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81-83 Grange Road, Tuffley

Upton Builders

Technical Note TN002 – Surface Water Drainage
July 2022





Document Control

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Prepared By	██████████	July 2022
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Record of Revisions

Revision	Date	Details	Made By
A	05.07.22	First Issue	SC

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1 Introduction

- 1.1 Rappor provide expert Transport Planning, Highways, Infrastructure and Flood Risk consultancy services throughout the UK.
- 1.2 Rappor were appointed by Upton Builders to provide drainage consultancy to discharge planning conditions, under planning ref 20-00031-FUL.
- 1.3 The proposal consists of the erection of 3 No. residential single storey bungalows and associated works.
- 1.4 The Gloucester City Council online planning portal was unavailable to view at the time of writing.
- 1.5 Technical note TN001 was submitted in June 2022 to address the Council Drainage officer comments. Further comments were received on 30th June 2022.
- 1.6 This Technical Note (TN002) will address the outstanding drainage comments.



2 Gloucester City Council Drainage Officer comments – 30th June 2022

2.1 Gloucester City Council drainage officer comments received 30th June 2022 (ref email Tom Hitchin stw ref 22/00382/FUL):

There are few issues in the calculations as follows;

- *Confirm contributing areas - there is a significant discrepancy to that submitted before - can this be presented in a labelled drawing.*
- *Soakaway tests appears to be fine.*
- *Given the proximity of adjacent properties - the infiltration through the base of the crates would the fill mechanism of the two systems here are different. Similarly this needs to be at least 5m from any building/ foundations.*
- *Confirmation of the size of the porous pavement is required (a plan) and should exclude the area designated for the roof.*
- *Maintenance access / silt-trap for crates needs to be considered.*
- *No details of porous surfacing - what type is proposed.*
- *No details of crate surround.*

These need to be addressed prior to acceptance.

2.2 This technical note will address the comments received by the Council Drainage Officer.

3 Surface Water Drainage Strategy

3.1 Refer to **Appendix A** for impermeable catchment confirmation. All roof areas contributing to positive drainage with all other areas discharging to ground/permeable access areas.

3.2 Soakaway test results accepted.

3.3 The base of the soakaway will be in natural ground with the recorded permeability. There are upstream catchpits and a maintenance schedule to reduce risk of silting. The system is also surrounded by permeable medium.

3.4 Refer to **Appendix A** for 5m offset identified. No structures within 5m from proposed soakaway.



- 3.5 Silt trap on upstream manhole – 1200mm diam x min 350mm sump i.e. 0.4m³ capacity. Refer to maintenance schedule for regular inspection and clearing. Access to be provided in accordance with **Appendix B** – standard soakaway detail and specification.
- 3.6 Porous surface material will be single sized gravel – fully permeable construction.
- 3.7 Refer to **Appendix B** for typical cellular soakaway crate construction.

4 SuDS/Drainage Management

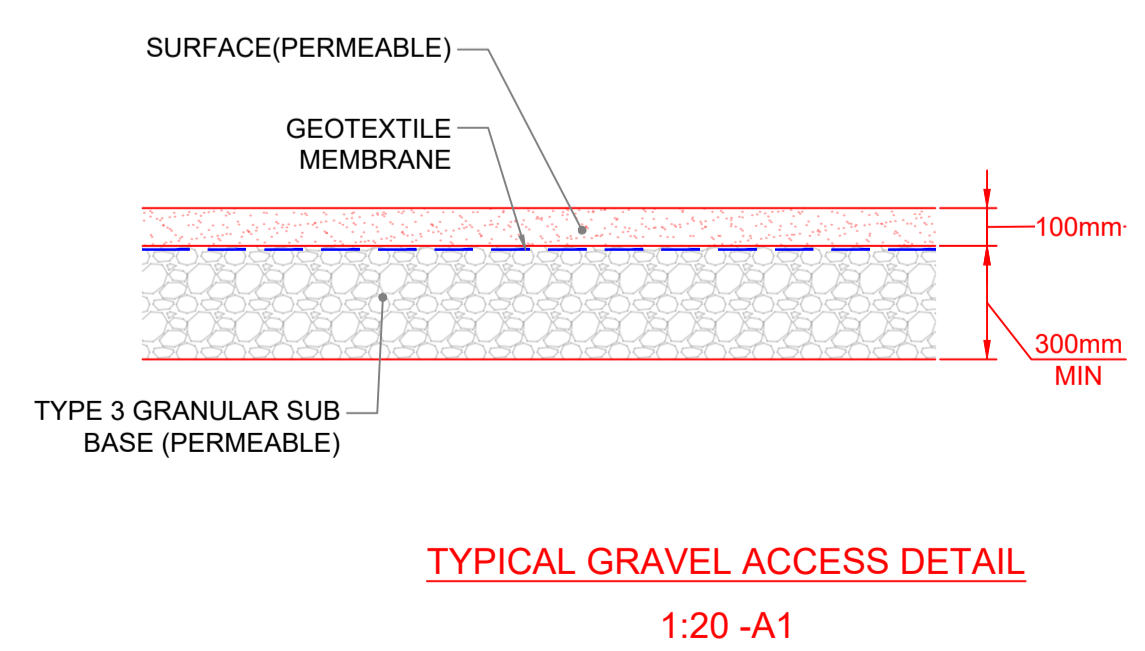
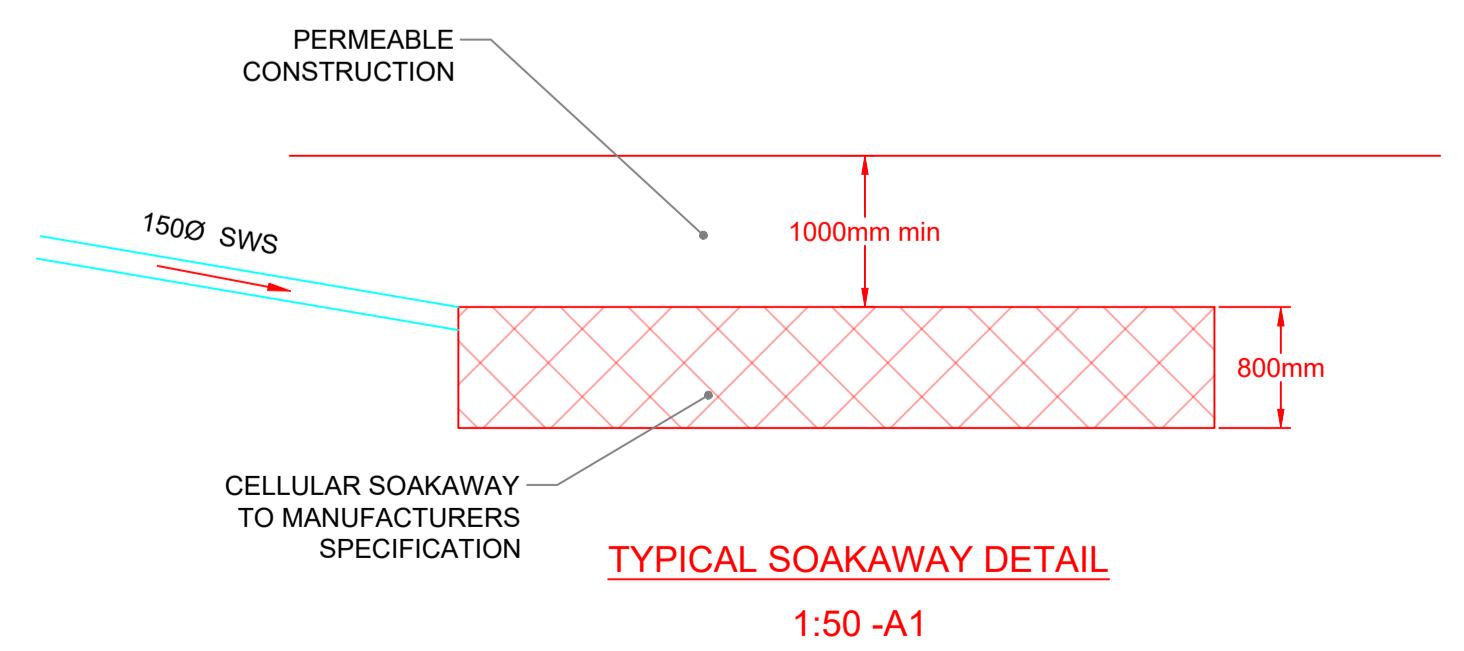
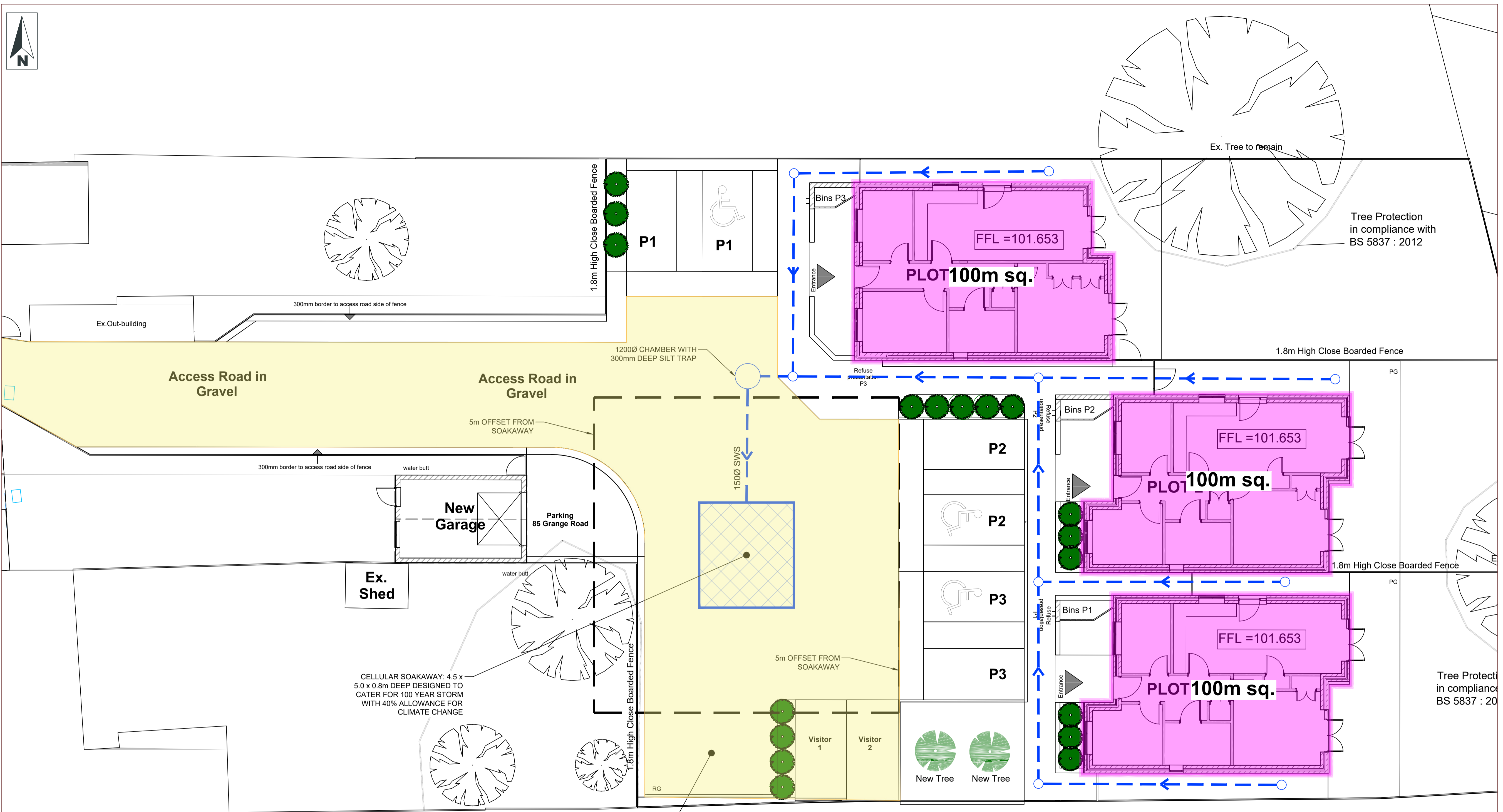
- 4.1 Maintenance of SuDS features is essential to ensure that the surface water drainage system operates effectively and that flooding of the site and surrounding areas is prevented.
- 4.2 The responsibility of maintaining the drainage components would lie with the development landowner unless responsibility is delegated to an appointed external Management Company.
- 4.3 A full maintenance regime should be carried out to ensure that the drainage system remains operational over its lifetime. The below table summarises an initial maintenance plan for the drainage components proposed within the development. The SuDS Manual (CIRIA C753) and manufacturer's guidelines should be referred to for further maintenance information.

Initial Operation and Maintenance Plan:

Drainage Component	Required Action	Typical Frequency
Pipework, manholes, flow control chambers, catch pits and silt traps	Stabilise adjacent areas	As required
	Remove weeds	As required
	Clear any poor performing structures.	As required
	Inspect all structures for poor operation	Three monthly, 48 hours after large storms in first six months
	Monitor inspection chambers. Inspect silt accumulation rates and determine silt clearance frequencies	Annually
Cellular Soakaway	Grass cutting. Inspection of inlets, outlets, and control structures.	As required
	Silt removal	Annually
	Inlet/outlet repair	Remedial maintenance
Permeable Paving	Brushing and vacuuming	Once a year or as required
	Stabilise and mow contributing and adjacent areas	As required
	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required.
	Inspect for evidence of poor operation and/or weed growth	3 monthly, 48 hours after large storms in first 6 months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements



Appendix A – Surface Water Drainage Strategy



- Notes:**
1. Do not scale from this drawing. All dimensions are in metres, unless stated otherwise.
 2. Ordnance Survey, (c) Crown Copyright 2020. All rights reserved. Licence number 100022432.
 3. Drawing to be read in conjunction with all other drawings. Any discrepancies are to be reported to the engineer 5 working days in advance of undertaking any work.

- KEY**
- PROPOSED STORM DRAINAGE
 - ROOF CATCHMENT FOR CELLULAR SOAKAWAY
 - PERMEABLE PAVED AREA

Rev	Date	Origin	Drawn by	Checked by
C	07.22	REVISED IN ACCORDANCE WITH LLFA COMMENTS	SC	KT
B	17.06.22	SECOND ISSUE- NOTES AND DETAILS ADDED	RMR	KT
A	06.22	FIRST ISSUE	SC	KT



CLIENT:
UPTON BUILDERS

PROJECT:
81-83 Grange Road, Tuffley

TITLE:
Surface Water Drainage Strategy

STATUS:
INFORMATION

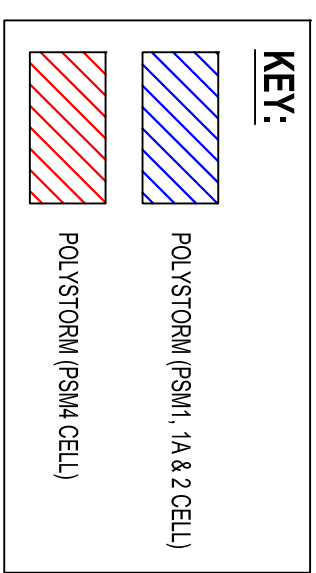
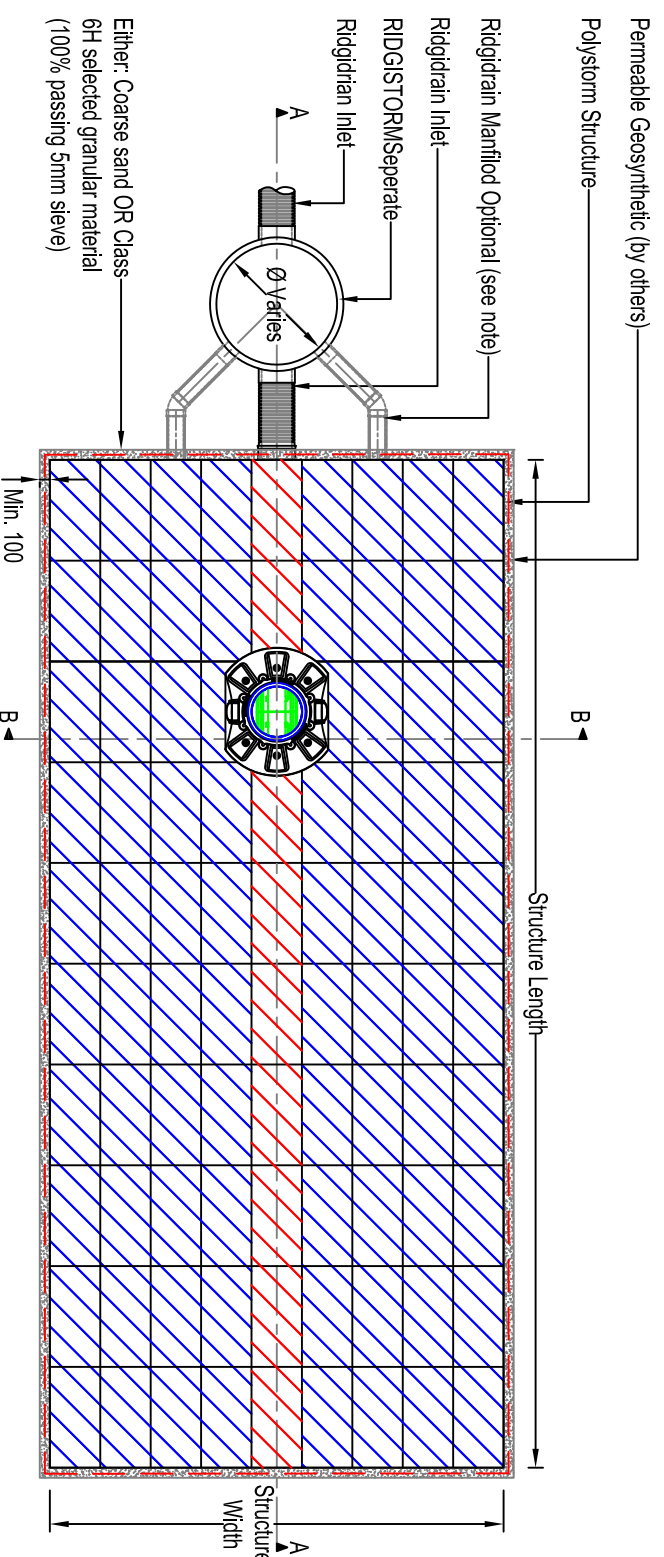
SCALE @ A1	DATE	DRAWN	CHECKED	APPROVED
1:100	13.0.22	SC	KT	KT
JOB NO:	DRAWING NO.	REVISION:		
22-0436	C100	C		

INDICATIVE

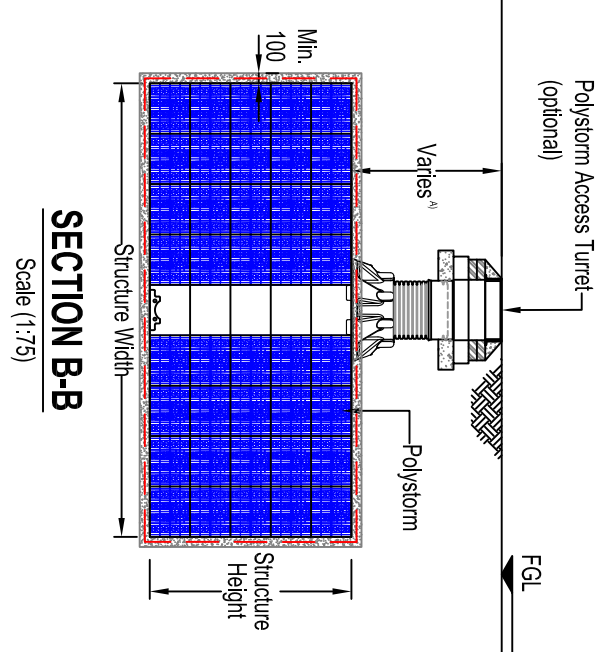
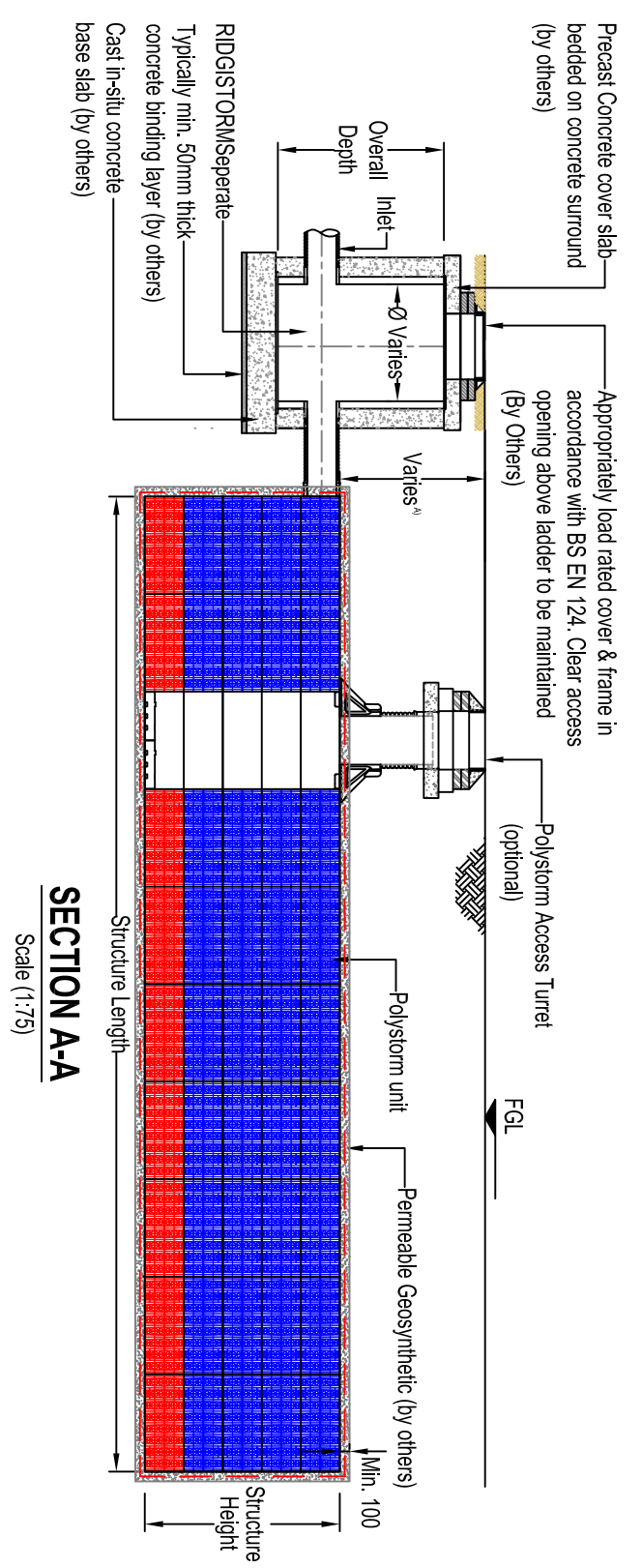
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Appendix B – Manufacturers Specification



TYPICAL SOAKAWAY TANK PLAN
(Scale 1:75)



POLYSTORM ACCESS NOTES

1. Refer to Polypipe drawing No. PSM_SD_PSM_004 for typical integration into Polystorm structure.

MANIFOLD NOTE

Where single pipe hydraulic capacity is exceeded manifold detail may be required. For information on Manifold connections please refer to drawing ref: PSM_SD_008

NOTE A

For information on tank cover depths please contact the Technical Team:- 01509 61500

- NOTES**
1. All dimensions in millimetres, unless otherwise stated.
 2. All dimensions are nominal and may vary within manufacturing or construction tolerances.
 3. All site temporary and enabling works by others.
 4. Polypipe products to be installed in accordance with Polypipe civils recommendations (refer to Polypipe technical guidance for further information), giving due consideration to the requirements of the organisation who will be taking ultimate ownership of the installation.
 5. This drawing is intended for guidance only. Confirmation of the information contained within this document should be sought from the consulting engineers before final design or construction activities commence.

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		PROJECT	POLYSTORM STANDARD DETAILS	
		TITLE	POLYSTORM SOAKAWAY	
STATUS	FOR INFORMATION		DATE	17/03/16
ORIGINAL SIZE	A3	SCALE	AS SHOWN	
DRAWING NO.	PSM_SD_PSM_003		DRAWN BY	JL
REV.				

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