900mm IN TRAFFICKED AREAS OR GREATER THAN 600mm IN NON-TRAFFICKED AREAS - BED AND SURROUND CLASS S.

P03	STAGE 3	SZ	CB	12.06.2026
P02	FOR PLANNING	SZ	CB	12.06.2026
P01	PRELIMINARY ISSUE FOR COORDINATION	SZ	CB	06.03.2026
REV	DESCRIPTION	BY	ENG	DATE

Project Status

STAGE 3



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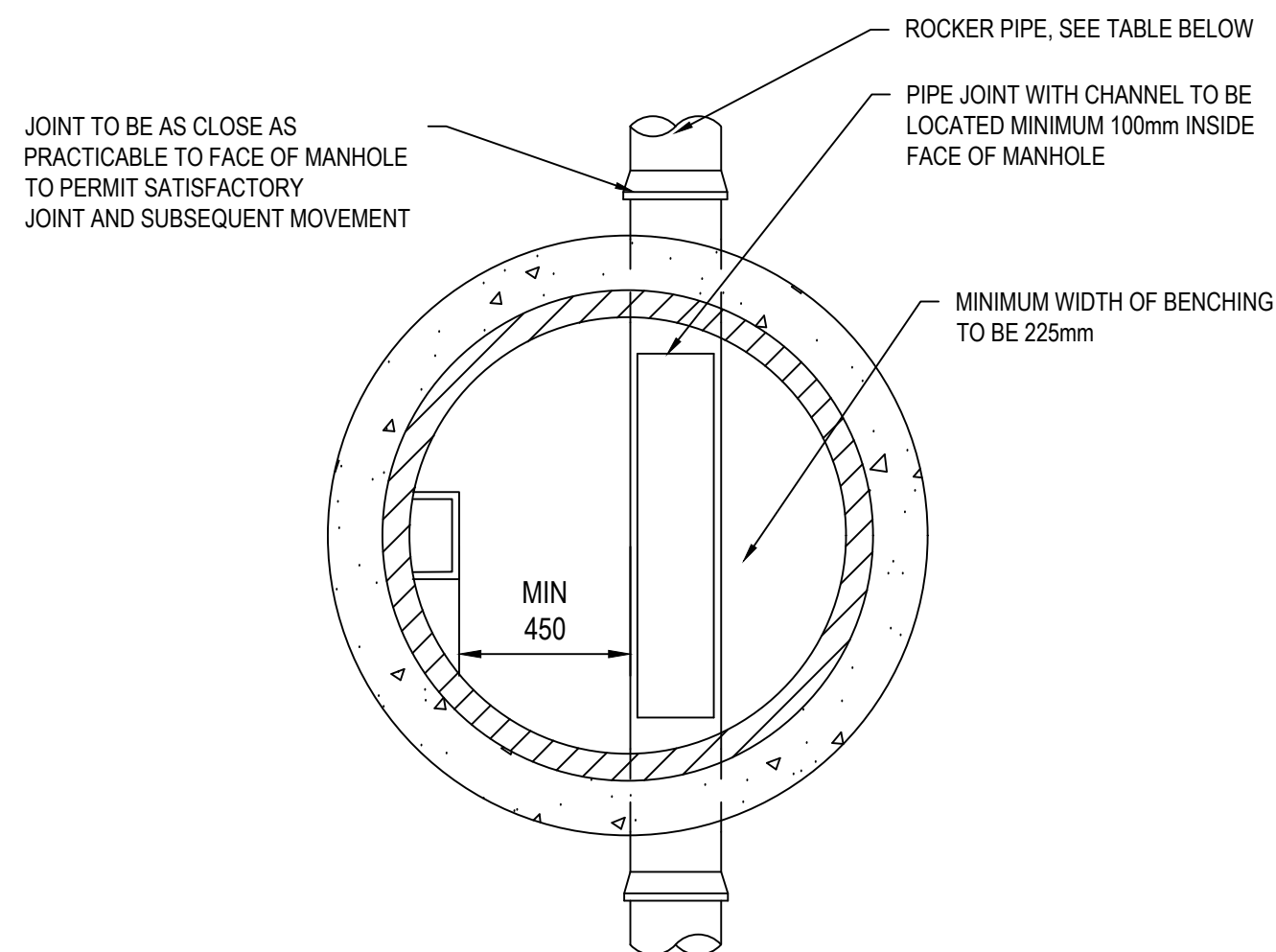
Project: 316553

REDWOOD SEN HUB
ROCHDALE

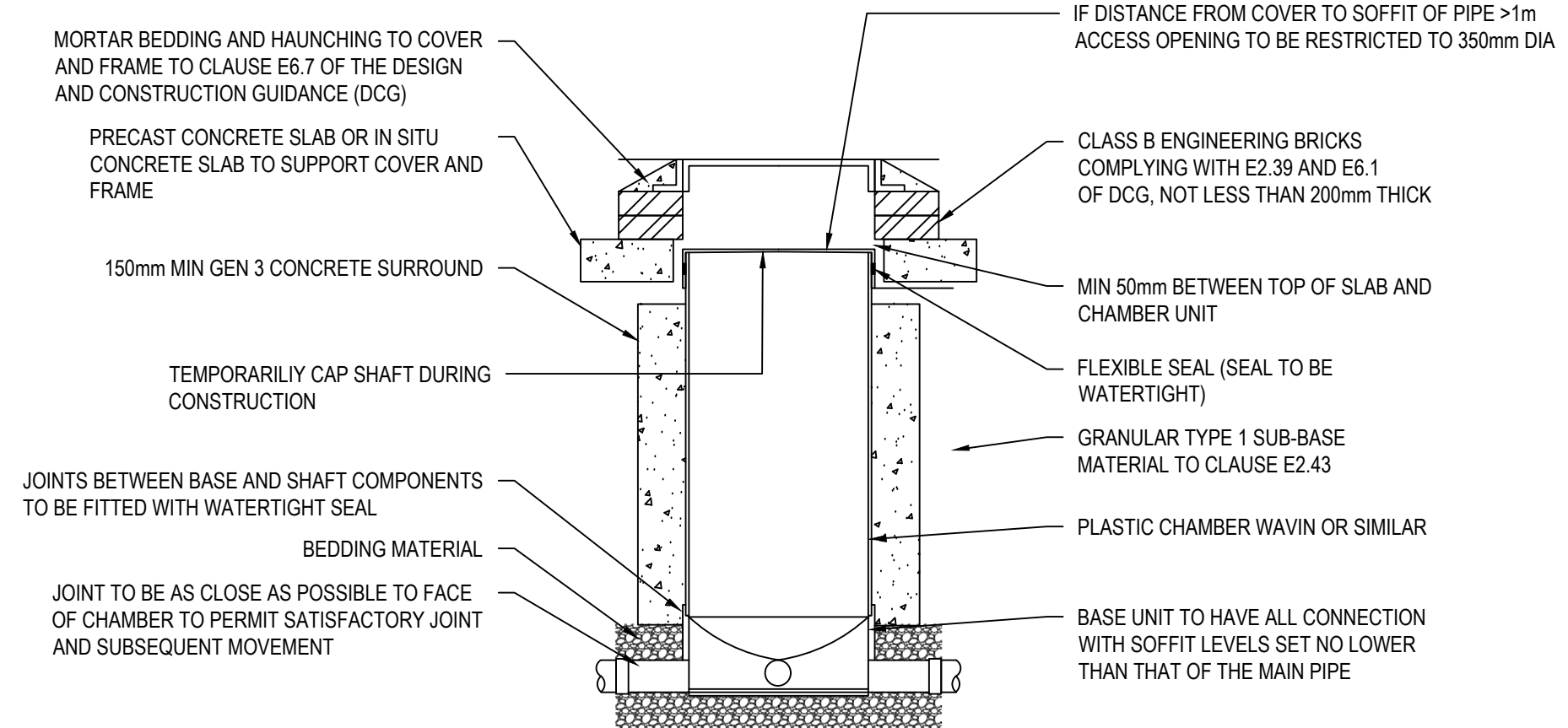
Drawing Title:

PROPOSED BELOW GROUND
DRAINAGE - SHEET 4

Scale at A1: 1:250	Date: MARCH 2026	Technician: SZ	Engineer: SZ
Drawing No. 316553-HAH-XX-00-D-C-00203			Revision P03



TYPICAL INSPECTION CHAMBER DETAIL TYPE D
DEPTH FROM COVER TO SOFFIT OF PIPE UP TO 3m
FLEXIBLE MATERIAL WITH CONCRETE SURROUND
SCALE 1:20

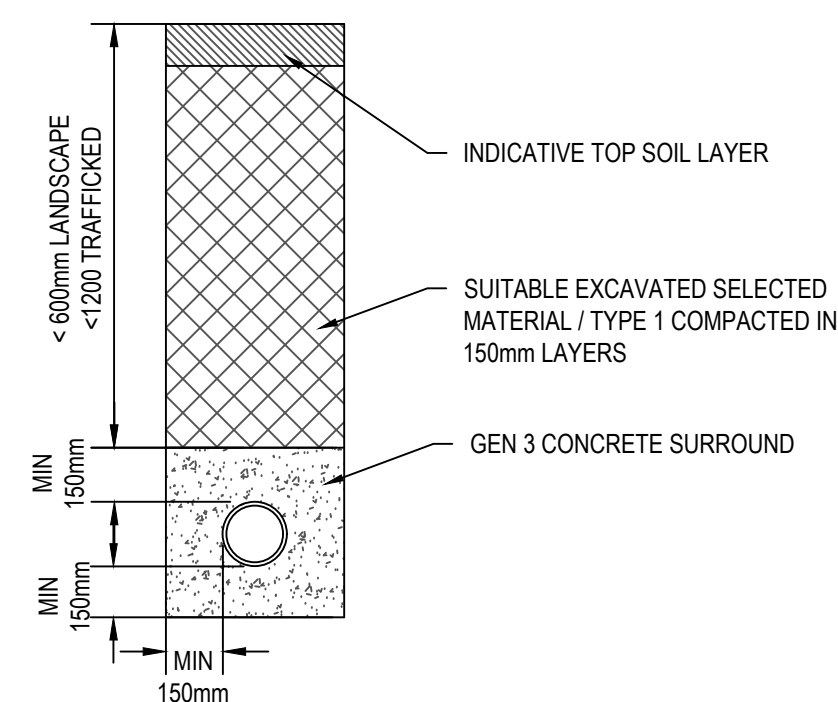


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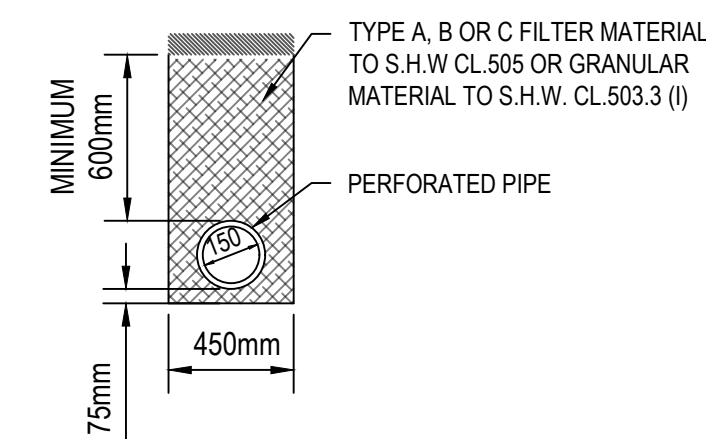
DIA OF LARGEST PIPE IN MANHOLE (mm)	INT. DIA. OF MANHOLE (mm)
Less than 375	1200
375 to 450	1350
500 to 700	1500

NB.
FOR DEPTH TO SOFFIT <1.5M
MIN INT. DIA. OF CHAMBER FOR 150 DIA. PIPES TO BE 1000mm - COVER CLEAR OPENING MIN. 750 X 675
MIN INT. DIA. OF CHAMBER FOR 225 DIA. PIPES TO BE 1200mm - COVER CLEAR OPENING MIN. 1200 X 675
FOR DEPTH TO SOFFIT >1.5M IN INT. DIA. OF CHAMBER FOR 225 DIA. PIPES TO BE 1200mm - COVER CLEAR OPENING MIN. 600 X 600

- A. GRANULAR BEDDING MATERIAL TO BE SINGLE SIZE OR GRADED MATERIAL AS TABLE BELOW AND TO CONFORM WITH BS EN 1610 ANNEX B TABLE B15.
- B. SELECTED BACKFILL MATERIAL - TO BE FREE FROM STONES LARGER THAN 40MM, LUMPS OF CLAY OVER 100MM, FROZEN MATERIAL, VEGETABLE MATTER.
- C. IF TRENCH WIDTH, OVER CONSTRUCTION DEPTH, EXCEEDS INDICATED DIMENSIONS THE CONTRACTOR MAY BE REQUIRED TO PROVIDE HIGHER STRENGTH PIPES, OR HIGHER BEDDING FACTOR, AT OWN COST.
- D. PIPE IS TO BE LAID CENTRAL TO EXCAVATION FACES.

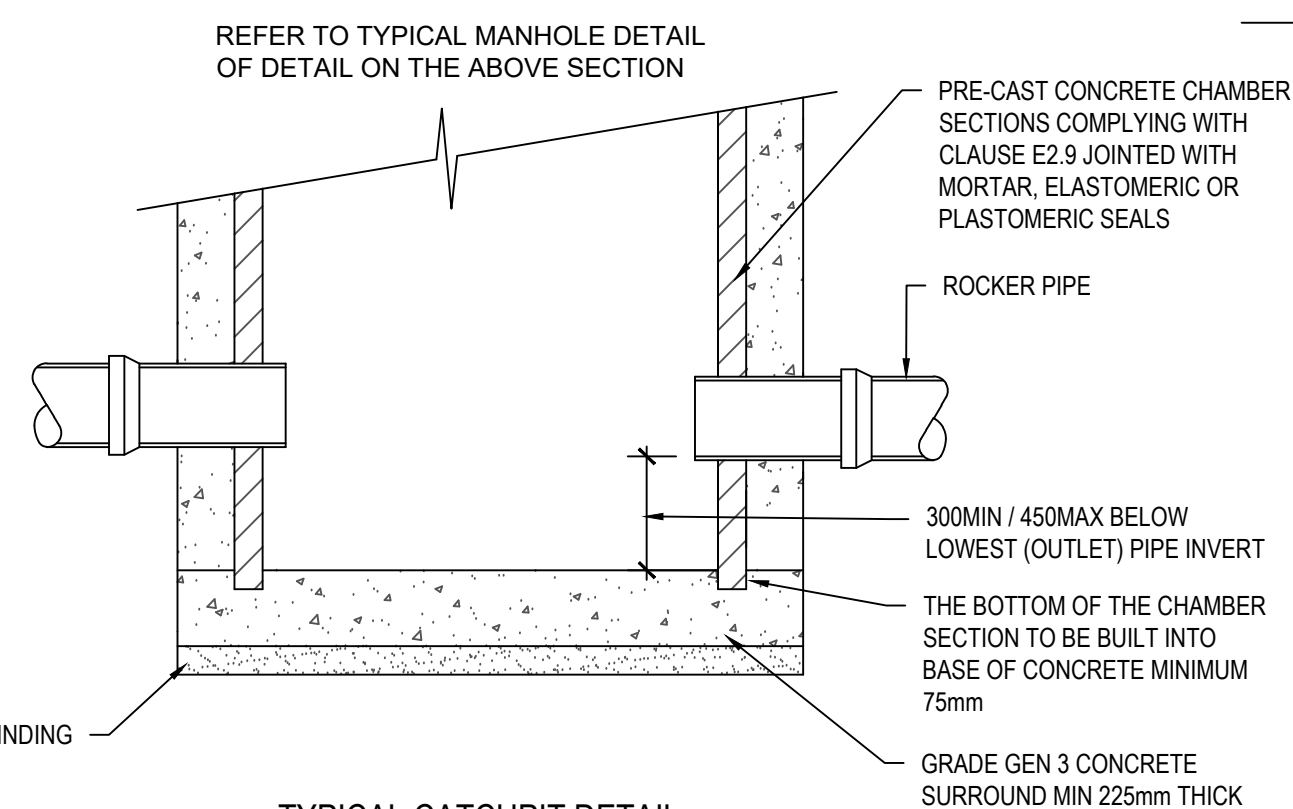


PIPE BEDDING AND SURROUND
TYPE S UNDER SOFT LANSCAPE
SCALE 1:20

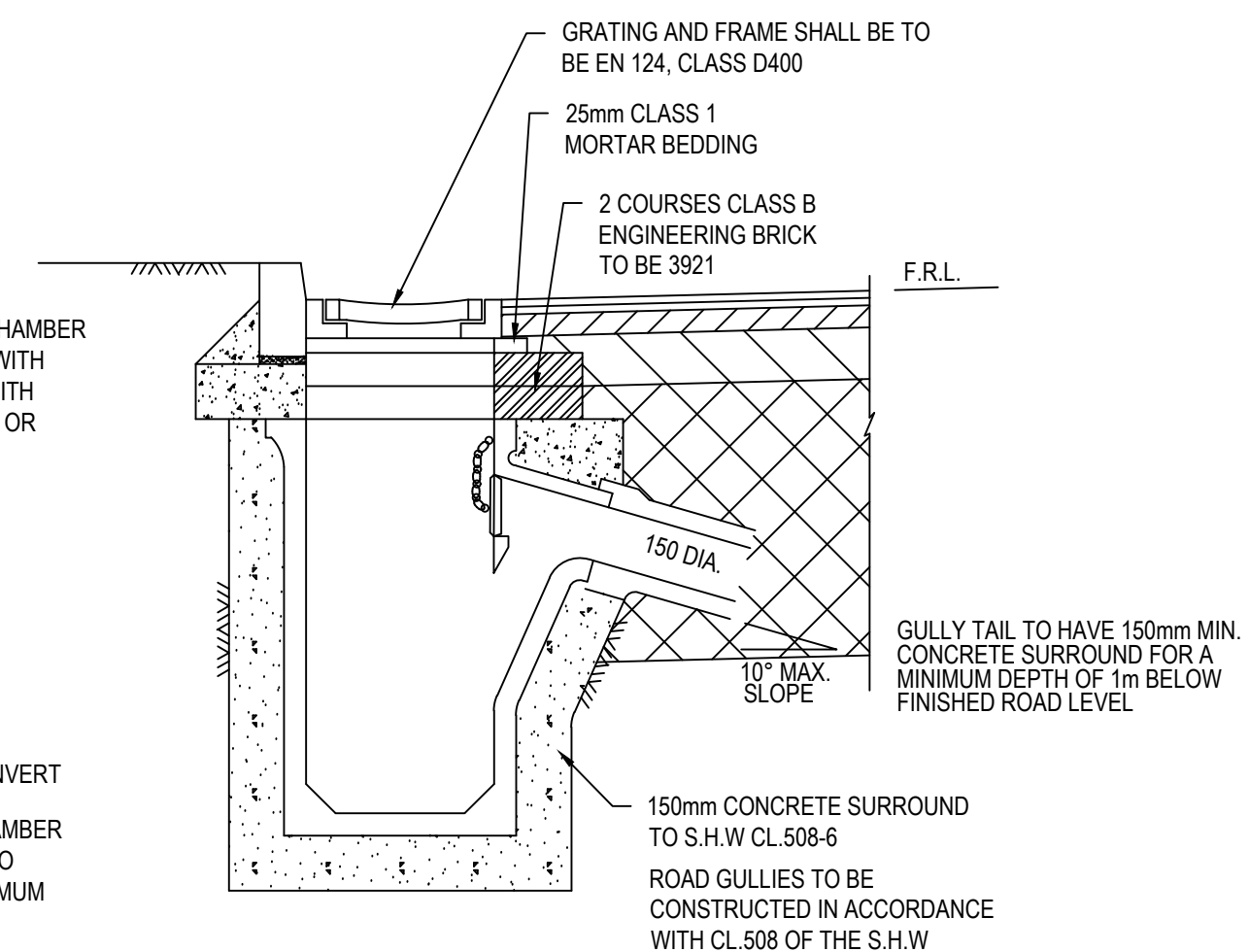


GRAVEL TRENCH TYPICAL DETAIL
SCALE 1:20

PIPE DIA. (mm)	GRANULAR BEDDING MATERIAL	
	SINGLE SIZE(mm)	GRADED(mm)
100	10	5 - 10
150	14	5 - 14
>150 - 600	20	5 - 20
>600	40	5 - 40

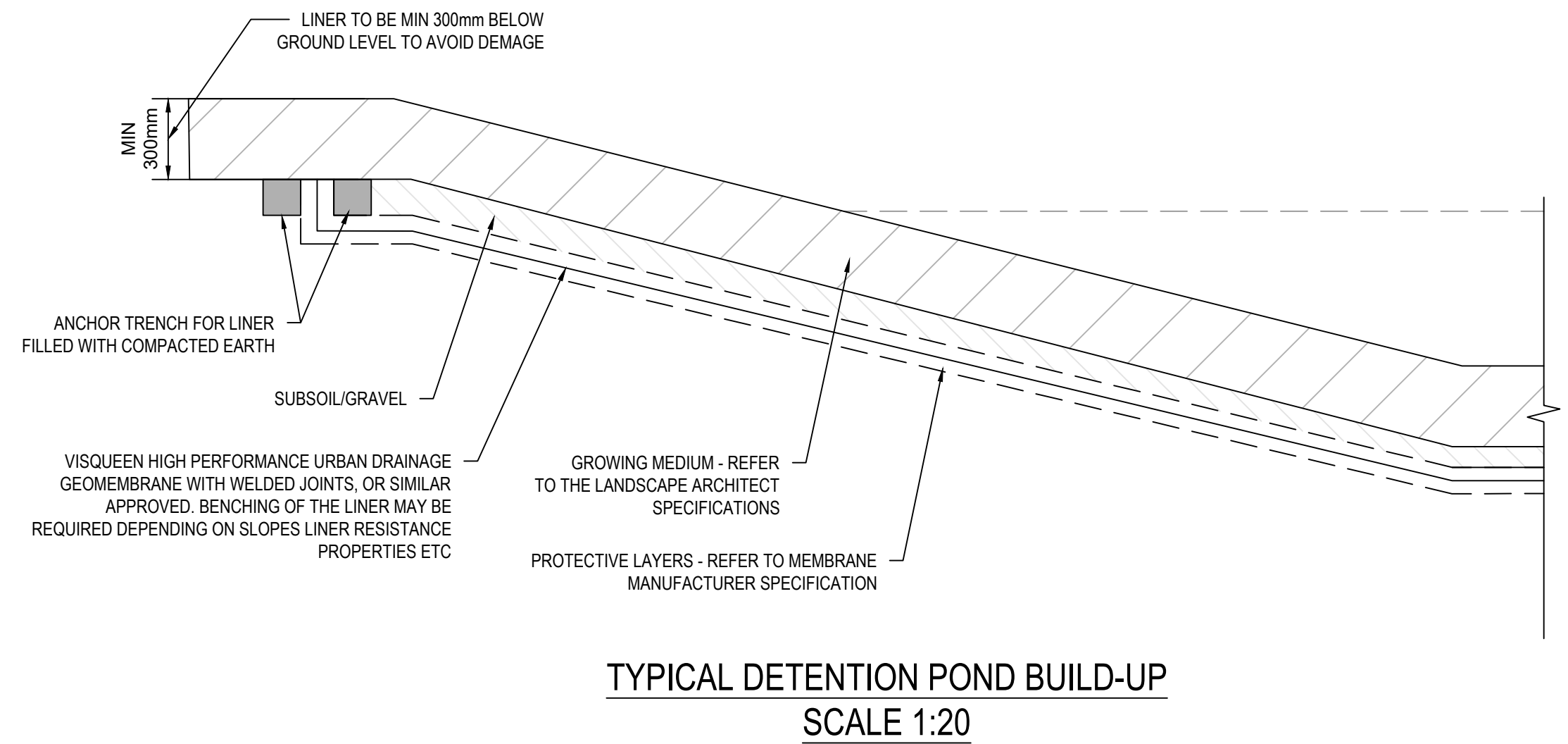


TYPICAL CATCHPIT DETAIL
SCALE 1:20

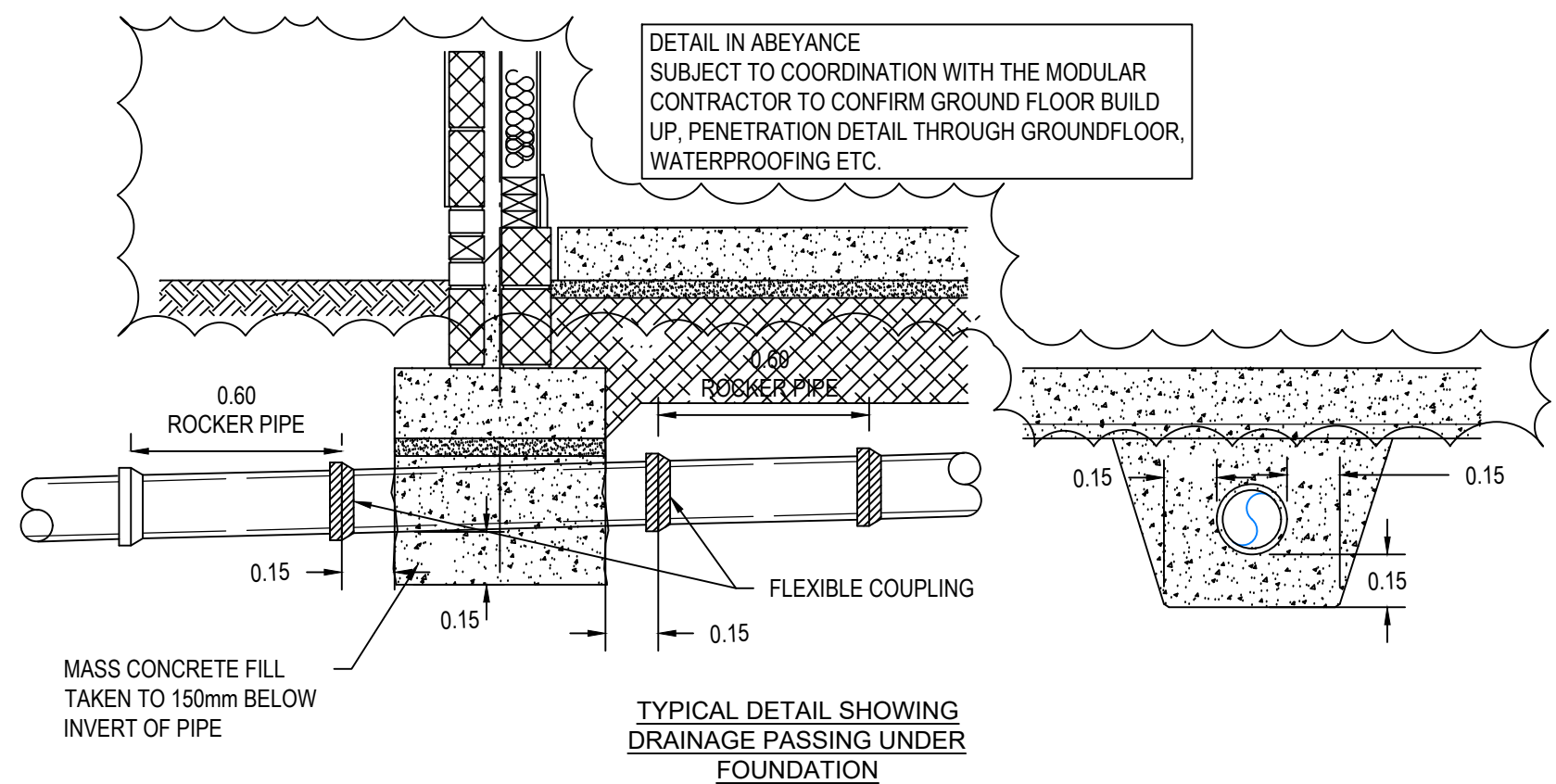
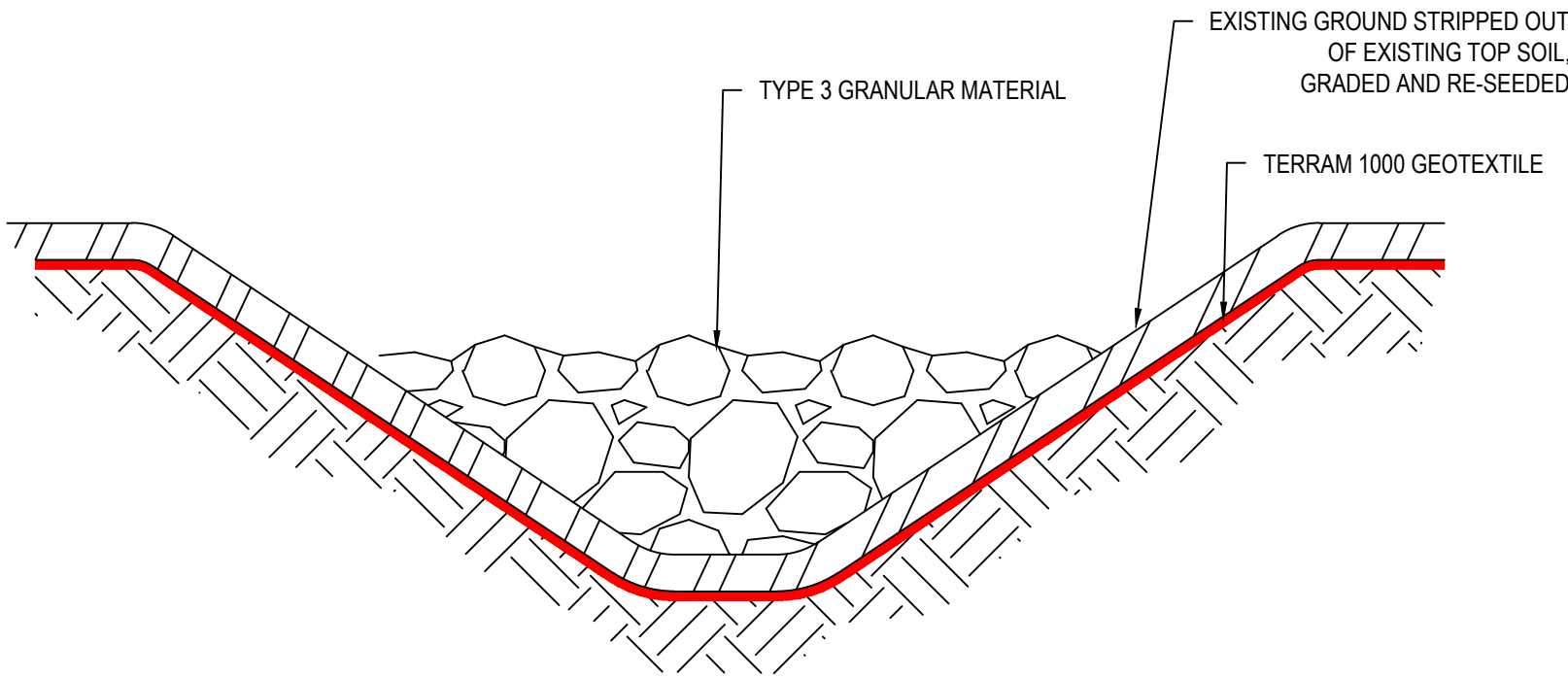


TYPICAL ROAD GULLY DETAIL
SCALE 1:20

AS NOTED	JUNE 2020	MC	MC
Drawing No. 316553 HAH YY YY D C 00300			Revision R01



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STAGE 3		MS	SZ	12.06.2026
REV	DESCRIPTION	BY	ENG	DATE

Project Status:

STAGE 3



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Edinburgh
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Project: 316553

REDWOOD SEN SCHOOL ROCHDALE

Drawing Title:

DRAINAGE DETAILS SHEET 2

Scale at A1: As Noted	Date: JUNE 2026	Technician: MS	Engineer: MS
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Drawing No:

316553-HAH-XX-XX-D-C-00301

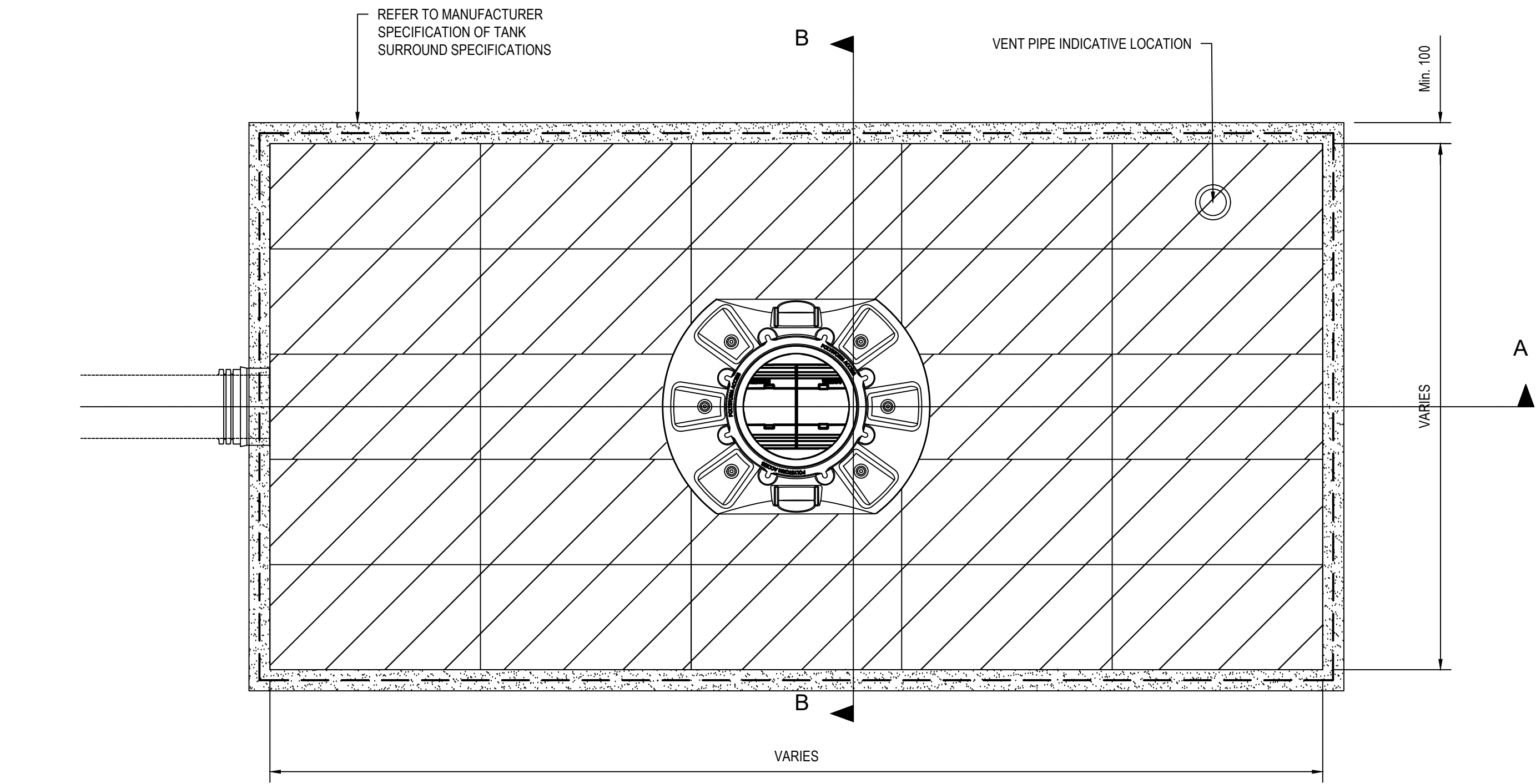
Revision
P01

NOTES:

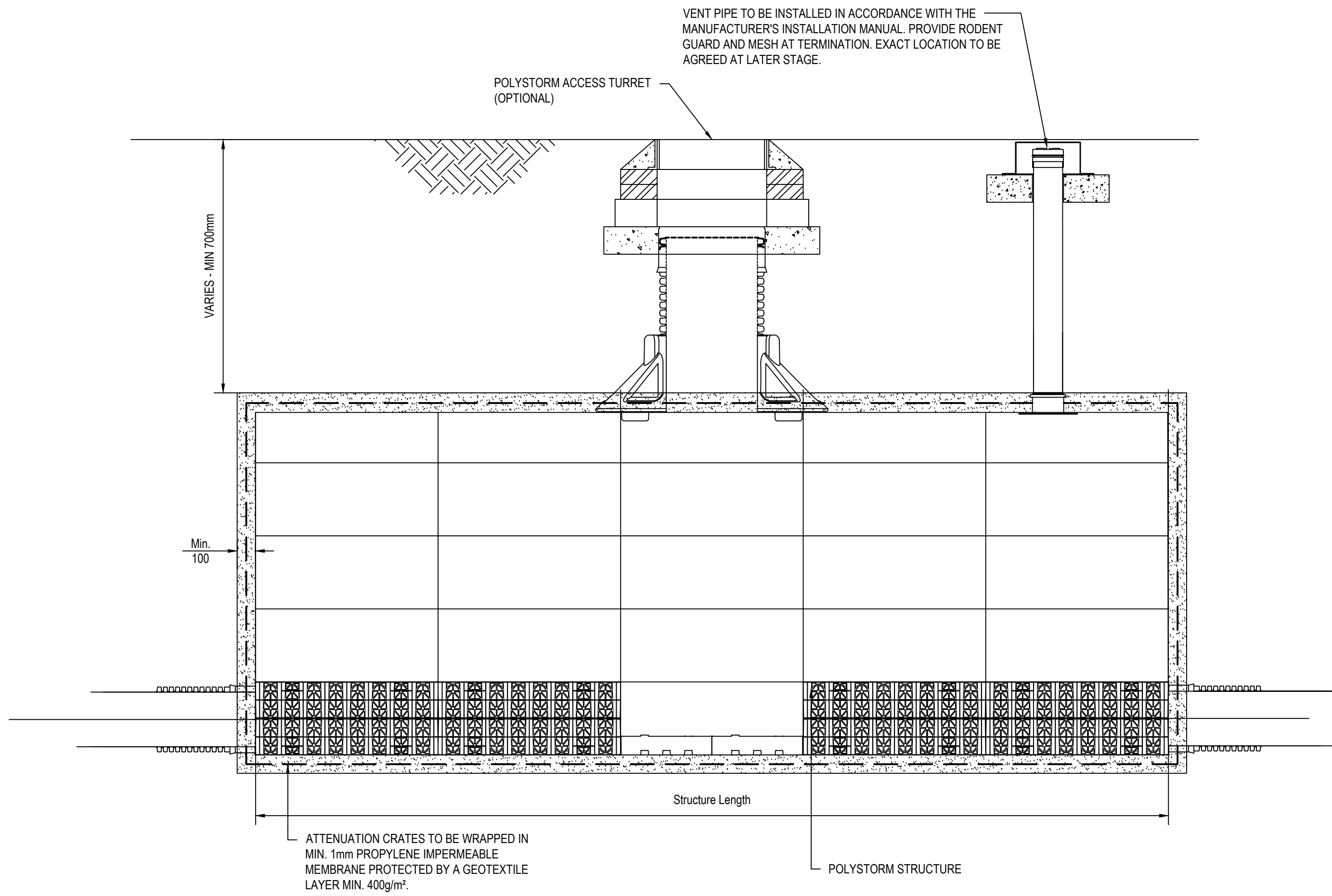
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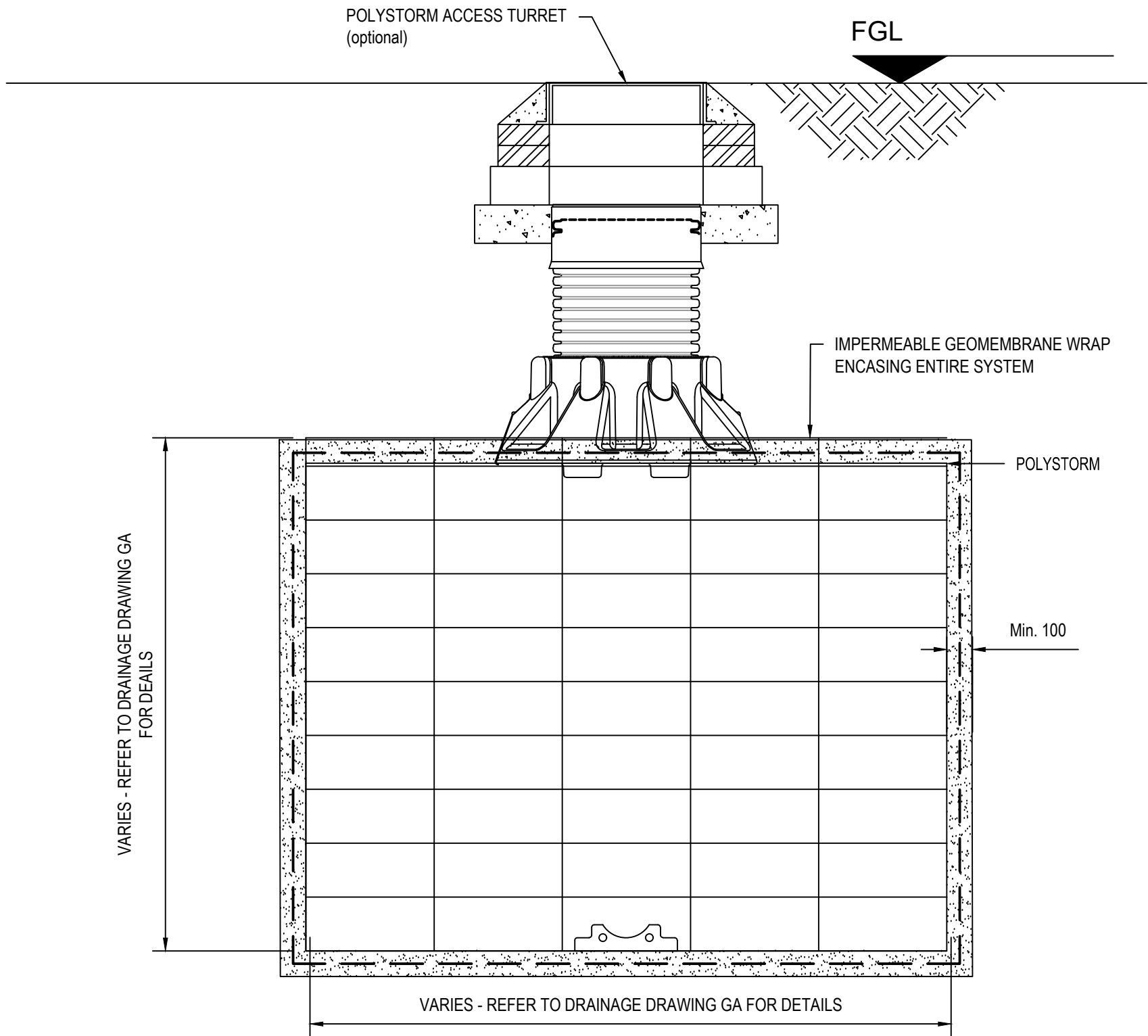
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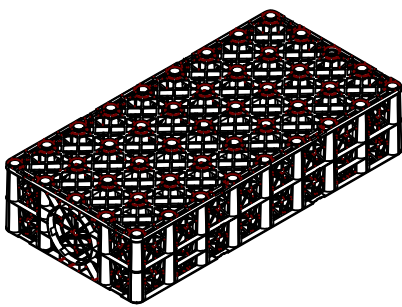
TYPICAL ATTENUATION TANK PLAN
(Scale 1:20)



SECTION A-A
Scale (1:20)



SECTION B-B
Scale (1:20)



TYPICAL GEOCELLULAR UNIT

GEOCELLULAR UNIT						
NAME	CODE	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	VERTICAL STRENGTH (kN/m²)	LATERAL STRENGTH (kN/m²)
Polystorm - xtra or similar approved	PSM3 or similar approved	1000	500	210	834	93

P01	STAGE 3	MS	SZ	12.06.2026
REV	DESCRIPTION	BY	ENG	DATE

Project Status:

STAGE 3

h ENGINEERING POWERED BY THE PAST
BUILDING THE FUTURE

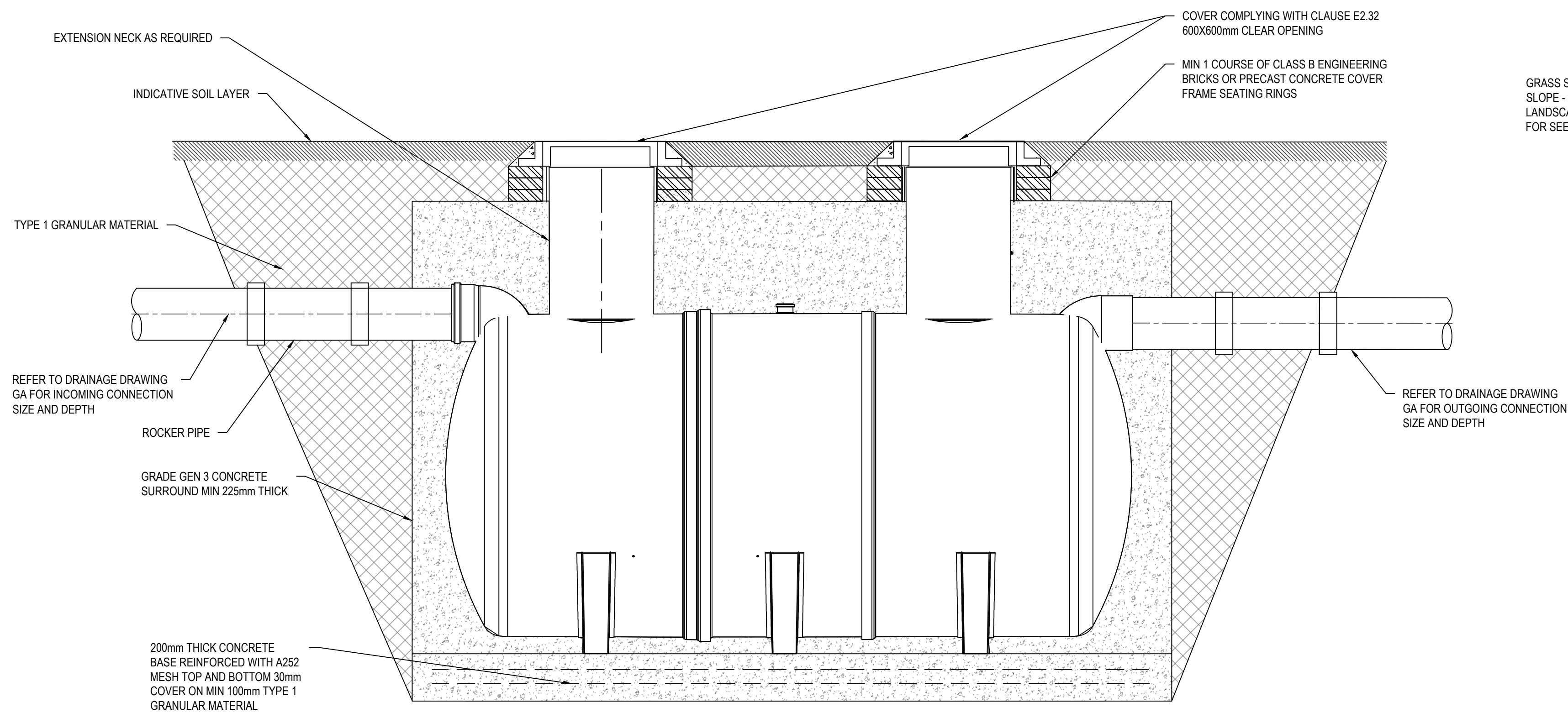
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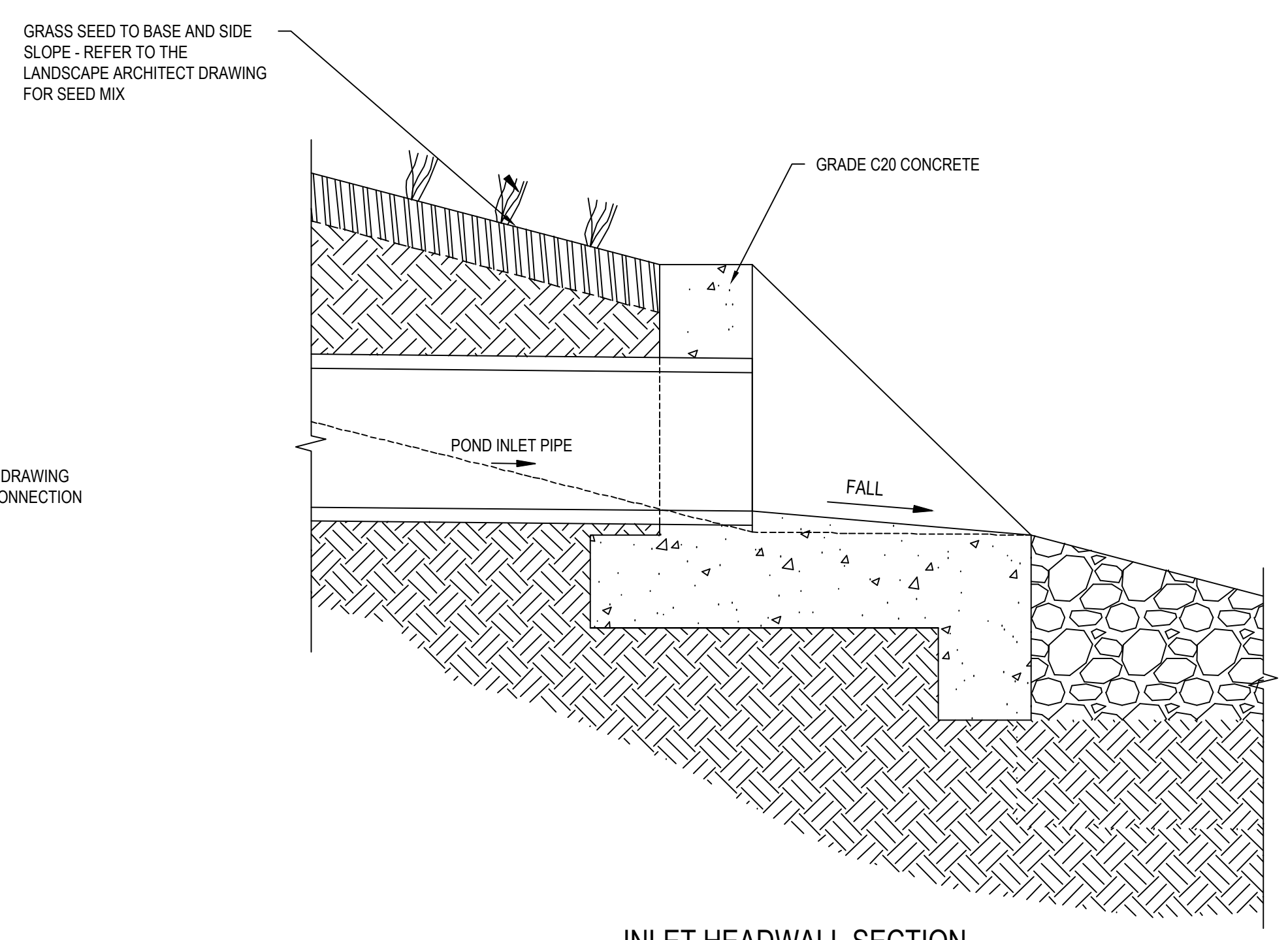
**REDWOOD SEN SCHOOL
ROCHDALE**

Drawing Title:
**DRAINAGE DETAILS
SHEET 3**

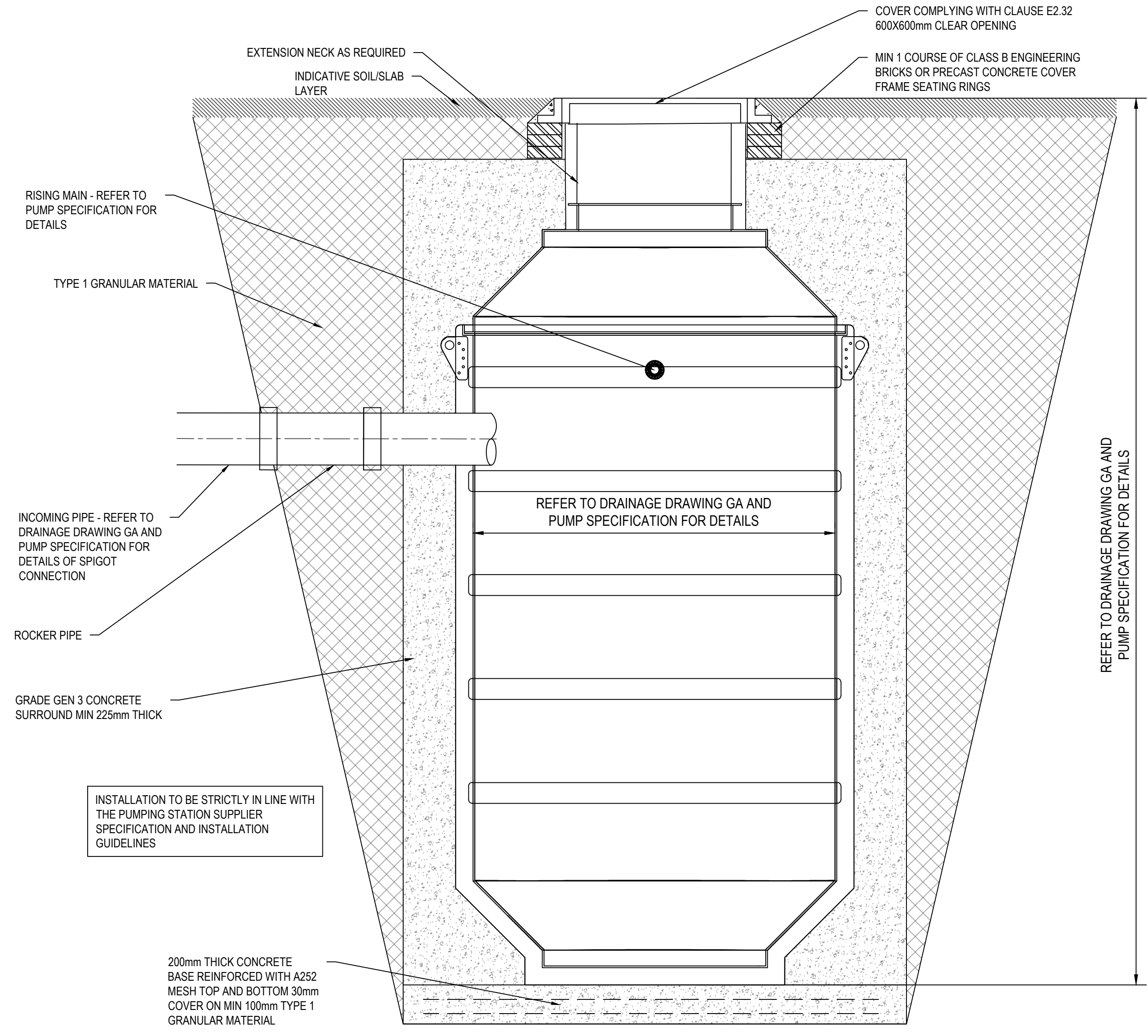
Scale at A1: As Noted	Date: JUNE 2026	Technician: MS	Engineer: MS
Drawing No: 316553-HAH-XX-XX-D-C-00302	Revision: P01		



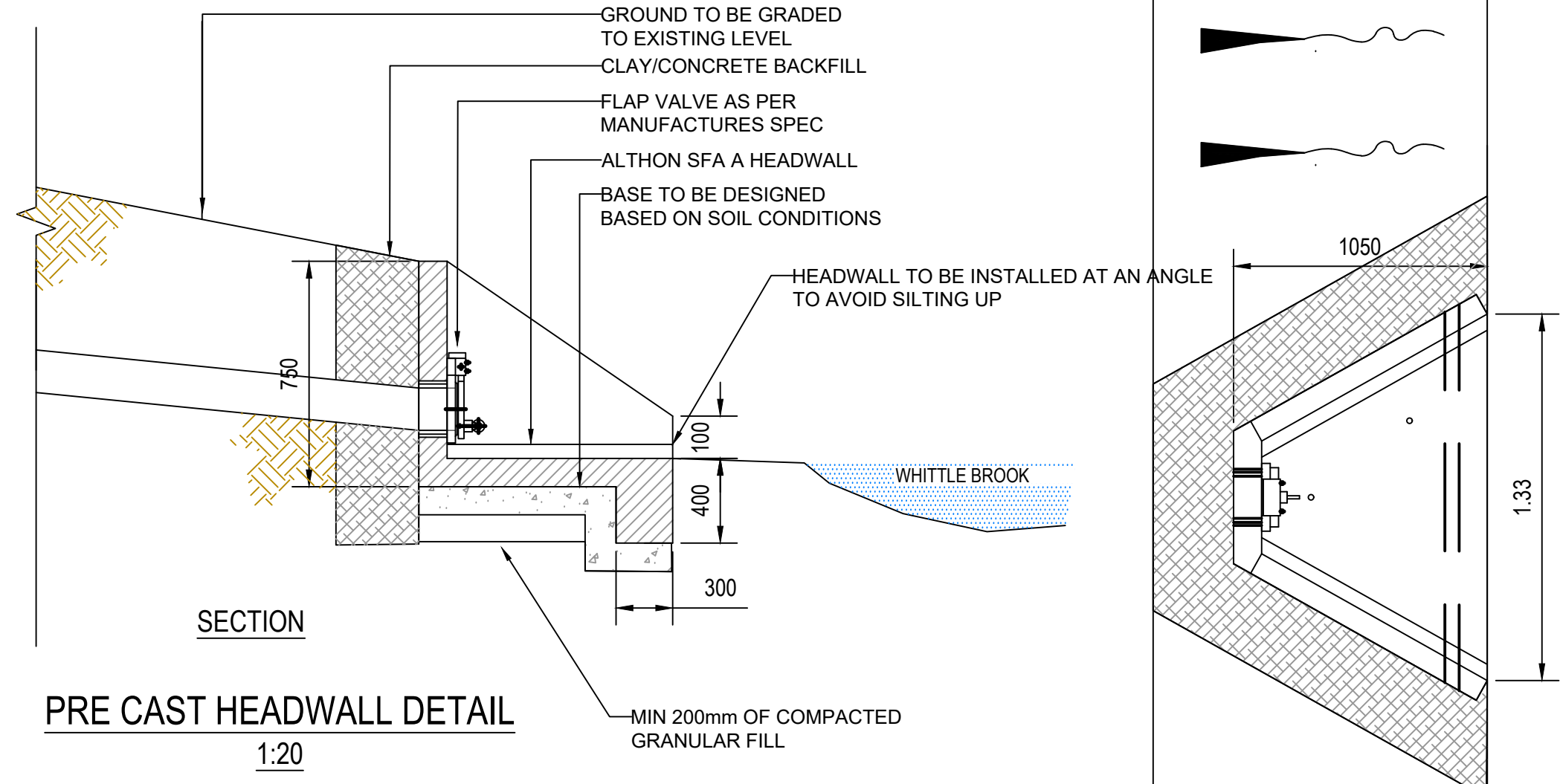
NSFA030 RETENTION SEPARATOR DETAIL
SCALE 1:20



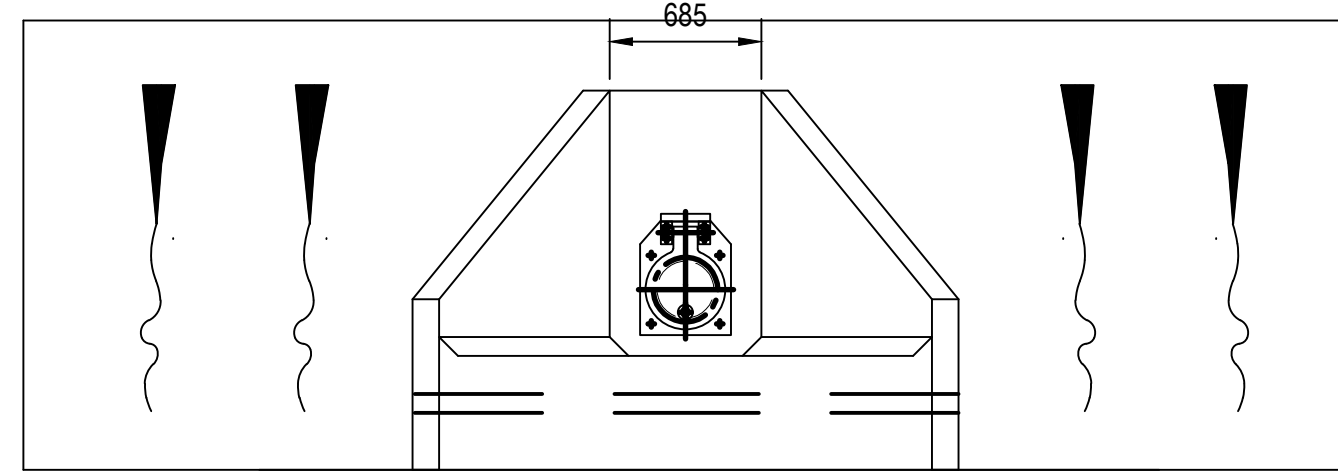
INLET HEADWALL SECTION
(N.T.S.)



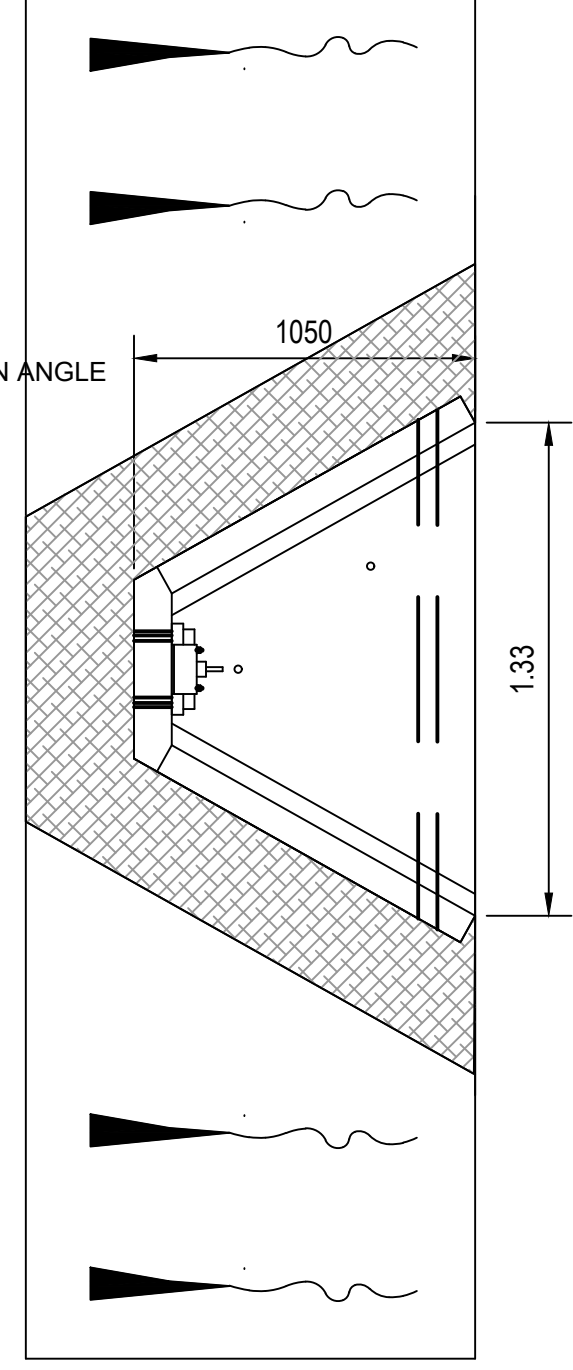
TYPICAL FW PACKAGED PUMPING STATION DETAIL
SCALE 1:20



PRE CAST HEADWALL DETAIL
1:20



PRE-CAST HEADWALL
ELEVATION



PRE-CAST HEADWALL PLAN

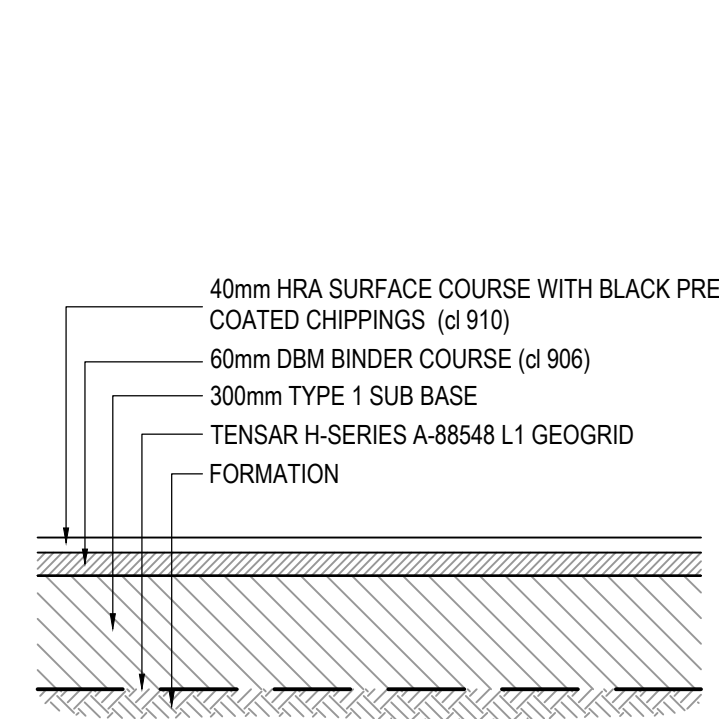
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THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT AND ENGINEER DRAWINGS AND SPECIFICATION NOTES.

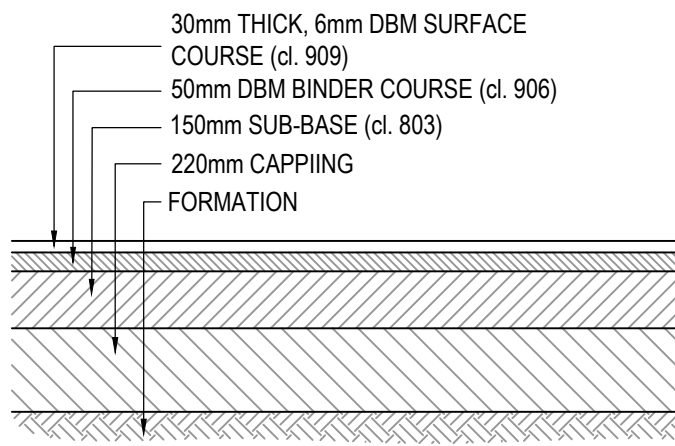
DO NOT SCALE FROM THIS DRAWING. FIGURED DIMENSIONS ONLY TO BE USED. HARLEY HADDOW DRAWINGS ARE FOR STRUCTURAL INFORMATION ONLY. FOR ALL SETTING OUT DIMENSIONS AND DETAILS REFER TO ARCHITECTS DRAWINGS.

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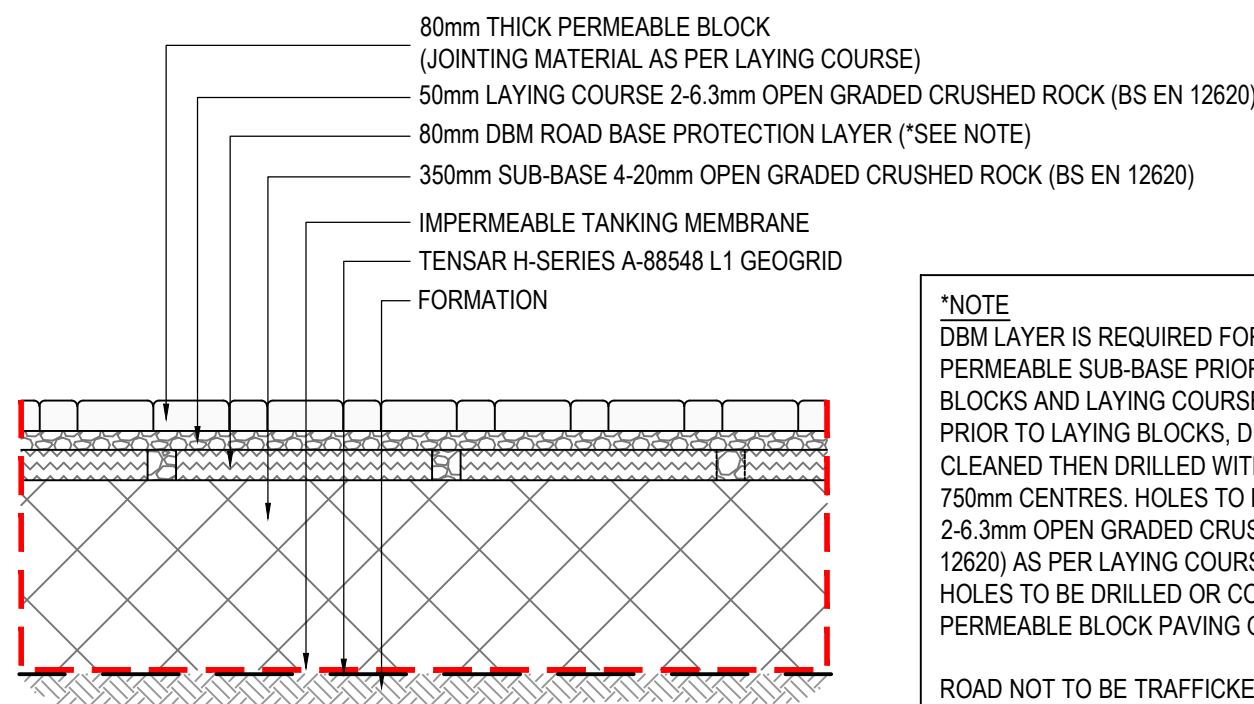
P01	STAGE 3	MS	SZ	12.06.2026
REV	DESCRIPTION	BY	ENG	DATE
Project Status:				
STAGE 3				
 ENGINEERING POWERED BY THE PAST BUILDING THE FUTURE				
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Project: 316553				
REDWOOD SEN SCHOOL ROCHDALE				
Drawing Title:				
DRAINAGE DETAILS SHEET 4				
Scale at A1:	Date:	Technician:	Engineer:	
As Noted	JUNE 2026	MS	MS	
Drawing No.	Revision			
316553-HAH-XX-XX-D-C-00303	P01			



GENERAL ACCESS ROAD CONSTRUCTION - ASPHALT
SCALE 1:20

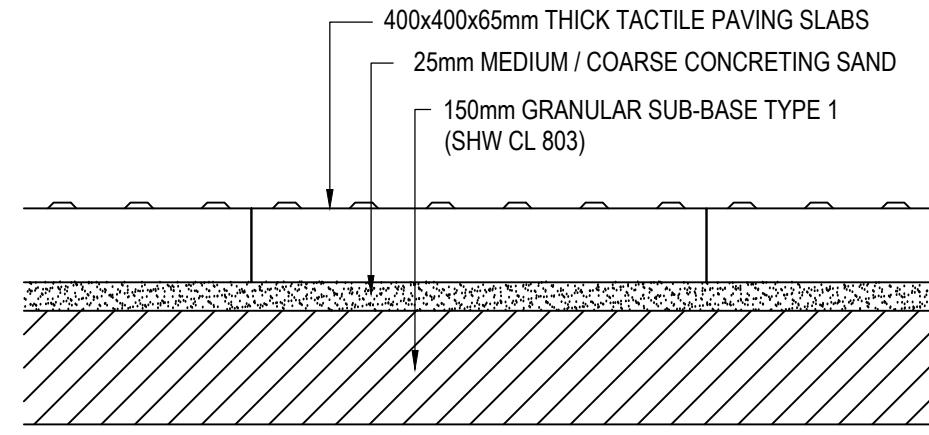


FOOTWAY CONSTRUCTION DETAIL - ASPHALT
SCALE 1:20

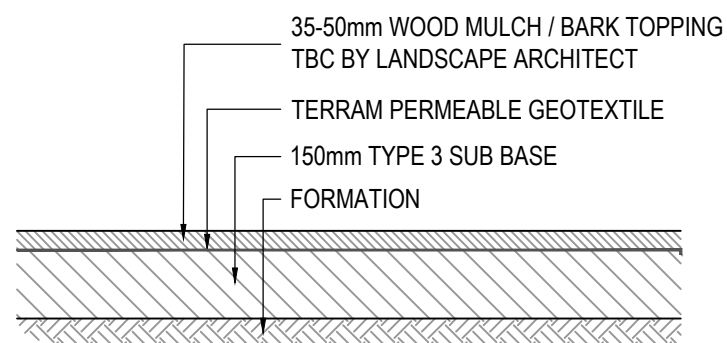


PERMEABLE BLOCK PAVING CONSTRUCTION
SCALE 1:20

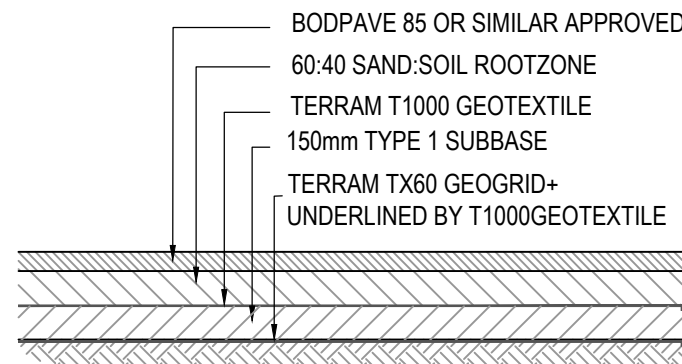
*NOTE
DBM LAYER IS REQUIRED FOR PROTECTION TO PERMEABLE SUB-BASE PRIOR TO LAYING OF BLOCKS AND LAYING COURSE. IMMEDIATELY PRIOR TO LAYING BLOCKS, DBM SURFACE TO BE CLEANED THEN DRILLED WITH 75mmØ HOLES AT 750mm CENTRES. HOLES TO BE FILLED WITH 2-6.3mm OPEN GRADED CRUSHED ROCK (BS EN 12620) AS PER LAYING COURSE. HOLES TO BE DRILLED OR CORE CUT IN AREAS OF PERMEABLE BLOCK PAVING ONLY.
ROAD NOT TO BE TRAFFICKED BY CONSTRUCTION VEHICLES AFTER BLOCKS HAVE BEEN LAID.



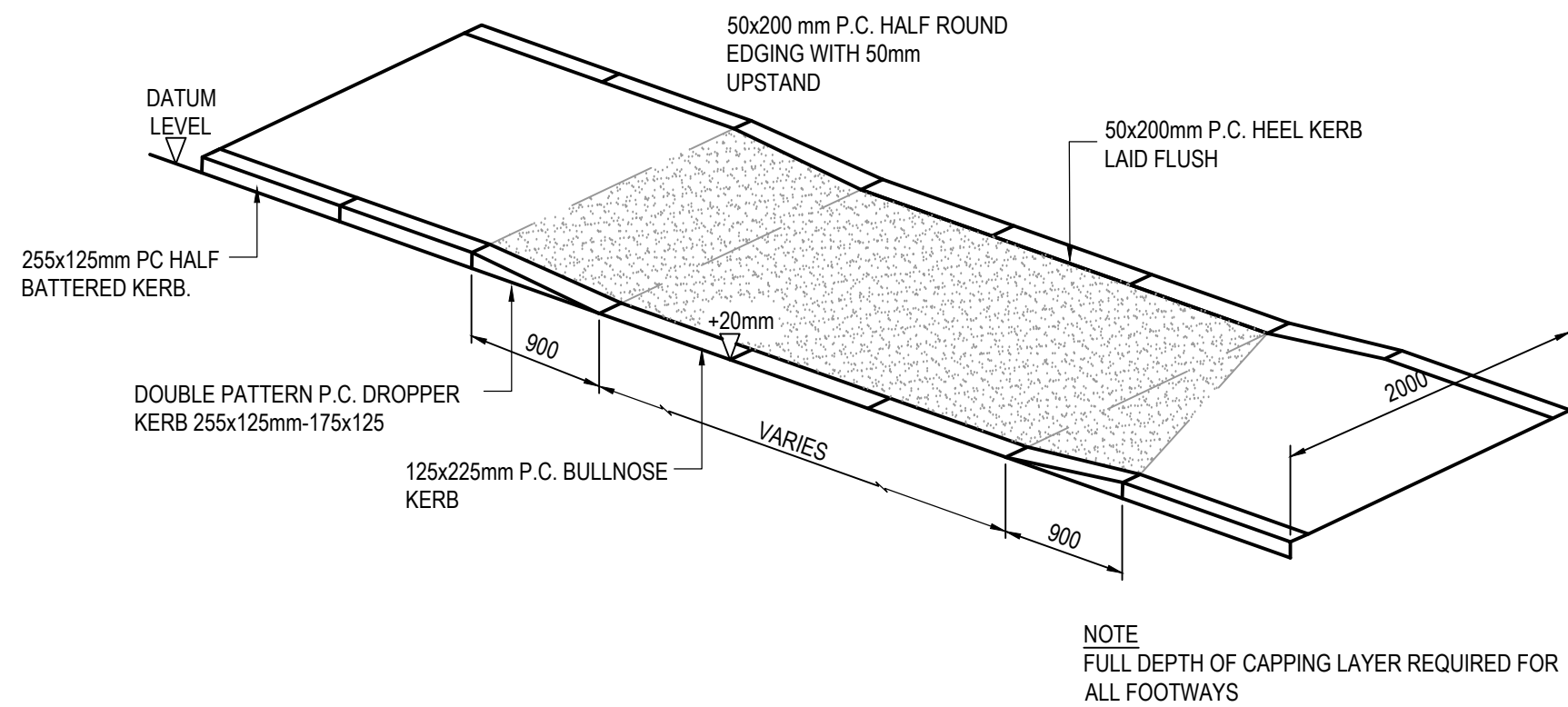
TYPICAL TACTILE PAVING DETAIL
NTS



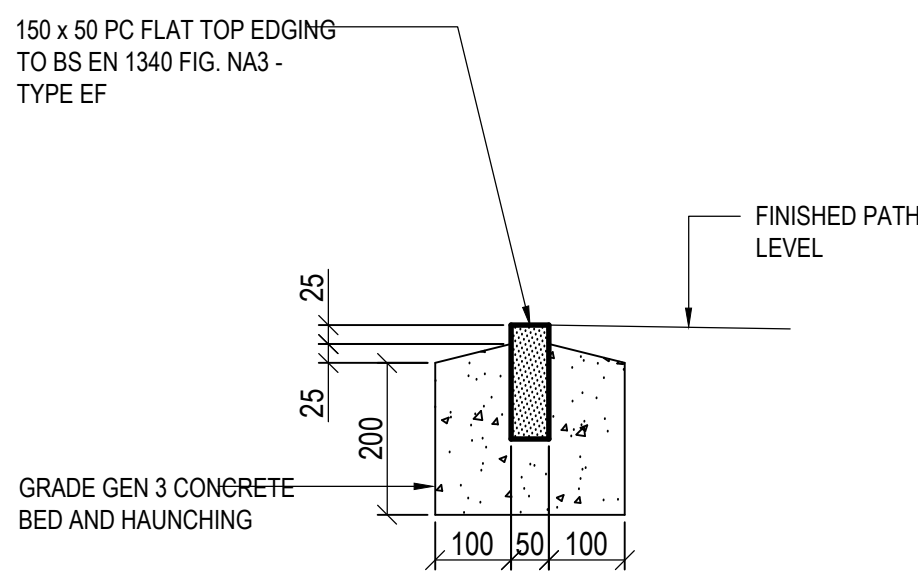
NATURE TRAIL FOOTPATH
SCALE 1:20



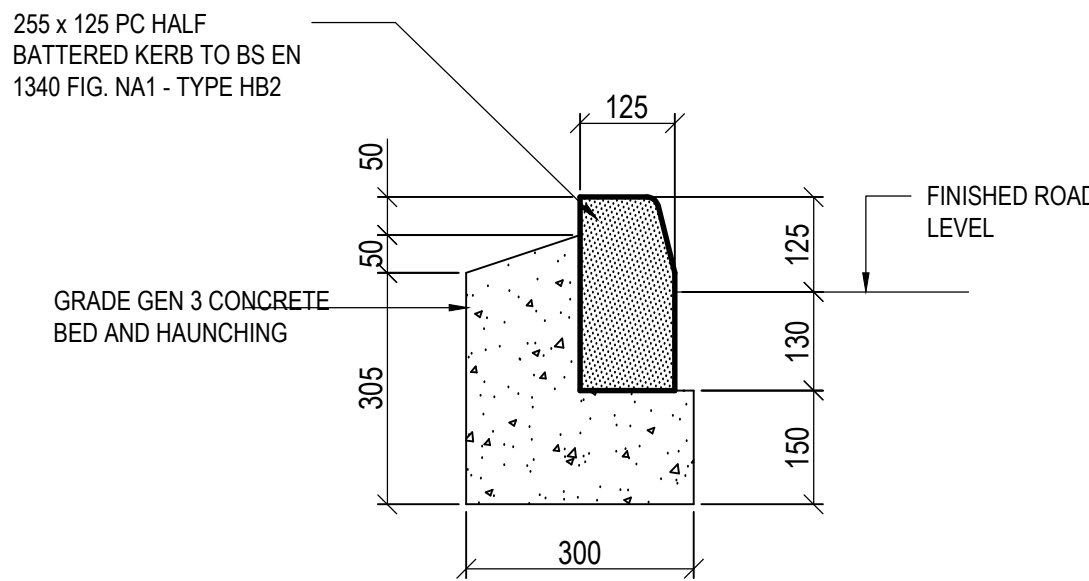
TYPICAL MAINTENANCE TRACK BUILD UP
SCALE 1:20



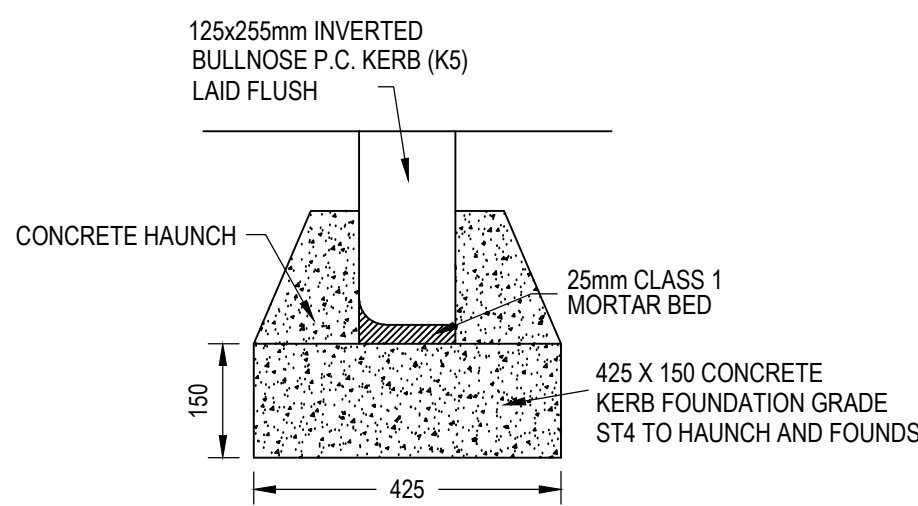
VEHICULAR DROP KERB CROSSING DETAIL
SCALE 1:20



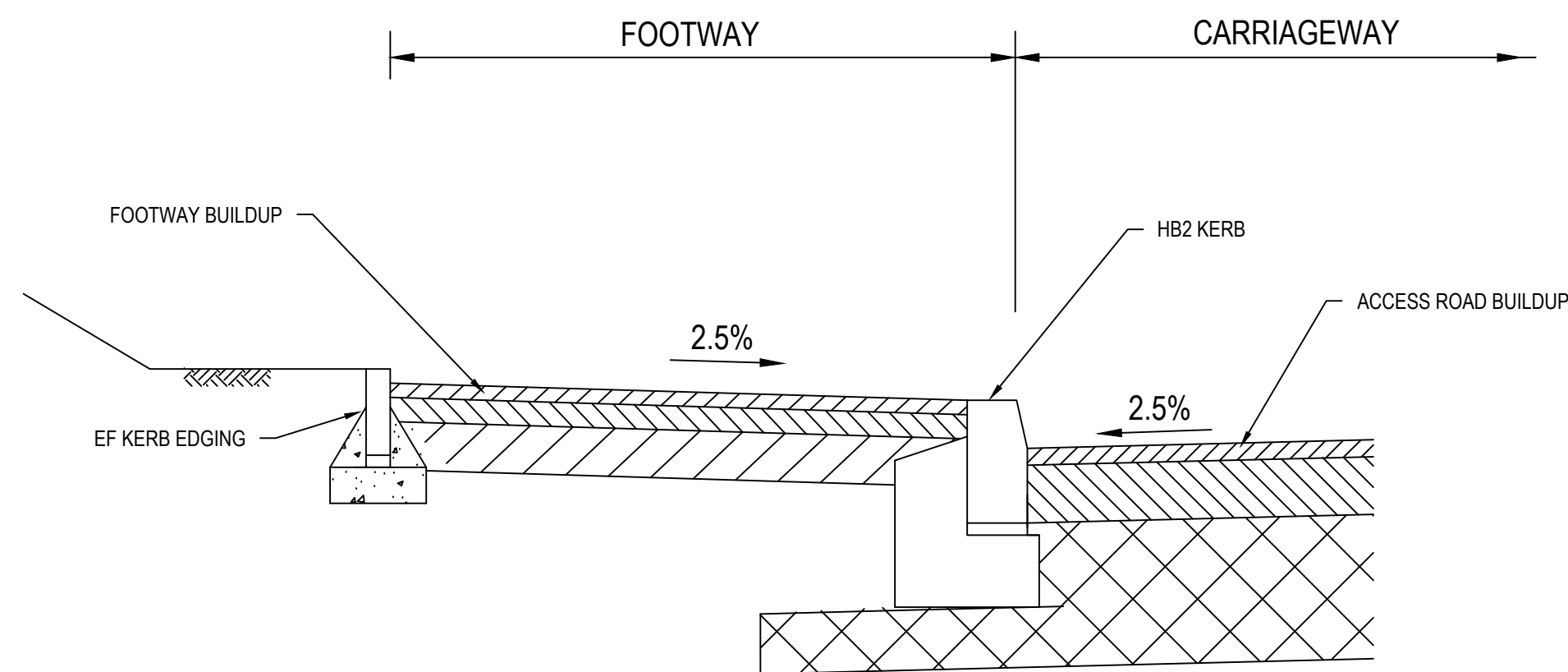
TYPE EF KERB (PATH EDGING) - DETAIL 3
Scale: 1:10



TYPE HB2 KERB (HALF BATTER) - DETAIL 1
Scale: 1:10



FLUSH KERB DETAIL (K5 - FLUSH)
SCALE 1:10



TYPICAL CARRIAGEWAY & FOOTWAY SECTION
SCALE 1:20

NOTES:

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P01	STAGE 3	MS	SZ	12.06.2026
REV	DESCRIPTION	BY	ENG	DATE

Project Status:

STAGE 3



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Project: 316553

REDWOOD SEN HUB
ROCHDALE

Drawing Title:

EXTERNAL WORKS DETAILS

Scale at A1:	Date:	Technician:	Engineer:
As Noted	JUNE 2026	MS	MS
Drawing No.	Revision		
316553-HAH-XX-XX-D-C-00310	P01		



NOTES:

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P04	STAGE 3	SZ	CB	12.06.2026
P03	FOR PLANNING	SZ	CB	12.06.2026
P02	ISSUE FOR COORDINATION	SZ	CB	14.04.2026
P01	PRELIMINARY ISSUE FOR COORDINATION	SZ	-	27.02.2026
REV	DESCRIPTION	BY	ENG	DATE

Project Status:

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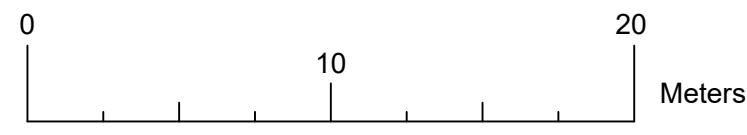
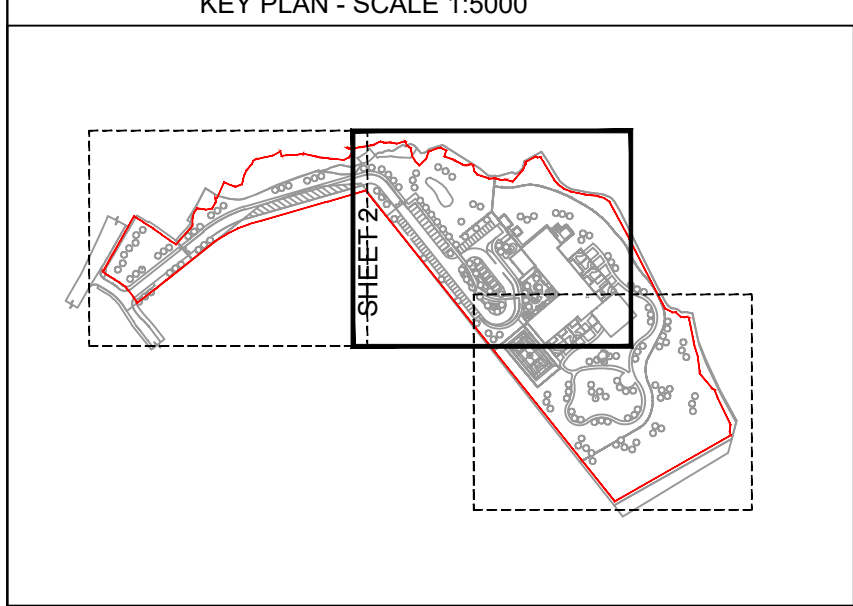
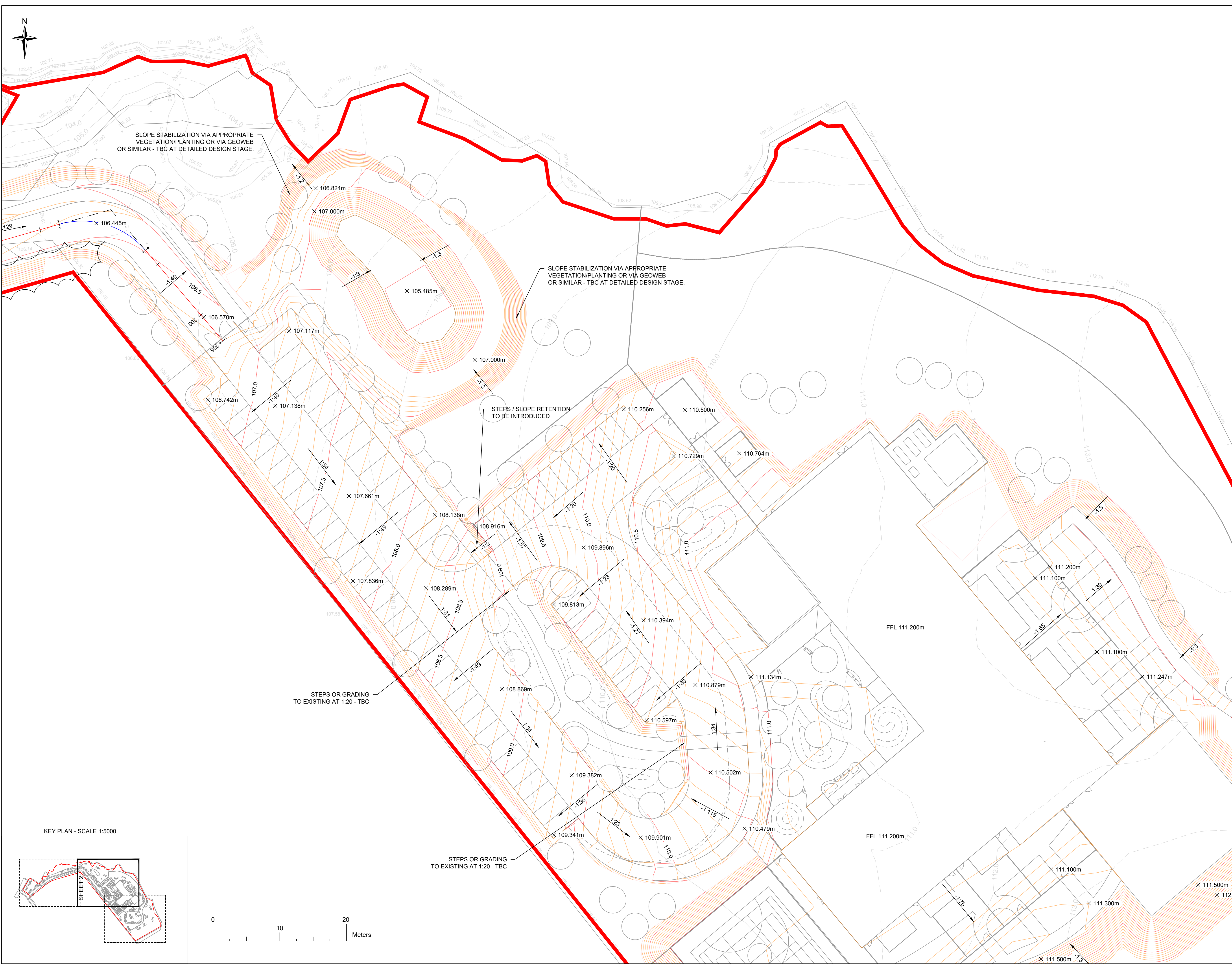
Project: 316553

**REDWOOD SEN HUB
ROCHDALE**

Drawing Title:

**PROPOSED SITE LEVELS
SHEET 1**

Scale at A1:	Date:	Technician:	Engineer:
1:250	March 2026	SZ	SZ
Drawing No:	Revision		
316553-HAH-XX-00-D-C-00100	P04		



NOTES:

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P04	STAGE 3	SZ	CB	12.06.2026
P03	FOR PLANNING	SZ	CB	12.06.2026
P02	ISSUE FOR COORDINATION	SZ	CB	14.04.2026
P01	PRELIMINARY ISSUE FOR COORDINATION	SZ	-	27.02.2026
REV	DESCRIPTION	BY	ENG	DATE

Project Status: **STAGE 3**



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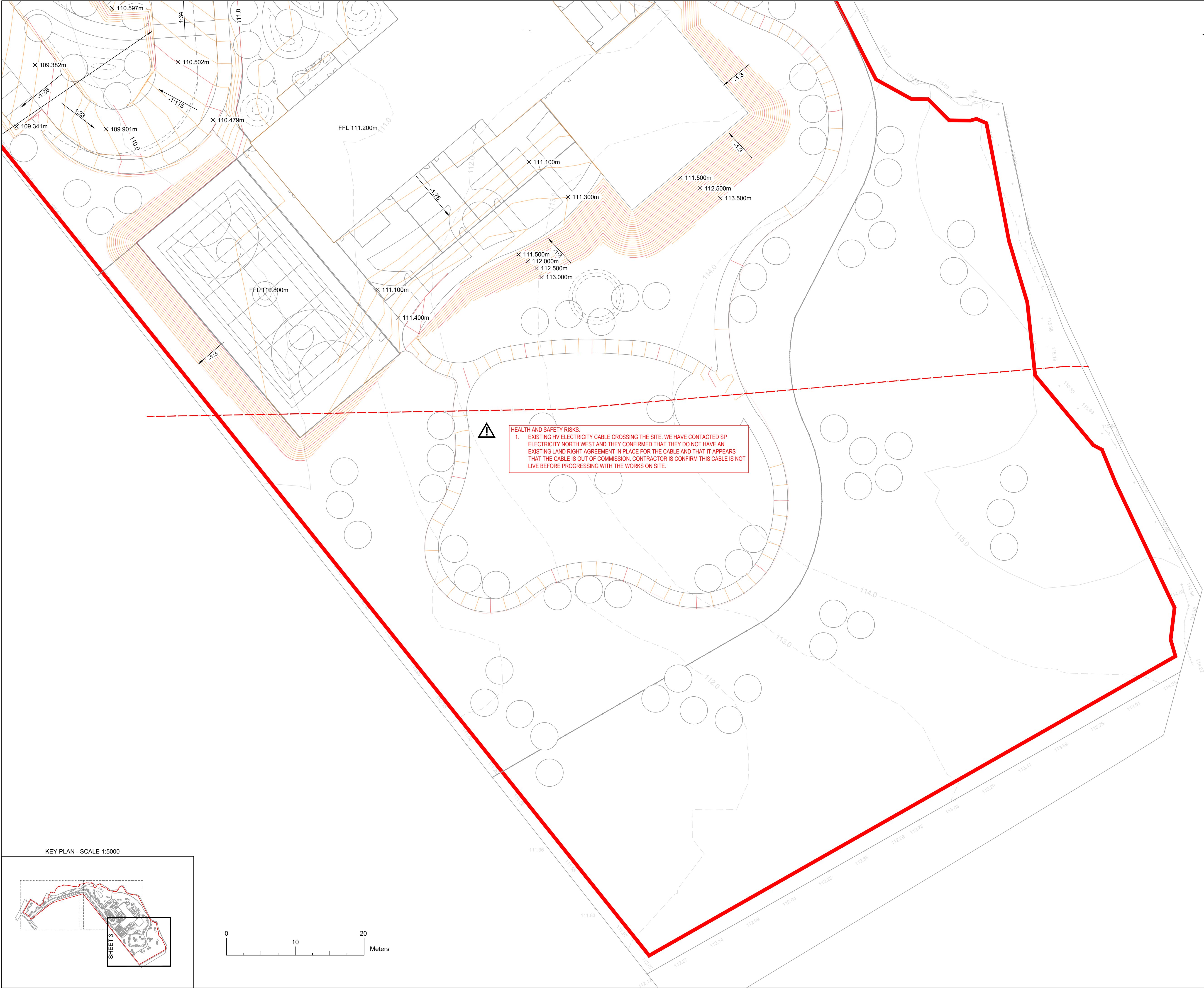
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Project: 316553

**REDWOOD SEN HUB
ROCHDALE**

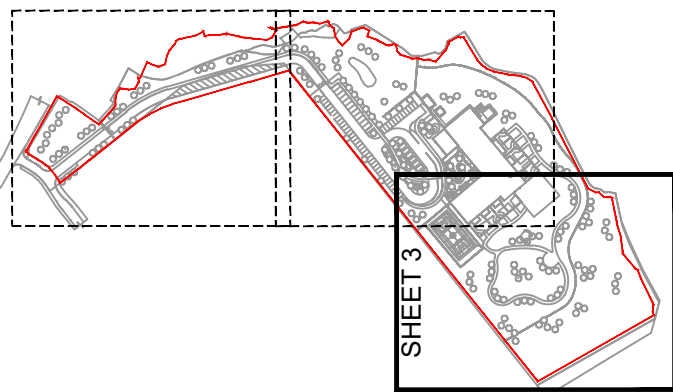
Drawing Title:
**PROPOSED SITE LEVELS
SHEET 2**

Scale at A1: 1:250	Date: March 2026	Technician: SZ	Engineer: SZ
Drawing No: 316553-HAH-XX-00-D-C-00101	Revision: P04		



HEALTH AND SAFETY RISKS.
1. EXISTING HV ELECTRICITY CABLE CROSSING THE SITE. WE HAVE CONTACTED SP ELECTRICITY NORTH WEST AND THEY CONFIRMED THAT THEY DO NOT HAVE AN EXISTING LAND RIGHT AGREEMENT IN PLACE FOR THE CABLE AND THAT IT APPEARS THAT THE CABLE IS OUT OF COMMISSION. CONTRACTOR IS CONFIRM THIS CABLE IS NOT LIVE BEFORE PROGRESSING WITH THE WORKS ON SITE.

KEY PLAN - SCALE 1:5000



NOTES:

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P04	STAGE 3	SZ	CB	12.06.2026
P03	FOR PLANNING	SZ	CB	12.06.2026
P02	ISSUE FOR COORDINATION	SZ	CB	14.04.2026
P01	PRELIMINARY ISSUE FOR COORDINATION	SZ	-	27.02.2026
REV	DESCRIPTION	BY	ENG	DATE

Project Status: **STAGE 3**



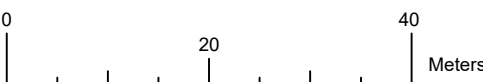
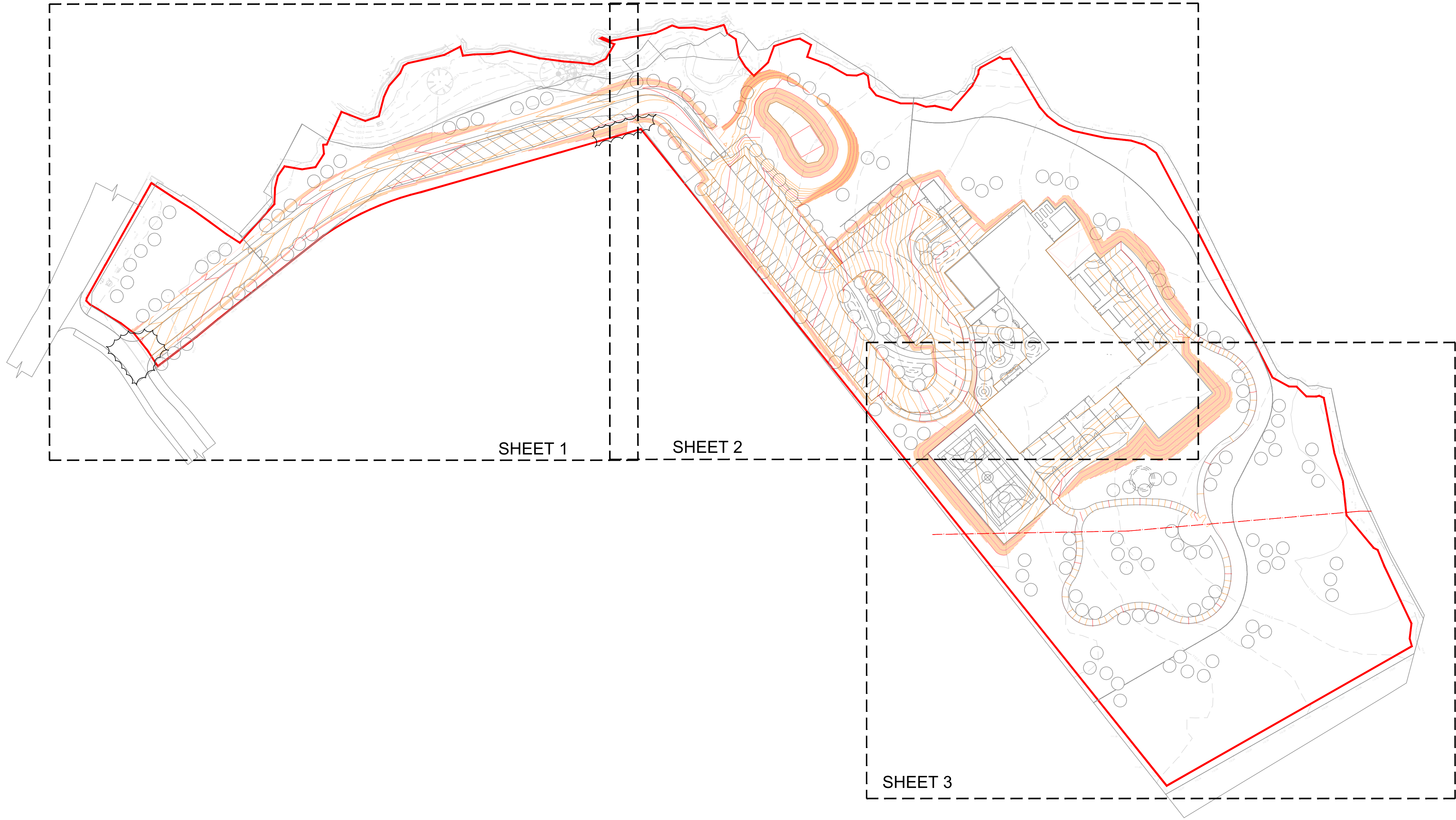
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Project: 316553
**REDWOOD SEN HUB
ROCHDALE**

Drawing Title:
**PROPOSED SITE LEVELS
SHEET 3**

Scale at A1:	Date:	Technician:	Engineer:
1:250	March 2026	sz	sz
Drawing No.	Revision		
316553-HAH-XX-00-D-C-00102	P04		



NOTES:

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P02	STAGE 3	SZ	CB	12.06.2026
P01	FOR PLANNING	SZ	CB	12.06.2026
REV	DESCRIPTION	BY	ENG	DATE

Project Status: **STAGE 3**



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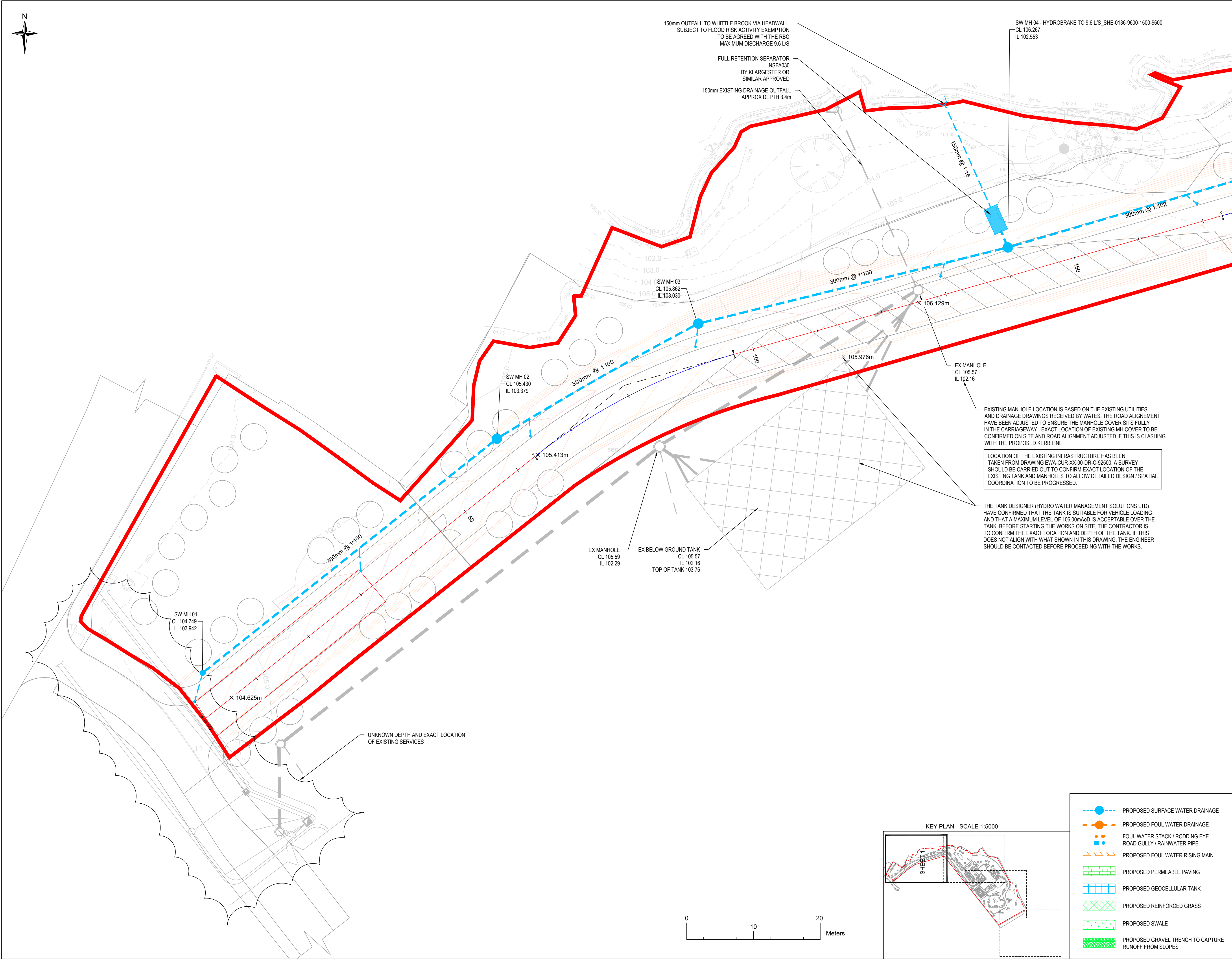
Project: 316553

**REDWOOD SEN HUB
ROCHDALE**

Drawing Title:

**PROPOSED SITE LEVELS
KEY PLAN**

Scale at A1:	Date:	Technician:	Engineer:
1:750	June 2026	SZ	SZ
Drawing No.	Revision		
316553-HAH-XX-00-D-C-00103	P02		



NOTES:

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- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED. WHERE THERE APPEARS TO BE A CONFLICT BETWEEN DIMENSIONS OR WHERE DIMENSIONS CANNOT BE DETERMINED FROM THE DRAWINGS, CONSULT THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS AND SPECIFICATIONS.
- THIS DRAWING IS BASED ON:
 - TOPOGRAPHICAL SURVEY S250280-DR-T-001
 - SITE LAYOUT ED0064-22 - Rev F
 - EXISTING DRAINAGE DRAWING EWA-CUR-XX-00-DR-C-92500
- THE CONTRACTOR SHALL:
 - VERIFY EXISTING UTILITIES BEFORE STARTING WORKS.
 - VERIFY THE DIMENSIONS SHOWN ON THE DRAWINGS BEFORE FABRICATION, SETTING OUT OR EXCAVATION OF THE WORK, AND SHALL BE HELD RESPONSIBLE FOR ANY ERRORS OR INACCURACIES RESULTING FROM FAILURE TO DO SO.
 - CHECK AND VERIFY THE LOCATION AND LEVELS ALL EXISTING DRAINS, SEWERS, INSPECTION CHAMBERS AND MANHOLES AGAINST DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
- LOCATION OF INSPECTION CHAMBERS/MANHOLES IS INDICATIVE AND REQUIRED FURTHER COORDINATION DURING THE NEXT STAGES OF THE DESIGN.
- ALL DRAINAGE SHOULD BE STRUCTURED WALL PVC-u. ALL FOUL AND SURFACE WATER LATERAL DRAIN TO BE DN100 UNLESS OTHERWISE STATED. ALL STACK CONNECTIONS TO BELOW THE SLAB TO HAVE RODDABLE ACCESS ABOVE SLAB. ALL ROAD GULLIES OUTLET PIPE TO BE 150mm DIA. UNLESS OTHERWISE STATED.
- ALL INSPECTION CHAMBERS LOCATED ONTO THE PERMEABLE PAVING TO HAVE A OPEN GRATE COVER AND A 50mm ORIFICE PLATE FITTED AT OUTLET TO MAXIMIZE RETENTION INTO THE PAVING SUBBASE.
- CONTRACTOR TO PROVIDE ADEQUATE PROTECTION TO SHALLOW PIPES. PIPE PROTECTION DETAIL TO BE PROVIDED FOR PIPES WITH COVER LESS THAN 0.3m ABOVE THE CROWN OF THE PIPE FOR ROADS AND 0.6m FOR SOFT AND PEDESTRIAN AREAS.
- ROCKER PIPES ARE TO BE PROVIDED AT ALL CONCRETE CASED INTERFACES.
- ALL PROPRIETARY PRODUCTS / SYSTEMS TO BE VERIFIED BY THE MANUFACTURER AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION / DETAILS.
- ALL DRAINAGE TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH BS EN 12056-1:2000, BS EN 752:2017, AND BS EN 1610:2015.
- ALLOWANCE SHOULD BE MADE FOR PROVIDING A SUITABLE BEDDING AND COVER TO EXISTING SERVICES UNDER THE PROPOSED ROADS, FOOTWAYS AND SOFT LANDSCAPING, IF NECESSARY.
- WHERE COVERS AND INSPECTION CHAMBERS AND MANHOLES THAT WERE FORMERLY LOCATED IN THE FOOTWAY OR ISLANDS OR SOFT LANDSCAPE ARE LOCATED WITHIN NEW AREAS OF CARRIAGEWAY OR PARKING BAYS, RE-BUILDING AND/OR STRENGTHENING WORKS AND REPLACEMENT OF COVERS SHOULD BE UNDERTAKEN TO SUIT THE CARRIAGEWAY LOADING.
- EXISTING MANHOLE AND INSPECTION CHAMBER COVERS SHALL BE RAISED OR LOWERED TO BE FLUSH WITH PROPOSED ROAD AND FOOTWAY LEVELS.
- THRUST BLOCS TO BE BUILT AT ALL THE FOUL WATER RISING MAIN SHARP CHANGE IN DIRECTION.
- PIPE BEDDING TYPE:
 - WHERE COVER TO CROWN OF PIPE IS LESS THAN 900mm IN TRAFFICKED AREAS OR LESS THAN 600mm IN NON-TRAFFICKED AREAS - BED AND SURROUND CLASS Z.
 - WHERE COVER TO CROWN OF PIPE IS GREATER THAN 900mm IN TRAFFICKED AREAS OR GREATER THAN 600mm IN NON-TRAFFICKED AREAS - BED AND SURROUND CLASS S.

150mm OUTFALL TO WHITTLE BROOK VIA HEADWALL. SUBJECT TO FLOOD RISK ACTIVITY EXEMPTION TO BE AGREED WITH THE RBC. MAXIMUM DISCHARGE 9.6 L/S

FULL RETENTION SEPARATOR NSFA030 BY KLARGESTER OR SIMILAR APPROVED

150mm EXISTING DRAINAGE OUTFALL APPROX DEPTH 3.4m

SW MH 04 - HYDROBRAKE TO 9.6 L/S. SHE-0136-9600-1500-9600 CL 106.267 IL 102.553

SW MH 03 CL 105.862 IL 103.030

SW MH 02 CL 105.430 IL 103.379

SW MH 01 CL 104.749 IL 103.942

EX MANHOLE CL 105.57 IL 102.16

EX MANHOLE CL 105.59 IL 102.29

EX BELOW GROUND TANK CL 105.57 IL 102.16 TOP OF TANK 103.76

EXISTING MANHOLE LOCATION IS BASED ON THE EXISTING UTILITIES AND DRAINAGE DRAWINGS RECEIVED BY WATES. THE ROAD ALIGNEMENT HAVE BEEN ADJUSTED TO ENSURE THE MANHOLE COVER SITS FULLY IN THE CARRIAGEWAY - EXACT LOCATION OF EXISTING MH COVER TO BE CONFIRMED ON SITE AND ROAD ALIGNMENT ADJUSTED IF THIS IS CLASHING WITH THE PROPOSED KERB LINE.

LOCATION OF THE EXISTING INFRASTRUCTURE HAS BEEN TAKEN FROM DRAWING EWA-CUR-XX-00-DR-C-92500. A SURVEY SHOULD BE CARRIED OUT TO CONFIRM EXACT LOCATION OF THE EXISTING TANK AND MANHOLES TO ALLOW DETAILED DESIGN / SPATIAL COORDINATION TO BE PROGRESSSED.

THE TANK DESIGNER (HYDRO WATER MANAGEMENT SOLUTIONS LTD) HAVE CONFIRMED THAT THE TANK IS SUITABLE FOR VEHICLE LOADING AND THAT A MAXIMUM LEVEL OF 106.00mAOD IS ACCEPTABLE OVER THE TANK. BEFORE STARTING THE WORKS ON SITE, THE CONTRACTOR IS TO CONFIRM THE EXACT LOCATION AND DEPTH OF THE TANK. IF THIS DOES NOT ALIGN WITH WHAT SHOWN IN THIS DRAWING, THE ENGINEER SHOULD BE CONTACTED BEFORE PROCEEDING WITH THE WORKS.

UNKNOWN DEPTH AND EXACT LOCATION OF EXISTING SERVICES

KEY PLAN - SCALE 1:5000

	PROPOSED SURFACE WATER DRAINAGE
	PROPOSED FOUL WATER DRAINAGE
	FOUL WATER STACK / RODDING EYE
	ROAD GULLY / RAINWATER PIPE
	PROPOSED FOUL WATER RISING MAIN
	PROPOSED PERMEABLE PAVING
	PROPOSED GEOCELLULAR TANK
	PROPOSED REINFORCED GRASS
	PROPOSED SWALE
	PROPOSED GRAVEL TRENCH TO CAPTURE RUNOFF FROM SLOPES

STAGE 3

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**REDWOOD SEN HUB
ROCHDALE**

Drawing Title:
**PROPOSED BELOW GROUND
DRAINAGE - SHEET 1**

Scale at A1: 1:250	Date: MARCH 2026	Technician: SZ	Engineer: SZ
Drawing No: 316553-HAH-XX-00-D-C-00200	Revision P03		

Appendix D – References

¹ Ministry of Housing, Communities and Local Government, December 2024, "National Planning Policy Framework".

² Ministry of Housing Communities and Local Government, August 2022. "Guidance, Flood risk and coastal change".

³ LKC, LKC251564-A1-PRA-Heywood Old Road R0, November 2026

⁴ LKC, LKC251564 -B1-GI-Heywood Old Road, Middleton R2, March 2026

⁵ Curtains, EWA-CUR-00-XX-RP-GE-001, January 2021

⁶ Rochdale Metropolitan Borough Council, March 2014, Rochdale Borough's Strategy for Flood Risk Management 2014-2024.

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