

Technical Note - Discharge of Planning Conditions v1.0



Project	Chalcott, Manchester Road, Netley
Project Number	23194

By Stuart Magowan IEng MICE

Date 7 December 2022

1 Introduction

- 1.1 This Technical Note has been produced on behalf of Mr and Mrs Wilkinson in support of the Discharge of Conditions Application for the Discharge of Conditions 9 and 10 of the appeal decision APP/W1715/W/20/3265379. The proposed development is for the construction of one residential dwelling with associated access and parking on land at Chalcott, Manchester Road, Netley, Southampton.
- 1.2 This Technical Note is to be read in conjunction with all planning, architectural and other reports that accompany the Planning Application for the proposed development.

2 Conditions 9 and 10 of Appeal Decision APP/W1715/W/20/3265379

- 2.1 Condition 9 states:

'The development hereby approved shall not commence until details for the sustainable disposal of surface water and the disposal of foul drainage from the development hereby permitted have been submitted to and approved in writing by the Local Planning Authority. The development shall be undertaken in accordance with the approved details.'

- 2.2 Condition 10 states: *'The development hereby approved shall not commence until a scheme of work detailing the extent and type of piling, the foundations design including water diversion system, the slab design, the voided subbase design and the garden decking design has been submitted to and approved in writing by the Local Planning Authority. The development shall be undertaken in accordance with the approved details.'*



3 Summary of Surface Water and Foul Water Design for Discharge of Condition 9 and Voided Subbase Design in support of Discharge of Condition 10

3.1 Design Criteria

- 3.1.1 The Non Technical Standards for SuDS dated March 2015 are intended to be used in conjunction with the National Planning Policy Framework.
- 3.1.2 **Non Statutory Standard S1** states that *'Where the drainage system discharges to a surface water body that can accommodate uncontrolled surface water discharges without any impact on flood risk from that surface water body (e.g. the sea or a large estuary) the peak flow control standards and volume control technical standards need not apply.'*
- 3.1.3 **Non Statutory Standard S7** states that *'The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30 year rainfall event.'*
- 3.1.4 CIRIA report C753 The SuDS Manual-v6 provides guidance on surface water drainage. The aim for surface water runoff is to match greenfield runoff rates and volumes where reasonably achievable.
- 3.1.5 For surface water discharge, the drainage hierarchy notes the following list of drainage options in order of preference:
1. Infiltration to ground
 2. Discharge to a watercourse
 3. Discharge to a surface water sewer
 4. Discharge to a foul water sewer
- 3.1.6 In accordance with the Drainage Hierarchy preference the surface water drainage strategy will be based on infiltration to ground. On this site there is a further requirement to protect the root protection areas and ensure suitable infiltration within the root protection areas, which cover most of the site, and to ensure that excavation within the root protection zones are kept to a minimum.
- 3.1.7 Southampton Water, a tidal estuary connected to the Solent and English Channel is immediately to the west of the western site boundary and provides a suitable body of water that can accommodate uncontrolled surface water drawing without any impact on flood risk. Taking account of the non technical statutory standard S1 noted above there is no requirement to provide a restricted discharge or store surface water on site. There is however a requirement to provide adequate surface water to the existing ground to

mimic the existing surface water rainfall to ground on the site and maintain sufficient water to the existing tree roots.

3.2 Existing Drainage

- 3.2.1 The topographical site survey identifies a surface water and foul water manhole serving the existing property. Both surface and foul water are currently discharged in an unrestricted manner to the onsite foul drainage system.
- 3.2.2 This system is formed of 100mm pipework at a depth of approximately 700mm below ground level and aligned beneath the existing path to Manchester Road. It discharges to the public foul sewer located 2.2m below ground level at manhole no. 4403 beneath Manchester Road to the north of the site.
- 3.2.3 A copy of Southern Water sewer records is included within the Application Pack.

3.3 Site Investigation, Geology and Groundwater

3.3.1 General Site Ground Conditions

- 3.3.1.1 British Geological Survey maps and borehole information confirm that the site is within an area underlain by gravels and sandy clay. Groundwater has not been recorded within the local boreholes which extend to a depth of 5.4m below ground level.
- 3.3.1.2 The online “Magic Map” available from Defra confirms that the site is located above a minor aquifer classified as having a high vulnerability.

3.4 Detailed Surface Water Drainage Design

3.4.1 Overview

- 3.4.2 The proposed surface water drainage design will incorporate a voided stone drainage blanket system below the building, hardstanding and lawn at the rear of the building allowing a discharge to ground across the site with an overland surface water exceedance flow route to the beach at the western site boundary.
- 3.4.3 Surface water collected from the roof and the driveway will be discharged to the voided stone using fully perforated 100mm surface water pipes to allow the rainwater to filter through the voided stone prior to infiltrating to ground.
- 3.4.4 Given the extent of the root protection no soakage testing has been undertaken to minimise excavation into the ground. Calculations have therefore been undertaken using a conservative permeability rate for sandy clay substrata of 5×10^{-6} m/s. The rate assumed is conservative for the soil type and should the design be exceeded then surface water will follow the exceedance route directly to Southampton Water in accordance with Standard S1 of the Non Technical Standards for SuDS.

3.4.5 Modelling Criteria

3.4.5.1 The Flood Estimation Handbook (FEH-13) rainfall methodology data has been used within the calculations.

3.4.5.2 Runoff Coefficient Values (CV) of 0.9 has been used for summer and winter storms within the analysis.

3.4.5.3 A Factor of Safety of 1.5 has been applied to all calculations.

3.4.6 Impermeable Areas

3.4.6.1 The total drained area of the site is 153m².

3.4.6.2 A copy of drawing 201 Site Layout – Drainage Layout and Details which also notes the drained areas has been included within the Application Pack.

3.5 Surface Water Drainage System

3.5.1 Surface water from the residential roofs and parking bays will discharge via 100mm diameter fully perforated pipes into the permeable stone beneath the building, hardstanding and an area of the rear garden. The building is proposed to be piled to minimise the impact on the root protection area and will not be subject to groundwater impact or affected by the discharge of surface water to the voided stone drainage blanket.

3.5.2 The voided stone drainage blanket system has been modelled up to the 100 year plus 45% climate change event.

3.5.3 The calculations confirm that a 150mm depth of voided stone will provide sufficient storage and attenuation beneath the building, hardstanding and garden area.

3.5.4 The proposed drainage layout and drainage construction details are included within the Application Pack:

3.5.5 A copy of the Causeway Flow calculations for each of the surface water system has been included within the Application Pack.

3.6 Foul Water System

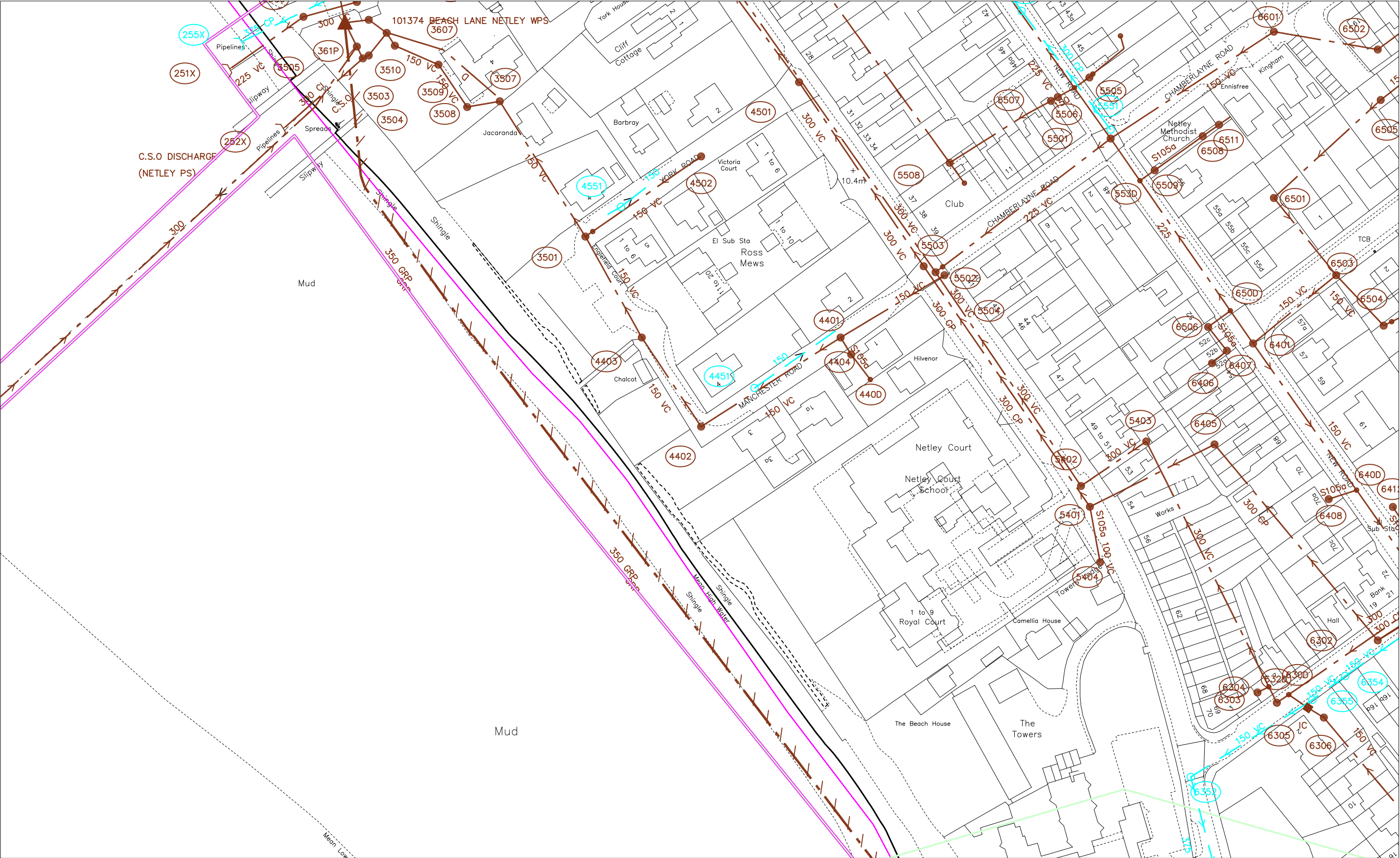
3.6.1 Foul water from the proposed dwelling will be suspended below the floor slab above existing ground levels and connect to a new brick built manhole located on the existing foul sewer line within the site boundary.

3.6.2 The existing sewer is 100m in diameter and approximately 700mm in depth, to minimise any disruption to the root protection area the new manhole will be brick built to allow the new connections to be made at high level and backdrop into the new chamber.

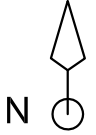
3.6.3 The foul water proposals are included on drawing 201 Site Layout – Drainage Layout and Details which is included within the Application Pack.

SEWER RECORDS PAGE 1 OF 2

108612



108324

445202	O.S. REF. SU4508SW	Drawn by: rohandas	The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. WARNING: BAC pipes are constructed of Bonded Asbestos Cement WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement	 N	
		Scale: 1:1250			
	Title: 342946_Chalcott, Manchester Ro	Date: 01/07/2019	Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved Licence No. WU 298530.		

445673

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape
3501X	9.66	6.35	150	VC	CIRC	6503X	11.86	9.65	150	VC	CIRC												
3503X	3.28	2.11	300	VC	CIRC	6504X	12.25	10.23	150	VC	CIRC												
3504X	3.29	2.01	300	CI	CIRC	6505X			UNK	UNK	CIRC												
3505X	3.33	2.34	375	CP	CIRC	6506X			UNK	UNK	CIRC												
3507X	5.03	4.15	150	VC	CIRC	6508X			UNK	UNK	CIRC												
3508X	4.15	3.46	150	VC	CIRC	650DX			225	UNK	CIRC												
3509X	3.68	3.22	150	VC	CIRC	6511X			UNK	UNK	CIRC												
3510X	3.5	2.99	150	VC	CIRC	6601X	15.49	13.96	150	VC	CIRC												
3604X	4.04	1.75	300	VC	CIRC																		
3606X	3.16	1.66	225	VC	CIRC																		
3607Y	3.46	2.7	300	VC	CIRC	*																	
3607X	3.46	2.77	300	VC	CIRC	*																	
3608X	3.81	2.67	300	VC	CIRC	*																	
361PY			UNK	UNK	CIRC	*																	
361PX			350	GRP	CIRC	*																	
4401X	9.61	8.19	150	VC	CIRC																		
4402X	8.3	7.24	150	VC	CIRC																		
4403X	8.88	6.68	150	VC	CIRC																		
4404X			UNK	UNK	CIRC																		
440DX			UNK	UNK	CIRC																		
4451X	8.72		150	UNK	CIRC																		
4501X	10.07	5.45	300	CP	CIRC																		
4502X	9.93	8.8	150	VC	CIRC																		
4551X	9.66		150	UNK	CIRC																		
5401X	9.18	6.06	300	CP	CIRC																		
5402X	9.35	5.25	300	VC	CIRC																		
5403X	9.82	5.48	300	VC	CIRC																		
5404X			100	VC	CIRC																		
5501Z	12.06	10.31	225	VC	CIRC	*																	
5501X	12.06	10.33	225	VC	CIRC	*																	
5502X	10.32		300	VC	CIRC																		
5503X	10.41	5.71	300	VC	CIRC																		
5504X	10.2	9.56	150	VC	CIRC																		
5505X			UNK	UNK	UNK																		
5506X			150	UNK	CIRC																		
5507X			UNK	UNK	CIRC																		
5508X			UNK	UNK	CIRC																		
5509X			UNK	UNK	CIRC																		
550DX			UNK	UNK	CIRC																		
551DX			UNK	UNK	UNK																		
552DY			150	UNK	CIRC	*																	
552DX			225	VC	CIRC	*																	
553DX			225	UNK	CIRC																		
5551X	12.12	10.95	300	CP	CIRC																		
560DX			UNK	UNK	UNK																		
5652X	11.89	10.61	300	CP	CIRC																		
6302X	9.57	6.54	300	CP	CIRC																		
6303X	8.16	5.85	300	VC	CIRC																		
6304X			UNK	UNK	CIRC																		
6305X			150	VC	CIRC																		
6306X			150	VC	CIRC																		
630DX			300	VC	CIRC																		
632DX			300	VC	CIRC																		
6352X	7.09	5.56	375	CP	CIRC																		
6354X	9.21	8.73	150	VC	CIRC																		
6355X	8.78	8.3	150	VC	CIRC																		
6401X	10.86	9.2	150	VC	CIRC	*																	
6401Y	10.86		225	UNK	CIRC	*																	
6405X			UNK	UNK	CIRC																		
6406X			UNK	UNK	CIRC																		
6407X			UNK	UNK	CIRC																		
6408X			UNK	UNK	CIRC																		
640DX			150	VC	CIRC																		
6501X			UNK	UNK	CIRC																		
6502X			UNK	UNK	CIRC																		

LINE STYLES / COLOURS

Brown

Foul

Foul Syphon Sewer

Foul Vacuum Main

Foul Rising Main

Combined

Combined Syphon Sewer

Combined Rising Main

Lateral Drain

Building Over Agreement Area

Treated Effluent

Sludge

Sewer Catchment

Section 104 Area

Surface Water

Surface Water Rising Main

Private

Access Shaft

Decommissioned

MATERIALS

AK Alkathene

BAC Bonded Asbestos Cement

BRC Brick (Common)

BRE Brick (Engineering)

CC Concrete Box Culvert

CI Cast Iron

CO Concrete (In-Situ)

CP Concrete (Pre-Cast)

CSB Concrete Segments (bolted)

CSU Concrete Segments (unbolted)

DI Ductile Iron

GRC Glass Reinforced Concrete

GRP Glass Reinforced Plastic

MAC Masonry in regular Courses

MAR Masonry in random Courses

PE Polyethylene

PF Pitch Fibre

PP Polypropylene

PVC Polyvinyl Chloride

RPM Reinforced Plastic Matrix

SI Spun Iron

ST Steel

VC Vitrified Clay

XXX Other

ZZZ Unknown

LEGEND - SEWERS

Manhole (SW)

Manhole (F&C)

Lamp hole (SW)

Lamp hole (F&C)

Pumping Station (SW)

Pumping Station (F&C)

Side entry manhole (SW)

Side entry Manhole (F&C)

Blind shaft (SW)

Blind shaft (F&C)

Ejector station (SW)

Ejector station (F&C)

Watertight door (SW)

Watertight door (F&C)

Flushing ch. Min-e (SW)

Flushing ch. Min-e (F&C)

Flushing ch. No-e (SW)

Flushing ch. No-e (F&C)

Demarcation Chamber

Washout (SW)

Washout (F&C)

Rodding Eye (SW)

Rodding Eye (F&C)

Gauging point (SW)

Gauging point (F&C)

Intercept chamber (SW)

Intercept chamber (F&C)

Storm Tank (SW)

Storm Tank (F&C)

Vortex chamber (SW)

Vortex chamber (F&C)

Label ellipse

Dummy/S24 manhole

Outfall

Penstock chamber

Damboards

Storm Overflow

Backdrop manhole

Other (s)

Other

Change in sewer (s)

Change in sewer

Reflex valve

Flap valve

Cascade

Anode

Valve

Closed Valve

Air Valve

Hatch box (SW)

Hatch box (F&C)

Direction arrow

Emptying valve

Catchpit

Soakaway

Inlet

Balancing Pond

SHAPES (S)

A Arched

B Barrel

C Circular

E Egg

H Horseshoe

R Rectangular

S Square

T Trapezoidal

U U Shape

X Other

NODE REFERENCING SYSTEM

1st digit: hundred metre easting identifier

2nd digit: hundred metre northing identifier

3rd digit: sewer type identifier

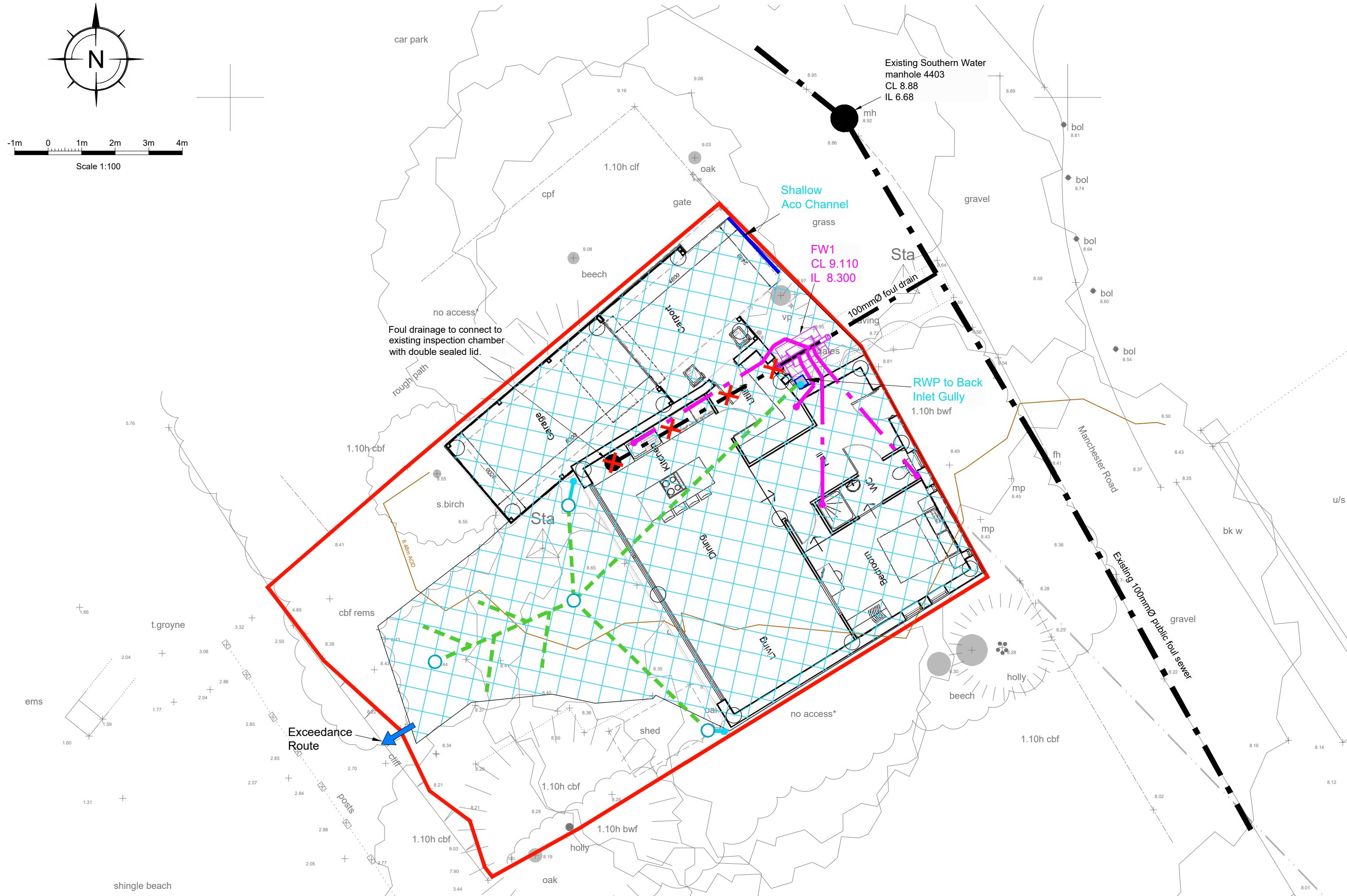
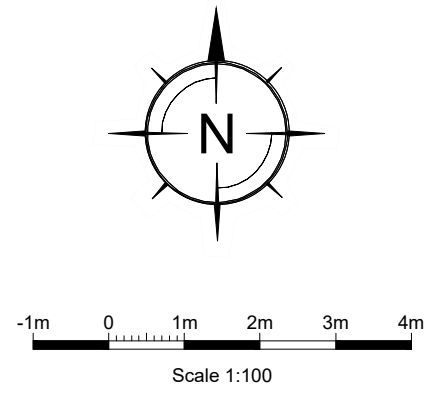
4th digit: next sequential node

Drawn by: rohandas

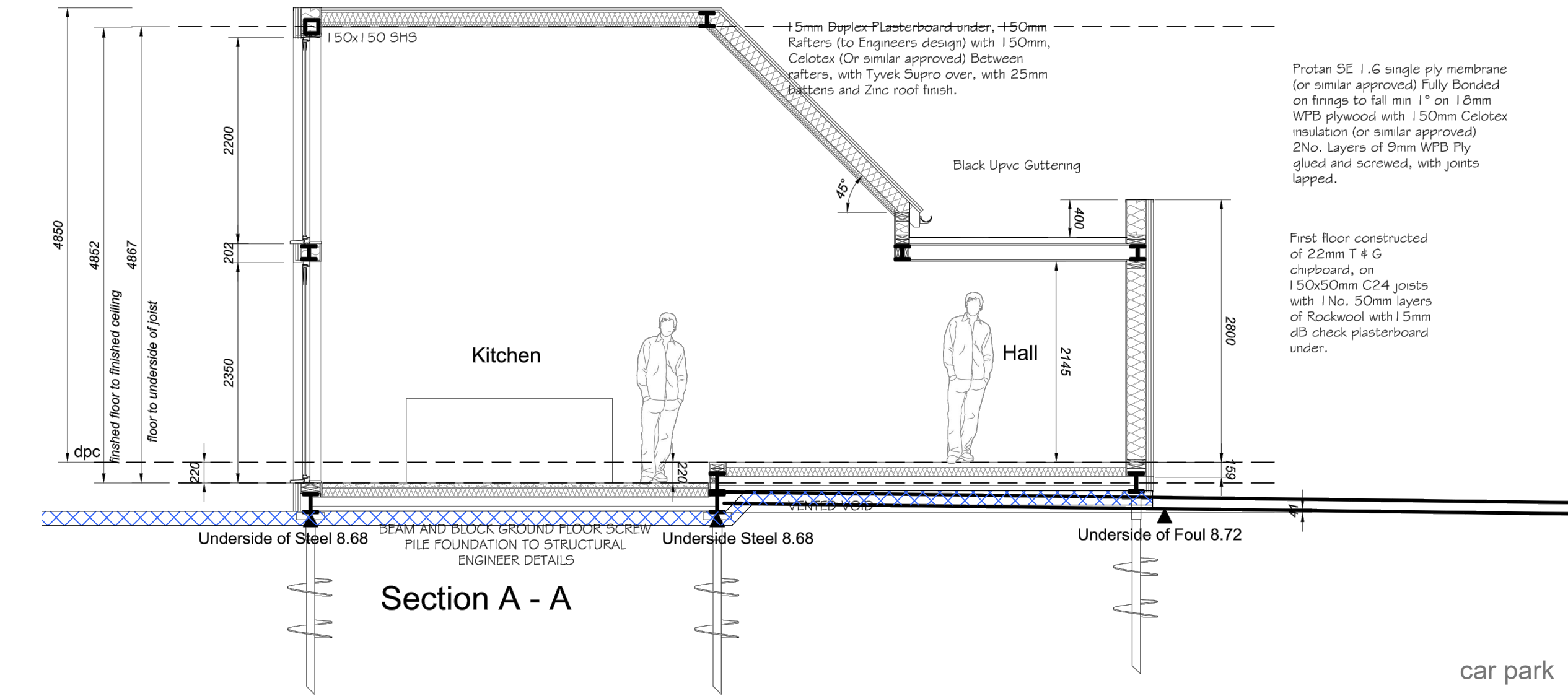
Title: 342946_Chalcott, Manchester Ro

Date: 01/07/2019

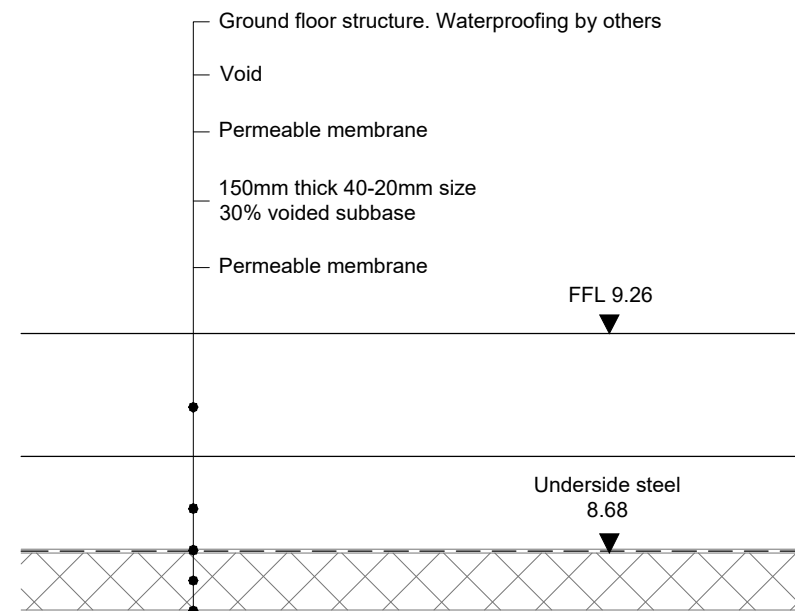




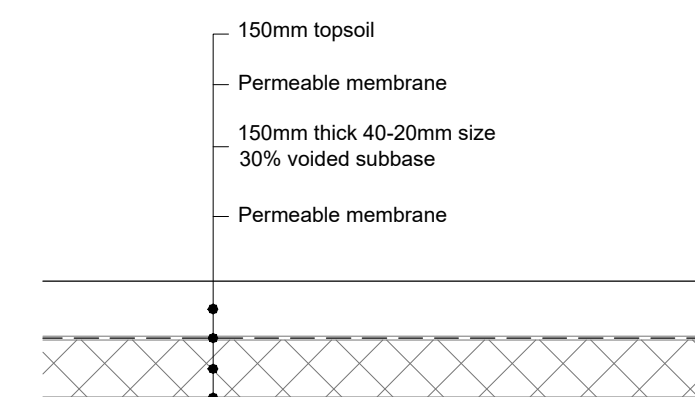
PROPOSED DRAINAGE LAYOUT PLAN
(Scale 1:100)



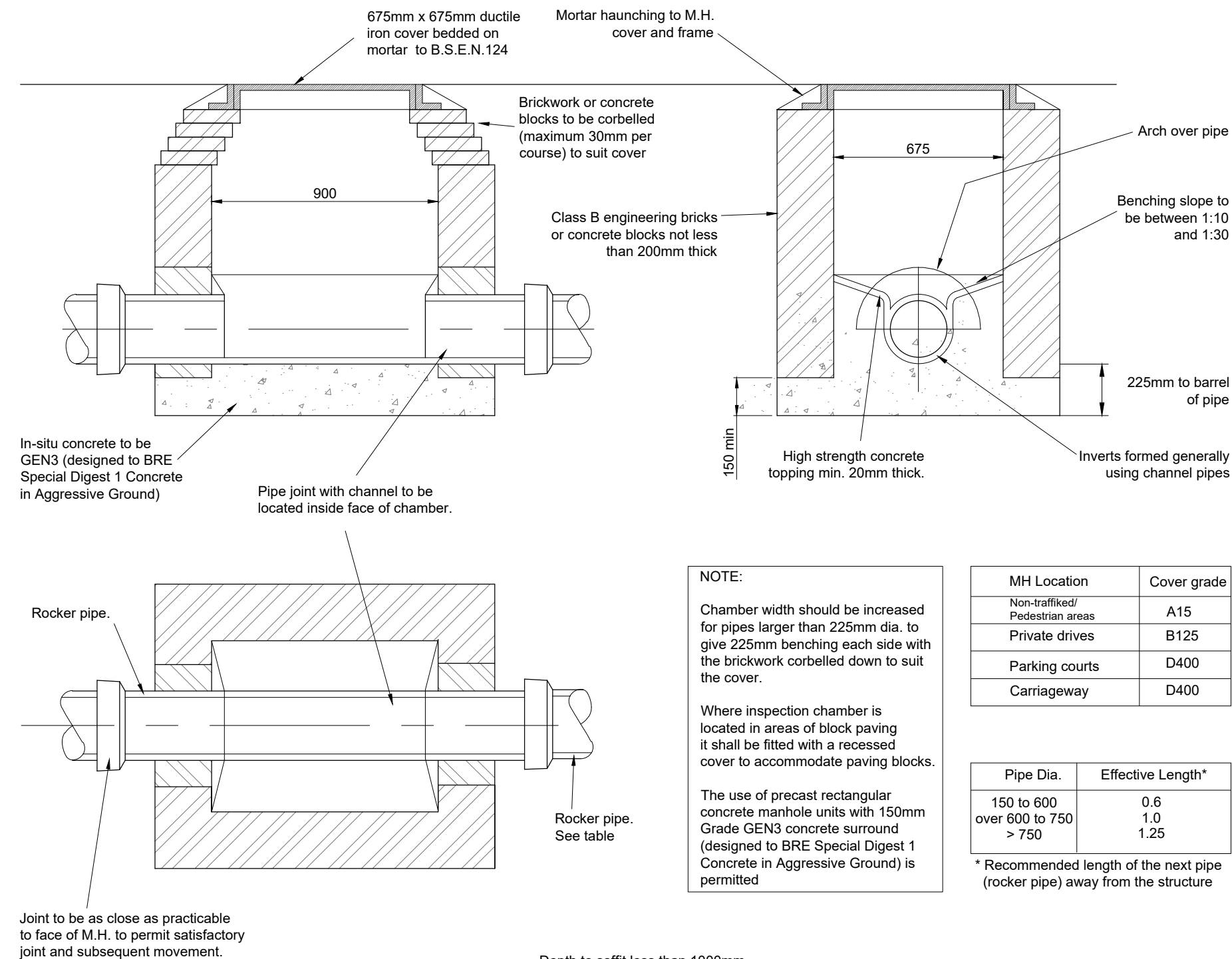
Section A - A



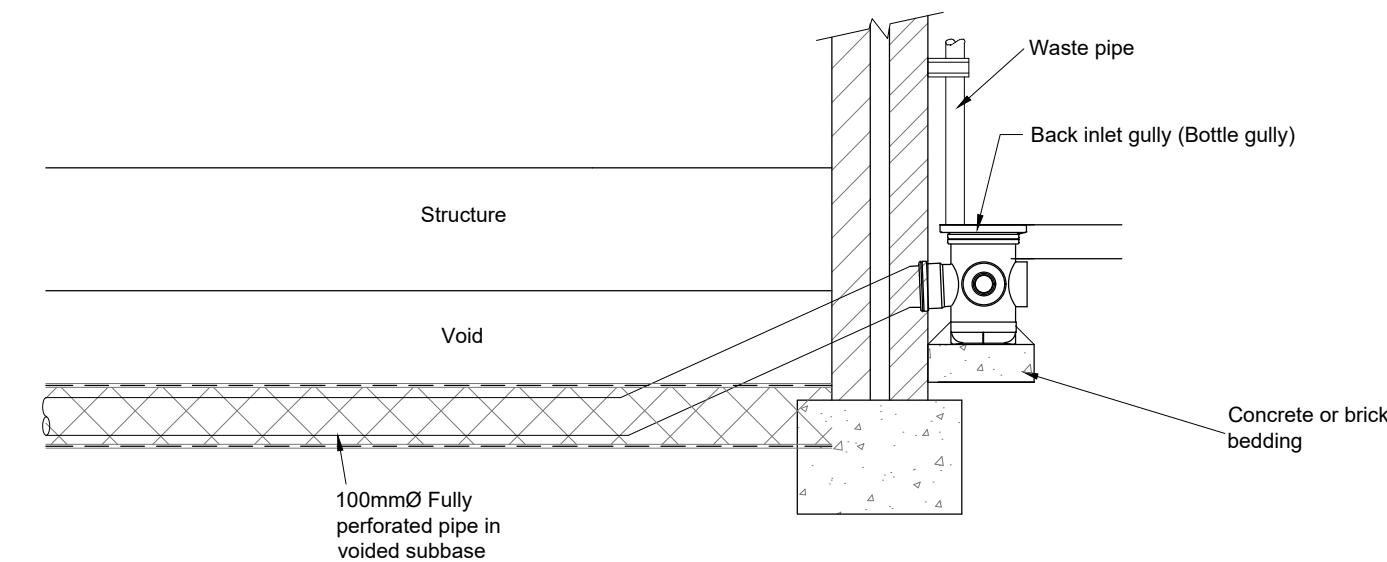
TYPICAL SECTION THROUGH GROUND FLOOR AND VOIDED SUBBASE
(Scale 1:20)



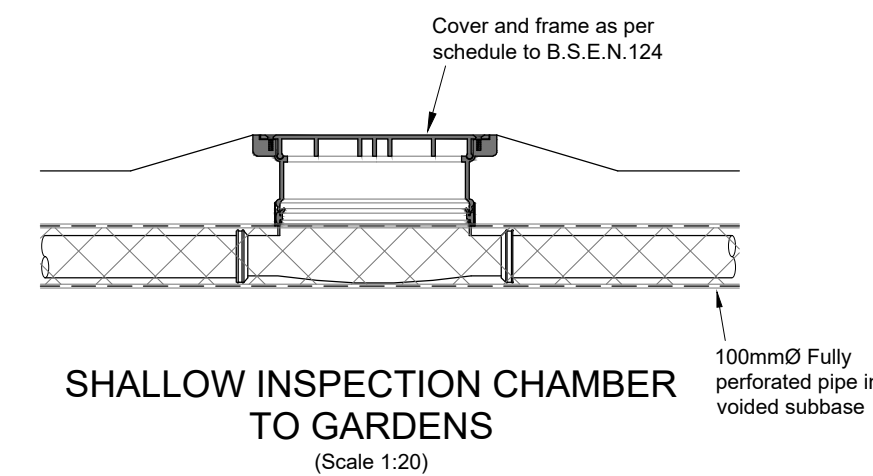
TYPICAL SECTION THROUGH GARDEN AND VOIDED SUBBASE
(Scale 1:20)



Depth to soffit less than 1000mm
TYPE D TYPICAL MANHOLE DETAIL
(Scale 1:20)



TYPICAL BACK INLET GULLY (UPVC)
(Scale 1:20)



SHALLOW INSPECTION CHAMBER TO GARDENS
(Scale 1:20)

- NOTES:
- All dimensions to be checked on site. All details and dimensions relating to sub-Contractors work must be checked and agreed between the sub-Contractor or supplier and the general Contractor.
 - This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and specification.
 - The main Contractor is responsible for ensuring the stability of the structure whilst the works are in progress.
 - Any information given regarding existing underground services is given in good faith after consultation with the relevant authority. No liability is accepted by the Consultant and the main Contractor is responsible for obtaining and checking all information and taking due care and attention whilst undertaking the works.
 - All pipes, bends and junctions shall be vitrified clay to BS EN 295-1, with flexible joints and kitemark certified. Alternatively all pipes and fittings can be UPVC conforming to BS EN 1401-1 and shall be laid in accordance with the manufacturers specification. If UPVC pipes are to be used then the manufacturer shall be approved by the Engineer prior to construction.
 - All adoptable sewers shall be in strict accordance with the current edition of Sewers For Adoption. Unless otherwise stated adoptable sewers shall be 150mm diameter and shall be laid in a class S bedding. Where the depth to soffit is less than 1.2m under a public highway or 0.9m elsewhere the pipe shall be laid with a class Z bedding.
 - All private building drainage shall be constructed in strict accordance with BS EN 752:1996. Unless otherwise specified building drainage shall be 100mm diameter and shall be laid at a minimum gradient of 1 in 40 for foul drains and 1 in 80 for surface water drains. All building drains shall be laid in class B bedding unless otherwise specified.
 - Where the service trench is near to the foundation of any building, refer to the guidance in Approved Document H, Building Regulations Part H1.
 - Where pipes, external to the structures, have a depth to soffit from ground level of less than 450mm they shall have a class GEN 3 concrete encasement (150mm thick). In all other cases the pipes shall be bedded and surrounded with 100mm thick granular material.
 - In any circumstances where pipes are bedded and surrounded in concrete flexible joints should be provided. Compressible boards (fibreglass or polystyrene) shall be provided at a maximum of 8m centres (coinciding with pipe joints). The boards shall be pre-cut to pipe diameter and to a height and width equal to the concrete cross section. A board thickness of 18mm for pipes up to 450mm nominal diameter and 36mm for pipes over 450mm nominal diameter.
 - All svsps shall have rodding access plates fitted at their bases (ground floor level).
 - Where existing pipes are to be abandoned they shall be dug out together with any abandoned manholes.

DRAINAGE KEY:	
Private Storm Drainage	
	Proposed storm drain and diffuser tank
	Proposed area of voided subbase 150mm thick
	Inspection Chamber
	Back Inlet Gully
	Shallow Aco Channel
	100mmØ fully perforated pipework
Private Foul Drainage	
	Type D Brick Manhole
	Proposed Foul Drain
Non Drainage Items	
	Assumed pile location

REV	DATE	INT	DESCRIPTION	CHK
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Issue Status FOR APPROVAL

The Civil Engineering Practice
11 Tungsten Building
George Street
Fishergate
Sussex
BN41 1RA
01273 424424
reception@civil.co.uk
www.civil.co.uk

CLIENT		Mr and Mrs Wilkinson	
PROJECT		Chalcott, Manchester Road, Netley	
TITLE			
Proposed Drainage Layout Plan and Details			
DRAWN		DATE	
M Pacifico		Dec 2022	
ENGINEER		CHECKED	
S Magowan			
SCALE		PROJECT NO.	
		23194	
		DRG. No.	
		REV.	
		201	
1:100, 1:50 @ A1			

Design Settings

Rainfall Methodology	FEH-13	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.900	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	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	Cover Level (m)	Depth (m)
voided stone	0.015	9.110	0.580

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	0.900	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.900	Drain Down Time (mins)	2160	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
10	0	0	0
30	0	0	0
30	45	0	0
100	0	0	0
100	45	0	0

Node voided stone Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.01800	Safety Factor	1.5	Invert Level (m)	8.530
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	121

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	153.0	153.0	0.150	153.0	153.0	0.151	0.0	153.0

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
120 minute summer	voided stone	80	8.561	0.031	1.2	1.4236	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
120 minute summer	voided stone	Infiltration	0.3

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
120 minute summer	voided stone	82	8.582	0.052	2.0	2.4026	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
120 minute summer	voided stone	Infiltration	0.5

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 (m ³)	Flood (m ³)	Status
60 minute summer	voided stone	51	8.600	0.070	4.1	3.2126	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
60 minute summer	voided stone	Infiltration	0.5

Results for 30 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
120 minute summer	voided stone	94	8.639	0.109	3.7	5.0170	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
120 minute summer	voided stone	Infiltration	0.5

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 (m ³)	Flood (m ³)	Status
60 minute summer	voided stone	58	8.623	0.093	5.2	4.2795	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
60 minute summer	voided stone	Infiltration	0.5

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	voided stone	60	8.674	0.144	5.4	6.6143	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
60 minute winter	voided stone	Infiltration	0.5