

ACO HYDRAULIC DESIGN



+ SUMMARY REPORT - Page 1

Project Name: Alchemy, Western Plot Unit 05

Designer: Abdallahi Gamba

Project Date: 5th June 2026

Location: F48M+X4 Liverpool, UK

Print Date: 20th July 2026

+ INPUTS

M5-60: 18mm/hr

Ratio R: 0.37

RUN / OPTION	LENGTH (m)	AREA (m2)	SLOPE (%)	IMPERM. FACTOR	CALC. EQUATION	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	76.94	3,637.72	100.00	1.0	SVF	100	40	5	173.21	Free	None	0.00	None
2A	7.91	152.03	100.00	1.0	SVF	100	40	5	173.21	Free	None	0.00	None
3A	53.99	1,069.00	100.00	1.0	SVF	100	40	5	173.21	Free	None	0.00	None

+ OUTPUTS

M5-60: 18mm/hr

Ratio R: 0.37

RUN / OPTION	ACO PRODUCT	Part No.	METERAGE (m)	OUTFLOW (l/s)	CAPACITY (%)	MAX* VELOCITY (m/s)	MIN FREEBOARD (m)	EXCAVATION VOLUME (m3)	CONCRETE VOLUME (m3)
1A	Qmax Qmax 350	32810	76.94	116.80	80.09**	1.52**	0.09**	35.16	26.16
2A	S-Range Shallow S100 S05	0274	7.91	7.32	78.67**	0.84**	0.02**	1.58	1.38
3A	Qmax Qmax 225	32800	53.99	51.49	91.42**	1.42**	0.03**	16.36	13.77

*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.

**The flow in this channel varies between sub-critical and super-critical conditions so the depth / velocity calculation is not precise. However, your selected channel will have sufficient capacity to accommodate the defined flow.

Note that optimised solutions will only suggest non-turbulent, sub-critical flow regimes.

+ SUMMARY OF PARTS

ACO PRODUCT	Cumulative Product Meterage (m)	Part Number	CUMULATIVE OUTFLOW (l/s)	EXCAVATION VOLUME (m3)	CONCRETE VOLUME (m3)
Qmax Qmax 225	53.99	32800	175.61	53.10	41.31
Qmax Qmax 350	76.94	32810			
S-Range Shallow S100 S05	7.91	0274			



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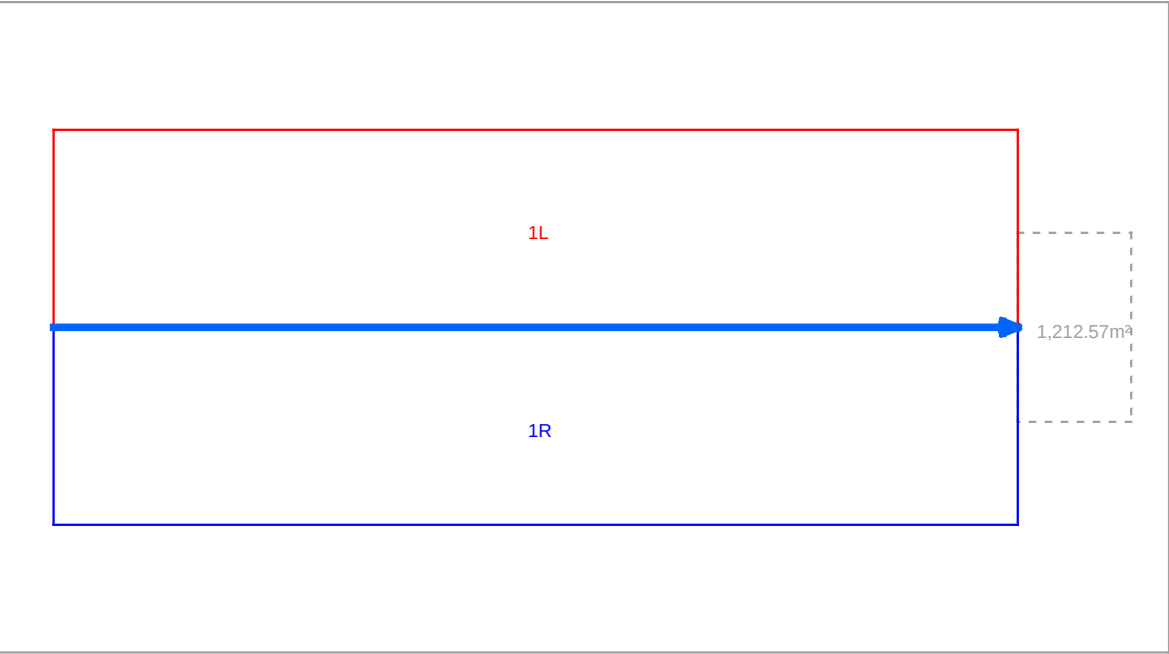
Print Date: 20th July 2026

Project Notes:

+ INPUT DATA:- Run 1: 'New Run', Option A 'New Option'

M5-60: 18mm/hr		Ratio R: 0.37									
LENGTH (m)	AREA (m2)	SLOPE (%)	IMPERM. FACTOR	CALC. EQUATION	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
76.94	3,637.72	100.00	1.00	SVF	100	40.00	5 mins	173.21	None	None	0.00

+ CHANNEL LAYOUT



+ RAINFALL DATA

Duration	Intensity (mm/h)
5 mins	123.72
10 mins	96.67
15 mins	85.03
30 mins	54.53
1 hour	35.82
2 hours	22.35
4 hours	13.19
6 hours	9.84
10 hours	6.69
24 hours	3.41
48 hours	1.91



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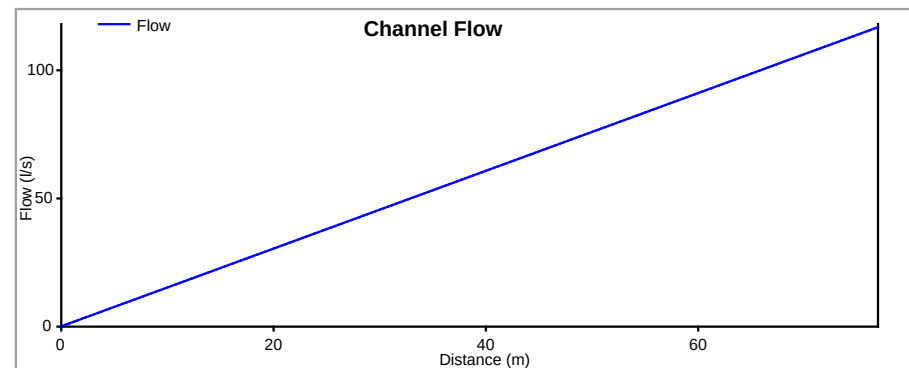
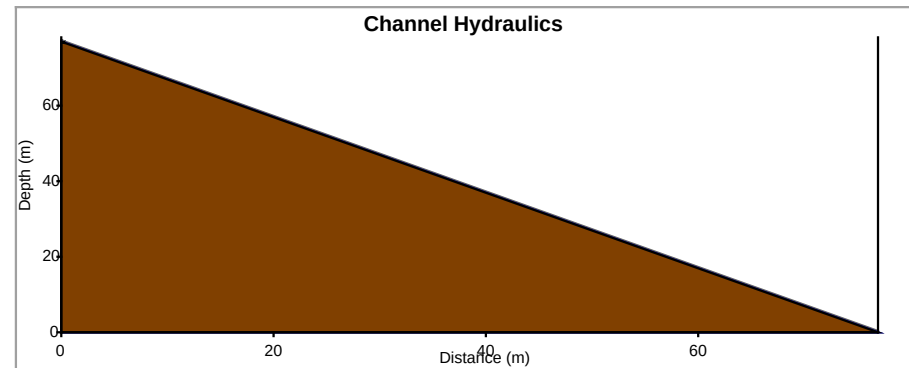
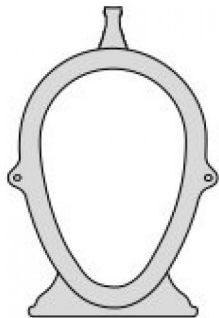
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+ OUTPUTS:- Run 1: 'New Run', Option A 'New Option'

OUTFLOW (l/s)	CAPACITY (%)	MAX* VELOCITY (m/s)	MIN FREEBOARD (m)	EXCAVATION VOLUME (m3)	CONCRETE VOLUME (m3)
116.80	80.09**	1.52**	0.09**	35.16	26.16

Qmax

1	
System	Qmax 350
W - Width (mm)	350
H - Invert (mm)	550
Length (m)	76.94



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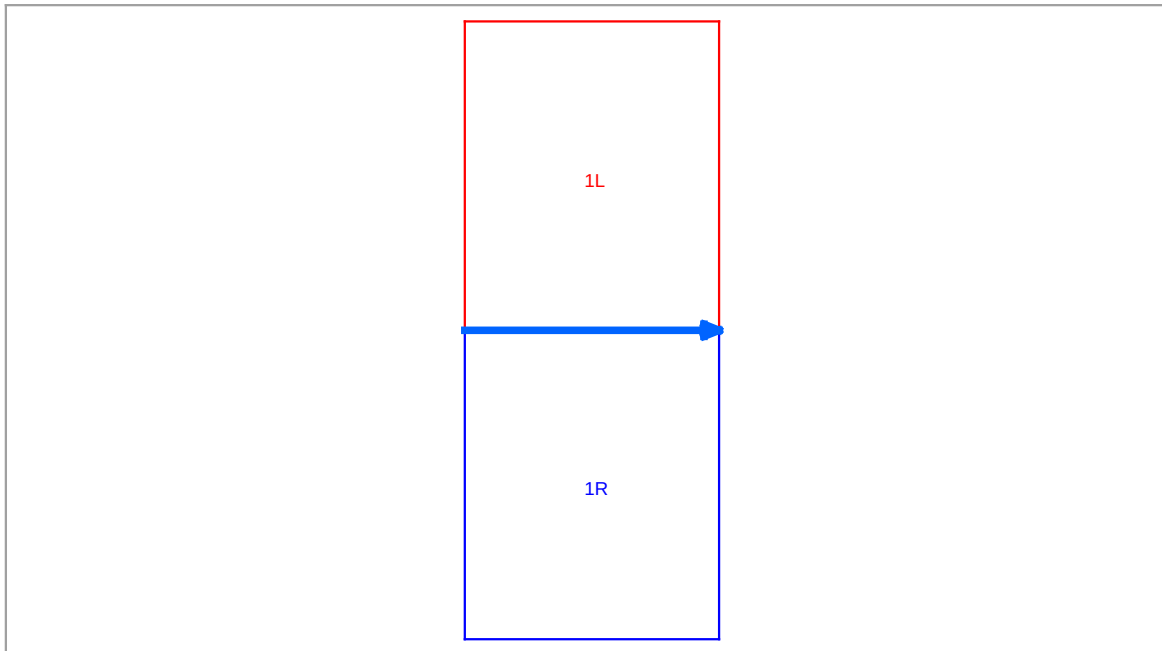
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M5-60: 18mm/hr

Ratio R: 0.37

LENGTH (m)	AREA (m2)	SLOPE (%)	IMPERM. FACTOR	CALC. EQUATION	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
7.91	152.03	100.00	1.00	SVF	100	40.00	5 mins	173.21	None	None	0.00

+ CHANNEL LAYOUT



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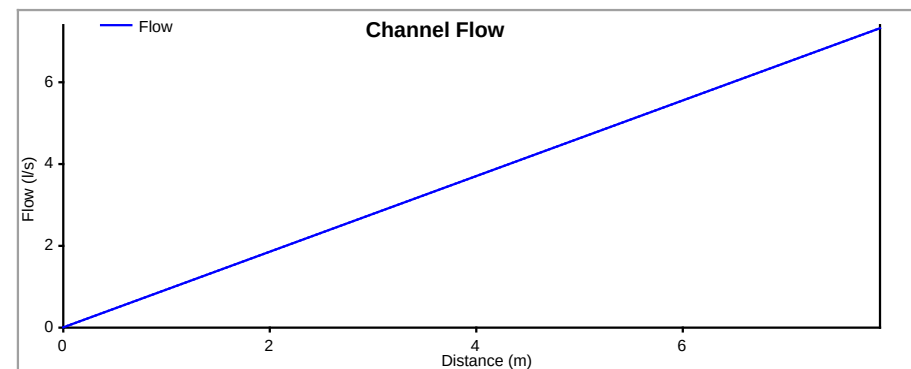
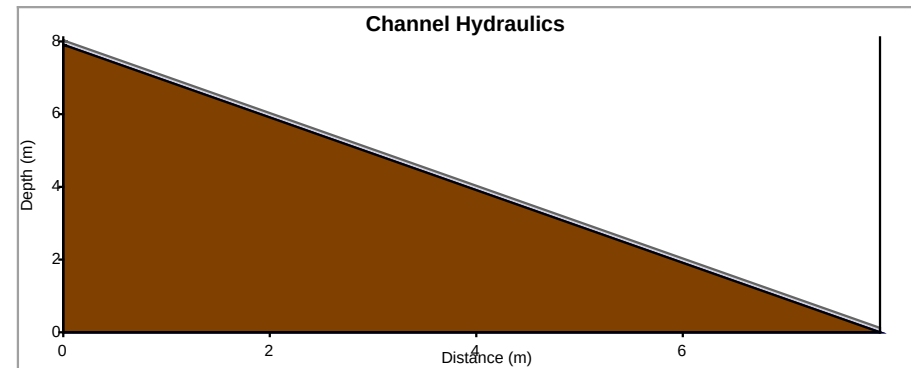
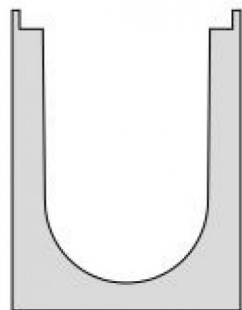
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+ OUTPUTS:- Run 2: 'New Run', Option A 'New Option'

OUTFLOW (l/s)	CAPACITY (%)	MAX* VELOCITY (m/s)	MIN FREEBOARD (m)	EXCAVATION VOLUME (m3)	CONCRETE VOLUME (m3)
7.32	78.67**	0.84**	0.02**	1.58	1.38

S-Range Shallow

	1
System	S100 S05
W - Width (mm)	100
H - Invert (mm)	136
Length (m)	7.91



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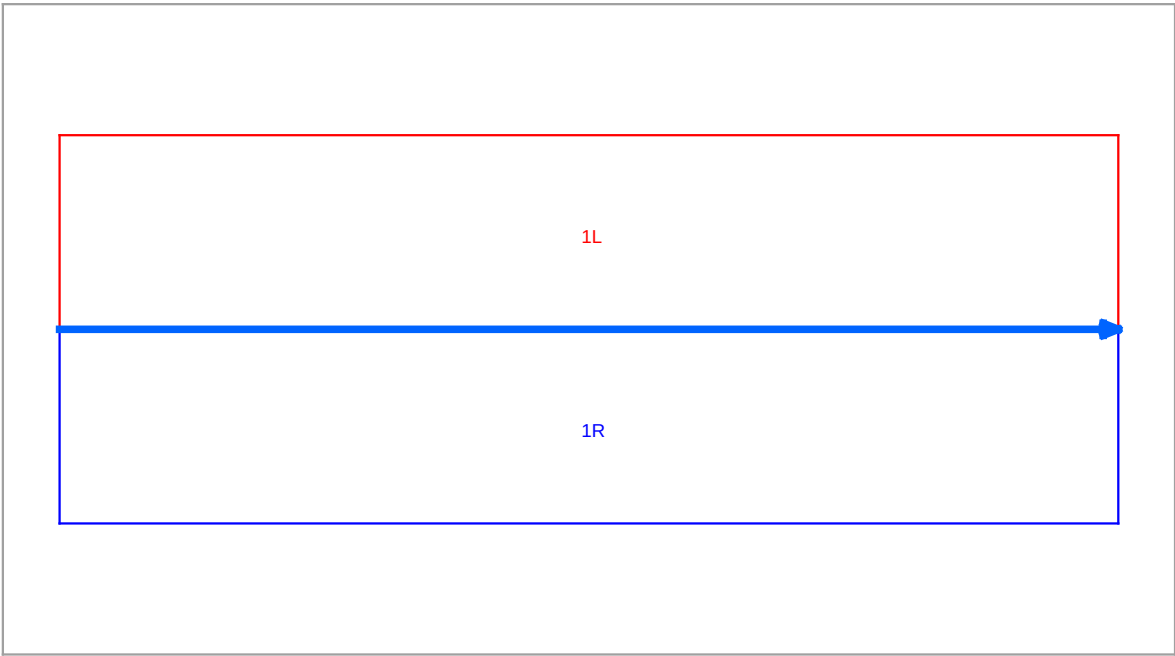
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Project Date: 5th June 2026

+ INPUT DATA:- Run 3: 'New Run', Option A 'New Option'

M5-60: 18mm/hr		Ratio R: 0.37									
LENGTH (m)	AREA (m2)	SLOPE (%)	IMPERM. FACTOR	CALC. EQUATION	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
53.99	1,069.00	100.00	1.00	SVF	100	40.00	5 mins	173.21	None	None	0.00

+ CHANNEL LAYOUT



+ RAINFALL DATA

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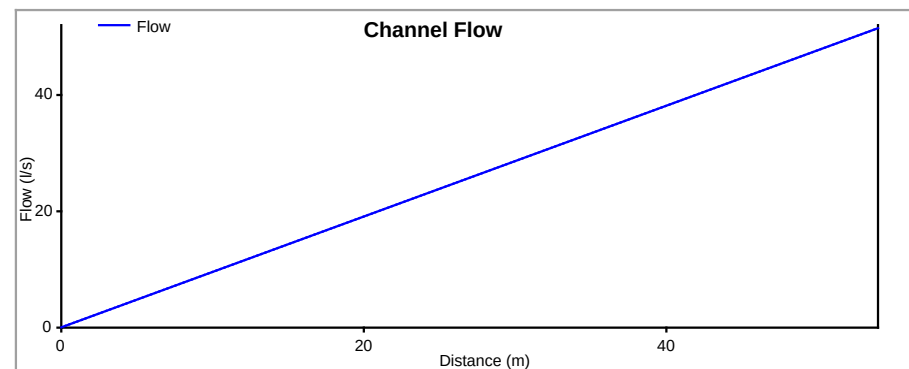
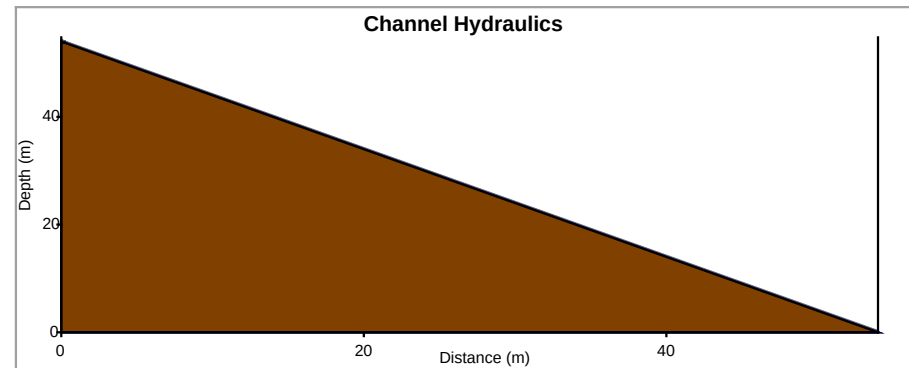
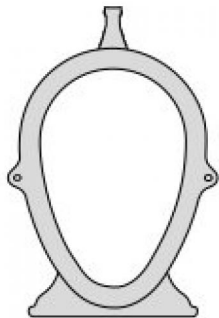
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OUTFLOW (l/s)	CAPACITY (%)	MAX* VELOCITY (m/s)	MIN FREEBOARD (m)	EXCAVATION VOLUME (m3)	CONCRETE VOLUME (m3)
51.49	91.42**	1.42**	0.03**	16.36	13.77

Qmax

1	
System	Qmax 225
W - Width (mm)	225
H - Invert (mm)	425
Length (m)	53.99



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