

MERIDIAN

CIVIL ENGINEERING CONSULTANCY

FRANC-JEAN FARM,
BOLNEY, HAYWARDS HEATH,
RH17 5PJ

SURFACE AND FOUL WATER DRAINAGE STRATEGY

SEPTEMBER 2026

CONTENTS

1.0	INTRODUCTION	2
2.0	POLICY COMPLIANCE	3
3.0	SITE LOCATION	3
4.0	GEOLOGY AND EXISTING DRAINAGE	3
5.0	CLIMATE CHANGE ALLOWANCES	4
6.0	SUSTAINABLE URBAN DRAINAGE (SUDS) ASSESSMENT	5
7.0	SURFACE AND FOUL WATER DRAINAGE STRATEGY	6
8.0	WATER QUALITY	8
9.0	MANAGEMENT AND MAINTENANCE PLAN	9
10.0	CONCLUSION	10

APPENDICES

APPENDIX I	Architects plans
APPENDIX II	Proposed Drainage Layout
APPENDIX III	Calculations
APPENDIX IV	Site Investigations
APPENDIX V	Supplementary Documents

Client: Ecotecture Architecture

Rev	Date	Prepared by	Checked by	Approved by
-	07/07/26	SL	MN	MN

Please Note:

This report has been prepared for the exclusive use of the commissioning party and may not be reproduced without prior written permission from Meridian Civil Engineering Consultancy Ltd. All work has been carried out within the terms of the brief using all reasonable skill, care and diligence. No liability is accepted by Meridian Civil Engineering Consultancy Ltd for the accuracy of data or opinions provided by others in the preparation of this report, or for any use of this report other than for the purpose for which it was produced.

1.0 INTRODUCTION

- 1.1 Meridian Civil Engineering Consultancy LTD (MCEC) has been instructed by Ecotecture Architecture Ltd to prepare a surface and foul water drainage scheme to address comments pertaining to drainage from Mid Sussex District Council for the development at Franc Jean Farm, The Street, Bolney, Haywards Heath, West Sussex, RH17 5PJ.
- 1.2 This comments state:
- The applicant has still not demonstrated that surface water can be managed safely on site without increasing flood risk. In accordance with the MSDC Flood Risk and Drainage Information Checklist – application Stage (<https://www.midsussex.gov.uk/planning-building/flood-risk-and-drainage-for-planning/>), the following information is required:
- Drainage calculations to demonstrate the surface water drainage has been designed to cater for the 1 in 100-year rainfall event plus an appropriate % allowance for climate change, with a +10% urban creep allowance applied and a runoff coefficient (Cv) of 1.0 applied to all impermeable areas.
 - Evidence that infiltration is feasible on site (BRE365 compliant testing & Groundwater levels), or
 - Evidence of an alternative surface water drainage strategy in accordance with the drainage hierarchy.
 - Measured plan to demonstrate the proposed soakaways have sufficient offsets from the site boundary, building, highway and “No Dig Zones”
 - Outfall agreed in principle by the sewer authority (if relevant)
 - Management and Maintenance plan
- 1.3 It is understood the proposed development is for a single dwelling with associated landscaping. The site is currently partially developed with some existing outbuildings which are assumed to have uncontrolled surface water runoff.
- 1.4 Site investigations were undertaken by CSSI (see SI within appendix IV) and shows extremely slow infiltration rates and additionally a water strike at 1.9mBGL which rose to 1.8mBGL.
- 1.5 As such, due to the ground conditions, infiltration has been discounted as a sole method of discharging surface water from the site.
- 1.6 Due to the poor infiltration rates and the presence of groundwater at approx. 1.8mBGL, it is proposed that surface water is discharged via an existing private surface water sewer in close proximity to the site. Attenuation is to be provided in a combination of type C (no infiltration) & B (partial infiltration) permeable paving areas and attenuation crate beneath the driveway.
- 1.7 A Hydro-brake flow control is proposed which, according to Causeway Flow Calculations (attached within appendix III), would reduce runoff rates to a maximum of 1.0l/s for all event up to and including the 1-in-100year +45%CC storm event, as a practical minimum.
- 1.8 In line with MSDC requirements, 10% has been added for urban creep and runoff coefficient (CV) for both summer and winter storms set to 1.0 for the purposes of the calculations.
- 1.9 Foul water is proposed to be routed into an existing private sewer network running through the site. This is understood to connect to the public foul water sewer downstream, as per client details. Details and relevant permissions are to be confirmed/acquired prior to construction where required.
- 1.10 A proposed storm and foul water drainage strategy plan layout is included in Appendix II. Supporting calculations are included in Appendix III.
- 1.11 A management and maintenance plan for the drainage elements is included within drawing CIV01.

2.0 POLICY COMPLIANCE

2.1 The purpose of this assessment is to demonstrate that the development proposal outlined above can be satisfactorily accommodated without worsening flood risk for the area and without placing the development itself at risk of flooding, as per the:

- National Planning Policy Framework
- Mid Sussex District Council local guidance
- National Standards for Sustainable Drainage Systems (SuDS)
- Ciria SuDS Manual

3.0 SITE LOCATION

3.1 The proposed development location is at Franc Jean Farm, The Street, Bolney, Haywards Heath, West Sussex, RH17 5PJ. The site location is outlined within Figure 1 below.



Figure 1 - Site location within red line boundary

- 3.2 It is understood the proposed development is for a single dwelling with associated landscaping.
- 3.3 As existing, the land is partially developed with some existing outbuildings and a gravel track.

4.0 GEOLOGY AND EXISTING DRAINAGE

- 4.1 Infiltration testing was undertaken by CSSI (see SI within appendix IV). The shallow testing drained slowly resulting in failed tests.
- 4.2 The deeper pit struck groundwater at 1.9mBGL, rising to 1.8mBGL during the course of testing.
- 4.3 Partial infiltration may be feasible and unlined permeable paving is proposed to reduce site runoff where feasible.
- 4.4 Meridian received details from the client and landowner showing locations and depths of existing private surface and foul water sewer runs in close proximity to the site.
- 4.5 It is understood that the surface water run connects to a waterbody downstream and foul water run connects to the public foul sewer system. This is to be confirmed and any relevant

permissions to be acquired prior to construction. A diagram showing existing drainage on site is included within appendix V.

5.0 CLIMATE CHANGE ALLOWANCES

- 5.1 Making an allowance for climate change in the design of surface water drainage systems will help to minimise vulnerability and provide resilience to flooding and coastal change in the future. Climate Change allowances vary across the UK subject to catchment conditions and are based on climate change projections and different scenarios of carbon dioxide (CO₂) emissions to the atmosphere.
- 5.2 Climate change allowances were recently updated by the EA and the climate change allowances are now defined by River Catchment peak rainfall allowances.

1% annual exceedance rainfall event

Epoch		
	Central allowance	Upper end allowance
2050s	20%	45%
2070s	25%	45%

- 5.3 The data published on the DEFRA database shows the site located within the Adur and Ouse Management Catchment and for this development, the upper end allowance of 45% should be applied to rainfall events as the climate change allowance within this region.

6.0 SUSTAINABLE URBAN DRAINAGE (SUDS) ASSESSMENT

6.1 In accordance with the SuDS management train approach, the use of various SuDS measures to reduce and control surface water flows have been considered in detail for the development.

6.2 The management of surface water has been considered in respect to the SuDS hierarchy below as detailed in the CIRIA 753 'The SUDS Manual', Section 3.2.3:

SUDS DRAINAGE HIERARCHY				
			Suitability	Comment
	1.	Store rainwater for later use	✓	Rainwater harvesting should be considered by the developer and could be used around the wider site where feasible.
	2.	Use infiltration techniques, such as porous surfaces in non-clay areas	✓	Full infiltration deemed unsuitable due to slow rates and the presence of groundwater. Type B (partial infiltration) permeable paving is proposed to provide attenuation.
	3.	Attenuate rainwater in ponds or open water features for gradual release	x	Space constraints on site mean that it isn't feasible to implement open water SuDS.
	4.	Attenuate rainwater by storing in tanks or sealed water features for gradual release	x	Permeable paving and an attenuation tank are preferred to control runoff prior to release.
	5.	Discharge rainwater direct to a watercourse	X	No suitable watercourse in the vicinity.
	6.	Discharge rainwater to a surface water sewer/drain	✓	Surface water proposed to discharge to private surface water sewer in close proximity to the site.
	7.	Discharge rainwater to Combined Sewer	x	Surface Water surface takes priority

Table 1: SuDS Drainage Hierarchy

6.3 Following the SuDS drainage hierarchy, site investigations show full infiltration to not be feasible as a sole method of discharging surface water however, Unlined paving allowing partial infiltration is proposed to reduce runoff volumes where feasible.

6.4 As there are no watercourses in close proximity, surface water is proposed to be discharged into a surface water sewer in close proximity to the site.

6.5 The suitability of SuDS components has been assessed in order to provide a sustainable means of providing the required attenuation volumes. The following components have been assessed as follows in Table 2, below.

SUITABILITY OF SUDS COMPONENTS		
SuDS Component	Comment	Suitability
Infiltrating SuDS	Ground conditions indicated infiltration would be unfeasible as the primary method of infiltration, however partial infiltration has been proposed.	✓
Permeable Pavement	Permeable paving is proposed to attenuate and treat runoff.	✓
Green / Blue Roofs	Not likely to be feasible for this application.	x
Rainwater Harvesting	Rainwater harvesting for use on site is recommended in the form of water butts to provide water re-use in garden areas. This has not been included in hydraulic calculations.	✓
Swales	Insufficient space to implement such conveyancing SuDS techniques	x
Rills and Channels	Insufficient space to implement such conveyancing SuDS techniques and would provide little benefit overall.	x
Bioretention Systems	Bioretention systems would overall provide little benefit to storage volumes.	x
Retention Ponds and Wetlands	Insufficient space on site to implement large scale SuDS techniques such as ponds/wetlands. These SuDS measures are better suited to large scale developments.	x
Detention Basins	Insufficient space on site to implement large scale SuDS techniques such as detention basins. These SuDS measures are better suited to large scale developments.	x
Geocellular Systems	Not required for this development	x
Proprietary Treatment Systems	Not required for this development	x
Filter Drains and Filter Strips	Insufficient space on site and poor infiltration would result in filter drains/strips providing little overall benefit.	x

Table 2: Suitability of SuDS Components

7.0 SURFACE AND FOUL WATER DRAINAGE STRATEGY

- 7.1 In accordance with local Sustainable Urban Drainage and Flood Risk Policies, developments are required to use SuDS to reduce both the volume and runoff rates, where feasible.
- 7.2 Current local Sustainable drainage guidance is to achieve as close as feasible to greenfield runoff rates for storm runoff from new developments.
- 7.3 Due to the poor infiltration rates, it is proposed that surface water is discharged via an existing surface water sewer in close proximity to the site. Attenuation is to be provided in

a combination of type B (partial infiltration) and type C (no infiltration) permeable paving and an attenuation crate beneath the driveway area.

- 7.4 As existing, there are some outbuildings with uncontrolled runoff. A Hydro-brake plate with a diameter of 50mm is proposed, which would reduce runoff rates to a maximum of 1.0l/s for all event up to and including the 1-in-100year +45%CC storm event, as a practical minimum.
- 7.5 It can be seen, according to Causeway Flow Software, a betterment over existing runoff rates for the 2, 30, 100 and 100 year + climate change rainfall events can be achieved with the proposed flow control device.
- 7.6 Comparison of the existing and proposed runoff rates is presented below.

SURFACE WATER DISCHARGE RATES SUMMARY						
	Area (ha)	Discharge Rates (l/s)				
		1 year	2 year/ Q_{BAR}	30 year	100 year	100 year +45% CC
Brownfield Rates	0.003	-	1.0	2.8	3.4	5.0
Proposed Runoff Rates	0.022	-	0.8	1.0	1.0	1.0
Betterment	-	-	20%	64.2%	70.5%	80%

Table 3: Calculated runoff rates

- 7.7 Foul water is proposed to be routed into an existing private sewer network running through the site. This is understood to connect to the public foul water sewer downstream, as per client details. Details and relevant permissions are to be acquired prior to construction where required.
- 7.8 A proposed storm and foul water drainage strategy plan layout is included in Appendix II. Supporting calculations are included in Appendix III.

8.0 WATER QUALITY

- 8.1 The primary risk to water quality is from the individual property driveways. This can be treated through the implementation of permeable paving across trafficked areas. Roof runoff is generally considered uncontaminated; however, catchpits are provided within the layout to remove sediment where required.
- 8.2 The plans included in Appendix II show permeable pavement is proposed to be provided to treat the runoff from the driveway area.
- 8.3 The Pollution Hazard Indices are summarised in Table 4 – Summary of Pollution Hazard Indices for different Land Use below (based on Table 26.2 of The SuDS Manual):

POLLUTION HAZARD INDICES FOR DIFFERENT LAND USE CLASSIFICATIONS				
LAND USE	Pollution Hazard Level	Total Suspended Solids	Metals	Hydrocarbons
Individual property driveway	Low	0.5	0.4	0.4
TOTAL POLLUTION HAZARD INDEX		0.5	0.4	0.4

Table 4: Summary of Pollution hazard Indices for different Land Use

- 8.4 When designing suitable treatment trains to deliver adequate treatment prior to discharging to sewers, watercourse or groundwater, consideration of the treatment properties of each SuDS component specified should be reviewed. With the total mitigation potential of a SuDS treatment train determined by:

$$SuDS_1 + 0.5 * SuDS_2 + 0.5 * SuDS_3 \dots = Total\ SuDS\ Mitigation\ Index$$

- 8.5 The Mitigation Indices of the proposed SuDS techniques are summarised in Table 6 below.

INDICATIVE SuDS MITIGATION INDICES FOR DISCHARGES TO SURFACE WATER			
SuDS Component	Total Suspended Solids	Metals	Hydrocarbons
Permeable Paving/Proprietary Treatment	0.7	0.6	0.7
TOTAL SUDS MITIGATION INDEX	0.7	0.6	0.7

Table 5: Indicative SuDS Mitigation Indices.

- 8.6 It can be seen that the Total SuDS Mitigation Index $\geq$ Pollution Hazard Index therefore the water treatment provided by this SuDS train is enough to remove the potential pollutants.

9.0 MANAGEMENT AND MAINTENANCE PLAN

- 9.1 All onsite SuDS and drainage systems will be privately maintained by the homeowner.
- 9.2 it is recommended that all drainage elements implemented on site should be inspected following the first rainfall event post construction and monthly for the first quarter following construction
- 9.3 Maintenance is to be conducted in line with tables 6 below.

PROPOSED SCHEDULE OF MAINTENANCE FOR BELOW GROUND DRAINAGE				
Item	Visual Inspection	Cleanse / De-sludge	CCTV Survey	Comments
Surface Water Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Foul Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Gullies/Channels	1 year	1 year	N/A	Cleansing to be carried as necessary
Catchpits	1 year		N/A	Cleansing to be carried as necessary
Permeable Block Paving	1 year	'Swept' clean of debris every 2 years.	N/A	Lift blocks and remove sand bedding and replace and re-bed paving – refer to individual manufacturer's recommendations.
Hydrobrake	6 months	As required		Cleansing to be carried as necessary
Attenuation Tank	See Comments	See Comments	See Comments	Maintained in accordance with manufacturers recommendations

Table 6: Site maintenance Summary

10.0 CONCLUSION

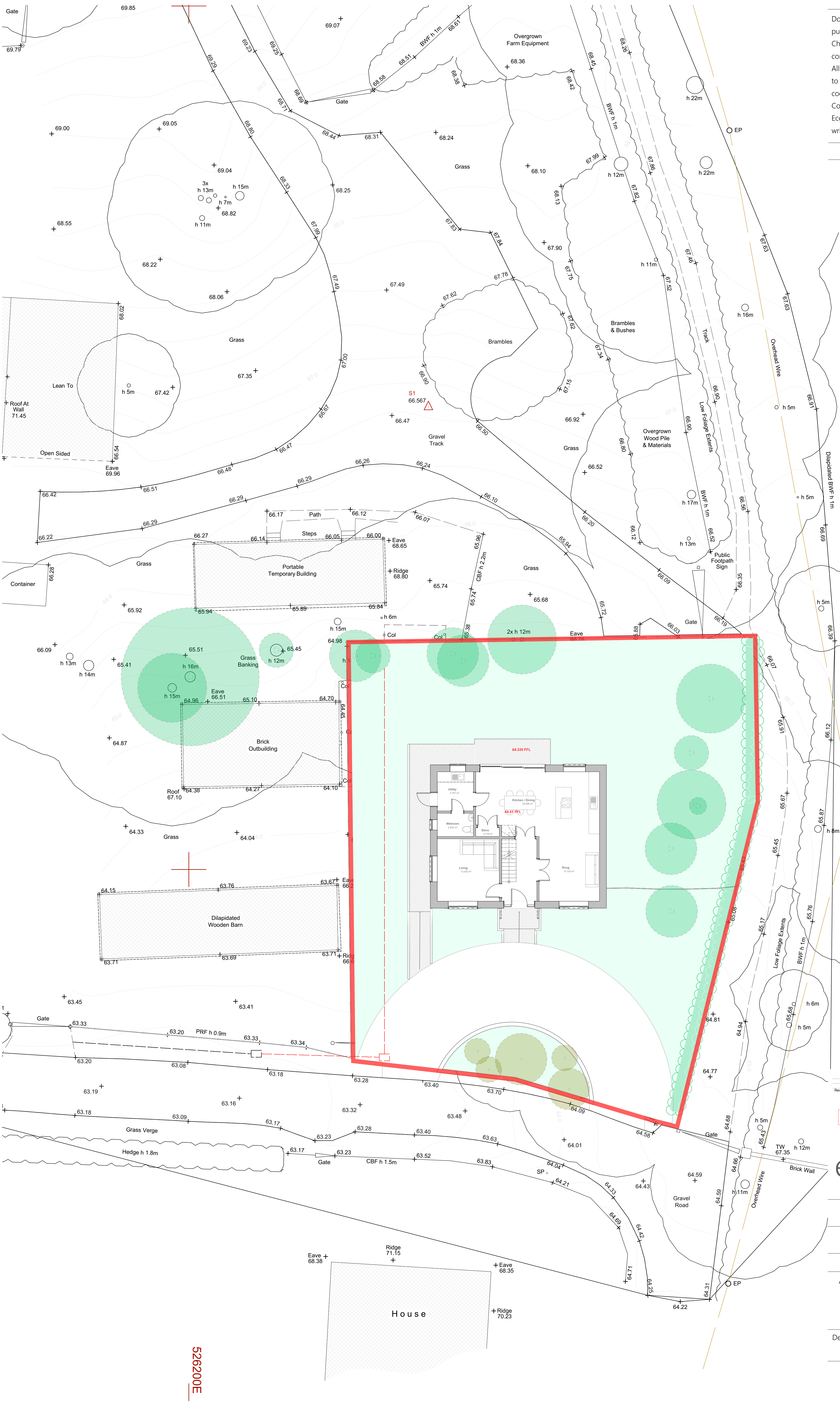
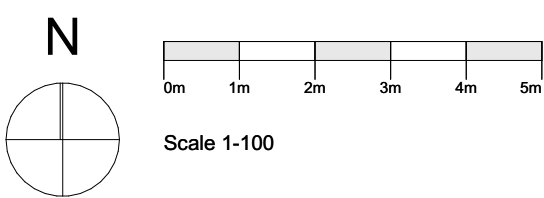
- 10.1 Meridian Civil Engineering Consultancy LTD (MCEC) has been instructed by Ecotecture Architecture Ltd to prepare a surface and foul water drainage scheme to address comments pertaining to drainage from Mid Sussex District Council for the development at Franc Jean Farm, The Street, Bolney, Haywards Heath, West Sussex, RH17 5PJ.
- 10.2 This comments state:
- The applicant has still not demonstrated that surface water can be managed safely on site without increasing flood risk. In accordance with the MSDC Flood Risk and Drainage Information Checklist – application Stage (<https://www.midsussex.gov.uk/planning-building/flood-risk-and-drainage-for-planning/>), the following information is required:
- Drainage calculations to demonstrate the surface water drainage has been designed to cater for the 1 in 100-year rainfall event plus an appropriate % allowance for climate change, with a +10% urban creep allowance applied and a runoff coefficient (Cv) of 1.0 applied to all impermeable areas.
 - Evidence that infiltration is feasible on site (BRE365 compliant testing & Groundwater levels), or
 - Evidence of an alternative surface water drainage strategy in accordance with the drainage hierarchy.
 - Measured plan to demonstrate the proposed soakaways have sufficient offsets from the site boundary, building, highway and “No Dig Zones”
 - Outfall agreed in principle by the sewer authority (if relevant)
 - Management and Maintenance plan
- 10.3 It is understood the proposed development is for a single dwelling with associated landscaping. The site is currently partially developed with some existing outbuildings which are assumed to have uncontrolled surface water runoff.
- 10.4 Site investigations were undertaken by CSSI (see SI within appendix IV) and shows extremely slow infiltration rates and additionally a water strike at 1.9mBGL which rose to 1.8mBGL.
- 10.5 As such, due to the ground conditions, infiltration has been discounted as a sole method of discharging surface water from the site.
- 10.6 Due to the poor infiltration rates and the presence of groundwater at approx. 1.8mBGL, it is proposed that surface water is discharged via an existing private surface water sewer in close proximity to the site. Attenuation is to be provided in a combination of type C (no infiltration) & B (partial infiltration) permeable paving areas and attenuation crate beneath the driveway.
- 10.7 A Hydro-brake flow control is proposed which, according to Causeway Flow Calculations (attached within appendix), would reduce runoff rates to a maximum of 1.0l/s for all event up to and including the 1-in-100year +45%CC storm event, as a practical minimum.
- 10.8 In line with MSDC requirements, 10% has been added for urban creep and runoff coefficient (CV) for both summer and winter storms set to 1.0 for the purposes of the calculations.
- 10.9 Foul water is proposed to be routed into an existing private sewer network running through the site. This is understood to connect to the public foul water sewer downstream, as per client details. Details and relevant permissions are to be confirmed/acquired prior to construction where required.
- 10.10 A proposed storm and foul water drainage strategy plan layout is included in Appendix II. Supporting calculations are included in Appendix III.
- 10.11 A management and maintenance plan for the drainage elements is included within drawing CIV01.

APPENDIX I Architects plans

Notes

Do not scale off this drawing except for planning purposes
Check all dimensions on site before any work commences
All goods, materials and workmanship must conform to current building regulations, british standards and codes of practice.
Copyright of this drawing is to be retained by Ecotecture Ltd and must not be reproduced without written consent from the practice.

Drawing to be printed A1



Rev/D Layout Comment

PROPOSED

ecotecture
ECOLOGICAL ARCHITECTURE

01444 416745 info@ecotecture.co.uk
www.ecotecture.co.uk

31 Sussex Road Haywards Heath
West Sussex RH16 4DZ

Client: Tim Whitlock

Address: Franc-Jean Farm,
Bolney,
West Sussex
RH17 5PJ

Description: Proposed Site Plan

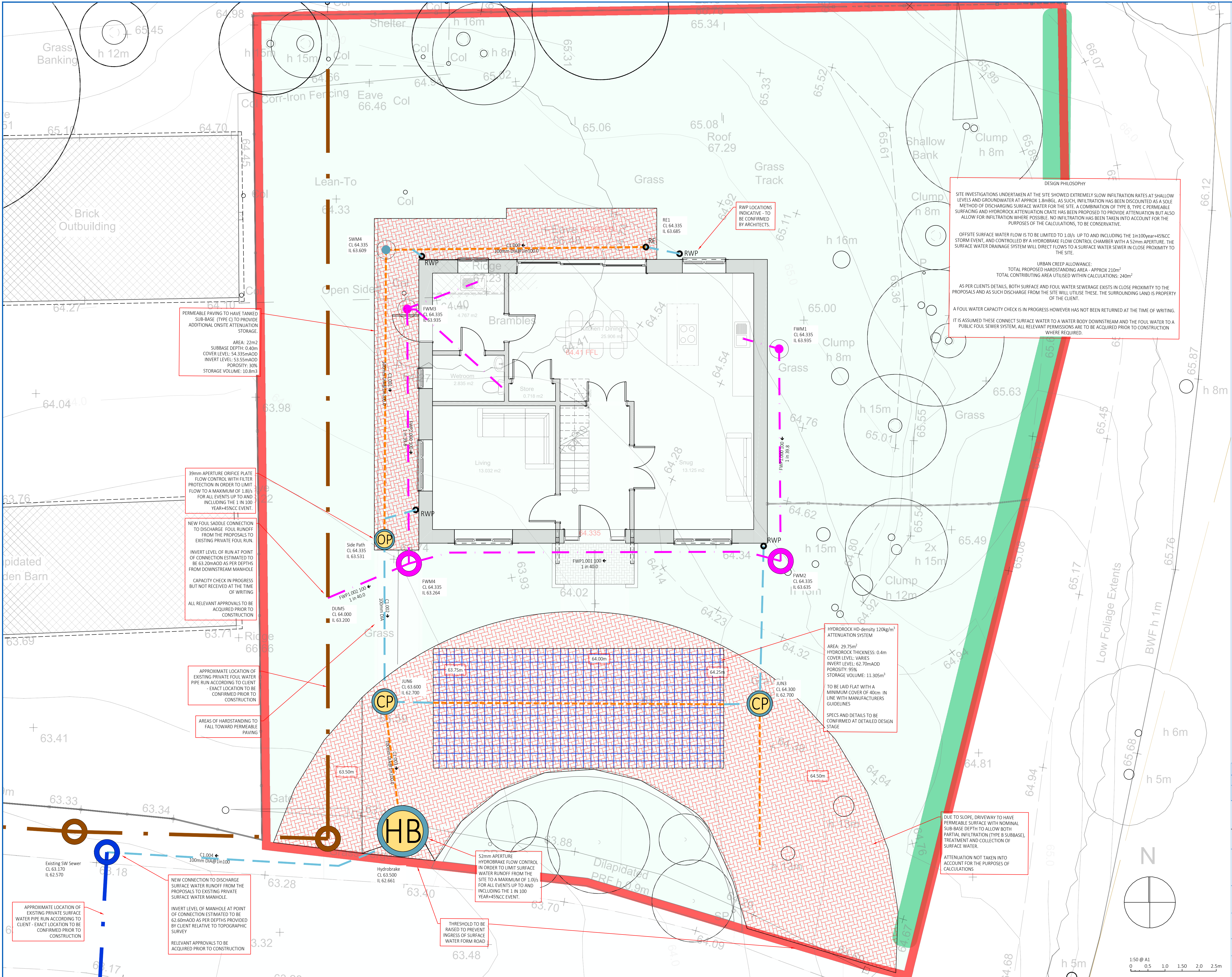
Scale: 1:100 Date: 10/02/2026

Drawn: BI Checked: JS

Drawing No: 853/351

526200E

APPENDIX II Proposed Drainage Layout



DESIGN PHILOSOPHY

SITE INVESTIGATIONS UNDERTAKEN AT THE SITE SHOWED EXTREMELY SLOW INFILTRATION RATES AT SHALLOW LEVELS AND GROUNDWATER AT APPROX 1.8mBGL. AS SUCH, INFILTRATION HAS BEEN DISCOUNTED AS A SOLE METHOD OF DISCHARGING SURFACE WATER FOR THE SITE. A COMBINATION OF TYPE B, TYPE C PERMEABLE SURFACING AND HYDROROCK ATTENUATION CRATE HAS BEEN PROPOSED TO PROVIDE ATTENUATION BUT ALSO ALLOW FOR INFILTRATION WHERE POSSIBLE. NO INFILTRATION HAS BEEN TAKEN INTO ACCOUNT FOR THE PURPOSES OF THE CALCULATIONS, TO BE CONSERVATIVE.

OFFSITE SURFACE WATER FLOW IS TO BE LIMITED TO 1.0/s UP TO AND INCLUDING THE 1in100year+45%CC STORM EVENT, AND CONTROLLED BY A HYDROBRAKE FLOW CONTROL CHAMBER WITH A 52mm APERTURE. THE SURFACE WATER DRAINAGE SYSTEM WILL DIRECT FLOWS TO A SURFACE WATER SEWER IN CLOSE PROXIMITY TO THE SITE.

URBAN CREEP ALLOWANCE:
TOTAL PROPOSED HARDSTANDING AREA - APPROX 210m²
TOTAL CONTRIBUTING AREA UTILISED WITHIN CALCULATIONS: 240m²

AS PER CLIENTS DETAILS, BOTH SURFACE AND FOUL WATER SEWERAGE EXISTS IN CLOSE PROXIMITY TO THE PROPOSALS AND AS SUCH DISCHARGE FROM THE SITE WILL UTILISE THESE. THE SURROUNDING LAND IS PROPERTY OF THE CLIENT.

A FOUL WATER CAPACITY CHECK IS IN PROGRESS HOWEVER HAS NOT BEEN RETURNED AT THE TIME OF WRITING. IT IS ASSUMED THESE CONNECT SURFACE WATER TO A WATER BODY DOWNSTREAM AND THE FOUL WATER TO A PUBLIC FOUL SEWER SYSTEM, ALL RELEVANT PERMISSIONS ARE TO BE ACQUIRED PRIOR TO CONSTRUCTION WHERE REQUIRED.

PERMEABLE PAVING TO HAVE TANKED SUB-BASE (TYPE C) TO PROVIDE ADDITIONAL ONSITE ATTENUATION STORAGE.

AREA: 22m²
SUBBASE DEPTH: 0.4m
COVER LEVEL: 54.335m AOD
INVERT LEVEL: 53.55m AOD
POROSITY: 30%
STORAGE VOLUME: 10.8m³

39mm APERTURE ORIFICE PLATE FLOW CONTROL WITH FILTER PROTECTION IN ORDER TO LIMIT FLOW TO A MAXIMUM OF 1.8/s FOR ALL EVENTS UP TO AND INCLUDING THE 1 IN 100 YEAR+45%CC EVENT.

NEW FOUL SADDLE CONNECTION TO DISCHARGE FOUL RUNOFF FROM THE PROPOSALS TO EXISTING PRIVATE FOUL RUN.

INVERT LEVEL OF RUN AT POINT OF CONNECTION ESTIMATED TO BE 63.20m AOD AS PER DEPTHS FROM DOWNSREAM MANHOLE

CAPACITY CHECK IN PROGRESS BUT NOT RECEIVED AT THE TIME OF WRITING

ALL RELEVANT APPROVALS TO BE ACQUIRED PRIOR TO CONSTRUCTION

APPROXIMATE LOCATION OF EXISTING PRIVATE FOUL WATER PIPE RUN ACCORDING TO CLIENT - EXACT LOCATION TO BE CONFIRMED PRIOR TO CONSTRUCTION

AREAS OF HARDSTANDING TO FALL TOWARD PERMEABLE PAVING

HYDROROCK HD-density 120kg/m³ ATTENUATION SYSTEM

AREA: 29.75m²
HYDROROCK THICKNESS: 0.4m
COVER LEVEL: VARIES
INVERT LEVEL: 62.70m AOD
POROSITY: 95%
STORAGE VOLUME: 11.305m³

TO BE LAID FLAT WITH A MINIMUM COVER OF 40cm IN LINE WITH MANUFACTURERS GUIDELINES

SPECS AND DETAILS TO BE CONFIRMED AT DETAILED DESIGN STAGE

DUE TO SLOPE, DRIVEWAY TO HAVE PERMEABLE SURFACE WITH NOMINAL SUB-BASE DEPTH TO ALLOW BOTH PARTIAL INFILTRATION (TYPE B SUBBASE), TREATMENT AND COLLECTION OF SURFACE WATER.

ATTENUATION NOT TAKEN INTO ACCOUNT FOR THE PURPOSES OF CALCULATIONS

52mm APERTURE HYDROBRAKE FLOW CONTROL IN ORDER TO LIMIT SURFACE WATER RUNOFF FROM THE SITE TO A MAXIMUM OF 1.0/s FOR ALL EVENTS UP TO AND INCLUDING THE 1 IN 100 YEAR+45%CC EVENT.

THRESHOLD TO BE RAISED TO PREVENT INGRESS OF SURFACE WATER FORM ROAD

NEW CONNECTION TO DISCHARGE SURFACE WATER RUNOFF FROM THE PROPOSALS TO EXISTING PRIVATE SURFACE WATER MANHOLE.

INVERT LEVEL OF MANHOLE AT POINT OF CONNECTION ESTIMATED TO BE 62.60m AOD AS PER DEPTHS PROVIDED BY CLIENT RELATIVE TO TOPOGRAPHIC SURVEY

RELEVANT APPROVALS TO BE ACQUIRED PRIOR TO CONSTRUCTION

APPROXIMATE LOCATION OF EXISTING PRIVATE SURFACE WATER PIPE RUN ACCORDING TO CLIENT - EXACT LOCATION TO BE CONFIRMED PRIOR TO CONSTRUCTION

1. GENERAL

a. THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.

b. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.

c. ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.

d. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.

e. CDM REGULATIONS 2015: ALL CURRENT DRAWINGS AND SPECIFICATIONS MUST BE READ IN CONJUNCTION WITH THE DESIGNER'S HAZARD RISK AND ENVIRONMENT ASSESSMENT RECORD. DESIGN HAS BEEN PRODUCED BASED ON INFORMATION PROVIDED BY THE CLIENT/PRINCIPLE DESIGNER AVAILABLE AT TIME OF ISSUE. CONTRACTOR TO REVIEW DRAWING AND SPECIFICATION IN CONTEXT WITH THE WIDER SITE AND SPECIFIC SITE INVESTIGATION, CONTAMINATION ASSESSMENT, ASBESTOS SURVEY, ENVIRONMENTAL SURVEY, UXO SURVEY AND ANY OTHER RELEVANT INFORMATION AND MANAGE RISKS RELATING TO THE WORKS OUTLINED IN THE DRAWINGS AND SPECIFICATION. PRINCIPLE CONTRACTOR TO MAKE DESIGNER AND CLIENT AWARE OF SITE SPECIFIC RISKS THAT MAY AFFECT THE DRAWING AND SPECIFICATION.

f. CDM REGULATIONS 2015: FOR GENERIC MAINTENANCE AND MANAGEMENT RISKS REFER TO CHAPTER 36 OF CIRIA 752 SUDS MANUAL. FOR PROPRIETARY SYSTEMS SEE MANUFACTURER'S MANAGEMENT AND MAINTENANCE DETAILS AND RISK ASSESSMENT WITH REGARDS TO MAINTENANCE OF PROPRIETARY SYSTEMS.

2. CONSTRUCTION NOTE

a. THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY WORKS, AND IS ALSO RESPONSIBLE FOR THE SAFE MAINTENANCE AND STABILITY OF EXISTING BUILDINGS AT ALL TIMES.

b. THE MAIN CONTRACTOR IS RESPONSIBLE FOR ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.

c. ANY INFORMATION GIVEN REGARDING EXISTING UNDERGROUND SERVICES IS GIVEN IN GOOD FAITH AFTER CONSULTATION WITH THE RELEVANT AUTHORITY, HOWEVER ACCURACY IS NOT CERTAIN. THE MAIN CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL INFORMATION ON SITE PRIOR TO WORK COMMENCING AND TAKING DUE CARE AND ATTENTION WHILST UNDERSTANDING THE WORKS.

d. THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.

e. ALL PRODUCTS SPECIFIED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS. IF THERE ARE DISCREPANCIES BETWEEN THAT INFORMATION AND THE DETAILS ON ANY MERIDIAN DRAWINGS, THE MANUFACTURERS INSTRUCTIONS MUST BE USED

3. BELOW GROUND DRAINAGE

a. UPVC-U PIPES TO BS 4660: 2000 AND PLASTIC INSPECTION CHAMBERS AND FITTINGS TO BS EN 13598-1:2020. CLAY PIPES TO BS EN 295-1:2013. CONCRETE MANHOLE AND INSPECTION CHAMBERS TO BS EN 1917:2002

b. ALL ADAPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH SEWERAGE SECTOR GUIDANCE App C - DESIGN AND CONSTRUCTION GUIDANCE AND THE RELEVANT COUNCIL DESIGN GUIDE.

c. ALL PRIVATE FOUL WATER SEWERS TO BE LAID AT 1 IN 40 AT THE HEAD OF PIPE RUNS AND 1 IN 80 ELSEWHERE UNLESS OTHERWISE STATED.

d. ALL PRIVATE FOUL SEWER PIPES TO BE 100mm DIAMETER FROM SOIL STACKS UNLESS OTHERWISE STATED ON THE DRAWING AND 150mm DIAMETER FROM DOWNPIPES AND 150mm DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.

e. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES OR SOIL STACKS DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER.

f. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REBURIED IF NECESSARY.

g. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.

h. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.

4. MANHOLE COVERS AND FRAMES

a. MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICED AREAS.

b. MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

LEGEND

- PROPOSED SW PIPE RUN
- PROPOSED PERFORATED SW DRAIN
- PROPOSED FW PIPE RUN
- PROPOSED TYPE E SW INSPECTION CHAMBER
- PROPOSED TYPE D FW INSPECTION CHAMBER
- PROPOSED TYPE E FW INSPECTION CHAMBER
- PROPOSED HYDROBRAKE MANHOLE
- PROPOSED ORIFICE PLATE MANHOLE
- CATCHPIT CHAMBER/MANHOLE
- PROPOSED SW RODDING EYE
- PROPOSED SW RAINWATER PIPE
- EXISTING PRIVATE SW RUN - RETAINED
- EXISTING PRIVATE FW RUN - RETAINED
- EXISTING SW PUBLIC INSPECTION CHAMBER / MANHOLE - RETAINED
- EXISTING FW PUBLIC INSPECTION CHAMBER / MANHOLE - RETAINED
- PERMEABLE PAVING
- ATTENUATION TANK
- PRELIMINARY PROPOSED LEVELS

REV	DESCRIPTION	BY	DATE
-	-	-	-

STATUS: Preliminary

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

CLIENT: Ecotecture

SITE: Franc-Jean Farm, Bolney, Haywards Heath, RH17 5PJ

TITLE: Proposed Foul and Surface Water Drainage Layout

SCALE AT:	DATE:	DRAWN:	CHECKED:
1:50	08/09/26	SL	BB

PROJECT NO: MC0857 DRAWING NO: CIV01 REVISION: -

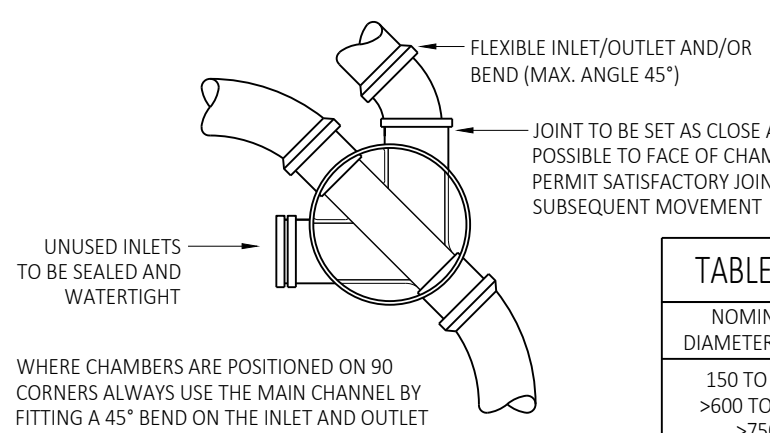
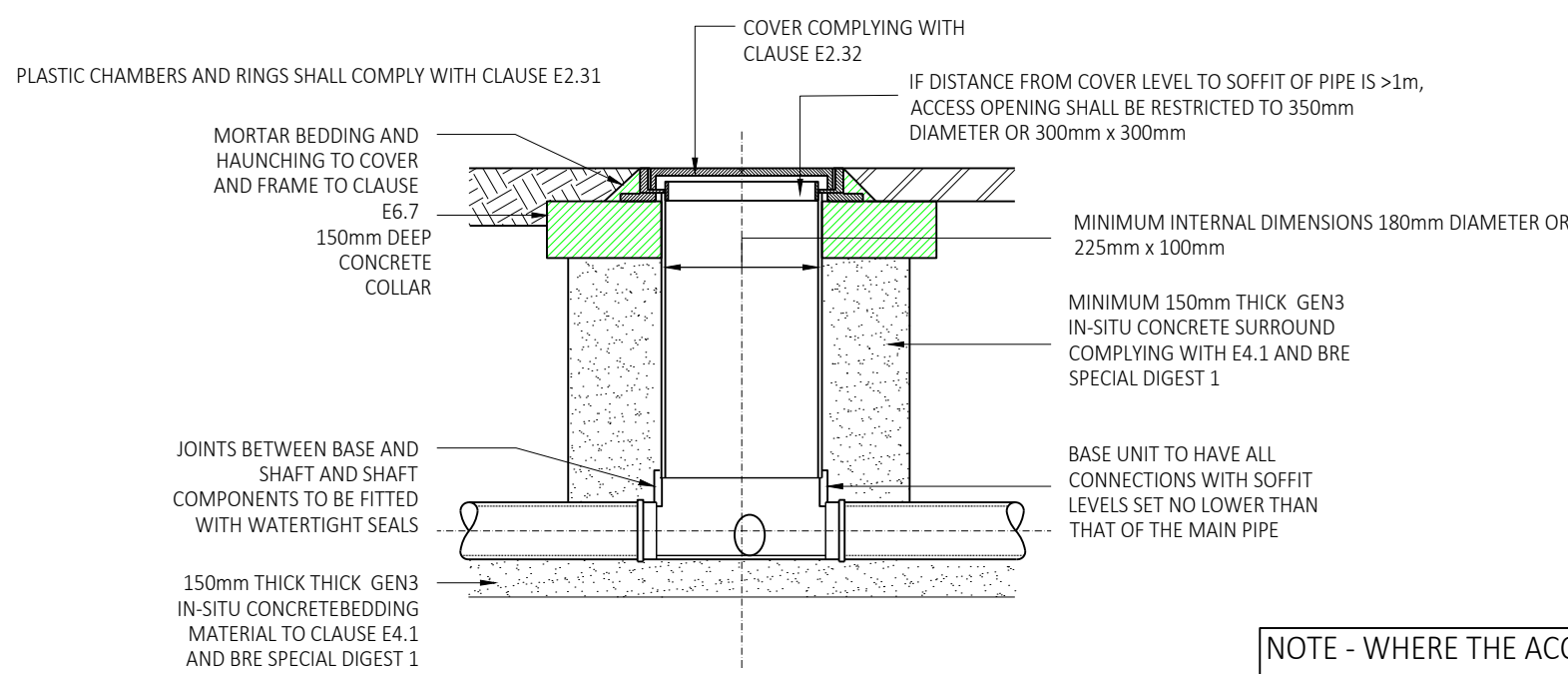
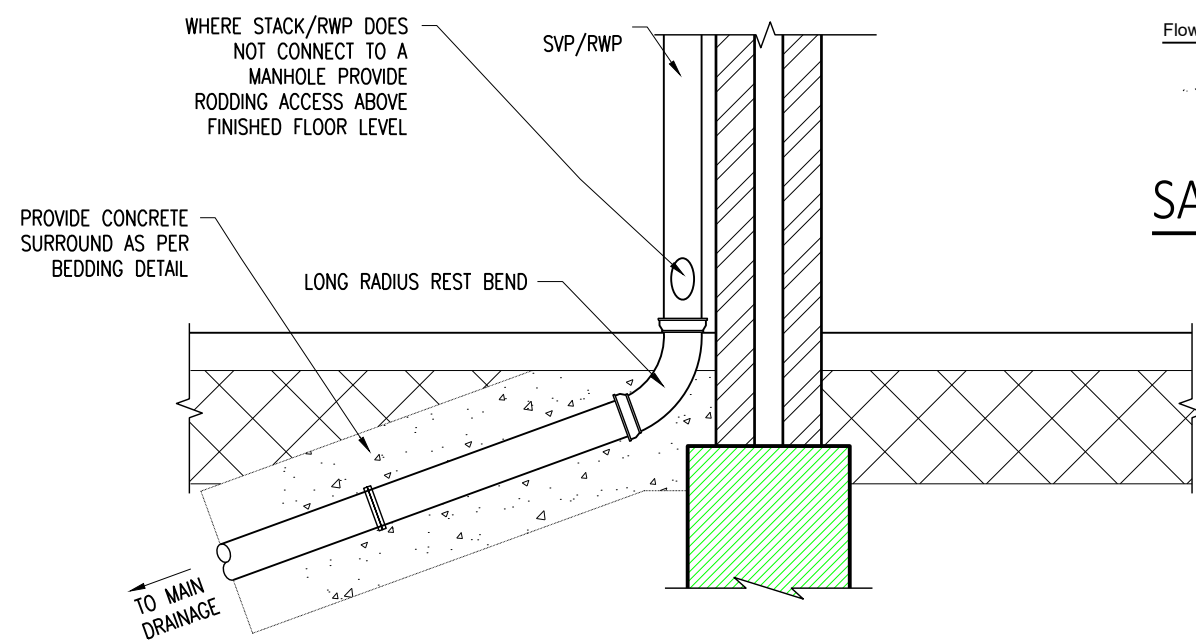


TABLE 1	
NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH OF ROCKER PIPE (m)
150 TO 600	0.6
>600 TO 750	1.0
>750	1.2

TYPE E TYPICAL INSPECTION CHAMBER DETAIL - FLEXIBLE MATERIAL

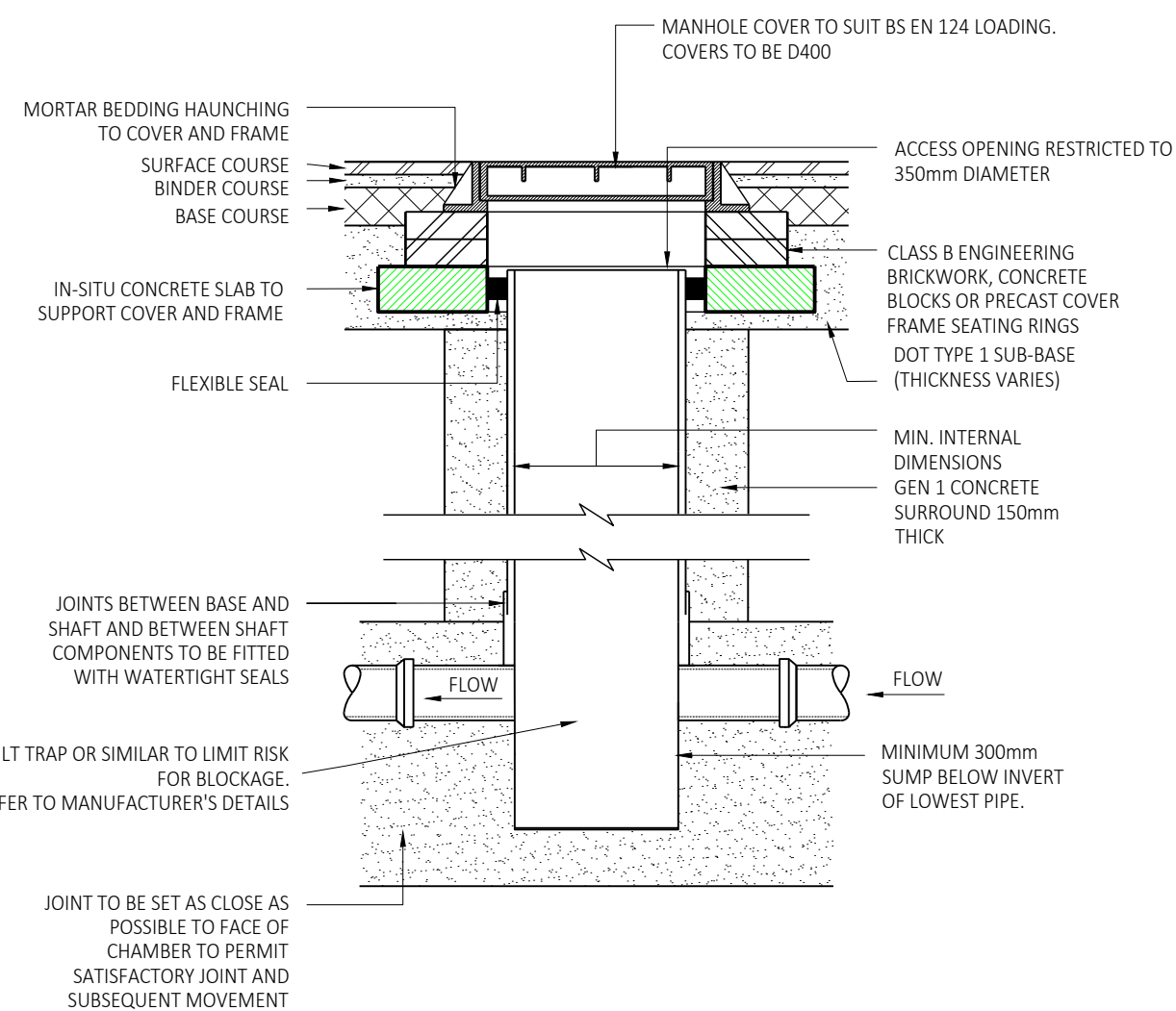
250mmØ WHERE DEPTH TO INVERT <600mm
450mmØ WHERE DEPTH TO INVERT >600mm
FOR 450mmØ > 1.2m DEEP RESTRICT ACCESS TO MAX 350mm

SITED IN DRIVEWAYS/PAVED AREAS



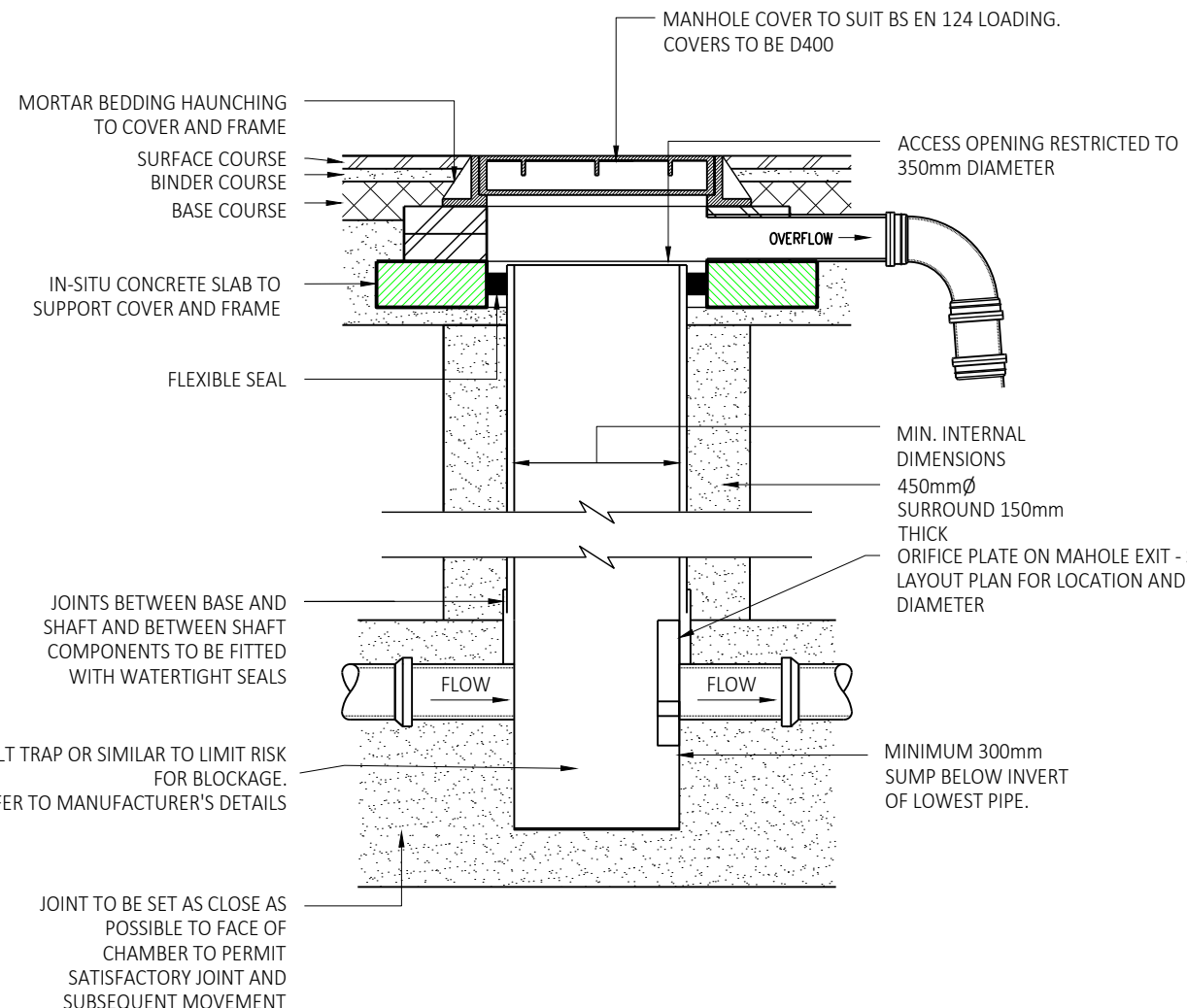
SADDLE CONNECTION

SVP/RWP CONNECTION



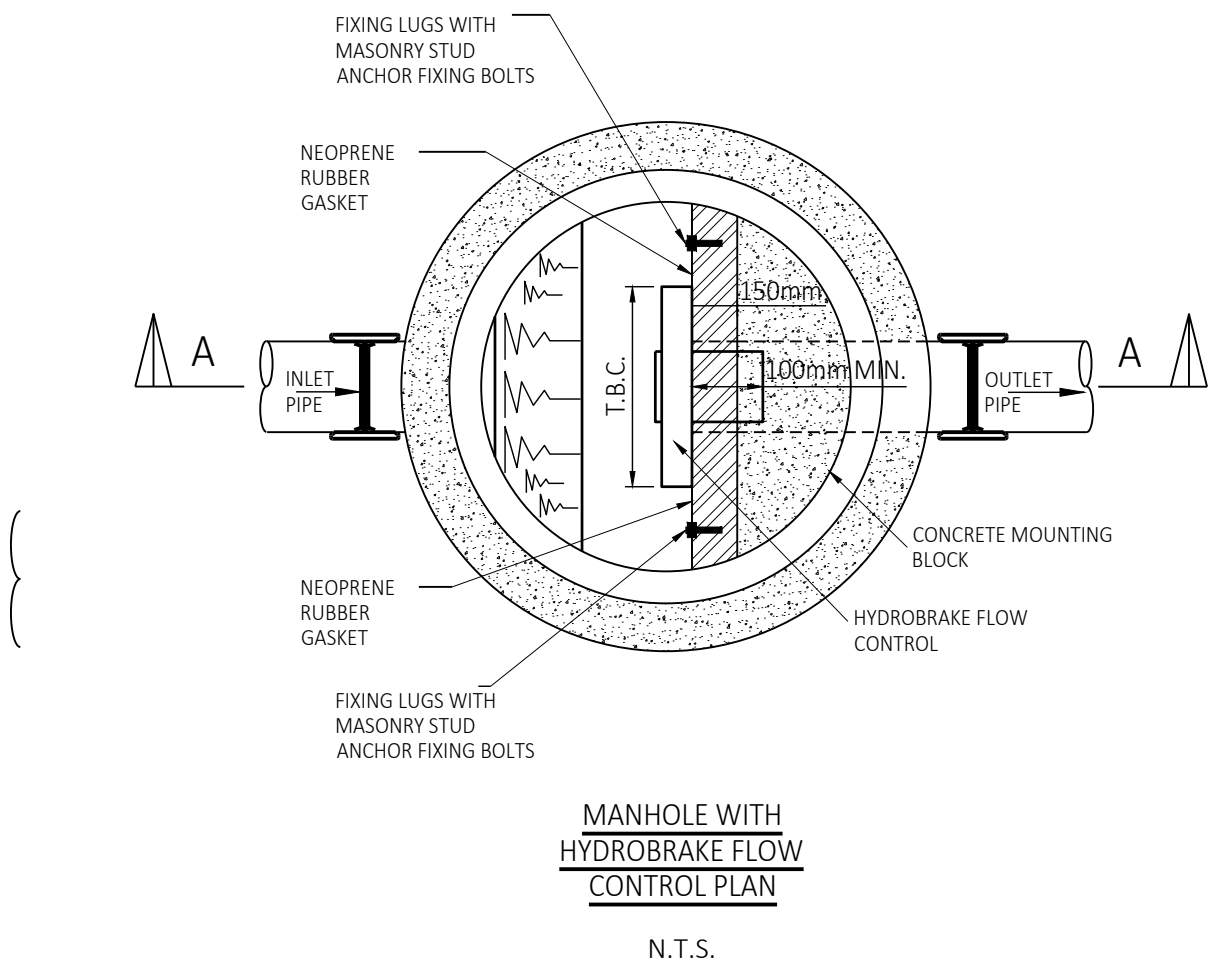
CATCHPIT INSPECTION CHAMBER.

(PREFORMED POLYPIPE RIDGISTORM 450-1500Ø CATCHPIT MANHOLE OR SIMILAR),
MAX. DEPTH 3m, NON-ENTRY)



ORIFICE PLATE CHAMBER.

(PREFORMED POLYPIPE RIDGISTORM 450-1500Ø CATCHPIT MANHOLE OR SIMILAR),
MAX. DEPTH 3m, NON-ENTRY)



NOTE - WHERE THE ACCESS CHAMBER IS IN THE HIGHWAY (INCLUDING ANY FOOTWAY), THE HIGHWAY AUTHORITY CAN HAVE SPECIFIC REQUIREMENTS

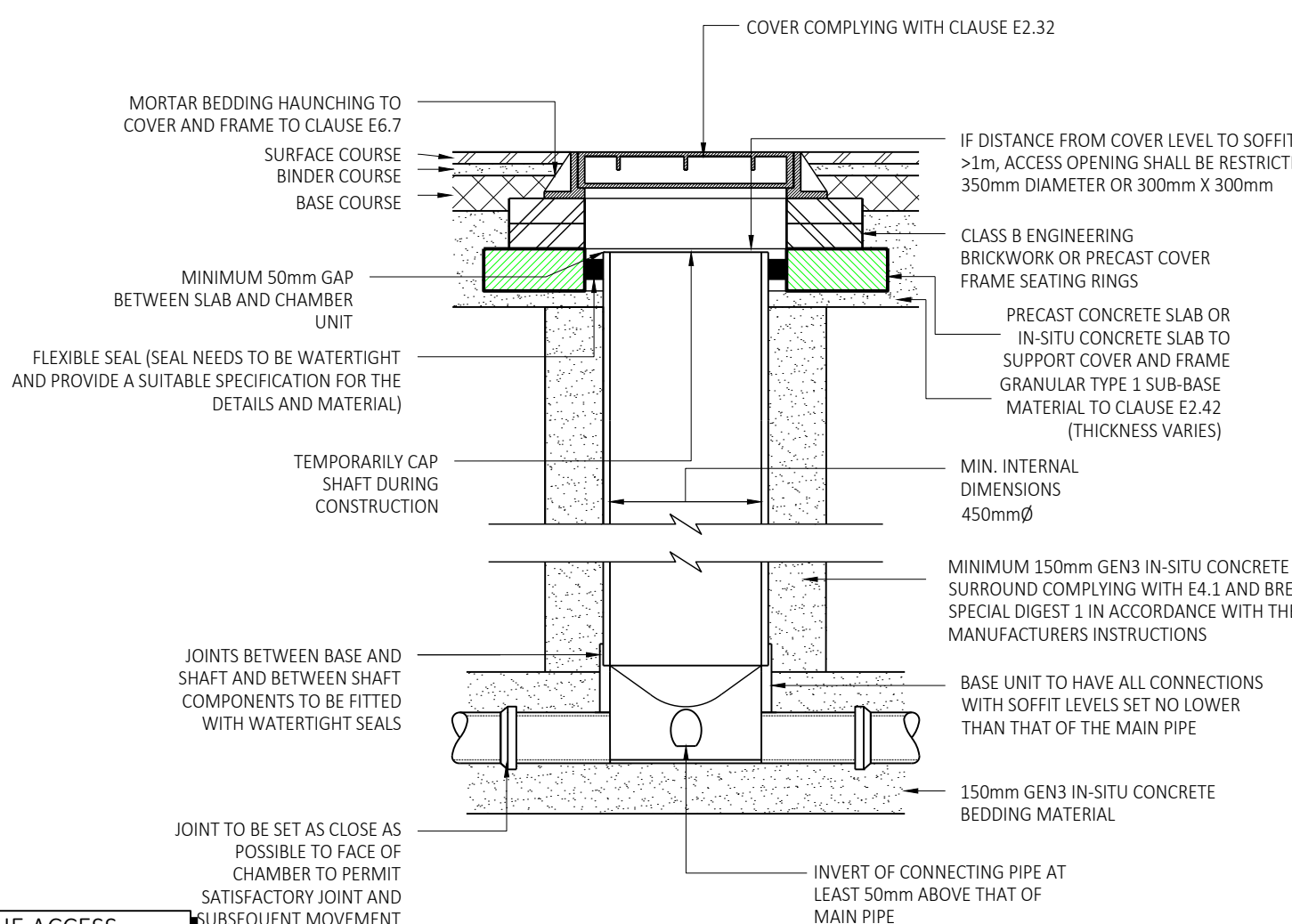
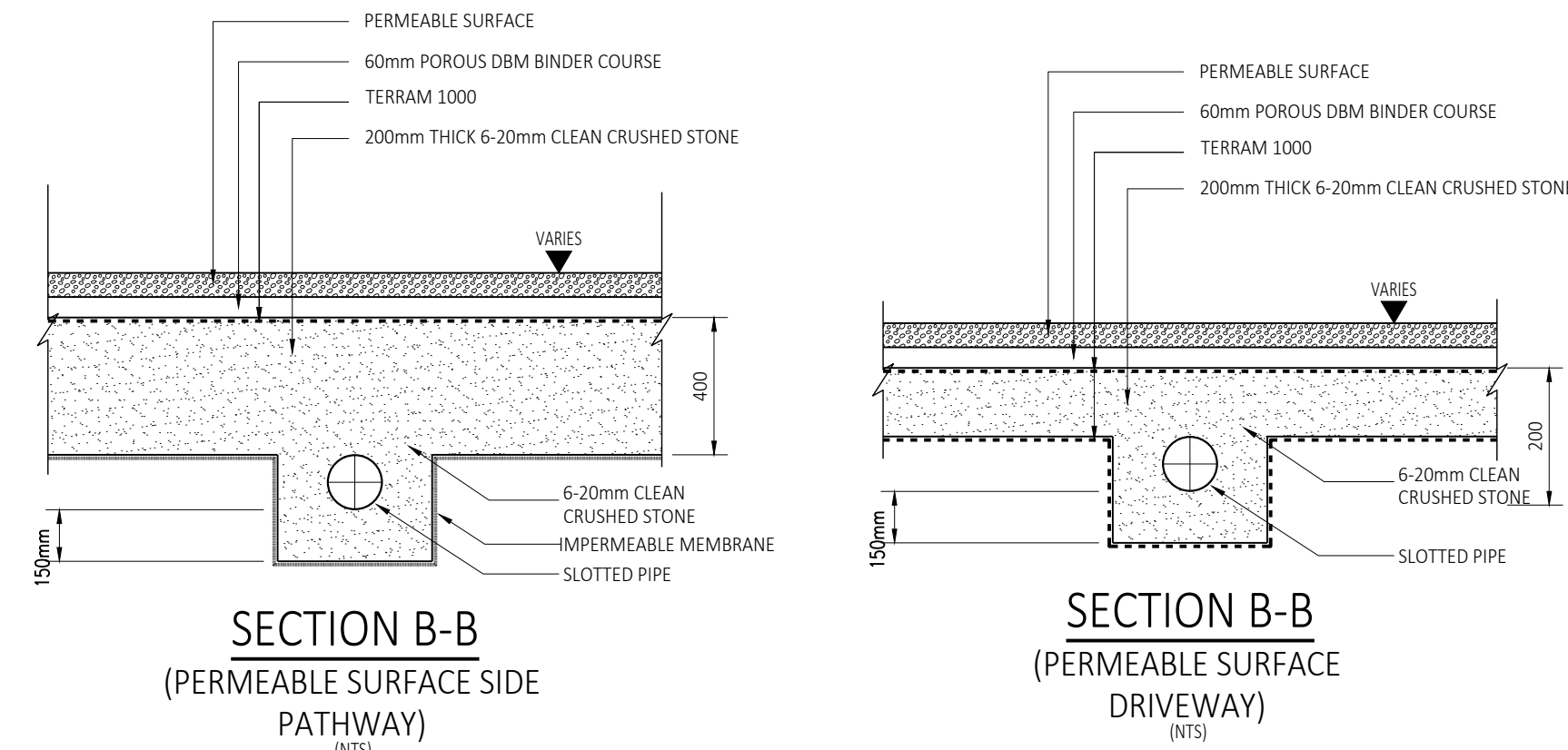
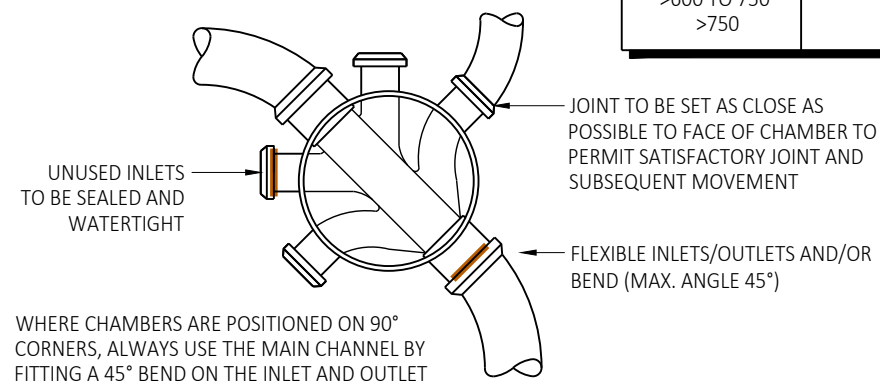


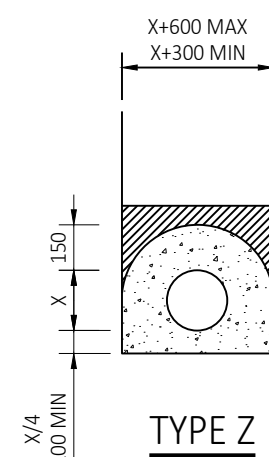
TABLE 1	
NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH OF ROCKER PIPE (m)
150 TO 600	0.6
>600 TO 750	1.0
>750	1.2

ALTERNATIVE BASE INVERT LAYOUTS
ALL CONNECTIONS TO BE MIN. SOFFIT TO SOFFIT

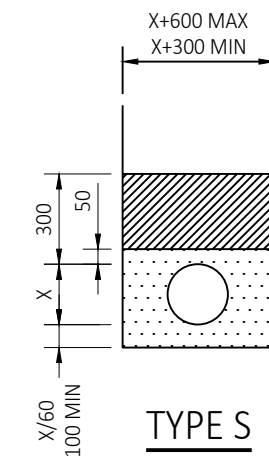


TYPE D INSPECTION CHAMBER DETAIL - FLEXIBLE MATERIAL.

(FOR USE IN AREAS SUBJECT TO VEHICLE LOADING,
DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE UP TO 3M)



TYPE Z



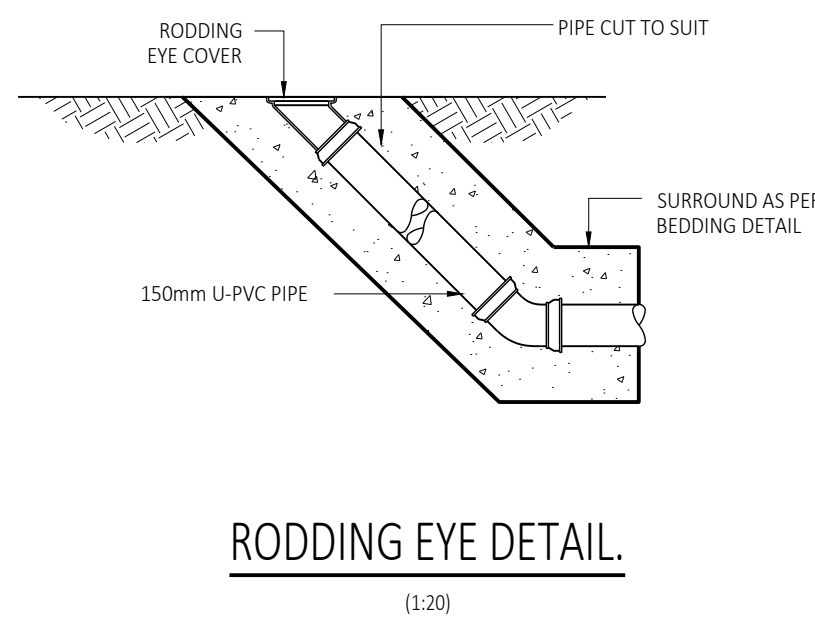
TYPE S

- GRANULAR MATERIAL TO SHW CLAUSE 503.3(i)
- GEN 1 CONCRETE UNLESS SULPHATES PRESENT
- SELECTED TYPE B GRANULAR BACKFILL MATERIAL TO SHW CLAUSE 503.3(v)

TRENCH AND BEDDING DETAILS

IN TRAFFICKED AREAS:
TYPE S WHERE COVER >900mm
TYPE Z WHERE COVER <900mm

IN NON-TRAFFICKED AREAS:
TYPE S WHERE COVER >600mm
TYPE Z WHERE COVER <600mm



RODDING EYE DETAIL.

1:20 @ A1
0 200 400 600 800 1000mm

- GENERAL
a. THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
b. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
c. ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
d. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
e. CDM REGULATIONS 2015: ALL CURRENT DRAWINGS AND SPECIFICATIONS MUST BE READ IN CONJUNCTION WITH THE DESIGNER'S HAZARD RISK AND ENVIRONMENT ASSESSMENT RECORD. DESIGN HAS BEEN PRODUCED BASED ON INFORMATION PROVIDED BY THE CLIENT/PRINCIPLE DESIGNER AVAILABLE AT TIME OF ISSUE. CONTRACTOR TO REVIEW DRAWING AND SPECIFICATION IN CONTEXT WITH THE WIDER SITE AND SPECIFIC SITE INVESTIGATION, CONTAMINATION ASSESSMENT, ASBESTOS SURVEY, ENVIRONMENTAL SURVEY, UXO SURVEY AND ANY OTHER RELEVANT INFORMATION AND MANAGE RISKS RELATING TO THE WORKS OUTLINED IN THE DRAWINGS AND SPECIFICATION. PRINCIPLE CONTRACTOR TO MAKE DESIGNER AND CLIENT AWARE OF SITE SPECIFIC RISKS THAT MAY AFFECT THE DRAWING AND SPECIFICATION.
f. CDM REGULATIONS 2015: FOR GENERIC MAINTENANCE AND MANAGEMENT RISKS REFER TO CHAPTER 36 OF CIRIA 752 SUDS MANUAL. FOR PROPRIETARY SYSTEMS SEE MANUFACTURER'S MANAGEMENT AND MAINTENANCE DETAILS AND RISK ASSESSMENT WITH REGARDS TO MAINTENANCE OF PROPRIETARY SYSTEMS.
- CONSTRUCTION NOTE
a. THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY WORKS, AND IS ALSO RESPONSIBLE FOR THE SAFE MAINTENANCE AND STABILITY OF EXISTING BUILDINGS AT ALL TIMES.
b. THE MAIN CONTRACTOR IS RESPONSIBLE FOR ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.
c. ANY INFORMATION GIVEN REGARDING EXISTING UNDERGROUND SERVICES IS GIVEN IN GOOD FAITH AFTER CONSULTATION WITH THE RELEVANT AUTHORITY, HOWEVER ACCURACY IS NOT CERTAIN. THE MAIN CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL INFORMATION ON SITE PRIOR TO WORK COMMENCING AND TAKING DUE CARE AND ATTENTION WHILST UNDERTAKING THE WORKS.
d. THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.
e. ALL PRODUCTS SPECIFIED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS. IF THERE ARE DISCREPANCIES BETWEEN THAT INFORMATION AND THE DETAILS ON ANY MERIDIAN DRAWINGS, THE MANUFACTURER'S INSTRUCTIONS MUST BE USED.
- BELOW GROUND DRAINAGE
a. UPVC-U PIPES TO BS 4660: 2000 AND PLASTIC INSPECTION CHAMBERS AND FITTINGS TO BS EN 13598-1:2020. CLAY PIPES TO BS EN 295-1:2013. CONCRETE MANHOLE AND INSPECTION CHAMBERS TO BS EN 1917:2002.
b. ALL ADAPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH SEWERAGE SECTOR GUIDANCE App C - DESIGN AND CONSTRUCTION GUIDANCE AND THE RELEVANT COUNCIL DESIGN GUIDE.
c. ALL PRIVATE FOUL WATER SEWERS TO BE LAID AT 1 IN 40 AT THE HEAD OF PIPE RUNS AND 1 IN 80 ELSEWHERE UNLESS OTHERWISE STATED.
d. ALL PRIVATE FOUL SEWER PIPES TO BE 100mm DIAMETER FROM SOIL STACKS UNLESS OTHERWISE STATED ON THE DRAWING AND 150mm WHERE SERVING MORE THAN 9 PROPERTIES.
e. ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 100 UNLESS OTHERWISE STATED ON THE DRAWING.
f. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100mm DIAMETER FROM DOWNPIPES AND 150mm DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
g. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES OR SOIL STACKS DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER.
h. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REFINISHED IF NECESSARY.
i. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
j. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.

- MANHOLE COVERS AND FRAMES
a. MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICKED AREAS.
b. MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

-	-	-	-
REV:	DESCRIPTION:	BY:	DATE:
STATUS: Preliminary			
MERIDIAN CIVIL ENGINEERING CONSULTANCY			
CLIENT: Ecotecture			
SITE: Franc-Jean Farm, Bolney, Haywards Heath, RH17 5PJ			
TITLE: Typical Construction Details - TBC at Detailed Design			
SCALE AT: 1:20	DATE: 08/09/26	DRAWN: SL	CHECKED: MN
PROJECT NO: MC0857	DRAWING NO: CIV02	REVISION: -	

APPENDIX III Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)
1	0.003
RWP	0.002
3	
4	0.002
Side Path	0.005
Attenuation Tank	
Hydrobrake	0.012
Existing SW Sewer	

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)	1440	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

15	30	60	120	180	240	360	600	960	1440	2160
----	----	----	-----	-----	-----	-----	-----	-----	------	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	0	0	0
100	45	0	0

Node Hydrobrake Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.004	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0052-1000-0600-1000
Invert Level (m)	62.661	Min Outlet Diameter (m)	0.075
Design Depth (m)	0.600	Min Node Diameter (mm)	1200
Design Flow (l/s)	1.0		

Node Side Path Online Orifice Control

Flap Valve	x	Invert Level (m)	63.531	Diameter (m)	0.039
Downstream Link	1.002	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	2.0		

Results for 2 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
15 minute winter	1	11	63.704	0.019	0.5	0.0002	0.0000	OK
15 minute summer	RWP	10	63.643	0.008	0.4	0.0013	0.0000	OK
180 minute summer	3	116	62.754	0.054	0.1	0.0085	0.0000	OK
15 minute summer	4	10	63.635	0.026	0.9	0.0041	0.0000	OK
30 minute summer	Side Path	22	63.606	0.075	1.6	0.4284	0.0000	OK
180 minute summer	Attenuation Tank	116	62.754	0.054	0.9	1.5033	0.0000	OK
15 minute summer	Hydrobrake	9	62.757	0.096	2.2	0.0000	0.0000	OK
15 minute summer	Existing SW Sewer	10	62.595	0.025	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)
15 minute winter	1	1.000	4	0.5	0.393	0.083	0.0097	
15 minute summer	RWP	2.000	3	0.4	0.936	0.013	0.0055	
180 minute summer	3	2.001	Attenuation Tank	0.1	0.126	0.013	0.0471	
15 minute summer	4	1.001	Side Path	0.9	0.410	0.144	0.0278	
30 minute summer	Side Path	1.002	Attenuation Tank	0.7	1.308	0.033	0.0031	
180 minute summer	Attenuation Tank	1.003	Hydrobrake	0.6	0.124	0.099	0.0233	
15 minute summer	Hydrobrake	1.004	Existing SW Sewer	0.8	0.543	0.139	0.0141	1.8

Results for 30 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
30 minute summer	1	23	63.735	0.050	1.3	0.0004	0.0000	OK
15 minute summer	RWP	11	63.647	0.012	0.9	0.0019	0.0000	OK
120 minute summer	3	100	62.869	0.169	0.4	0.0268	0.0000	SURCHARGED
30 minute summer	4	23	63.734	0.125	2.1	0.0199	0.0000	SURCHARGED
30 minute summer	Side Path	23	63.733	0.202	3.8	1.2535	0.0000	SURCHARGED
120 minute summer	Attenuation Tank	102	62.869	0.169	2.8	4.7311	0.0000	SURCHARGED
120 minute summer	Hydrobrake	102	62.868	0.207	2.5	0.0000	0.0000	SURCHARGED
120 minute summer	Existing SW Sewer	102	62.598	0.028	1.0	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)
30 minute summer	1	1.000	4	1.3	0.484	0.215	0.0445	
15 minute summer	RWP	2.000	3	0.9	0.936	0.030	0.0145	
120 minute summer	3	2.001	Attenuation Tank	0.3	0.123	0.039	0.0862	
30 minute summer	4	1.001	Side Path	1.8	0.324	0.301	0.0608	
30 minute summer	Side Path	1.002	Attenuation Tank	1.4	1.558	0.061	0.0063	
120 minute summer	Attenuation Tank	1.003	Hydrobrake	-1.5	-0.195	-0.245	0.0308	
120 minute summer	Hydrobrake	1.004	Existing SW Sewer	1.0	0.571	0.165	0.0160	9.9

Results for 100 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
30 minute summer	1	23	63.795	0.110	1.6	0.0009	0.0000	SURCHARGED
15 minute summer	RWP	10	63.649	0.014	1.2	0.0022	0.0000	OK
120 minute summer	3	114	62.940	0.240	0.5	0.0381	0.0000	SURCHARGED
30 minute summer	4	23	63.794	0.185	2.7	0.0294	0.0000	SURCHARGED
30 minute summer	Side Path	23	63.792	0.261	4.7	1.6351	0.0000	SURCHARGED
120 minute summer	Attenuation Tank	114	62.940	0.240	3.7	6.7299	0.0000	SURCHARGED
120 minute summer	Hydrobrake	114	62.939	0.278	3.2	0.0000	0.0000	SURCHARGED
120 minute summer	Existing SW Sewer	156	62.598	0.028	1.0	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)
30 minute summer	1	1.000	4	1.6	0.484	0.261	0.0595	
15 minute summer	RWP	2.000	3	1.2	0.936	0.039	0.0155	
120 minute summer	3	2.001	Attenuation Tank	0.4	0.142	0.048	0.0862	
30 minute summer	4	1.001	Side Path	2.0	0.338	0.338	0.0608	
30 minute summer	Side Path	1.002	Attenuation Tank	1.6	1.613	0.070	0.0177	
120 minute summer	Attenuation Tank	1.003	Hydrobrake	-2.1	-0.267	-0.346	0.0308	
120 minute summer	Hydrobrake	1.004	Existing SW Sewer	1.0	0.571	0.165	0.0160	12.8

Results for 100 year +45% CC 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
60 minute summer	1	41	63.925	0.240	1.8	0.0019	0.0000	SURCHARGED
15 minute summer	RWP	10	63.651	0.016	1.7	0.0026	0.0000	OK
180 minute summer	3	168	63.207	0.507	0.6	0.0805	0.0000	SURCHARGED
60 minute summer	4	41	63.924	0.315	2.5	0.0501	0.0000	SURCHARGED
60 minute summer	Side Path	41	63.922	0.391	5.0	2.4719	0.0000	SURCHARGED
180 minute summer	Attenuation Tank	168	63.206	0.506	4.2	11.2545	0.0000	SURCHARGED
180 minute summer	Hydrobrake	168	63.206	0.545	3.4	0.0000	0.0000	FLOOD RISK
15 minute winter	Existing SW Sewer	18	62.598	0.028	1.0	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)
60 minute summer	1	1.000	4	1.3	0.443	0.212	0.0595	
15 minute summer	RWP	2.000	3	1.7	0.698	0.056	0.0164	
180 minute summer	3	2.001	Attenuation Tank	0.5	0.146	0.058	0.0862	
60 minute summer	4	1.001	Side Path	2.0	0.318	0.325	0.0608	
60 minute summer	Side Path	1.002	Attenuation Tank	1.9	1.568	0.086	0.0242	
180 minute summer	Attenuation Tank	1.003	Hydrobrake	-2.3	-0.289	-0.374	0.0308	
180 minute summer	Hydrobrake	1.004	Existing SW Sewer	1.0	0.571	0.165	0.0160	20.6

APPENDIX IV Site Investigation

Consultation Partner per ref: Sam

Test Site: Franc-Jean Farm, Haywards Heath, West Sussex, RH17 5PJ

Ref: CSR0057

Date of Test: 24/07/2026

CS Site Investigations were instructed to undertake BRE365 compliant infiltration testing within 1 no. shallow pits (approx. 0.5m) and 1 no. deep pit (approx 1.6m) at the locations shown within the figure below. The test locations were selected based upon assumed approximate proposed infiltration device locations.



Figure 1 - marked test locations

Expected Geology

The British Geological Survey (BGS) Geology of Britain Viewer indicates the below underlying geology:

Bedrock geology

Upper Tunbridge Wells Sand-Sandstone and siltstone, interbedded. These sedimentary rocks are fluvial, palustrine and shallow-marine in origin. They are detrital, forming deposits reflecting the channels, floodplains and deltas of a river in a coastal setting (with periodic inundation from the sea).

Superficial Deposits

BGS Geology viewer indicates no superficial deposits at the site.

Trial Pit Summary

TP	Length	Width	Depth	Soil Description	Test Completed
1	1.15	0.28	0.6	0-150 hardcore/made ground, 150-250 top soil, 250-600 sandy silty clay	Y
2	1.3	0.31	2	0-150 hardcore/made ground, 150-250 top soil, 250-1400 sandy silty clay, 1400-2000 silty sand and stone mix - Water strike 1.9m BGL	N

Table 1 - Table showing brief details of each hole

Site Investigation Additional Info

- Geology beneath the site was fairly consistent, consisting of shallow top soil with silty sandy clay beneath followed by silty sandstone at the base of the deeper trial pit.
- Geology was roughly in line with BGS predictions consisting of silty clay, gravels and sand
- Within the deeper trial pit (TP02), groundwater was struck at 1.9m, the pit was left for the duration of testing to understand groundwater levels. They rose to 1.8mBGL during the course of testing
- TP01 drained extremely slowly, only dropping less than 10cm over 8 hours.
- The site owner located multiple foul and surface water manholes on site and described a surface water drainage sewer system running through the wider development that eventually travels down the hill and to a pond. This may be a point of investigation if the infiltration rates prove unfeasible.

Conclusion

The geology encountered beneath the site at shallow depths was very steady and groundwater was stuck at 1.9m BGL, rising to 1.8m BGL during the course of testing. Infiltration testing in line with BRE365 methodology was undertaken.

Prepared By

Charles Applewhite BEng (Hons)



E: charles@cssiteinvestigations.com

M: 07985564512

Preparation Date: 25/07/2026

Disclaimer

This report is based on data obtained during the testing conducted on **July 24th 2026**. The conclusions and recommendations are made in good faith and are intended to assist in the design and development of the site drainage system. Any use of this report for purposes other than those stated should be done with caution and may require additional verification.

Appendix I – Raw Data



BRE 365 Infiltration Test Results	
Site Address:	Franc Jean
Site Reference:	
Hole Reference:	TP01

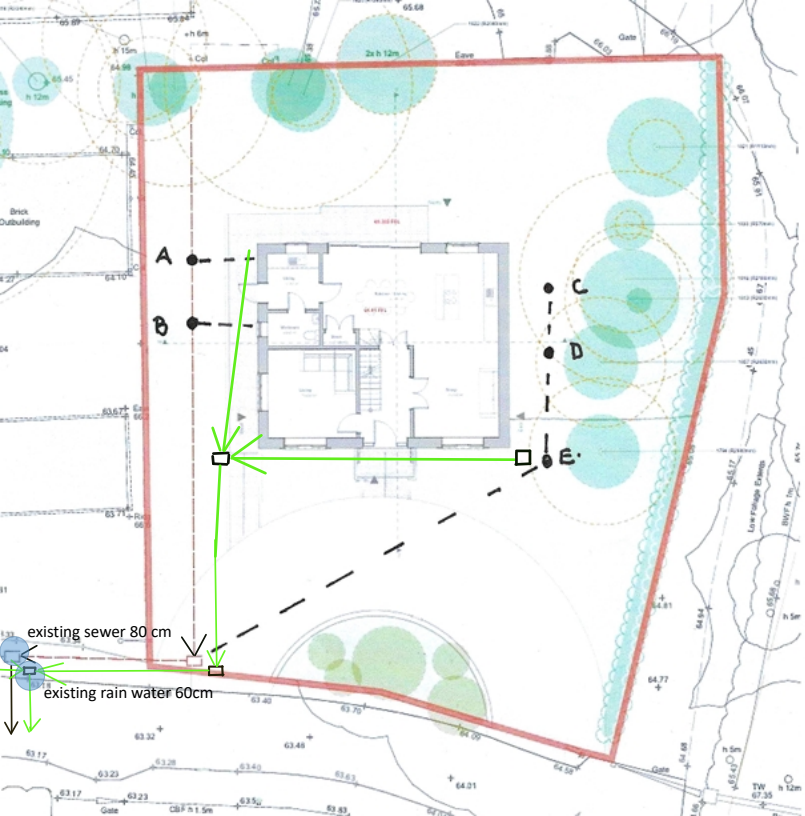
TP01 Dimensions (m)	
Depth:	0.6
Width:	0.28
Length:	1.15

Test Data	
Test No:	1
Time (mins)	Depth (m bgl)
0	0.2
5	0.205
10	0.21
15	0.213
20	0.215
25	0.22
30	0.225
40	0.23
50	0.23
60	0.235
75	0.235
90	0.24
120	0.25
150	0.255
180	0.26
210	0.265
240	0.27
270	0.275
300	0.285
330	0.29
360	0.29
390	0.29
420	0.295
450	0.295

Appendix II – Summary & Photo

Trial Pit nu	Size (m)	Hole Graphic	Spoil Graphic	Test Graphic
TP01	D:0.6 B:1.15 W:0.28	No Photo Available		
TP02	D:2 B:1.5 W:0.30			Ground water 1.8 BGL, no testing possible.

APPENDIX V Supplementary Documents



PRODUCT DATA SHEET

Hydrorock® blocks

Stone wool blocks for water management



Material description

Blocks produced from stone wool for use in water management applications.

Physical characteristics

Parameter	Value			Unit of measurement
	D-density 80kg/m ³	HD-density 120 kg/m ³	HDX-density 160 kg/m ³	
Height (variable)	33 50 100	33 50 100	33 50 100	cm
Length	120	120	120	cm
Thickness	30 40	30 40	30	cm
Weight H 50 cm	13,5 17,5	21,5 28,8	28,8	kg/block

Water properties

Parameter	Value			Unit of measurement
	D-density 80kg/m ³	HD-density 120 kg/m ³	HDX-density 160 kg/m ³	
Porosity	96	95	94	%vol
Water permeability	> 200	120	80	m/day
Residual water content	-	3	-	%full

The residual water content is caused by isolated droplets in the rock wool matrix, which are not in capillary contact with most of the water in the buffer. The actual value in practice may vary and depends on the drainage rate. If the drainage is very fast, there will be more isolated droplets in the matrix and the residual water content can be as high as 6%. If the drain is continuously stabilized, the residual water content can even be <1%.

Practical consequences

- o During heavy rainfall, water absorption is so fast that special venting facilities are required. Connecting the snorkels must be executed in accordance with the principle details of Hydrorock.
- o If the stone wool buffer is only used for buffering water and delayed drainage, so if no infiltration takes place, the bottom 15 cm of the buffer will not drain completely. One should take this into account when calculating the capacity of the system.
- o If the amount of rain exceeds the design capacity, other water management solutions will be needed to limit nuisance.

Load capacity

Parameter	Value			Unit of measurement
	D-density 80kg/m ³	HD-density 120 kg/m ³	HDX-density 160 kg/m ³	
Creep ¹	5	1,3	0,5	%
Static compressive strength ² (Y Towards 10% moisture)	40	124	173	kPa
E50 (Y Towards 10% moisture)	~3	~12	~17	ton/m ²
Cyclic Modulus ³	5	7	8	MPa
	15	21	24	MPa

Practical consequences

The systems can be designed for various strengths. Depending on the type of stone wool and the soil conditions, typical installation depths for the various traffic classes are shown in the table below.

Traffic class 4 (cyclic / short term)	Installation depth (top from buffer to ground level) ⁵			Unit of measurement
	D-density 80kg/m ³	HD-density 120 kg/m ³	HDX-density 160 kg/m ³	
Green (no traffic)	N/A	>30 (sand)	N/A	cm
6 tons	70	40	40	cm
10 tons	N/A	40	40	cm
15 tons	N/A	60	40	cm
20 tons	N/A	75	45	cm

The installation depth consists of the following layers⁶:

- o 10 cm paving stones or asphalt
- o 25 cm foundation (rubble granulate)
- o Variable layer thicknesses of sand

1. Measured by Deltares on cylindrical samples 20 mm high and 63 mm in diameter, in a steel ring. Pressure is 20 kPa over a period of >14 days. The samples are in contact with water [1].
2. Static compressive strength and E-modulus were measured by Deltares according to ASTM D2146 on cylindrical samples with diameter 63 mm and height 130 mm [1.2].

3. The cyclic modulus is derived from the static E50 and is a factor of 3-4 times higher than the static E50. The cyclic modulus of WM2005 of 15 MPa is approximately twice the modulus of EPS 150 [1].
- 4.

Axle load [tons]	Axle load [kN]	(Single)Wheel load [kN]	Wheel print (truck) [m x m]
6	60	15	0,40 x 0,40
10	100	25	0,40 x 0,40
15	150	37,5	0,40 x 0,40
20	200	50	0,40 x 0,40

5. Calculated by Deltares according to the method used for dimensioning elevations on EPS [3].
6. Mixed granulate: 0/31.5 (NEN-EN 13242 (2015) / Standard RAW provision 2015 art. 80.16.05) supply, apply and condense. Sand for Sandbed: Standard RAW 2015 provision 2015 art.22.06.03.

Installation instructions

A number of preventive measures are required to guarantee a long service life:

- o Filtering the incoming water. This can be done with special filter vents designed by Hydrorock.
- o Because the stone wool blocks are consistently constructed in the same way, the blocks can be adapted to the conditions in the field, even afterwards, without losing the functionality of the system. The blocks can easily be cut; for example, if pipes and cables have to be taken into account.

Preparation work surface

- o Although not strictly necessary, proper preparation of the work surface will contribute to the quick and accurate placement of the rockwool blocks.

Stacking

- o The blocks are placed vertically, as can be seen in the photos below.



Connections

- o The perforated pipe in the blocks for the water supply or serving as a snorkel have a diameter of 100 mm. Standard drainage aids ø100 can be used.

Storage

- o The pallets can be stacked up to a maximum of 2 high.
- o The pallets are resistant to all weather conditions and can be stored on the construction project in unopened waterproof packaging under all common conditions, also for longer periods.
- o Non-flammable – does not cause a fire hazard on the construction site.

Instructions for use

- o The most recent manual with installation instructions and the warranty conditions can be downloaded at: www.hydrorock.com

References

- [1] Deltares rapport #11200122-000-GEO-0007, 19 januari 2018
- [2] Deltares rapport #11202897-002-GEO-0003, 20 maart 2020
- [3] CROW (2013). Lichte ophoogmaterialen in de wegenbouw. Publicatie 325. CROW ed., Ede

Contact details

Address: Bluwater Solutions
The Airfield
Seaton Ross
York YO42 4NF

Contact: Daniel Gray, Head of Utilities and Water Management Specialist

Telephone : 07840 577463

E-mail : info@bluwatersystems.co.uk

Website: www.bluwatersystems.co.uk

Disclaimer

The greatest care has been given to designing and compiling this communication. BluWater Solutions and Hydrorock B.V. cannot, however, provide any guarantee with regard to the completeness and accuracy of the information collected, the processing of information, the results of the calculations, advice, sample constructions and other results. All calculations, advice, model constructions and other results are estimates and do not bind BluWater Solutions or Hydrorock B.V. Also keep in mind that the performance of the product in a structure or system is highly dependent on the parameters of such structure or system, such as (but not limited to) local soil conditions, the quality of the installation and other components. All these parameters fall outside the sphere of influence of BluWater Solutions and Hydrorock B.V. Consequently, BluWater Solutions or Hydrorock B.V. offer no guarantee regarding the performance of the product.

All rights are reserved. No part of this communication may be reproduced or published by means of print, photo print, microfilm or otherwise without the prior written permission of Hydrorock International B.V. The content of this announcement is subject to change without notice. Although all care has been taken during the preparation of this communication, BluWater Solutions and Hydrorock B.V. can not be held liable in any way for errors in this communication, nor for the consequences thereof.

Hydrorock® is a registered trademark of ROCKWOOL and is used under exclusive license by Hydrorock International B.V.