

Rennard Consulting Limited		Page 10
Ebenezer House Ryecroft Newcastle ST5 2BE	Royal Oak Residential Surface Water Design 1 in 100 40CC	
Date 14/01/2025 10:20 File 2025.01.14 NETWORK REV ...	Designed by FEG Checked by	
Innovyze	Network 2020.1.3	

100 year Return Period Summary of Critical Results by Maximum Flood Volume
(Rank 1) for Storm

PN	US/MH Name	Surcharged		Flooded		Half Drain		Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Flow (l/s)		
1.003	10	-0.070	0.000	0.20				2.7	OK	

Appendix J – Aco Channel Calculations



Project Name: Royal Oak

Location: ACO UK, Shefford

Project Notes:

Designer: Faye Gennard

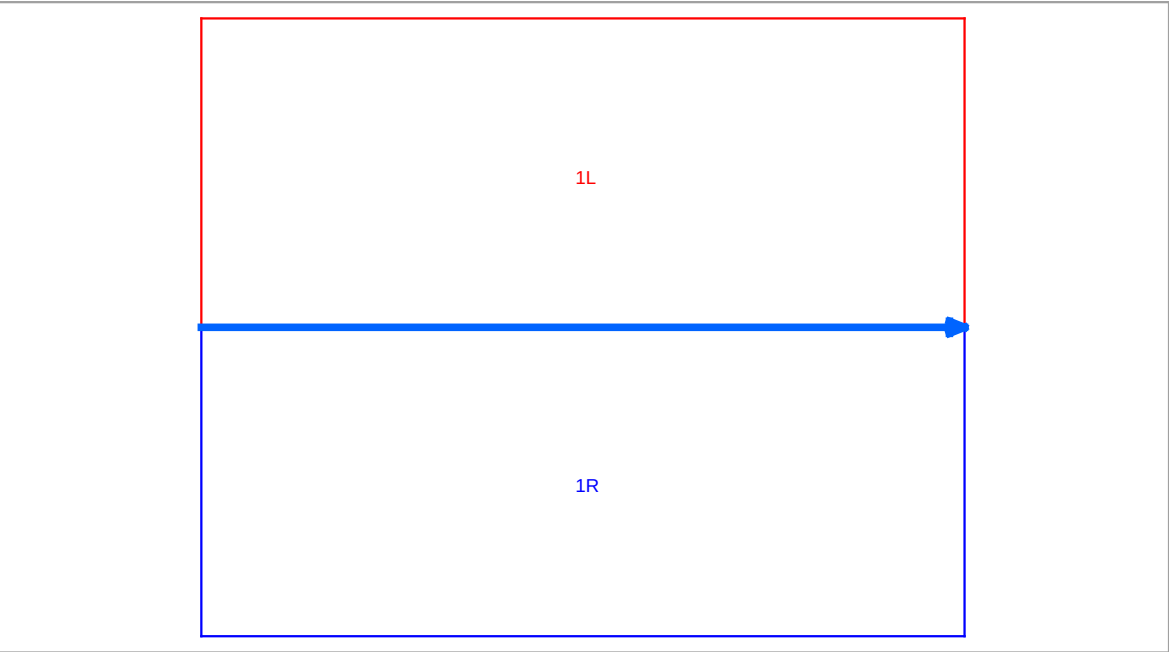
Project Date: 4th August 2024

Print Date: 4th August 2024

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

M5-60: 20.5mm/hr				Ratio R: 0.41							
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
8.40	57.12	6.00	1.00	SVF	0	0.00	-	158.00	None	None	0.00

+ CHANNEL LAYOUT



+ RAINFALL DATA

Duration	Intensity (mm/h)
5 mins	53.38
10 mins	40.21
15 mins	32.44
30 mins	20.74
1 hour	13.12
2 hours	7.83
4 hours	4.75
6 hours	3.62
10 hours	2.53
24 hours	1.35
48 hours	0.79





Project Name: Royal Oak

Location: ACO UK, Shefford

Designer: Faye Gennard

Print Date: 4th August 2024

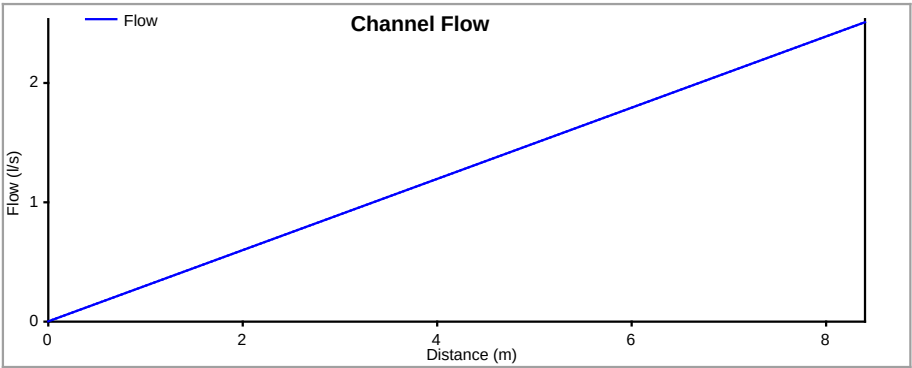
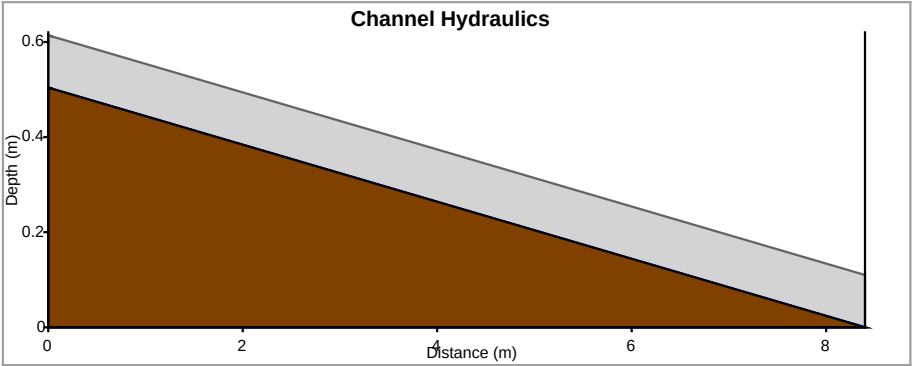
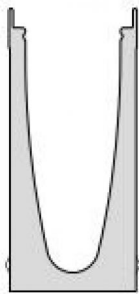
Project Date: 4th August 2024

+ 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)
2.51	48.85**	0.57**	0.05**	1.01	0.84

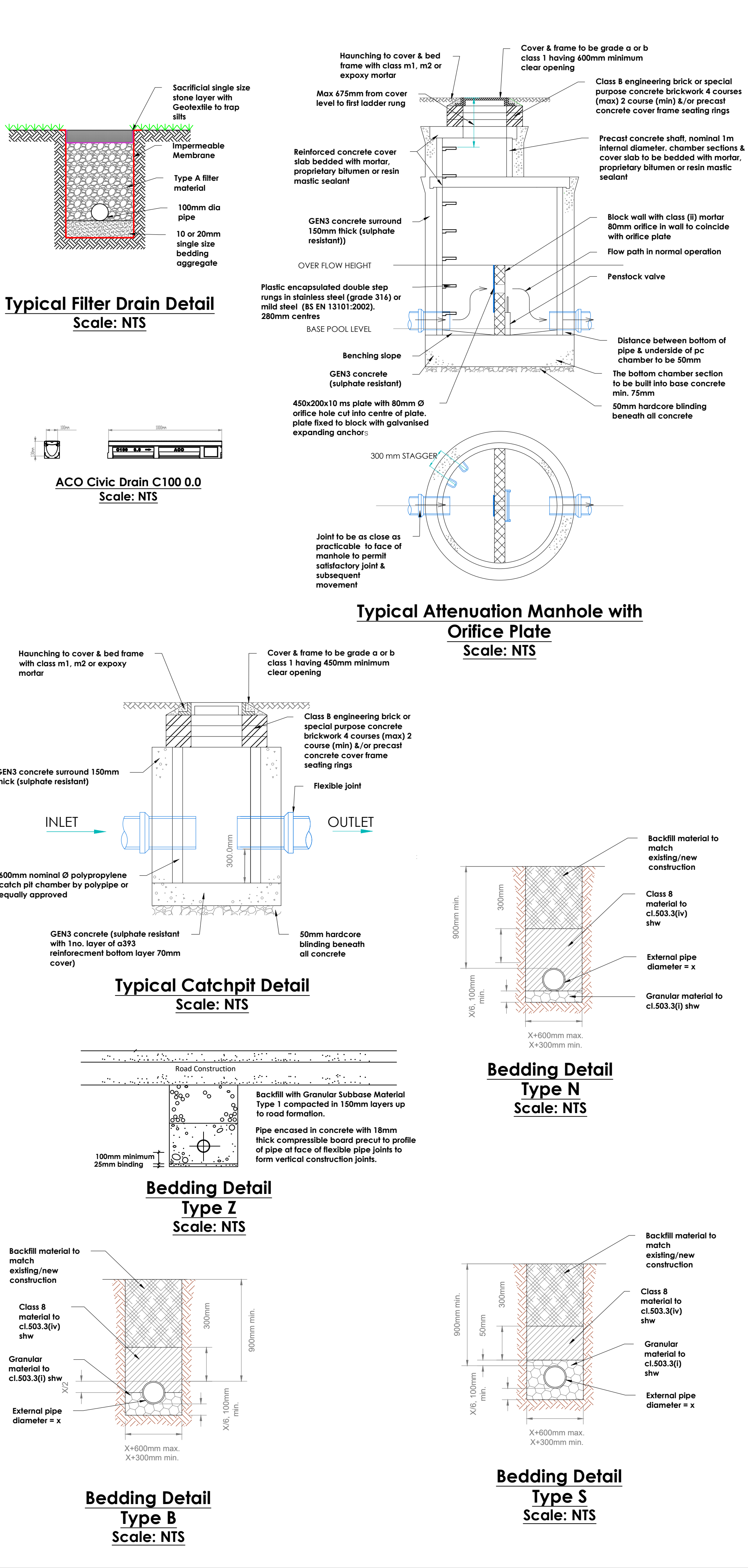
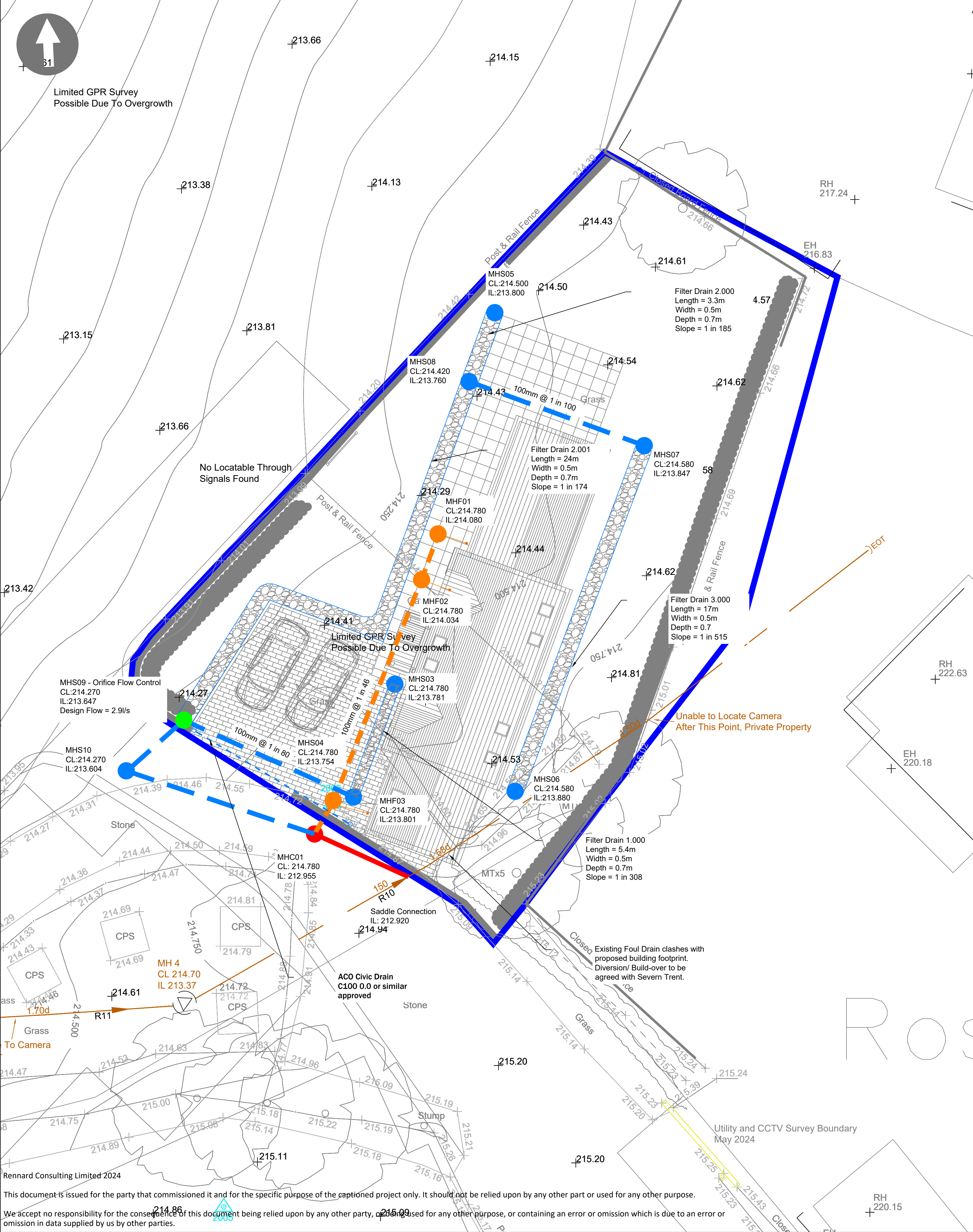
CivicDrain

1	
System	C100 0.0
W - Width (mm)	100
H - Invert (mm)	130
Length (m)	8.40



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

Appendix K – Drainage Strategy Drawing



NOTES

1. Dimensions are in mm unless otherwise stated.
2. Levels are in m AOD unless otherwise stated.
3. This drawing has been produced to support a planning application for the named scheme. It should not be relied upon for any other purpose.
4. In the absence of a proposed level strategy, levels have currently been based on the existing topo.

Key

- Site Boundary
- Proposed Surface Water Drainage
- Proposed Foul Water Drainage
- Existing Combined Drainage
- Flow Control Chamber
- Existing Foul Water Drainage
- Proposed Filter Drain
- ACO Civic Drain C100 0.0 or similar approved

Reference Drawings

Rev	Date	Revision notes	By
D	14.01.2025	For Planning	FEG
C	13.12.2024	For Planning	FEG
B	05.08.2024	For Planning	FEG
A	22.07.2024	DRAFT - For Discussion	FEG

NOT FOR CONSTRUCTION

Status: For Planning

Project: Royal Oak Residential Development

Title: Drainage Strategy Drawing

Client: Royal Oak Dillihorne Stoke-on-Trent Staffordshire ST10 2PE

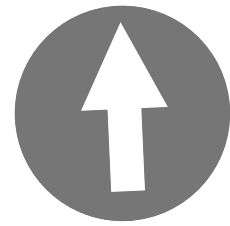
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Helping our clients to make every drop count!

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Drawn By	Publish Date	Scale(s)
FEG	22.07.2024	1:100

Drawing no.	Revision
00084/OAK/DR/5000	D



Surface Water Manhole Schedule

MH Name	Coordinates		Cover Level (m AOD)	Invert Level (m AOD)	Depth (m AOD)	Pipe In					Pipe Out					Comment
	Easting	Northing				No.	IL (m AOD)	Dia. (mm)	Grad (1 in x)	Length (m)	No.	IL (m AOD)	Dia. (mm)	Grad (1 in x)	Length (m)	
MHS3	397367.985	343691.582	214.780	213.781	0.999	-	-	-	-	-	S1.000	213.781	100	224	5.4	Filter Drain 1.000 Length = 5.4m Width = 0.5m Depth = 0.7m Slope = 1 in 224
MHS4	397366.124	343686.503	214.780	213.754	1.026	S1.000	213.754	100	224	5.4	S1.001	213.754	100	80	8.606	
MHS5	397372.480	343708.293	214.500	213.800	0.700	-	-	-	-	-	S2.000	213.8	100	185	3.3	Filter Drain 2.000 Length = 3.3m Width = 0.5m Depth = 0.7m Slope = 1 in 185
MHS6	397373.394	343686.753	214.580	213.880	0.700	-	-	-	-	-	S3.000	213.88	100	515	17	Filter Drain 3.000 Length = 17.0m Width = 0.5m Depth = 0.7m Slope = 1 in 515
MHS7	397379.205	343702.311	214.580	213.847	0.733	S2.000	213.847	100	515	17	S3.001	213.847	100	100	8.71	
MHS8	397371.325	343705.194	214.420	213.760	0.660	S3.000	213.76	100	185	8.606	S2.001	213.76	100	174	24	Filter Drain 2.001 Length = 24.0m Width = 0.5m Depth = 0.7m Slope = 1 in 174
						S3.001	213.76	100	100	8.71						
MHS9	397358.487	343689.960	214.270	213.647	0.623	S1.001	213.647	100	80	8.606	S1.002	213.647	100	79.8	3.432	Flow Control Chamber - Orifice Design Head = 0.623m Design Flow = 2.9l/s
						S2.001	213.647	100	174	24						
MHS10	397355.926	343687.675	214.270	213.604	0.666	S1.002	213.604	100	79.8	3.432	S1.003	213.604	100	14	8.9	
MHC01	397364.370	343684.841	214.780	212.955	1.825	S1.003	212.995	100	14	8.9	C1.000	212.995	150	80	4.6	Saddle Connection

Foul Water Manhole Schedule

MH Name	Coordinates		Cover Level (m AOD)	Invert Level (m AOD)	Depth (m AOD)	Pipe In					Pipe Out					Comment
	Easting	Northing				No.	IL (m AOD)	Dia. (mm)	Grad (1 in x)	Length (m)	No.	IL (m AOD)	Dia. (mm)	Grad (1 in x)	Length (m)	
MHF01	397369.925	343698.3414	214.780	214.080	0.7	-	-	-	-	-	F1.000	214.080	100	46	2.12	
MHF02	397369.218	343696.368	214.780	214.034	0.746	F1.000	214.034	100	46	2.12	F1.001	214.034	100	46	10.66	
MHF03	397365.174	343686.2286	214.780	213.801	0.979	F1.001	213.801	100	46	10.66	F.1002	213.801	100	2	1.6	
MHC01	397364.370	343684.841	214.780	212.955	1.825	S1.003	212.995	100	2	2	C1.000	212.995	150	80	4.6	Saddle Connection

NOTES

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Key

Reference Drawings

C	14.01.2025	For Planning	FEG
B	13.12.2024	For Planning	FEG
A	05.08.2024	For Planning	FEG
Rev	Date	Revision notes	By

NOT FOR CONSTRUCTION

Status	For Planning
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Project	Royal Oak Residential Development
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Title	Surface and Foul Water Manhole Schedule
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Client	Royal Oak Dillhome Stoke-on-Trent Staffordshire ST10 2PE
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Drawn By	Publish Date	Scale(s)
FEG	05.08.2024	NTS
Drawing no. 00084/OAK/DR/5002		Revision C