

Foul and Surface Water Drainage Report

3 Whalesmead Road, Bishopstoke, Eastleigh SO50 8HD

Planning Ref: F/23/94745

For

Regal Homes UK

Rev - P

Reference **C2802**

Date **29th September 2023**

Revision	Date of Issue	Comments	Prepared By	Checked By
P	29.09.2023	Initial Issue	LH	CS

Contents

1	INTRODUCTION	3
2	EXECUTIVE SUMMARY:	4
3	SITE GEOLOGY	4
4	EXISTING DRAINAGE	4
5	PROPOSED DRAINAGE STRATEGY	5
6	SUMMARY AND CONCLUSIONS.....	ERROR! BOOKMARK NOT DEFINED.
7	APPENDICES	7

1 Introduction

1.1.1 CGS Civils Ltd has been appointed to undertake a drainage strategy report for a proposed development at 3 Whalesmead Road, Bishopstoke, Eastleigh SO50 8HD

1.1.2 The purpose of this drainage strategy is to demonstrate how the development area can be satisfactorily drained without increasing flood risk onsite and elsewhere in order to clear Condition 4. The condition is in place on Decision Notice from 26th May 2023, with the planning reference: **F/23/94745**. The condition states:

No development shall start until a details surface water drainage plan has been submitted to and approved in writing by the Local Planning Authority. The sustainable drainage system shall be fully installed with the approved details.

1.1.3 The existing site consists of a private garden attached to the existing 3 Whalesmead Road. The proposed development will consist of the erection of 1 No. 3-bedroom bungalow with parking and amenity space. The proposed development is located as OS Grid Reference SU 47849 18531 and has the post code SO50 8HD

Fig 1. Site Location



2 Executive Summary:

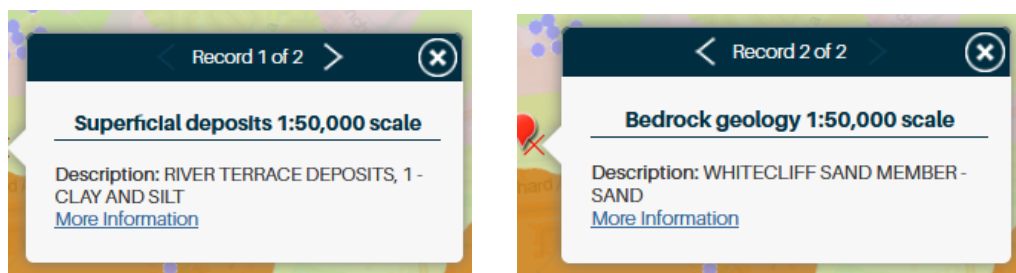
- 2.1.1 Surface Water will discharge into the local foul water sewer located within Whalesmead Road via a combined discharge. The surface water discharge rate is to be restricted to 1.0l/s via an orifice chamber and the network will make use of a geocellular attenuation tank in order to cater for the 1 in 100-year +45% storm.
- 2.1.2 Foul water will discharge into the local foul water sewer via a new connection into an existing foul water chamber on site. A pumping station is required to make this connection and a CCTV survey should be undertaken to confirm if any remedial works are required. The connection is subject to Southern Water approval under a Section 106 agreement.

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 Whitecliff Sand Member. The BGS website confirms the superficial deposits on site to be made up of River Terrace Deposits, which is comprised of Clay and Silt.
- 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 SU41NE104 (Located approx. 252m South west of the site) – Clay to a depth of 5.8mbgl followed by gravel

Fig 2. British Geological Survey



3.2 Geological Assessment

- 3.2.1 In order to follow the SuDS hierarchy, an infiltration test was carried out on site. The excavation of the trial pit confirmed the geology to be made up of solid blue clay with sand. The trial pit was dug to a depth of 1200mm and rapidly filled to a water level of 900mm. The water drained 100mm within the first 10 minutes then did not drain any further, resulting in a failed test.

Fig 3. Soakaway test photos



4 Existing Drainage

- 4.1.1 Preliminary site investigations uncovered an existing chamber located at the front of the proposed site. This chamber discharges into the existing foul water sewer within Whalesmead Road.

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	There is scope however, none has been included.
Discharge to Ground	No – Infiltration test on site failed.
Discharge to Watercourse	None nearby
Discharge to Surface Water Sewer	None nearby
Discharge to Other Sewer	Yes – restricted discharge to 1.0l/s into existing foul sewer.

5.2 Proposed Hydraulic Calculation Specifications:

Table 2. SuDS Hierarchy

Hydraulic Calculations Settings:	
Rainfall Methodology	FEH-22
Volumetric Run-off Coefficient Cv	0.75
CV Winter and Summer	0.75 / 0.84
Additional Storage (m ³ / ha)	20.0
Flow Control	0.725m Head @ 1l/s discharge
Attenuation Tank Design	Base Coefficient (m/hr): 0.00000
	Side Coefficient (m/hr): 0.00000
	Factor of Safety: 2
	Porosity: 95%
	Time to Half Empty (mins): 119

5.3 Surface Water Drainage

- 5.3.1 Based upon the failure of the infiltration test, and the lack of a surface water sewer nearby, it is proposed that the surface water runoff from the site is to discharge into an existing foul water sewer located within Whalesmead Road. The connection is to be made via an existing private foul water chamber located on site.
- 5.3.2 It is proposed that runoff from all hard paved and roof areas are to be collected into a positive drainage network before being discharged into the proposed foul water network at a restricted rate of 1.0l/s. The network will make use of an orifice flow control chamber to restrict the discharge rate and an attenuation tank in order to cater for the 1 in 100-year +45% storm. The runoff from the hard paved driveway is to be captured via channel drainage located at low points.
- 5.3.3 Hydraulic calculations have been carried out which can be found at Appendix C.

5.4 Foul water drainage

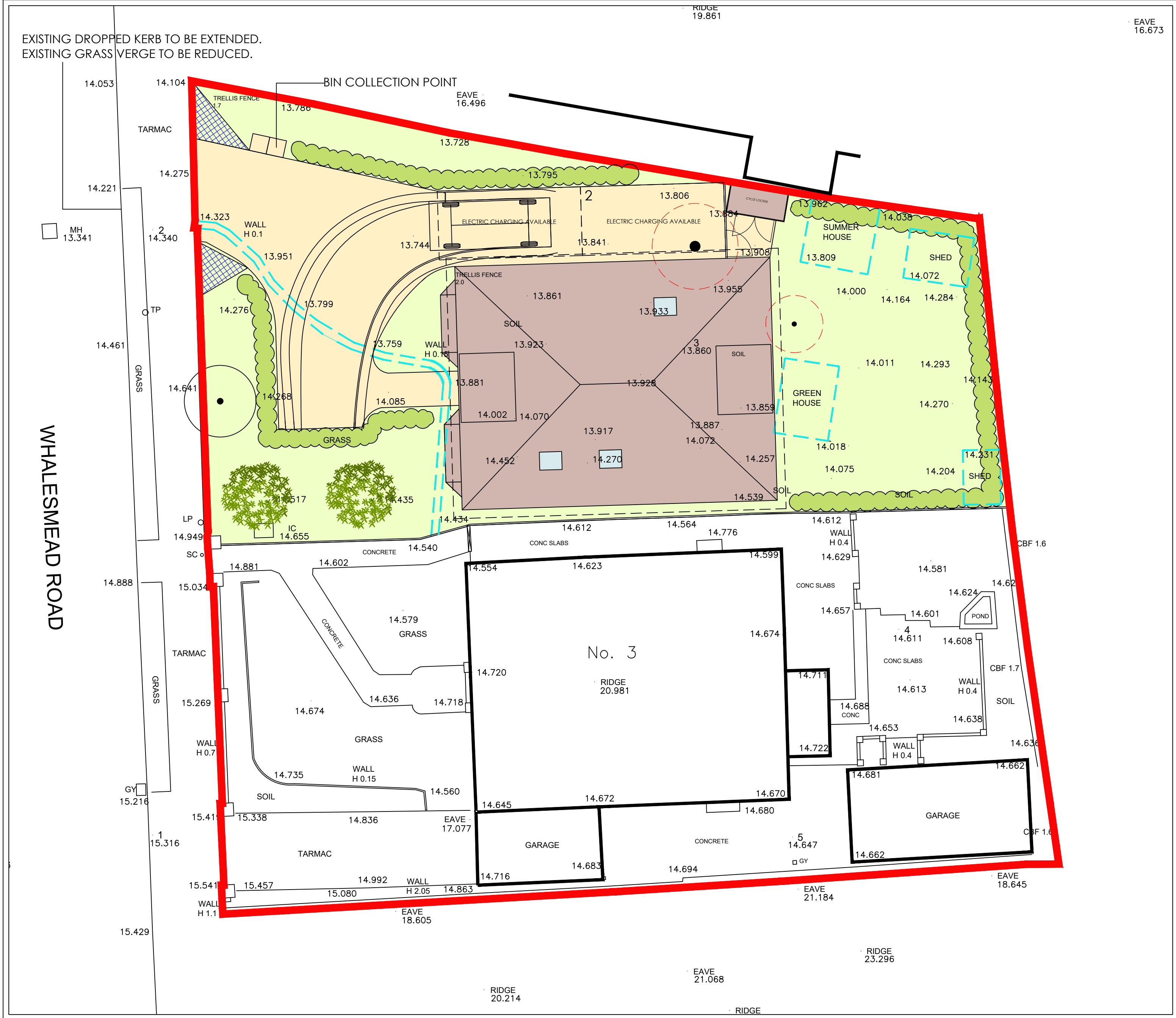
- 5.4.1 The foul water will discharge into the local foul water sewer via a proposed connection into an existing foul water chamber located on site. A pumping station will be required to make the connection due to the proposed levels on site.
- 5.4.2 A CCTV survey should be undertaken to confirm if remedial works are required.

6 Summary and Conclusions

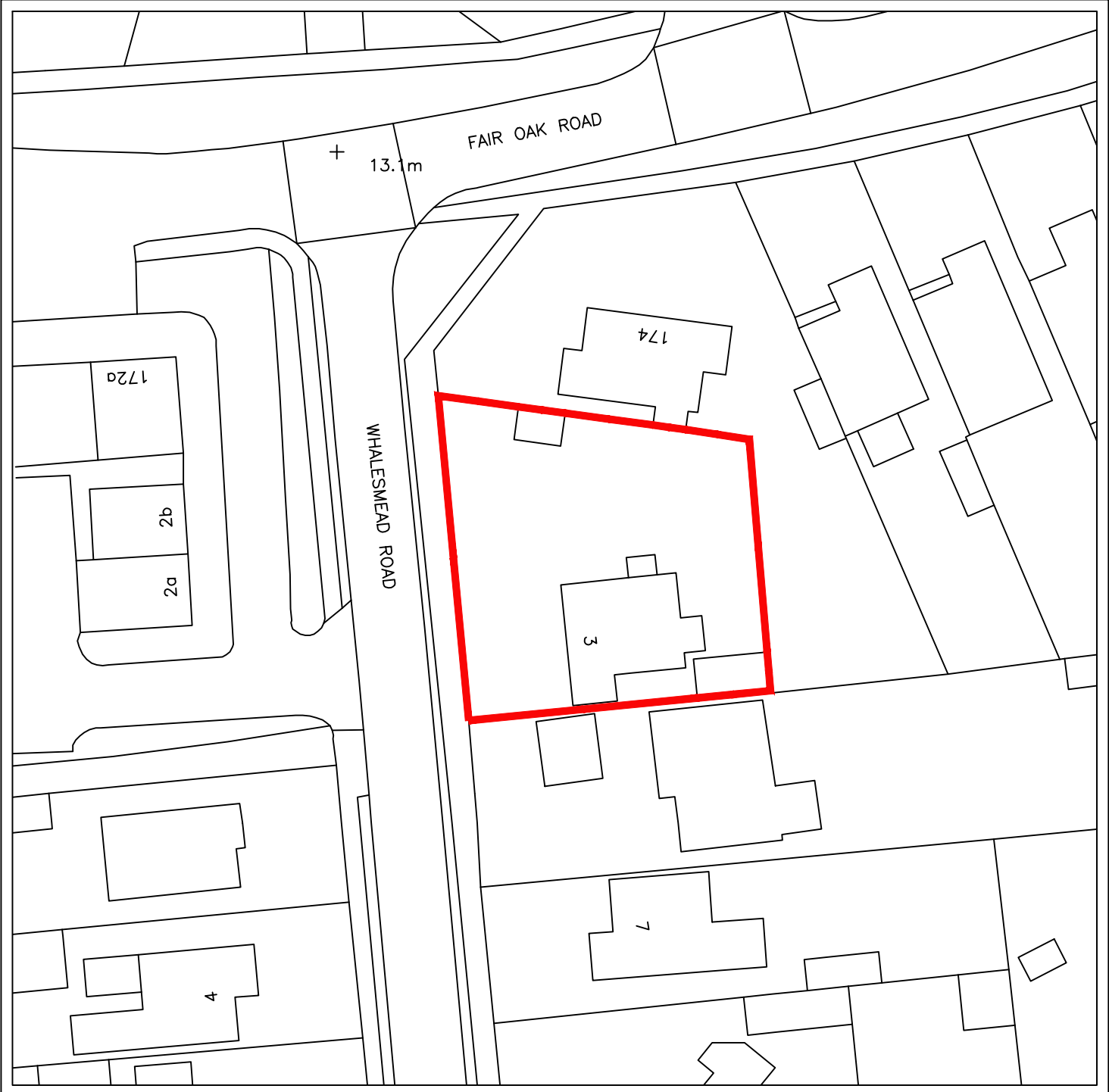
- 6.1.1 CGS Civils has been instructed by to produce a Drainage statement under National Planning Policy Framework (NPPF) to support the Planning Application **F/23/94745**: Construction of a 3-bedroom bungalow with parking and amenity space.
- 6.1.2 The Surface Water will discharge into the local foul water sewer located within Whalesmead Road via a combined discharge. The surface water discharge rate is to be restricted to 1.0l/s via an orifice chamber and the network will make use of a geocellular attenuation tank in order to cater for the 1 in 100-year +45% storm.
- 6.1.3 The Foul water will discharge into the local foul water sewer via a new connection into an existing foul water chamber on site. A pumping station is required to make this connection and a CCTV survey should be undertaken to confirm if any remedial works are required.
- 6.1.4 The discharge is subject to Southern Water approval under a Section 106 agreement.
- 6.1.5 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.

7 Appendices

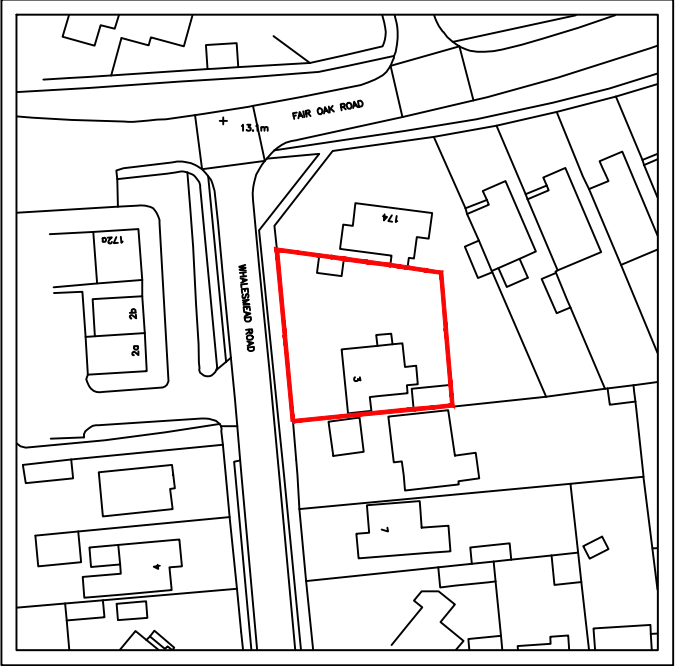
7.1 Appendix A – Site Plan



SITE PLAN
SCALE 1:100
BASED ON TOPO INFORMATION



BLOCK PLAN
SCALE 1:500
BASED ON O.S. INFORMATION
O.S. LICENCE NUMBER 100007080



LOCATION PLAN
SCALE 1:1250
BASED ON O.S. INFORMATION
O.S. LICENCE NUMBER 100007080

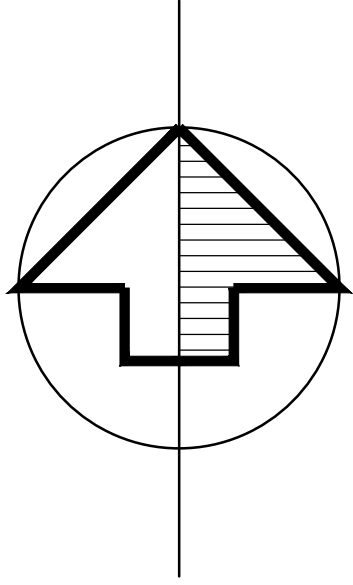


NOTES-PLANNING

1. The contents of this drawing are copyright.
2. Planning drawings are only to be used for planning purposes & no reliance on compliance with Building Regulations should be assumed.
3. Do not scale. Figured dimensions only to be used.
4. Contractors must verify all dimensions and report any discrepancies before putting work in hand or making any shop drawings.
5. All flat roofs to be fitted with a man safe system to satisfy CDM 2015 regulations unless written confirmation from Principle Designer/ Principle Contractor is provided to show alternative compliance has been sought and approved.
6. Star design to be independently checked by star fabricator for reg. compliance and sizing, prior to construction/ ordering. Dimensions to be checked before fabrication.
7. MacIntosh waterproofing specialist (or similar company with relevant PI insurance) to be instructed and detail all basement waterproofing designs. - ARC carry no responsibility or PI cover for basement designs in terms of waterproofing or structure in any way.
8. A design and risk assessment should form part of our drawing package. If you have not received this from us by post, email or collection please contact us for a copy before moving forward with the project.
9. We take no responsibility for the depicted site ownership boundary. Clients must notify us if they feel the our plans do not accurately depict their ownership or area of control for planning purposes.
10. We do not take responsibility for meeting minimum space as set out in Government technical housing standards - nationally described space standards document.
11. All Cladding & building attachments externally to be all A1 fire rated.
12. We do NOT take any responsibility and do not carry any PI cover in relation to any matters relating to fire safety. Part B building regulations, B7771 for fire or EWS1 and drawings in no way form a fire strategy. All design details relating to fire safety are shown for indicative purposes only and should be read in conjunction with the latest version of the Appointed Fire Consultant Fire Strategy Document/ Report. All information contained in such a report supersedes ARC drawings in all aspects. No assumption of any responsibility is accepted. If you are unaware who the appointed fire consultant is or don't have a copy of the latest version of the report please contact arc in writing immediately.
EWS1: an independent and an appropriately qualified and insured fire consultant/engineer should be appointed by the client/contractor to ensure the finished project is compliant. Some mortgage companies require EWS1's on buildings outside of the EWS1 standard criteria.
Part B & Fire Safety: An independent and appropriately qualified fire consultant should be instructed by the client/contractor at the earliest possible point in the design process to ensure compliance with Part B & Fire safety. Please note that subject to a fire consultants confirmation/input the following points may be required in some or all areas of the building: 1) Sprinkler systems (Domestic or commercial) 2) Mechanical smoke extraction 3) Fixed shut fire safety glass 4) plan changes in relation to fire safety could result in loss of usable floor area and potential requirement for additional planning applications, (this list is not exhaustive).

LEGEND

- SITE BOUNDARY
- TO BE DEMOLISHED
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO BE RETAINED
- INDICATIVE PLANTING



SITE AREA: 0.07 HECTARES / 0.17 ACRES			
3 BEDROOM CHALET BUNGALOW			
2 X PARKING SPACES			
2 X CYCLE SPACES			
PROPOSED ADDITIONAL GIA ON SITE @ 131.1 SQM			

B.	REVISED ROOF PLAN SHOWN	16.02.23	JA
A.	REVISED ROOF PLAN SHOWN	16.02.23	JA
No.	Revision.	date	by

PROPOSED DEVELOPMENT,
3 WHALESMEAD ROAD,
BISHOPSTOKE,
EASTLEIGH,
HAMPSHIRE,
SO50 8HE.

SITE, BLOCK AND LOCATION PLAN

scale	AS SHOWN @ A1	checked	
date	FEBRUARY 2023	drawn	JA
		A	B

9687 / 100

DESIGNERS RISK ASSESSMENT

Building Products and Construction Execution Hazards

The design team have highlighted unusual and significant risks only that may not be obvious to a competent contractor. They are to assist with risk reduction only and are not necessarily comprehensive. It is assumed that all works will be carried out by a competent contractor following good site management, site practice procedures, to an approved method statement (where appropriate) and in accordance with HSE guidance.

The proposed works are designed on a well established method of construction which can be carried out by a competent contractor. However, should the contractor find any area of concern he must inform the designer in order that appropriate action can be taken.

For significant hazards specific to this project see the following:

GENERAL NOTES:

- Principal Contractor to provide method statements for the safe working practice for: demolition, excavations, cutting of materials, support of adjacent structures, protecting personnel, neighbours & the public, working at height including crash bags & fall restraint systems.
- Principal Contractor to ensure Temporary Works Designer and Coordinator appointed for all propping works for structural alterations of existing building, including temporary guardrail and edge protection around voids and stairwells.
- This Designers Risk Assessment should be passed on to the Appointed Principal Designers and or Principal Contractor carrying out the next phase of works on this site.

INFORMATION

CDM - PRE-CONSTRUCTION INFO FROM CLIENT

CDM Information requested from client:
1) Topographical Survey

Outstanding CDM information remains as residual risk, please request ARC appendix C for full list requested.

DESIGN INFORMATION

Further design info to be provided at subsequent stages of design / building regulations process

CONSTRUCTION RISKS

WORKING AT HEIGHT

CONSTRUCTION ACCESS

LARGE / HEAVY GLAZING UNITS

FLAT ROOF ACCESS

Roof access for construction to be undertaken by specialist using specialist equipment. e.g. scaffolding, appropriately designed and installed man safe system by specialist designer.

GLAZING IN CLOSE PROXIMITY TO BOUNDARY

Self cleaning glass to be specified where possible

COMBUSTIBLE MATERIALS - FIRE RISK

Any combustible materials exposed in close proximity to a boundary are to be suitably protected to fire consultant requirement during construction and in use as per the "Pre Construction External Fire Spread Assessment". Works to be identified in the construction phase plan (Where EWS1 is required an appropriately qualified and insured consultant should be appointed to advise on external facade materials).

UNKNOWN UNDERGROUND SERVICES

Location and nature of all existing underground services to be ascertained and mitigation / plan of works to be devised by specialist prior to commencement.

MAINTENANCE RISKS

CHANGING LIGHT BULBS

No lighting or electrical fixtures or fittings to be positioned above or close to double height space.

or

lighting or electrical fixture above double height space to be maintained by specialist contractor using safe method e.g. scaffolding or lowering light fitting.

CLEANING WINDOWS

Windows and balcony glass above ground floor level to be cleaned from ground level by specialist using specialist equipment. e.g. long reach and clean systems.

CLEANING GUTTERS

Gutters to be cleaned from ground level by specialist using specialist equipment. e.g. long reach and clean systems where possible. Parapets and valleys to be accessed when required via scaffolding - to be assembled by a specialist.

IN - USE RISKS

GAS PRESENCE

Potential for presence of Gas (various types) to be investigated. If present, specialist to provide design to negate.

DEMOLITION RISKS

REFURBISHMENT AND DEMOLITION SURVEY

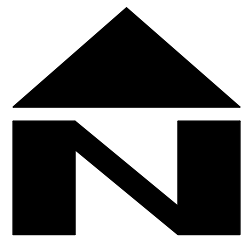
Hazardous material survey to be undertaken prior to any on site works commencing - including stripping out.

TREE REMOVAL

Tree removal/ trimming works to be undertaken prior to any on building works commencing by approved arboricultural surgeon. Waste to be removed from site responsibly.

7.2 **Appendix B – Drainage Layout**



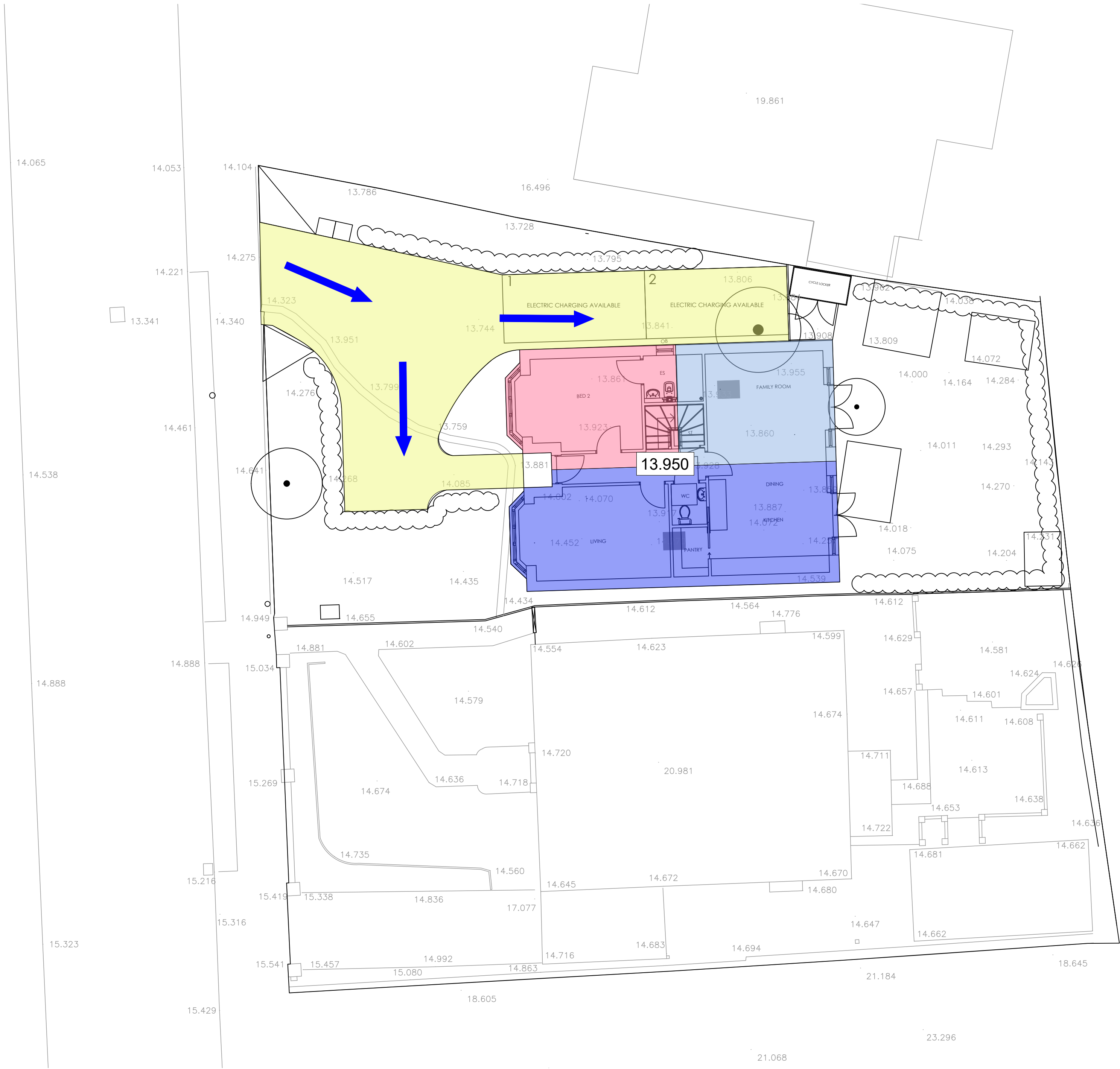


CONTRIBUTING AREA PLAN LEGEND

- Area Served by S3 - 50m² or 0.005 Ha
- Area Served by S1 - 24m² or 0.002 Ha
- Area served by S2 - 24m² or 0.002 Ha
- Area served by S1 and S2 - 73m² or 0.007 Ha

Blue arrows show route of exceedance flows from projected points of emergence towards direction of fall.

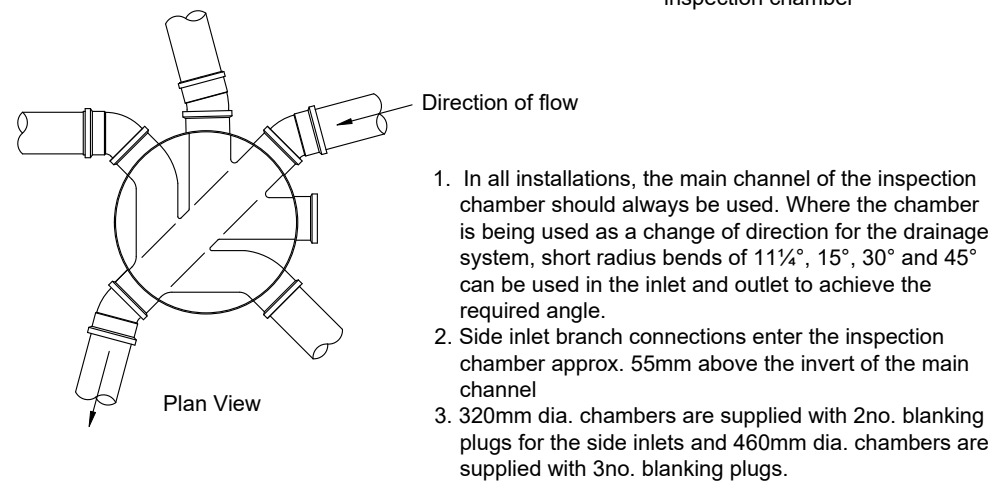
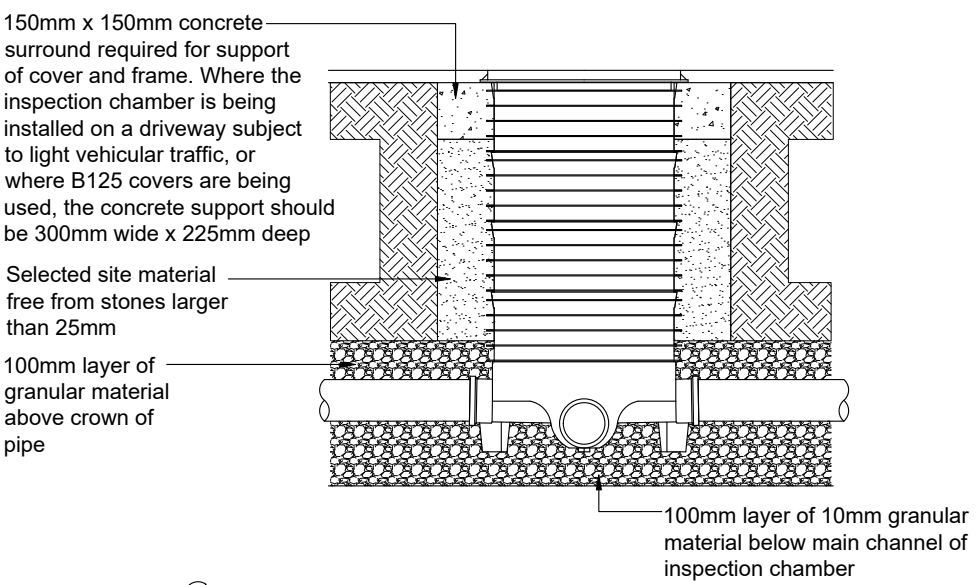
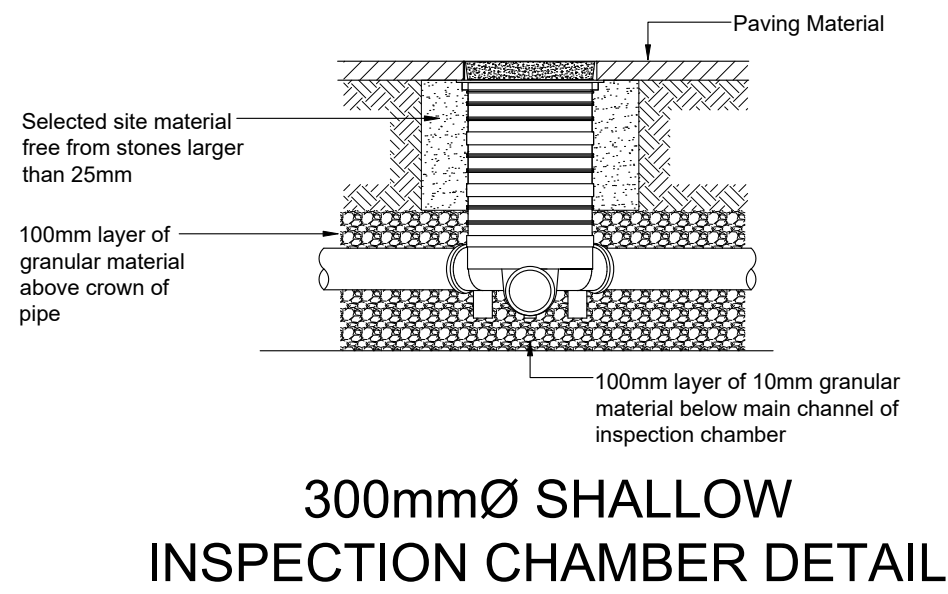
All structures designed to accommodate below ground the critical 1 in 100 year storm event plus 45% exceedance would only occur in storms of greater intensity than this.



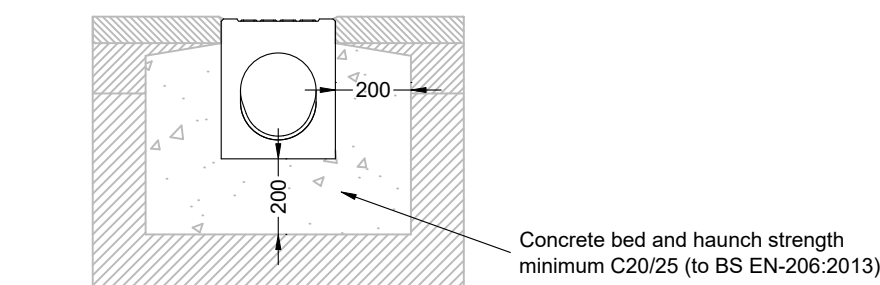
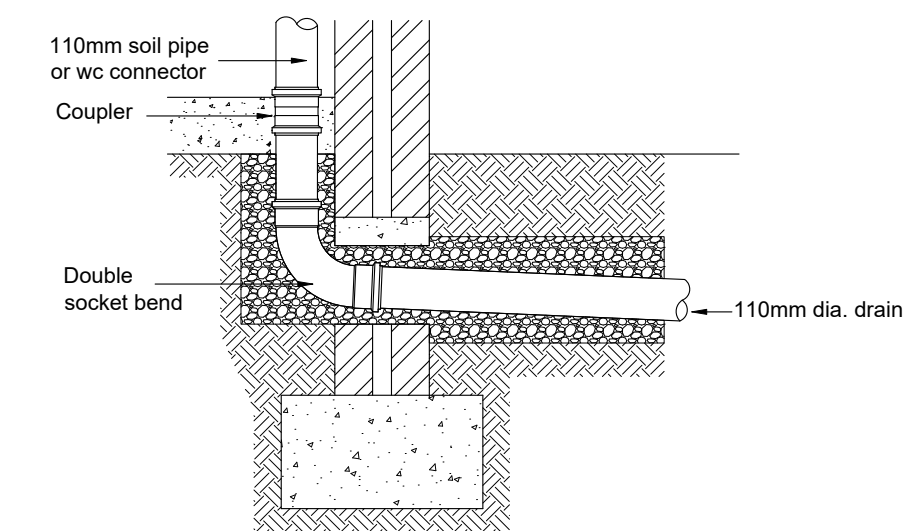
Prefixed to drawing numbers shall signify the following:-	
PL = PLANNING	Shall not be used for contract or construction purposes
P = PRELIMINARY	Shall not be used for contract or construction purposes
T = TENDER	Shall not be used for construction purposes
C = CONSTRUCTION	These are the <u>only</u> drawings that shall be used for construction purposes
R = RECORD	Record of actual completed work

P-	29.09.23	PRELIMINARY ISSUE	LH	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP
cgs civils Consulting Civil Engineers					
CLIENT		REGAL HOMES UK			
ARCHITECT		ARC ARCHITECTURE LTD			
JOB TITLE		3 WHALESMEAD ROAD EASTLEIGH			
DRAWING TITLE		IMPERMEABLE AREAS & OVERLAND FLOW ROUTE			
DRAWN	ENGINEER	CHECKED	APPROVED		
LH	C SLADE	CS	CS		
DATE		SCALE @ A1			
SEPT 2023		1:100			
JOB No.	STATUS	DRAWING No.	REV.		
C2802	PL	201	PL-		

FOR PLANNING ONLY

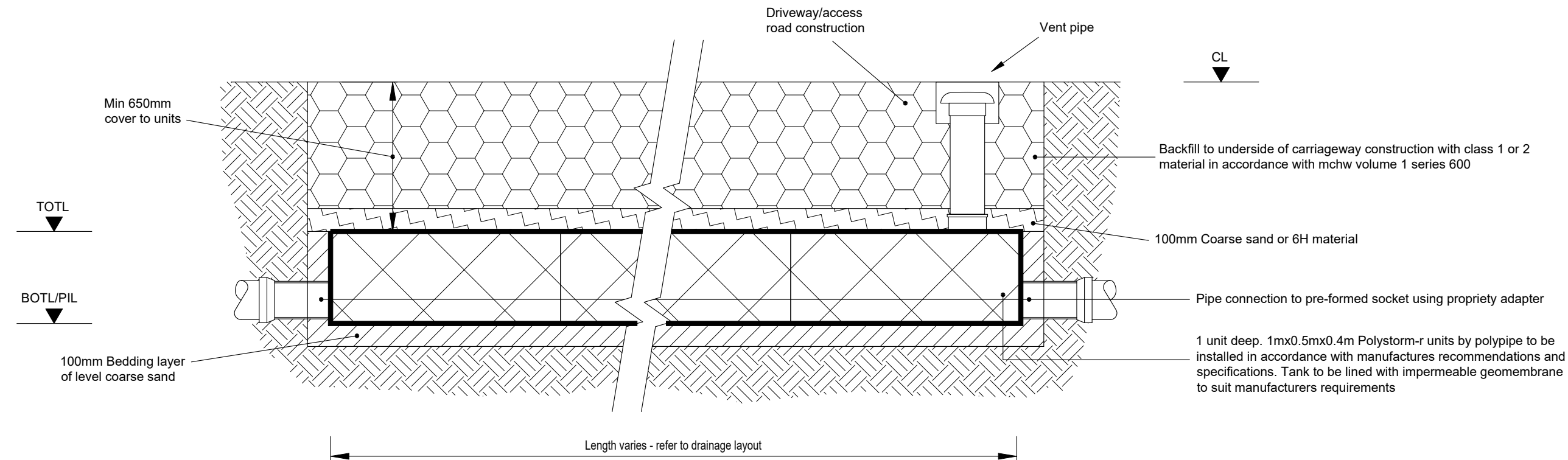


460mmØ INSPECTION
CHAMBER DETAIL



Aco Monodrain Construction
Detail in Asphalt

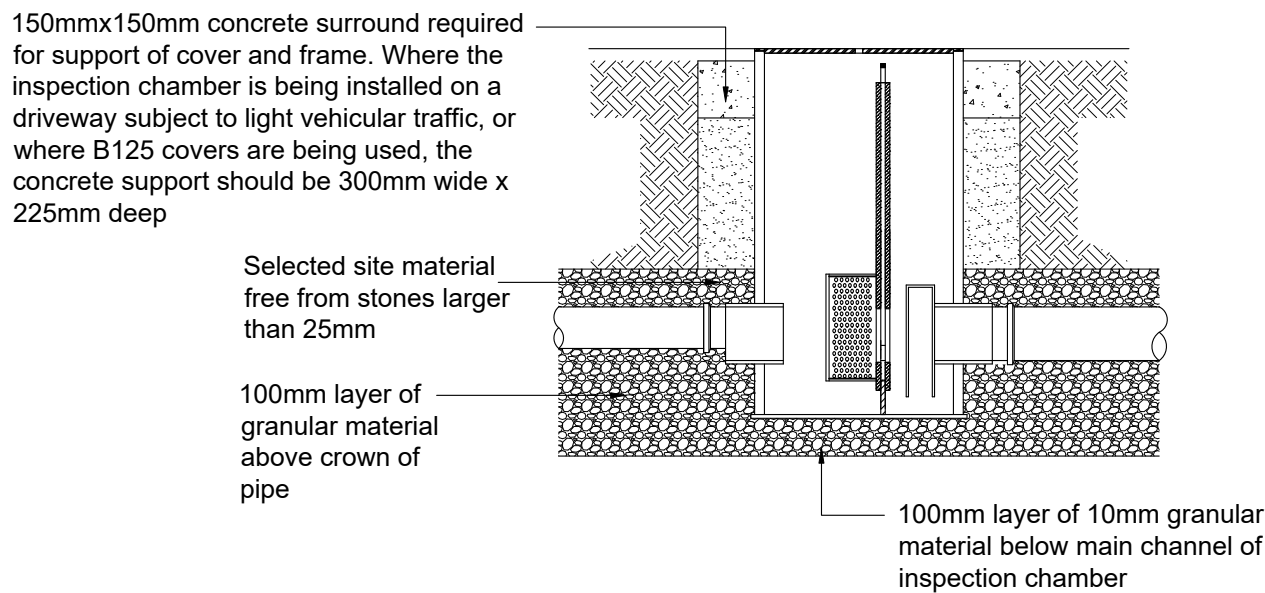
(To be read in conjunction with Aco installation specification)



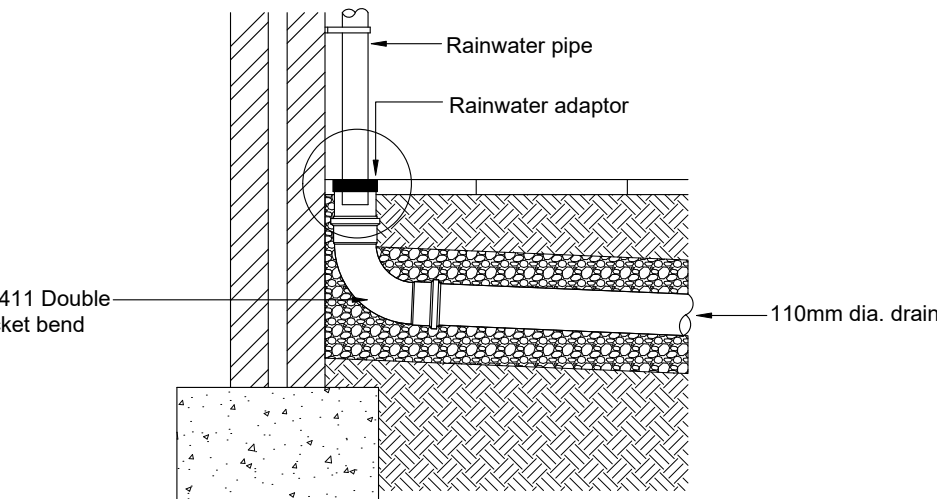
Attenuation tank using polystorm-r geomodular units
trafficked areas

0.4m deep

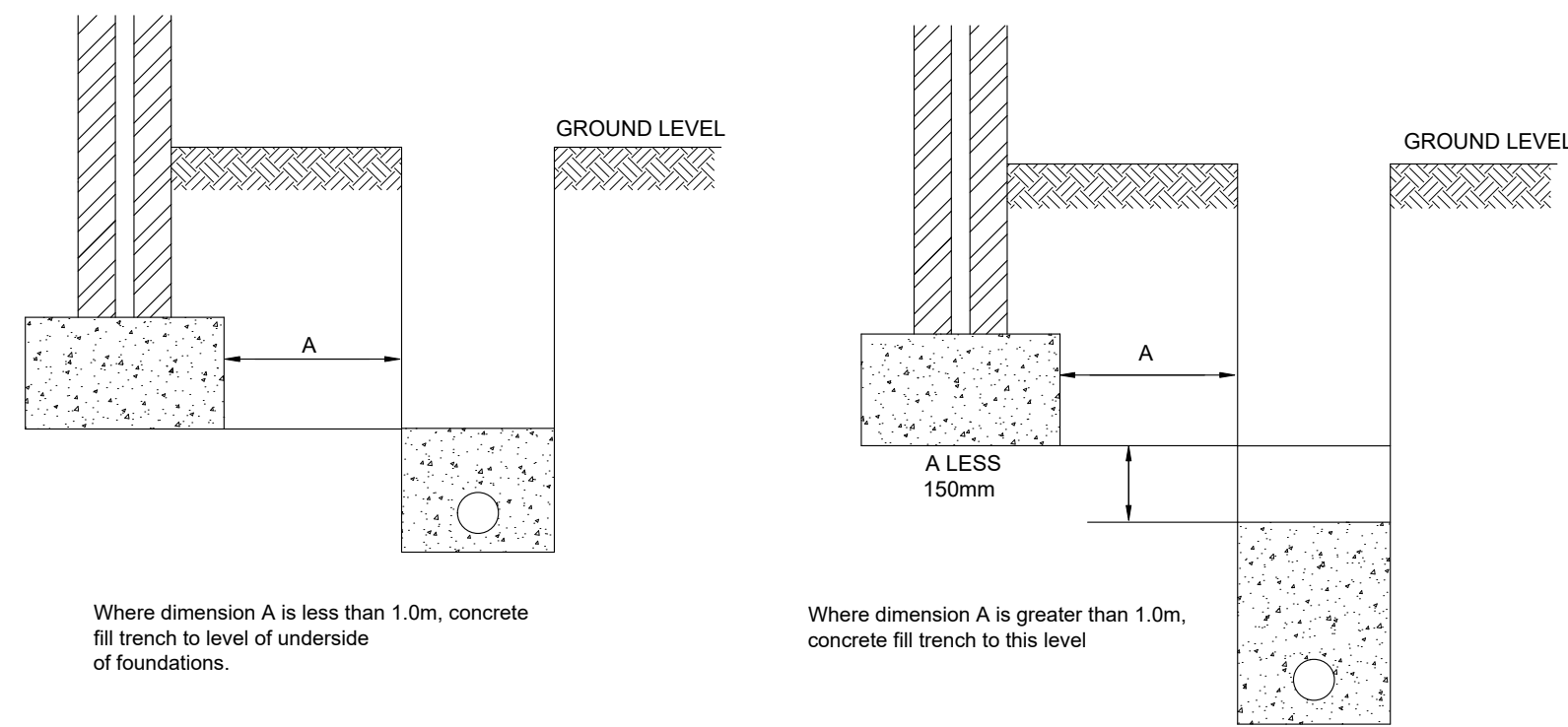
All storage tank drainage works shall be carried out in accordance with the specifications, method statements and recommendations of Polypipe



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

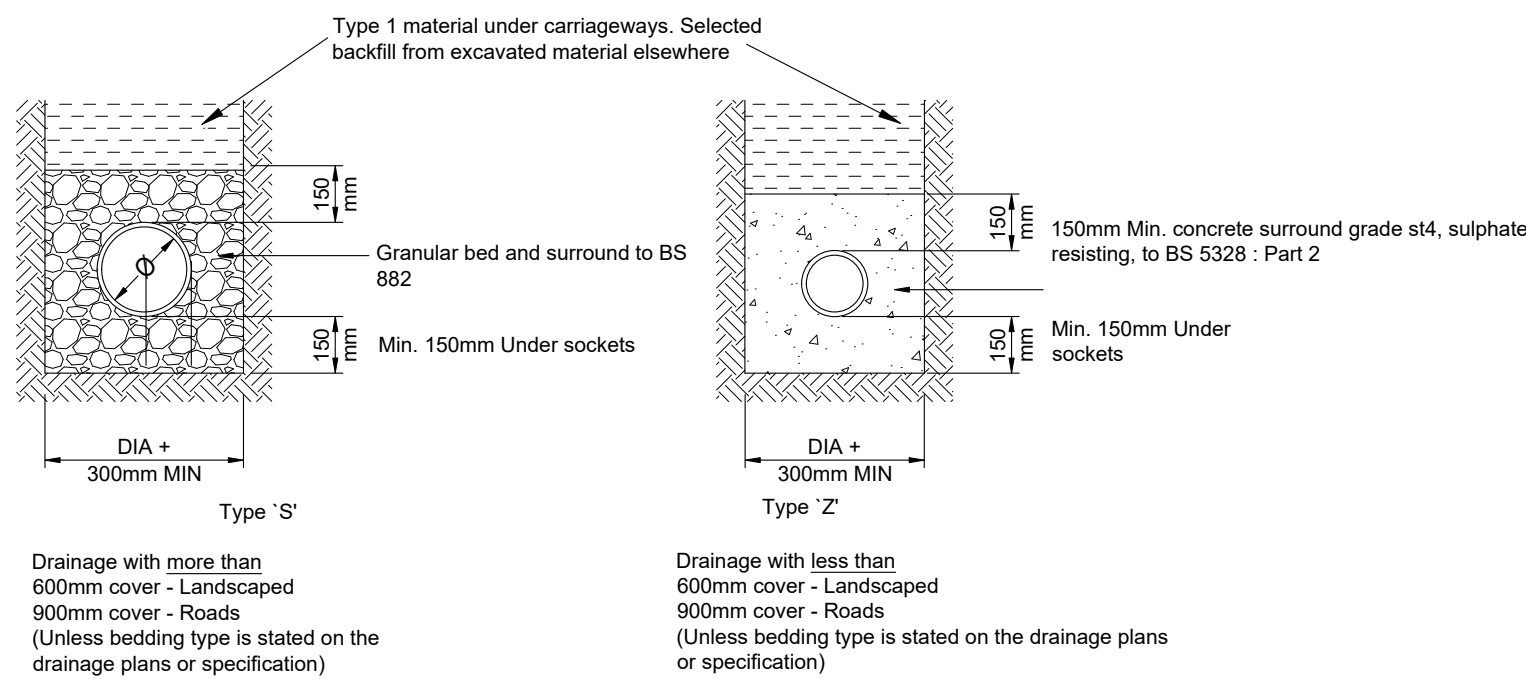


Rainwater pipe connection



Pipes near buildings

Pipes near buildings



Prefix to drawing numbers shall signify the following:-	
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P-	29.09.23	PRELIMINARY ISSUE	LH	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP

 Consulting Civil Engineers				
CLIENT REGAL HOMES UK				
ARCHITECT ARC ARCHITECTURE LTD				
JOB TITLE 3 WHALESMEAD ROAD EASTLEIGH				
DRAWING TITLE CONSTRUCTION DETAILS				
DRAWN LH	ENGINEER C SLADE	CHECKED CS	APPROVED CS	
DATE SEPT 2023		SCALE @ A1 1:20		
JOB No. C2802	STATUS PL	DRAWING No. 301		REV. PL

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	0.750	Preferred Cover Depth (m)	0.350
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.005	5.00	13.800	300	81.510	63.578	0.450
S2	0.006	5.00	13.800	500	69.749	63.222	0.950
S3	0.005	5.00	13.800	450	70.006	54.752	0.600
F2			13.800	450	68.732	63.201	0.960

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	S1	S2	11.766	0.600	13.350	12.850	0.500	23.5	100	5.12	50.0
1.001	S3	S2	8.474	0.600	13.200	12.850	0.350	24.2	100	5.09	50.0
2.000	S2	F2	1.017	0.600	12.850	12.840	0.010	101.7	100	5.14	50.0

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	1.598	12.5	0.7	0.350	0.850	0.005	0.0	16	0.852
1.001	1.575	12.4	0.7	0.500	0.850	0.005	0.0	16	0.840
2.000	0.762	6.0	2.2	0.850	0.860	0.016	0.0	42	0.702

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	11.766	23.5	100	Circular	13.800	13.350	0.350	13.800	12.850	0.850
1.001	8.474	24.2	100	Circular	13.800	13.200	0.500	13.800	12.850	0.850
2.000	1.017	101.7	100	Circular	13.800	12.850	0.850	13.800	12.840	0.860

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	300	Manhole	Adoptable	S2	500	Manhole	Adoptable
1.001	S3	450	Manhole	Adoptable	S2	500	Manhole	Adoptable
2.000	S2	500	Manhole	Adoptable	F2	450	Manhole	Adoptable



CGS Civils Ltd
Richard Cobden House
Lion Street
Chichester

File: C2802 Flow.pfd
Network: Storm Network
Luke Honeywill
28/09/2023

Page 2
C2802
3 Whalesmead Rd
Eastleigh

Node S2 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.725	Discharge Coefficient	0.650
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	12.850	Diameter (m)	0.022		

Node S2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	12.850
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	119

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	10.5	0.0	0.400	10.5	0.0	0.401	0.0	0.0

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 summer	S1	11	13.366	0.016	0.7	0.0047	0.0000	OK
60 minute winter	S2	46	12.961	0.111	1.3	1.1406	0.0000	SURCHARGED
15 minute summer	S3	10	13.216	0.016	0.7	0.0053	0.0000	OK
15 minute summer	F2	1	12.840	0.000	0.3	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 summer	S1	1.000	S2	0.7	0.725	0.056	0.0383	1.9
60 minute winter	S2	Orifice	F2	0.3				
15 minute summer	S3	1.001	S2	0.7	0.727	0.057	0.0276	

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
15 minute winter	S1	10	13.373	0.023	1.4	0.0066	0.0000	OK
60 minute winter	S2	50	13.065	0.215	2.3	2.2109	0.0000	SURCHARGED
15 minute winter	S3	10	13.223	0.023	1.4	0.0074	0.0000	OK
15 minute summer	F2	1	12.840	0.000	0.4	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	S1	1.000	S2	1.4	0.774	0.110	0.0535	
60 minute winter	S2	Orifice	F2	0.5				3.3
15 minute winter	S3	1.001	S2	1.4	0.772	0.112	0.0386	

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
15 minute winter	S1	10	13.376	0.026	1.8	0.0075	0.0000	OK
60 minute winter	S2	58	13.140	0.290	2.9	2.9858	0.0000	SURCHARGED
15 minute winter	S3	10	13.226	0.026	1.8	0.0084	0.0000	OK
15 minute summer	F2	1	12.840	0.000	0.5	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	S1	1.000	S2	1.8	0.822	0.142	0.0553	
60 minute winter	S2	Orifice	F2	0.6				4.4
15 minute winter	S3	1.001	S2	1.8	0.823	0.144	0.0399	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

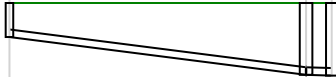
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	S1	51	13.775	0.425	1.7	0.1244	0.0000	FLOOD RISK
60 minute winter	S2	51	13.774	0.924	5.5	4.2935	0.0000	FLOOD RISK
60 minute winter	S3	51	13.775	0.575	2.3	0.1873	0.0000	FLOOD RISK
15 minute summer	F2	1	12.840	0.000	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)
60 minute winter	S1	1.000	S2	1.7	0.729	0.135	0.0921	
60 minute winter	S2	Orifice	F2	1.0				7.9
60 minute winter	S3	1.001	S2	1.7	0.730	0.137	0.0663	



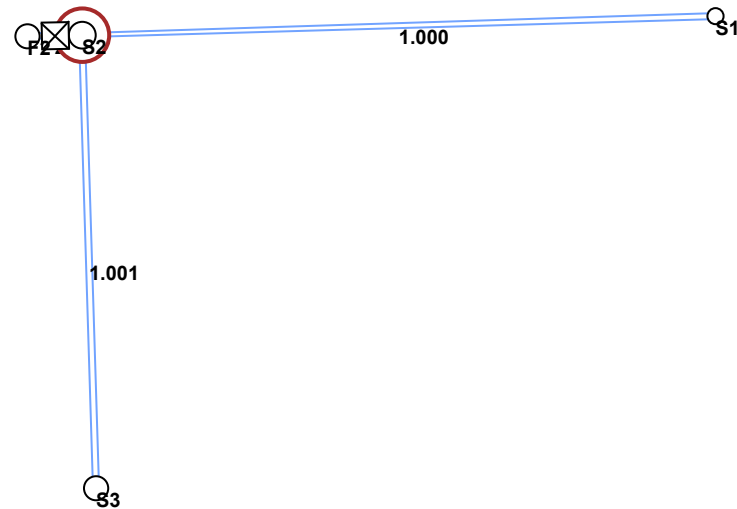
CGS Civils Ltd
Richard Cobden House
Lion Street
Chichester

File: C2802 Flow.pfd
Network: Storm Network
Luke Honeywill
28/09/2023

Page 1
C2802
3 Whalesmead Rd
Eastleigh

Node Name	S1	S2F2
A4 drawing Hor Scale 300 Ver Scale 100 Datum (m) 8.000		
Link Name	1.000	2.0
Section Type	100mm	10
Slope (1:X)	23.5	10
Cover Level (m)	13.800	13.800 13.800
Invert Level (m)	13.350	12.850 12.850 12.850
Length (m)	11.766	1.0

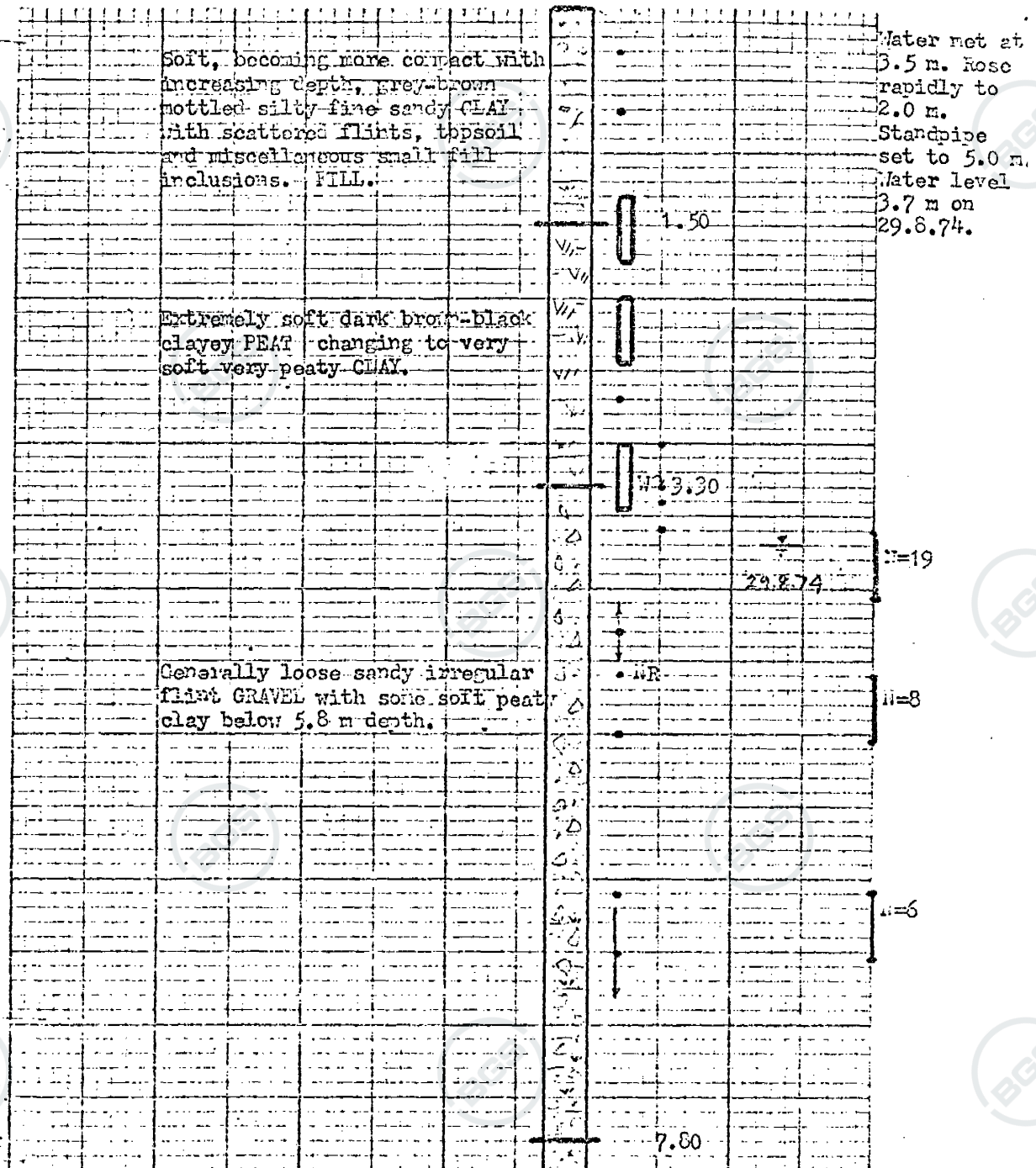
Node Name	S3	S2
A4 drawing Hor Scale 300 Ver Scale 100 Datum (m) 8.000		
Link Name	1.001	
Section Type	100mm	
Slope (1:X)	24.2	
Cover Level (m)	13.800	13.800
Invert Level (m)	13.200	12.850
Length (m)	8.474	



7.4 **Appendix D – Borehole Logs**

SITE EASTLEIGH *nearby* SU 41 NE/104 4862 1838 FIG. 1f

BOREHOLE 3 DIAMETER 200 mm DEPTH 16.7 m DATE 27-28.8.74



100mm dia. core sample

• disturbed sample

N blows/ft in standard penetration test

NR ... non-recovery of sample

•W water sample

Scale: 1 in for 1 m

SITE EASTLEIGH

SU41NE104

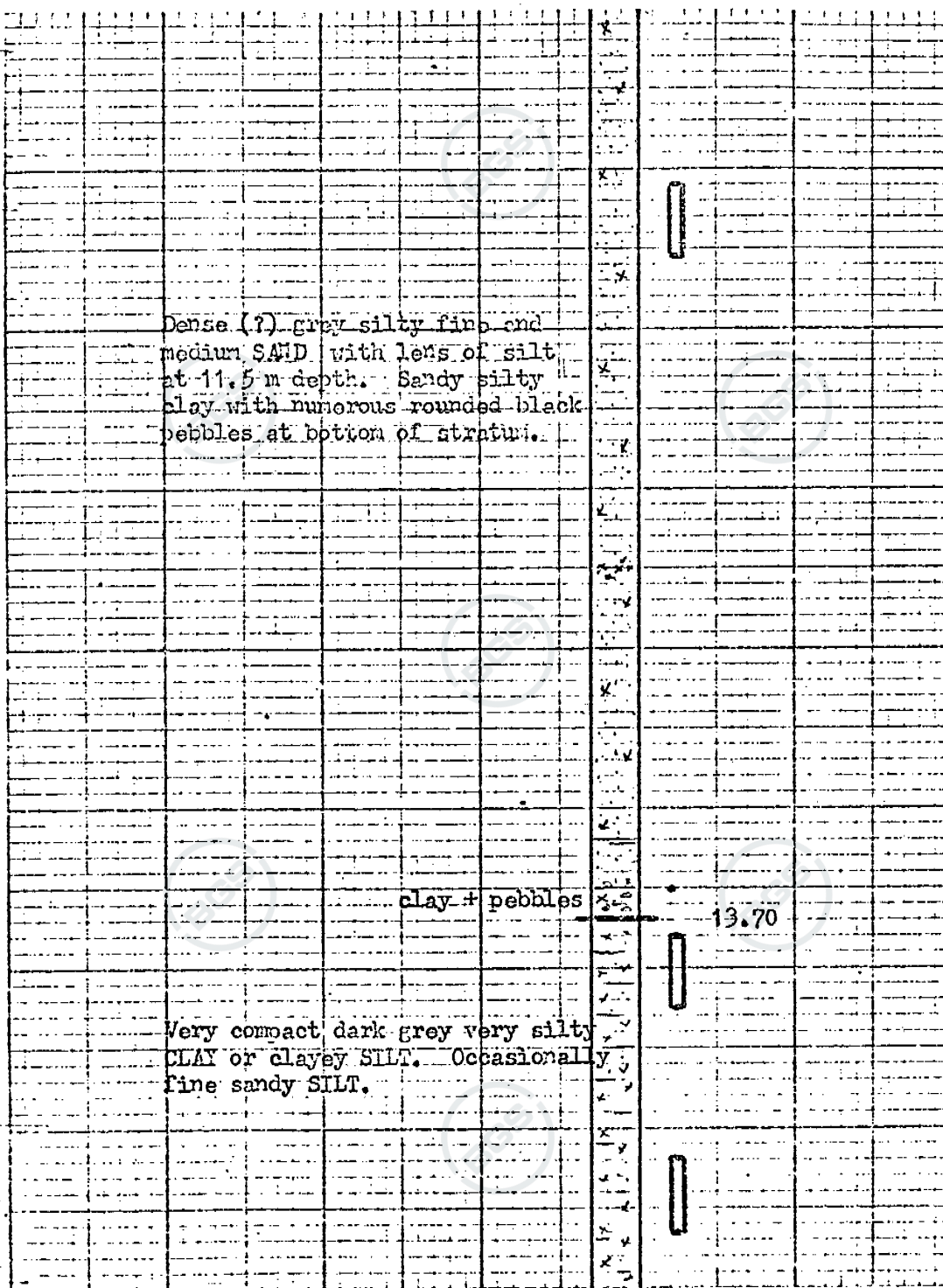
FIG. 1E

BOREHOLE 3 (cont.)

DIAMETER 200 mm

DEPTH 16.7 m

DATE 27-28.8.74



100 mm dia. core sample

• disturbed sample

1 N blows/ft in standard penetration test

NR ... non-recovery of sample

•W water sample

Scale: 1 in for 1 m

SITE EASTLEIGH

SU41NE104

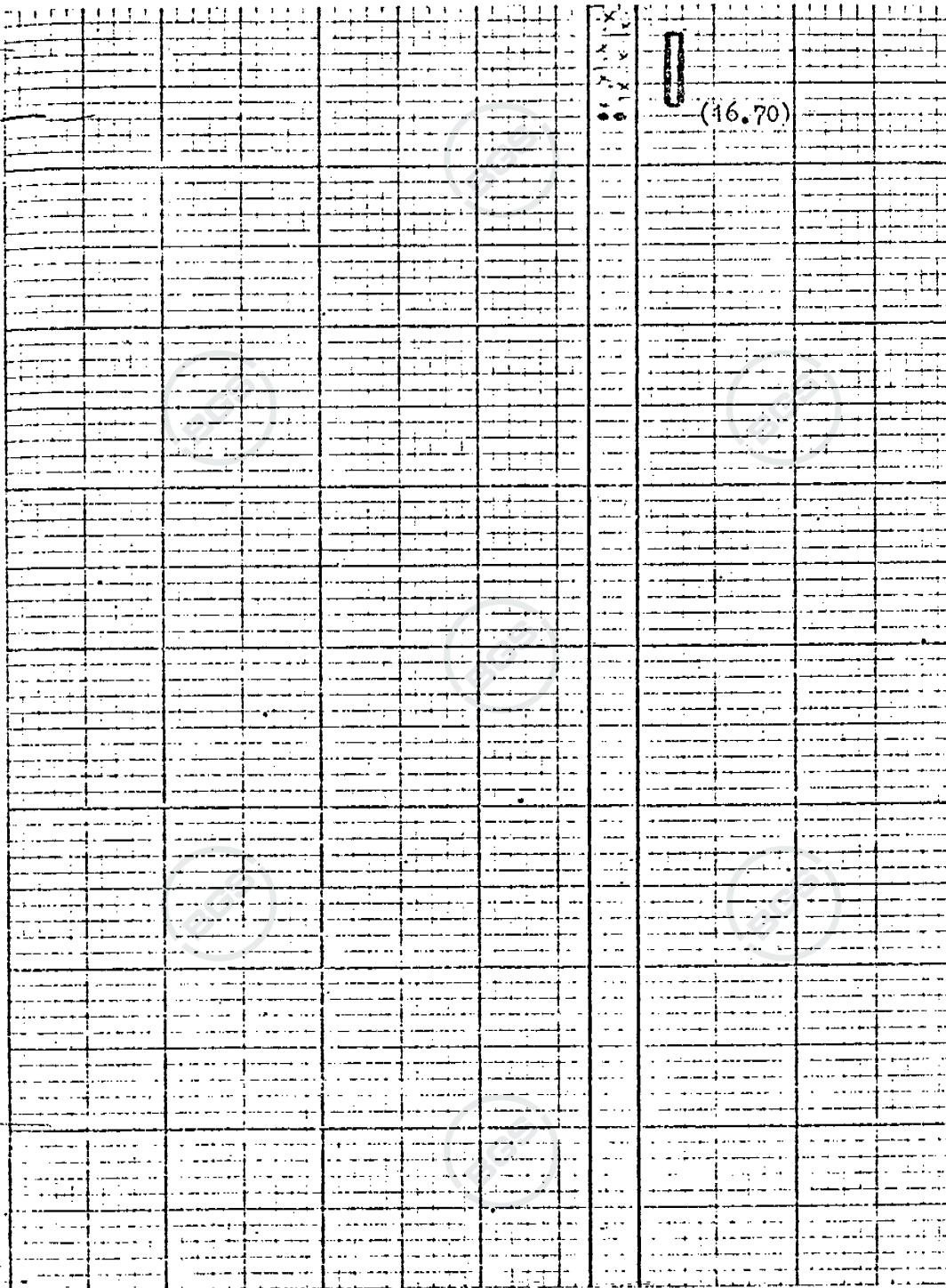
FIG. 1h

BOREHOLE 3 (cont.)

DIAMETER 200 mm

DEPTH 16.7 m

DATE 27-28.8.74



100 mm dia. core sample

• disturbed sample

N blows/ft in standard penetration test

NR ... non-recovery of sample

•W water sample

Scale: 1 in for 1 m

7.5 **Appendix E – Maintenance Schedule**

Maintenance Schedule

3 Whalesmead Road, Bishopstoke, Eastleigh SO50 8HD

Planning Ref: F/23/94745

For

Regal Homes UK

Rev - P

Reference **C2802**

Date **29th September 2023**

Revision	Date of Issue	Comments	Prepared By	Checked By
P	29.09.2023	Initial Issue	LH	CS

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 3 Whalesmead Road, Eastleigh

- 1.2.1 As listed above, in section 5.1.2, the SuDS features used on site will be **Attenuation Tank**
- 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 SuDS Drainage Maintenance Specification

1.3.1 Attenuation Tank

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

Table 21.3 Operation and maintenance requirements for attenuation storage tanks		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae, or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from per-treatment structures and/or internal forebays	Annually, or as required
Remedial Actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents, and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

1.4 General Drainage Maintenance Specification

1.4.1 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 allow 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
Inspection 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

1.4.2 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