

SuDS and Drainage Report

Wappingthorn Lodge, Horsham Road, Steyning, West Sussex BN44 3AA

Planning Ref: DC/25/I002

Rev: I

Ref: **C2070**

CGS Civils Ltd
Richard Cobden House
Lion Street
Chichester
West Sussex
PO19 1LW
mail@cgscivils.co.uk
www.cgscivils.co.uk

Document Control

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Author	LH	Signature	

Revision History

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20.02.2026	I	LH	CS

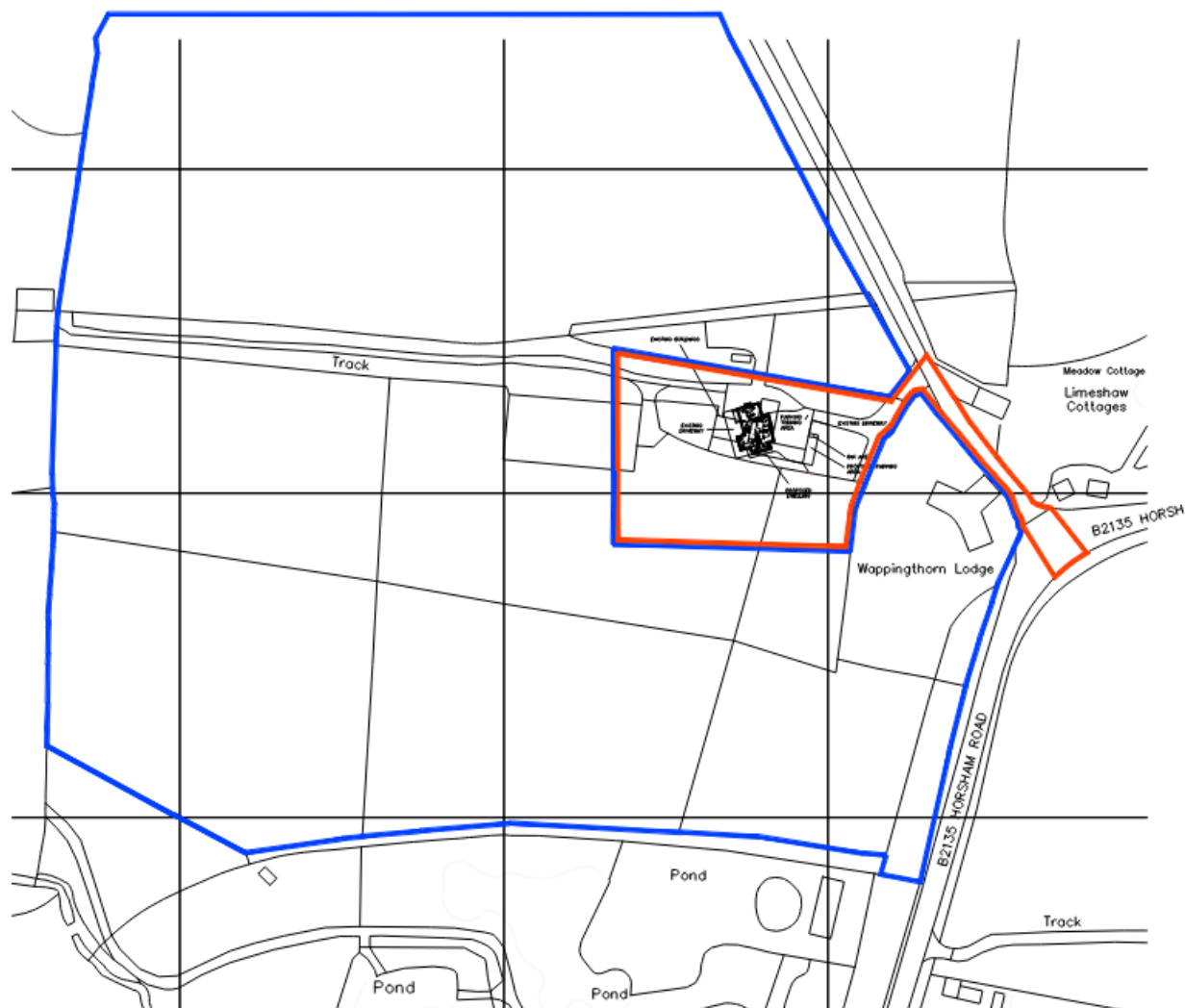
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1 Introduction

- 1.1.1 CGS Civils Ltd has been appointed to undertake a drainage strategy report for a proposed development at Wappingthorn Lodge in Steyning, West Sussex.
- 1.1.2 The proposed development will consist of demolition of an existing stable and outbuildings followed by the construction of a single dwelling. The proposed development is located as OS Grid Reference TQ 17094 13016 and has the post code BN44 3AA.
- 1.1.3 The purpose of this drainage scheme is to demonstrate how the proposed development can be satisfactorily drained without increasing flood risk onsite and where appropriate, providing betterment over the existing site to reduce flood risk in the region.
- 1.1.4 In addition to the above, it will also demonstrate compliance with Condition 4. The condition is in place on Decision Notice from **4th December 2025**, with the planning reference: **DC/25/1002**. The condition requires the following to be included:
- The results of an assessment into the potential for disposing of surface water by means of Sustainable Drainage System (SuDS).
 - Details of a management and maintenance plan for the drainage scheme
 - The appropriate design standard for the surface water drainage scheme must be the 1 in 100 year return period with a 45% allowance for climate change + 10% urban creep.

Fig 1. Site Location



2 Executive Summary:

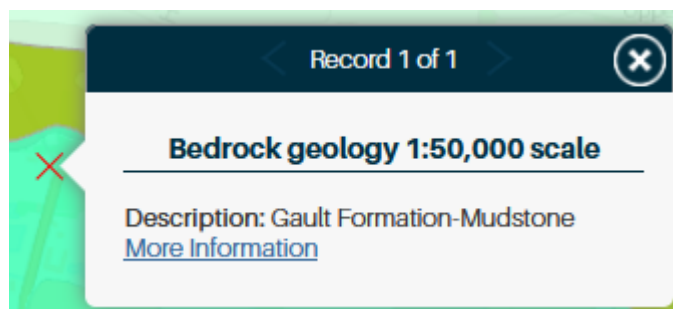
- 2.1.1 The proposed development will consist of the demolition of existing outbuildings followed by the construction of a detached dwelling.
- 2.1.2 Onsite infiltration testing failed, with surface water held within the clay layers draining into the trial pit. Groundwater monitoring is currently underway and the well itself was noted dry during installation and also dry during follow up visits.
- 2.1.3 It is proposed that surface water runoff is to discharge into an existing drainage network that serves the adjacent Wappingthorn Lodge. The drainage network is noted to discharge into an existing pond which connects into the wider watercourse network. The discharge rate from site is to be restricted to greenfield runoff rate which is 0.9l/s.
- 2.1.4 The foul water from site is to be treated on site via a new Sewage Treatment Plant (STP) with a high quality treated effluent which will connect into the pond alongside the surface water runoff.

3 Site Geology

3.1 British Geological Survey information

- 3.1.1 The British Geological Survey confirms the bedrock geology to be made up of Gault Formation. At the time of writing the British Geological Survey website does not have any recorded information of the Superficial deposits on site.
- 3.1.2 The British Geological survey also holds records of historical boreholes near the site which give some insight into the ground geology.
- Borehole TQ11SE64 (Located approx. 420m Northeast of the site) – Sand Rock and Sandy Clay

Fig 2. British Geological Survey



3.2 Geological Assessment

- 3.2.1 A groundwater monitoring well was installed by E3S Consulting on behalf of CGS Civils Ltd on 28th January 2026. During the well installation, the borehole was noted to be dry. The underlying geology is recorded to be clay with fine chunks of chalk and sandstone. The well was noted to be dry during subsequent monitoring visits and at time of writing, monitoring is ongoing.
- 3.2.2 Infiltration testing was also conducted on site by CGS Civils Ltd on Friday 24th January. During excavation of the trial pits, water was present within the pit at 0.2mbgl which was believed to be surface water runoff held within the clay layer. As such, it was not possible to undertake the test, and it was therefore considered a failure.
- 3.2.3 The surrounding landscaped areas were noted to be retaining water at surface level during the site visit.

Fig 3. Infiltration test photographs



4 Existing Drainage

- 4.1.1 A site walkover confirmed that all rainwater downpipes discharge directly to ground.
- 4.1.2 A CCTV drainage survey was carried out on the existing Wappingthorn Lodge located to the east of the site. The survey confirmed that all surface water runoff from the site is discharged into an existing pond to the south of Wappingthorn Lodge. This pond is understood to have a connection into the wider watercourse network located to the south.

Fig 4. Map view of existing site



5 Proposed Drainage Strategy

5.1 SuDS Hierarchy

- 5.1.1 All options for the destination of run-off generated on site have been assessed in line with the SuDS hierarchy as set out in Building Regulations Part H document and DEFRA's Draft National Standards for SuDS.

Table 1. SuDS Hierarchy

Discharge Destination	
Rainwater Harvesting	Rainwater harvesting has been included within the drainage design.
Discharge to Ground	Discharge to ground not viable due to wet clayey soils and failed infiltration test.
Discharge to Watercourse	Yes – Proposed discharge into existing surface water drainage that serves the adjacent Wappingthorn Lodge. This drain discharges into a pond and then onto a larger watercourse network. Discharge rate restricted to 0.9l/s.
Discharge to Surface Water Sewer	N/A due to above
Discharge to Other Sewer	N/A due to above

5.2 Proposed Hydraulic Calculation Specifications:

Table 2. SuDS Hierarchy

Hydraulic Calculations Settings:	
Rainfall Methodology	FEH-22
Volumetric Run-off Coefficient Cv	1
CV Winter and Summer	1
Additional Storage (m ³ / ha)	0.0
Maximum Rainfall (mm/hr)	75
Flow Control	0.727m Head @ 0.9l/s discharge
Car Park Design	Base Coefficient (m/hr): 0.00000
	Side Coefficient (m/hr): 0.00000
	Factor of Safety: 2
	Porosity: 30%
	Time to Half Empty (mins): -

5.3 Surface Water Drainage

- 5.3.1 Based upon the failure of the infiltration testing it is confirmed that the site is unable to discharge rainwater via infiltration. It is therefore proposed that the surface water runoff from the site is to be discharged into an existing drainage network within the client's boundary at Wappingthorn Lodge. The CCTV drainage survey has verified that the existing drainage network discharges to the pond located to the south of Wappingthorn Lodge, which is understood to connect into the wider downstream watercourse network.
- 5.3.2 The discharge rate from the site is to be restricted to 0.9l/s which is the greenfield runoff rate. The runoff from the roof areas is to be captured into a positive drainage network prior to discharge, the network itself will make use of bio-retention planters and rainwater harvesting in order to reduce the overall volume of runoff from discharging off site. The bio-retention planter has the additional benefit of treating the runoff whilst providing biodiversity and amenity benefits.
- 5.3.3 Storage for the 1 in 100-year storm +45% CCA +10% urban creep will be provided within the sub-base of a permeable car park that is to be wrapped in an impermeable geomembrane which will allow it to act as blanket attenuation.
- 5.3.4 Remedial works are required on the existing surface water network prior to construction.
- 5.3.5 Greenfield Runoff and Hydraulic calculations have been carried out which can be found at Appendix C.

Table 3. Greenfield Runoff Calculations

Greenfield Runoff Calculations				
Storm period	Greenfield runoff rate (l/s)	Proposed Discharge Rate (l/s)	Difference (l/s)	Betterment (%)
Q _{BAR}	0.9	0.9	+ 0.0	-
1	0.8	0.9	+ 0.1	-
2	0.8	0.9	+ 0.1	-
30	2.2	0.9	- 1.3	83
100	3.0	0.9	- 2.1	107

5.4 Water Quality

- 5.4.1 A key requirement of any SuDS system is that it protects the receiving water body from the risk of pollution.
- 5.4.2 Frequent and short duration rainfall events are those that are most loaded with potential contaminants (silts, fines, heavy metals, and various organic and inorganic contaminants) Therefore the first 5-10mm of rainfall should be adequately treated with SuDS.
- 5.4.3 The new SuDS Manual (Ciria C753, November 2015) introduces slightly different approach compared to the previous version for the water quality management of surface water. The Manual describes risks posed by the surface water runoff to the receiving environment as a function of:
- The pollution hazard at a particular site (i.e., the pollution source)
 - The effectiveness of SuDS treatment components in reducing levels of pollutants to environmentally acceptable levels
 - The sensitivity of the receiving environment
- 5.4.4 The recommended approaches for water quality risk management are given in the SuDS Manual Table 26.1.

Table 26.1 from SuDS manual. Approaches to Water Quality Risk Management

Table 26.1 Approaches to Water Quality Risk Management			
Design method	Hazard Characterisation	Risk Reduction	
		For Surface Water	For Groundwater
Simple Index Approach	Simple pollution hazard indices based on land use (Table 26.2)	Simple SuDS hazard mitigation indices (Table 26.3)	Simple SuDS hazard mitigation indices (Table 26.4)
Risk Screening	Factors characterising traffic density and extent of infiltration likely to occur (Table 26.5)	N/A	Factors characterising unsaturated soil depth and type, and predominant flow type through the soils (Table 26.5)
Detailed Risk Assessment	Site specific information used to define likely pollutants and their significance	More detailed, component specific performance information used to demonstrate that the proposed SuDS components reduce the hazard to acceptable levels	
Process-based treatment modelling	Time series rainfall used with generic pollution characteristics to determine statistical distributions of likely concentrations and loadings in the runoff	Models that represent the treatment processes in the proposed SuDS components give estimates of reductions in even mean discharge concentrations and total annual load reductions delivered by the system	

5.4.5 As per Table 26.1 Simple Index approach will be used as a design method for this site.

5.4.6 Table 26.2 will provide hazard classification of different land uses. The land uses for the surface water drainage for this site are.

- Residential Roofs
- Individual Property driveways and residential car parks

5.4.7 To deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index for each contaminant type that equals or exceeds the pollution hazard index for each contaminant type. Therefore, the following must be achieved for the surface running off the site.

Total SuDS mitigation index $\geq$ pollution hazard index

5.4.8 Pollution Hazard Indices are given for different land uses in Table 26.2 of the SuDS manual;

Table 26.2 from SuDS manual. Pollution Hazard Indices for Different Land Use Classifications

Table 26.2 Pollution hazard indices for different land use classifications				
Land Use	Pollution Hazard Level	Total Suspended solids (TSS)	Metals	Hydro-Carbons
Residential roofs	Very Low	0.2	0.2	0.05
Other roofs (Typically commercial/industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (e.g., cul-de-sacs, homezones and general access roads) and non-residential car parking with infrequent change (e.g., schools, offices) i.e., < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (e.g., hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	0.7	0.6	0.7
Sites with heavy pollution (e.g., haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways	High	0.8	0.8	0.9

5.4.9 From Table 26.2 the following information is tabulated in Table I

Table 3: Pollution hazard index and destination of runoff for the proposed site

Table 3: Pollution Hazard Index and Destination of runoff for the proposed Site					
Land Use	Destination of Runoff	Pollution Hazard Level	Total Suspended Solids	Metals	Hydrocarbons
Residential Roof	Surface Water	Very Low	0.2	0.2	0.05
Individual driveways, residential car parks and low traffic roads	Surface water	Low	0.5	0.4	0.4

5.4.10 The SuDS mitigation index will be obtained from Table 26.4 (for groundwater) of the SuDS manual.

Table 26.4 from SuDS manual. Indicative SuDS Mitigation Indices for discharges to ground waters.

5.4.11 SuDS mitigation index are tabulated in Table 5 as followed.

Table 26.4 Indicative SuDS mitigation indices for discharges to surface waters

Type of SuDS Components	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Filter Strip	0.4	0.4	0.5
Filter Drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention System	0.8	0.8	0.8
Permeable Pavement	0.7	0.6	0.7
Detention Basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for inflow concentrations relevant to the contributing drainage area		

Table 4: SuDS mitigation index

Table 4 Mitigation Indices						
Runoff Source	Destination of Runoff	Mitigation Index Source	Type of SuDS Component	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Individual driveways, residential car parks and low traffic roads	Surface water	Table 26.4 (for surface waters)	Permeable Pavement	0.7	0.6	0.7
Residential Roof	Surface Water	Table 26.4 (for surface waters)	Bioretention System	0.8	0.8	0.8

5.4.12 The above analysis demonstrates that the SuDS devices within the design will mitigate any pollution present within the surface water system.

5.5 Foul water drainage

5.5.1 The foul water from site is to be treated on site via a new Sewage Treatment Plant (STP) with a high quality treated effluent which will connect into the pond alongside the surface water runoff.

5.5.2 The proposed foul water discharge does not require Environment Agency approval as it adheres to the general binding rules for small discharge to surface water. This is because the proposed discharge:

- Is less than 5m³ a day
- Utilises a sufficient treatment system
- Is not causing pollution
- Is not within 500 meters of a protected site
- Is not within 50m of any other exempt discharge

6 Summary and Conclusions

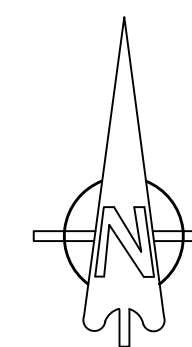
- 6.1.1 CGS Civils has been instructed to produce a Drainage statement under National Planning Policy Framework (NPPF) to support the Planning Application for the demolition of existing outbuildings, and the construction of a detached dwelling.
- 6.1.2 The Surface Water will discharge to the existing drainage network that serves the adjacent Wappingthorn Lodge which is confirmed to discharge into a pond to the south. The proposed discharge rate is to be restricted to 0.9l/s which is the greenfield runoff rate for the site.
- 6.1.3 The foul water from site is to be treated on site via a new Sewage Treatment Plant (STP) with a high quality treated effluent which will connect into the pond alongside the surface water runoff.
- 6.1.4 The report has demonstrated that the proposed drainage measures ensure that suitable means of surface water and foul drainage can be achieved for the proposed development.
- 6.1.5 A maintenance schedule has been written up for the drainage network including the SuDS features and can be found within Appendix F.

7 Appendices

7.1 Appendix A – Site Plan

[illegible]

REV	DESCRIPTION	DATE	DRN	CHK
A	GENERAL REVISIONS	25/2/25	JP	
B	GENERAL REVISIONS	24/3/24	JP	
C	GENERAL REVISIONS	30/5/25	JP	
D	GENERAL REVISIONS	3/6/25	JP	
E	GENERAL REVISIONS	17/9/25	JP	



Meade
Lime
Cott

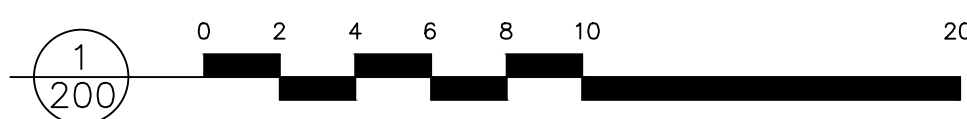
EXISTING DRIVEWAY

PARKING /
TURNING AREA

EXISTING DRIVEWAY

— BIN AREA

— PROPOSED PARKING
AREA

PROPOSED
DWELLING

Wappingthorn Lodge

scandiahus

SCANDIA-HUS BUSINESS PARK,
FELCOURT ROAD, FELCOURT, EAST GRINSTEAD,
WEST SUSSEX, RH19 2LP : TEL 01342 838060

FOR
MR. & MRS. WARNER

SITE
Wappingthorn Lodge,
Horsham Road, Steyning,
West Sussex, BN44 3AA

TITLE

PROPOSED SITE PLAN

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FC

DATE
05/22

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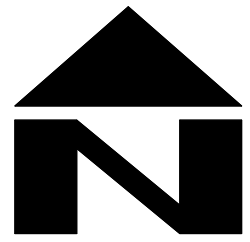
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REV D

7.2 **Appendix B – Drainage Layout**



DESIGN SUBJECT TO THE APPROVAL OF:
PLANNING AUTHORITY
BUILDING CONTROL

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
ROOT PROTECTION AREAS

STANDARD DRAINAGE NOTES

- DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
- ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
- ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY, SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
- BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR MUST CHECK THE INVERT LEVELS OF EXISTING SEWERS TO WHICH CONNECTIONS ARE MADE. IN ADDITION THE CONTRACTOR MUST LOCATE AND DETERMINE INVERT LEVELS OF THE EXISTING SPURS TO WHICH CONNECTIONS ARE PROPOSED. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION.
- ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT. THE WORKS CONTINUING UPSTREAM FOLLOWING CONFIRMATION OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR LARGER SIZED PIPES ETC. SHOULD BE SOFFIT TO SOFFIT UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER, IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
- COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
- ALL UN-REFERENCED PIPES ARE TO BE 100mm DIA.
- ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS65 (SWS ONLY), OR CONCRETE PIPES TO BE EN 1916 AND BS5911:PART 1.
- ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
- ALL ADOPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN DOWN IN 'SEWERS FOR ADOPTION' 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
- ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT PART-H, AND TO THE SATISFACTION OF THE BUILDING CONTROL INSPECTOR.
- THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWINGS CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
- STUB CONNECTIONS TO ADOPTABLE MANHOLES SHALL BE MADE FROM VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
- IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
- NO PRIVATE AREAS ARE TO DRAIN ONTO ADOPTABLE AREAS AND VICE VERSA.
- ALL EXISTING MANHOLE COVER'S, GULLIES, ETC. ARE TO BE RAISED/LOWERED TO SUIT NEW LEVELS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE LOCATION AND DEPTH OF ALL EXISTING SERVICES AND UTILITIES THAT MAY BE PRESENT.
- UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM WHICH IS TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION.
- PROPRIETARY PRODUCTS TO BE INSTALLED IN FULL ACCORDANCE WITH MANUFACTURER'S GUIDANCE.
- MANHOLE AND CHAMBER COVER GRADES:
 - 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
 - 'B125' IN ALL DRIVEWAYS
 - 'C250' IN PRIVATE PARKING AREAS
 - 'D400' IN CARRIAGEWAY/ACCESS ROAD

Prefix to drawing numbers shall signify the following:-

PL = PLANNING	Shall not be used for contract or construction purposes
P = PRELIMINARY	Shall not be used for contract or construction purposes
T = TENDER	Shall not be used for construction purposes
C = CONSTRUCTION	These are the only drawings that shall be used for construction purposes
R = RECORD	Record of actual completed work

2	07.04.26	REVISED TO INCLUDE NON RETURN VALVE	LH	CS	CS
P-	25.02.26	PRELIMINARY ISSUE	LH	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP

 Consulting Civil Engineers					
CLIENT LEONARD WARNER					
ARCHITECT SCANDIA-HUS					
JOB TITLE WAPPINGTHORN LODGE STEYNING					
DRAWING TITLE DRAINAGE DESIGN SHEET 1					
DRAWN	LH	ENGINEER	C SLADE	CHECKED	CS
DATE	FEB 2026	SCALE @ A1	1:100	APPROVED	CS
JOB No.	C2070	STATUS	P	DRAWING No.	101
REV.					2

FOR PLANNING ONLY

FOR CONTINUATION - SEE C2070_102

DRAINAGE LEGEND

EXISTING FEATURES

	Ex FWD		Existing foul water sewer/drain and manhole		Ex SWD		Existing surface water sewer/drain and manhole
	Red Line Boundary		Blue Line Boundary				

PROPOSED FEATURES

	FWD		CWD		Combined Drainage
	SWD		Combined water inspection chamber (4500)		Soil stack (type TBC by architect/m&e engineer)
	Surface Water Drainage		Foul water access chamber (3000)		Foul water inspection chamber (4500)
	Rainwater pipe		Finished floor level		Finished floor level
	Storm water access chamber (3000)		1000 4.5m 1:100 Z BED		1000 4.5m 1:100 Z BED
	Storm water inspection chamber (4500)				
	Storm water catchpit chamber (4500)				
	Extent of permeable paving with porous sub-base				
	Permavoid distribution tank				
	Storm water orifice flow control chamber (5000)				
	Bioretention Planter				

ABBREVIATIONS

MH	- MANHOLE
IC	- INSPECTION CHAMBER
AC	- ACCESS CHAMBER
CP	- CATCHPIT
BC	- BRAKE CHAMBER
RE	- RODDING EYE
IL	- INVERT LEVEL
SL	- SUMP LEVEL
RA	- RESTRICTED ACCESS COVER
CL	- COVER LEVEL
TL	- TOP OF CELLULAR SA
BL	- BASE OF CELLULAR SA
FL	- FORMATION LEVEL

Site Specific Notes

- The proposed scheme consists of the demolition of outbuildings and construction of a detached dwelling.
- Onsite infiltration testing failed, with surface water held within the clay layers draining into the trial pit. Groundwater monitoring is currently underway and the well itself was noted to be dry during installation and also dry during follow up visits.
- It is proposed that surface water runoff is to discharge into an existing drainage network that serves the adjacent Wappingthorn Lodge. The existing network is noted to discharge into an existing pond which connects into the wider watercourse network.
- The runoff from the site is to be captured into a positive drainage network prior to discharging into the adjacent network at a restricted rate of 0.9l/s. The proposed network will make use of bio-retention planters and rainwater harvesting in order to reduce the overall volume of runoff.
- The foul water is to be treated on site via an STP with a high quality treated effluent which will connect into the pond and discharge into the wider watercourse network.

Underground garden rainwater harvesting system tank
Graf Platink Tank 1500 litre
1.250m x 2.100m x 1.015m
Fitted with Non-return valves
CL 11.000
IL of Inlet 10.364
IL of outlet 10.284
BL 9.534
Subject to manufacturer details.
Final location and size subject to clients' requirements.
For Garden use only

Rainwater downpipe to be taken below sub-base of proposed parking area.
Installed at IL 10.435

PP1
Gravel with Tanked Porous Sub-base
Attenuation Storage
• 50mm thickness 20mm agg Gravel
• 410mm 5/20mm Sub Base
• Geomembrane
Provides MAX 23.1m³ storage
CL 11.000
FL 10.540

S4 Control Chamber
SEL Protected Office
(Or similar approved)
Office = 21mmØ
MAX 0.9 l/s
CL 11.000
IL 10.198
SL 9.898
5000 SEL Chamber
Non-Return valve and
Foul Air Trap

SW IL 10.469
FW IL 10.355

FW IL 10.355

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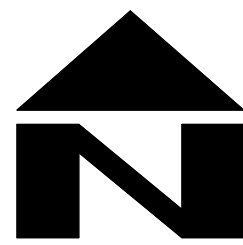
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FOR CONTINUATION – SEE C2070_101



DESIGN SUBJECT TO THE APPROVAL OF:
PLANNING AUTHORITY
BUILDING CONTROL
WATER AUTHORITY

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
GROUNDWATER DEPTH
ORDINARY WATERCOURSE APPROVAL
LOCATION AND DEPTH OF EXISTING UTILITIES
ROOT PROTECTION AREAS

- STANDARD DRAINAGE NOTES
- DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
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 - BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR MUST CHECK THE INVERT LEVELS OF EXISTING SEWERS TO WHICH CONNECTIONS ARE MADE. IN ADDITION THE CONTRACTOR MUST LOCATE AND DETERMINE INVERT LEVELS OF THE EXISTING SPURS TO WHICH CONNECTIONS ARE PROPOSED. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION.
 - ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT. THE WORKS CONTINUING UPSTREAM FOLLOWING CONFIRMATION OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR LARGER SIZED PIPES ETC. SHOULD BE SOFFIT TO SOFFIT UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER, IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
 - COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
 - ALL UN-REFERENCED PIPES ARE TO BE 100mm DIA.
 - ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS65 (SWS ONLY), OR CONCRETE PIPES TO BE EN 1916 AND BS5911:PART 1.
 - ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
 - ALL ADOPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN DOWN IN 'SEWERS FOR ADOPTION' 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
 - ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT PART-H, AND TO THE SATISFACTION OF THE BUILDING CONTROL INSPECTOR.
 - THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWINGS CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
 - STUB CONNECTIONS TO ADOPTABLE MANHOLES SHALL BE MADE FROM VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
 - IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
 - NO PRIVATE AREAS ARE TO DRAIN ONTO ADOPTABLE AREAS AND VICE VERSA.
 - ALL EXISTING MANHOLE COVER'S, GULLIES, ETC. ARE TO BE RAISED/LOWERED TO SUIT NEW LEVELS.
 - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE LOCATION AND DEPTH OF ALL EXISTING SERVICES AND UTILITIES THAT MAY BE PRESENT
 - UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM WHICH IS TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION
 - PROPRIETARY PRODUCTS TO BE INSTALLED IN FULL ACCORDANCE WITH MANUFACTURER'S GUIDANCE.
 - MANHOLE AND CHAMBER COVER GRADES:
 - 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
 - 'B125' IN ALL DRIVEWAYS
 - 'C250' IN PRIVATE PARKING AREAS
 - 'D400' IN CARRIAGEWAY/ACCESS ROAD

COMPULSORY
Remedial works to be carried out on existing Surface Water drainage prior to construction to ensure network continues to function as intended

COMPULSORY
CONTRACTOR TO CONFIRM INVERT LEVEL OF DOWNSTREAM CONNECTION PRIOR TO INSTALLATION OF DRAINAGE
PROPOSED CONNECTION SUBJECT TO TOPOGRAPHICAL SURVEY TO CONFIRM GROUND LEVELS AND ENSURE A CONNECTION IS POSSIBLE

- Site Specific Notes
- The proposed scheme consists of the demolition of outbuildings and construction of a detached dwelling.
 - Onsite infiltration testing failed, with surface water held within the clay layers draining into the trial pit. Groundwater monitoring is currently underway and the well itself was noted to be dry during installation and also dry during follow up visits.
 - It is proposed that surface water runoff is to discharge into an existing drainage network that serves the adjacent Wappingthorn Lodge. The existing network is noted to discharge into an existing pond which connects into the wider watercourse network.
 - The runoff from the site is to be captured into a positive drainage network prior to discharging into the adjacent network at a restricted rate of 0.9/s. The proposed network will make use of bio-retention planters and rainwater harvesting in order to reduce the overall volume of runoff.
 - The foul water is to be treated on site via an STP with a high quality treated effluent which will connect into the pond and discharge into the wider watercourse network.

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DRAINAGE LEGEND

EXISTING FEATURES

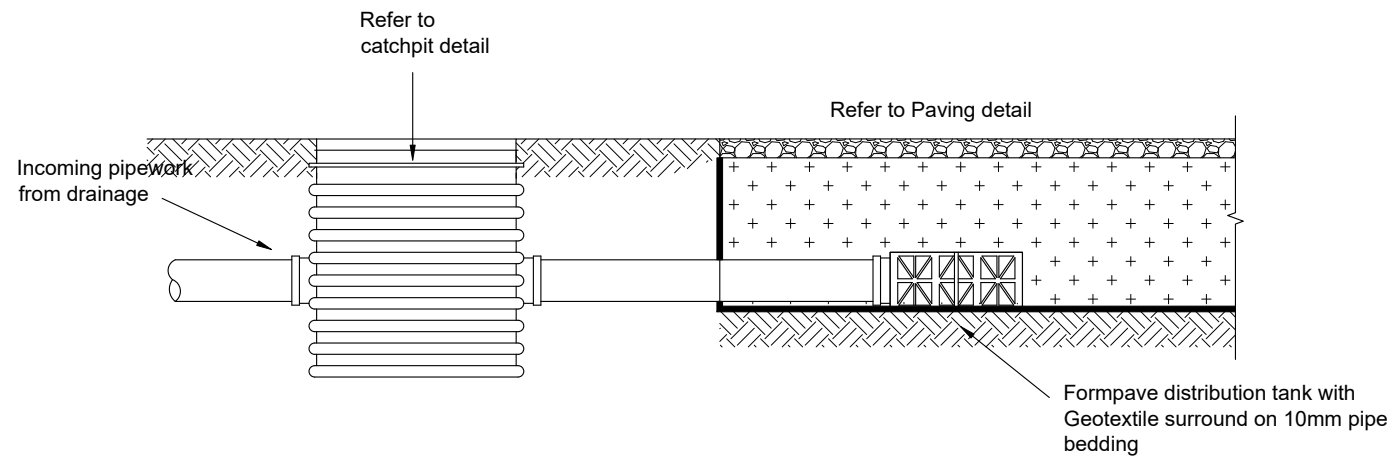
- | | | | | | |
|--|--------|---|--|--------|--|
| | Ex FWD | Existing foul water sewer/drain and manhole | | Ex SWD | Existing surface water sewer/drain and manhole |
| | | Red Line Boundary | | | Blue Line Boundary |

PROPOSED FEATURES

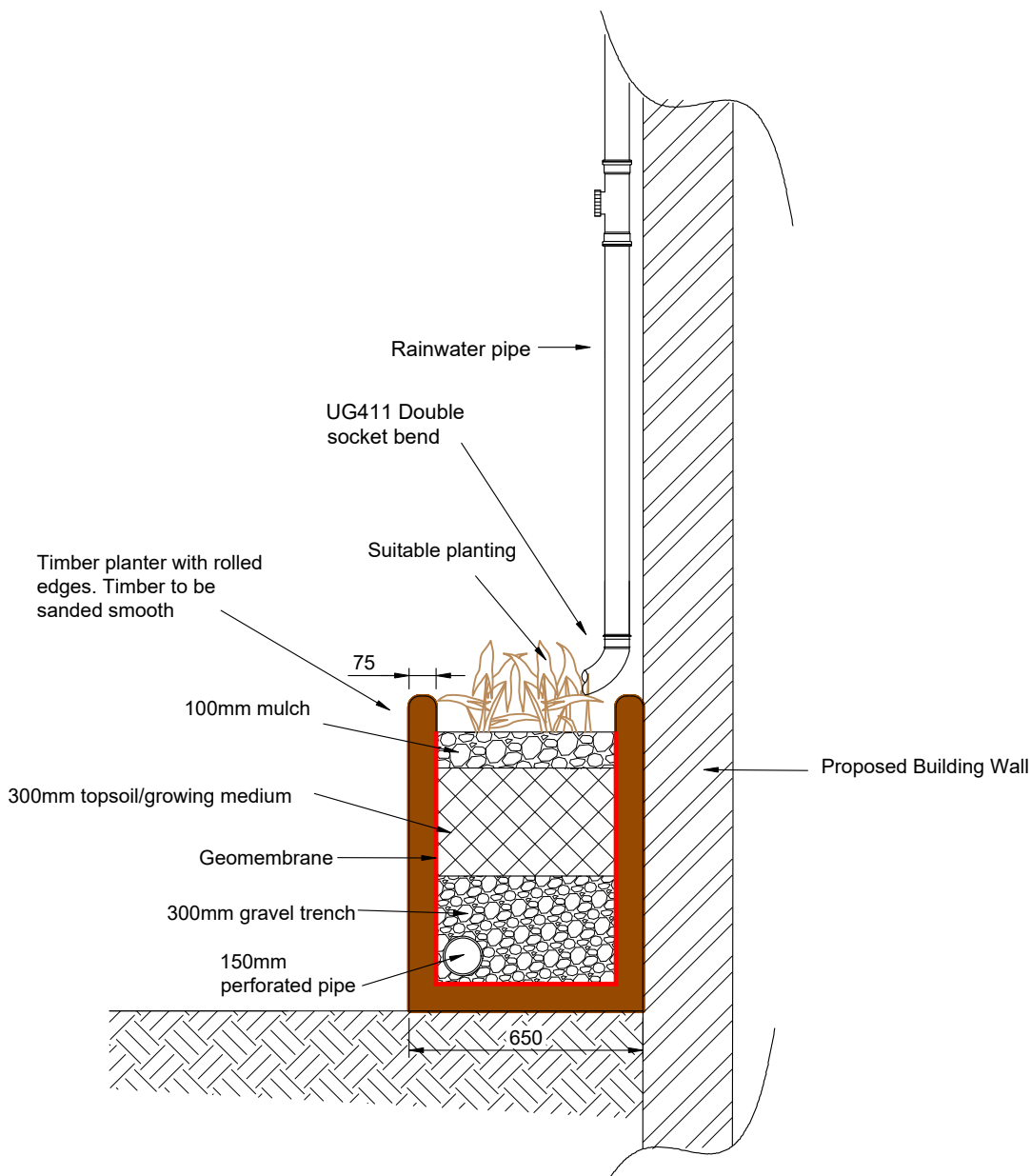
- | | | | | | |
|--|-----|---|--|-----------------|--|
| | FWD | Foul Drainage | | CWD | Combined Drainage |
| | SWD | Surface Water Drainage | | | Combined water inspection chamber (4500) |
| | | Rainwater pipe | | FW | Soil stack (type TBC by architect/m&e engineer) |
| | | Storm water access chamber (3000) | | | Foul water access chamber (3000) |
| | | Storm water inspection chamber (4500) | | | Foul water inspection chamber (4500) |
| | | Storm water catchpit chamber (4500) | | 00.000 | Finished floor level |
| | | Extent of permeable paving with porous sub-base | | 1000 4.5m 1:100 | Pipe info - diameter, length, gradient, bedding type |
| | DT | Permavoid distribution tank | | | |
| | | Storm water orifice flow control chamber (5000) | | | |
| | | Bioretention Planter | | | |
- ABBREVIATIONS**
- | | |
|----|---------------------------|
| MH | - MANHOLE |
| IC | - INSPECTION CHAMBER |
| AC | - ACCESS CHAMBER |
| CP | - CATCHPIT |
| BC | - BRAKE CHAMBER |
| RE | - RODDING EYE |
| IL | - INVERT LEVEL |
| SL | - SUMP LEVEL |
| RA | - RESTRICTED ACCESS COVER |
| CL | - COVER LEVEL |
| TL | - TOP OF CELLULAR SA |
| BL | - BASE OF CELLULAR SA |
| FL | - FORMATION LEVEL |

FOR PLANNING ONLY

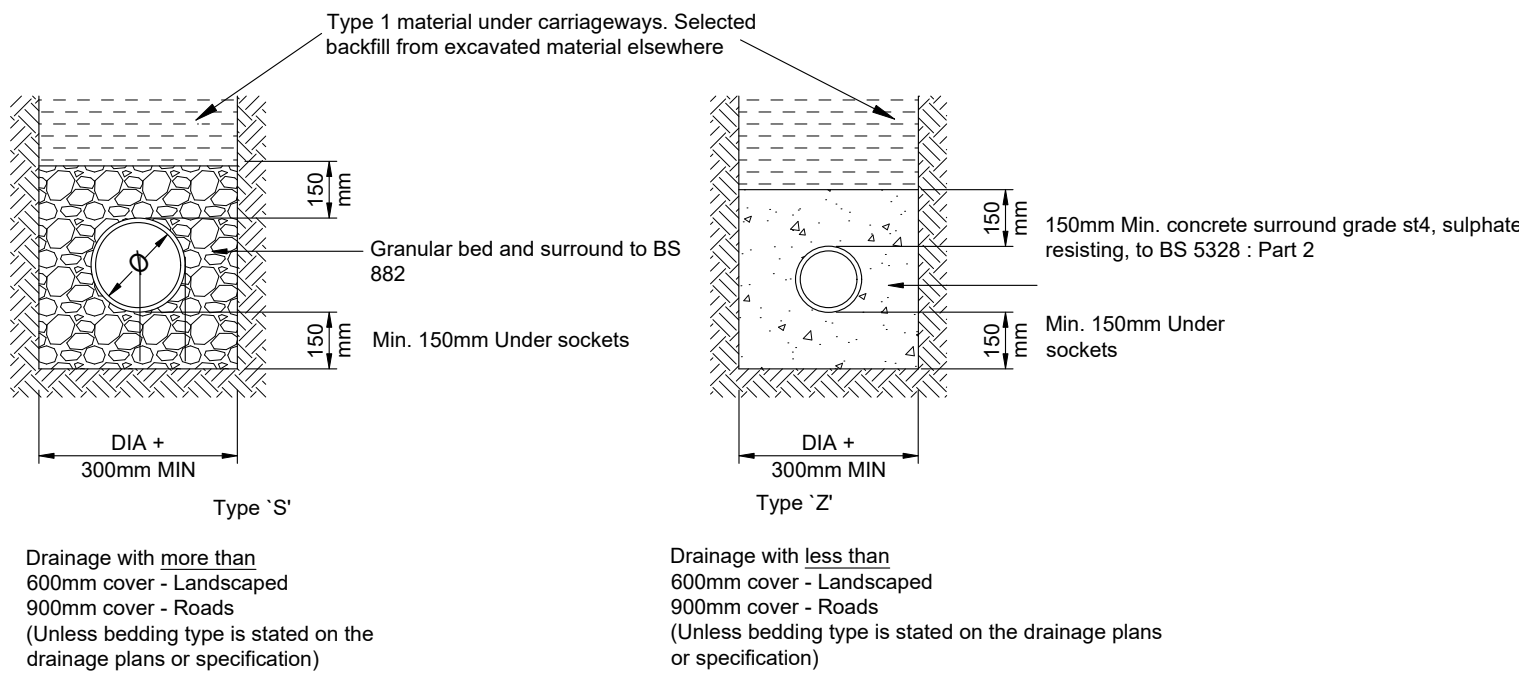
P-	25.02.26	PRELIMINARY ISSUE	LH	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP
CLIENT	LEONARD WARNER				
ARCHITECT	SCANDIA-HUS				
JOB TITLE	WAPPINGTHORN LODGE STEYNING				
DRAWING TITLE	DRAINAGE DESIGN SHEET 2				
DRAWN	LH	ENGINEER	C SLADE	CHECKED	CS
DATE	FEB 2026	SCALE @ A1	1:100		
JOB No.	C2070	STATUS	P	DRAWING No.	102
		REV.			1



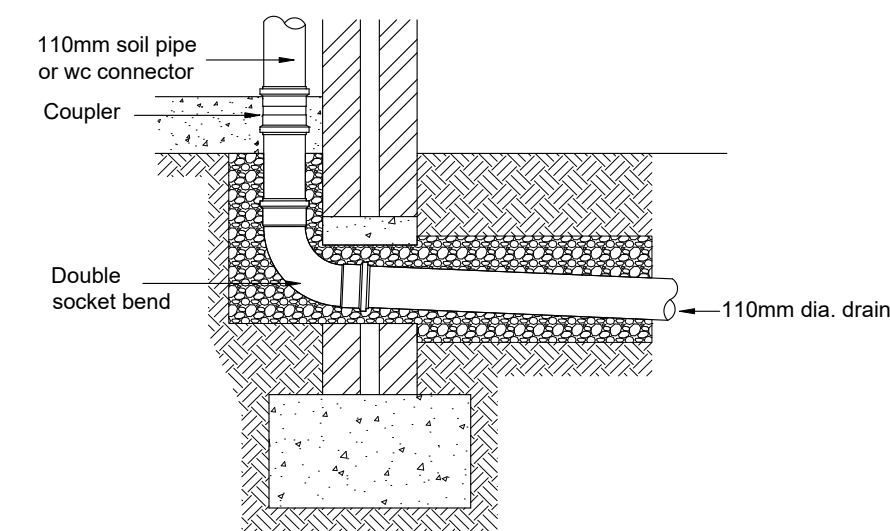
Formpave Diffuser tank construction
Single Unit: 0.354x0.708x0.150m DP



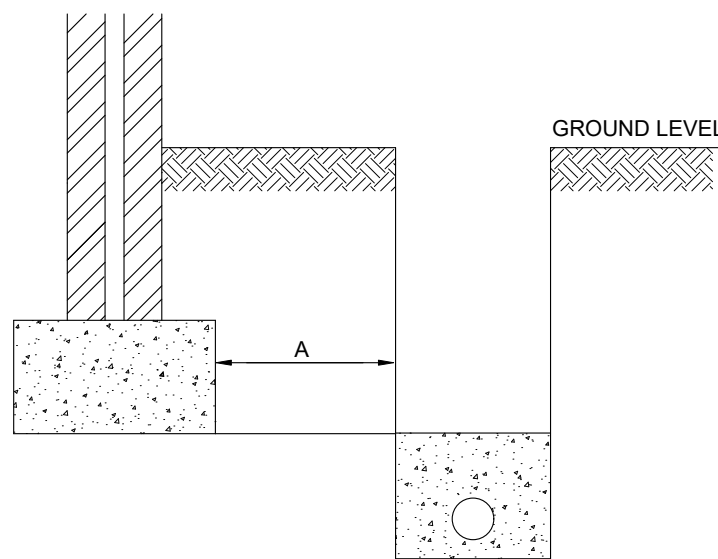
Bio-Retention Planter



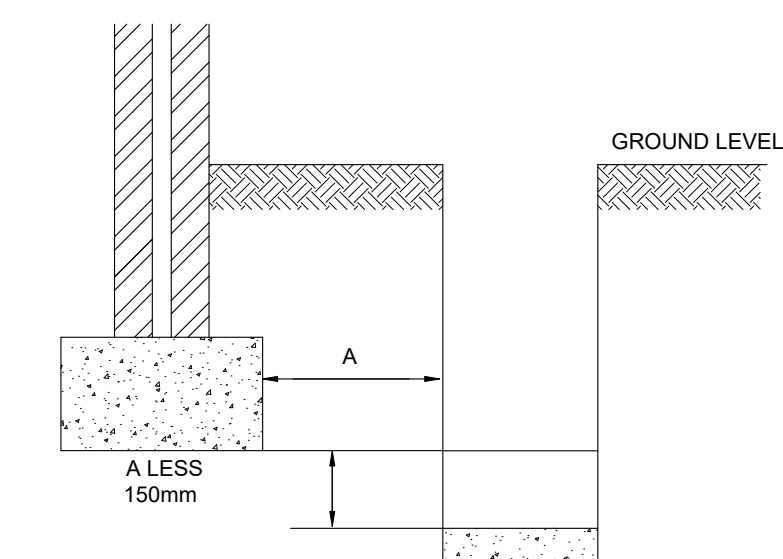
Pipe bedding details in private Areas



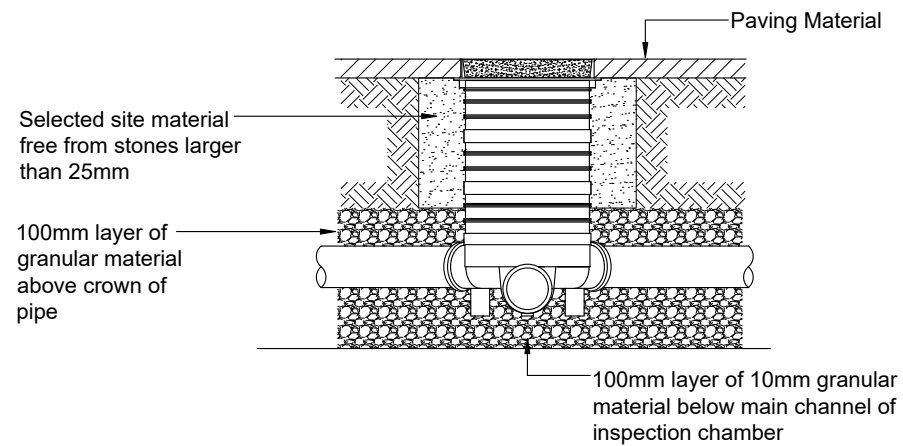
Soil pipe / wc connection



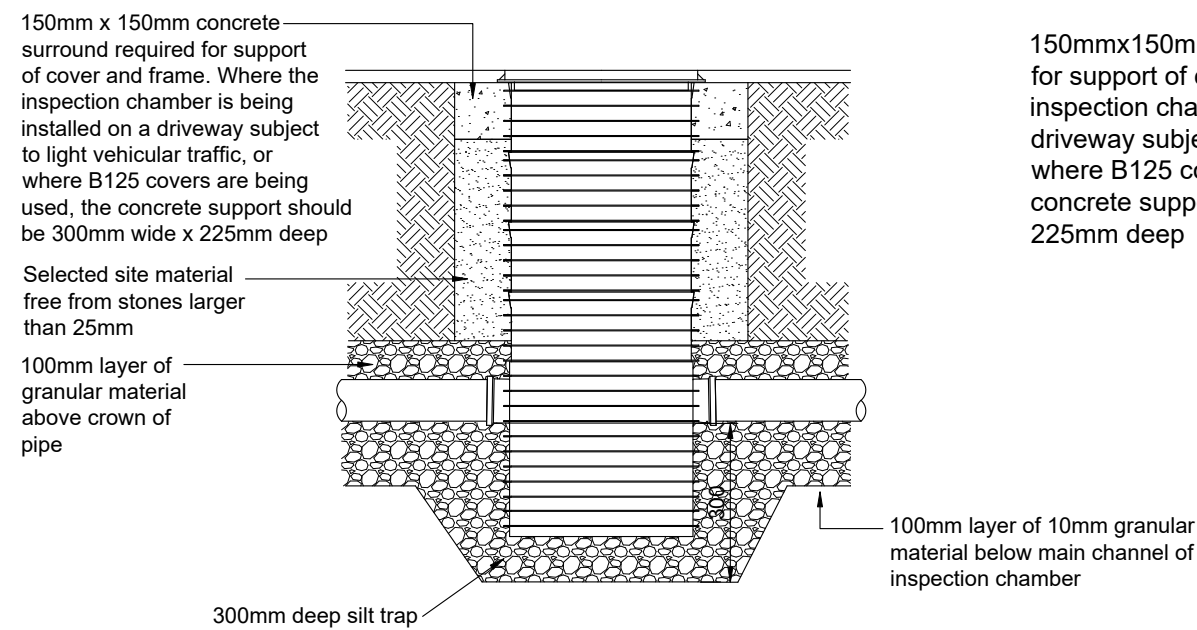
Pipes near buildings



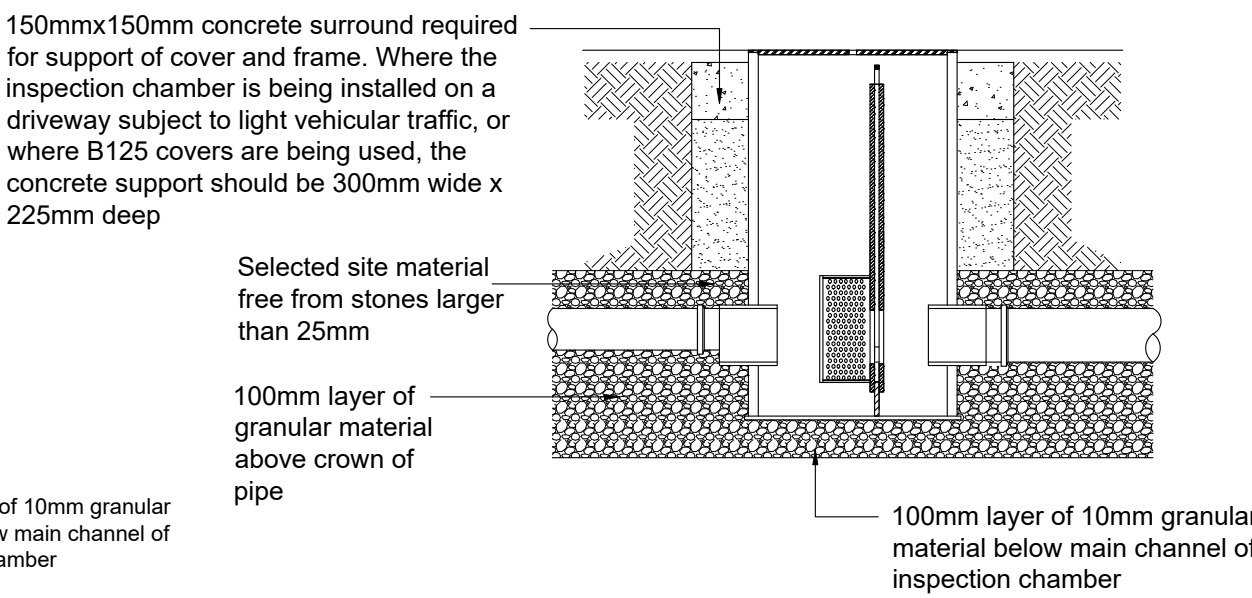
Pipes near buildings



300mmØ SHALLOW INSPECTION CHAMBER DETAIL

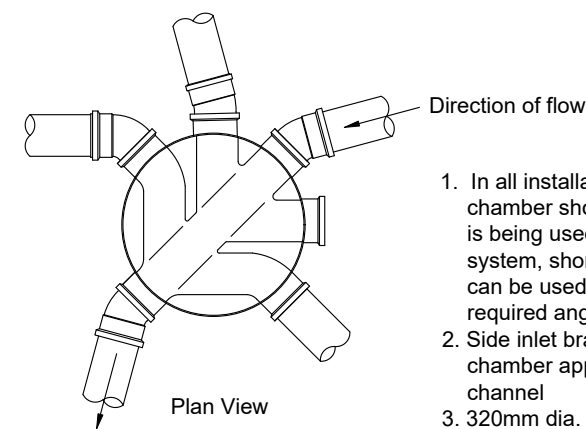


460mmØ POLYPIPE BASIC SILT TRAP DETAIL



SEL CONTROFLOW 500 ORIFICE CHAMBER

SEL Environmental LTD
Phone: 01254 589987
Email: sales@selenvironmental.com



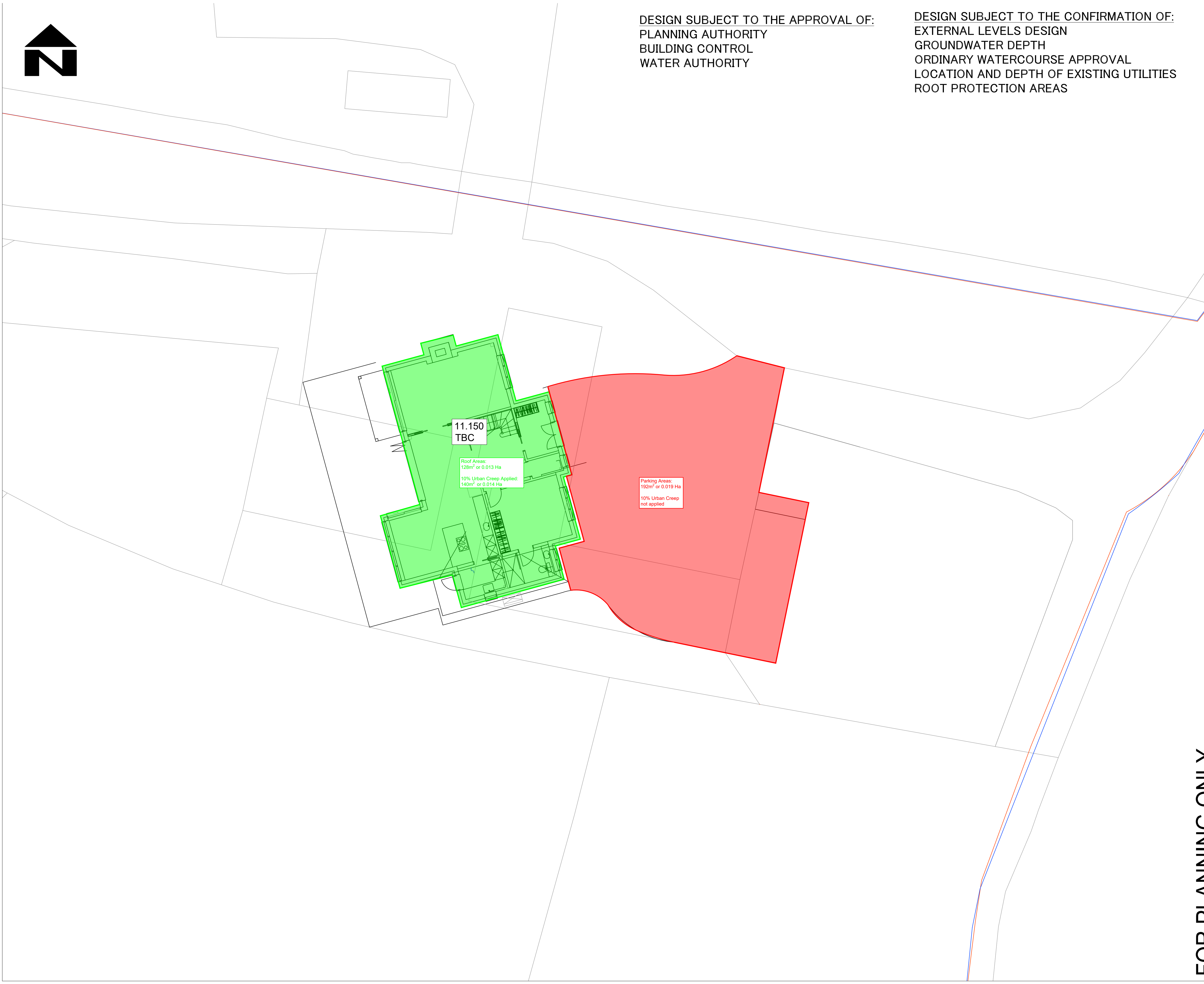
460mmØ INSPECTION CHAMBER DETAIL

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P-	25.02.26	PRELIMINARY ISSUE	LH	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP
 Consulting Civil Engineers					
CLIENT	LEONARD WARNER				
ARCHITECT	SCANDIA-HUS				
JOB TITLE	WAPPINGTHORN LODGE STEYNING				
DRAWING TITLE	CONSTRUCTION DETAILS				
DRAWN	LH	ENGINEER	C SLADE	CHECKED	CS
DATE	FEB 2026	SCALE @ A1	1:20		
JOB No.	C2070	STATUS	P	DRAWING No.	301
REV.					1

FOR PLANNING ONLY



DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
GROUNDWATER DEPTH
ORDINARY WATERCOURSE APPROVAL
LOCATION AND DEPTH OF EXISTING UTILITIES
ROOT PROTECTION AREAS

1. DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
2. ALL DIMENSIONS IN MILLIMETERS AND ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
4. ANY DISCREPANCIES MUST BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY, SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
5. BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR MUST CHECK THE INVERT LEVELS OF EXISTING SEWERS TO WHICH CONNECTIONS ARE MADE. IN ADDITION THE CONTRACTOR MUST LOCATE AND DETERMINE INVERT LEVELS OF THE EXISTING SPURS TO WHICH CONNECTIONS ARE PROPOSED. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE ARCHITECT IMMEDIATELY PRIOR TO CONSTRUCTION.
6. ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT. THE WORKS CONTINUING UPSTREAM FOLLOWING CONFIRMATION OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR UPSTREAM PIPES ARE TO BE MADE TO THE TIE-POINT TO SOFIT IF UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
7. COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
8. ALL UN-REFERENCED PIPES ARE TO BE 100mm DIA
9. ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS865 (SWS ONLY), OR CONCRETE PIPES TO BE EN 196 AND BS5911 PART 1.
10. ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH 150mm CORRUGATED AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE 4000 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
11. ALL ADOPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN IN 'SEWERS FOR ADOPTION' 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORK.
12. ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT PART-H, AND TO THE SATISFACTION OF THE BUILDING CONTROL INSPECTOR.
13. THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
14. SUB CONNECTIONS TO ADOPTABLE MANHOLES SHALL BE MADE TO VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
15. IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE REMOVED AND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
16. NO PRIVATE AREAS ARE TO DRAIN ONTO ADOPTABLE AREAS AND VICE VERSA.
17. ALL EXISTING MANHOLE COVER, GULLIES, ETC. ARE TO BE RAISED/LOWERED TO SUIT LEVELS.
18. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE LOCATION AND DEPTH OF ALL EXISTING SERVICES AND UTILITIES THAT MAY BE PRESENT
19. UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION
20. PROPRIETARY PRODUCTS TO BE INSTALLED IN FULL ACCORDANCE WITH MANUFACTURER'S GUIDANCE.
21. MANHOLE AND CHAMBER COVER GRADES:
 - 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
 - 'B125' IN ALL DRIVEWAYS
 - 'C250' IN PRIVATE PARKING AREAS
 - 'D400' IN CARRIAGEWAY/ACCESS ROAD

P-	25.02.26	PRELIMINARY ISSUE	LH	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP

FOR PLANNING ONLY

7.3 **Appendix C – Surface Water Calculations**

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	0.350
Time of Entry (mins)	20.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	75.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
S4	0.005	20.00	11.000	450	1728.023	277.661	0.802	10.198
CAR PARK	0.028	20.00	11.000	100	1727.520	278.899	0.460	10.540
S5			10.750	450	1743.912	274.166	0.709	10.041

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S4	S5	16.269	0.600	10.198	10.041	0.157	103.6	100	20.37	28.6
2.000	CAR PARK	S4	1.336	0.600	10.540	10.450	0.090	14.8	100	20.01	28.9

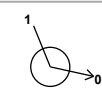
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.755	5.9	3.4	0.702	0.609	0.033	0.0	54	0.781
2.000	2.015	15.8	2.9	0.360	0.450	0.028	0.0	29	1.544

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	16.269	103.6	100	Circular	11.000	10.198	0.702	10.750	10.041	0.609
2.000	1.336	14.8	100	Circular	11.000	10.540	0.360	11.000	10.450	0.450

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S4	450	Manhole	Adoptable	S5	450	Manhole	Adoptable
2.000	CAR PARK	100	Manhole	Adoptable	S4	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S4	1728.023	277.661	11.000	0.802	450		1	2.000	10.450	100
							0	1.000	10.198	100
CAR PARK	1727.520	278.899	11.000	0.460	100					
							0	2.000	10.540	100
S5	1743.912	274.166	10.750	0.709	450		1	1.000	10.041	100

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
10	0	0	0
30	0	0	0
100	45	0	0

Node S4 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.727	Discharge Coefficient	0.650
Replaces Downstream Link	x	Design Flow (l/s)	0.9		
Invert Level (m)	10.198	Diameter (m)	0.021		

Node CAR PARK Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	10.540	Slope (1:X)	999.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.410
Safety Factor	2.0	Width (m)	19.200	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	S4	148	10.590	0.392	2.3	0.0623	0.0000	SURCHARGED
180 minute summer	CAR PARK	128	10.583	0.043	2.0	2.1788	0.0000	OK
180 minute summer	S5	128	10.063	0.022	0.6	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	S4	1.000	S5	0.6	0.484	0.102	0.0203	5.9
180 minute summer	CAR PARK	2.000	S4	2.3	0.879	0.147	0.0074	

Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

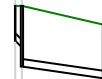
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	S4	148	10.682	0.484	2.4	0.0769	0.0000	SURCHARGED
180 minute summer	CAR PARK	148	10.682	0.142	3.5	7.8884	0.0000	SURCHARGED
180 minute summer	S5	148	10.064	0.023	0.7	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	S4	1.000	S5	0.7	0.501	0.114	0.0220	13.8
180 minute summer	CAR PARK	2.000	S4	2.4	0.864	0.150	0.0105	

Results for 30 year Critical Storm Duration. Lowest mass balance: 97.58%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	S4	122	10.733	0.535	1.5	0.0850	0.0000	FLOOD RISK
120 minute winter	CAR PARK	122	10.733	0.193	4.3	10.8263	0.0000	FLOOD RISK
120 minute winter	S5	122	10.064	0.023	0.7	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	S4	1.000	S5	0.7	0.508	0.120	0.0228	13.2
120 minute winter	CAR PARK	2.000	S4	1.5	0.930	0.095	0.0105	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 97.52%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	S4	180	10.946	0.748	1.5	0.1189	0.0000	FLOOD RISK
180 minute winter	CAR PARK	180	10.946	0.406	6.2	23.1150	0.0000	FLOOD RISK
180 minute winter	S5	180	10.067	0.026	0.8	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	S4	1.000	S5	0.8	0.533	0.143	0.0259	18.2
180 minute winter	CAR PARK	2.000	S4	1.2	0.896	0.078	0.0105	

Node Name	S4R PAR35		
A4 drawing Hor Scale 1500 Ver Scale 100 Datum (m) 5.000			
Link Name	1.000		
Section Type	100mm		
Slope (1:X)	103.6		
Cover Level (m)	11.000 10.750		
Invert Level (m)	10.450 10.548 10.041		
Length (m)	16.269		

7.4 **Appendix D – Borehole Logs**

TQ11SE 64
1751.1313

318/216 Nash Holdings, Steyning

Surface +80. Shaft 20; rest bore. Lining tubes: 75 x 4 1/2 in from 8 down;
92 x 3 in from 75 down; 100 x 2 in from 163 down (perforated 207 to 263). Water struck
at -180. R.W.L. +45%. Suction -28. Yield 250 g.p.h. (8 h. test). Dando, Jan. 1945.
Yield 250 g.p.h., 24 h.p.w. Electric pump. May 1959.

F	...	...	82	82
SaB	...	...	102	184
H	...	...	79	263

F	{	Dug well	20	610	
		Sand rock	26	46	14.02
		Dark sand	36	82	24.94
		Brown sandy clay	25	105	32.00
		Green sandy clay	2	104	32.61
		Dark clay	3	110	33.52
SaB	{	Dark sandy clay	44	154	46.94
		Dark clay	13	167	50.90
		Rock	2	169	51.51
		Clay	15	184	56.08
H		Rock	79	263	80.16

28.11.56

TQ 1764 1312

318/216 Nash Holdings, Steyning

TQ 11/48

Surface +80. Shaft 20; rest bore. Lining tubes: 75 x 4 1/2 in from 8 down;
92 x 3 in from 75 down; 100 x 2 in from 163 down (perforated 207 to 263). Water struck
at -180. R.W.L. +45. Suction -28. Yield 250 g.p.h. (8 h. test). Dando, Jan. 1945.
Yield 250 g.p.h., 24 h.p.w. Electric pump. May 1959.

F	...	...	82	82
SaB	...	...	102	184
H	...	...	79	263

F	{	Dug well	20	
		Sand rock	26	46
		Dark sand	36	82
		Brown sandy clay	25	105
		Green sandy clay	2	107
		Dark clay	3	110
SaB	{	Dark sandy clay	44	154
		Dark clay	13	167
		Rock	2	169
H	{	Clay	15	184
		Rock	79	263

28.11.56

TABLE I
LIST OF FORMATIONS

Quaternary	{	Recent and Pleistocene	{	Peat Valley deposits Sand and gravel Boulder clay	
Mesozoic	{	Jurassic	{	Inferior Oolite Series	{ Lincolnshire Limestone Lower Estuarine Series Northampton Sands
				Lias	{ Upper Lias Middle Lias Lower Lias
				Rhaetic	
				Keuper Series	{ Keuper Marl Lower Keuper Sandstone
		Triassic	{	Bunter Series	{ Upper Mottled Sandstone Bunter Pebble Beds Lower Mottled Sandstone
				Hopwas and Moira Breccias	
Palaeozoic	{	Permian	{		{ Upper Permian Marl Upper Magnesian Limestone Middle Permian Marl Lower Magnesian Limestone Lower Permian Marl Basal Permian Sands and Breccia
		Carboniferous	{	Coal Measures	{ Enville or Hamstead Group Keele Group Halesowen or Newcastle Group Etruria Marl Group Blackband Group
					{ Middle Coal Measures Lower Coal Measures
				Millstone Grit Series	
				Carboniferous Limestone Series	
				Downton Series	
				Ludlow Series	{ Upper Ludlow Beds Aymestry Group Lower Ludlow Shales
Pre-Cambrian	{	Silurian	{	Wenlock Series	{ Wenlock Limestone Wenlock Shales Barr Limestone
				Llandovery Series	Upper Llandovery Beds
		Cambrian	{	Stockingford Shales	
				Hartshill Quartzite	
Pre-Cambrian	{	Charnian			
		Uriconian			



RECORD OF WELL (SHAFT OR BORE)

318318
1" N.S.
1" O.S.
Grid
Ref.

At NASH HOLDINGS (NASH FARM)
Town or Village STEYNING County SUSSEX Six-inch quarter sheet 11.1E
Exact site 1 1/4 miles North of Steyning East side of Steyning Rd } (A rough sketch-map
Partridge Green Road in parish of ✓ } or a tracing from a
map is very desirable)
Level of ground surface above sea-level (O.D.) 80 ft. If well starts below ground surface, state how far 0 ft.
Shaft 20 ft., diameter ft. Bore 6 263 ft. Diameter of bore: at top 4 1/2 ins.; at bottom 2 ins.
Details of permanent lining tubes (internal diameters preferred) 4 1/2" I.D. from 8' 6" to 83' TQ11/48
3" I.D. from 75' to 167' 2" from 163 to 263 perforations 207' to 263'
Water struck at depths of (feet) 260
Rest-level of water below top of well 34 1/2 feet. Suction at 108 feet. Yield on 8 hours' test
250 gallons per hour (with pump of capacity 250 g.p.h.); depressing water level to feet
below top. Time of recovery hrs. Amount normally pumped daily g.p.h. for hours.
Quality (attach copy of analysis if available)
Sunk by Duke & Ockenden Ltd for Mr. A. Witherden Date of well Jan 1945
Information from **DUKE & OCKENDEN LTD., WESTMINSTER & LITTLEHAMPTON**

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS		DEPTH	
		Feet.	Inches.	Feet.	Inches.
	Dug Well	20	0		
F B	Sand Rock	26	0	46	0
	Dark Sand	36	0	82	0
	Brown Sandy clay	23	0	105	0
SoB	Green Sandy clay	2	0	107	0
	Dark Clay	3	0	110	0
	Dark Sandy clay	44	0	154	0
	Dark Clay	13	0	167	0
	Rock (Ponders Hill Ls. HB)	2	0	169	0
	Clay	15	0	184	0
HB	Rock	79	0	263	0

28 x 12
To Partridge Green
Bore
NASH FARM
From Steyning

Visited. In use for bungalows and greenhouses.
Pumps on an average 24 h p.w. at about
250 g.p.h. (1000 gal. tank)
Owner now Mr. G. Brown. Electric pump
21-5-59 AR.

DATA Bank

For Survey use only

GEOLOGICAL SURVEY AND MUSEUM,
SOUTH KENSINGTON,
LONDON, S.W.7.

Date
received

G.S.M. Office
File No.

Site marked
on 1" map
(use symbol)

(7998) WL36084/0349 5,000 12/53
A.&E.W.Ltd. Gp.686

7.5 **Appendix E – Groundwater monitoring well install report**

3 February 2026

Our ref: NN3012R01

Chris Slade
chris@cgscivils.co.uk

Attention: Mr Slade

Dear Sir,

GROUND WATER MONITORING INSTALLATION, WAPPINGTHORN LODGE, STEYNING

This letter presents a summary of a ground water well installation undertaken by E3S Consulting Ltd (E3S) on behalf of CGS Civils Ltd (The Client) in relation to a proposed residential development at the above site.

Fieldwork was undertaken on 28 January 2026. The site works consisted of the advancement of a single groundwater well installation (BH01) advanced to a depth of 4.00m bgl. A borehole location plan is included as **Figure 1** of this report.

The borehole location was set out based on site access and logged by a Geo-Environmental Consultant from E3S. The borehole log is presented as **Appendix A** of this letter. The borehole was dry on completion.

We trust that the site works undertaken, and summary letter meet your current requirements. Should you have any immediate comments of queries please do not hesitate to contact the undersigned.

Kind Regards,

For and on behalf of E3S Consulting Ltd,

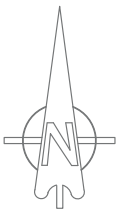
Chris Barron BSc (Hons) MEnvSc CGeol FGS

Attachments;

Figure 1 – Site & Borehole Location Plan (1 page)

Appendix A – Borehole Log (1 Page)

EXISTING BUILDINGS



BH01

EXISTING DRIVEWAY

PARKING /
TURNING AREA

EXISTING DRIVEWAY

BIN AREA

PROPOSED PARKING
AREA

PROPOSED
DWELLING

Key

 - BOREHOLE

Drawn	CB
Approved	CB
Date	03/02/2026
Scale	NTS
Original	A3



Client:	CGS CIVILS LTD		
Project:	DRAINAGE GROUND INVESTIGATION, WAPPINGTHORN LODGE, STEYNING		
Title:	LOCATION PLAN		
Project no:	NN3012	Figure no:	FIGURE 1
		Rev:	1

APPENDIX A

Exploratory Hole Log





BOREHOLE LOG

Project Name: GROUNDWATER WELL INSTALLATION		Client: CGS CIVILS LTD		Date: 28/01/2026	
Location: WAPPINGTHORN LODGE, STEYNING		Contractor:			
Project No. : NN3012		Crew Name: JO/CB		Drilling Equipment: Archway Competitor	
Borehole Number BH01	Hole Type WLS	Level	Logged By CB	Scale 1:50	Page Number Sheet 1 of 1

Well Ⓢ	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.25			Dark brown clayey TOPSOIL, with some fine roots.	
								Grey brown CLAY with rare fine to medium sub rounded to rounded gravel sized clasts of chalk and sandstone.	
									1
									2
									3
					4.00			End of Borehole at 4.000m	4
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks Dry on completion	
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7.6 **Appendix F – Maintenance Schedule**

SuDS Maintenance Schedule

Wappingthorn Lodge, Horsham Road, Steyning, West Sussex BN44 3AA

Planning Ref: DC/25/1002

Rev – 1

Reference **C2070**

Date **25th February 2026**

1 Maintenance

1.1 Introduction

- 1.1.1 During construction, the Contractor will be responsible for maintaining the drainage and SuDS (Sustainable Drainage Systems). Upon handover, the occupier will take on the responsibility of these duties as laid out in this report.
- 1.1.2 The maintenance schedule for the proposed development will be split down into two separate categories; SuDS features and regular private drainage.

1.2 SuDS at Wappingthorn Lodge

- 1.2.1 As listed above, in section 5.1.2, the SuDS features used on site will be **Permeable Paving, Rainwater Harvesting and Bioretention**
- 1.2.2 The SuDS features have been designed for easy maintenance and comprise:
- Regular Day-to-Day care – litter collection, regular gardening to control vegetation growth and checking inlets where water enters the SuDS features
 - Occasional tasks – checking the SuDS features and removing any silt that builds up in the SuDS feature
 - Remedial work – repairing damage where necessary

1.3

1.4 SuDS Drainage Maintenance Specification

1.4.1 Rainwater Harvesting Tank

In order to maintain the functioning of the rainwater harvesting tanks, the following maintenance requirements should be adhered to:

Operation and maintenance requirements for rainwater harvesting tanks		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Ensure that all inlets and outlets are clear of debris and blockage	Weekly
	Remove debris inlets and outlets	Weekly
	Inspect first flush diverter to ensure it is working correctly and not clogged	Weekly – Clean if necessary
	Clean Filter screens	Monthly – Replace if damaged
	Inspect the tank for sediment build-up and any signs of algae	Monthly
	Inspect roof and gutters and clear of all debris	Every 3 months
	Inspect pump for any signs of wear or damage and test to ensure it is functioning correctly	Every 3 months
	Check bottom of the tank for sediment build-up and clear if necessary	Every 6 months
	Ensure all downpipes are clear and functioning correctly and clear if necessary	Every 6 months
	Test water	Every 6 months
	Thorough tank cleaning – drain tank, scrub interior and rinse	Annually or as required
	Service the pump and filtration system and replace any worn parts	Annually
	Inspect overflow to ensure it is working correctly and clear any obstructions	Annually
Monitoring	Monitor Water levels	Annually
	Inspect for pests e.g mosquitoes and take measures to prevent	As required

1.4.2 Permeable Paving

In order to maintain the functioning of the permeable paving, the following maintenance requirements should be adhered to:

Table 21.3 Operation and maintenance requirements for permeable paving		
Maintenance Schedule	Required Action	Typical 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 or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
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 less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of 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, 48h after large storms in first six months
	Inspect silt accumulation rate and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

1.4.3 Bio retention systems

In order to maintain the functioning of the bio retention systems, the following maintenance requirements should be adhered to:

Table 18.3 Operation and maintenance requirements for bio retention systems		
Maintenance Schedule	Required Action	Typical Frequency
Regular Inspections	Inspection 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 blockages	Quarterly
Regular maintenance	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
Occasional maintenance	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
Remedial actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

1.5 General Drainage Maintenance Specification

1.5.1 Inlet Structures and Inspection Chambers

- Inlet structures such as rainwater downpipes, road gullies and channel drains should be free from obstruction at all times to all free flow through the SuDS
- Inspection Chambers and Rodding Eyes are used on bends or where pipes come together. They allow access and cleaning to the system if necessary.

Inlet Structures and Inspection Chambers	
Regular Maintenance	Frequency
Inlet Structures Inspect rainwater downpipes, channel drains and road gullies, removing obstructions and silt as necessary. Check that there is no physical damage. Strim vegetation 1m min surround to structures and keep area free from silt and debris	Monthly
Inspections Chambers and below ground control chambers. Remove cover and inspect, ensuring that the water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in Autumn	Annually
Occasional Maintenance Check topsoil levels are 20mm above edges of chambers to avoid mower damage.	As necessary
Remedial Work Repair physical damage if necessary	As required

1.5.2 Below ground drainage pipes

- Below ground drainage pipes convey water to the SuDS system. They should always be free from obstruction to allow free flow.

Below Ground Drainage Pipes	
Regular Maintenance	Frequency
Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months then annually
Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
Remove sediment from pre-treatment inlet structures and inspection chambers.	Annually or as required
Maintain vegetation to designed limits within the vicinity of below ground drainage pipes and tanks.	Monthly or as required
Remedial Work	
Repair physical damage if necessary	As required
Monitoring	
Inspect all inlets, outlets and vents to ensure that they are in good conditions and operating as designed.	Annually
Survey inside of pipe runs for sediment build up and remove if necessary.	Every 5 years or as required