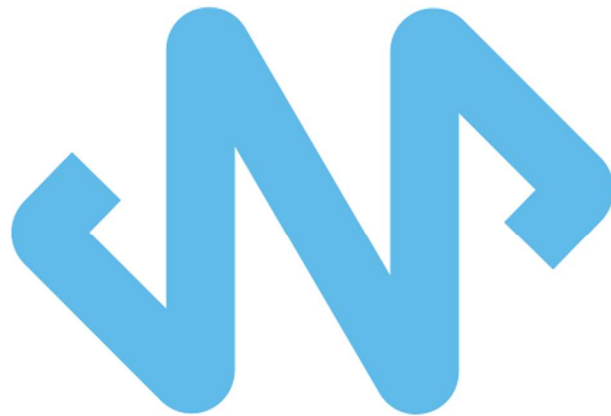




J N P G R O U P
CONSULTING ENGINEERS

SuDS Management and Maintenance Plan

Project: Neighbourhood Centre
 Hogwood Farm

Client: CALA Homes Thames Ltd

Reference: C86557-JNP-92-XX-RP-D-1202

Date: March 2026

DOCUMENT CONTROL SHEET

Prepared by
Matthew Rudd
Placement Engineer

Approved by
Karl Malik
Principal Civil Engineer

FOR AND ON BEHALF OF JNP GROUP

Date: March 2026

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1 INTRODUCTION

1.1 Terms of Reference

- 1.1.1 JNP Group was commissioned by CALA Homes Thames Ltd to create a SuDS Maintenance and Management Plan for the proposed development of the Neighbourhood Centre at Hogwood Farm.
- 1.1.2 The purpose of this management plan is to demonstrate how SuDS, which have been implemented at this development, will be maintained in compliance with various requirements and best practice guidance, including but not limited to, the National Planning Policy Framework (NPPF) and SuDS Manual (CIRIA 2015).
- 1.1.3 This management plan aims to:
- Summarise the various SuDS features used within the site;
 - Ensure that all those involved in the maintenance and operation of the SuDS understand their functionality and maintenance requirements in terms of supporting long-term performance.
- 1.1.4 Maintenance inspections should be recorded in Appendix A of this report to ensure that the document stays up to date.

1.2 Site Description

- 1.2.1 The development proposes a neighbourhood centre, comprising of two retail units with apartments above. Associated car parks are proposed for the commercial development and future school site to the west.
- 1.2.2 The development site is located north of the Southern Bus Loop. The 0.65ha site will be bounded by the Nine Mile Ride Extension (NMRE) to the south and east. The proposed school will border the north and west of the site.

1.3 Surface Water Drainage Strategy

- 1.3.1 Surface water is collected around the site by rainwater pipes, gullies, permeable paving and raingardens before being attenuated below ground in geocellular crates. Discharge leaving the site has been restricted to 5l/s, this will join the wider site's drainage network eventually discharging into SANG Basin 3.
- 1.3.2 Raingardens and pervious paving are used across the site to treat surface water.

1.4 Responsibility for Maintenance

- 1.1.1 Responsibility for the maintenance of the drainage network will be shared between a private management company and the adopting water company. The proposal for each component is summarised below:
- Permeable paving: Private management company
 - Rain gardens: Private management company

- Attenuation storage tanks: Icosa (adopting water company)
- Pipe networks (as highlighted on the S104 layout): Icosa (adopting water company)
- All other pipe networks: Private management company

1.1.2 Where the property owner appoints a management company to maintain SuDS features, only trained personnel will be permitted to undertake maintenance works. This work must be carried out in accordance with the Confined Space Regulations (where appropriate).

2 SUDS MANAGEMENT AND MAINTENANCE REGIME

2.1 Permeable Paving

- 2.1.1 Before permeable paving is handed over to the private management company, it should be inspected for clogging, litter, weeds and water ponding, these inspections will be the responsibility of the developer and all failures should be rectified by the developer. After the permeable paving is handed over to the private management company, the pavement should be inspected regularly, particularly after heavy rainfall.
- 2.1.2 It should be noted that weeds are to be removed by hand and not with a chemical weed killer. The chemical could enter the surface water run-off within the permeable paving and have determinantal impacts upon the environment/other aspects of the drainage system.
- 2.1.3 Materials removed from the voids or the layers below the surface may contain heavy metals and hydrocarbons and may need to be disposed of as controlled waste. Waste disposal will be carried out by a competent contractor, who must hold the relevant permits to transport and dispose of the waste. The property owner will be made aware of this requirement.
- 2.1.4 The recommended maintenance activities for permeable paving are outlined in Table 1 below.

Table 1: Permeable Paving Maintenance

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required based on site-specific observations of clogging. Particular attention should be paid to areas where water runs onto pervious surface from adjacent impermeable areas.
Occasional Maintenance	Stabilise and mow contributing and adjacent areas.	As required.
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required once per year on frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required.
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth if required, take remedial action	Three-monthly, 48 h after large storms in first 6 months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

2.2 Private Pipe Networks

2.2.1 Whilst the drainage system has been designed to operate with as little maintenance as possible, there are key operations that must regularly be undertaken to ensure that the pipe networks remain in optimal condition. The majority of these actions are routine and should be carried out upon all drainage systems.

2.2.2 The recommended maintenance requirements are outlined below in Table 2.

Table 2: Pipe Network Maintenance

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Check the drains for blockages and damage. Clean and repair if required	Monthly for the first 3 months of installation. Then every 6 months.
Occasional Maintenance	Desilting gullies.	As required.
	Grating on gullies to be kept clear of debris.	As required or after large storm events.
Remedial Actions	Jetting of pipework to clear blockages.	As required.
Monitoring	Inspect for evidence of poor operation and/or damage at manholes, gullies etc.	Monthly for the first 3 months and then annually.
	Inspect inlets and outlets for the blockages, and clear as required.	Annually.

2.3 Attenuation Storage Tanks

- 2.3.1 The attenuation storage tank will be the responsibility of the management company.
- 2.3.2 Before the attenuation storage tank is handed over to the management company, it should be inspected for litter and debris. These inspections will be the responsibility of the developer, and all failures should be rectified by the developer.
- 2.3.3 Accumulated materials removed the attenuation storage tank may exceed the total organic carbon criteria for hazardous waste and may need to be disposed of as controlled waste.
- 2.3.4 Waste disposal will be carried out by a competent contractor, who must hold the relevant permits to transport and dispose of the waste.
- 2.3.5 The recommended maintenance requirements for the attenuation storage tanks are outlined in Table.

Table 3: Attenuation storage tank maintenance requirements

Maintenance Schedule	Required Action	Recommended Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months then annually
	Remove litter/debris from catchment surface	Monthly
	For systems where rainfall infiltrates into the tank above, check surface or filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from catchpit.	Annually, or as required
Remedial Actions	Repair/rehabilitate inlets, outlets, overflows and vents.	As required
Monitoring	Inspect/check all inlets, outlets and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of tank for sediment build-up and remove if necessary.	Every 5 years or as required

2.4 Raingardens

- 2.4.1 Bioretention systems will typically require approximately 2.5 times more maintenance than typical landscape designs. The most intensive maintenance is required during the establishment period. Herbicides and pesticides (such as Roundup) and fertilisers should not be used on bioretention systems. This is because these pollutants will wash through the system quite easily.
- 2.4.2 The main cause of failure of bioretention systems is clogging of the surface, which is easily visible. Underdrains and drainage layers are beneath the ground, and malfunctioning is not so easy to detect and therefore could potentially be ignored. During the first few months after installation, the system should be visually inspected after rainfall events, and the amount of deposition measured, to give the operator an idea of the expected rate of sediment deposition. After this initial period, systems should be inspected each quarter, to verify the appropriate level of maintenance.
- 2.4.3 The recommended maintenance requirements are outlined below in Table 3.

Table 3: Raingarden Maintenance

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing. water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Remedial Actions	Remove litter and surface debris and weeds.	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years
Monitoring	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required

2.5 Adoptable Pipe Network and Highway Gullies

- 2.5.1 Whilst the drainage system has been designed to operate with as little maintenance as possible, there are key operations that must regularly be undertaken to ensure that the system remains in optimal condition. The majority of these actions are routine and should be carried out upon all drainage systems.
- 2.5.2 The main sewers will be the responsibility of the water authority while plot drainage and road gullies will be managed by the management company.
- 2.5.3 Litter picking at the site should be frequent to prevent rubbish limiting the effective operation of components such as the catchpits. This will reduce the frequency with which the system has to be cleaned out.
- 2.5.4 The recommended maintenance requirements for adoptable pipe networks and road gullies are outlined below in Table 5 and Table 6.

Table 5: Pipe network maintenance requirements

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance Occasional Maintenance	Check the drains for blockages and damage. Clean and repair if required.	Monthly for the first 3 months of installation. Then every 6 months.
	Remove sediment from catchpits.	Annually or after large storm events.
Remedial Actions	Jetting of pipework to clear blockages.	As required.
Monitoring	Inspect for evidence of poor operation and/or damage at manholes etc.	Monthly for the first 3 months and then annually.
	Inspect inlets and outlets for blockages, and clear as required.	Annually.

Table 6: Road gully maintenance requirements

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Check the gullies for blockages and damage. Clean and repair if required.	Monthly for the first 3 months of installation. Then every 6 months.
Occasional Maintenance	Desilting gullies and channel drains.	As required.
	Grating on gullies and channel drains to be kept clear of debris.	As required or after large storm events.
Monitoring	Remove sediment from gullies catchpits.	Annually or after large storm events.
	Inspect for evidence of poor operation of gullies.	Monthly for the first 3 months and then annually.

3 RECORD OF MAINTENANCE

3.1 Record of Maintenance and Photographic evidence

- 3.1.1 Please provide a record of all inspections (including all photographic evidence) in Appendix A.

APPENDIX A: RECORD OF INSPECTIONS

APPENDIX B: DRAINAGE LAYOUT DRAWINGS

Private Drainage Notes

- This drawing is to be read in conjunction with and checked against all other drawings, engineering details, specification and any structural, geotechnical or other specialist documents provided.
- All lateral connections for house drainage shall be 100mm unless stated otherwise and must extend a minimum of 500mm behind the back of the footpath.
- All pipes to be verified clay or UPVC and shall be 100mm $\varnothing$ laid to a fall of 1:80 unless noted otherwise, by size and invert levels. All connections when laid shall be plugged, protected as necessary and marked with a stake for future use.
- Building drainage shall comply with BS 8301 1985, BS EN 752 and Building Regulations Part H. Inspection chambers located within garages to have double seal bot down covers.
- Gully top and manhole cover specification to be in accordance with BS EN 124 and located in accordance with the intended use and loading classification as described within groups 1-6:
- This drawing is schematic for clarity only, positions of pipe runs and manholes may vary on site due to site conditions.
- Connections to pre-formed inspection chamber bases should ensure the main channel is used in all cases. High velocity discharges (e.g. from SVPs) should use the main channel where practicable.
- Cover and invert levels are indicative and may vary on site. In any case the following minimum cover to depth of cover to the crown of pipes without protection shall be as follows:
 - Domestic gardens and pathways without any possibility of vehicular access - 0.3m
 - Domestic driveways, parking areas and yards with height restrictions to prevent entry by vehicles with a gross weight in excess of 7.5 tonnes - 0.5m
 - Domestic driveways, parking areas and narrow streets without footways (e.g. Mews developments) with limited access for vehicles with a gross weight in excess of 7.5 tonnes - 0.3m
 - Agricultural land and public open space - 0.9m
 - Other highways and parking areas with unrestricted access to vehicles with a gross weight in excess of 7.5 tonnes - 1.2m

Note: any protection required where drainage does not comply with a-e above shall be as follows:-

- Victorized clay pipes - provide a 100 mm min. thick concrete bed and surround (instead of class 'S' bedding) and a 13 mm thick compressible filler at each joint.
 - UPVC pipes - provide a concrete bridging (in addition to class 'S' bedding) in accordance with appendix A15, Building Regulations part 'H'.
- Note: in-situ concrete used in connection with a) and b) above shall be standard mix GENS in accordance with BS 5328.

- Drainage runs should be laid at a minimum of 5m from the rear of properties where practicable to allow for future extensions.
- Where pipes pass under buildings, unless beam & block floors are used, they are to be surrounded in concrete.
- All branch drains, or connections, are to discharge to the collectors obliquely, and in the direction of the main flow.
- Finished floor levels (F.F.Ls), assumed to be typically a minimum of 150mm above finished ground level outside, refer to architects drawing for details.
- All new private shallow 225mm diameter surface water and foul inspection chambers and rodding eyes shown without cover levels (CL) shall be assumed to be at external ground level, and invert levels (IL) are to be typically between 450 and 600mm below CL, subject to the length of the internal house connections.
- All low spots on hardstanding areas to have double gullies.
- Prior to topsoiling of rear gardens, the gardens should be reworked, rotavated or decompacted to a depth of 600mm. Once this is carried out, no plant is to access these areas, any further consolidation of subsoil to be reworked as necessary. Before reworking or rotavating the Contractor is to mark all drain runs in the area.
- Pipe bedding to be Class 'S' bedding (100mm granular bed and surround).
- Excavations for manholes, pipe runs etc located within a 45 degree load distribution splay from any adjoining existing foundations, are to be adequately supported for the duration of the works and building drainage protected.
- Foundations adjacent to pipe runs or manholes are to have their formation level set above the invert level no higher than the equivalent of the horizontal distance between the pipe/excavation trench and the foundation, minus 500 mm.
- Where excavations for pipe runs are parallel and in close proximity to each other and/or other service trenches, the contractor shall ensure that adequate safety measures, including temporary shoring, are provided in line with current health & safety Legislation and good practice. Particular attention is to be paid to adjacent trenches of differing invert levels.
- All existing drainage found on site during the works shall be investigated, its operational status confirmed, and the following applied:-
 - Inoperative drainage shall be cut back and pipe runs filled with concrete groud.
 - 'Live' drainage shall be temporarily re-routed to allow the new drainage to be constructed.
- Where existing drainage is to be re-used including road, building and external drainage systems, the contractor shall ensure that all chambers and drainage runs are cleaned, de-silted and made good.
- Covers to existing chambers to be re-used shall be replaced where necessary to suit proposed development loading class, see note 5. Chamber covers shall also be adjusted to suit final ground levels as necessary.
- Where necessary, existing chambers shall be re-benched to suit new pipework arrangement.
- The Contractor shall consider and take adequate measures to ensure surface water runoff during construction is managed to prevent pollution of surface water receptors and increased flood risk.

- Important Drainage Notes:**
- Prior to progressing groundworks the contractor shall:
- Confirm line and level of all outfall manholes. Where the depths of these manholes are insufficiently deep for any new connection from the site, the engineer shall be informed immediately.
 - Ensure all relevant consents for sewer connections are in place :-
 - Loosa Water S106 sewer connections
 - Confirm line and level of existing drainage outfalls. Level of connection subject to confirmation that no clashing occurs with any of the existing sewers or services, contractor to re-level if necessary. Where clashing occurs, the engineer shall be informed immediately.

THE DETAILS ON THIS DRAWING ARE INDICATIVE ONLY. INSTALLATION TO BE IN STRICT ACCORDANCE WITH MANUFACTURERS DESIGN AND DETAILS. REFER TO MANUFACTURERS DESIGN PACK AND INSTALLATION DETAILS

ANY EXISTING DRAINAGE TO BE SURVEYED TO ENSURE REDUNDANCY PRIOR TO BEING GROUTED/ GRUBBED OUT.

Drainage & Road Layout Drawing Notes

- The contractor is to check and verify all buildings, site dimensions and levels, including sewer invert levels, before works start on site.
- The contractor is to comply in all aspects with the current building legislation, British Standards, building regulations etc.
- The contractor is to check the level of existing sewers which are to be used as an out-fall prior to commencement of any onsite drainage works. Any discrepancies are to be reported to the engineer.
- This drawing is to be read in conjunction with and checked against all other drawings, engineering details, specifications and any structural, geotechnical or other specialist document provided.
- Any anomaly or contradiction between any of the above or difference between actual and drawn details is to be reported to CALA Homes.
- Drainage to be adopted under Section 104 of the Water Industries Act 1991, shall be constructed and tested in accordance with the current edition of Sewers for Adoption published by WRC plc and the combined addendum to SFA / Sewerage Sector Guidance Appendix C, Design and Construction Guidance.
- Roads, footpaths and parking areas which form part of the highway to be adopted under Section 38 of the Highways Act 1980 shall comply with the relevant councils highway specification.
- All subgrade structures and unconsolidated material within the road construction width to be removed
- Formation preparation to be in accordance with Highways Agency Specification for Highway Works (SHW) cl.616. No prepared formation to be continuously exposed to rain causing degradation below design CBR or to be left uncovered overnight.
- Any soft, damaged or weak spots including peat contaminated material are to be excavated and replaced with SHW Type 1 in accordance with SHW cl.803 laid and compacted to cl.802, Table 8/4
- Where ground conditions are deemed to be frost susceptible, refer to Ground Investigation report, track thickness shall be 450mm minimum thickness. All material within 450mm of road construction to be non-frost susceptible.
- Positions of existing services/statutory undertaker's apparatus adjacent to or crossing proposed sewers are to be checked by the contractor prior to starting work.
- The Contractor shall consider and take adequate measures to ensure surface water runoff during construction is managed to prevent pollution of surface water receptors and increased flood risk.
- All catchpits to be provided with minimum 300mm deep sump. Invert levels of catchpits refer to the invert level of the pipes not the sump.

Note: any protection required where drainage does not comply with a-e above shall be as follows:-

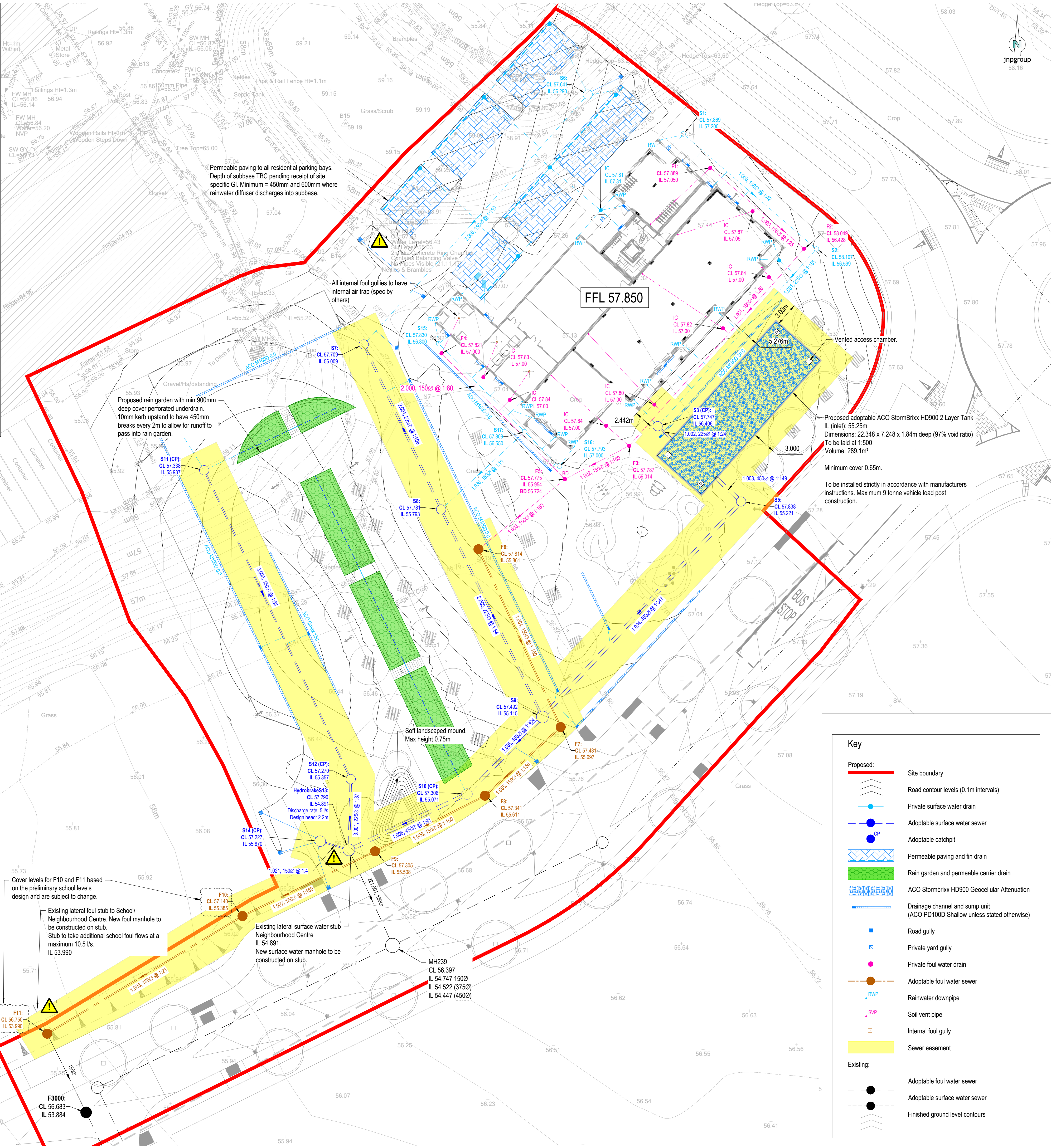
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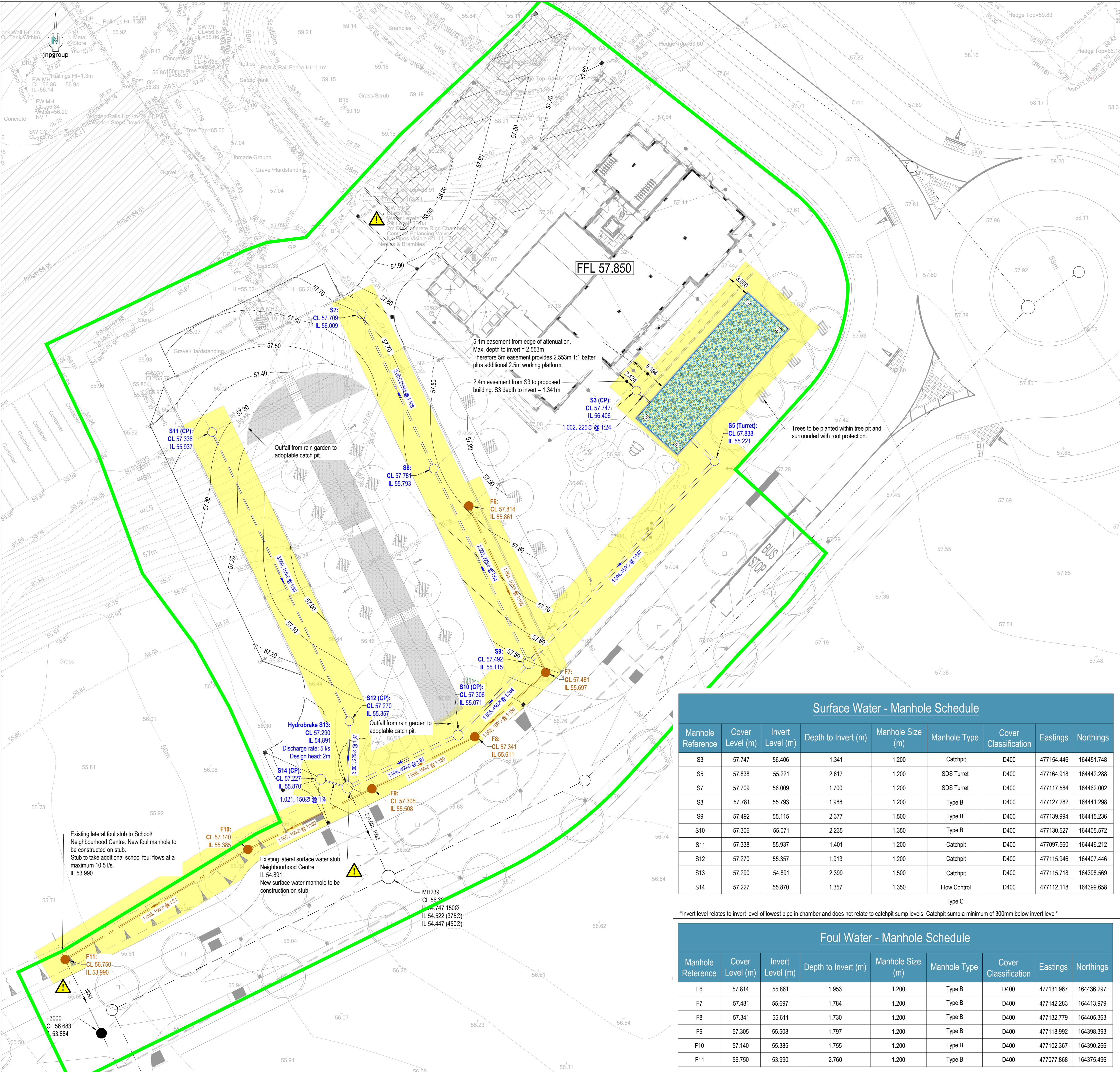
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- The Contractor shall consider and take adequate measures to ensure surface water runoff during construction is managed to prevent pollution of surface water receptors and increased flood risk.
- All catchpits to be provided with minimum 300mm deep sump. Invert levels of catchpits refer to the invert level of the pipes not the sump.

All adoptable drainage works to be installed in accordance with;

S104 Sewers - Sewerage Sector Guidance Appendix C, Design and Construction Guidance including any applicable local water authority addendums

Key

- Adoptable surface water sewer
- Private rain garden and perforated carrier drain
- Adoptable Wehohite pipeline attenuation system
- Private road gully
- Adoptable foul water sewer
- Sewer easement
- Adoptable catchpit (sump 300mm below invert level)
- Existing:
 - Adoptable surface water sewer
 - Adoptable foul water sewer
 - Finished ground level contours



Surface Water - Manhole Schedule

Manhole Reference	Cover Level (m)	Invert Level (m)	Depth to Invert (m)	Manhole Size (m)	Manhole Type	Cover Classification	Eastings	Northings
S3	57.747	56.406	1.341	1.200	Catchpit	D400	477154.446	164451.748
S5	57.838	55.221	2.617	1.200	SDS Turret	D400	477164.918	164442.288
S7	57.709	56.009	1.700	1.200	SDS Turret	D400	477117.584	164462.002
S8	57.781	55.793	1.988	1.200	Type B	D400	477127.282	164441.298
S9	57.492	55.115	2.377	1.500	Type B	D400	477139.994	164415.236
S10	57.306	55.071	2.235	1.350	Type B	D400	477130.527	164405.572
S11	57.338	55.937	1.401	1.200	Catchpit	D400	477097.560	164446.212
S12	57.270	55.357	1.913	1.200	Catchpit	D400	477115.946	164407.446
S13	57.290	54.891	2.399	1.500	Catchpit	D400	477115.718	164398.569
S14	57.227	55.870	1.357	1.350	Flow Control	D400	477112.118	164399.658

Type C

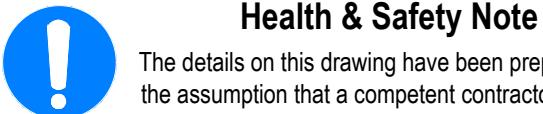
Invert level relates to invert level of lowest pipe in chamber and does not relate to catchpit sump levels. Catchpit sump a minimum of 300mm below invert level

Foul Water - Manhole Schedule

Manhole Reference	Cover Level (m)	Invert Level (m)	Depth to Invert (m)	Manhole Size (m)	Manhole Type	Cover Classification	Eastings	Northings
F6	57.814	55.861	1.953	1.200	Type B	D400	477131.967	164436.297
F7	57.481	55.697	1.784	1.200	Type B	D400	477142.283	164413.979
F8	57.341	55.611	1.730	1.200	Type B	D400	477132.779	164405.363
F9	57.305	55.508	1.797	1.200	Type B	D400	477118.992	164398.393
F10	57.140	55.385	1.755	1.200	Type B	D400	477102.367	164390.266
F11	56.750	53.990	2.760	1.200	Type B	D400	477077.868	164375.496

General Notes

- Where this drawing has been issued in electronic .dwg format, it has been done so in good faith. JNP Group do not take any responsibility for any inaccuracies in the electronic data, which should be checked against the paper (or .pdf) drawing issue. Any apparent discrepancies should be immediately reported to JNP Group. The electronic .dwg file should not be assumed to be to scale and should not be used for 'overlaying', setting out or checking of any third party information. All dimensions should be taken from the paper (or .pdf) version of the drawing. Electronic drawings may contain third party information. JNP Group take no responsibility for this information, which should be checked against the originators paper drawing(s).
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Health & Safety Note

The details on this drawing have been prepared on the assumption that a competent contractor will be carrying out the works. If the contractor(s) considers that there is insufficient Health and Safety information on this drawing, this should immediately be brought to the attention of the designer.

HAZARD IDENTIFICATION BOX

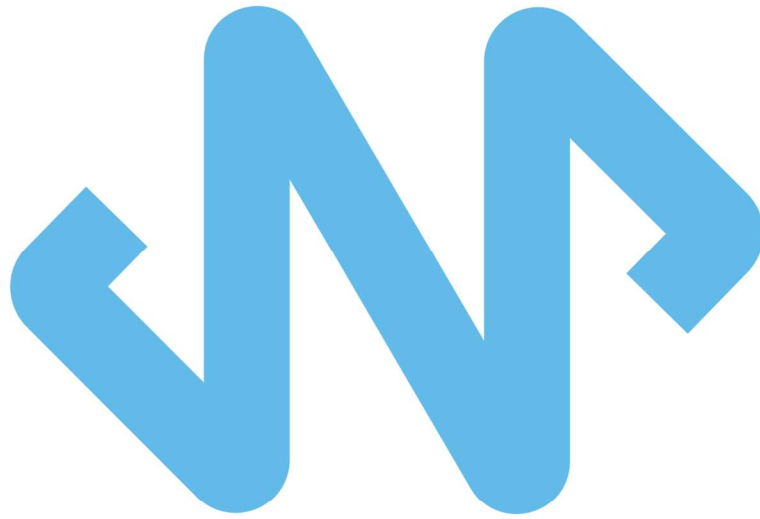
This table is provided to assist the Principal Contractor to fulfil their obligations under the CDM Regulations 2015

Hazard Ref	Hazard Type (Construction Method/Task/ Clearing/Excavation/Relocation)	Hazard Description	Mitigation Measures/ Residual Risk
⚠	Construction	Conflicting information on existing foul and surface water stub invert level information.	Contractor to check invert levels prior to the commencement of any works.
⚠	Construction	Existing services	Contractor to identify location of any buried services prior to the commencement of any works. Contractor to determine whether services are live and require diversion or can be abandoned.

P03	03/03/2026	Updated in accordance with client comments	CS/CS
P02	05/02/2026	Site boundary amended to green to suit ICOSA comments.	GT/CS
P01	17/09/2025	First Issue	CS/CS/KM
Rev.	Date	Description	Drawn/Checked/Approved
Submittal			
S4 - Suitable for Stage Approval			



Client	CALA Homes Thames Ltd.
Job	Neighbourhood Centre, Hogwood Farm
Title	Proposed S104 Layout
Classification	FL 60_20
Scale @ A1:	1:250
Reason	P03
SA00392-2001-C-DRN	



JNP GROUP

CONSULTING ENGINEERS

Brighouse

Woodvale House
Woodvale Road
Brighouse
West Yorkshire
HD6 4AB

telephone

01484 400691

email

brighouse@jnpgroup.co.uk

Chesham (HQ)

Link House
St Mary's Way
Chesham
Buckinghamshire
HP5 1HR

telephone

01494 771221

email

chesham@jnpgroup.co.uk

Glasgow

Orient Building
16 McPhater Street
Glasgow
G4 0HW

telephone

0141 378 0808

email

glasgow@jnpgroup.co.uk

Hartlepool

The Innovation Centre
Venture Court
Queens Meadow Business Park
Hartlepool
TS25 5TG

telephone

01429 239539

email

hartlepool@jnpgroup.co.uk

Leamington Spa

Portobello House
Portobello Way
Warwick
Warwickshire
CV34 5GJ

telephone

01926 889955

email

leamingtonspa@jnpgroup.co.uk

Sheffield

MBP2 Meadowhall Business Park
Carbrook Hall Road
Sheffield
South Yorkshire
S9 2EQ

telephone

0114 244 3500

email

sheffield@jnpgroup.co.uk