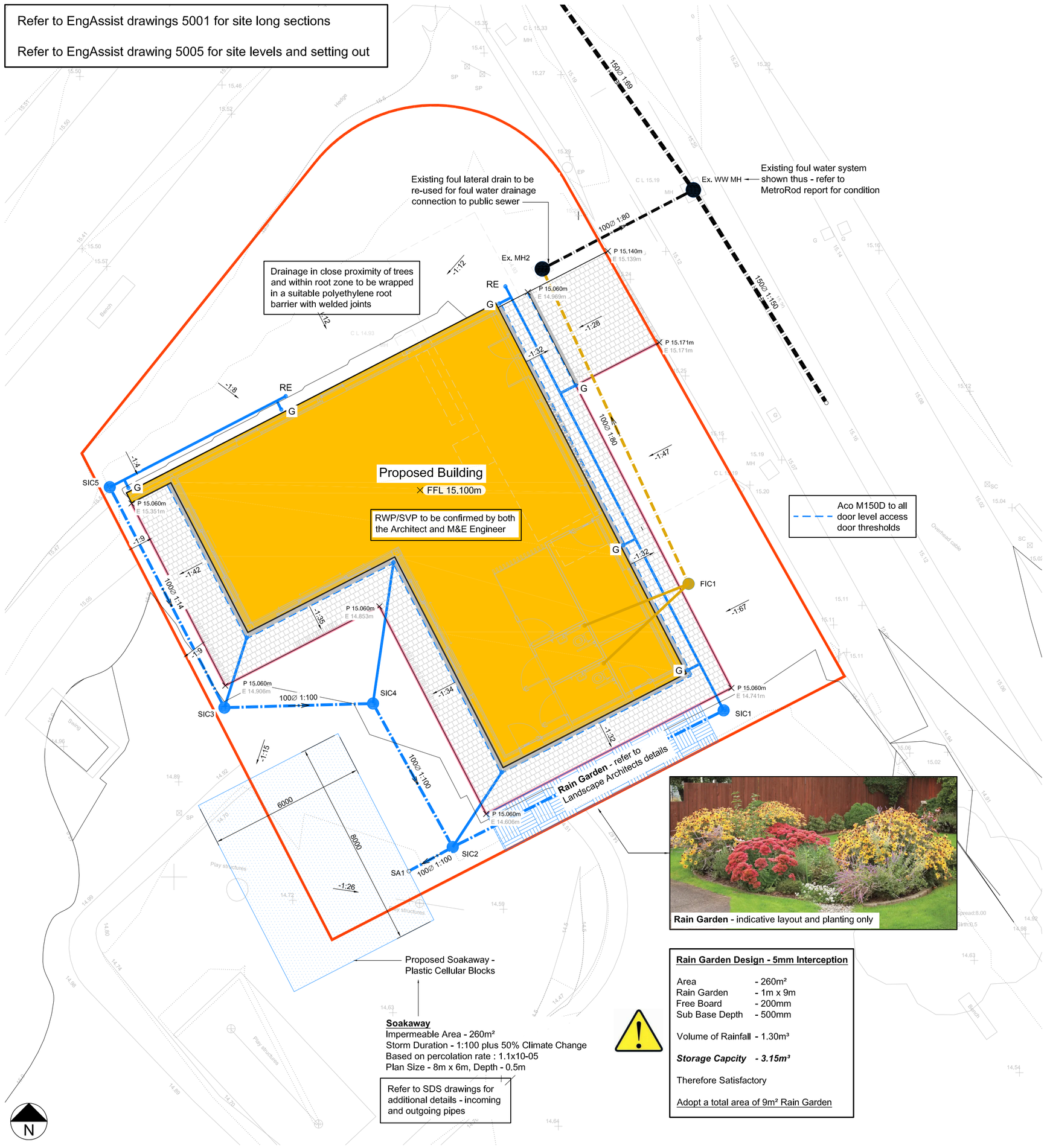
Refer to EngAssist drawings 5001 for site long sections

Refer to EngAssist drawing 5005 for site levels and setting out



Site General Arrangement
(Scale 1:100)

Rain Garden - indicative layout and planting only

Rain Garden Design - 5mm Interception	
Area	- 260m²
Rain Garden	- 1m x 9m
Free Board	- 200mm
Sub Base Depth	- 500mm
Volume of Rainfall	- 1.30m³
Storage Capcity	***- 3.15m³***
Therefore Satisfactory	
Adopt a total area of 9m² Rain Garden	

Proposed Building

Block Paving

Pin Kerb

Site Boundary

SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.05

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **250.0** m²
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.347**
5-year return period rainfall of 60 minutes duration	M5_60min = **18.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **50** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **500** mm
Width of pit	w = **11000** mm
Length of pit	l = **10000** mm
Percentage free volume	V_{free} = **95** %
Soil infiltration rate	f = **11.0×10⁻⁴** m/s
Wetted area of pit 50% full	a_{dd} = l × d + w × d = **10500000** mm²

Table equations

Inflow (cl.3.3.1)	I = M100 × A
Outflow (cl.3.3.2)	O = a_{dd} × f × D
Storage (cl.3.3.3)	S = I - O

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m³)	Outflow (m³)	Storage required (m³)
5	0.36;	9.6;	1.90;	18.3;	4.56;	0.03;	4.53
10	0.51;	13.7;	1.97;	26.9;	6.72;	0.07;	6.65
15	0.62;	16.6;	2.00;	33.3;	8.32;	0.10;	8.22
30	0.79;	21.2;	2.03;	43.0;	10.74;	0.21;	10.53
60	1.00;	27.0;	1.99;	53.8;	13.46;	0.42;	13.04
120	1.22;	33.1;	1.95;	64.3;	16.08;	0.83;	15.25
240	1.50;	40.5;	1.89;	76.5;	19.11;	1.66;	17.45
360	1.70;	45.8;	1.84;	84.4;	21.11;	2.49;	18.61
600	1.95;	52.9;	1.79;	94.8;	23.69;	4.16;	19.53
1440	2.50;	67.4;	1.69;	114.1;	28.52;	9.98;	18.54

Required storage volume S_{req} = **19.53** m³

Soakaway storage volume S_{act} = l × d × w × V_{free} = **52.25** m³

PASS - Soakaway storage volume

Time for emptying soakaway to half volume t_{dd} = S_{req} × 0.5 / (a_{dd} × f) = 23hr 29min 6s

PASS - Soakaway discharge time less than or equal to 24 hours

Soakaway Design

4.5 Infiltration Tests

Infiltration tests were carried out in the hand dug pit of WS1 and in HDP1. Three tests were undertaken in each pit in general accordance with BRE365. The results are shown in Figures 5 and 6.

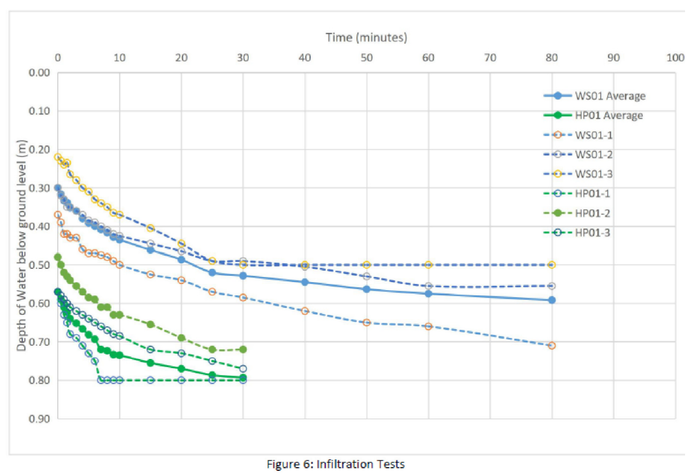


Figure 6: Infiltration Tests

Calculations in general accordance with BRE 365 indicate average infiltration rates of 5.8 x 10^{-5} m/s for HP01 and 1.1 x 10^{-5} m/s for WS01, indicating a medium permeability material and a low to medium permeability, respectively. This is likely to be reflective of the varying amounts of clay present in this material

Soakaway Testing

C. Eccles - Brownfield Engineering Consultancy Phase 2 Site Investigation
Percolation Rate Varies between 5.8x10-5 and 1.1x10-5

Drainage Key

SMH??	Surface Water Manhole
SIC??	Surface Water Inspection Chamber
	Surface Water Drain
	Aco Drain - MultiDrain M150D (185mm Invert)
G G	SVP, RWP, Road and Aco Drain Gully
RE	Rodding Eye
	SDS Soakaway - refer to their standard details for installation guidance
	Rain Garden
FMH??	Foul Water Manhole
FIC??	Foul Water Inspection Chamber
	Foul Water Drain
	Surface and Foul Water Flow Direction
Ex. ?H??	Existing Foul Manhole
	Existing Foul Water Drain

Client: **Rossett Community Council**	Project: **Rossett Community Hub, The Green, Rossett, LL12 0EY**	Drawing Title: **Site General Arrangement**	Drawing Number: **HUB-ENA-XX-XX-DR-C-5600**					
			Purpose of Issue: **Preliminary**					
			Revision: **P1**	P1	02.06.23	DRB	DRB	Preliminary Drawing Issue
			Status: **P**	Rev	Date	Drn	Chk	Details

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