The Grange

Sustainable Drainage Statement

Project Number:	11439
Date:	21 November 2023
Revision:	P2
Suitability:	S2 For Information

Contents / Quality Assurance

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Revision	Issue Date	Issue Status	Distribution
P1	20 Nov 2023	S2 – For Information	All
P2	21 Nov 2023	S2 – Information	All

Prepared	Checked	Approved	Date
JP	MRP	MRP	20 Nov 2023
JP	MRP	MRP	21 Nov 2023

1.0 Introduction

1.1.1 This drainage statement is to supersede the proposed drainage solution outlined in the submitted drainage strategy report whilst also addressing planning condition 25 (Surface Water Drainage System)

1.1.2 Since the submission of the previous drainage strategy, the design of the building has been developed through technical design and the previously outlined blue roof is no longer possible to include as part of the drainage solution. This has been primally driven by the building design perusing a low carbon structure and the use of CTL roof slabs. Gaining warranties from roofing specialists in this scenario has proved difficult.

1.1.3 The final drainage solution, detailed in this statement, drawings, and calculations, instead includes a buried attenuation tank as the storage which has allowed far greater storage capacity than the blue roof was able to provide. This has provided the necessary volume to attenuate the development area to greenfield run-off rate which the blue roof did not.

1.1.4 We recognise the buried attenuation solution does not provide the same benefit to water quality as the blue roof and so to mitigate this, we have added filter systems within the hard landscaped areas where possible.

2.0 Proposed Surface Water Drainage

2.1 SuDS Strategy

2.1.1 A surface water management train has been developed to manage run-off from the developed site area in accordance with the West of England Sustainable Drainage Developer Guide Section 1. A system has been designed to attenuate all the areas on the site which are being developed. This will be referred to as the 'development area' within this statement and is 1295m^2. See Appendix 6 for drawing showing the development area.

2.1.2 All other parts of the site, including buildings, are not part of the proposed works and their drainage systems will remain as existing.

2.1.3 Approximately 350m^2 of the development area is on existing building footprint which will be removed from the existing network.

2.1.4 The runoff from the development area will be attenuated to the greenfield runoff rate.

2.1.5 Newly finished impermeable surfaces above ground level will drain to conventional gullies or channel drains and enter into the proposed drainage network.

2.1.6 Newly finished impermeable hard landscaping areas are proposed to filtrate through French drains or filter strips prior to entering into the new network.

2.1.7 With reference to Appendix 1, The greenfield run-off rate for the proposed development area of 1295m^2 0.1295ha site:

- 1 in 1yr 0.3 l/s
- Q_{BAR} 0.39 l/s
- 1 in 30yr 0.76 l/s
- 1 in 100yr 0.94 l/s

2.1.8 Limiting the flow rate to the greenfield rate for such a small area may not be possible, therefore a limit of 1 l/s has been used on all storm events.

2.1.9 To achieve 1 l/s using a Hydro-Brake as a flow control, an attenuation tank with a total storage volume of 84.74m^3 constructed with crates with 95% porosity is required.

2.1.10 Table 2 below summarises the discharge from the proposed development area which equals a total of 1295m^2.

OPTION 1	Attenuated
Area (m^2)	1295
1 in 1	1 l/s
1 in 2 (qbar)	1 l/s
1 in 30	1 l/s
1 in 100	1 l/s
1 in 100 + 45%	1 l/s

Table 1 Proposed attenuated impermeable areas and discharge rates.

2.1.11 The proposal will ensure that the drainage system for the development area will control the surface water runoff up to the 1 in 100-year event plus an allowance of 45% for climate change.

2.1.12 Detailed calculations for this solution can be found in Appendix 2.

2.1.13 Detailed drawings for this solution can be found in Appendix 6.

2.2 Hard Landscaped Areas

2.2.1 It is proposed that all new hard landscaped areas are captured through filter (French) drains prior to entering the proposed attenuation system.

2.2.2 The filter drains will capture surface water through the crushed stone, which will clean the water as a SuDS source control technique to improve water quality.

2.2.3 In line with the SuDS manual, the filter drains will be incorporated at the beginning of the treatment train to intercept silt and pollution and reduce the flow of runoff.

2.3 Exceedance

2.3.1 In the exceedance events surface water will flow overground and follow the contours of the landscaped areas to the South of the site, away from the proposed building.

2.3.2 Exceedance is anticipated to remain as existing and unchanged with flows discharging off site or into Farm Road.

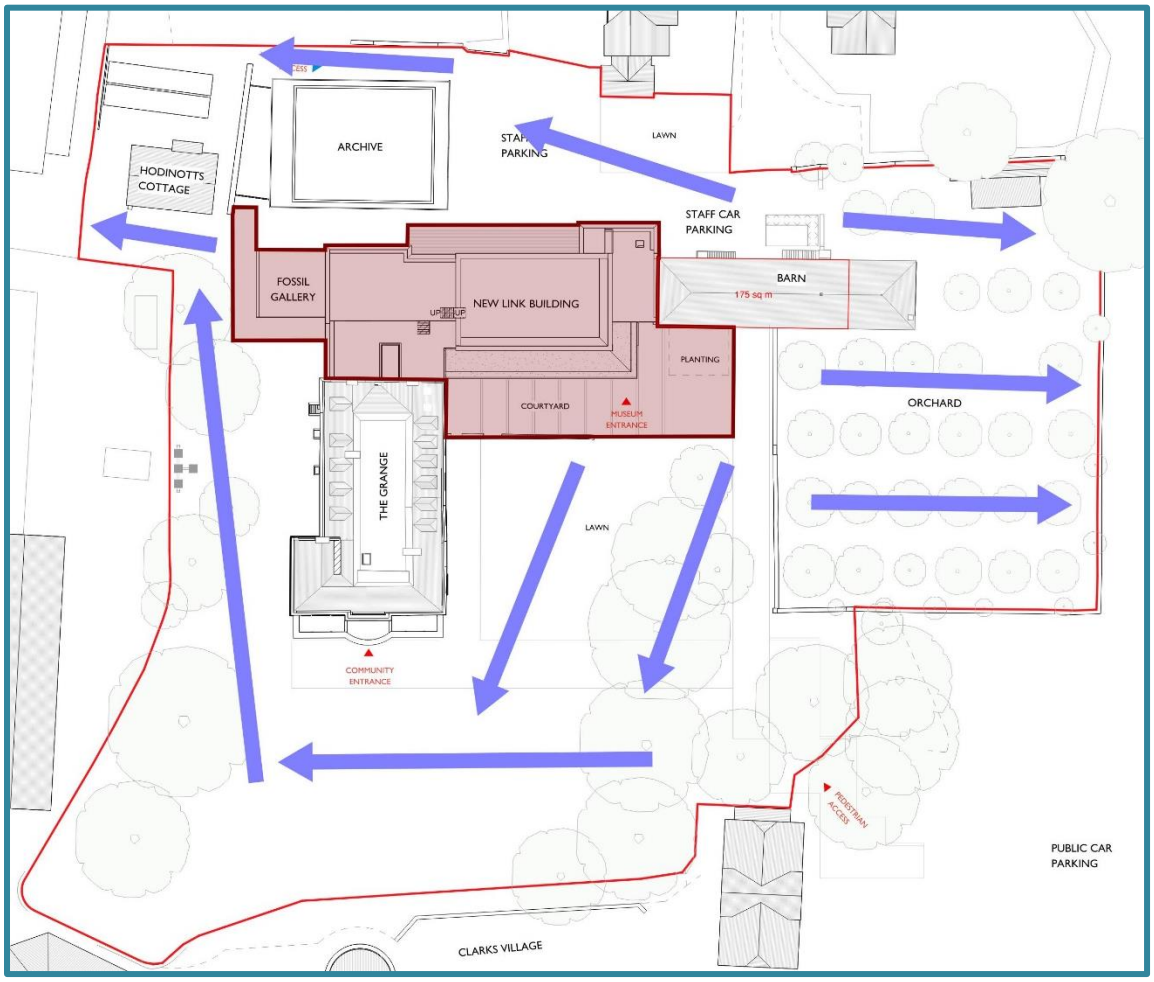

Figure 1 Exceedance route with proposed development area highlighted red.

3.0 Foul Drainage Strategy

3.1.1 The existing development is served by a gravity foul drainage network, connected to the Wessex Water public network in Farm Road. It is proposed to install a number of new foul water drainage runs and associated chambers to serve the new building, these will connect to the existing network within the development boundary.

3.1.2 The development is anticipated to attract approximately 160 visitors daily, with an estimated 5 day staff. The facility will have a café serving light snacks and drinks.

3.1.3 In accordance with the British Water Flows and loads, the anticipated discharge from the development will be 160 x 15 + 5 x 90 = 2850 l/day or an average flow of 0.1l/s, over an 8hr working day. This additional flow is not anticipated to have any significant impact on the downstream drainage network or capacity of the public network.

4.0 Management & Maintenance

4.1 General Maintenance

4.1.1 The client will be responsible for the maintenance and operation of the drainage system. It is not proposed to offer any aspects of the drainage infrastructure up for adoption.

4.1.2 The surface water drainage system comprises various elements including conventional rainwater goods, rainwater pipes, gullies, channel drains, attenuation in the form below ground crates with a flow control device & shallow filter drains.

4.1.3 A maintenance schedule has been prepared to identify the maintenance intervals for the various elements and describe the maintenance requirements dependant on the specific products installed.

4.1.4 Rainwater goods and gullies, silt traps & catchpits should be inspected quarterly and debris cleared as necessary. The filter strips including flow control device is to be inspected at 3 monthly intervals as recommended by the manufacturer or after extreme rainfall & weather events, (e.g. storms)

4.1.5 Further recommendations for maintenance are provided in Appendix 4.

4.1.6 Geocellular/Modular Systems

4.1.7 This Modular plastic Geocellular systems with a high void ratio, that can be used to create a below ground storage structure.

4.1.8 The below ground crates are intended to be a surface water storage feature to attenuate the discharge from the site up to and including the 1 in 100 year plus climate change event.

4.1.9 Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols, especially where run-off is taken from potentially contaminated areas such as car parks/service yards.

4.2 Filter Strips

4.2.1 The major maintenance requirement for filter strips is mowing / vegetation control. Mowing cut levels should ideally retain grass lengths of 75-100mm across the main ‘treatment’ surface to assist filtering pollutants and retaining sediments and to reduce the risk of flattening during runoff events.

4.2.2 Grass clippings to be disposed of either offsite or outside the area of the filter strip to remove nutrients and pollutants.

Appendix 1 – Greenfield run-off rate 0.1295ha

hrwallingford

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	James Parker
Site name:	The Grange
Site location:	Street

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	51.12933° N
Longitude:	2.74132° W
Reference:	495923458
Date:	Nov 20 2023 09:37

Runoff estimation approach

IH124

Site characteristics

Total site area (ha): 0.1295

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	3	3
HOST class:	N/A	N/A
SPR/SPRHOST:	0.37	0.37

Hydrological characteristics

	Default	Edited
SAAR (mm):	727	727
Hydrological region:	8	8
Growth curve factor 1 year:	0.78	0.78
Growth curve factor 30 years:	1.95	1.95
Growth curve factor 100 years:	2.43	2.43
Growth curve factor 200 years:	2.78	2.78

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited

Q_{BAR} (l/s):	0.39	0.39
1 in 1 year (l/s):	0.3	0.3
1 in 30 years (l/s):	0.76	0.76
1 in 100 year (l/s):	0.94	0.94
1 in 200 years (l/s):	1.08	1.08

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Appendix 2 – InfoDrainage Calculations

The Grange: Drainage Strategy	Date: 20/11/2023		
	Designed by: JP	Checked by: MRP	Approved By: MRP
Report Details: Type: Stormwater Controls Storm Phase: New	Mann Williams Ltd: Bath		

Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	16.872
Depth (m)	0.800
Base Level (m)	14.800
Number of Crates Long	20
Number of Crates Wide	11
Number of Crates High	2
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	84.872

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Pipe (5)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (6)
Outlet Type	Free Discharge

The Grange: Drainage Strategy	Date: 20/11/2023		
	Designed by: JP	Checked by: MRP	Approved By: MRP
Report Details: Type: Junctions Summary Storm Phase: New	Mann Williams Ltd: Bath		

Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW MH 11	FSR: 100 years: +45 %: 480 mins: Winter	16.560	15.080	15.553	0.473	5.2	0.134	0.000	5.0	53.700	Surcharged
SW MH 10	FSR: 100 years: +45 %: 480 mins: Winter	16.430	15.015	15.553	0.538	6.9	0.152	0.000	7.2	80.560	Surcharged
SW MH 12	FSR: 100 years: +45 %: 15 mins: Winter	16.408	15.265	15.809	0.544	35.7	0.107	0.000	32.0	16.533	Surcharged
SW MH 06	FSR: 100 years: +45 %: 480 mins: Winter	16.800	14.540	15.553	1.013	9.1	0.287	0.000	9.0	102.720	Surcharged
SW MH 05	FSR: 100 years: +45 %: 480 mins: Winter	16.640	14.775	15.551	0.776	1.0	0.152	0.000	1.0	47.964	Surcharged
SW MH 03	FSR: 100 years: +45 %: 480 mins: Winter	16.490	14.360	15.549	1.189	1.0	2.100	0.000	0.9	46.211	Surcharged
SW MH 02	FSR: 100 years: +45 %: 480 mins: Winter	15.570	14.245	14.270	0.025	0.9	0.005	0.000	0.9	46.139	OK
SW MH 01	FSR: 100 years: +45 %: 480 mins: Winter	15.000	14.045	14.073	0.028	0.9	0.032	0.000	0.9	46.084	OK
Outfall SW Culvert	FSR: 100 years: +45 %: 480 mins: Winter	14.500	13.934	13.961	0.027	0.9	0.000	0.000	0.9	46.084	OK

The Grange: Drainage Strategy	Date: 20/11/2023		
	Designed by: JP	Checked by: MRP	Approved By: MRP
Report Details: Type: Stormwater Controls Summary Storm Phase: New	Mann WIlliams Ltd: Bath		

Critical Storm Per Item: Rank By: Max. US Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Cellular Storage	FSR: 100 years: +45 %: 480 mins: Winter	15.553	15.553	0.753	0.753	9.0	78.649	0.000	0.000	1.0	48.601	703	7.333

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Status
OK

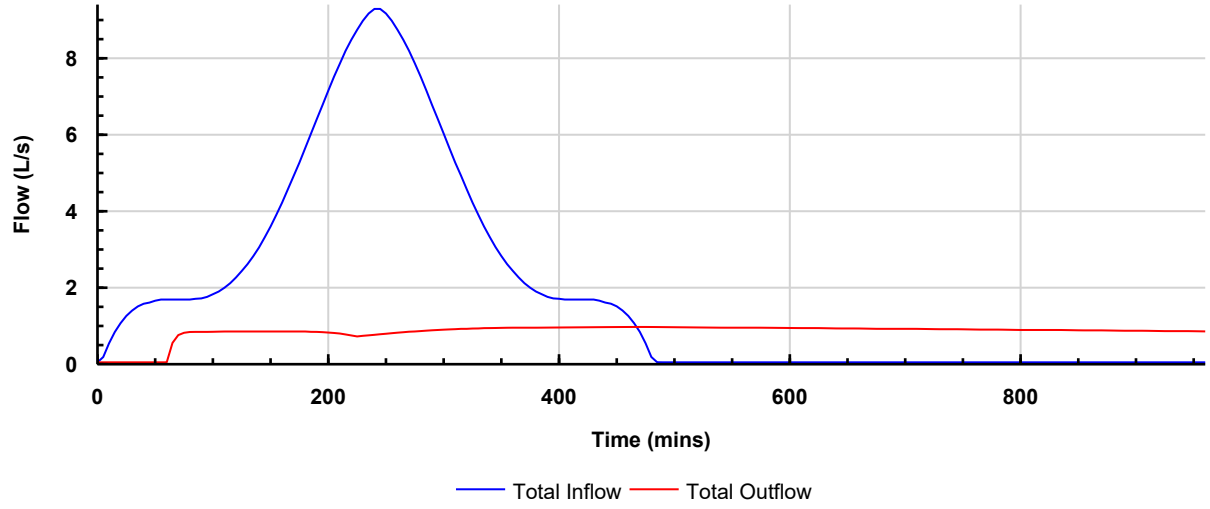
New
FSR: 100 years: Increase Rainfall (%): +45: 480 mins: Winter

Tables

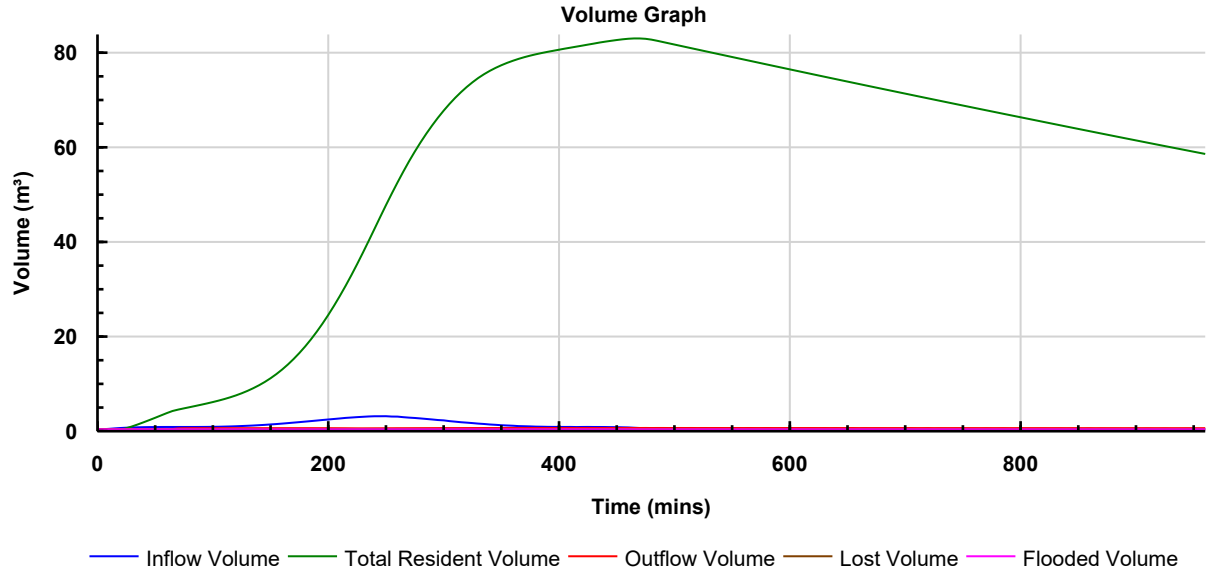
Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
Outfall SW Culvert			0.9	46.084
TOTAL	9.3	106.040	0.9	46.084

Graphs

Flow Graph



Volume Graph



The Grange: Drainage Strategy	Date: 20/11/2023		
	Designed by: JP	Checked by: MRP	Approved By: MRP
Report Details: Type: Inflow Results Storm Phase: New	Mann WIlliams Ltd: Bath		

D
Critical Storm: FSR: 100 years: Increase Rainfall (%): +45: 15 mins: Winter

Type : Catchment Area

Inflow

Max. Inflow (L/s)	5.4
Total Inflow Volume (m³)	2.490

Tables

Time (mins)	Total Inflow (L/s)
0	0.0
5	1.4
10	5.4
15	1.5
20	0.0
25	0.0
30	0.0

The Grange: Drainage Strategy	Date: 20/11/2023		
	Designed by: JP	Checked by: MRP	Approved By: MRP
Report Details: Type: Inflow Results Storm Phase: New	Mann WIlliams Ltd: Bath		

E
Critical Storm: FSR: 100 years: Increase Rainfall (%): +45: 15 mins: Winter

Type : Catchment Area

Inflow

Max. Inflow (L/s)	6.4
Total Inflow Volume (m³)	2.954

Tables

Time (mins)	Total Inflow (L/s)
0	0.0
5	1.7
10	6.4
15	1.7
20	0.0
25	0.0
30	0.0

F
Critical Storm: FSR: 100 years: Increase Rainfall (%): +45: 15 mins: Winter

Type : Catchment Area

Inflow

Max. Inflow (L/s)	4.9
Total Inflow Volume (m³)	2.286

Tables

Time (mins)	Total Inflow (L/s)
0	0.0
5	1.3
10	4.9
15	1.4
20	0.0
25	0.0
30	0.0

H

Type : Catchment Area

Critical Storm: FSR: 100 years: Increase Rainfall (%): +45: 15 mins: Winter

Inflow

Max. Inflow (L/s)	15.4
Total Inflow Volume (m³)	7.120

Tables

Time (mins)	Total Inflow (L/s)
0	0.0
5	4.1
10	15.4
15	4.2
20	0.1
25	0.0
30	0.0

The Grange: Drainage Strategy	Date: 20/11/2023		
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Catchment Area
Critical Storm: FSR: 100 years: Increase Rainfall (%): +45: 15 mins: Winter

Type : Catchment Area

Inflow

Max. Inflow (L/s)	25.8
Total Inflow Volume (m³)	11.980

Tables

Time (mins)	Total Inflow (L/s)
0	0.0
5	7.0
10	25.8
15	7.1
20	0.1
25	0.0
30	0.0

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Catchment Area (1)
Critical Storm: FSR: 100 years: Increase Rainfall (%): +45: 15 mins: Winter

Type : Catchment Area

Inflow

Max. Inflow (L/s)	4.4
Total Inflow Volume (m³)	2.060

Tables

Time (mins)	Total Inflow (L/s)
0	0.0
5	1.2
10	4.4
15	1.2
20	0.0
25	0.0
30	0.0

Catchment Area (2)
Critical Storm: FSR: 100 years: Increase Rainfall (%): +45: 15 mins: Winter

Type : Catchment Area

Inflow

Max. Inflow (L/s)	13.5
Total Inflow Volume (m³)	6.262

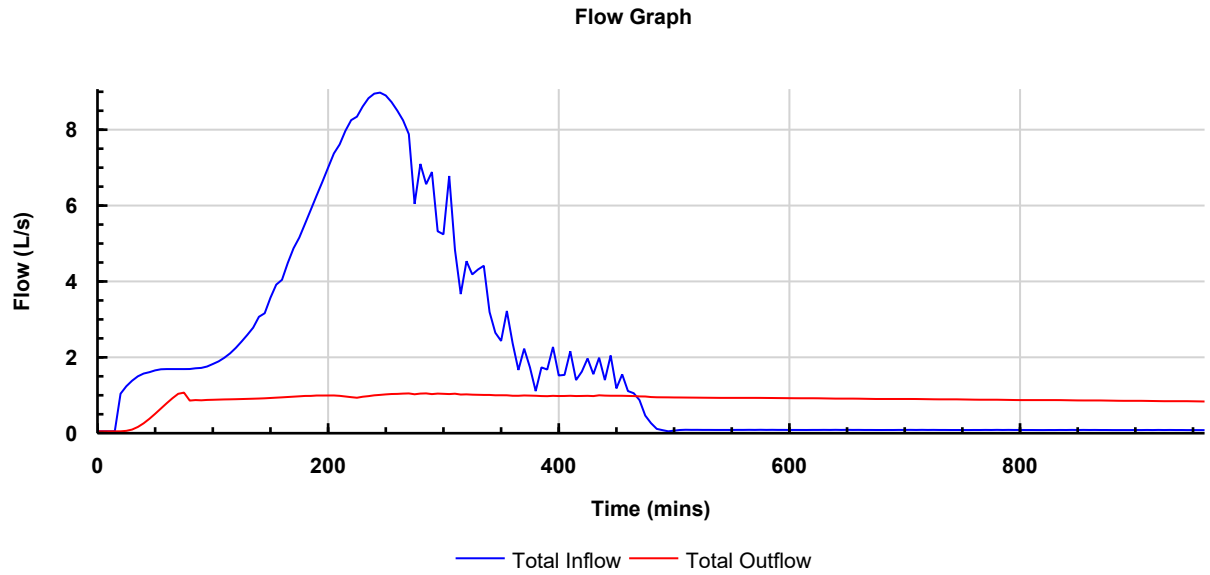
Tables

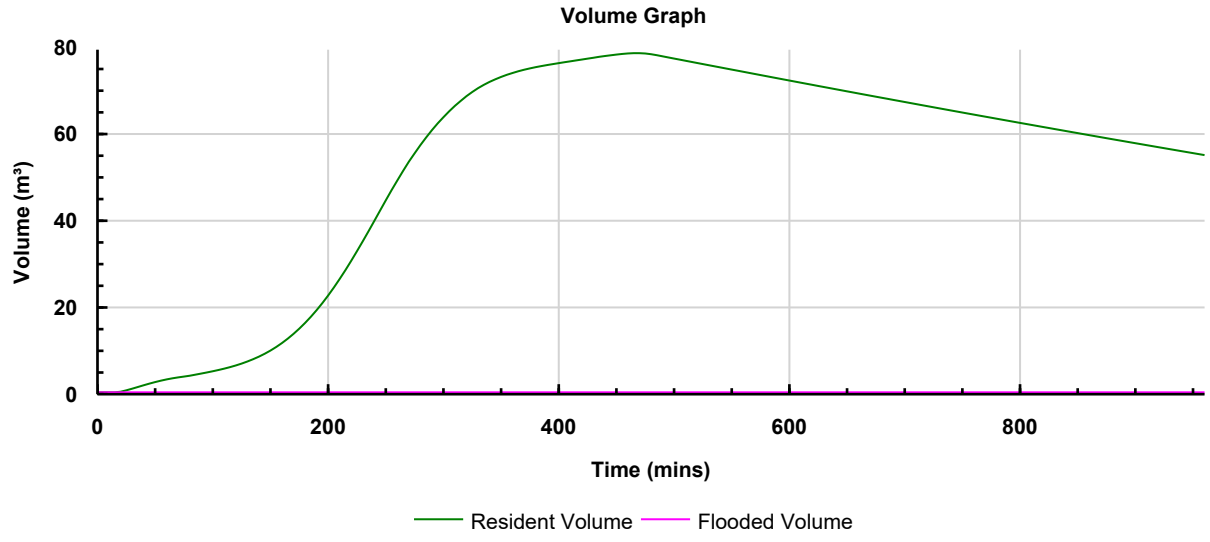
Time (mins)	Total Inflow (L/s)
0	0.0
5	3.6
10	13.5
15	3.7
20	0.1
25	0.0
30	0.0

Cellular Storage
Critical Storm: FSR: 100 years: Increase Rainfall (%): +45: 480 mins: Winter

Type : Cellular Storage

Graphs





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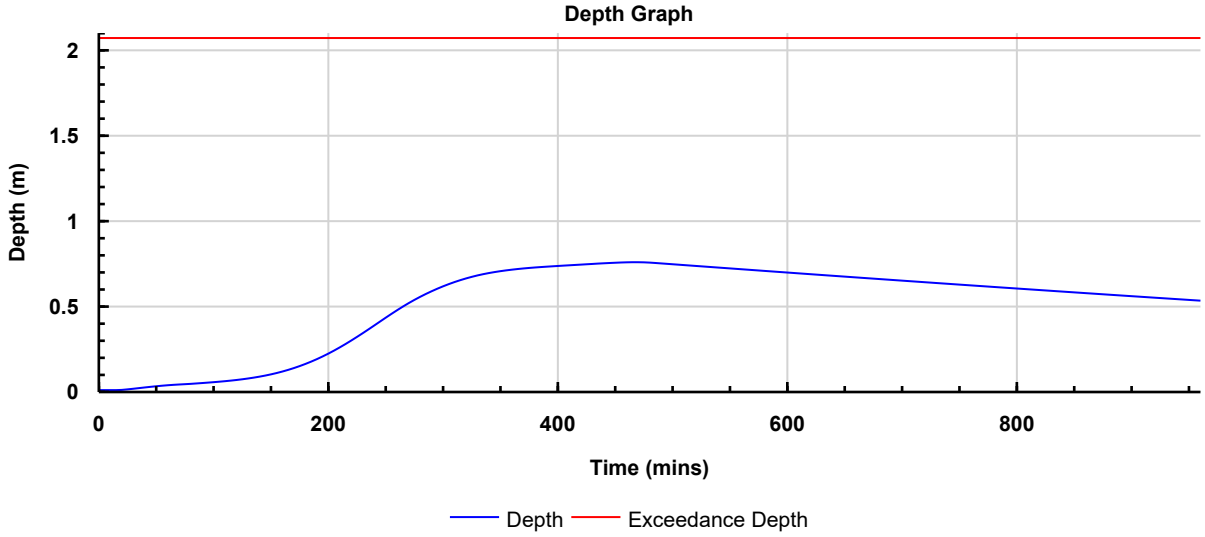

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Tables

Time (mins)	Total Inflow (L/s)	Depth(m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
0	0.0	0.000	0.000	0.000	0.0
5	0.0	0.000	0.000	0.000	0.0
10	0.0	0.000	0.000	0.000	0.0
15	0.0	0.000	0.000	0.000	0.0
20	1.0	0.001	0.130	0.000	0.0
25	1.2	0.004	0.459	0.000	0.0
30	1.3	0.008	0.831	0.000	0.0
35	1.5	0.012	1.228	0.000	0.1
40	1.5	0.016	1.628	0.000	0.2
45	1.6	0.019	2.012	0.000	0.3
50	1.6	0.023	2.371	0.000	0.5
55	1.6	0.026	2.700	0.000	0.6
60	1.6	0.029	2.992	0.000	0.7
65	1.6	0.031	3.244	0.000	0.9
70	1.6	0.033	3.458	0.000	1.0
75	1.6	0.035	3.646	0.000	1.0
80	1.7	0.037	3.842	0.000	0.8
85	1.7	0.039	4.093	0.000	0.8
90	1.7	0.042	4.348	0.000	0.8
95	1.7	0.044	4.608	0.000	0.8
100	1.8	0.047	4.882	0.000	0.8
105	1.9	0.050	5.176	0.000	0.8
110	1.9	0.053	5.493	0.000	0.8
115	2.1	0.056	5.841	0.000	0.8
120	2.2	0.060	6.227	0.000	0.9
125	2.4	0.064	6.660	0.000	0.9
130	2.6	0.068	7.143	0.000	0.9
135	2.7	0.074	7.679	0.000	0.9
140	3.0	0.079	8.272	0.000	0.9
145	3.1	0.086	8.937	0.000	0.9
150	3.5	0.093	9.679	0.000	0.9
155	3.9	0.101	10.509	0.000	0.9
160	4.0	0.109	11.427	0.000	0.9
165	4.5	0.119	12.442	0.000	0.9
170	4.9	0.130	13.554	0.000	0.9
175	5.1	0.141	14.765	0.000	0.9
180	5.5	0.154	16.080	0.000	0.9
185	5.9	0.168	17.505	0.000	0.9
190	6.2	0.182	19.040	0.000	0.9
195	6.6	0.198	20.684	0.000	0.9
200	7.0	0.215	22.440	0.000	0.9
205	7.4	0.233	24.309	0.000	1.0
210	7.6	0.252	26.278	0.000	0.9
215	8.0	0.271	28.328	0.000	0.9
220	8.2	0.292	30.484	0.000	0.9
225	8.3	0.313	32.720	0.000	0.9
230	8.6	0.335	34.998	0.000	0.9
235	8.8	0.357	37.334	0.000	0.9
240	8.9	0.380	39.718	0.000	1.0
245	9.0	0.403	42.121	0.000	1.0
250	8.9	0.426	44.515	0.000	1.0
255	8.7	0.449	46.868	0.000	1.0
260	8.5	0.470	49.122	0.000	1.0
265	8.2	0.492	51.343	0.000	1.0
270	7.9	0.512	53.479	0.000	1.0

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Report Details: Type: Stormwater Control Results Storm Phase: New	Mann WIlliams Ltd: Bath		

Time (mins)	Total Inflow (L/s)	Depth(m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
275	6.0	0.531	55.418	0.000	1.0
280	7.1	0.549	57.320	0.000	1.0
285	6.5	0.566	59.099	0.000	1.0
290	6.9	0.582	60.787	0.000	1.0
295	5.3	0.597	62.360	0.000	1.0
300	5.2	0.611	63.793	0.000	1.0
305	6.8	0.624	65.172	0.000	1.0
310	4.8	0.636	66.443	0.000	1.0
315	3.6	0.647	67.581	0.000	1.0
320	4.5	0.657	68.683	0.000	1.0
325	4.2	0.667	69.647	0.000	1.0
330	4.3	0.675	70.532	0.000	1.0
335	4.4	0.682	71.300	0.000	1.0
340	3.2	0.689	71.990	0.000	1.0
345	2.6	0.695	72.589	0.000	1.0
350	2.4	0.700	73.138	0.000	1.0
355	3.2	0.705	73.631	0.000	1.0
360	2.3	0.709	74.055	0.000	0.9
365	1.6	0.713	74.458	0.000	0.9
370	2.2	0.716	74.810	0.000	1.0
375	1.7	0.719	75.119	0.000	0.9
380	1.1	0.722	75.404	0.000	0.9
385	1.7	0.724	75.657	0.000	0.9
390	1.6	0.726	75.896	0.000	0.9
395	2.2	0.728	76.116	0.000	0.9
400	1.5	0.730	76.335	0.000	0.9
405	1.5	0.733	76.552	0.000	0.9
410	2.1	0.735	76.754	0.000	0.9
415	1.4	0.737	76.965	0.000	0.9
420	1.6	0.738	77.168	0.000	0.9
425	1.9	0.740	77.378	0.000	0.9
430	1.5	0.742	77.580	0.000	0.9
435	2.0	0.745	77.803	0.000	1.0
440	1.4	0.746	77.985	0.000	0.9
445	2.0	0.748	78.155	0.000	0.9
450	1.1	0.750	78.321	0.000	0.9
455	1.5	0.751	78.468	0.000	0.9
460	1.1	0.752	78.582	0.000	0.9
465	1.0	0.753	78.649	0.000	0.9
470	0.8	0.753	78.645	0.000	0.9
475	0.4	0.752	78.576	0.000	0.9
480	0.2	0.750	78.408	0.000	0.9
485	0.1	0.748	78.181	0.000	0.9
490	0.0	0.746	77.917	0.000	0.9
495	0.0	0.743	77.655	0.000	0.9
500	0.0	0.741	77.397	0.000	0.9
505	0.0	0.738	77.144	0.000	0.9
510	0.0	0.736	76.885	0.000	0.9
515	0.0	0.733	76.629	0.000	0.9
520	0.0	0.731	76.370	0.000	0.9
525	0.0	0.728	76.115	0.000	0.9
530	0.0	0.726	75.858	0.000	0.9
535	0.0	0.723	75.603	0.000	0.9
540	0.0	0.721	75.349	0.000	0.9
545	0.0	0.719	75.094	0.000	0.9
550	0.0	0.716	74.839	0.000	0.9
555	0.0	0.714	74.588	0.000	0.9
560	0.0	0.711	74.335	0.000	0.9

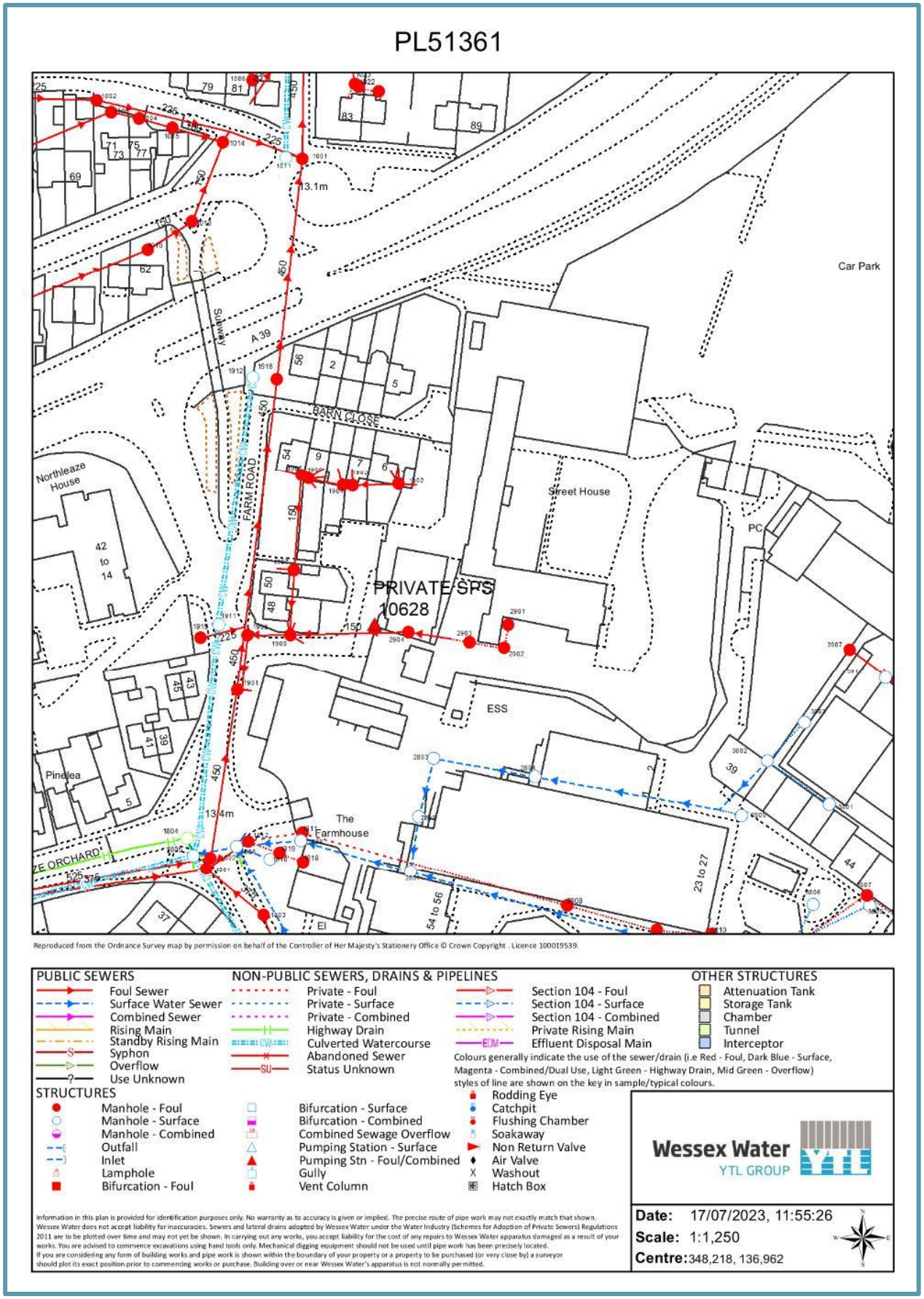
The Grange: Drainage Strategy	Date: 20/11/2023		
	Designed by: JP	Checked by: MRP	Approved By: MRP
Report Details: Type: Stormwater Control Results Storm Phase: New	Mann Williams Ltd: Bath		

Time (mins)	Total Inflow (L/s)	Depth(m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
565	0.0	0.709	74.078	0.000	0.9
570	0.0	0.706	73.825	0.000	0.9
575	0.0	0.704	73.568	0.000	0.9
580	0.0	0.702	73.315	0.000	0.9
585	0.0	0.699	73.060	0.000	0.9
590	0.0	0.697	72.807	0.000	0.9
595	0.0	0.694	72.552	0.000	0.9
600	0.0	0.692	72.301	0.000	0.9
605	0.0	0.689	72.050	0.000	0.9
610	0.0	0.687	71.796	0.000	0.9
615	0.0	0.685	71.545	0.000	0.9
620	0.0	0.682	71.297	0.000	0.9
625	0.0	0.680	71.041	0.000	0.9
630	0.0	0.677	70.793	0.000	0.9
635	0.0	0.675	70.544	0.000	0.9
640	0.0	0.673	70.293	0.000	0.9
645	0.0	0.670	70.045	0.000	0.9
650	0.0	0.668	69.794	0.000	0.9
655	0.0	0.665	69.546	0.000	0.9
660	0.0	0.663	69.295	0.000	0.9
665	0.0	0.661	69.048	0.000	0.9
670	0.0	0.658	68.802	0.000	0.9
675	0.0	0.656	68.553	0.000	0.9
680	0.0	0.654	68.308	0.000	0.9
685	0.0	0.651	68.065	0.000	0.9
690	0.0	0.649	67.815	0.000	0.9
695	0.0	0.647	67.572	0.000	0.9
700	0.0	0.644	67.327	0.000	0.9
705	0.0	0.642	67.079	0.000	0.9
710	0.0	0.640	66.834	0.000	0.9
715	0.0	0.637	66.586	0.000	0.9
720	0.0	0.635	66.342	0.000	0.9
725	0.0	0.632	66.097	0.000	0.8
730	0.0	0.630	65.854	0.000	0.8
735	0.0	0.628	65.609	0.000	0.8
740	0.0	0.626	65.366	0.000	0.8
745	0.0	0.623	65.124	0.000	0.8
750	0.0	0.621	64.879	0.000	0.8
755	0.0	0.619	64.638	0.000	0.8
760	0.0	0.616	64.400	0.000	0.8
765	0.0	0.614	64.155	0.000	0.8
770	0.0	0.612	63.917	0.000	0.8
775	0.0	0.609	63.678	0.000	0.8
780	0.0	0.607	63.435	0.000	0.8
785	0.0	0.605	63.196	0.000	0.8
790	0.0	0.602	62.955	0.000	0.8
795	0.0	0.600	62.717	0.000	0.8
800	0.0	0.598	62.477	0.000	0.8
805	0.0	0.596	62.241	0.000	0.8
810	0.0	0.593	62.004	0.000	0.8
815	0.0	0.591	61.764	0.000	0.8
820	0.0	0.589	61.527	0.000	0.8
825	0.0	0.586	61.293	0.000	0.8
830	0.0	0.584	61.051	0.000	0.8
835	0.0	0.582	60.816	0.000	0.8
840	0.0	0.580	60.580	0.000	0.8
845	0.0	0.577	60.342	0.000	0.8
850	0.0	0.575	60.107	0.000	0.8

The Grange: Drainage Strategy	Date: 20/11/2023		
	Designed by: JP	Checked by: MRP	Approved By: MRP
Report Details: Type: Stormwater Control Results Storm Phase: New	Mann Williams Ltd: Bath		

Time (mins)	Total Inflow (L/s)	Depth(m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
855	0.0	0.573	59.871	0.000	0.8
860	0.0	0.571	59.636	0.000	0.8
865	0.0	0.568	59.400	0.000	0.8
870	0.0	0.566	59.166	0.000	0.8
875	0.0	0.564	58.930	0.000	0.8
880	0.0	0.562	58.697	0.000	0.8
885	0.0	0.559	58.464	0.000	0.8
890	0.0	0.557	58.235	0.000	0.8
895	0.0	0.555	57.999	0.000	0.8
900	0.0	0.553	57.770	0.000	0.8
905	0.0	0.551	57.539	0.000	0.8
910	0.0	0.548	57.305	0.000	0.8
915	0.0	0.546	57.075	0.000	0.8
920	0.0	0.544	56.843	0.000	0.8
925	0.0	0.542	56.614	0.000	0.8
930	0.0	0.540	56.383	0.000	0.8
935	0.0	0.537	56.154	0.000	0.8
940	0.0	0.535	55.923	0.000	0.8
945	0.0	0.533	55.695	0.000	0.8
950	0.0	0.531	55.467	0.000	0.8
955	0.0	0.529	55.237	0.000	0.8
960	0.0	0.526	55.010	0.000	0.8

Appendix 3 – Wessex Water Asset Map



Appendix 4 – SuDS Operations & Maintenance

Geocellular/Modular Systems Maintenance Requirements

SuDS Feature	Maintenance Type	Required Action	Typical Frequency	Maintenance Record			
				Signed & Dated	Signed & Dated	Signed & Dated	Signed & Dated
Geocellular/Modular Systems	Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly				
		Debris removal from catchment surface (where may cause risks to performance)	As required				
		Where rainfall infiltrates into blocks from above, check surface of filter for blockage by silt, algae or other matter. Remove and replace surface infiltration medium as necessary.	Monthly (and after large storms)				
 (Imagery Greg Harding Photography)		Remove sediment from pre-treatment structures	Annually, or as required				
	Remedial Actions	Repair/rehabilitation of 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 and after large storms				

Filter Strips Maintenance Requirements

SuDS Feature	Maintenance Schedule	Required Action	Typical Frequency	Maintenance Record			
				Signed & Dated	Signed & Dated	Signed & Dated	Signed & Dated
Filter Strips	Regular Maintenance	Remove litter and debris	As required				
		Cut grass – to retain grass height within specified design range	As required				
		Manage other vegetation and remove nuisance plants.	As required				
		Inspect filter strip surface to identify evidence of erosion, poor vegetation growth, compaction, ponding, sedimentation and contamination.	Half yearly				
		Check flow spreader and filter strip surface for even gradients	Half yearly				
		Inspect gravel flow spreader upstream of filter strip for clogging	Half yearly				
		Inspect silt accumulation rates and establish appropriate removal frequencies					
 (Imagery susdrain.co.uk)	Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions if required	As required or if bare soil is exposed over 10% or more of the filter strip area				
	Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required				
		Relevel uneven surfaces and reinstate design levels	As required				
		Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required				
		Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required				
		Remove and dispose of oils or petrol residues using safe standard practices	As required				

Appendix 5 – Mendip Local Plan DP23

Development Policy 23: Managing Flood Risk

6.183 Managing flood risk is a significant consideration in making development allocations in this Local Plan Part I and subsequent site allocation documents. Flooding is an issue with varying levels of severity across the district and large expanses of floodplain exist on and around the Somerset Levels and Moors. The Mendip Strategic Flood Risk Assessment (SFRA) indicates that significant flooding is mainly caused by overtopping of river banks whilst less severe flooding is predominantly from surface water run-off and blockages of drains and culverts. Other sources of flooding such as groundwater or tidal impacts are less significant. Approximately 6% of properties within the district are located in areas at risk of flooding or within a short distance of known flooding incidents.

6.184 National policy is that development should be directed to Flood Zone 1 (the area of lowest risk) wherever possible and then sequentially to Flood Zones 2 and 3. The Council will expect development proposals to comply with the policies in the NPPF and supporting practice guidance. Where proposals require flooding or drainage infrastructure to be provided as part of the development, this will be sought in accordance with Development Policy 19. It is expected that flooding and drainage infrastructure should be addressed as part of the masterplanning work on key sites and future growth areas identified in this Plan.

6.185 All development proposals should refer to the latest available information on flood risk (from rivers or surface water flooding) provided on the Environment Agency website. Proposals should also take into account any local standing advice produced by the Environment Agency. This will be used by the Council to assess the need for a specific Flood Risk Assessment. Early engagement with the Environment Agency is encouraged where flood risk is identified. A Flood Risk Assessment should demonstrate that all sources of flood risk have been considered (e.g. relevant evidence from recent flood events and locations identified in the SFRA; account has been taken of future climate change as set out in the NPPF; and appropriate measures have been incorporated into the proposal to reduce flood impacts elsewhere.

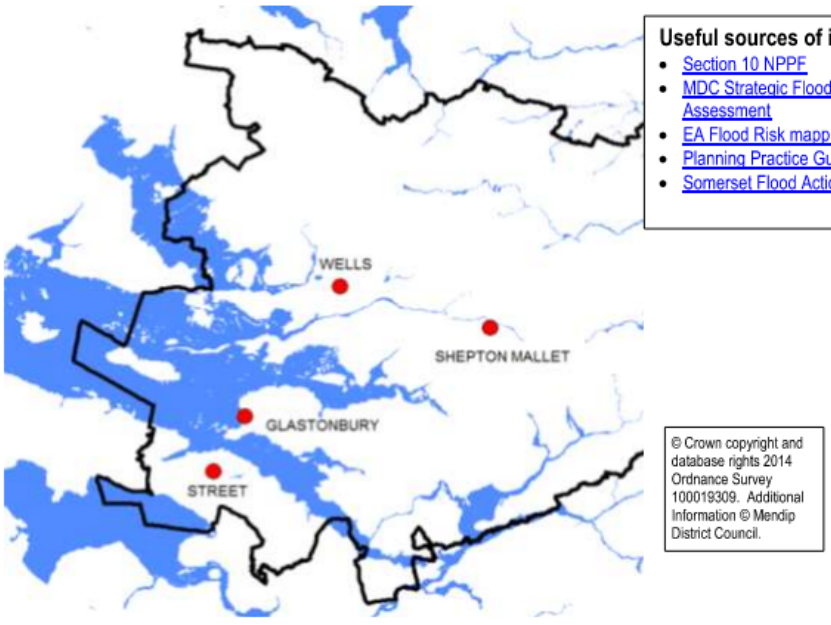


FIGURE 7: Indicative map of areas within Mendip District classified as lying within a designated Floodzone (zones 2 and 3) (Source: Environment Agency flood mapping, 2012)

6.186 On the **Somerset Levels & Moors,** activity exists in the knowledge that flooding remains a threat. New development is therefore strongly resisted for this reason. Following recent flood events on the Somerset Levels, an action plan has been produced by the Somerset County Council and DEFRA which commits to developing a strategy on how flood risk can be managed sustainably on the Levels and Moors over the next 20 years. This will be taken into account in any development proposals in this area.

6.187 Groundwater is an important resource in the district and needs to be protected both in terms of quantity and quality. The Environment Agency has defined a number of Groundwater Protection Zones and these are protected by the Agency's Groundwater Protection Policy. Development proposals falling within these areas will be required to demonstrate no adverse effects on groundwater in accordance with Development Policy 8.

Development Policy 23: Managing Flood Risk

1. **Development will follow a sequential approach to flood risk management, giving priority to the development of sites with the lowest risk of flooding. The development of sites with a sequentially greater risk of flooding will only be considered where essential for regeneration or where necessary to meet specific local requirements.**

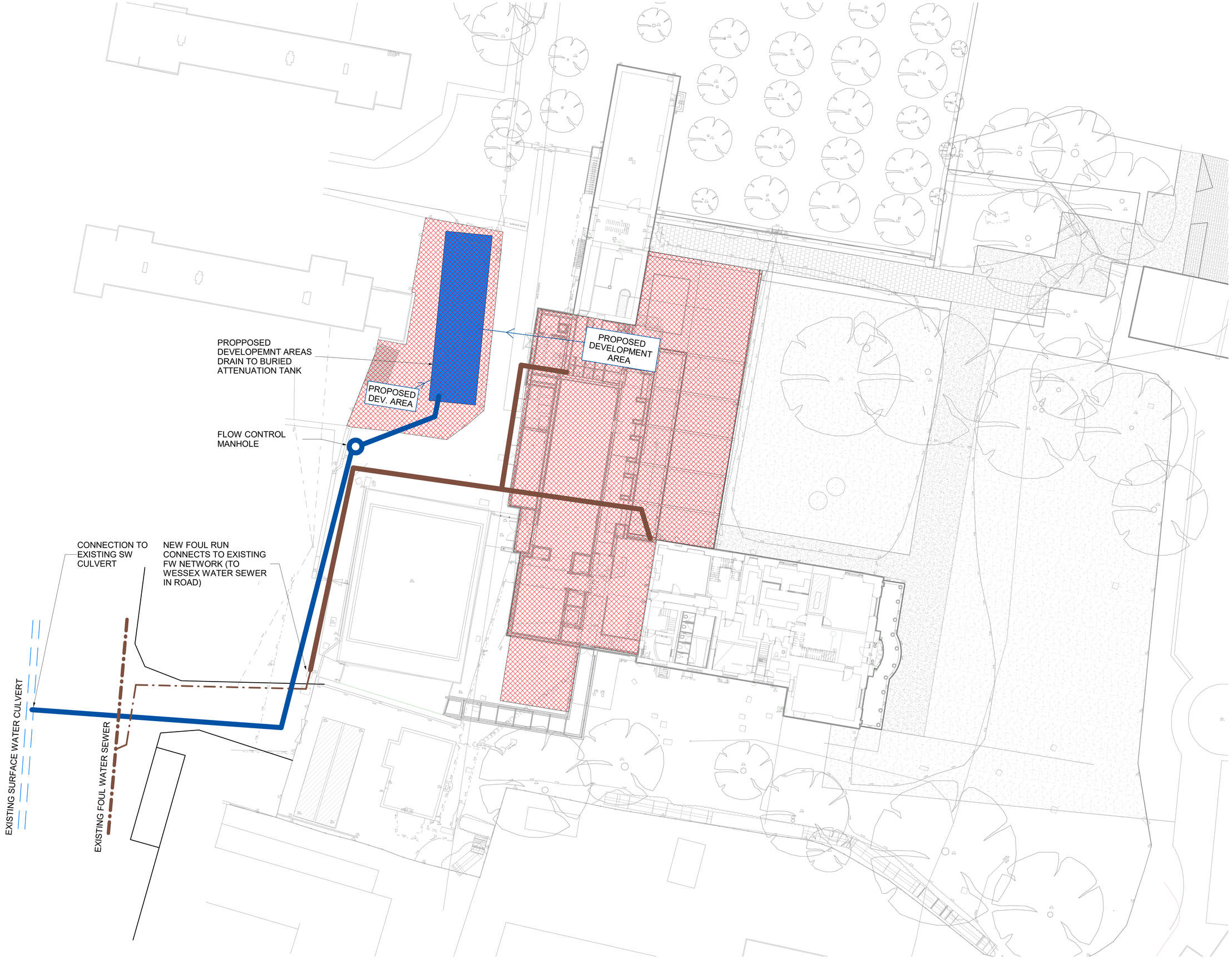
2. **Development in areas at risk of flooding will be expected to:**

   a) **be resilient to flooding through design and layout; and**

   b) **incorporate sensitively designed mitigation measures, which may take the form of on-site flood defence works and/or a contribution towards, or a commitment to undertake, such off-site measures as may be necessary, in order to ensure that the development remains safe from flooding over its lifetime, taking into account the predicted impact of climate change.**

3. **All development will also be expected to incorporate appropriate water management measures to reduce surface water run-off and ensure that it does not increase flood risks elsewhere. This should include the use of sustainable urban drainage systems (SUDS).**

Appendix 6 – Drawings



STATUS CODES FOR INFORMATION CONTAINERS WITHIN A COMMON DATA ENVIRONMENT IN ACCORDANCE WITH BS EN ISO 19650-2:2018	
CODE	DESCRIPTION
SHARED (NON-CONTRACTUAL - NOT FOR CONSTRUCTION)	
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S2	SUITABLE FOR INFORMATION
S3	SUITABLE FOR REVIEW AND COMMENT
S4	SUITABLE FOR STAGE REVIEW AND AUTHORIZATION
S5	SUITABLE FOR STAGE REVIEW AND ACCEPTANCE
PUBLISHED (CONTRACTUAL)	
A1	STAGE 1 AUTHORIZED (NOT FOR CONSTRUCTION)
A2	STAGE 2 AUTHORIZED (NOT FOR CONSTRUCTION)
A3	STAGE 3 AUTHORIZED (NOT FOR CONSTRUCTION)
A4	STAGE 4 AUTHORIZED (FOR CONSTRUCTION)
A5	STAGE 5 AUTHORIZED (FINAL DESIGN RECORD)

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DRAWING TO BE READ IN COLOUR

REV.	DESCRIPTION	BY	DATE
T1	TENDER ISSUE	JL	20.11.23

PROJECT

THE SHOEMAKERS MUSEUM

TITLE

PLAN
DRAINAGE
DRAINAGE STRATEGY

MANN WILLIAMS
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

7 OLD KING STREET
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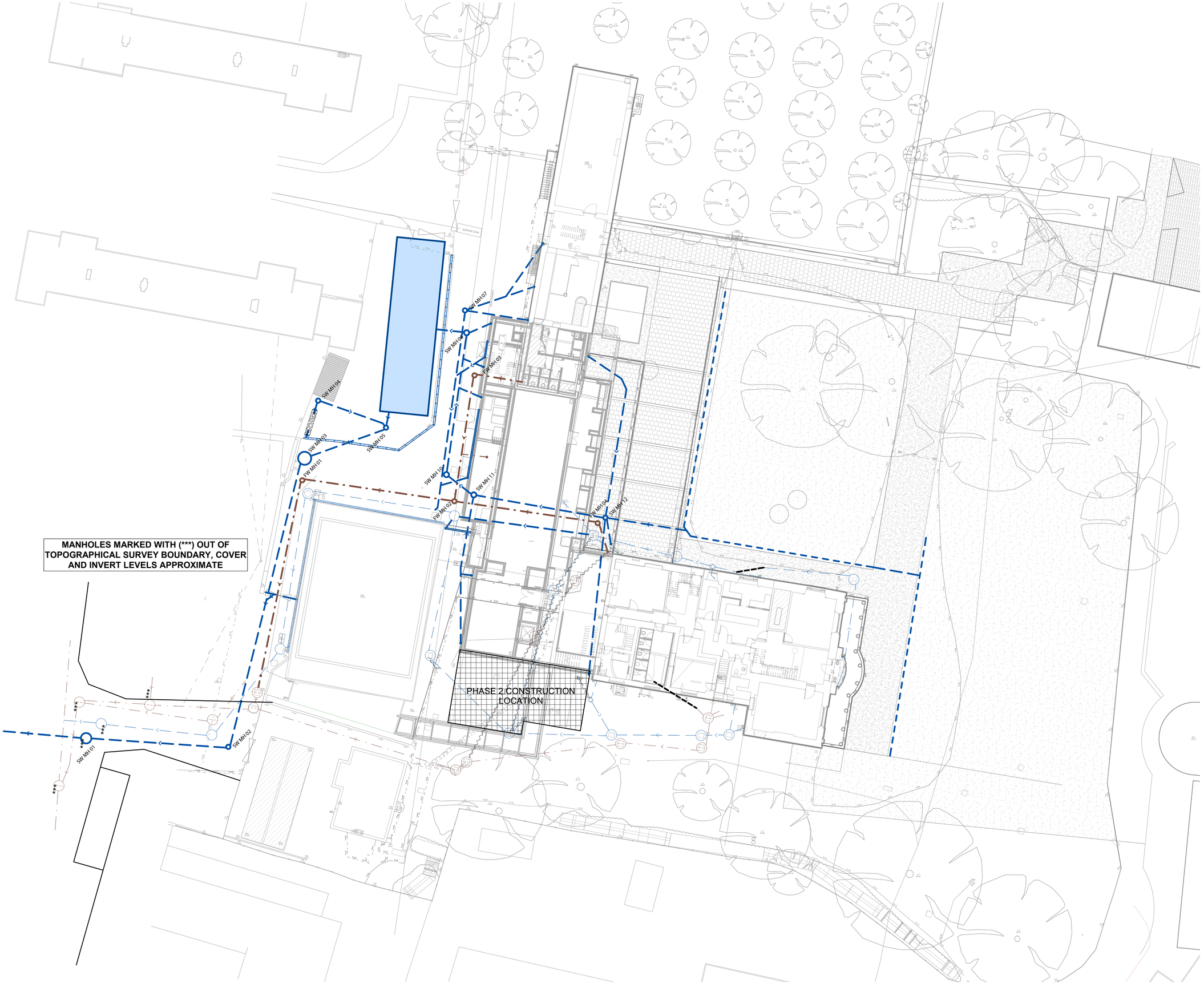
DRAWN	CHECKED	SIZE	SCALE	DATE	MW JOB No.
JL	MRP	A1	1 : 200	NOV 2023	11439

SUITABILITY STATUS:	
A4	TENDER

ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	D	MNW

PROJECT CODE	NUMBER	REVISION
GRA	0500	T1



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KEY

EXISTING SERVICES

EXISTING FOUL WATER

EXISTING SURFACE WATER

REFER TO SURVEY DRAWING FOR DETAILED INFORMATION OF OTHER EXISTING SERVICES

KEY

PROPOSED DRAINAGE

FP	FOUL PIPE
RWP-C	RAINWATER PIPE DISCHARGING TO CHANNEL DRAIN
RWP-N	RAINWATER PIPE DISCHARGING DIRECT TO NETWORK
RWP-G	RAINWATER PIPE DISCHARGING TO GULLY POT
SVP	SOIL VENT PIPE
G	GULLY
MH	MANHOLE
BD	BACKDROP MANHOLE

PROPOSED FOUL WATER RUN - MIN FALL: 1:80

PROPOSED STORM WATER RUN - MIN FALL: 1:100

PROPOSED COMBINED WATER RUN - MIN FALL: 1:80

PROPOSED MANHOLE OR INSPECTION CHAMBER

DRAWING TO BE READ IN COLOUR

REV	DESCRIPTION	BY	DATE
T1	TENDER ISSUE	JL	20.10.23
T2	TENDER ISSUE	JL	08.11.23
T3	TENDER ISSUE	JL	20.11.23
T4	TENDER ISSUE	JL	21.11.23

PROJECT

THE SHOEMAKERS MUSEUM

TITLE

PLAN
DRAINAGE
MASTERPLAN

MANN WILLIAMS
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

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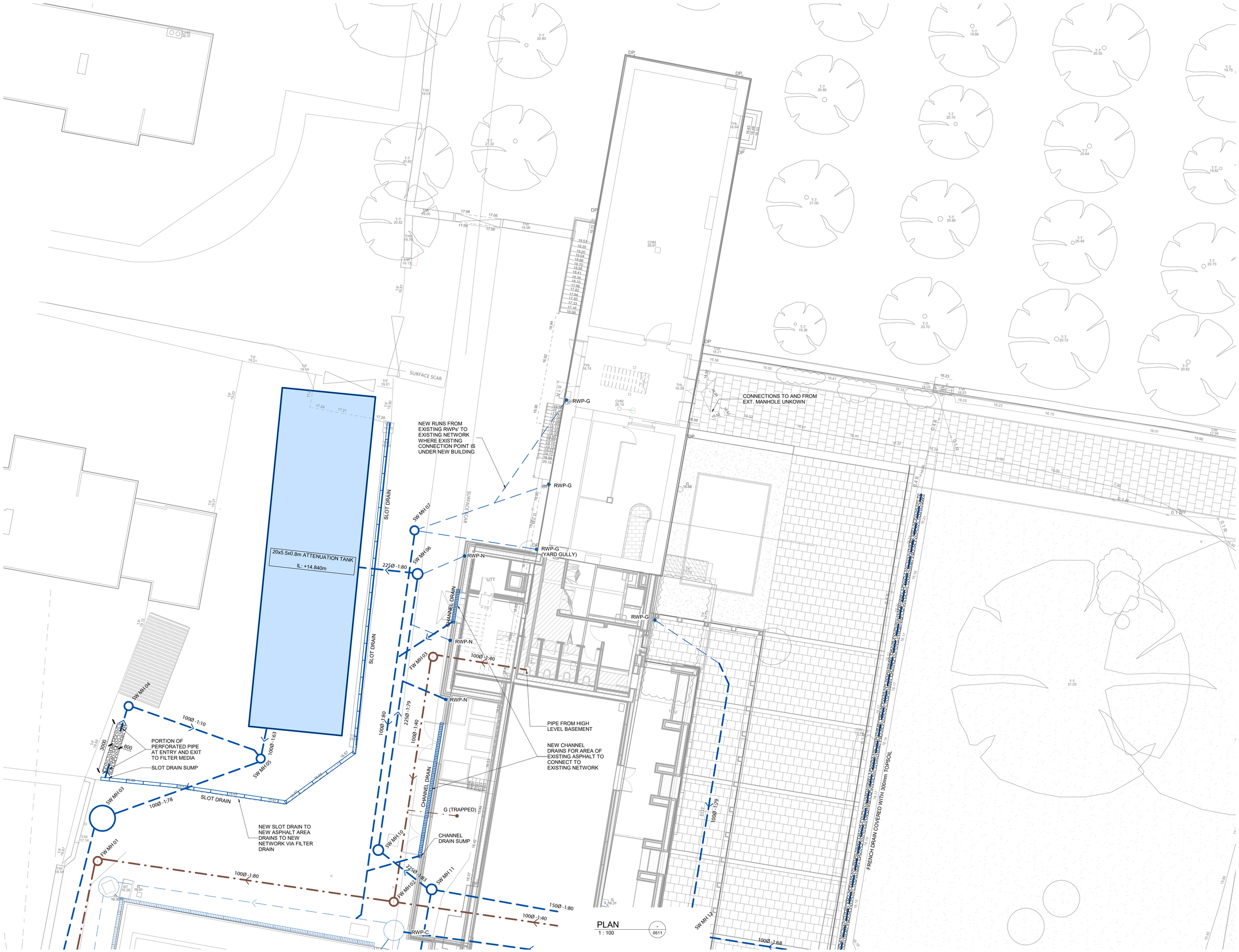
W www.mannwilliams.co.uk

DRAWN	CHECKED	SIZE	SCALE	DATE	MW JOB No
JL	MRP	A1	As indicated	OCT 2023	11439

	SUITABILITY STATUS:
A4	TENDER

ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	D	MNW

PROJECT CODE	NUMBER	REVISION
GRA	0501	T4



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- EXISTING SURFACE WATER

REFER TO SURVEY DRAWING FOR DETAILED INFORMATION OF OTHER EXISTING SERVICES

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T3	TENDER ISSUE	JL	20.11.23
T4	TENDER ISSUE	JL	21.11.23

PROJECT

THE SHOEMAKERS MUSEUM

TITLE

PLAN
DRAINAGE
PART PLANS
SHEET 1

MANN WILLIAMS
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

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DRAWN	CHECKED	SIZE	SCALE	DATE	MW JOB No.
JL	MRP	A1	As indicated	OCT 2023	11439

SUITABILITY STATUS: A4 TENDER

ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	D	MNW

PROJECT CODE	NUMBER	REVISION
GRA	0511	T4

MANHOLES MARKED WITH (***) OUT OF TOPOGRAPHICAL SURVEY BOUNDARY, COVER AND INVERT LEVELS APPROXIMATE

PORTION OF PERFORATED PIPE AT ENTRY AND EXIT TO FILTER MEDIA

SLOT DRAIN SUMP

SLOT DRAIN

NEW SLOT DRAIN TO NEW ASPHALT AREA DRAINS TO NEW NETWORK VIA FILTER DRAIN

CHANNEL DRAIN

CHANNEL DRAIN SUMP

G (TRAPPED)

MANHOLE TO BE REBENCHED TO ACCOMODATE NEW CONNECTIONS

THRESHOLD DRAIN REINSTATED AND CONNECTED TO EXISTING REBENCHED MANHOLE

FRENCH DRAIN

BD
IL RE: +14.650m
IL MH: +13.290m

MANHOLE TO BE REBENCHED TO ACCOMODATE NEW CONNECTIONS

NEW CONNECTION TO EXISTING CULVERTED WATERCOURSE FROM MANHOLE (ASSUMED INVERT OF WATERCOURSE: 12.700m)

EXISTING 450Ø FOUL SEWER

PHASE 2 CONSTRUCTION LOCATION

GRUBBED OUT EXISTING CONNECTIONS TO BE CAPPED AT MANHOLE

PLAN
1 : 100

0512

STATUS CODES FOR INFORMATION CONTAINERS WITHIN A COMMON DATA ENVIRONMENT IN ACCORDANCE WITH BS EN ISO 19650-2:2018

CODE	DESCRIPTION
SHARED (NON-CONTRACTUAL - NOT FOR CONSTRUCTION)	
S1	SUITABLE FOR COORDINATION
S2	SUITABLE FOR INFORMATION
S3	SUITABLE FOR REVIEW AND COMMENT
S4	SUITABLE FOR STAGE REVIEW AND AUTHORIZATION
S5	SUITABLE FOR STAGE REVIEW AND ACCEPTANCE
PUBLISHED (CONTRACTUAL)	
A1	STAGE 1 AUTHORIZED (NOT FOR CONSTRUCTION)
A2	STAGE 2 AUTHORIZED (NOT FOR CONSTRUCTION)
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A5	STAGE 5 AUTHORIZED (FINAL DESIGN RECORD)

NOTES

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KEY

EXISTING SERVICES

- EXISTING FOUL WATER
- EXISTING SURFACE WATER

REFER TO SURVEY DRAWING FOR DETAILED INFORMATION OF OTHER EXISTING SERVICES

KEY

PROPOSED DRAINAGE

FP	FOUL PIPE
RWP-C	RAINWATER PIPE DISCHARGING TO CHANNEL DRAIN
RWP-N	RAINWATER PIPE DISCHARGING DIRECT TO NETWORK
RWP-G	RAINWATER PIPE DISCHARGING TO GULLY POT
SVP	SOIL VENT PIPE
G	GULLY
MH	MANHOLE
BD	BACKDROP MANHOLE

- PROPOSED FOUL WATER RUN - MIN FALL: 1:80
- PROPOSED STORM WATER RUN - MIN FALL: 1:100
- PROPOSED COMBINED WATER RUN - MIN FALL: 1:80
- PROPOSED MANHOLE OR INSPECTION CHAMBER

DRAWING TO BE READ IN COLOUR

REV	DESCRIPTION	BY	DATE
T1	TENDER ISSUE	JL	20.10.23
T2	TENDER ISSUE	JL	08.11.23
T3	TENDER ISSUE	JL	20.11.23

PROJECT
THE SHOEMAKERS MUSEUM

TITLE
PLAN
DRAINAGE
PART PLANS
SHEET 2

MANN WILLIAMS
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E bath@mannwilliams.co.uk
W www.mannwilliams.co.uk

DRAWN	CHECKED	SIZE	SCALE	DATE	MW JOB No.
JL	MRP	A1	As indicated	OCT 2023	11439

SUITABILITY STATUS: A4 TENDER

ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	D	MNW

PROJECT CODE	NUMBER	REVISION
GRA	0512	T3

RWP-G
(YARD GULLY)

RWP-G

PIPE FROM HIGH
LEVEL BASEMENT

FRENCH DRAIN COVERED WITH 300mm TOPSOIL

150Ø -1:80

100Ø -1:40

150Ø -1:12

SW MH 12

SW MH 04

100Ø -1:58

RWP-G

SVP

RWP-G

FRENCH DRAIN COVERED WITH 300mm TOPSOIL

ASSUMED CONNECTION

100Ø -1:79

RWP-G

FRENCH DRAIN COVERED WITH 300mm TOPSOIL

GRUBBED OUT EXISTING
CONNECTIONS TO BE
CAPPED AT MANHOLE

ASSUMED EXISTING RUN
REPURPOSED FOR NEW
TOILETS
REPURPOSED POPUP
TO RUN AT LOW LEVEL
ABOVE GROUND TO
CONNECT TO TOILETS

PLAN
1 : 100
-
0513

STATUS CODES FOR INFORMATION CONTAINERS WITHIN A COMMON DATA ENVIRONMENT IN ACCORDANCE WITH BS EN ISO 19650-2:2018	
CODE	DESCRIPTION
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EXISTING SERVICES

EXISTING FOUL WATER

EXISTING SURFACE WATER

REFER TO SURVEY DRAWING FOR DETAILED INFORMATION OF OTHER EXISTING SERVICES

KEY

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RWP-C	RAINWATER PIPE DISCHARGING TO CHANNEL DRAIN
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SVP	SOIL VENT PIPE
G	GULLY
MH	MANHOLE
BD	BACKDROP MANHOLE

PROPOSED FOUL WATER RUN - MIN FALL: 1:80

PROPOSED STORM WATER RUN - MIN FALL: 1:100

PROPOSED COMBINED WATER RUN - MIN FALL: 1:80

PROPOSED MANHOLE OR INSPECTION CHAMBER

DRAWING TO BE READ IN COLOUR

REV.	DESCRIPTION	BY	DATE
T1	TENDER ISSUE	JL	20.10.23
T2	TENDER ISSUE	JL	08.11.23
T3	TENDER ISSUE	JL	20.11.23
T4	TENDER ISSUE	JL	21.11.23

PROJECT

THE SHOEMAKERS MUSEUM

TITLE

PLAN
DRAINAGE
PART PLANS
SHEET 3

MANN WILLIAMS
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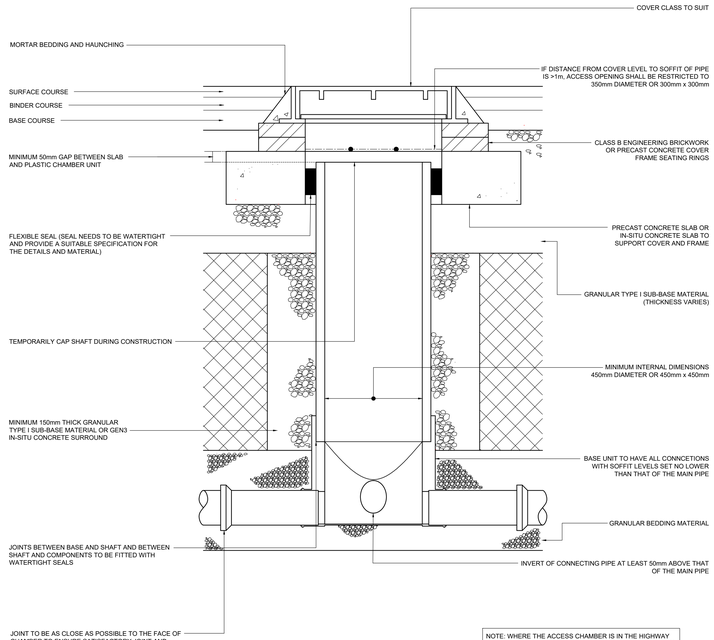
DRAWN	CHECKED	SIZE	SCALE	DATE	MW JOB No.
JL	MRP	A1	As indicated	OCT 2023	11439

SUITABILITY STATUS: A4 TENDER

ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	D	MNW

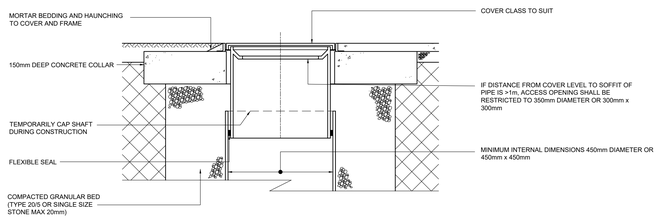
PROJECT CODE	NUMBER	REVISION
GRA	0513	T4



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

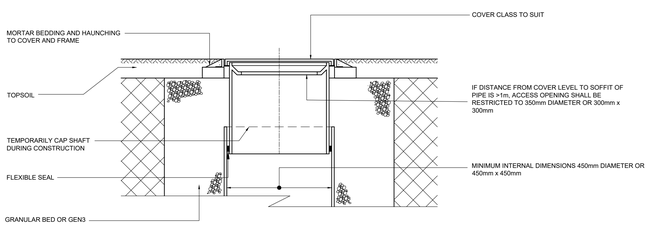
SECTION 1:10 — 01A / 0551 — TYPICAL INSP. CHAMBER ROADWAY

SITED IN DOMESTIC DRIVEWAYS OR FOOTWAYS

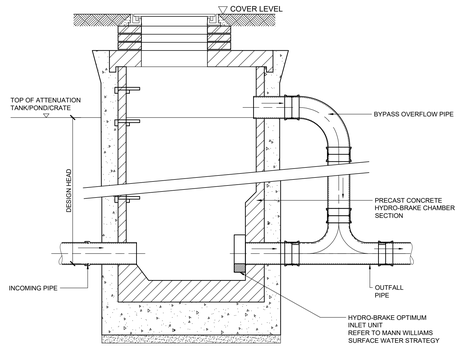


SECTION 1:10 — 01B / 0551 — TYPICAL INSP. CHAMBER DRIVEWAY/FOOTPATH

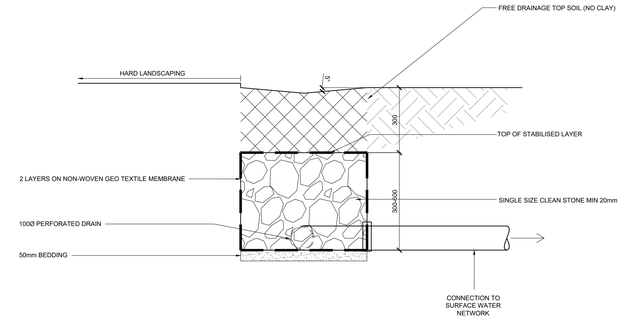
SITED IN DOMESTIC GARDENS



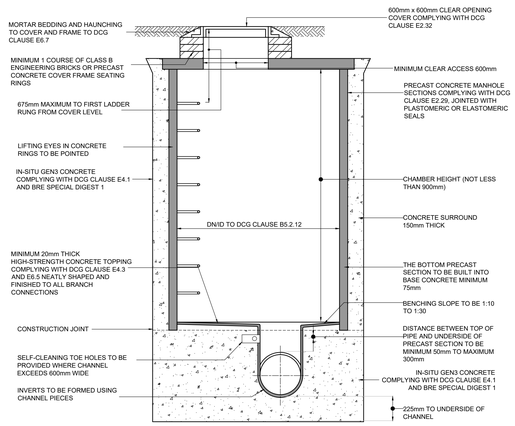
SECTION 1:10 — 01C / 0551 — TYPICAL INSP. CHAMBER LANDSCAPED AREAS



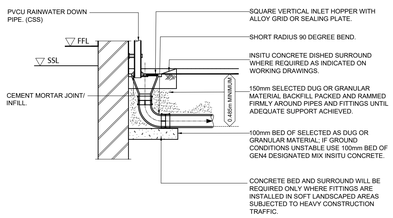
DETAIL 1:20 — 02 / 0551 — FLOW CONTROL MANHOLE TYPICAL DETAIL



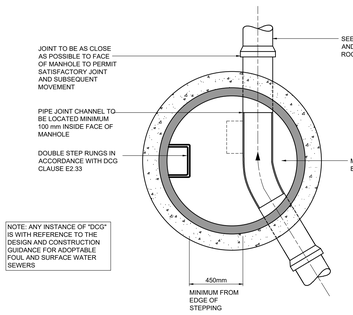
SECTION 1:10 — 03 / 0551 — BURIED FRENCH DRAIN



SECTION 1:20 — 04 / 0551 — ADOPTABLE MANHOLE

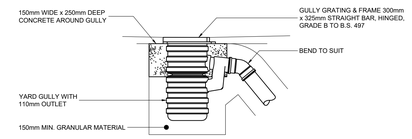


DETAIL 1:20 — 06 / 0551 — DIRECT RAINWATER CONNECTION THROUGH GULLY



NOTE: ANY INSTANCE OF "DCG" IS WITH REFERENCE TO THE DESIGN AND CONSTRUCTION GUIDANCE FOR ADOPTABLE FOUL AND SURFACE WATER SEWERS

PLAN 1:20 — 05 / 0551 — ADOPTABLE MANHOLE



DETAIL 1:20 — 07 / 0551 — YARD GULLY

STATUS CODES FOR DRAWINGS ACCORDANCE WITH BS EN ISO 19650-2:2018

CODE	DESCRIPTION
SHARED (NON-CONTRACTUAL - NOT FOR CONSTRUCTION)	
S1	SUITABLE FOR COORDINATION
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DRAWING TO BE READ IN COLOUR

REV	DESCRIPTION	BY	DATE
P1	PRELIMINARY ISSUE	JL	15.09.23
T1	TENDER ISSUE	JL	20.10.23
T2	TENDER ISSUE	JL	08.11.23
T3	TENDER ISSUE	JL	20.11.23
T4	TENDER ISSUE	JL	21.11.23

PROJECT
THE SHOEMAKERS MUSEUM

THE GRANGE

TITLE
DETAILS DRAINAGE

SHEET 1

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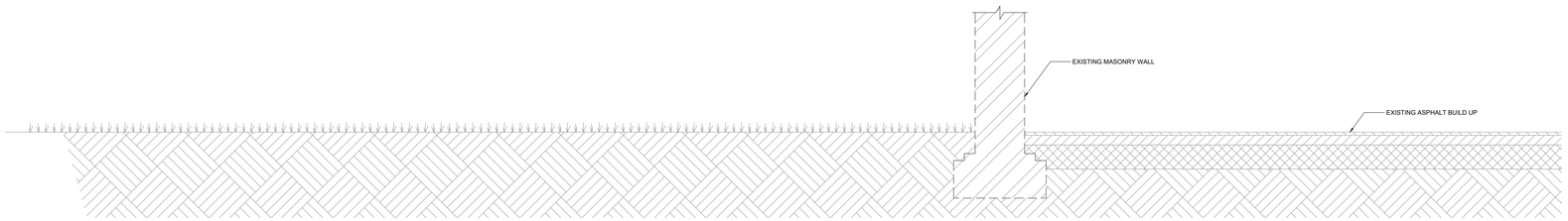
DRAWN	CHECKED	SIZE	SCALE	DATE	JOB NUM
JL	MRP	A0	-	SEPT 2023	11439

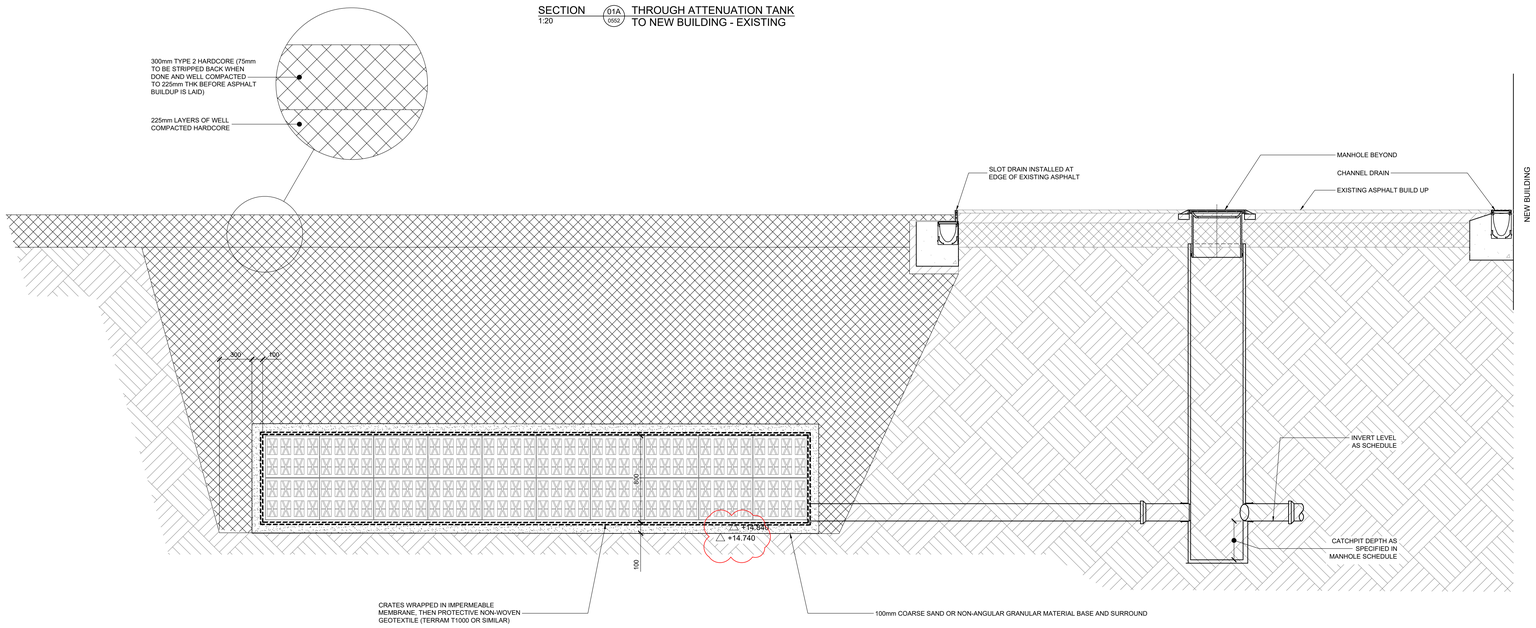
SUITABILITY STATUS: A4 TENDER

CONTENT/TYPE	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	D	MNW

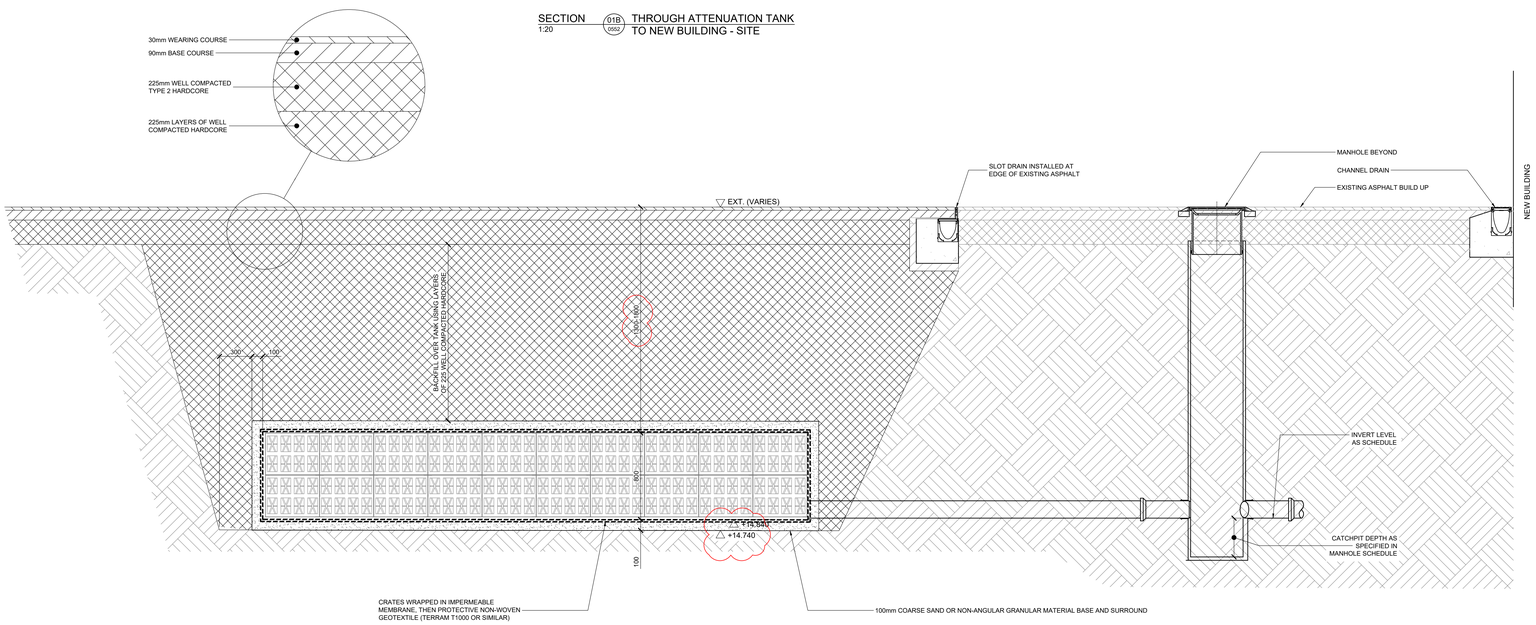
PROJECT CODE	NUMBER	REVISION
GRA	0551	T4



SECTION 1:20 — 01A 0552 — THROUGH ATTENUATION TANK TO NEW BUILDING - EXISTING



SECTION 1:20 — 01B 0552 — THROUGH ATTENUATION TANK TO NEW BUILDING - SITE



SECTION 1:20 — 01C 0552 — THROUGH ATTENUATION TANK TO NEW BUILDING - COMPLETE

STATUS CODES FOR DRAWINGS ACCORDANCE WITH BS EN ISO 19650-2:2018

CODE	DESCRIPTION
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DRAWING TO BE READ IN COLOUR

REV	DESCRIPTION	BY	DATE
T1	TENDER ISSUE	JL	08.11.23
T2	TENDER ISSUE	JL	20.11.23

PROJECT
THE SHOEMAKERS MUSEUM

THE GRANGE

TITLE
DETAILS DRAINAGE

SHEET 2

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E bath@mannwilliams.co.uk
W www.mannwilliams.co.uk

DRAWN	CHECKED	AUTH	SCALE	DATE	PROJECT NO
JL	MRP	A0	-	NOV 2023	11439

PAPER SIZE: A4 — TENDER

ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	D	MNW

PROJECT CODE: GRA — NUMBER: 0552 — REVISION: T2

SURFACE WATER MANHOLE SCHEDULE

REF.	INVERT LEVEL (m)	COVER LEVEL (m)	DEPTH (m)	TYPE	COMMENTS
SW MH 01	14.045	15.000	0.955	1200Ø CONCRETE MANHOLE	EST. COVER LEVEL
SW MH 02	14.245	15.570	1.325	500Ø PLASTIC INSPECTION CHAMBER	
SW MH 03	14.660	16.490	1.830	1500Ø HYDROBRAKE MANHOLE	300mm SUMP PIT (NOT INCLUDED IN INVERT LEVEL)
SW MH 04	15.520	17.020	1.500	500Ø PLASTIC INSPECTION CHAMBER	
SW MH 05	14.775	16.640	1.865	500Ø PLASTIC INSPECTION CHAMBER	
SW MH 06	14.840	16.800	1.960	600Ø PLASTIC INSPECTION CHAMBER	300mm SUMP PIT (NOT INCLUDED IN INVERT LEVEL)
SW MH 07	15.800	16.820	1.020	500Ø PLASTIC INSPECTION CHAMBER	
SW MH 10	15.040	16.430	1.390	600Ø PLASTIC INSPECTION CHAMBER	
SW MH 11	15.080	16.560	1.480	600Ø PLASTIC INSPECTION CHAMBER	INTERNAL CHAMBER - DOUBLE SEALED
SW MH 12	15.265	16.170	0.905	500Ø PLASTIC INSPECTION CHAMBER	300mm SUMP PIT (NOT INCLUDED IN INVERT LEVEL) B125 RECESSED STAINLESS STEEL MANHOLE COVER

FOUL WATER MANHOLE SCHEDULE

REF.	INVERT LEVEL (m)	COVER LEVEL (m)	DEPTH (m)	TYPE	COMMENTS
FW MH 01	14.950	16.480	1.530	500Ø PLASTIC INSPECTION CHAMBERS	
FW MH 02	15.165	16.350	1.185	500Ø PLASTIC INSPECTION CHAMBERS	
FW MH 03	15.520	16.640	1.120	500Ø PLASTIC INSPECTION CHAMBERS	
FW MH 04	15.565	16.160	0.595	500Ø PLASTIC INSPECTION CHAMBERS	

STATUS CODES FOR INFORMATION CONTAINERS WITHIN A COMMON DATA ENVIRONMENT IN ACCORDANCE WITH BS EN ISO 19650-2:2018

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DRAWING TO BE READ IN COLOUR

REV	DESCRIPTION	BY	DATE
T1	TENDER ISSUE	JL	20.10.23
T2	TENDER ISSUE	JL	20.11.23

PROJECT

THE SHOEMAKERS MUSEUM

TITLE

SCHEDULES
DRAINAGE
MANHOLE SCHEDULES
STORM AND FOUL WATER

MANN WILLIAMS
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BATH BA1 2JW
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E bath@mannwilliams.co.uk
W www.mannwilliams.co.uk

DRAWN	CHECKED	SIZE	SCALE	DATE	MW JOB No.
JL	MRP	A1		OCT 2023	11439

	SUITABILITY STATUS:
A4	TENDER

ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	SH	D	MNW

PROJECT CODE	NUMBER	REVISION
GRA	0521	T2