

**VARIATION OF CONDITION 2 AND 5 OF
PLANNING PERMISSION 25/01061/FUL FOR THE
TEMPORARY CONSTRUCTION COMPOUND AT
M62 JUNCTION 19**

Drainage Strategy

HE548642-COS-HDG-SII_MLT-SG-W-0001

July 2026

Document Control

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Document history and status

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P02	05/12/25	Updated version for Planning	YP/CS	CS	SO	PE
P03	03/07/26	For Issue for Variation of Planning Permission	YP/CS	CS	SH	PE

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M60/M62/M66 Simister Island

Junction 19 Temporary Compound Drainage Strategy

Introduction

This Drainage Strategy Report has been prepared to support the Variation to condition 2 and 5 of planning permission 25/01061/FUL hereby referred to as the Approved Development. The compound will be used to support the delivery of the M60/M62/M66 Simister Island Scheme.

The purpose of this report is to set out the approach to both surface water and foul water drainage, ensuring compliance with relevant planning policy, National Highways design standards, and environmental protection requirements. The strategy is designed to ensure that the temporary development:

- does not increase flood risk locally or downstream,
- avoids pollution of controlled waters and the highway drainage system, and
- can be safely constructed, operated, maintained, and decommissioned.

This Drainage Strategy is supported by calculations which demonstrate that the surface water drainage system provides sufficient capacity to manage the anticipated flows from the site at below greenfield run-off rates without causing flooding at the site or elsewhere.

A refresh of the hydrological modelling carried out to support the original design and construction of the existing surface water drainage system has been undertaken, accounting for the recent updates to the UK hydrology rainfall parameters since the installation of the infrastructure in 2023. The Greenfield runoff rates have been revised since the installation of the infrastructure in 2023 and are provided in Appendix A: Green Field Flow Rate. The drainage strategy and hydraulic model consider the revised Greenfield runoff rate (QBar 2025) of 34.4 l/s. The hydraulic model for the temporary works site was simulated for the 1 in 10-year storm event, and the model results, included in Appendix B: Hydraulic Output, show no flooding. The hydraulic model was built using the latest industry software, InfoDrainage 2025. The 1-in-10-year storm event and no-flooding drainage design criteria were chosen based on the CIRIA C648 guidelines for temporary works. Appendix C: Manhole Schedules lists the drainage parameters, based on the existing installed drainage system, such as cover levels, invert levels and pipe slopes used within the hydraulic model for the chambers, ditch, ponds, oil interceptors and outfall chamber.

This Drainage Strategy also includes calculations to support the Proposed Varied foul drainage design, as set out in the Proposed Foul Water Drainage Plan [HE548642-COS-LDC-SII_MTL-DR-W-0019-P01 and the Foul Water Typical Details [C1553-02-20-D004_P01], demonstrating that it provides sufficient capacity for the peak foul flow rate. The foul peak flow rates are included in Appendix D: Peak Foul Flow Rate, Appendix E: Hydraulic Output Report (Foul Water) includes the hydraulic report extracted from the hydraulic modelling software, and Appendix F: Manhole Schedule (Foul Water) includes the foul drainage network manhole and pipe schedule.

Site Location and Description

The proposed site compound is located to the south of the M62 at Junction 19, positioned to provide strategic access to the motorway network while avoiding impacts upon the Local Road Network.

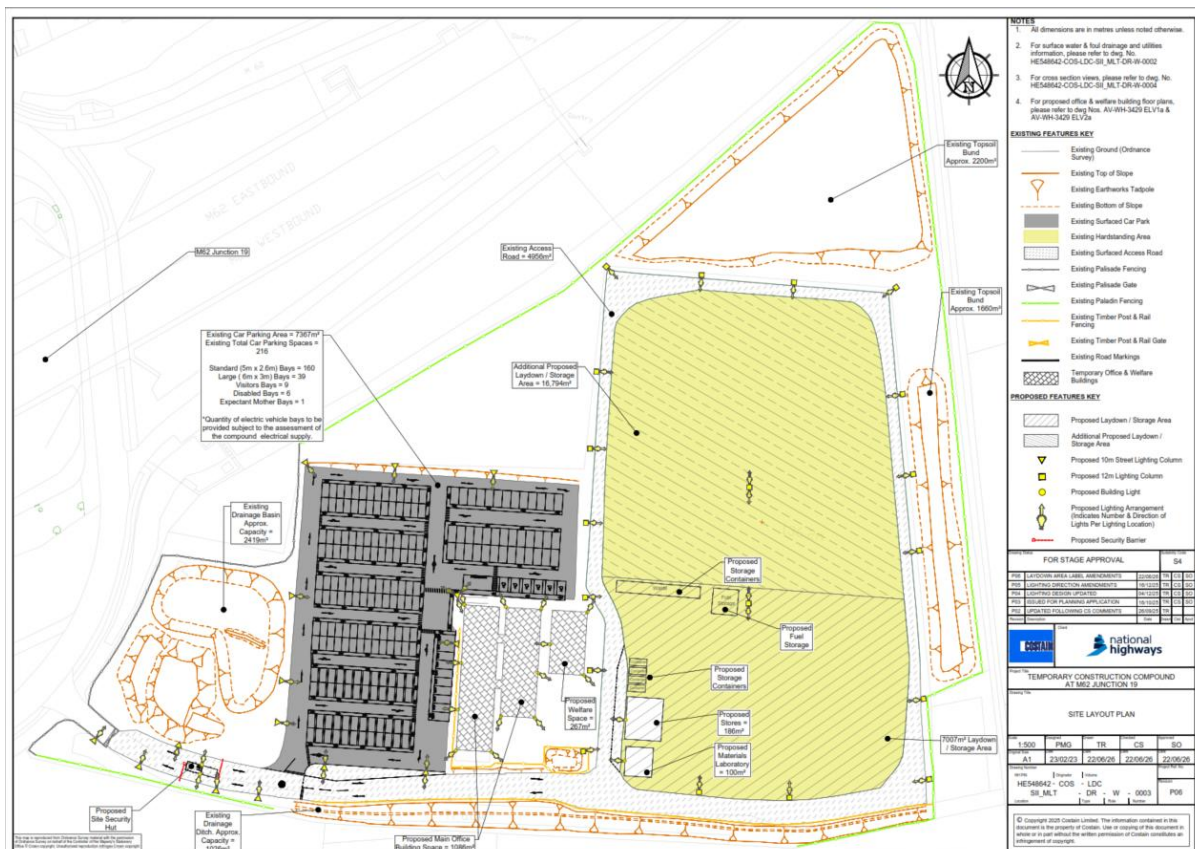
The compound will accommodate:

- Site offices and welfare facilities
- Car parking for staff and visitors
- A security hut and access control point
- Materials storage areas (structures, lighting, traffic management, drainage materials etc). Note that there will be no storage of earthworks materials or aggregates at the J19 Site Compound.
- Secure compounds for traffic management equipment
- Fuel storage and jet wash facilities
- Material testing laboratory and stores buildings

The Site Compound Layout drawing as set out in the Site Layout Plan [HE548642-COS-LDC-SII_MLT-DR-W-0003 P06] and shown in Figure 1 defines the proposed arrangement. The site topography falls gently towards existing ditch features, with levels around 132.0 m AOD at the proposed attenuation basin. Existing surface drainage infrastructure includes open ditches, manholes, pipes, attenuation basin and an interceptor.

The site area was previously utilised by National Highways in 2016-2018 for a temporary construction compound for works to the Strategic Road Network, before being returned to agricultural land. A new temporary compound was then constructed in early 2023 for National Highways M62 Upgrade Schemes. This temporary compound was demobilised in 2024 with the removal of the office and welfare cabins; however, the temporary compound infrastructure remains in place.

Figure 1: Site Layout Plan



Baseline Drainage Conditions

The previous site prior to its development for the M62 Scheme temporary site compound in 2023, was agricultural land draining into the existing National Highways network (See Figure 2):

- Calculated greenfield runoff rate (Q_{Bar}) = 34.4 l/s.

Figure 2: Pre-existing site condition (2022)



The M62 Scheme temporary site compound was constructed in early 2023; installing new hardstanding areas and drainage infrastructure which drained into the same National Highways outfall connection, but providing additional drainage features and attenuation measures (See Figure 3):

Figure 3: Temporary Site Compound constructed in 2023 and current as-built site condition



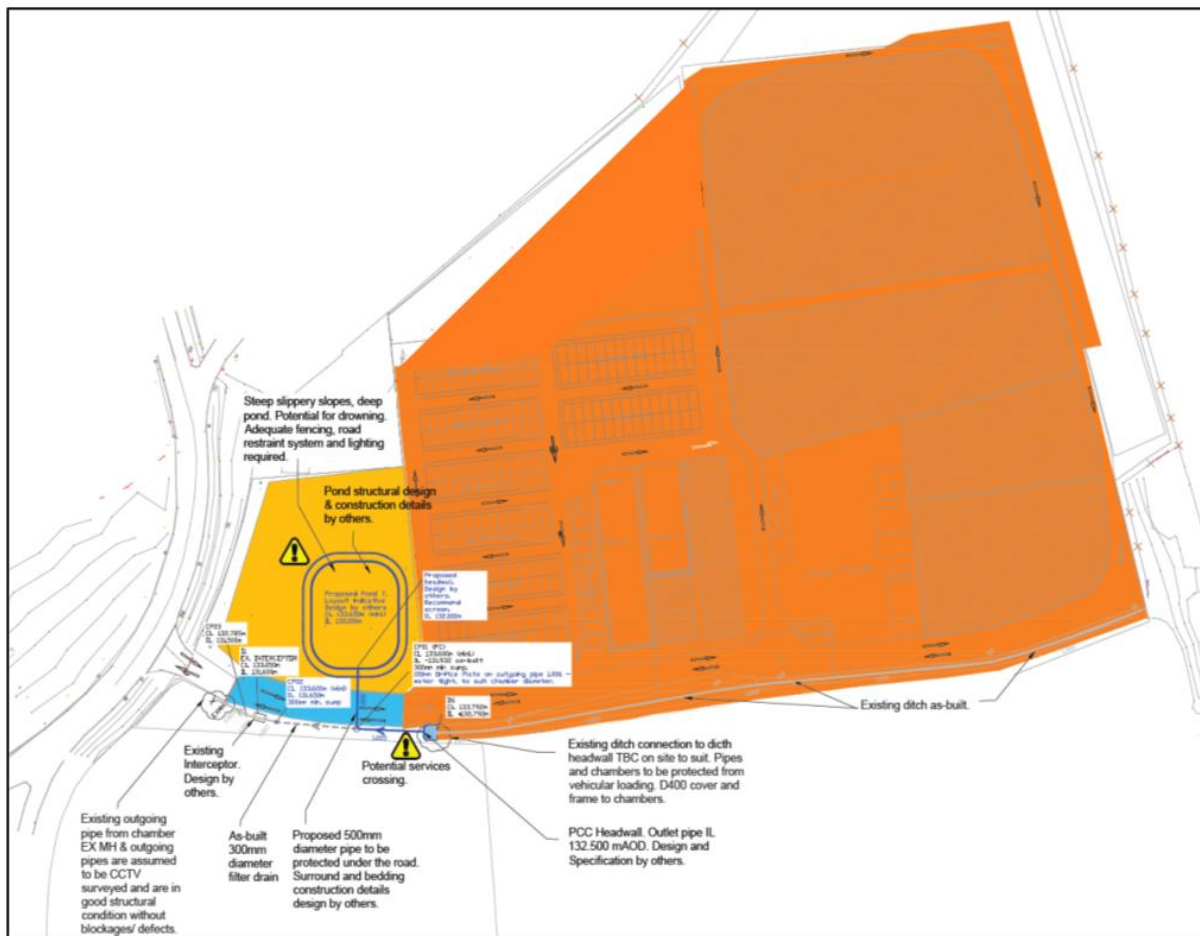
The surface water for the site drains under gravity through existing drainage infrastructure and ultimately to the existing outfall chamber which connects into the National Highways Drainage Network.

Surface water runoff is divided into three main catchment areas as follows, these are shown on figure 4 – draft Drainage General Arrangement Plan produced to support the original construction of the existing infrastructure:

- Catchment 1 (39,160m²) – Shown in orange in Figure 4: This is the main area of the site comprising hardstanding areas for carpark, offices, welfare, material storage, access roads etc which drain south under gravity to the existing ditch system which runs along the southern perimeter of the site.
- Catchment 2 (3,900m²) – Shown in yellow in Figure 4: This is the attenuation basin area and surrounding soft landscaped land. Surface runoff for this catchment drains into the attenuation basin and then flows into the pipework towards the outfall.
- Catchment 3 (940m²) – Shown in blue in Figure 4: This is the area of hardstanding highway at the access to the site which drains into the existing drainage network between existing chambers CP01 and CP02.

The total catchment area is 44,000m², areas beyond these catchments have been verified not to contribute to the proposed network. All surface water runoff will pass through the interceptor prior to discharge to ensure adequate treatment and separation of hydrocarbons.

Figure 4: Draft General Arrangement Plan produced to support the original construction of the existing infrastructure



Drainage Design Parameters used for design and construction of the existing site drainage:

Greenfield runoff rate (1 in 1 year event): 29.9 l/s.

- Greenfield runoff rate (QBar): 34.4 l/s.
- Maximum permitted outflow from site: 33.5 l/s (more conservative than greenfield rate QBar).
- Attenuation Basin volume: 1,160 m³ net capacity with freeboard allowance; designed to accommodate extreme rainfall with discharge restricted via orifice plate control.
- Storm event standard: No flooding within temporary works site compound for up to a 1 in 10-year return period storm.

Surface Water System Components

The drainage chamber and pipework schedule is to be read in conjunction with the Drainage GA drawing and Drainage Risk Assessment (DRA). The design and schedule sets out the existing temporary drainage infrastructure installed to service the M62 Junction 19 Site Compound. All works to install the existing drainage system were undertaken in accordance with the MCHW Volume 1 Specification for Highway Works (SHW) and the MCHW Volume 3 F Series Drawings.

- **Surface Water Network**

- A series of pipes, ditches and chambers convey flows from catchment areas to the outfall via the installed interceptor. The attenuation basin stores water in peak flow conditions.
- Pipe design has been undertaken based on hydraulic capacity, with cover levels and invert levels referenced separately in the manhole and pipe schedule.
- Manhole Assets
 - Existing Catchpits CP02 and CP03 are 1050 mm chambers with 300 mm outlet pipes discharging to outfall via the existing in-line interceptor I1.
 - Newly installed catchpit CP01 Cover Level: 133.518 mAOD, chamber diameter 1800 mm. Incorporates Proposed Orifice Plate (100 mm Ø) to limit discharge to 33.5 l/s, in line with agreed greenfield run-off (QBar) restrictions. Outfalls via Pipe 1.006 (300 mm Ø) with provision of backdrop (263 mm).
 - Existing Manholes D1–D6 Located along the existing ditch alignment. Varying cover levels (137.377 m to 133.908 m AOD). Associated with ditch outfalls (Ditch Type 1 and Type 2), with incoming and outgoing pipe diameters ranging from 450 mm to existing ditch sections. Depths between 0.5 m and 1.4 m, with D6 including a headwall sump (sump depth to 1.708 m). These assets are retained in the proposed system.
- Pipes with less than 1.2m cover will receive Type Z surround for structural protection.
- Connection to an existing ditch through PCC headwall (IL 132.500 m AOD), headwall includes debris screen.

- **Attenuation Basin**

- An attenuation basin has been designed to provide temporary storage for surface water runoff during periods of heavy rainfall. In dry weather the basin remains empty, but during storm events it fills and then gradually releases water back into the drainage network at a controlled rate.
 - *Normal/Dry Conditions:* Under baseline conditions, the downstream drainage system (manhole with flow control device) conveys flows freely into the National Highways outfall drainage system. The basin remains empty because the invert of the connecting pipe is set higher than normal water levels in the network.
 - *Storm / Peak Flow Conditions:* When rainfall exceeds the capacity of the downstream system, water levels in the carrier drain or manhole rise. Once the water level exceeds the invert of the pipe connection to the basin, hydraulic head causes water to backflow up a two-way pipe and into the attenuation basin. The basin provides temporary storage, preventing downstream flooding or overloading of the network.
 - *Post-Storm / Drawdown Phase:* As flows in the downstream system reduce, water levels in the manhole/carrier drain drop back down. The stored water in the basin now has a higher water level relative to the downstream system, so it flows back down the same two-way pipe in the opposite direction. Outflow is controlled by a flow control device (orifice plate) to limit discharge to the agreed maximum rate (33.5 l/s).
- Attenuation basin is designed to ensure storage volume (1,160m³) and greenfield discharge rate (33.5 l/s) are not exceeded, in compliance with CIRIA SuDS Manual

and SHW. This rate is below the greenfield equivalent QBar (34.4 l/s), ensuring no increased flood risk.

- Freeboard of 300mm provided above maximum water level (133.130 m AOD).
- Cover/bund level: 133.650 mAOD. Invert: 132.000 mAOD. Maximum water level to be confirmed on GA drawing (based on 1 in 10-year return period storage).
Net attenuation volume calculated between design water level and invert level.
Side slopes at 1 in 3 gradient. Designed as a dry basin.
- Groundwater levels are well below the proposed attenuation basin invert level of 132.0 m AOD, reducing the risk of groundwater ingress.
- **Flow Control**
 - Flow restriction achieved via a 100mm orifice plate at chamber CP01.
 - The control ensures maximum discharge of 33.5 l/s to the outfall network.
- **Interceptor**
 - Kingspan Class 1 Bypass Separator (NSBE Series) installed within surface water drainage network between CP02 and CP03 to prevent hydrocarbons (e.g. petrol, diesel, oils) from being discharged to the environment.
 - Separation Principle: Works on the principle of gravity separation. Oil and light hydrocarbons (lower density than water) rise to the surface, while silts settle to the base. Cleaned water passes beneath a baffle to the outlet.
 - Design Characteristics:
 - Class 1 coalescing separator, designed to achieve a discharge concentration of ≤ 5 mg/l oil under standard test conditions.
 - Units are supplied with an internal coalescer and oil alarm probe housing ($\varnothing 76$ mm tube provided for alarm sensor installation).
 - Surface water enters via a 300 mm (or similar) pipe, flows through internal baffles or coalescing filters, and discharges via an outlet of equal size.
 - Installed on a concrete base with cover and frame suitable for site loading.
 - Inlet and outlet pipework connected to site drainage network.
 - Alarm cables ducted between the separator and monitoring system.
 - Selected model sized to accommodate the compound's design peak flow (up to 33 l/s discharge, in line with agreed outfall rate).
 - Provides bypass treatment for larger flows (storm events) while maintaining full treatment for first flush / polluted runoff.
 - Access/Maintenance: Manhole cover and access shaft provided for inspection, de-sludging and oil removal.
 - The existing Interceptor I1 is recorded as a chamber with a depth of approx. 1.8 m and 300 mm outlet pipe.
 - Regular inspection and maintenance (removal of silt and oil residues) is required to maintain efficiency
- **Outfall and Existing Assets**
 - Outfall point is located at existing chamber EX MH where the system discharges into the National Highways Drainage Catchment towards the M62.
 - Project correspondence (August 2025) between Costain and National Highways confirms the discharge arrangements: Greenfield principle: strategy based on not exceeding pre-existing greenfield runoff rate to the National Highways network.
 - Greenfield runoff rates have been derived using IH 124 (UKSUDS greenfield runoff rate estimation tool). This provided a 1 in 1 year value of 29.9 l/s and a Qbar value of

34.4l/s. The attenuation basin was then sized for a 1 in 10-year weather event with no flooding with a maximum discharge rate from the site limited to 33.5l/s.

Surface Water Drainage Maintenance Plan

The proposed drainage strategy includes various drainage features to capture rainfall runoff from the site. The runoff is then conveyed through a series of SuDS features and treatment unit and outfalls into the National Highway drainage network

A series of sustainable drainage features, such as ditches, catchpits and proposed pond will capture the rainfall runoff from the site. The proposed pond will attenuate the rainfall runoff and allow, to some extent, settlement of the suspended solids. The stored water will then be passed through the oil interceptor which will remove hydrocarbons and silts to some extents.

Competent personnel should carry out all inspections and maintenance activities. Safety and appropriate equipment are required to undertake inspections, as underground drainage assets can be considered confined spaces. All inspections and maintenance of the drainage assets should be carried out on time so that there is no need for entry into the confined space. Table 1: Surface Water Drainage Maintenance Plan below summarises the recommended inspection and maintenance activities which are in line with the CIRIA 753 guidelines.

The details of the surface water drainage arrangement is provided in the Existing Surface and Foul Water Drainage Plan [HE548642-COS-LDC-SII_MLT-DR-W-0002]

Table 1: Surface Water Drainage Maintenance Plan:

Item	Description	Frequency
Ditch & Headwalls	Visual inspection and removal of debris	Initially, every 2 weeks and then monthly once confidence gained on likely silt accumulation.
Inspection chambers & manholes	Visual inspection and removal of debris. Rod pipes if necessary	Every month / as required
Catchpits	Visual inspection and removal of debris	Initially, every 2 weeks and then monthly, once confidence gained on likely silt accumulation.
Pond	Visual inspection to check functionality	Periodically and after every storm event.
	CCTV inspection via access points	If required due to blockage.
Oil Interceptors	Refer to manufactures Instructions	Refer to manufactures Instructions

Foul Water Drainage

Previous temporary compound

During the previous temporary compound construction, a Klargester BioDisc package treatment plant was installed to ensure that all foul effluent is appropriately treated prior to discharge to the National Highways network, protecting local water quality and complying with environmental requirements.

This installed Klargester plant was not fully installed and works were not completed. The works were still required to undertake the final ducting and electrical connections. There was also no consent in place to operate the Klargester as a package treatment plant, and so the previous temporary operating regime used the Klargester as a cess pit tank which was emptied on a regular basis with the effluent being removed from site in a tanker.

Approved Drainage Scheme

Condition 2 and Condition 5 of the planning permission for the Approved Development permit the foul drainage design to be in accordance with the following documents;

- HE548642-COS-LDC-SII_MLT-DR-W0002 Rev P06 - Existing Surface & Foul Water Drainage Including Other Existing Utilities
- HE548642-COS-HDG-SII_MLT-SG-W0001 Rev P02 - Drainage Strategy dated December 2025
- Appendix A and B of Letter dated 08/12/25 relating to Foul Drainage

The Approved Development permitted the use of the existing infrastructure on site. This included the use of the existing foul drainage pipe runs and the existing Klargester BioDisc package treatment plant as a package treatment plant subject to obtaining the required permits from the Environment Agency. Where a permit was not feasible, the Approved Development included for the use of the package treatment plant as a cess pit, subject to specified maintenance arrangements for interim or continued use. The Cess Pit Maintenance Arrangements, within the Appendix A and B of Letter dated 08/12/25 relating to Foul Drainage) together with the Transport Statement [HE548642-JAC-EGN-SII_MLT-RP-Z-0001] accounted for the trips to and from the site for a 3000-gallon capacity tanker on a weekly, or at peak a bi-weekly frequency

Proposed Varied Foul Drainage Strategy

The proposed varied foul drainage is comprised of the details contained within the following documents together with this revised Drainage Strategy.

- Proposed Foul Water Drainage Plan [HE548642-COS-LDC-SII_MTL-DR-W-0019-P01]
- Foul Water Typical Details [C1553-02-20-D004_P01]

The Proposed Variation includes amendments to internal foul drainage runs to close off connections to the existing package treatment plant, installation of new pipe runs within the existing cabin foundation embankment and internal access roads to be connected at the access bell mouth into new temporary pipe runs out with the site (to be installed under Part 4 Class A of The Town and Country Planning (General Permitted Development) (England) Order 2015) which will outfall into the existing public mains sewer at chamber reference Public Sewer Chamber Ref. 4601, with approval from United Utilities.

The Proposed Variation has been designed to provide effective foul drainage for the expected peak foul flow rate, based on the expected usage of the toilets, sinks, showers, and appliances within the compound office and welfare building, based on the approved Office Unit Floor Plans [AV-WH-3429 ELV1a] and Welfare Unit Floor Plan [AV-WH-3429 ELV2a] and maximum occupancy of 230 staff at peak operation.

The foul peak flows were estimated using the discharge unit method. The foul peak flow rates are included in Appendix D: Peak Foul Flow Rate Summary. Appendix E: Hydraulic Output Report (Foul Water) includes the hydraulic report extracted from the hydraulic modelling software and Appendix F: Manhole Schedule (Foul Water) includes foul drainage network manhole and pipe schedule.

Appendix A: Greenfield Flow Rate

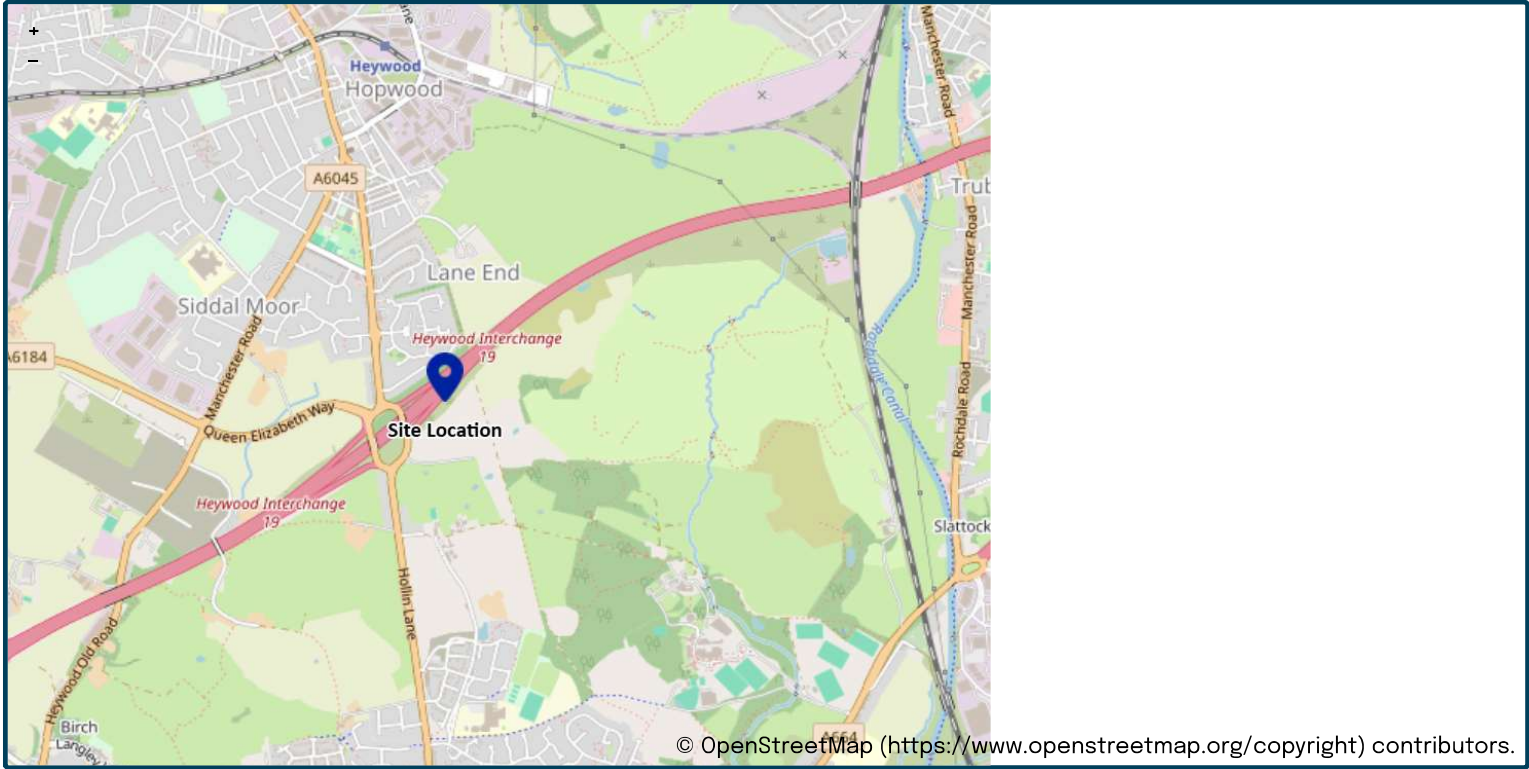
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	02/12/2025
Calculated by	
Reference	
Model version	2.2.2

Location

Site name	
Site location	



Site easting (British National Grid)	386608
Site northing (British National Grid)	408905

Site details

Total site area (ha)	4.4	ha
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Greenfield runoff

Method

Method	IH124
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IH124

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	1057	mm	1057
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	34.4	l/s	

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	10		10
1 year growth factor	0.87		
2 year growth factor	0.93		
10 year growth factor	1.38		
30 year growth factor	1.7		
100 year growth factor	2.08		
200 year growth factor	2.37		

Results

Method	IH124	
Flow rate 1 year (l/s)	29.9	l/s
Flow rate 2 year (l/s)	32.0	l/s
Flow rate 10 years (l/s)	47.5	l/s
Flow rate 30 years (l/s)	58.5	l/s
Flow rate 100 years (l/s)	71.6	l/s
Flow rate 200 years (l/s)	81.5	l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.2) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Appendix B: Hydraulic Output Report (Surface Water)

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Junctions Storm Phase: Phase Flow Path: Flow Path 1		Company Address:			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
D1	Simple Junction	386766.726	408793.696					
D2	Simple Junction	386726.233	408779.389					
D3	Simple Junction	386639.459	408769.915					
D4	Simple Junction	386564.694	408757.580					
D5	Simple Junction	386551.008	408756.888					
CP01 (FC)	Manhole	386523.059	408757.736	133.600	1.668	131.932	Circular	1.200
CP02	Manhole	386498.188	408759.772	133.600	1.950	131.650	Circular	1.200
OI-1	Manhole	386493.249	408760.590	133.050	1.450	131.600	Circular	1.200
CP03	Manhole	386488.851	408762.157	132.785	1.285	131.500	Circular	1.200
CP04	Manhole	386483.011	408765.117	132.785	1.299	131.486	Circular	1.200

Name	
D1	
D2	
D3	
D4	
D5	
CP01 (FC)	None
CP02	None
OI-1	None
CP03	None
CP04	None

Project: Simister Island Temporary Site Compound Junction 19	Date: 02/12/2025		
	Designed by: Yuwaraj Pattanshetti	Checked by:	Approved By:
Report Details: Type: Connections Storm Phase: Phase Flow Path: Flow Path 1	Company Address:		



Name	From	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Height (mm)
D1.000	D1	42.946	Trapezoidal Channel	62.241	0.500		500	550
D1.001	D2	87.290	Trapezoidal Channel	35.775	0.500		500	860
D1.002	D3	75.775	Trapezoidal Channel	135.312	0.500		550	1940
D1.003	D4	13.704	Trapezoidal Channel	0.000	0.500		600	1270
1.004	D5	27.961	Pipe	49.228		0.6	300	
Branch: 2.000								
2.000	Pond	29.473	Pipe	433.421		0.6	500	
2.001	HW Pond	31.779	Pipe	0.000		0.6	500	
1.005	CP01 (FC)	24.955	Pipe	88.491		0.6	300	
1.006	CP02	5.006	Pipe	100.111		0.6	300	
1.007	OI-1	4.669	Pipe	46.694		0.6	300	
1.008	CP03	6.547	Pipe	467.628		0.6	300	

Name	Corner Splay (mm)	Side Slope (1:X)	Upstream Cover Level (m)	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock
D1.000		2.00	136.740	136.190	136.360	135.500		All
D1.001		2.00	136.360	135.500	135.000	133.060		All
D1.002		2.00	135.000	133.060	133.770	132.500		All
D1.003		2.00	133.770	132.500	133.580	132.500		All
1.004			133.580	132.500	133.600	131.932		None
Branch: 2.000								
2.000			133.350	132.000	133.600	131.932		None
2.001			133.600	131.932	133.600	131.932		None
1.005			133.600	131.932	133.600	131.650		None
1.006			133.600	131.650	133.050	131.600		None
1.007			133.050	131.600	132.785	131.500		None
1.008			132.785	131.500	132.785	131.486		None

Name	Flow Restriction (L/s)	Velocity (m/s)	Culvert Type	Culvert Entrance
D1.000				
D1.001				
D1.002				
D1.003				
1.004			(None)	(None)
Branch: 2.000				
2.000			(None)	(None)
2.001			(None)	(None)
1.005	26.6		(None)	(None)
1.006			(None)	(None)
1.007			(None)	(None)
1.008			(None)	(None)

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase Flow Path: Flow Path 1		Company Address:			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area 1a	D1		Time of Concentration	0.467	100	0	100	0.467
Catchment Area 1b	D2		Time of Concentration	1.744	100	0	100	1.744
Catchment Area 1c	D3		Time of Concentration	1.673	100	0	100	1.673
Branch: 2.000								
Catchment Area 2a	HW Pond		Time of Concentration	0.230	100	0	100	0.230
Catchment Area 2b	CP01 (FC)		Time of Concentration	0.160	100	0	100	0.160
Catchment Area 3	OI-1		Time of Concentration	0.094	100	0	100	0.094
TOTAL		0.0		4.369				4.369

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Junctions Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
HW Pond	Manhole	386525.925	408789.386	133.600	1.668	131.932	Circular	1.200
CP01 (FC)	Manhole	386523.059	408757.736	133.600	1.668	131.932	Circular	1.200

Name	Lock
HW Pond	None
CP01 (FC)	None

Project: Simister Island Temporary Site Compound Junction 19	Date: 02/12/2025		
	Designed by: Yuwaraj Pattanshetti	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase Flow Path: Flow Path 2	Company Address:		





Pond

Type : Pond

Dimensions

Exceedance Level (m)	133.350
Depth (m)	1.350
Base Level (m)	132.000
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	3.934
Total Volume (m³)	1111.755

Depth (m)	Area (m²)	Volume (m³)
0.000	830.00	0.000
1.350	1461.05	1526.519

Advanced

Perimeter	Circular
Length (m)	55.708
Friction Scheme	Manning's n
n	0.5

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Connections Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			

Name	From	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Height (mm)
2.000	Pond	29.473	Pipe	433.421		0.6	500	
2.001	HW Pond	31.779	Pipe	0.000		0.6	500	

Name	Corner Splay (mm)	Side Slope (1:X)	Upstream Cover Level (m)	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock
2.000			133.350	132.000	133.600	131.932		None
2.001			133.600	131.932	133.600	131.932		None

Name	Flow Restriction (L/s)	Velocity (m/s)	Culvert Type	Culvert Entrance
2.000			(None)	(None)
2.001			(None)	(None)

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area 2a	HW Pond		Time of Concentration	0.23	100	0	100	0.23
Catchment Area 2b	CP01 (FC)		Time of Concentration	0.16	100	0	100	0.16
TOTAL		0.0		0.39				0.39

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Phase		Company Address:			

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
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Project: Simister Island Temporary Site Compound Junction 19	Date: 02/12/2025		
	Designed by: Yuwaraj Pattanshetti	Checked by:	Approved By:
	Report Details: Type: Outfall Details Storm Phase: Phase		
Company Address:			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
CP04	Free Discharge		

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase		Company Address:			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area 1a	FSR: 1 years: +0 %: 15 mins: Winter	0.47	56.7	26.226
Catchment Area 1c	FSR: 1 years: +0 %: 15 mins: Winter	1.67	202.9	93.876
Catchment Area 2a	FSR: 1 years: +0 %: 15 mins: Winter	0.23	27.9	12.912
Catchment Area 2b	FSR: 1 years: +0 %: 15 mins: Winter	0.16	19.4	8.982
Catchment Area 3	FSR: 1 years: +0 %: 15 mins: Winter	0.09	11.4	5.250
Catchment Area 1b	FSR: 1 years: +0 %: 15 mins: Winter	1.74	211.5	97.836

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase		Company Address:			



FSR: 5 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area 1a	FSR: 5 years: +0 %: 15 mins: Winter	0.47	94.8	43.869
Catchment Area 1c	FSR: 5 years: +0 %: 15 mins: Winter	1.67	339.4	157.032
Catchment Area 2a	FSR: 5 years: +0 %: 15 mins: Winter	0.23	46.7	21.603
Catchment Area 2b	FSR: 5 years: +0 %: 15 mins: Winter	0.16	32.5	15.021
Catchment Area 3	FSR: 5 years: +0 %: 15 mins: Winter	0.09	19.0	8.790
Catchment Area 1b	FSR: 5 years: +0 %: 15 mins: Winter	1.74	353.7	163.656

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase		Company Address:			



FSR: 10 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area 1a	FSR: 10 years: +0 %: 15 mins: Winter	0.47	109.8	50.814
Catchment Area 1c	FSR: 10 years: +0 %: 15 mins: Winter	1.67	393.2	181.893
Catchment Area 2a	FSR: 10 years: +0 %: 15 mins: Winter	0.23	54.1	25.026
Catchment Area 2b	FSR: 10 years: +0 %: 15 mins: Winter	0.16	37.6	17.400
Catchment Area 3	FSR: 10 years: +0 %: 15 mins: Winter	0.09	22.0	10.182
Catchment Area 1b	FSR: 10 years: +0 %: 15 mins: Winter	1.74	409.7	189.570

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 1		Company Address:			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
D1	FSR: 1 years: +0 %: 30 mins: Winter		136.190	136.530	0.340	38.6			34.7	36.077	OK
D2	FSR: 1 years: +0 %: 30 mins: Winter		135.500	136.047	0.547	178.7			129.5	168.368	OK
D3	FSR: 1 years: +0 %: 30 mins: Winter		133.060	133.925	0.865	267.7			171.6	262.431	OK
D4	FSR: 1 years: +0 %: 60 mins: Winter		132.500	133.290	0.790	179.6			167.0	366.671	OK
D5	FSR: 1 years: +0 %: 60 mins: Winter		132.500	133.134	0.634	167.0			159.3	365.914	Surcharged
CP01 (FC)	FSR: 1 years: +0 %: 960 mins: Winter	133.600	131.932	132.653	0.721	49.7	0.816	0.000	16.8	1771.637	Surcharged
CP02	FSR: 1 years: +0 %: 960 mins: Winter	133.600	131.650	131.738	0.088	16.8	0.099	0.000	16.8	1189.281	OK
OI-1	FSR: 1 years: +0 %: 15 mins: Winter	133.050	131.600	131.690	0.090	21.0	0.101	0.000	20.7	18.967	OK
CP03	FSR: 1 years: +0 %: 15 mins: Winter	132.785	131.500	131.642	0.142	20.7	0.160	0.000	20.2	18.729	OK
CP04	FSR: 1 years: +0 %: 15 mins: Winter	132.785	131.486	131.616	0.130	20.2	0.000	0.000	20.2	18.729	OK

Project: Simister Island Temporary Site Compound Junction 19	Date: 02/12/2025		
	Designed by: Yuwaraj Pattanshetti	Checked by:	Approved By:
	Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 1		
Company Address:			

Freeboard (m)
0.210
0.313
1.075
0.480
0.446
0.947
1.862
1.360
1.143
1.169

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 1		Company Address:			



FSR: 5 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
D1	FSR: 5 years: +0 %: 30 mins: Winter		136.190	136.625	0.435	63.9			59.0	59.776	OK
D2	FSR: 5 years: +0 %: 30 mins: Winter		135.500	136.202	0.702	297.3			229.4	280.663	OK
D3	FSR: 5 years: +0 %: 30 mins: Winter		133.060	134.161	1.101	458.0			305.9	453.694	OK
D4	FSR: 5 years: +0 %: 60 mins: Winter		132.500	133.658	1.158	297.8			207.7	605.868	OK
D5	FSR: 5 years: +0 %: 60 mins: Winter		132.500	133.631	1.131	207.7			202.6	603.979	Surcharged
CP01 (FC)	FSR: 5 years: +0 %: 960 mins: Winter	133.600	131.932	132.954	1.022	73.2	1.156	0.000	20.2	2511.680	Surcharged
CP02	FSR: 5 years: +0 %: 960 mins: Winter	133.600	131.650	131.748	0.098	20.2	0.111	0.000	20.2	1598.360	OK
OI-1	FSR: 5 years: +0 %: 15 mins: Winter	133.050	131.600	131.716	0.116	31.0	0.131	0.000	30.6	26.350	OK
CP03	FSR: 5 years: +0 %: 15 mins: Winter	132.785	131.500	131.679	0.179	30.6	0.202	0.000	30.0	26.079	OK
CP04	FSR: 5 years: +0 %: 15 mins: Winter	132.785	131.486	131.650	0.164	30.0	0.000	0.000	30.0	26.079	OK

Project: Simister Island Temporary Site Compound Junction 19	Date: 02/12/2025		
	Designed by: Yuwaraj Pattanshetti	Checked by:	Approved By:
	Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 1		
Company Address:			

Freeboard (m)
0.115
0.158
0.839
0.112
-0.051
0.646
1.852
1.334
1.106
1.135

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 1		Company Address:			



FSR: 10 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
D1	FSR: 10 years: +0 %: 30 mins: Winter		136.190	136.658	0.468	74.4			69.3	69.682	OK
D2	FSR: 10 years: +0 %: 30 mins: Winter		135.500	136.256	0.756	347.0			272.5	327.751	OK
D3	FSR: 10 years: +0 %: 30 mins: Winter		133.060	134.241	1.181	539.0			371.0	533.602	OK
D4	FSR: 10 years: +0 %: 60 mins: Winter		132.500	133.825	1.325	359.7			225.2	713.051	OK
D5	FSR: 10 years: +0 %: 60 mins: Winter		132.500	133.807	1.307	225.2			216.4	709.685	Surcharged
CP01 (FC)	FSR: 10 years: +0 %: 960 mins: Winter	133.600	131.932	133.087	1.155	81.3	1.306	0.000	21.6	2829.717	Surcharged
CP02	FSR: 10 years: +0 %: 960 mins: Winter	133.600	131.650	131.752	0.102	21.6	0.115	0.000	21.6	1757.658	OK
OI-1	FSR: 10 years: +0 %: 15 mins: Winter	133.050	131.600	131.726	0.126	34.6	0.142	0.000	34.2	28.748	OK
CP03	FSR: 10 years: +0 %: 15 mins: Winter	132.785	131.500	131.692	0.192	34.2	0.217	0.000	33.5	28.472	OK
CP04	FSR: 10 years: +0 %: 15 mins: Winter	132.785	131.486	131.662	0.176	33.5	0.000	0.000	33.5	28.472	OK

Project: Simister Island Temporary Site Compound Junction 19	Date: 02/12/2025		
	Designed by: Yuwaraj Pattanshetti	Checked by:	Approved By:
	Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 1		
Company Address:			

Freeboard (m)
0.082
0.104
0.759
-0.055
-0.227
0.513
1.848
1.324
1.093
1.123

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase Flow Path: Flow Path 1		Company Address:			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
D1.000	FSR: 1 years: +0 %: 30 mins: Winter	Trapezoidal Channel	D1	D2	136.740	136.530	0.444	36.077	0.1	0.35	34.7	OK
D1.001	FSR: 1 years: +0 %: 30 mins: Winter	Trapezoidal Channel	D2	D3	136.360	136.047	0.702	168.368	0.1	0.35	129.5	OK
D1.002	FSR: 1 years: +0 %: 60 mins: Winter	Trapezoidal Channel	D3	D4	135.000	133.912	0.814	391.640	0.1	0.13	179.6	OK
D1.003	FSR: 1 years: +0 %: 60 mins: Winter	Trapezoidal Channel	D4	D5	133.770	133.290	0.712	366.671	0.2	0.06	167.0	OK
1.004	FSR: 1 years: +0 %: 60 mins: Winter	Pipe	D5	CP01 (FC)	133.580	133.134	0.300	365.914	2.3	1	159.3	Surchar ged
1.005	FSR: 1 years: +0 %: 960 mins: Winter	Pipe	CP01 (FC)	CP02	133.600	132.653	0.083	1189.351	1.1	0.14	16.8	Surchar ged
1.006	FSR: 1 years: +0 %: 960 mins: Winter	Pipe	CP02	OI-1	133.600	131.738	0.083	1189.281	1.0	0.15	16.8	OK
1.007	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	OI-1	CP03	133.050	131.690	0.116	18.967	0.8	0.13	20.7	OK
1.008	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	CP03	CP04	132.785	131.642	0.136	18.729	0.6	0.4	20.2	OK

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase Flow Path: Flow Path 1		Company Address:			



FSR: 5 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
D1.000	FSR: 5 years: +0 %: 30 mins: Winter	Trapezoidal Channel	D1	D2	136.740	136.625	0.550	59.776	0.1	0.59	59.0	OK
D1.001	FSR: 5 years: +0 %: 30 mins: Winter	Trapezoidal Channel	D2	D3	136.360	136.202	0.860	280.663	0.1	0.62	229.4	OK
D1.002	FSR: 5 years: +0 %: 30 mins: Winter	Trapezoidal Channel	D3	D4	135.000	134.161	1.001	453.694	0.1	0.22	305.9	OK
D1.003	FSR: 5 years: +0 %: 60 mins: Summer	Trapezoidal Channel	D4	D5	133.770	133.559	1.040	537.606	0.1	0.07	214.3	OK
1.004	FSR: 5 years: +0 %: 60 mins: Winter	Pipe	D5	CP01 (FC)	133.580	133.631	0.300	603.979	2.9	1.28	202.6	Surchar ged
1.005	FSR: 5 years: +0 %: 960 mins: Winter	Pipe	CP01 (FC)	CP02	133.600	132.954	0.092	1598.579	1.1	0.17	20.2	Surchar ged
1.006	FSR: 5 years: +0 %: 960 mins: Winter	Pipe	CP02	OI-1	133.600	131.748	0.093	1598.360	1.1	0.18	20.2	OK
1.007	FSR: 5 years: +0 %: 15 mins: Winter	Pipe	OI-1	CP03	133.050	131.716	0.148	26.350	0.9	0.19	30.6	OK
1.008	FSR: 5 years: +0 %: 15 mins: Winter	Pipe	CP03	CP04	132.785	131.679	0.171	26.079	0.7	0.59	30.0	OK

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase Flow Path: Flow Path 1		Company Address:			



FSR: 10 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
D1.000	FSR: 10 years: +0 %: 30 mins: Winter	Trapezoidal Channel	D1	D2	136.740	136.658	0.550	69.682	0.1	0.7	69.3	OK
D1.001	FSR: 10 years: +0 %: 30 mins: Winter	Trapezoidal Channel	D2	D3	136.360	136.256	0.860	327.751	0.1	0.74	272.5	OK
D1.002	FSR: 10 years: +0 %: 30 mins: Winter	Trapezoidal Channel	D3	D4	135.000	134.241	1.098	533.602	0.1	0.26	371.0	OK
D1.003	FSR: 10 years: +0 %: 30 mins: Winter	Trapezoidal Channel	D4	D5	133.770	133.714	1.204	444.225	0.2	0.08	235.0	OK
1.004	FSR: 10 years: +0 %: 60 mins: Winter	Pipe	D5	CP01 (FC)	133.580	133.807	0.300	709.685	3.1	1.36	216.4	Surchar ged
1.005	FSR: 10 years: +0 %: 960 mins: Winter	Pipe	CP01 (FC)	CP02	133.600	133.087	0.095	1757.913	1.1	0.18	21.6	Surchar ged
1.006	FSR: 10 years: +0 %: 960 mins: Winter	Pipe	CP02	OI-1	133.600	131.752	0.097	1757.658	1.1	0.19	21.6	OK
1.007	FSR: 10 years: +0 %: 15 mins: Winter	Pipe	OI-1	CP03	133.050	131.726	0.159	28.748	0.9	0.21	34.2	OK
1.008	FSR: 10 years: +0 %: 15 mins: Winter	Pipe	CP03	CP04	132.785	131.692	0.184	28.472	0.7	0.66	33.5	OK

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
HW Pond	FSR: 1 years: +0 %: 960 mins: Winter	133.600	131.932	132.653	0.721	39.0	0.816	0.000	13.8	1253.774	Surcharged
CP01 (FC)	FSR: 1 years: +0 %: 960 mins: Winter	133.600	131.932	132.653	0.721	49.7	0.816	0.000	16.8	1771.637	Surcharged

Project: Simister Island Temporary Site Compound Junction 19	Date: 02/12/2025		
	Designed by: Yuwaraj Pattanshetti	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 2	Company Address:		



Freeboard (m)
0.947
0.947

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			



FSR: 5 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
HW Pond	FSR: 5 years: +0 %: 960 mins: Winter	133.600	131.932	132.954	1.022	61.0	1.156	0.000	16.9	1857.873	Surcharged
CP01 (FC)	FSR: 5 years: +0 %: 960 mins: Winter	133.600	131.932	132.954	1.022	73.2	1.156	0.000	20.2	2511.680	Surcharged

Project: Simister Island Temporary Site Compound Junction 19	Date: 02/12/2025		
	Designed by: Yuwaraj Pattanshetti	Checked by:	Approved By:
	Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 2		
Company Address:			

Freeboard (m)
0.646
0.646

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			



FSR: 10 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
HW Pond	FSR: 10 years: +0 %: 960 mins: Winter	133.600	131.932	133.087	1.155	69.2	1.306	0.000	18.0	2110.874	Surcharged
CP01 (FC)	FSR: 10 years: +0 %: 960 mins: Winter	133.600	131.932	133.087	1.155	81.3	1.306	0.000	21.6	2829.717	Surcharged

Project: Simister Island Temporary Site Compound Junction 19	Date: 02/12/2025		
	Designed by: Yuwaraj Pattanshetti	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase Flow Path: Flow Path 2	Company Address:		



Freeboard (m)
0.513
0.513

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Pond	FSR: 1 years: +0 %: 960 mins: Winter	132.653	132.653	0.653	0.653	38.7	632.638	0.000	0.000	13.8	606.370	43.096	OK

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			



FSR: 5 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Pond	FSR: 5 years: +0 %: 960 mins: Winter	132.954	132.954	0.954	0.954	60.9	988.808	0.000	0.000	16.8	854.084	11.059	OK

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			



FSR: 10 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Pond	FSR: 10 years: +0 %: 960 mins: Winter	133.087	133.087	1.087	1.087	69.1	1160.147	0.000	0.000	18.0	936.405	-4.353	Flood Risk

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
2.000	FSR: 1 years: +0 %: 600 mins: Winter	Pipe	Pond	HW Pond	133.350	132.638	0.500	0.000	0.1	0.07	14.3	Surchar ged
2.001	FSR: 1 years: +0 %: 600 mins: Winter	Pipe	HW Pond	CP01 (FC)	133.600	132.638	0.500	1.282	0.1	0.1	14.3	Surchar ged

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			



FSR: 5 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
2.000	FSR: 5 years: +0 %: 600 mins: Winter	Pipe	Pond	HW Pond	133.350	132.938	0.500	0.000	0.1	0.08	17.1	Surchar ged
2.001	FSR: 5 years: +0 %: 600 mins: Winter	Pipe	HW Pond	CP01 (FC)	133.600	132.938	0.500	1.538	0.1	0.12	17.1	Surchar ged

Project: Simister Island Temporary Site Compound Junction 19		Date: 02/12/2025			
		Designed by: Yuwaraj Pattanshetti	Checked by:		Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase Flow Path: Flow Path 2		Company Address:			



FSR: 10 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
2.000	FSR: 10 years: +0 %: 600 mins: Winter	Pipe	Pond	HW Pond	133.350	133.070	0.500	0.000	0.1	0.09	18.2	Flood Risk
2.001	FSR: 10 years: +0 %: 600 mins: Winter	Pipe	HW Pond	CP01 (FC)	133.600	133.070	0.500	1.618	0.1	0.12	18.2	Surchar ged

Appendix C: Manhole Schedule (Surface Water)

MANHOLE SCHEDULE FOR SIMISTER ISLAND J19 TEMPORARY SITE COMPOUND

REV 0

DATE: 04/12/2025

Network Reference	Chamber Reference	Coordinate_Easting (m)	Coordinate_Northing (m)	Cover_Level (m)	Invert_Level (m)	Depth (m)	Manhole Diameter (m)	Incoming_Connections	Incoming_Type	Incoming_Connection_IL (m)	Incoming_Connection_Size (mm)	Outgoing_Connections	Outgoing_Type	Outgoing_Connection_IL (m)	Outgoing_Connection_Size (mm)
Network Phase 1	D1	E:386766.726	N:408793.696					{1} D1.000	Trapezoidal Channel	135.5	Width:500 Height:550	{a} D1.000	Trapezoidal Channel	136.19	Width:500 Height:550
	D2	E:386726.233	N:408779.389					{1} D1.001	Trapezoidal Channel	133.06	Width:500 Height:860	{a} D1.001	Trapezoidal Channel	135.5	Width:500 Height:860
	D3	E:386639.459	N:408769.915					{1} D1.002	Trapezoidal Channel	132.5	Width:550 Height:1940	{a} D1.002	Trapezoidal Channel	133.06	Width:550 Height:1940
	D4	E:386564.694	N:408757.580					{1} D1.003	Trapezoidal Channel	132.5	Width:600 Height:1270	{a} D1.003	Trapezoidal Channel	132.5	Width:600 Height:1270
	D5	E:386551.008	N:408756.888					{1} D1.003	Trapezoidal Channel	132.5	Width:600 Height:1270	{a} 1.004	Pipe	132.5	Width:300
	CP01 (Flow Control Orifice)	E:386523.059	N:408757.736	133.600	131.932	1.668	Diameter: 1.200	{1} 1.004 {2} 2.001	Pipe Pipe	131.932 131.932	Diameter:300 Diameter:500	{a} 1.005	Pipe	131.932	Width:300
	CP02	E:386498.188	N:408759.772	133.600	131.650	1.950	Diameter: 1.200	{1} 1.005	Pipe	131.65	Diameter:300	{a} 1.006	Pipe	131.65	Width:300
	OL-1	E:386493.249	N:408760.590	133.050	131.600	1.450	Diameter: 1.200	{1} 1.006	Pipe	131.6	Diameter:300	{a} 1.007	Pipe	131.6	Width:300
	CP03	E:386488.851	N:408762.157	132.785	131.500	1.285	Diameter: 1.200	{1} 1.007	Pipe	131.5	Diameter:300	{a} 1.008	Pipe	131.5	Width:300
	CP04	E:386483.011	N:408765.117	132.785	131.486	1.299	Diameter: 1.200	{1} 1.008	Pipe	131.486	Diameter:300				
Network Phase 2	HW Pond	E:386525.925	N:408789.386	133.600	131.932	1.668	Diameter: 1.200	{1} 2.000	Pipe	131.932	Diameter:500	{a} 2.001	Pipe	131.932	Width:500
	CP01 (Flow Control Orifice)	E:386523.059	N:408757.736	133.600	131.932	1.668	Diameter: 1.200	{1} 1.004 {2} 2.001	Pipe Pipe	131.932 131.932	Diameter:300 Diameter:500	{a} 1.005	Pipe	131.932	Width:300

Appendix D: Foul Peak Flow Summary

The peak flow rate based on the discharge units. BS EN 12056.

Office Cabins:						
	Total units					
Basins	10					
WC	10					
Urinals	4					
Dishwasher	1					
Peak Foul Flow rate =				5.64	l/s	
Welfare Cabins						
	Total units					
Basins	14					
WC	13					
Urinals	3					
Dishwasher	0					
Shower	7					
Peak Foul Flow rate =				8.23	l/s	
Store Cabin						
	Total units					
Basins	1					
Peak Foul Flow rate =				0.27	l/s	
Total Peak Foul Flow rate =				14.14	l/s	

Note: Frequency factor 0.5 and System III used.

Appendix E: Hydraulic Output Report (Foul Water)

Pipe Reference	Proportional Velocity At 1/3 Flow (m/s)	Full Bore Velocity (m/s)	Capacity (L/s)
F-1.000	0.99	1.25	22.11
F-1.001	0.77	0.88	15.48
F-1.002	1.19	1.61	28.49
F-1.003	0.77	0.88	15.48
F-1.004	0.77	0.88	15.48
F-1.005	0.77	0.88	15.48
F-1.006	0.77	0.88	15.48
F-1.007	0.77	0.88	15.48
F-1.008	0.77	0.88	15.47
F-1.009	0.77	0.88	15.48

Appendix F: Manhole Schedule (Foul Water)

FOULCHAMBER SCHEDULE FOR PLANNING_PRELIMINARY DESIGN

Rev 0

Name	Easting (m)	Northing (m)	Cover Level (m)*	Invert Level (m)	Depth to invert (m)	Diameter (m)	Junction Type		Incoming Connections	Incoming Invert (m)	Incoming Diameter (mm)		Outgoing Connections	Outgoing Invert (m)	Outgoing Diameter (mm)
FMH1	386600.192	408775.799	134.518	133.768	0.750	0.6	Manhole						{a} F-1.000	133.768	150
FMH2	386564.242	408767.249	133.767	133.017	0.750	0.6	Manhole		{1} F-1.000	133.017	150		{a} F-1.001	133.017	150
FMH3	386520.954	408766.288	133.588	132.584	1.004	0.6	Manhole		{1} F-1.001	132.584	150		{a} F-1.002	132.584	150
FMH4	386491.989	408772.353	133.016	131.587	1.429	0.6	Manhole		{1} F-1.002	131.587	150		{a} F-1.003	131.587	150
FMH5	386473.353	408778.702	132.489	131.390	1.099	0.6	Manhole		{1} F-1.003	131.390	150		{a} F-1.004	131.390	150
FMH6	386461.645	408772.014	132.132	131.255	0.877	0.6	Manhole		{1} F-1.004	131.255	150		{a} F-1.005	131.255	150
FMH7	386430.801	408738.445	131.549	130.799	0.750	0.6	Manhole		{1} F-1.005	130.799	150		{a} F-1.006	130.799	150
FMH8	386424.082	408707.267	131.404	130.480	0.924	0.6	Manhole		{1} F-1.006	130.480	150		{a} F-1.007	130.480	150
FMH9	386423.234	408667.749	131.400	130.085	1.315	0.6	Manhole		{1} F-1.007	130.085	150		{a} F-1.008	130.085	150
FMH10	386429.941	408631.842	131.400	129.720	1.680	1.2	Manhole		{1} F-1.008	129.720	150		{a} F-1.009	129.720	150
Existing UU 4601	386427.501	408631.345	131.400	129.695	1.705	1.5	Existing chamber		{1} F-1.009	129.695	150				

Schedule Notes:

* Cover levels to be checked on site. Any discrepancies to be highlighted to the designers.

Minimum pipe diameter to be 150mm.

Any changes to the pipe & manhole levels to be discussed with site engineer & design engineer

Drainage is shallow depth and therefore frequent maintenance of drainage network is necessary to prevent blockages.

Shallow depth pipes to have concrete slab protection under heavy trafficked road.

For filter drains location refer to drainage layout.

PIPE SCHEDULE

Name	From	To	Length (m)	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Comments
F-1.000	FMH1	FMH2	36.952	49.2	1.5	150	134.518	133.768	133.767	133.017	
F-1.001	FMH2	FMH3	43.299	100.0	1.5	150	133.767	133.017	133.588	132.584	
F-1.002	FMH3	FMH4	29.593	29.7	1.5	150	133.588	132.584	133.016	131.587	
F-1.003	FMH4	FMH5	19.688	100.0	1.5	150	133.016	131.587	132.489	131.390	
F-1.004	FMH5	FMH6	13.483	100.0	1.5	150	132.489	131.390	132.132	131.255	
F-1.005	FMH6	FMH7	45.588	100.0	1.5	150	132.132	131.255	131.549	130.799	
F-1.006	FMH7	FMH8	31.894	100.0	1.5	150	131.549	130.799	131.404	130.480	
F-1.007	FMH8	FMH9	39.527	100.0	1.5	150	131.404	130.480	131.400	130.085	
F-1.008	FMH9	FMH10	36.528	100.1	1.5	150	131.400	130.085	131.400	129.720	
F-1.009	FMH10	Existing UU 4601	2.490	100.0	1.5	150	131.400	129.720	131.400	129.695	Connection to UU chamber 4601, upon UU acceptance.