

# ACO HYDRAULIC DESIGN



## + SUMMARY REPORT - Page 1

**Project Name:** Tavistock Guildhall

**Designer:** Rob Bignall

**Project Date:** 24th July 2019

**Location:** Court Gate, Guildhall Square, Tavistock PL19 0AE, United Kingdom

**Print Date:** 24th July 2019

### + INPUTS

M5-60: 19.7mm/hr

Ratio R: 0.27

RUN / OPTION	LENGTH (m)	AREA (m2)	SLOPE (%)	IMPERMEABILITY FACTOR	RETURN PERIOD (years)	CLIMATE CHANGE (%)	STORM DURATION (mins)	RAINFALL INTENSITY (mm/hr)	INFLOW CONTROL (l/s/m)	Point Inflow Interlinked from	Cumulative Point Inflows (l/s)	Discharge control (l/s)
1A	9.00	68.36	0.00	1.0	10	0	15	52.53	Free	None	0.00	None
2A	21.00	86.94	0.00	1.0	10	0	15	52.53	Free	None	0.00	None
3A	18.75	158.06	0.00	1.0	10	0	15	52.53	Free	None	0.00	None

### + OUTPUTS

M5-60: 19.7mm/hr

Ratio R: 0.27

RUN / OPTION	ACO PRODUCT	Part Number	METERAGE (m)	OUTFLOW (l/s)	CAPACITY (%)	MAX* VELOCITY (m/s)	MIN FREEBOARD (m)	EXCAVATION VOLUME (m3)	CONCRETE VOLUME (m3)
1A	RainDrain RainDrain	47000	9.00	1.00	63.19	0.39	0.02	0.58	0.47
2A	RainDrain RainDrain	47000	21.00	1.27	80.31	0.43	0.01	1.34	1.09
3A	Monodrain PD100D 0.0	20600	18.75	2.31	86.60	0.54	0.02	1.88	1.35

\*ACO would typically suggest flow velocities of 0.7m/s or greater in channels to be considered self-cleansing velocities. Flow velocities in the upper reaches of linear drainage systems are not likely to achieve self-cleansing velocities.

### + SUMMARY OF PARTS

ACO PRODUCT	Cumulative Product Meterage (m)	Part Number	CUMULATIVE OUTFLOW (l/s)	EXCAVATION VOLUME (m3)	CONCRETE VOLUME (m3)
Monodrain PD100D 0.0	18.75	20600	4.58	3.80	2.91
RainDrain RainDrain	30.00	47000			

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**+ CUMULATIVE ATTENUATION REQUIREMENTS**

Max permitted outflow (l/s): 1.00

**+ CONTRIBUTING AREAS**

RUN	CATCHMENT AREA (m2)
1A	68.36
2A	86.94
3A	158.06
Effective Catchment Area	0.00
Additional Contributing Area	0.00
<b>TOTAL AREA</b>	<b>0.00</b>

**+ RAINFALL DATA**

Duration	Intensity (mm/h)	Required Storage Volume (m3)
5 mins	41.77	0.00
10 mins	32.67	0.00
15 mins	26.26	0.00
30 mins	17.94	0.00
1 hour	12.21	0.00
2 hours	8.29	0.00
4 hours	5.23	0.00
6 hours	3.93	0.00
10 hours	2.86	0.00
24 hours	1.61	0.00
48 hours	1.01	0.00

**+ NET STORAGE VOLUME REQUIRED**

0.00 m3

**+ GROSS ATTENUATION STORAGE REQUIREMENT**

0.00 m3

**+ EXAMPLE STORMBRIX CONFIGURATIONS**

DEPTH (NUMBER OF UNITS)	LENGTH (NUMBER OF UNITS)	WIDTH (NUMBER OF UNITS)	STORAGE VOLUME M3 (GROSS/NET)
1 (= 0.61m)	0 (= 0.00m)	0 (= 0.00m)	0.00 (0.00)
2 (= 1.22m)	0 (= 0.00m)	0 (= 0.00m)	0.00 (0.00)
3 (= 1.83m)	0 (= 0.00m)	0 (= 0.00m)	0.00 (0.00)

Please note that any changes to your design criteria are likely to affect the attenuation requirement.

Please contact ACO Design Services with the details of your tank selection, with salient details such as proposed Cover Level, Invert Level, Ground Water Level and soil conditions. We will quickly prepare a Structural Analysis to fully assess your requirements.

**+ DISCLAIMER**

This simplified estimate of storage determines the largest volume required using the rainfall intensities for a range of different rainfall durations, for the location and return period specified by the designer. The type of flow control device is not known, so the calculation assumes a constant rate of outfall from the storage volume for the whole duration of the storm. Please contact ACO Design Services for further advice and details of the ACO Q-Brake Vortex Flow Control and the ACO StormBrixx Cellular Storage tank.