To

Healthy Waters

From

Woods
Jasmin Moll – 3 Waters Engineer

Reviewed

Bidara Pathirage - Senior Associate Engineer - 3 Waters

W-REF: P24-646 Drury Centre – Stage 2
14 July 2025

Memorandum - Overland flow path assessment

1. Introduction

An overland flow path assessment has been undertaken by Woods on behalf of Kiwi Property to support the Fast-Track application for Stage 2 of the Drury Centre Precinct development and in response to a Section 67 request from Healthy Waters.

The Stage 2 development site covers approximately 24.27ha and will include the development of commercial, retail, accommodation, and community activities, along with associated car parking.

The memo assesses the adequacy of the proposed road design to convey overland flows during a 100-year ARI storm event, incorporating a 3.8ºC climate change allowance. The assessment has been carried out in accordance with Chapter 4 of the Auckland Council Code of Practice for Land Development and Subdivision (Version 4, July 2025), and considers vehicular and pedestrian safety requirements as outlined in the Auckland Transport Technical Design Manual (AT TDM).

2. Methodology

2.1. Peak Flow calculation

Woods have undertaken an overland flow path assessment for the proposed roads within Stage 2 using TP108 methodology. The purpose of the assessment is to evaluate the capacity of the roads to safely convey overland flows during a 100-year ARI storm event, incorporating a 3.8°C climate change uplift.

The key design parameters and processes used in the assessment are summarised below:

- Catchment delineation: Catchments were delineated using GIS tool, based on a combination of proposed design surface and existing topography. The delineated catchments, overland flow path, and cross-section locations are illustrated in Figure 1.
- Design storm event: A 100-year ARI storm event with a rainfall depth of 250mm, inclusive of 3.8°C climate change allowance, was adopted
- Impervious coverage assumptions:
    - Road – 90%
    - Lots – 100%
    - Open space – 10%

- Areas outside Stage 2: imperviousness based on AUP zoning

- Soil Type and Curve Number: Group C soil was assumed, with a curve numbers (CN) of 74 for pervious surfaces and 98 for impervious surfaces.
- Time of concentration (Tc): Estimated using the equal area-method
- Stormwater network blockage assumption: In line with Auckland Council's Stormwater Code of Practice (SWCoP) (Version 4, July 2025), a 50% blockage was assumed for piped DN > 600, and 100% blockage for pipes with DN ≤ 600.

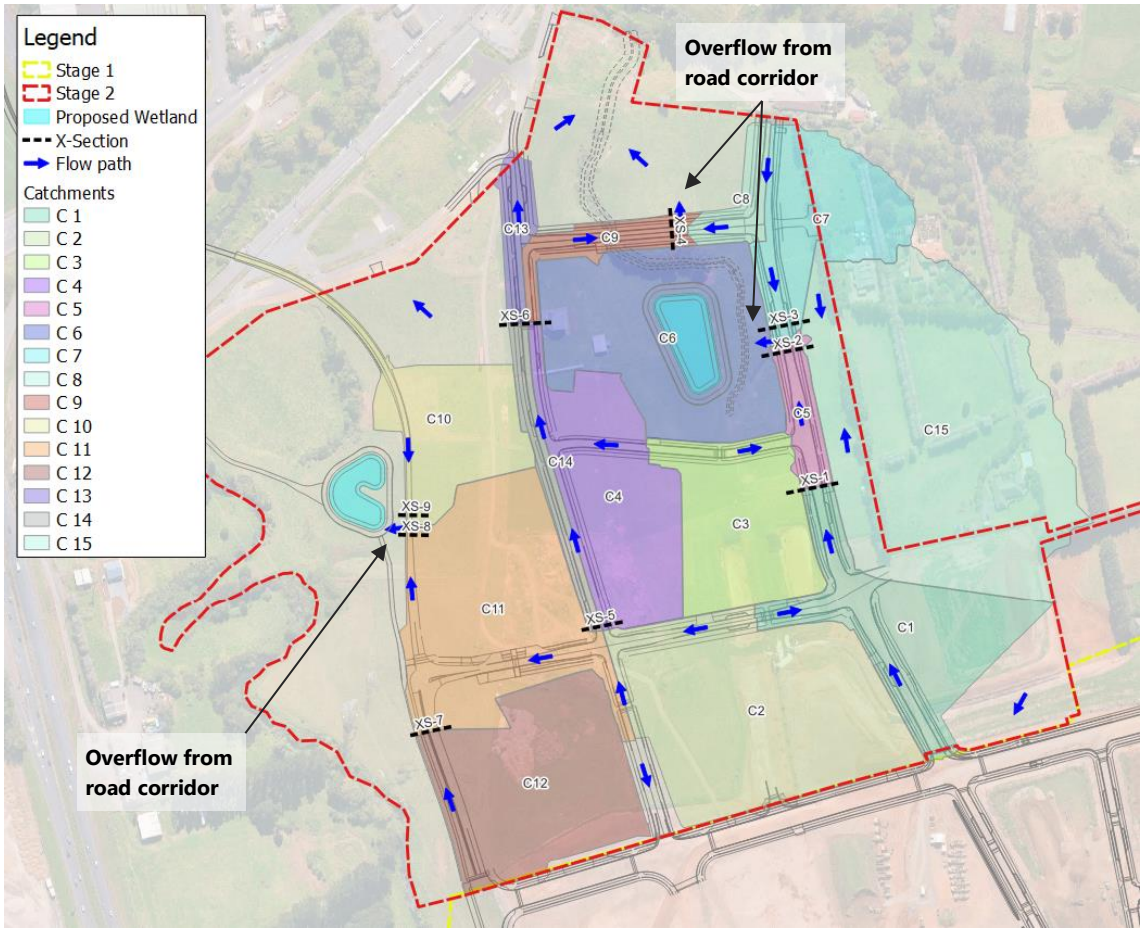


Figure 1: Catchments, overland flow path and cross-section location

2.2. Hydraulic assessment

A road capacity assessment was carried out using FHWA Hydraulic Toolbox (Version 5.3) at critical locations and speed tables along the proposed roads within Stage 2 of the Drury Centre development. The results were evaluated against the performance criteria outlined in Section 2.3 of Road Drainage in the Auckland Trasport Technical Design Manual) AT TDM), as shown in Figure 2.

TABLE 3 MAJOR EVENT - ROADWAY FLOW LIMITATIONS

Situation	Requirement
Where floor levels of adjacent buildings are above road level	Total flow contained within road reserve. Freeboard from peak flow level to habitable floors in accord with Building Code and unitary plan.
Where floor levels of adjacent buildings are less than 350mm above the top of the kerb, and the fall on the footpath towards the kerb is..	**Greater than 100mm:** Water depth must be limited to 50mm above top of kerb. **Less than 100mm:** Water depth must be limited to top of kerb in conjunction with a footpath profile that prevents flow from the roadway entering onto the adjacent property. In these cases, compliance with Building Code and unitary plan may require separate approvals.
Where no kerb is provided	Above depths must be measured from the channel lip level plus 100mm.
Pedestrian safety[1]	**No obvious danger:** $d_g \times V_{ave} \leq 0.6m^2/s$. **Obvious danger:** $d_g \times V_{ave} \leq 0.4m^2/s$.
Vehicle safety	Maximum height of energy line300mm above roadway surface for areas subject to transverse flow. The exception is specific floodway design and additional vehicle warning and protection, where $_{dg} \times _{Vave} \leq 0.3m^2/s$. On-street parking is not to be permitted where overland flow exceeds $0.3m^2/s$.

1 Obvious danger is interpreted as areas where pedestrians are directed to, or most likely to cross water paths, e.g. marked crossings and corners of intersections.

d_g = flow depth in the channel adjacent to the kerb, i.e. at the invert (m).

V_{ave} = average velocity of the flow (m/s). Source: Adapted from DNRW (2007a)

Figure 2: AT TDM criteria

A Mannings 'n' value of 0.02 was adopted to represent the surface roughness of the road as per SWCoP (Version 4, July 2025).

To account for the proposed pipe network, the overland flows within each catchment were adjusted by subtracting the corresponding pipe capacity, assuming a 50% blockage for piped DN > 600, as per SWCoP and described in Section 2.1 above. The proposed stormwater network layout is shown in Figure 3.

Drawings DWG No.: P24-447-01-3000-DR to P24-447-01-3004-DR and P24-447-01-3500-DR to P24-447-01-3518-DR provides details of the proposed stormwater network. Appendix C contains the drawings showing the proposed stormwater network.

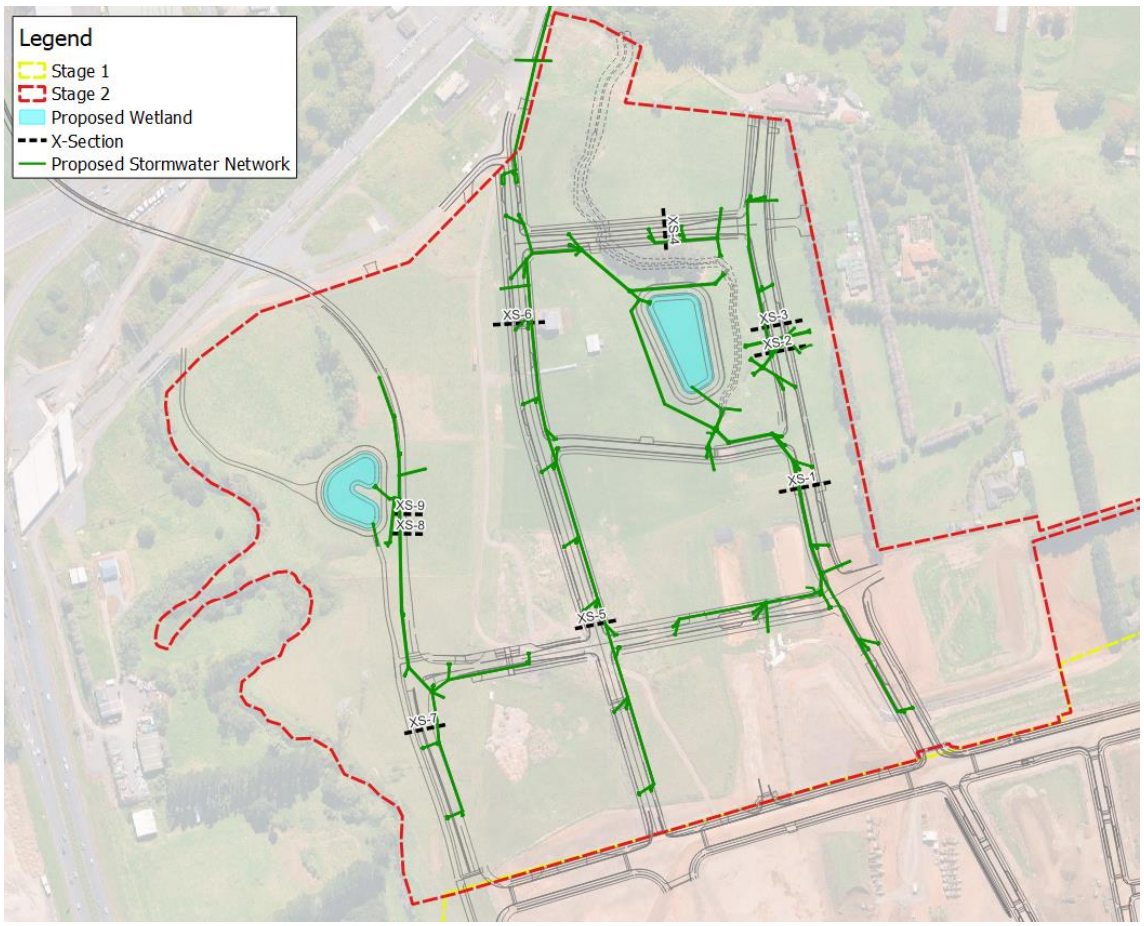


Figure 3: Proposed stormwater network

The results of the assessment are summarised in the following section.

3. Results and Discussion

For each cross section, the flow depth and average velocity were determined as well as the depth x velocity values. Table 1 summarises the results.

Table 1: OLFP assessment summary

X-Section	Catchment Area	Peak flow rate	Pipe diameter	Blockage factor	Pipe capacity with allowance for blockage	Final overland flow	Flow depth	Average velocity	Criteria (dxv)	Max flow depth x Average velocity (dxv)
	ha	m^3/s	mm	%	m^3/s	m^3/s	m	m/s	m^2/s	m^2/s
XS-1	1.365	0.556	825	50%	1.075	0.000	0.000	0.000	0.3	0.000
XS-2	2.842	1.160	375	100%	0.000	1.160	0.128	1.863	0.3	0.238
XS-3	1.079	0.432	375	100%	0.000	0.432	0.147	0.637	0.3	0.094
XS-4	4.279	1.546	225	100%	0.000	1.546	0.169	1.632	0.3	0.276
XS-5	2.526	0.978	375	100%	0.000	0.978	0.157	0.896	0.3	0.141
XS-6 (Speed Table)	4.234	1.566	450	100%	0.000	1.566	0.093	1.206	0.3	0.112
XS-7	1.758	0.720	300	100%	0.000	0.720	0.188	0.634	0.3	0.119
XS-8	3.847	1.574	750	50%	0.482	1.091	0.232	1.177	0.3	0.273
XS-9	0.951	0.389	750	50%	0.650	0.000	0.000	0.000	0.3	0.000

The assessment confirms that potential overland flows originating from Stage 2 catchments are generally contained within the proposed road reserve. An exception occurs at the location of cross-section 8, where flow is not fully contained within the road reserve due to a narrowing of the road near the off-ramp to SH1. However, these flows are intended to discharge towards the Hingaia Stream and therefore not considered a problem.

The maximum allowable product of flow depth and average velocity (d_g x V_{ave}) is 0.3 m^2/s for parked vehicles and 0.4m^2/s for pedestrian safety (threshold for obvious danger). The assessment results, summarised in Table 1, shows that all analysed cross-sections are below the minimum threshold. The proposed road design complies with the relevant criteria for vehicular and pedestrian safety outlined in AT TDM and SWCoP.

In accordance with SWCoP Section 4.3.5.6, it is expected that overland flows will remain unobstructed. Where flows exit the road corridor, appropriate measures should be implemented to minimise erosion risk and ensure safe conveyance.

Detailed runoff calculations and water level profiles for all cross sections are provided in Appendix A and Appendix B.

4. Conclusion

An overland flow path assessment has been undertaken for the proposed Stage 2 development of the Drury Centre Precinct. The assessment estimated the peak flow at critical locations along the proposed road network for a 100-year ARI storm event, incorporating a 3.8°C climate change uplift and accounting for primary stormwater network blockage in accordance with SWCoP.

Flood depth and velocities were calculated using Hydraulic Toolbox and assessed against the criteria outlined in Table 3 of the Road Drainage chapter in the AT TDM.

The results confirm that all assessed cross-section locations comply with the relevant requirements specified in the AT TDM.

Attachment A

Calculations

		Area	Catchment Length	Catchment Slope	Impervious Area	Pervious Area	Initial Abstraction	24hr Rainfall depth	Channelisation factor	Curve Number	Time of concentration	Lag Time	Soil storage parameter	Runoff depth	Runoff index	Column reference from TP108 table
TP108 notation		A	L	Sc	A	A	IA	P_{24}	C	CN	Tc	Lt	S	Q_{24}	c*	
Units		ha	km	m/m	%	%	mm	mm			Hrs	Hrs	mm	mm		
XS-1	IMP	1.303	0.22	0.011	100%	0%	0	250	0.6	**98.00**	0.17	0.11	5.18	244.42	0.96	93.00
	PERV	0.062	0.22	0.011	0%	100%	5	250	0.6	**74.00**	0.17	0.11	89.24	179.12	0.57	54.00
XS-2	IMP	2.736	0.33	0.028	100%	0%	0	250	0.6	**98.00**	0.17	0.11	5.18	244.42	0.96	93.00
	PERV	0.106	0.33	0.028	0%	100%	5	250	0.6	**74.00**	0.17	0.11	89.24	179.12	0.57	54.00
XS-3	IMP	0.933	0.20	0.013	100%	0%	0	250	0.6	**98.00**	0.17	0.11	5.18	244.42	0.96	93.00
	PERV	0.146	0.20	0.013	0%	100%	5	250	0.6	**74.00**	0.17	0.11	89.24	179.12	0.57	54.00
XS-4	IMP	4.181	0.66	0.008	100%	0%	0	250	0.6	**98.00**	0.28	0.19	5.18	244.42	0.96	93.00
	PERV	0.098	0.66	0.008	0%	100%	5	250	0.6	**74.00**	0.37	0.25	89.24	179.12	0.57	54.00
XS-5	IMP	2.494	0.26	0.002	100%	0%	0	250	0.6	**98.00**	0.23	0.15	5.18	244.42	0.96	93.00
	PERV	0.032	0.26	0.002	0%	100%	5	250	0.6	**74.00**	0.30	0.20	89.24	179.12	0.57	54.00
XS-6	IMP	4.144	0.50	0.005	100%	0%	0	250	0.6	**98.00**	0.27	0.18	5.18	244.42	0.96	93.00
	PERV	0.090	0.50	0.005	0%	100%	5	250	0.6	**74.00**	0.35	0.23	89.24	179.12	0.57	54.00
XS-7	IMP	1.730	0.12	0.020	100%	0%	0	250	0.6	**98.00**	0.17	0.11	5.18	244.42	0.96	93.00
	PERV	0.028	0.12	0.020	0%	100%	5	250	0.6	**74.00**	0.17	0.11	89.24	179.12	0.57	54.00
XS-8	IMP	3.756	0.29	0.012	100%	0%	0	250	0.6	**98.00**	0.17	0.11	5.18	244.42	0.96	93.00
	PERV	0.091	0.29	0.012	0%	100%	5	250	0.6	**74.00**	0.19	0.12	89.24	179.12	0.57	54.00
XS-9	IMP	0.922	0.13	0.006	100%	0%	0	250	0.6	**98.00**	0.17	0.11	5.18	244.42	0.96	93.00
	PERV	0.029	0.13	0.006	0%	100%	5	250	0.6	**74.00**	0.17	0.11	89.24	179.12	0.57	54.00

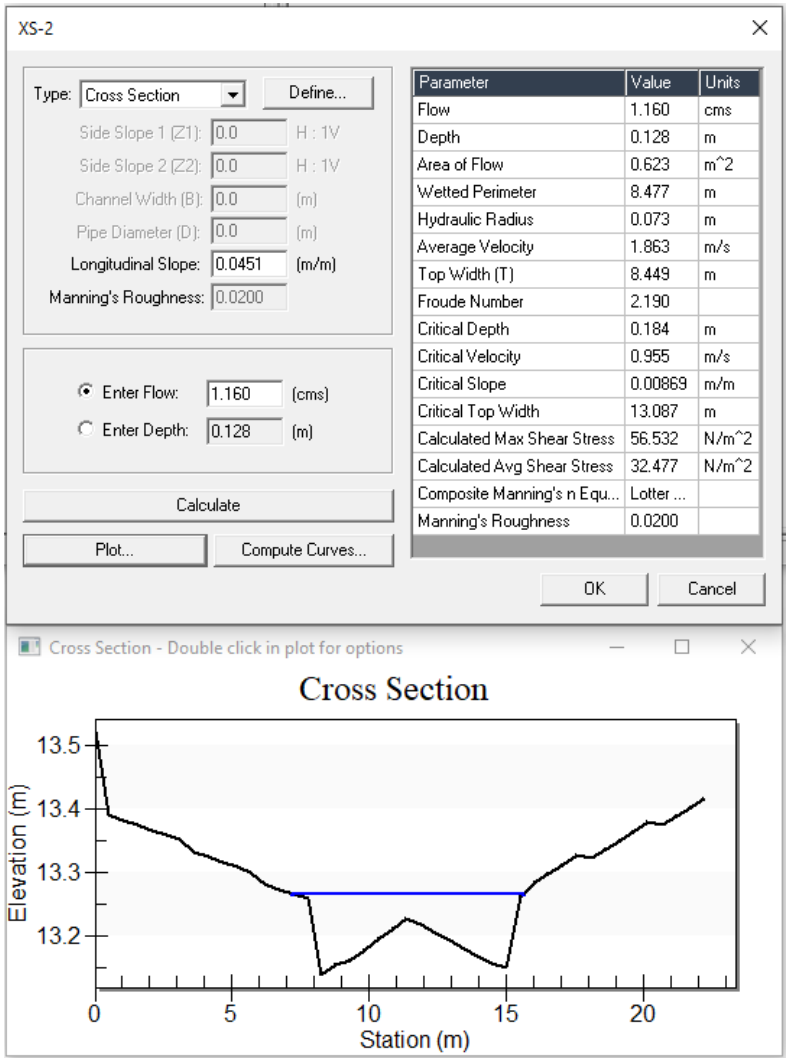
Specific Peak flow	Peak flow rate	Runoff volume	Catchment Discharge
q*	q_p	$V_{pervious}$	
$m^3/s/(km^2\,mm)$	m^3/s	m^3	$m^3/s/km^2$
0.16	0.535	3183.84	41.09
0.13	0.021	111.77	33.52
0.16	1.12	6686.65	41.09
0.13	0.04	190.41	33.52
0.16	0.38	2281.43	41.09
0.13	0.05	260.80	33.52
0.15	1.52	10220.25	36.35
0.11	0.03	174.82	26.35
0.16	0.97	6096.61	38.84
0.12	0.01	56.78	28.98
0.15	1.54	10128.35	37.20
0.11	0.02	161.57	26.97
0.16	0.71	4227.52	41.09
0.13	0.01	50.87	33.52
0.16	1.54	9180.24	41.09
0.13	0.03	163.18	33.10
0.16	0.38	2254.55	41.09
0.13	0.01	51.23	33.52

	Peak flow rate	Pipe diameter	Blockage factor	Pipe capacity with allowance for blockage	Final overland flow	Flow depth	Average velocity	Criteria		Max flow depth x Average velocity (dxv)
	q_p	DN						Pedestrian safety	Vehicle safety	
	m^3/s	mm		m^3/s	m^3/s	m	m/s			m^2/s
XS-1	0.556	825	50%	1.075	0.000	**0.000**	**0.000**	0.4	0.3	0.000
XS-2	1.160	375	100%	0.000	1.160	**0.128**	**1.863**	0.4	0.3	0.238
XS-3	0.432	375	100%	0.000	0.432	**0.147**	**0.637**	0.4	0.3	0.094
XS-4	1.546	225	100%	0.000	1.546	**0.169**	**1.632**	0.4	0.3	0.276
XS-5	0.978	375	100%	0.000	0.978	**0.157**	**0.896**	0.4	0.3	0.141
XS-6 (Speed Table)	1.566	450	100%	0.000	1.566	**0.093**	**1.206**	0.4	0.3	0.112
XS-7	0.720	300	100%	0.000	0.720	**0.188**	**0.634**	0.4	0.3	0.119
XS-8	1.574	750	50%	0.482	1.091	**0.232**	**1.177**	0.4	0.3	0.273
XS-9	0.389	750	50%	0.650	0.000	**0.000**	**0.000**	0.4	0.3	0.000

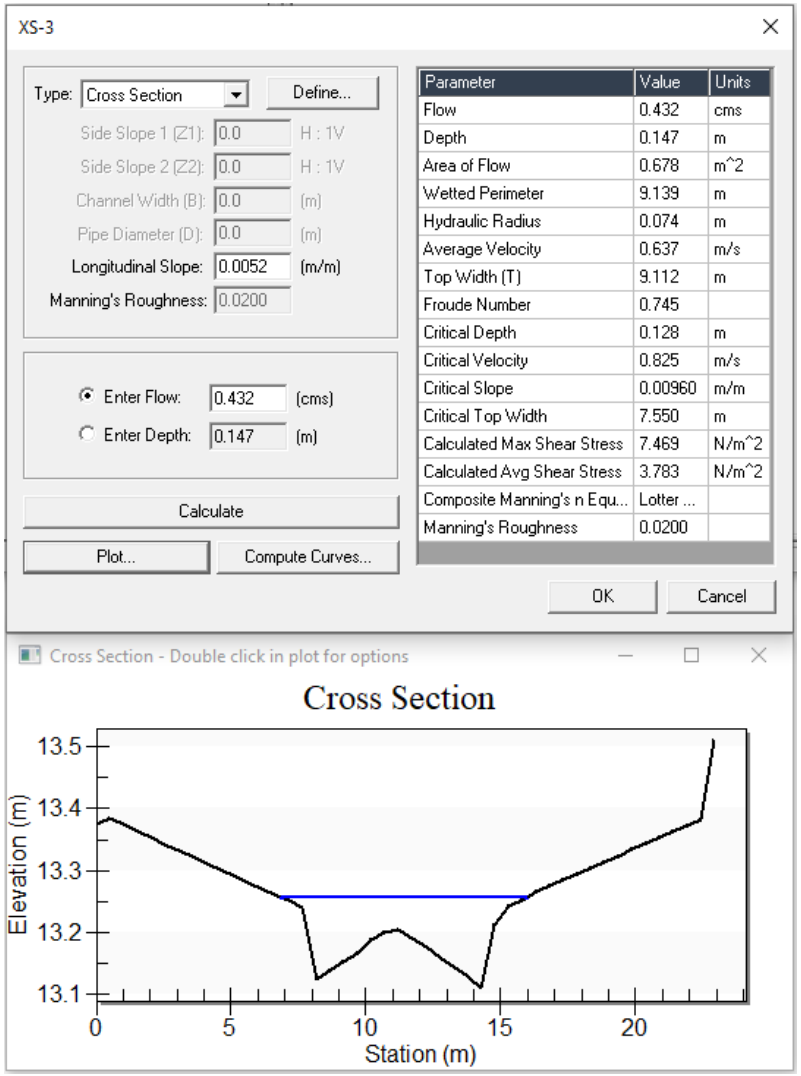
Attachment B

Cross-sections

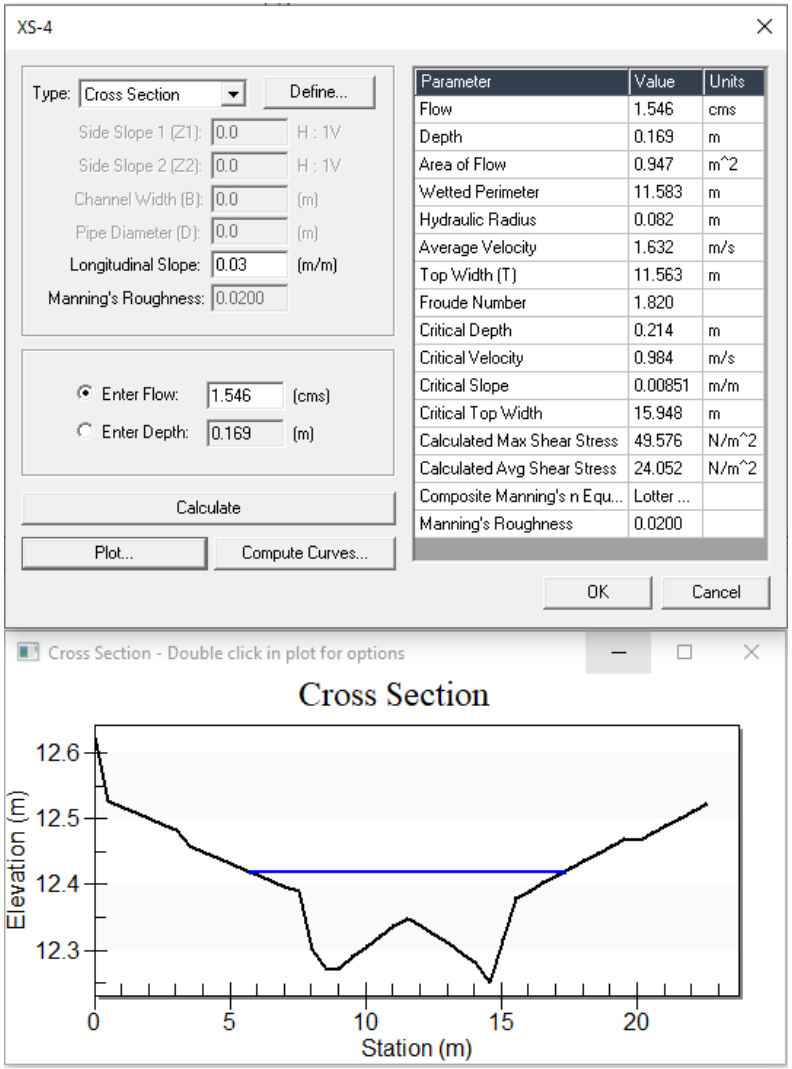
XS 2


XS-2
Type: Cross Section
Define...
Side Slope 1 (Z1): 0.0 H : 1V
Side Slope 2 (Z2): 0.0 H : 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.0451 (m/m)
Manning's Roughness: 0.0200
Enter Flow: 1.160 (cms)
Enter Depth: 0.128 (m)
Calculate
Plot...
Compute Curves...
OK
Cancel
Parameter | Value | Units
Flow | 1.160 | cms
Depth | 0.128 | m
Area of Flow | 0.623 | m^2
Wetted Perimeter | 8.477 | m
Hydraulic Radius | 0.073 | m
Average Velocity | 1.863 | m/s
Top Width (T) | 8.449 | m
Froude Number | 2.190 |
Critical Depth | 0.184 | m
Critical Velocity | 0.955 | m/s
Critical Slope | 0.00869 | m/m
Critical Top Width | 13.087 | m
Calculated Max Shear Stress | 56.532 | N/m^2
Calculated Avg Shear Stress | 32.477 | N/m^2
Composite Manning's n Equ... | Lotter ... |
Manning's Roughness | 0.0200 |
Cross Section - Double click in plot for options
Cross Section
Elevation (m)
13.5
13.4
13.3
13.2
0
5
10
15
20
Station (m)

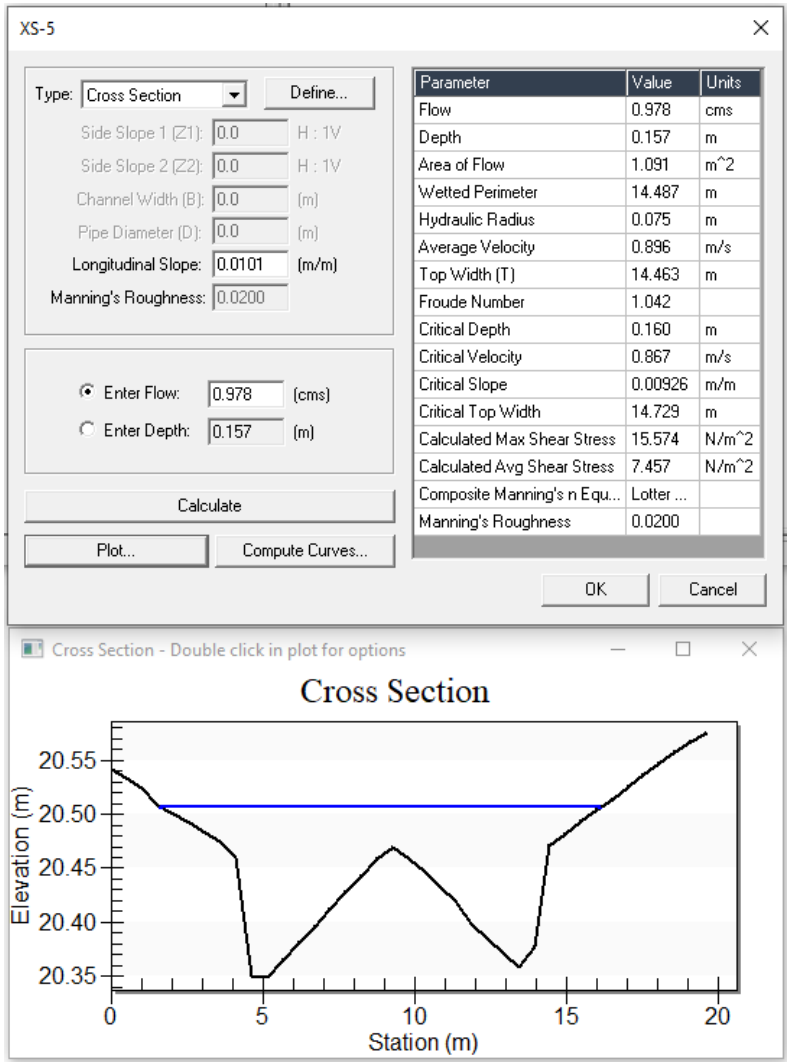
XS 3


XS-3
Type: Cross Section
Define...
Side Slope 1 (Z1): 0.0 H : 1V
Side Slope 2 (Z2): 0.0 H : 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.0052 (m/m)
Manning's Roughness: 0.0200
Enter Flow: 0.432 (cms)
Enter Depth: 0.147 (m)
Calculate
Plot...
Compute Curves...
OK
Cancel
Parameter | Value | Units
Flow | 0.432 | cms
Depth | 0.147 | m
Area of Flow | 0.678 | m^2
Wetted Perimeter | 9.139 | m
Hydraulic Radius | 0.074 | m
Average Velocity | 0.637 | m/s
Top Width (T) | 9.112 | m
Froude Number | 0.745 |
Critical Depth | 0.128 | m
Critical Velocity | 0.825 | m/s
Critical Slope | 0.00960 | m/m
Critical Top Width | 7.550 | m
Calculated Max Shear Stress | 7.469 | N/m^2
Calculated Avg Shear Stress | 3.783 | N/m^2
Composite Manning's n Equ... | Lotter ... |
Manning's Roughness | 0.0200 |
Cross Section - Double click in plot for options
Cross Section
Elevation (m)
13.5
13.4
13.3
13.2
13.1
0
5
10
15
20
Station (m)

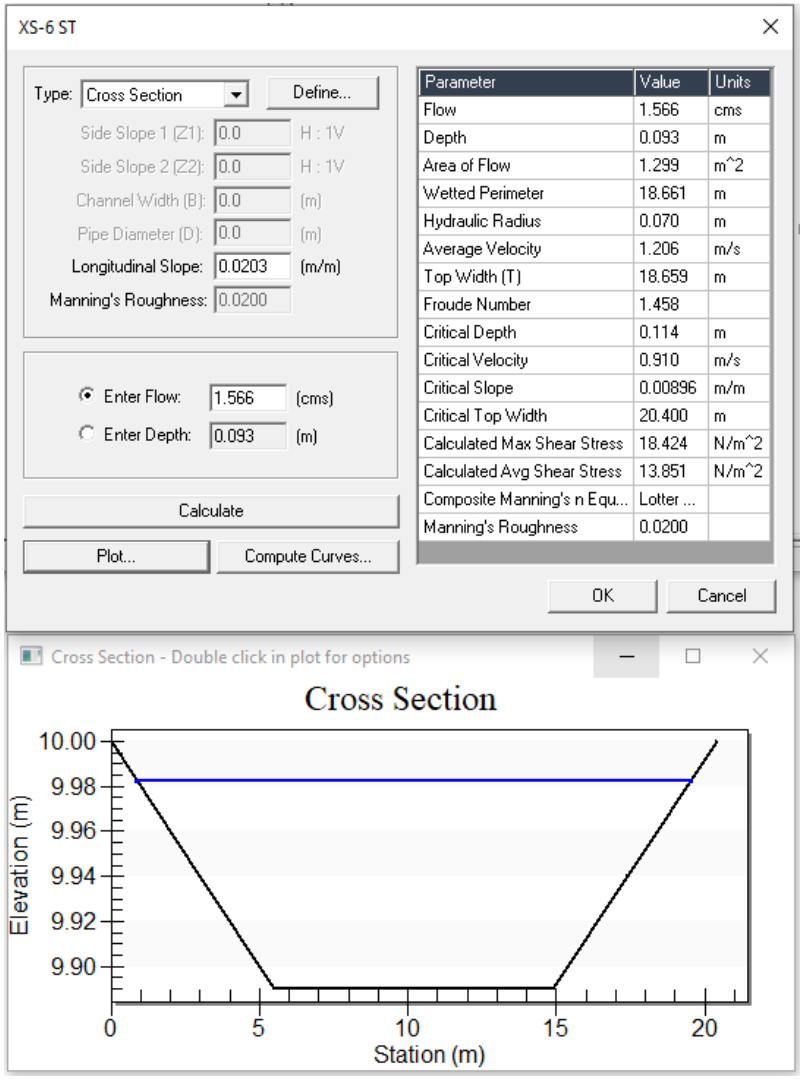
XS 4


XS-4
Type: Cross Section
Define...
Side Slope 1 (Z1): 0.0 H : 1V
Side Slope 2 (Z2): 0.0 H : 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.03 (m/m)
Manning's Roughness: 0.0200
Enter Flow: 1.546 (cms)
Enter Depth: 0.169 (m)
Calculate
Plot...
Compute Curves...
OK
Cancel
Parameter | Value | Units
Flow | 1.546 | cms
Depth | 0.169 | m
Area of Flow | 0.947 | m^2
Wetted Perimeter | 11.583 | m
Hydraulic Radius | 0.082 | m
Average Velocity | 1.632 | m/s
Top Width (T) | 11.563 | m
Froude Number | 1.820 |
Critical Depth | 0.214 | m
Critical Velocity | 0.984 | m/s
Critical Slope | 0.00851 | m/m
Critical Top Width | 15.948 | m
Calculated Max Shear Stress | 49.576 | N/m^2
Calculated Avg Shear Stress | 24.052 | N/m^2
Composite Manning's n Equ... | Lotter ... |
Manning's Roughness | 0.0200 |
Cross Section - Double click in plot for options
Cross Section
Elevation (m)
12.6
12.5
12.4
12.3
0
5
10
15
20
Station (m)

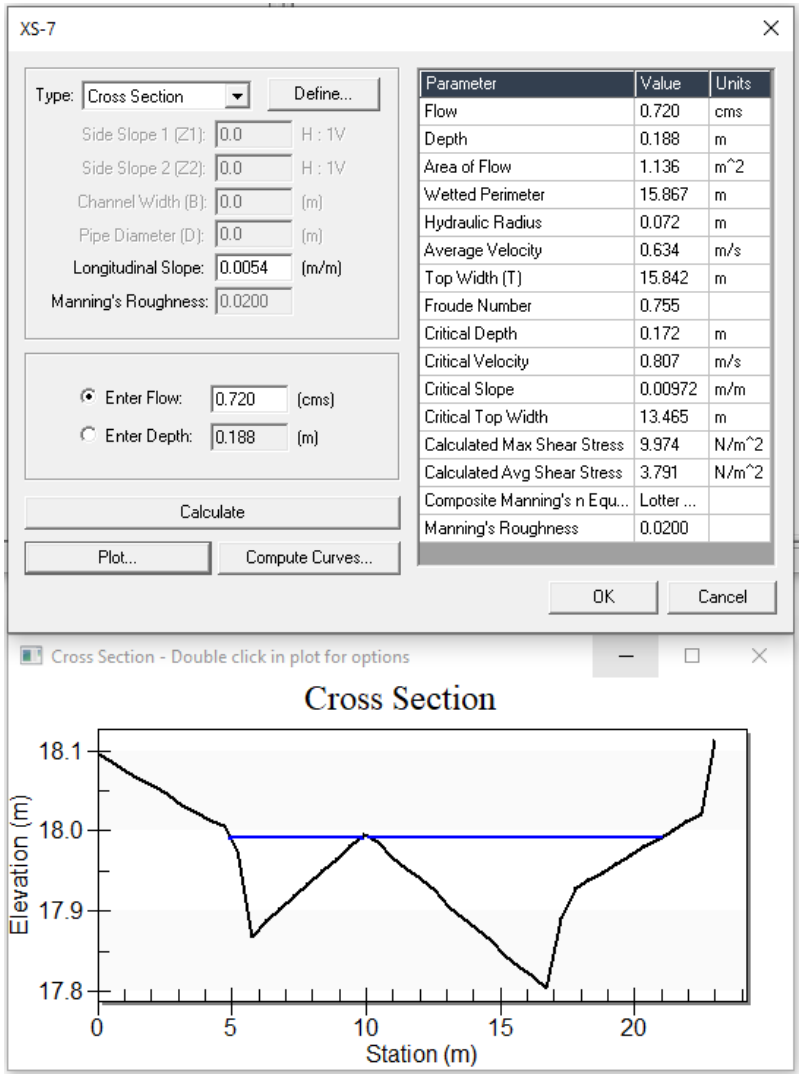
XS 5


XS-5
Type: Cross Section
Define...
Side Slope 1 (Z1): 0.0 H : 1V
Side Slope 2 (Z2): 0.0 H : 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.0101 (m/m)
Manning's Roughness: 0.0200
Enter Flow: 0.978 (cms)
Enter Depth: 0.157 (m)
Calculate
Plot...
Compute Curves...
OK
Cancel
Parameter | Value | Units
Flow | 0.978 | cms
Depth | 0.157 | m
Area of Flow | 1.091 | m^2
Wetted Perimeter | 14.487 | m
Hydraulic Radius | 0.075 | m
Average Velocity | 0.896 | m/s
Top Width (T) | 14.463 | m
Froude Number | 1.042 |
Critical Depth | 0.160 | m
Critical Velocity | 0.867 | m/s
Critical Slope | 0.00926 | m/m
Critical Top Width | 14.729 | m
Calculated Max Shear Stress | 15.574 | N/m^2
Calculated Avg Shear Stress | 7.457 | N/m^2
Composite Manning's n Equ... | Lotter ... |
Manning's Roughness | 0.0200 |
Cross Section - Double click in plot for options
Cross Section
Elevation (m)
20.55
20.50
20.45
20.40
20.35
0
5
10
15
20
Station (m)

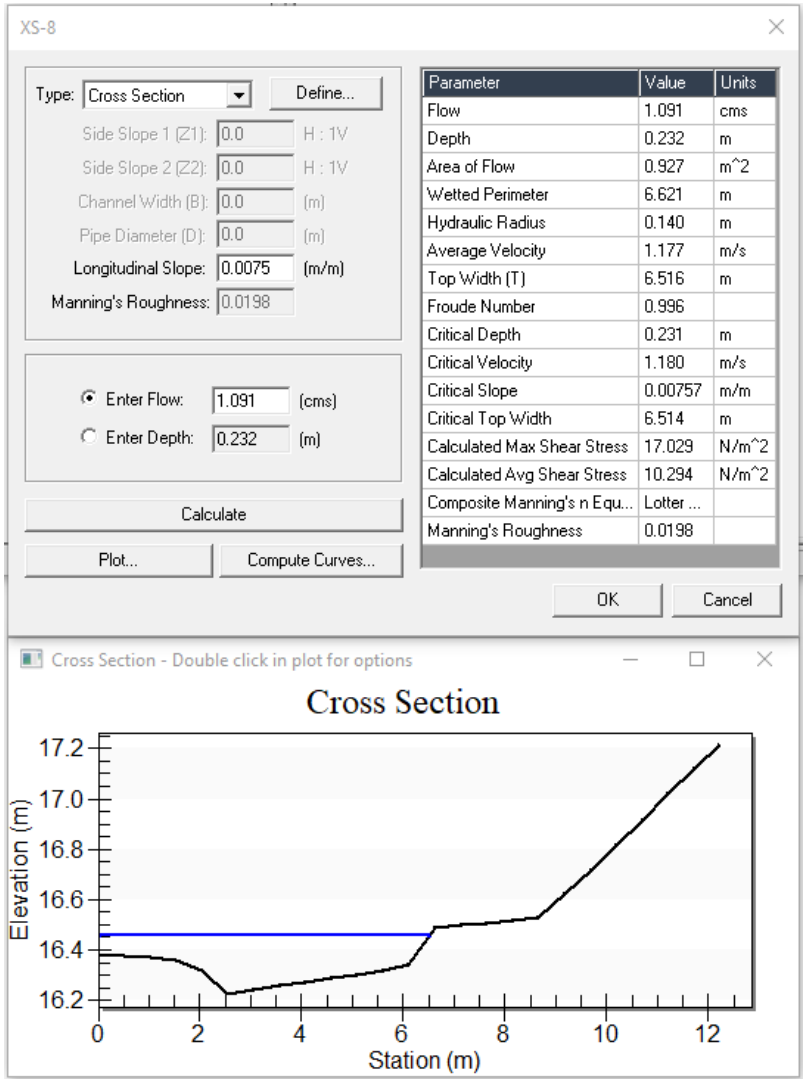
XS 6 (Speed Table)



XS 7

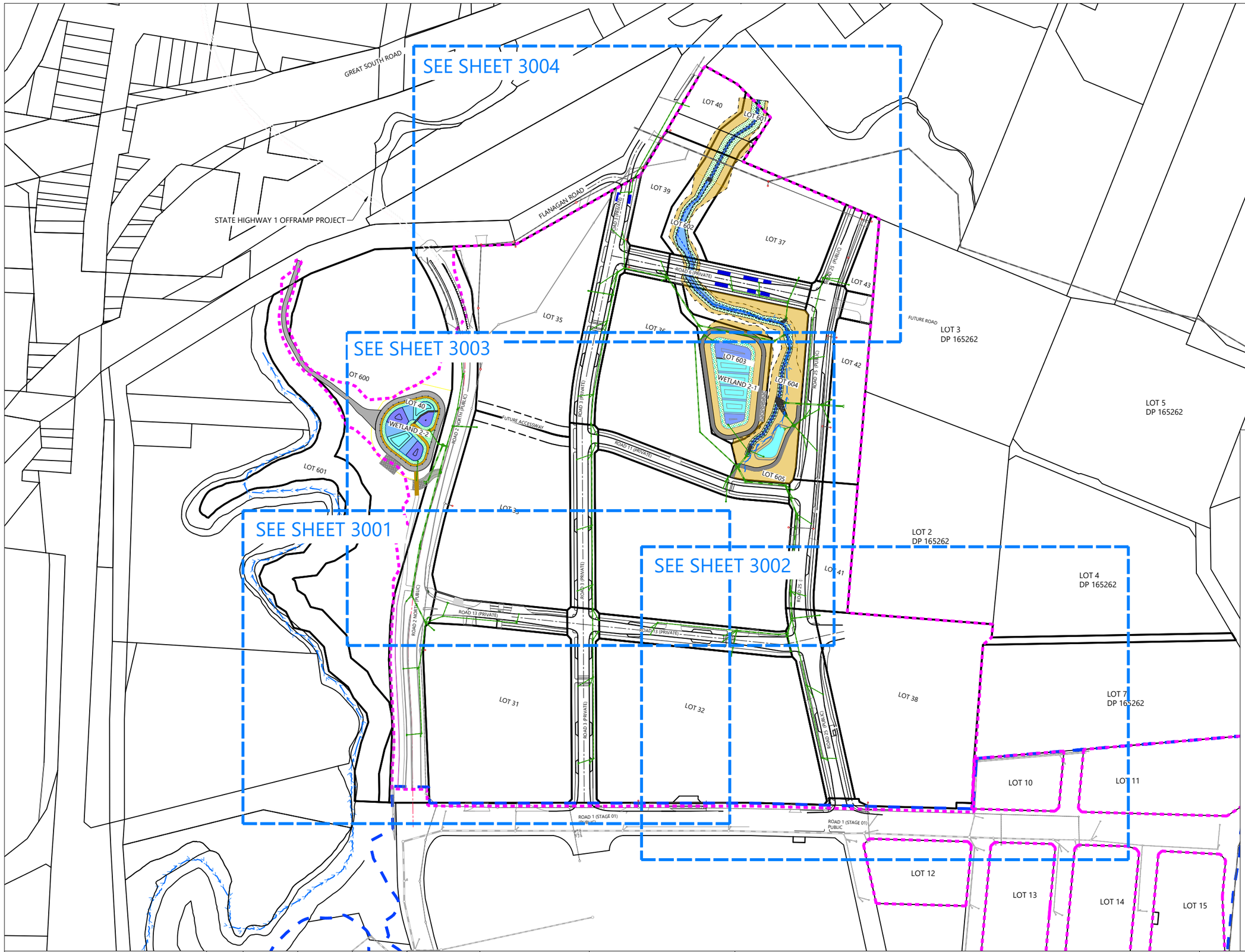


XS 8


XS-8
Type: Cross Section
Define...
Side Slope 1 (Z1): 0.0 H : 1V
Side Slope 2 (Z2): 0.0 H : 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.0075 (m/m)
Manning's Roughness: 0.0198
Enter Flow: 1.091 (cms)
Enter Depth: 0.232 (m)
Calculate
Plot...
Compute Curves...
OK
Cancel
Parameter | Value | Units
Flow | 1.091 | cms
Depth | 0.232 | m
Area of Flow | 0.927 | m^2
Wetted Perimeter | 6.621 | m
Hydraulic Radius | 0.140 | m
Average Velocity | 1.177 | m/s
Top Width (T) | 6.516 | m
Froude Number | 0.996
Critical Depth | 0.231 | m
Critical Velocity | 1.180 | m/s
Critical Slope | 0.00757 | m/m
Critical Top Width | 6.514 | m
Calculated Max Shear Stress | 17.029 | N/m^2
Calculated Avg Shear Stress | 10.294 | N/m^2
Composite Manning's n Equ... | Lotter ...
Manning's Roughness | 0.0198
Cross Section - Double click in plot for options
Cross Section
Elevation (m)
17.2
17.0
16.8
16.6
16.4
16.2
0
2
4
6
8
10
12
Station (m)

Attachment C

Proposed stormwater network



NOTES

1. ALL WORKS AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL STANDARDS AND WATERCARE STANDARDS.
2. FOR PIPE BEDDING DETAILS REFER TO STANDARD DETAIL SHEETS UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTIONS IN WHICH CASE SUCH NOTES TAKE PRECEDENCE).
3. CONCRETE PIPES ARE TO BE CLASS 2 (X) RRJ UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTIONS IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
4. ALL PIPE CROSSINGS UNDER ROADS TO BE HARDFILL AND RCRRJ CLASS BACKFILLED.
5. ALL MANHOLES ARE TO BE 1050mm DIA. UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTION IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
6. ALL CATCHPITS ARE TO BE STANDARD 675mm X 450mm.
7. THE CONTRACTOR IS TO PEG MANHOLES AND CHECK FINISHED EARTHWORKS LEVELS (MH LID LEVELS) PRIOR TO ORDERING MANHOLES.
8. PIPE GRADES ON THE LONG SECTIONS ARE CALCULATED FROM MANHOLE CENTRE TO MANHOLE CENTRE. THIS MAY RESULT IN CREEP (ON STEEP SITES PARTICULARLY) AND THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT LASER LEVELS ARE SET TO COMPENSATE FOR THIS.
9. ALL CESSPITS ON PUBLIC ROADS TO BE SEMI-RECESSED. REFER AT TDM DRAWING RD0020 REV A FOR DETAILS.
10. PIPES OVER 3.5m COVER TO BE CLASS 4.

LEGEND

- STAGE 2 WORKS EXTENT
- STAGE 1 WORKS EXTENT
- STAGE 2 BOUNDARY
- EXISTING STORMWATER LINE AND PIT — A/1
- PROPOSED STORMWATER LINE AND PIT — A/1
- EXISTING SANITARY SEWER LINE AND PIT — 1/1
- PROPOSED SANITARY SEWER LINE AND PIT — 1/1
- SINGLE CATCHPIT — CP
- DOUBLE CATCHPIT — DCP
- OUTLET ROCK RIPRAP
- PROPOSED RAINGARDEN
- EXISTING STREAM
- PROPOSED MSE WALL
- PROPOSED RETAINING WALL

SCALEBAR (m) 0 30 60 150 — SCALE | 1:3000 @A3 | 1:1500 @A1|

REVISION DETAILS		INT	DATE	SURVEYED	
3	90% DESIGN - REV 1	MK	02/12/2024	DESIGNED	MK
4	ISSUED FOR 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
5	ISSUED FOR FAST TRACK CONSENT	MK	21/02/2025	CHECKED	GW
6	ISSUED FOR FAST TRACK CONSENT	GW	21/03/2025	APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE-STAGE 2

OVERALL STORMWATER LAYOUT PLAN

STATUS	FOR FAST TRACK CONSENT
SCALE	1:3000 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3000-DR
REV	6

Plot Date: 3:41:40 pm,21 March 2025, GLENNW

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3000-DR_STORMWATER LAYOUT PLAN.DWG

WOODS
Est.1970

LOT 33

LOT 34

LOT 31

LOT 32

ROAD 2 NORTH (PUBLIC)

ROAD 3 (PRIVATE)

ROAD 13 (PRIVATE)

ROAD 1 (STAGE 01)
(PUBLIC)

B1/02
B1/03
B1/04
B1/05
B1/06
B1/07
D1/01
F1/01
F1/02
CP B1-2.1
CP B1-3.1
DCP F1-1.2
CP F1-2.1
CP F1-2.2
CP B1-6.2
CP B1-6.1
DCP B1-7.1
DCP B1-7.2
A2-07
CP A2-07.2
CP A2-07.1
A2-08
CP A2-08.2
CP A2-08.1
A2-09
DCP A2-09.1
A5-04
A5-04.1
A5-04.2
DCP A2-10.1
A2-10
CP A5-03.1
CP A5-03.2
A2-11
CP A2-11.2
CP A2-11.1
A2-12
DCP A2-12.2
DCP A2-12.1

NOTES

1. FOR GENERAL NOTES REFER TO DRAWING P24-447-01-3000-DR
2. REFER DRAWINGS 3100 AND 3200 FOR STORMWATER CATCHMENT PLAN AND OVERLAND FLOWPATH PLAN RESPECTIVELY.

LEGEND

- STAGE 2 CATCHMENT EXTENT
- STAGE 1 CATCHMENT EXTENT
- EXISTING STORMWATER LINE AND PIT A/1
- PROPOSED STORMWATER LINE AND PIT A/1
- EXISTING SANITARY SEWER LINE AND PIT 1/1
- PROPOSED SANITARY SEWER LINE AND PIT 1/1
- SINGLE CATCHPIT CP
- DOUBLE CATCHPIT DCP
- OUTLET ROCK RIPRAP
- PROPOSED RAINGARDEN
- EXISTING STREAM
- PROPOSED MSE WALL
- PROPOSED RETAINING WALL

SCALEBAR (m) 0 10 20 50
SCALE | 1:1000 @A3 | 1:500 @A1|

REVISION DETAILS		INT	DATE	SURVEYED	
3	90% DESIGN - REV 1	MK	02/12/2024	DESIGNED	MK
4	ISSUED FOR 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
5	ISSUED FOR FAST TRACK CONSENT	MK	21/02/2025	CHECKED	GW
6	ISSUED FOR FAST TRACK CONSENT	GW	21/03/2025	APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE-STAGE 2

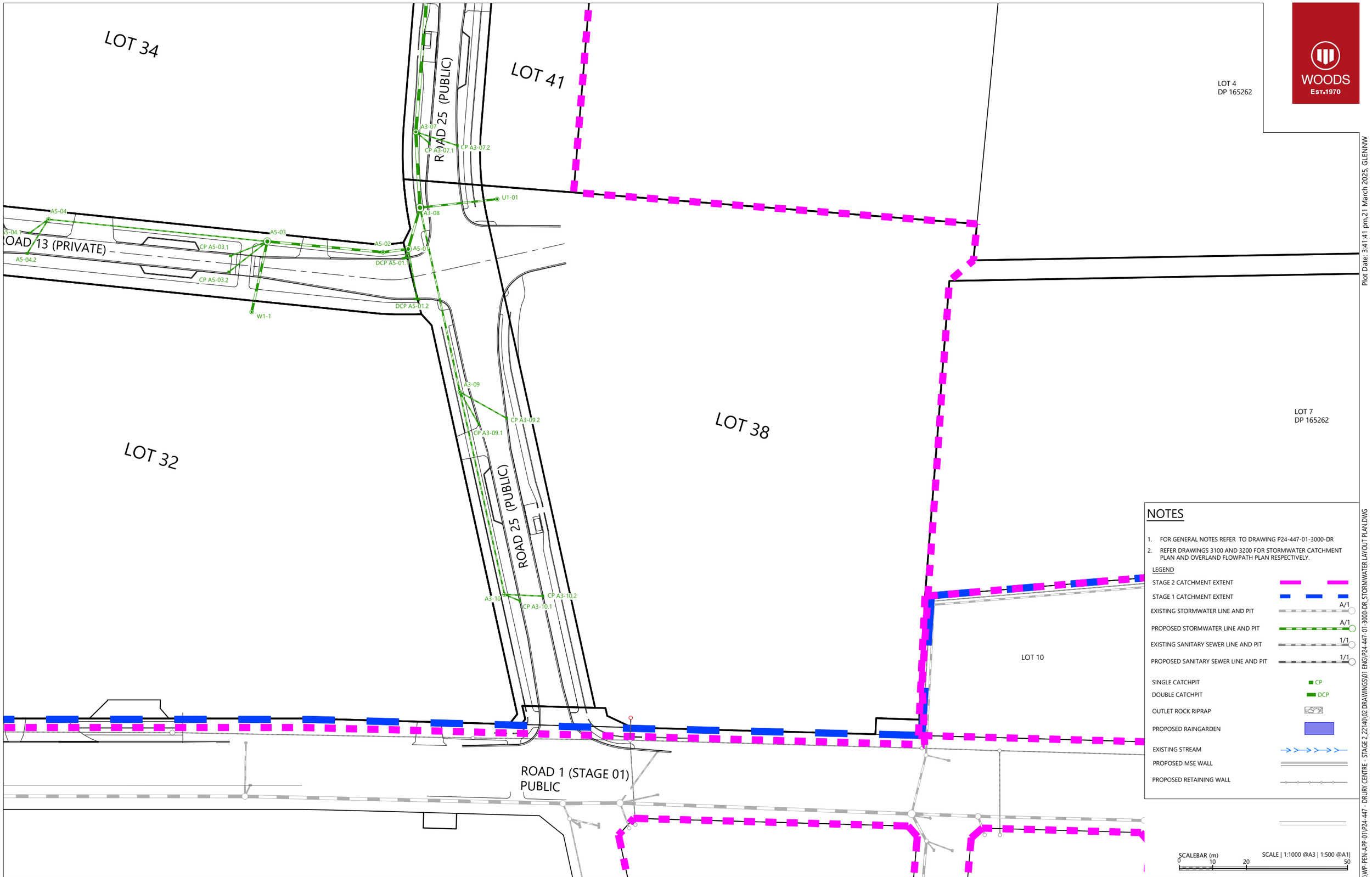
STORMWATER LAYOUT PLAN (SHEET 1 OF 4)

N

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	1:1000 @ A3	6
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3001-DR	

Plot Date: 3:41:40 pm,21 March 2025, GLENNW

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3000-DR_STORMWATER LAYOUT PLAN.DWG



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING P24-447-01-3000-DR
2. REFER DRAWINGS 3100 AND 3200 FOR STORMWATER CATCHMENT PLAN AND OVERLAND FLOWPATH PLAN RESPECTIVELY.

LEGEND

- STAGE 2 CATCHMENT EXTENT
- STAGE 1 CATCHMENT EXTENT
- EXISTING STORMWATER LINE AND PIT A/1
- PROPOSED STORMWATER LINE AND PIT A/1
- EXISTING SANITARY SEWER LINE AND PIT 1/1
- PROPOSED SANITARY SEWER LINE AND PIT 1/1
- SINGLE CATCHPIT CP
- DOUBLE CATCHPIT DCP
- OUTLET ROCK RIPRAP
- PROPOSED RAINGARDEN
- EXISTING STREAM
- PROPOSED MSE WALL
- PROPOSED RETAINING WALL

SCALEBAR (m) 0 10 20 50

SCALE | 1:1000 @A3 | 1:500 @A1|

REVISION DETAILS		INT	DATE	SURVEYED	
3	90% DESIGN - REV 1	MK	02/12/2024	DESIGNED	MK
4	ISSUED FOR 99% SUBMISSION	MK	22/01/2025	DRAWN	MK
5	ISSUED FOR FAST TRACK CONSENT	MK	21/02/2025	CHECKED	GW
6	ISSUED FOR FAST TRACK CONSENT	GW	21/03/2025	APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

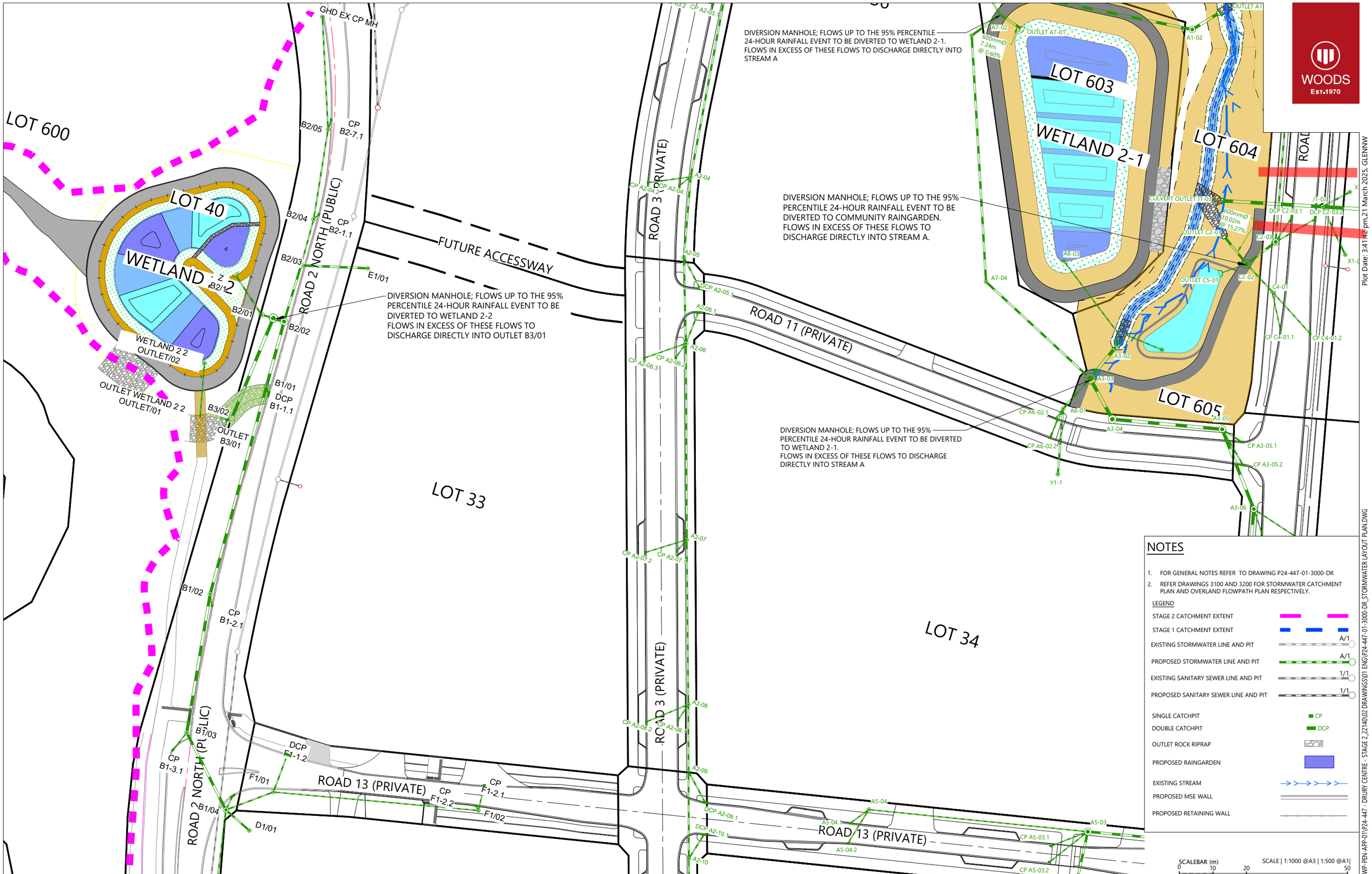
DRURY CENTRE-STAGE 2

STORMWATER LAYOUT PLAN (SHEET 2 OF 4)

STATUS	FOR FAST TRACK CONSENT
SCALE	1:1000 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3002-DR
REV	6

Plot Date: 3:41:41 pm,21 March 2025, GLENNW

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P24-447 - DRURY CENTRE - STAGE 2_221400\02 DRAWINGS\01 ENG\P24-447-01-3000-DR_STORMWATER LAYOUT PLAN.DWG



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING P24-447-01-3000-DR
2. REFER DRAWINGS 3100 AND 3200 FOR STORMWATER CATCHMENT PLAN AND OVERLAND FLOWPATH PLAN RESPECTIVELY.

LEGEND

- STAGE 2 CATCHMENT EXTENT
- STAGE 1 CATCHMENT EXTENT
- EXISTING STORMWATER LINE AND PIT A/1
- PROPOSED STORMWATER LINE AND PIT A/1
- EXISTING SANITARY SEWER LINE AND PIT 1/1
- PROPOSED SANITARY SEWER LINE AND PIT 1/1
- SINGLE CATCHPIT CP
- DOUBLE CATCHPIT DCP
- OUTLET ROCK RIPRAP
- PROPOSED RAINGARDEN
- EXISTING STREAM
- PROPOSED MSE WALL
- PROPOSED RETAINING WALL

SCALEBAR (m) 0 10 20 50

SCALE | 1:1000 @A3 | 1:500 @A1

REVISION DETAILS		INT	DATE	SURVEYED	
3	90% DESIGN - REV 1	MK	02/12/2024	DESIGNED	MK
4	ISSUED FOR 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
5	ISSUED FOR FAST TRACK CONSENT	MK	21/02/2025	CHECKED	GW
6	ISSUED FOR FAST TRACK CONSENT	GW	21/03/2025	APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

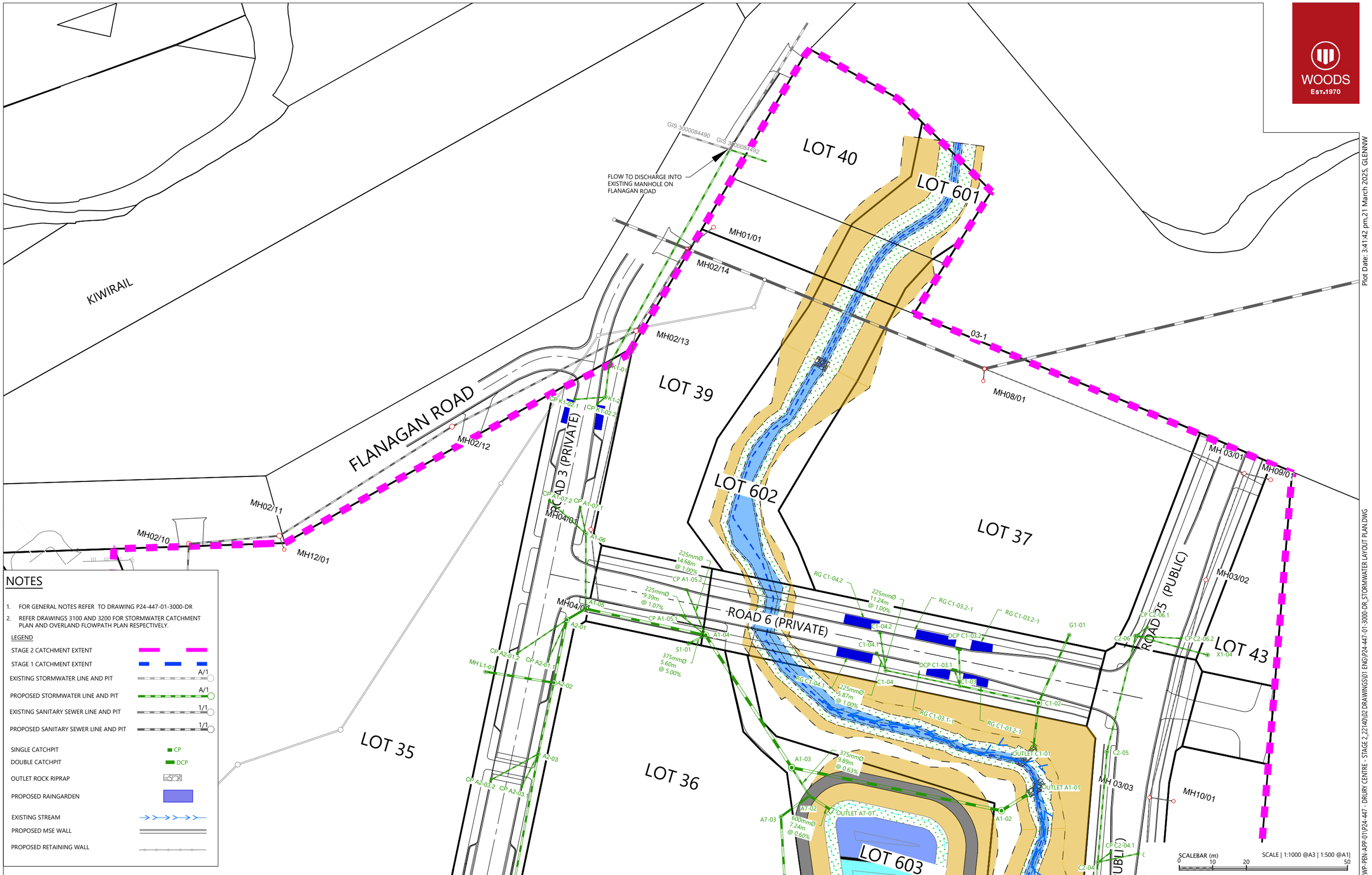
DRURY CENTRE-STAGE 2

STORMWATER LAYOUT PLAN (SHEET 3 OF 4)

STATUS	FOR FAST TRACK CONSENT
SCALE	1:1000 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3003-DR
REV	6

Plot Date: 3:41:42 pm,21 March 2025, GLENNW

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3000-DR_STORMWATER LAYOUT PLAN.DWG



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING P24-447-01-3000-DR
2. REFER DRAWINGS 3100 AND 3200 FOR STORMWATER CATCHMENT PLAN AND OVERLAND FLOWPATH PLAN RESPECTIVELY.

LEGEND

- STAGE 2 CATCHMENT EXTENT
- STAGE 1 CATCHMENT EXTENT
- EXISTING STORMWATER LINE AND PIT A/1
- PROPOSED STORMWATER LINE AND PIT A/1
- EXISTING SANITARY SEWER LINE AND PIT 1/1
- PROPOSED SANITARY SEWER LINE AND PIT 1/1
- SINGLE CATCHPIT CP
- DOUBLE CATCHPIT DCP
- OUTLET ROCK RIPRAP
- PROPOSED RAINGARDEN
- EXISTING STREAM
- PROPOSED MSE WALL
- PROPOSED RETAINING WALL

REVISION DETAILS		INT	DATE	SURVEYED	
3	90% DESIGN - REV 1	MK	02/12/2024	DESIGNED	MK
4	ISSUED FOR 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
5	ISSUED FOR FAST TRACK CONSENT	MK	21/02/2025	CHECKED	GW
6	ISSUED FOR FAST TRACK CONSENT	GW	21/03/2025	APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

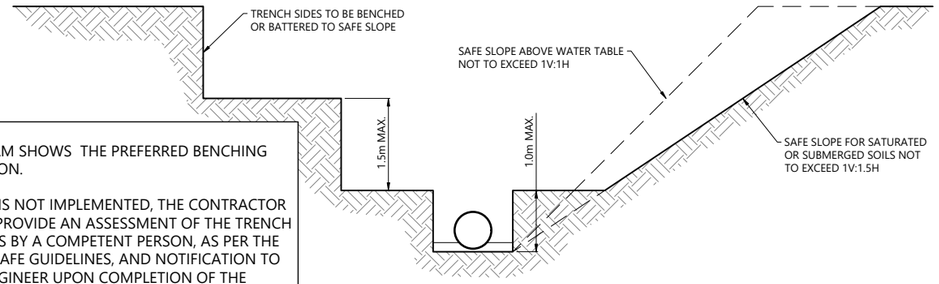
DRURY CENTRE-STAGE 2

STORMWATER LAYOUT PLAN (SHEET 4 OF 4)

STATUS	FOR FAST TRACK CONSENT
SCALE	1:1000 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3004-DR
REV	6

Plot Date: 3:41:42 pm,21 March 2025, GLENNW

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3000-DR_STORMWATER LAYOUT PLAN.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

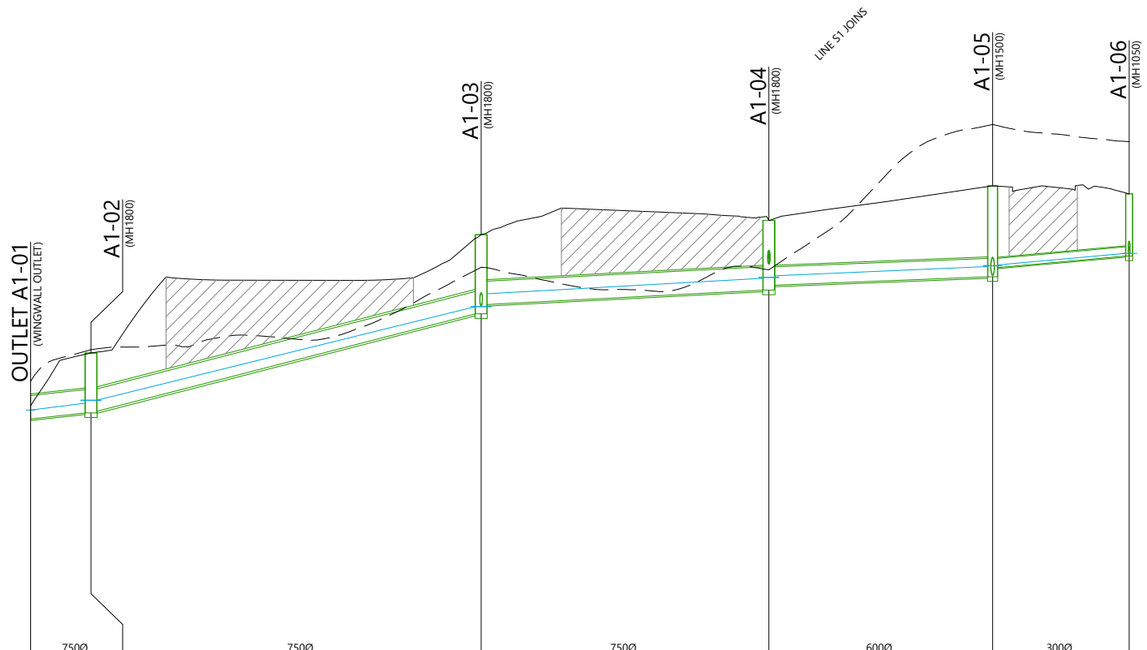
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

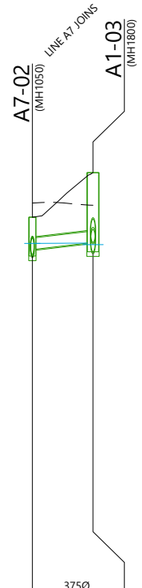
LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



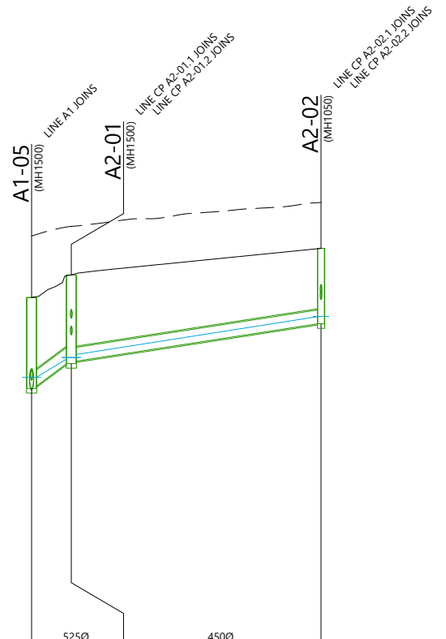
PIPE DIAMETER		750Ø	750Ø	750Ø	600Ø	300Ø
PIPE TYPE		RCRRJ CLASS 2	RCRRJ CLASS 4	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 4
PIPE GRADE		2.00%	5.00%	1.00%	0.75%	1.70%
DATUM RL=		-2.00				
DEPTH TO INVERT	0.76	0.76 1.95	1.90 2.58	2.28 2.28	2.11 2.97	2.67 2.03
INVERT LEVEL	7.70	7.70 7.90	7.95 11.13	11.43 11.90	12.06 12.33	12.63 13.01
MANHOLE LID LEVEL		8.46	9.85	13.71	14.17	15.30 15.04
HYDRAULIC PARAMETERS		Q 506.00 l/s Q/Qmax 31 % V 2.47 m/s	Q 507.00 l/s Q/Qmax 22 % V 3.26 m/s	Q 507.00 l/s Q/Qmax 44 % V 2.20 m/s	Q 275.00 l/s Q/Qmax 52 % V 1.69 m/s	Q 22.00 l/s Q/Qmax 17 % V 1.31 m/s
CHAINAGE/ LENGTH	0	9.84	9.84 63.64	73.48 46.93	120.41 36.5	156.9 22.27 179.17

A1



PIPE DIAMETER		375Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		2.01%	
DATUM RL=		-2.00	
DEPTH TO INVERT	1.27	1.04	2.30 2.58
INVERT LEVEL	10.99	11.21	11.41 11.13
MANHOLE LID LEVEL		12.26	13.71
HYDRAULIC PARAMETERS		Q 0.00 l/s Q/Qmax 0 % V 0.00 m/s	
CHAINAGE/ LENGTH	0	9.89	9.89

A1-03 TO A7-02



PIPE DIAMETER		525Ø	450Ø
PIPE TYPE		RCRRJ CLASS 2	RCRRJ CLASS 2
PIPE GRADE		11.41%	3.00%
DATUM RL=		2.00	
DEPTH TO INVERT	2.97	2.89 2.89	2.81 2.46
INVERT LEVEL	12.33	12.41 13.15	13.22 14.44
MANHOLE LID LEVEL		15.30 16.03	16.90
HYDRAULIC PARAMETERS		Q 253.00 l/s Q/Qmax 17 % V 3.25 m/s	Q 235.00 l/s Q/Qmax 48 % V 2.92 m/s
CHAINAGE/ LENGTH	-7.72	6.47	-1.24 40.74 39.5

A2

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

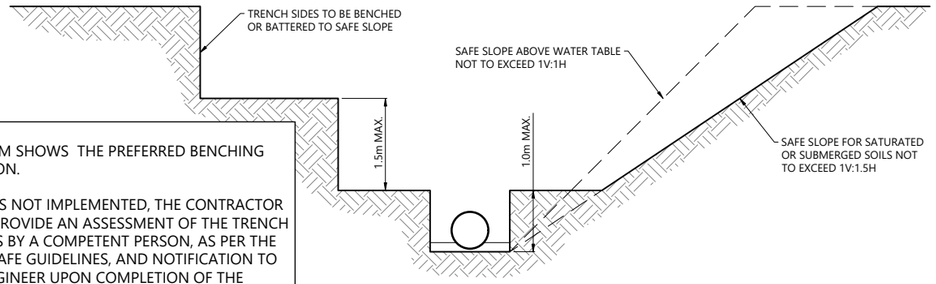
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 1 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3500-DR	

Plot Date: 11:44:38 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

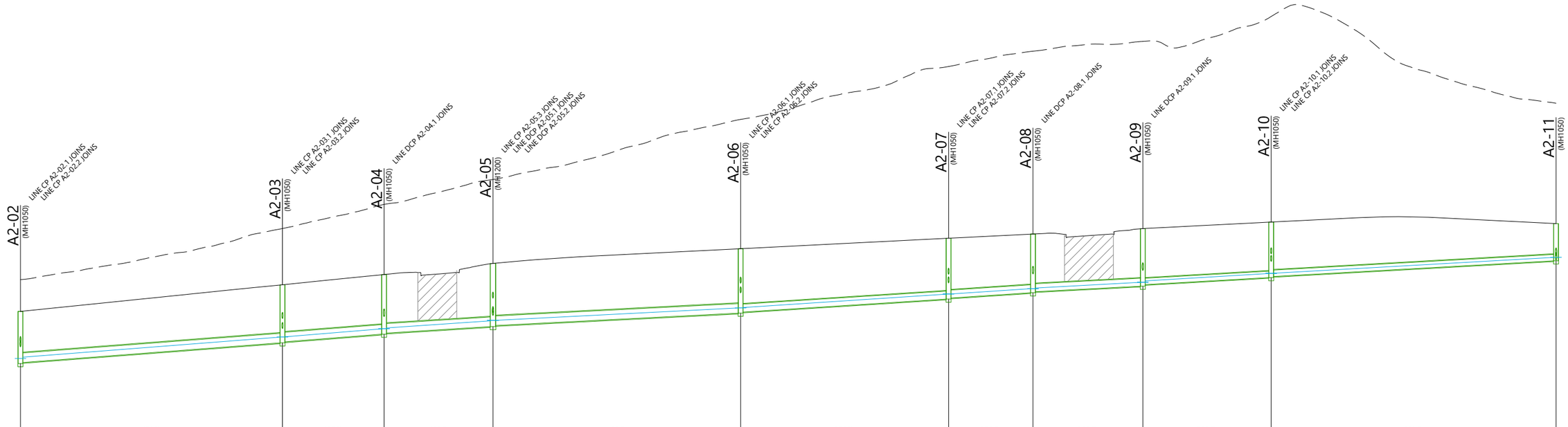
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



PIPE DIAMETER / PIPE TYPE / PIPE GRADE	450Ø RCRRJ CLASS 2 1.50%	450Ø RCRRJ CLASS 2 1.50%	450Ø RCRRJ CLASS 4 1.20%	450Ø RCRRJ CLASS 2 1.00%	375Ø RCRRJ CLASS 2 1.25%	375Ø RCRRJ CLASS 2 1.25%	375Ø RCRRJ CLASS 4 1.00%	300Ø RCRRJ CLASS 2 1.10%	300Ø RCRRJ CLASS 2 1.10%		
DATUM RL=	9.00										
DEPTH TO INVERT	2.46 / 2.41	2.73 / 2.68	2.81 / 2.76	2.97 / 2.92	3.04 / 2.99	2.87 / 2.82	2.77 / 2.72	2.71 / 2.64	2.61 / 2.56	1.75	
INVERT LEVEL	14.44 / 14.49	15.42 / 15.47	15.83 / 15.88	16.19 / 16.24	16.82 / 16.87	17.48 / 17.53	17.78 / 17.83	18.09 / 18.16	18.50 / 18.55	19.28	
MANHOLE LID LEVEL	16.90	18.15	18.64	19.16	19.86	20.35	20.55	20.80	21.11	21.04	
HYDRAULIC PARAMETERS	Q 210.00 l/s Q/Qmax 60 % V 2.16 m/s	Q 186.00 l/s Q/Qmax 53 % V 2.09 m/s	Q 179.00 l/s Q/Qmax 57 % V 1.80 m/s	Q 146.00 l/s Q/Qmax 51 % V 1.66 m/s	Q 122.00 l/s Q/Qmax 62 % V 1.74 m/s	Q 87.00 l/s Q/Qmax 44 % V 1.57 m/s	Q 76.00 l/s Q/Qmax 43 % V 1.45 m/s	Q 66.00 l/s Q/Qmax 65 % V 1.41 m/s	Q 53.00 l/s Q/Qmax 52 % V 1.39 m/s		
CHAINAGE/ LENGTH	39.5 / 61.71	101.2 / 23.93	125.14 / 25.64	150.78 / 58.33	209.11 / 48.97	258.07 / 19.88	277.96 / 25.87	303.83 / 30.22	334.05 / 67.09	401.14	

A2

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

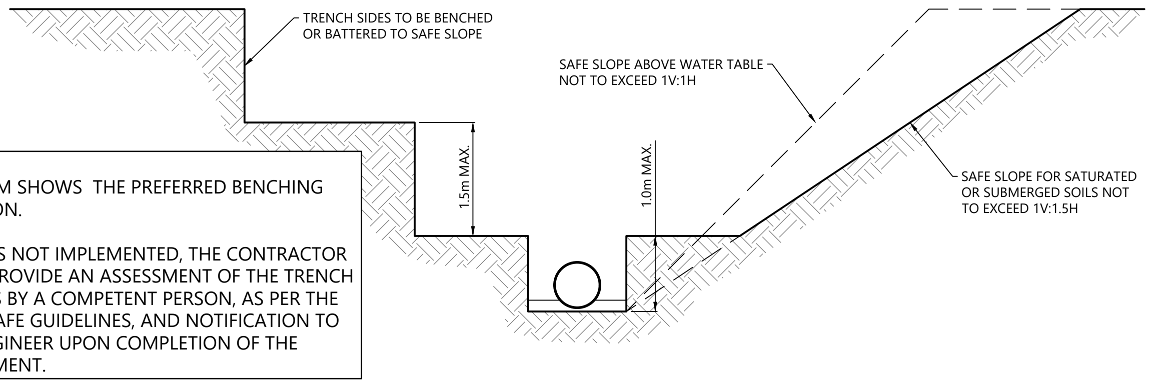
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 2 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3501-DR	

Plot Date: 11:44:39 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

NOT TO SCALE

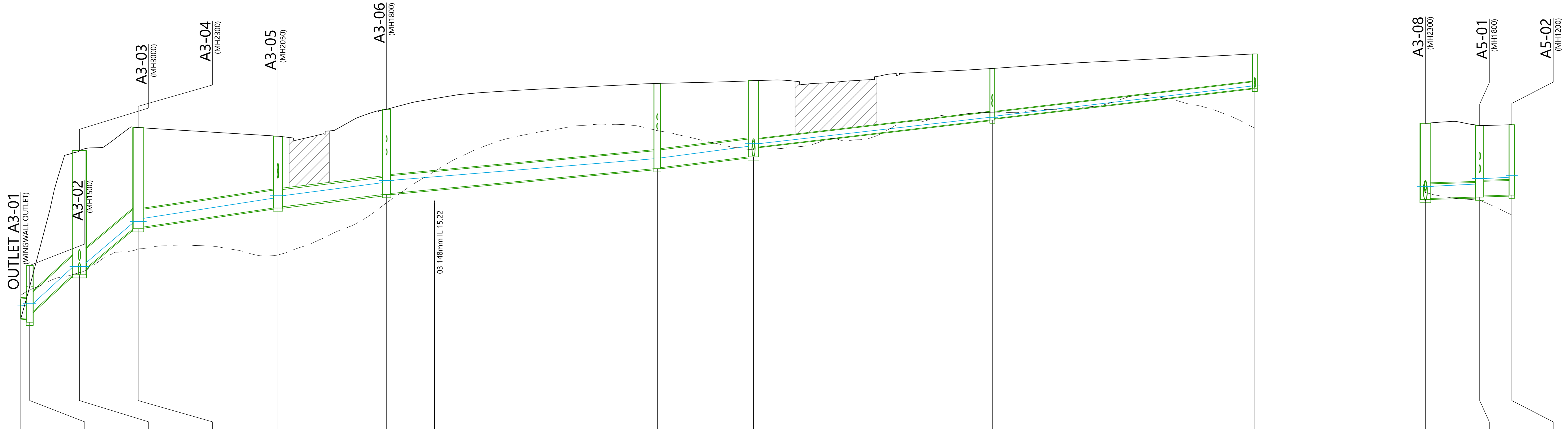
NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

▨	PROPOSED HARDFILL BACKFILL
──	PROPOSED FINISHED SURFACE
──	DEPTH OF FLOW (HYDRAULIC GRADELINE)
– – –	EXISTING GROUND

WOODS
Est.1970



PIPE DIAMETER		900Ø	900Ø	900Ø	825Ø	825Ø	825Ø	825Ø	375Ø	300Ø
PIPE TYPE		RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 4	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 4	RCRRJ CLASS 2
PIPE GRADE		1.00%	14.81%	13.51%	2.73%	2.24%	1.83%	2.24%	2.26%	2.30%
DATUM RL=		2.00								
DEPTH TO INVERT	0.91	0.91 1.47	1.67 1.17 5.82	5.52 4.74	4.66 3.37	3.31 4.00	3.95 4.00	3.95 3.57	3.11 2.42	2.35 1.61
INVERT LEVEL	9.85	9.85 9.87	9.67 10.17 11.90	12.20 14.06	14.14 15.03	15.09 15.66	15.71 15.9 16.87	16.92 17.43	17.89 19.15	19.23 20.65
MANHOLE LID LEVEL		10.76	11.34	17.72	18.80	18.40	19.66	20.87	21.00	21.58 22.26
HYDRAULIC PARAMETERS		Q 1410.00 l/s Q/Qmax 75 % V 2.92 m/s	Q 1410.00 l/s Q/Qmax 19 % V 6.57 m/s	Q 1169.00 l/s Q/Qmax 17 % V 6.42 m/s	Q 1169.00 l/s Q/Qmax 47 % V 3.49 m/s	Q 1140.00 l/s Q/Qmax 56 % V 3.12 m/s	Q 1110.00 l/s Q/Qmax 55 % V 3.05 m/s	Q 1065.00 l/s Q/Qmax 48 % V 3.05 m/s	Q 68.00 l/s Q/Qmax 26 % V 1.93 m/s	Q 39.00 l/s Q/Qmax 27 % V 1.72 m/s
CHAINAGE/ LENGTH		-25.75 2.09	-23.66 11.68	-11.98 13.77	1.79 32.79	34.57 25.5	60.07 71.3 63.51	123.58 22.56	146.15 56.02	202.17 61.58 263.75

A3

PIPE DIAMETER		675Ø	675Ø
PIPE TYPE		RCRRJ CLASS 2	RCRRJ CLASS 2
PIPE GRADE		0.50%	0.50%
DATUM RL=		4.00	
DEPTH TO INVERT	3.57	3.52 3.36	3.31 3.30
INVERT LEVEL	17.43	17.48 17.54	17.60 17.63
MANHOLE LID LEVEL		21.00	20.90 20.93
HYDRAULIC PARAMETERS		Q 576.00 l/s Q/Qmax 93 % V 1.63 m/s	Q 548.00 l/s Q/Qmax 88 % V 1.48 m/s
CHAINAGE/ LENGTH		0 12.75	12.75 7.52 20.28

A5

REVISION DETAILS		INT	DATE		
1	FOR DISCUSSION	MK	22/01/2025	SURVEYED	
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DESIGNED	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	DRAWN	MK
				CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

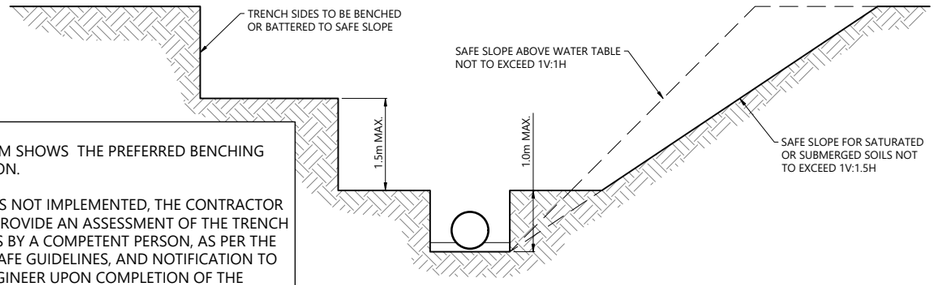
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 3 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3502-DR	

Plot Date: 11:44:39 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

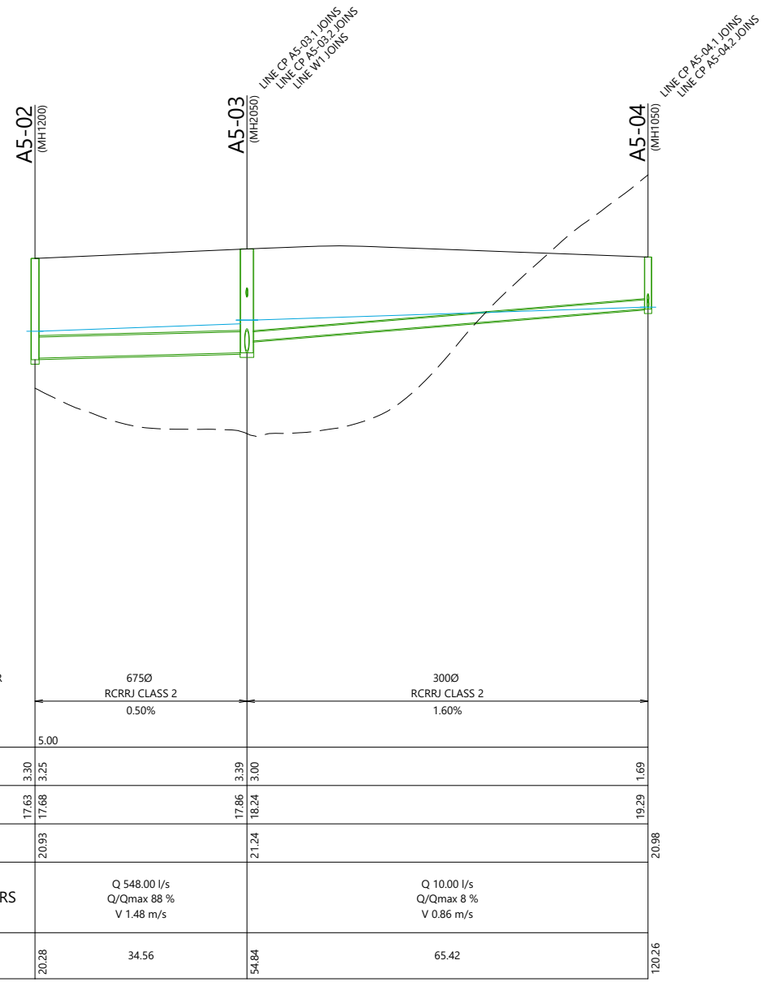
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

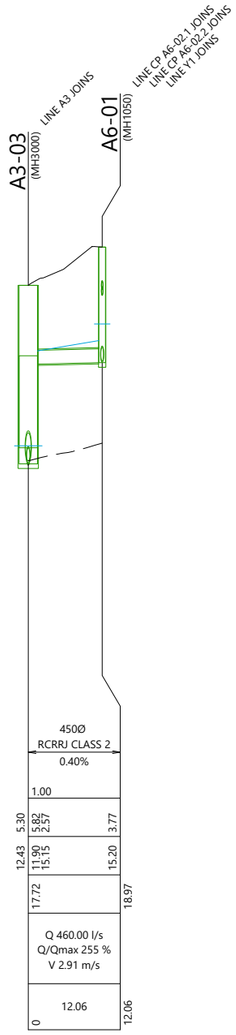
LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



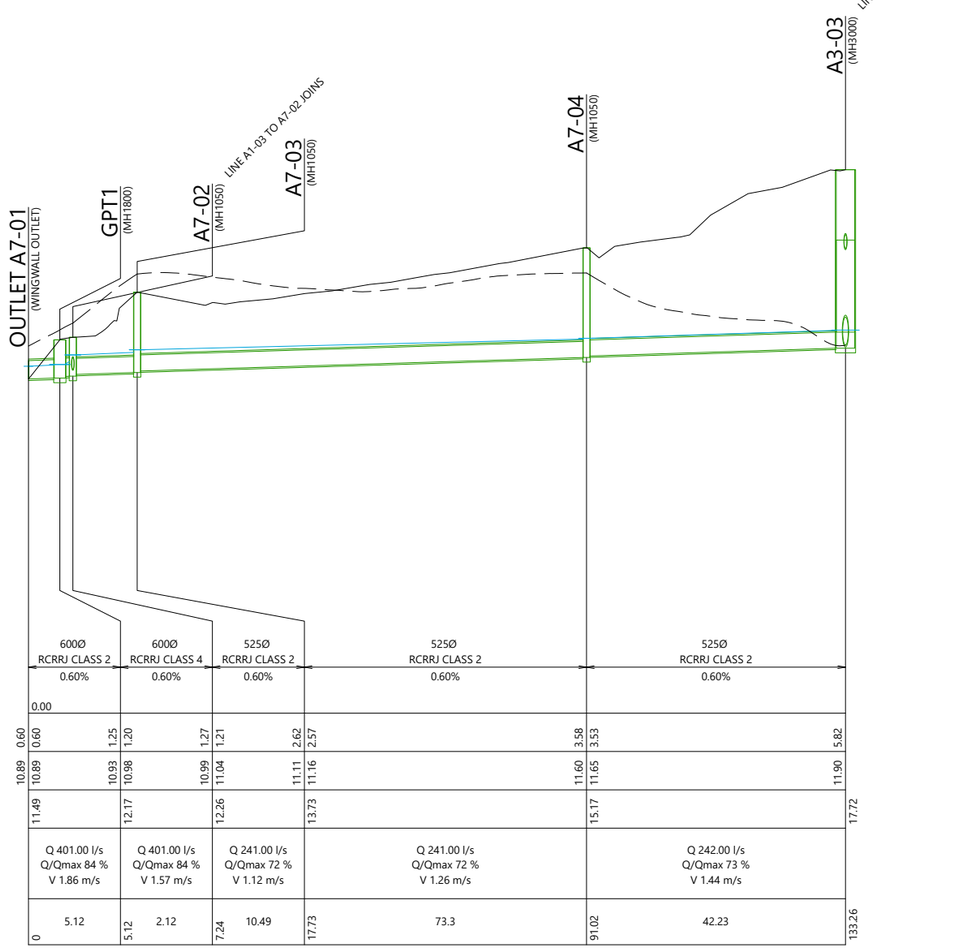
PIPE DIAMETER	675Ø	300Ø	
PIPE TYPE	RCRRJ CLASS 2	RCRRJ CLASS 2	
PIPE GRADE	0.50%	1.60%	
DATUM RL=	5.00		
DEPTH TO INVERT	3.30 / 3.25	3.39 / 3.00	1.69
INVERT LEVEL	17.63 / 17.68	17.86 / 18.24	19.29
MANHOLE LID LEVEL	20.93	21.24	20.98
HYDRAULIC PARAMETERS	Q 548.00 l/s Q/Qmax 88 % V 1.48 m/s	Q 10.00 l/s Q/Qmax 8 % V 0.86 m/s	
CHAINAGE/ LENGTH	20.28	34.56 / 54.84	65.42 / 120.26

A5



PIPE DIAMETER	450Ø	
PIPE TYPE	RCRRJ CLASS 2	
PIPE GRADE	0.40%	
DATUM RL=	1.00	
DEPTH TO INVERT	5.30 / 5.82 / 5.57	3.77
INVERT LEVEL	12.43 / 11.90 / 11.15	15.20
MANHOLE LID LEVEL	17.72	18.97
HYDRAULIC PARAMETERS	Q 460.00 l/s Q/Qmax 255 % V 2.91 m/s	
CHAINAGE/ LENGTH	0 / 12.06	12.06

A6-02 TO A3-04



PIPE DIAMETER	600Ø	600Ø	525Ø	525Ø	525Ø
PIPE TYPE	RCRRJ CLASS 2	RCRRJ CLASS 4	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 2
PIPE GRADE	0.60%	0.60%	0.60%	0.60%	0.60%
DATUM RL=	0.00				
DEPTH TO INVERT	0.60 / 0.60	1.25 / 1.20	1.27 / 1.21	2.62 / 2.57	3.58 / 3.53 / 5.82
INVERT LEVEL	10.89 / 10.89	10.93 / 10.98	10.99 / 11.04	11.11 / 11.16	11.60 / 11.65 / 11.90
MANHOLE LID LEVEL	11.49	12.17	12.26	13.73	15.17 / 17.72
HYDRAULIC PARAMETERS	Q 401.00 l/s Q/Qmax 84 % V 1.86 m/s	Q 401.00 l/s Q/Qmax 84 % V 1.57 m/s	Q 241.00 l/s Q/Qmax 72 % V 1.12 m/s	Q 241.00 l/s Q/Qmax 72 % V 1.26 m/s	Q 242.00 l/s Q/Qmax 73 % V 1.44 m/s
CHAINAGE/ LENGTH	0 / 5.12	5.12 / 2.12	7.24 / 10.49	17.73 / 73.3	91.02 / 42.23 / 133.26

A7

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

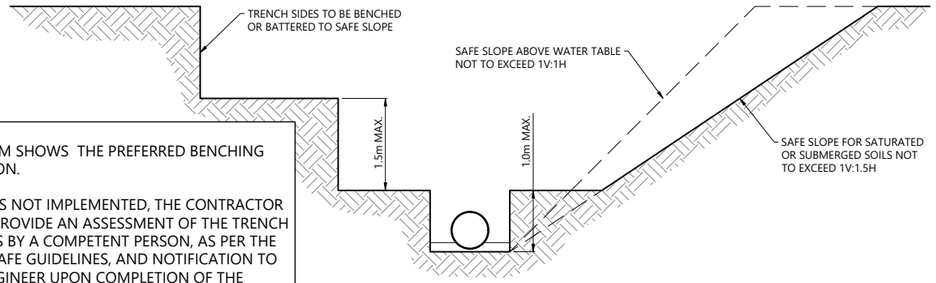
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 4 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3503-DR	

Plot Date: 8:57:57 am,28 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

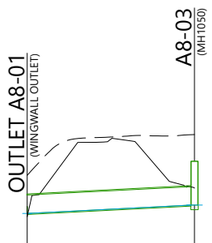
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



PIPE DIAMETER	600Ø	
PIPE TYPE	RCRRJ CLASS 2	
PIPE GRADE	1.00%	
DATUM RL=	-3.00	
DEPTH TO INVERT	0.22	1.43
INVERT LEVEL	9.85	10.12
MANHOLE LID LEVEL	10.07	11.55
HYDRAULIC PARAMETERS	Q 0.00 l/s Q/Qmax 0 % V 0.00 m/s	
CHAINAGE/ LENGTH	0 27.29	27.29

A8

PIPE DIAMETER	450Ø	375Ø	225Ø
PIPE TYPE	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 2
PIPE GRADE	9.34%	3.08%	2.46%
DATUM RL=	-4.00		
DEPTH TO INVERT	0.45 0.45	3.31 3.24	1.73 1.58 1.54
INVERT LEVEL	8.30 8.30	9.50 9.10 9.57	10.38 10.53 11.08
MANHOLE LID LEVEL	8.75	12.81	12.10 12.62
HYDRAULIC PARAMETERS	Q 260.00 l/s Q/Qmax 30 % V 4.20 m/s	Q 70.00 l/s Q/Qmax 23 % V 2.15 m/s	Q 28.00 l/s Q/Qmax 40 % V 1.59 m/s
CHAINAGE/ LENGTH	-8.3 12.85	4.55 26.04	30.58 22.58 53.16

C1

PIPE DIAMETER	600Ø	1800Ø	600Ø	375Ø	300Ø	300Ø
PIPE TYPE	RCRRJ CLASS 2	WEIR	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 4
PIPE GRADE	16.53%	20.62%	0.40%	0.40%	0.40%	0.40%
DATUM RL=	-3.00					
DEPTH TO INVERT	0.60 0.60	1.97 1.97	1.83	1.98 1.98	2.27 2.05 1.75	1.68 1.65 1.60 1.57
INVERT LEVEL	9.70 9.70	11.24 11.24	11.39	11.24 11.24	11.28 11.50 11.70	11.77 11.90 11.95 12.09
MANHOLE LID LEVEL	10.30	13.21	13.22	13.55	13.45	13.56 13.67
HYDRAULIC PARAMETERS	Q 135.00 l/s Q/Qmax 5 % V 4.69 m/s	Q 135.00 l/s Q/Qmax 0 % V 1.00 m/s	Q 121.00 l/s Q/Qmax 31 % V 1.12 m/s	Q 81.00 l/s Q/Qmax 73 % V 1.10 m/s	Q 53.00 l/s Q/Qmax 87 % V 1.02 m/s	Q 53.00 l/s Q/Qmax 87 % V 0.94 m/s
CHAINAGE/ LENGTH	-181.46 9.29	-172.17 0.73	-171.44 10.85	-160.59 47.97	-112.62 32.91	-79.71 35.44 -44.27

C2

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

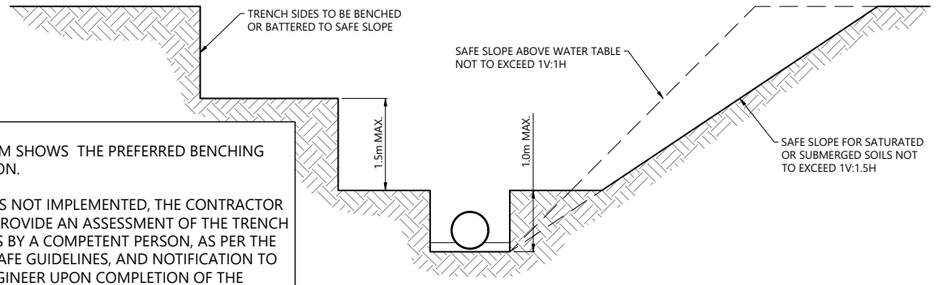
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 5 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3504-DR	

Plot Date: 8:58:52 am,28 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

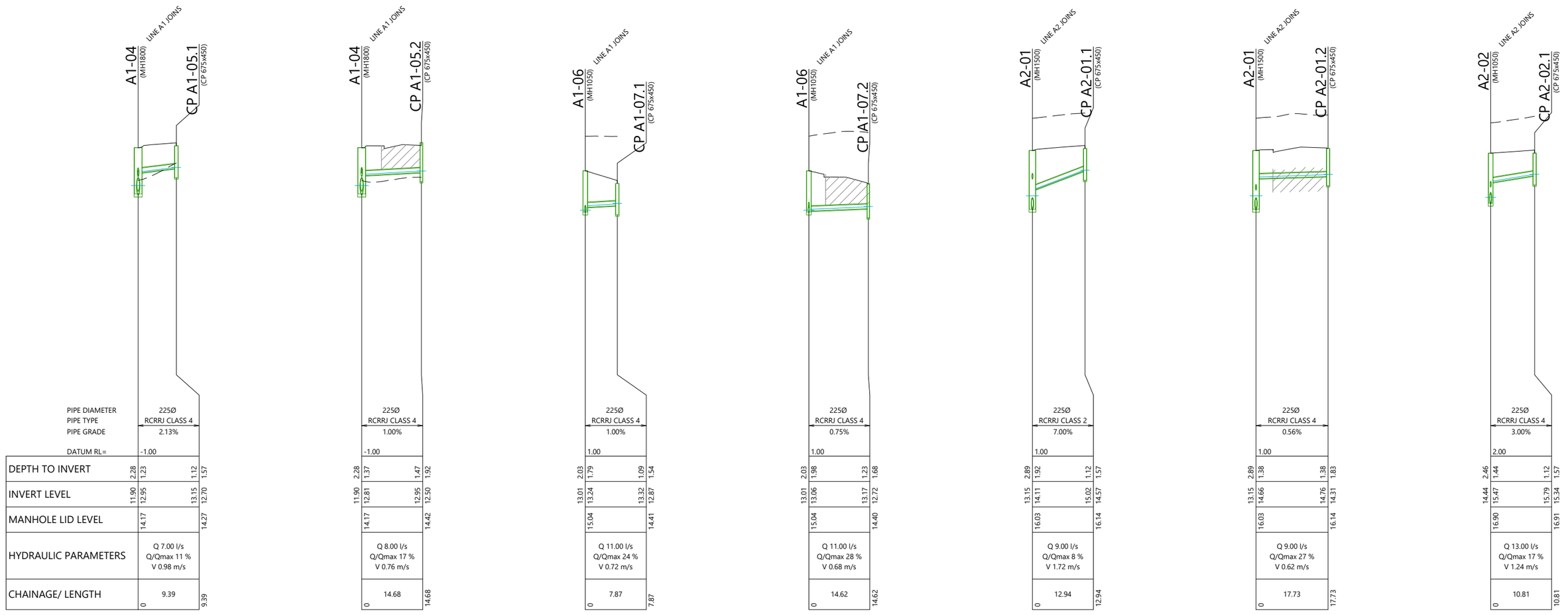
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



	CP A1-05.1	CP A1-05.2	CP A1-07.1	CP A1-07.2	CP A2-01.1	CP A2-01.2	CP A2-02.1
PIPE DIAMETER	225Ø	225Ø	225Ø	225Ø	225Ø	225Ø	225Ø
PIPE TYPE	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 2	RCRRJ CLASS 4	RCRRJ CLASS 4
PIPE GRADE	2.13%	1.00%	1.00%	0.75%	7.00%	0.56%	3.00%
DATUM RL=	-1.00	-1.00	1.00	1.00	1.00	1.00	2.00
DEPTH TO INVERT	2.28 / 1.23 / 1.12 / 1.57	2.28 / 1.37 / 1.47 / 1.92	2.03 / 1.79 / 1.09 / 1.54	2.03 / 1.98 / 1.23 / 1.68	2.89 / 1.92 / 1.12 / 1.57	2.89 / 1.38 / 1.38 / 1.83	2.46 / 1.44 / 1.12 / 1.57
INVERT LEVEL	11.90 / 12.95 / 13.15 / 12.70	11.90 / 12.81 / 12.95 / 12.50	13.01 / 13.24 / 13.32 / 12.87	13.01 / 13.06 / 13.17 / 12.72	13.15 / 14.11 / 15.02 / 14.57	13.15 / 14.66 / 14.76 / 14.31	14.44 / 15.47 / 15.79 / 15.34
MANHOLE LID LEVEL	14.17 / 14.27	14.17 / 14.42	15.04 / 14.41	15.04 / 14.40	16.03 / 16.14	16.03 / 16.14	16.90 / 16.91
HYDRAULIC PARAMETERS	Q 7.00 l/s Q/Qmax 11 % V 0.98 m/s	Q 8.00 l/s Q/Qmax 17 % V 0.76 m/s	Q 11.00 l/s Q/Qmax 24 % V 0.72 m/s	Q 11.00 l/s Q/Qmax 28 % V 0.68 m/s	Q 9.00 l/s Q/Qmax 8 % V 1.72 m/s	Q 9.00 l/s Q/Qmax 27 % V 0.62 m/s	Q 13.00 l/s Q/Qmax 17 % V 1.24 m/s
CHAINAGE/ LENGTH	0 / 9.39 / 9.39	0 / 14.68 / 14.68	0 / 7.87 / 7.87	0 / 14.62 / 14.62	0 / 12.94 / 12.94	0 / 17.73 / 17.73	0 / 10.81 / 10.81

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

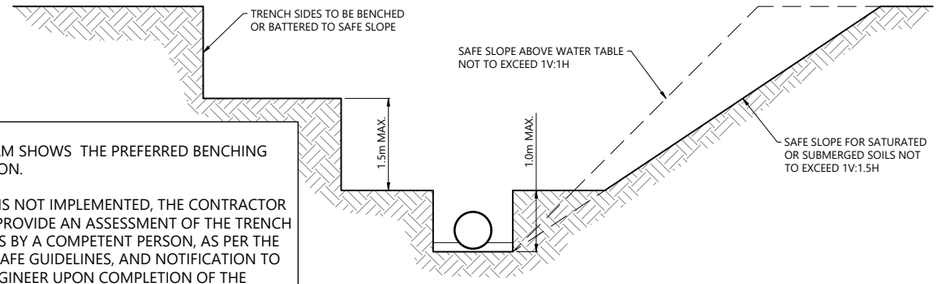
Kiwi Property

DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 6 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3505-DR	

Plot Date: 11:44:40 am,21 February 2025, ELLAWA
File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

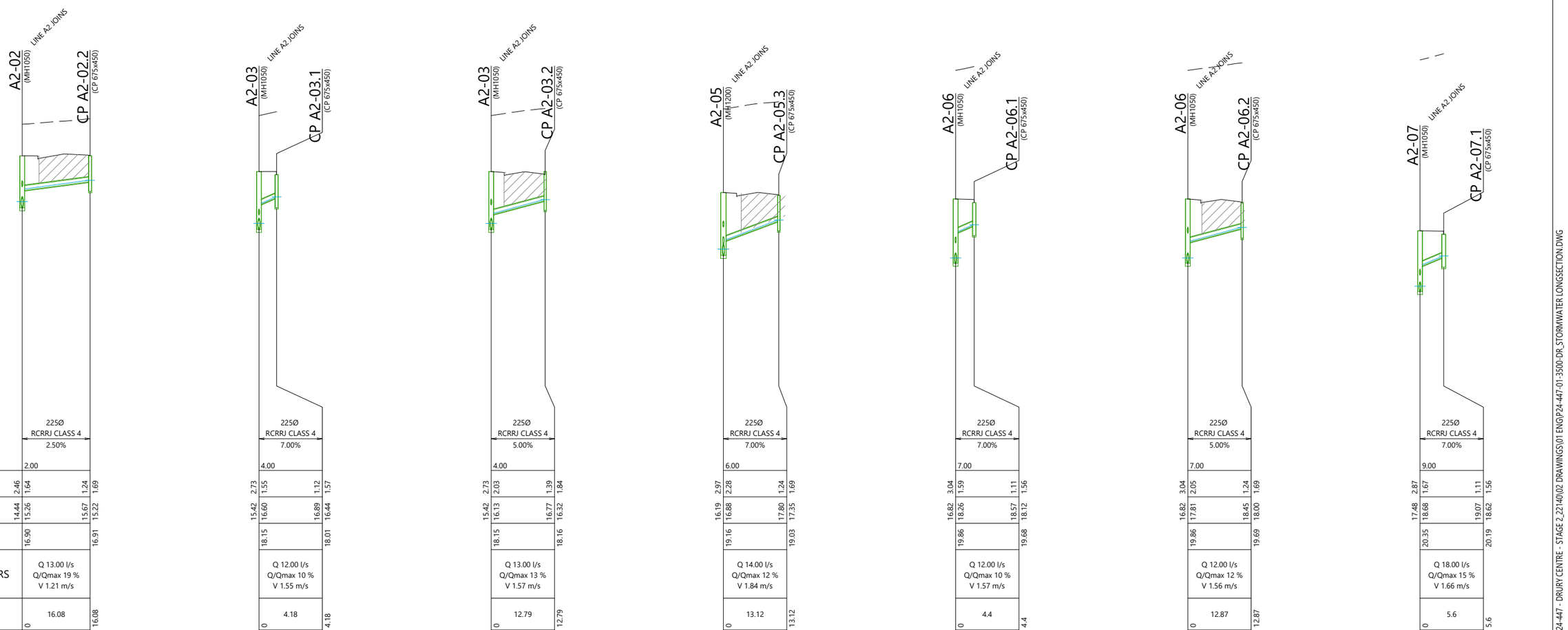
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



	CP A2-02.2	CP A2-03.1	CP A2-03.2	CP A2-05.3	CP A2-06.1	CP A2-06.2	CP A2-07.1
PIPE DIAMETER	225Ø	225Ø	225Ø	225Ø	225Ø	225Ø	225Ø
PIPE TYPE	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4
PIPE GRADE	2.50%	7.00%	5.00%	7.00%	7.00%	5.00%	7.00%
DATUM RL=	2.00	4.00	4.00	6.00	7.00	7.00	9.00
DEPTH TO INVERT	2.46 / 1.64 / 1.24 / 1.69	2.73 / 1.55 / 1.12 / 1.57	2.73 / 2.03 / 1.39 / 1.84	2.97 / 2.28 / 1.24 / 1.69	3.04 / 1.59 / 1.11 / 1.56	3.04 / 2.05 / 1.24 / 1.69	2.87 / 1.67 / 1.11 / 1.56
INVERT LEVEL	14.44 / 15.26 / 15.67 / 15.22	15.42 / 16.60 / 16.89 / 16.44	15.42 / 16.13 / 16.77 / 16.32	16.19 / 16.88 / 17.80 / 17.35	16.82 / 18.26 / 18.57 / 18.12	16.82 / 17.81 / 18.45 / 18.00	17.48 / 18.68 / 19.07 / 18.62
MANHOLE LID LEVEL	16.90 / 16.91	18.15 / 18.01	18.15 / 18.16	19.16 / 19.03	19.86 / 19.68	19.86 / 19.69	20.35 / 20.19
HYDRAULIC PARAMETERS	Q 13.00 l/s Q/Qmax 19 % V 1.21 m/s	Q 12.00 l/s Q/Qmax 10 % V 1.55 m/s	Q 13.00 l/s Q/Qmax 13 % V 1.57 m/s	Q 14.00 l/s Q/Qmax 12 % V 1.84 m/s	Q 12.00 l/s Q/Qmax 10 % V 1.57 m/s	Q 12.00 l/s Q/Qmax 12 % V 1.56 m/s	Q 18.00 l/s Q/Qmax 15 % V 1.66 m/s
CHAINAGE/ LENGTH	0 / 16.08 / 16.08	0 / 4.18 / 4.18	0 / 12.79 / 12.79	0 / 13.12 / 13.12	0 / 4.4 / 4.4	0 / 12.87 / 12.87	0 / 5.6 / 5.6

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

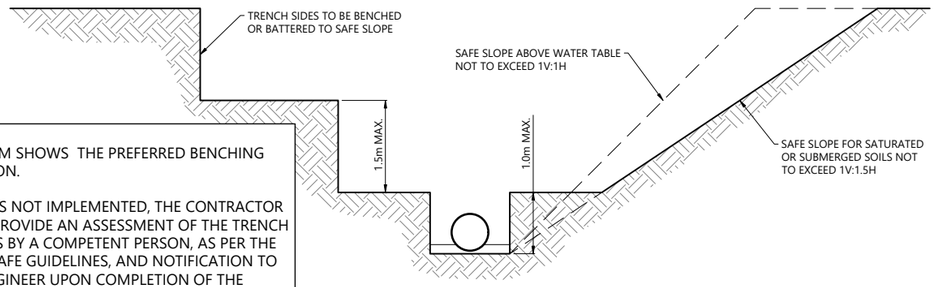
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 7 OF 19)

STATUS	FOR FAST TRACK CONSENT
SCALE	H 1:1000 @ A3 V 1:200 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3506-DR
REV	3

Plot Date: 11:44:41 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

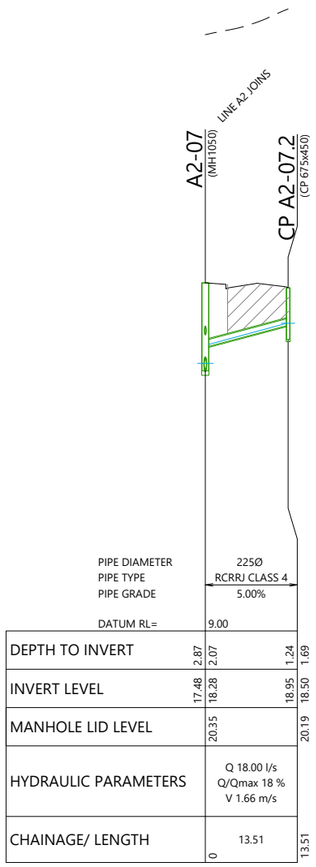
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

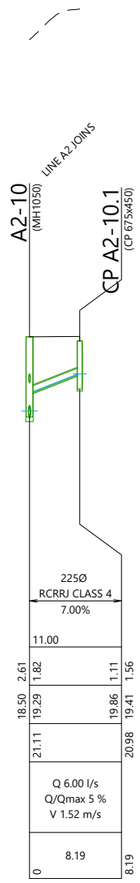
LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



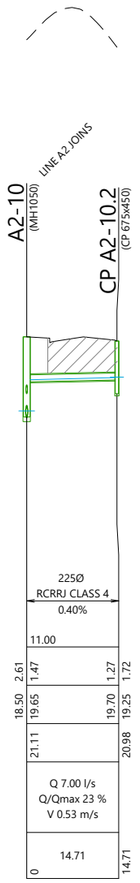
PIPE DIAMETER		225Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		5.00%	
DATUM RL=		9.00	
DEPTH TO INVERT	2.87	2.07	1.24 1.69
INVERT LEVEL	17.48	18.28	18.95 18.50
MANHOLE LID LEVEL	20.35		20.19
HYDRAULIC PARAMETERS		Q 18.00 l/s Q/Qmax 18 % V 1.66 m/s	
CHAINAGE/ LENGTH	0	13.51	13.51

CP A2-07.2



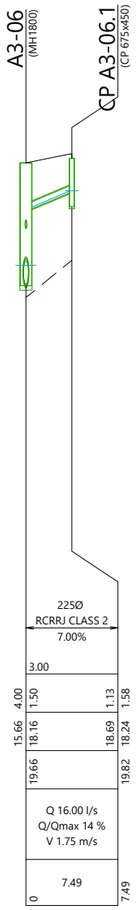
PIPE DIAMETER		225Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		7.00%	
DATUM RL=		11.00	
DEPTH TO INVERT	2.61	1.82	1.11 1.56
INVERT LEVEL	18.50	19.29	19.86 19.41
MANHOLE LID LEVEL	21.11		20.98
HYDRAULIC PARAMETERS		Q 6.00 l/s Q/Qmax 5 % V 1.52 m/s	
CHAINAGE/ LENGTH	0	8.19	8.19

CP A2-10.1



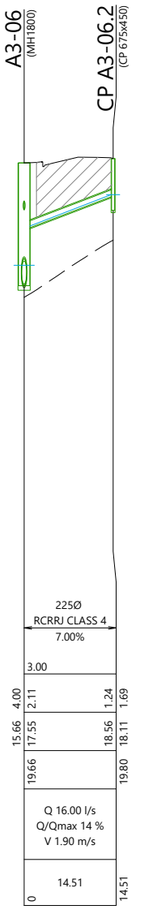
PIPE DIAMETER		225Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		0.40%	
DATUM RL=		11.00	
DEPTH TO INVERT	2.61	1.47	1.27 1.72
INVERT LEVEL	18.50	19.65	19.70 19.25
MANHOLE LID LEVEL	21.11		20.98
HYDRAULIC PARAMETERS		Q 7.00 l/s Q/Qmax 23 % V 0.53 m/s	
CHAINAGE/ LENGTH	0	14.71	14.71

CP A2-10.2



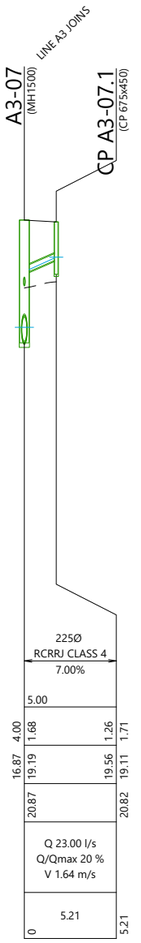
PIPE DIAMETER		225Ø	
PIPE TYPE		RCRRJ CLASS 2	
PIPE GRADE		7.00%	
DATUM RL=		3.00	
DEPTH TO INVERT	4.00	1.50	1.13 1.58
INVERT LEVEL	15.66	18.16	18.69 18.24
MANHOLE LID LEVEL	19.66		19.82
HYDRAULIC PARAMETERS		Q 16.00 l/s Q/Qmax 14 % V 1.75 m/s	
CHAINAGE/ LENGTH	0	7.49	7.49

CP A3-06.1



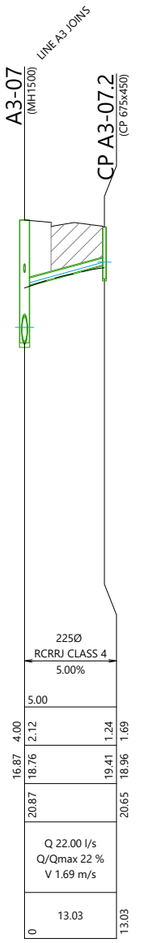
PIPE DIAMETER		225Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		7.00%	
DATUM RL=		3.00	
DEPTH TO INVERT	4.00	2.11	1.24 1.69
INVERT LEVEL	15.66	17.55	18.56 18.11
MANHOLE LID LEVEL	19.66		19.80
HYDRAULIC PARAMETERS		Q 16.00 l/s Q/Qmax 14 % V 1.90 m/s	
CHAINAGE/ LENGTH	0	14.51	14.51

CP A3-06.2



PIPE DIAMETER		225Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		7.00%	
DATUM RL=		5.00	
DEPTH TO INVERT	4.00	1.68	1.26 1.71
INVERT LEVEL	16.87	19.19	19.56 19.11
MANHOLE LID LEVEL	20.87		20.82
HYDRAULIC PARAMETERS		Q 23.00 l/s Q/Qmax 20 % V 1.64 m/s	
CHAINAGE/ LENGTH	0	5.21	5.21

CP A3-07.1



PIPE DIAMETER		225Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		5.00%	
DATUM RL=		5.00	
DEPTH TO INVERT	4.00	2.12	1.24 1.69
INVERT LEVEL	16.87	18.76	19.41 18.96
MANHOLE LID LEVEL	20.87		20.65
HYDRAULIC PARAMETERS		Q 22.00 l/s Q/Qmax 22 % V 1.69 m/s	
CHAINAGE/ LENGTH	0	13.03	13.03

CP A3-07.2

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

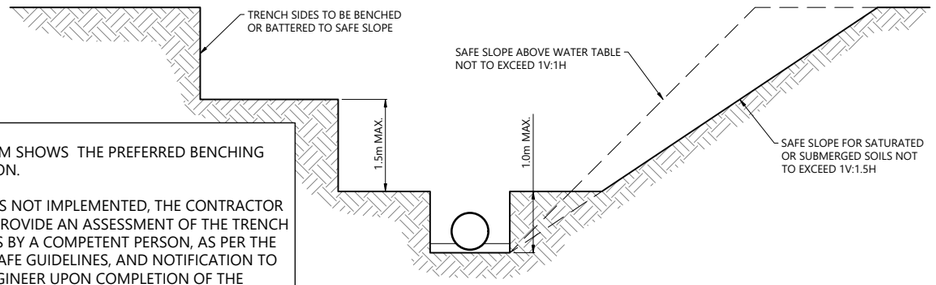
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 8 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3507-DR	

Plot Date: 11:44:41 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

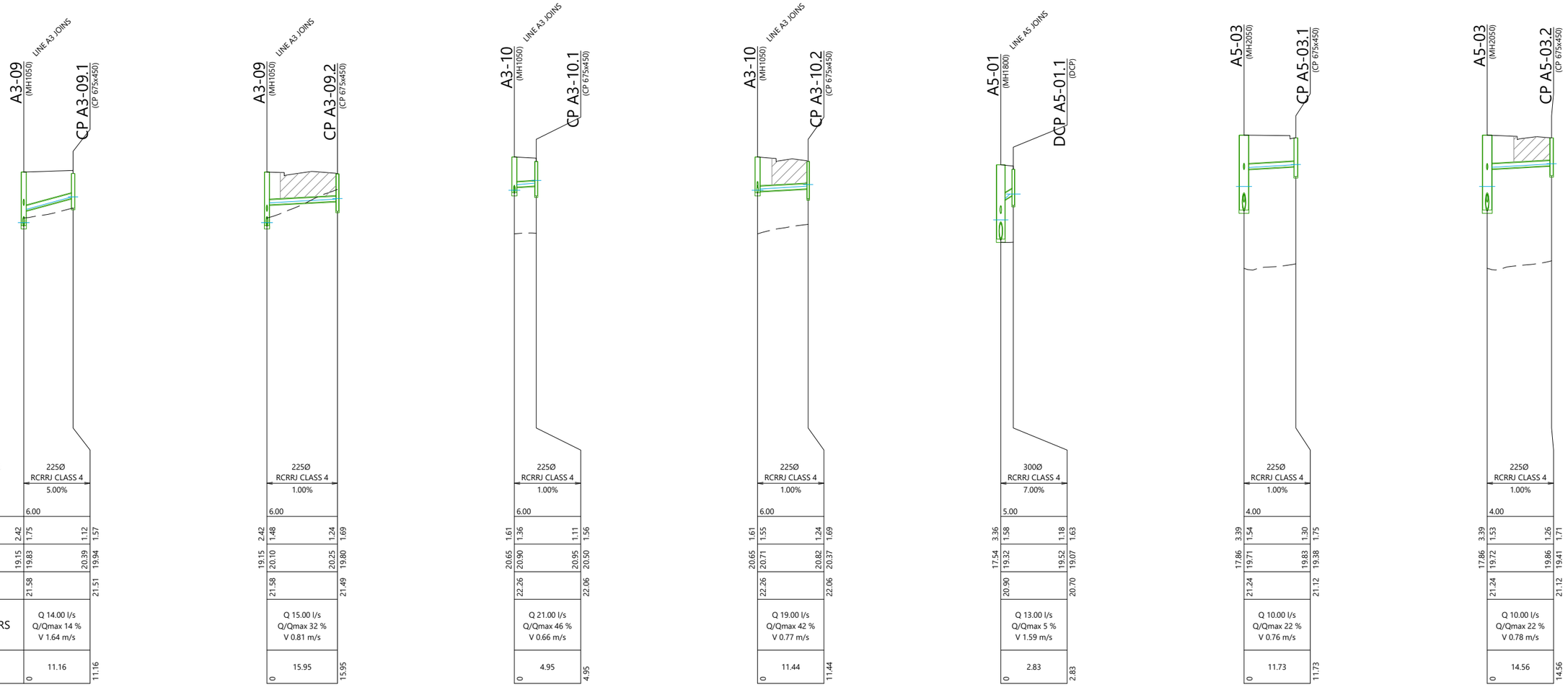
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

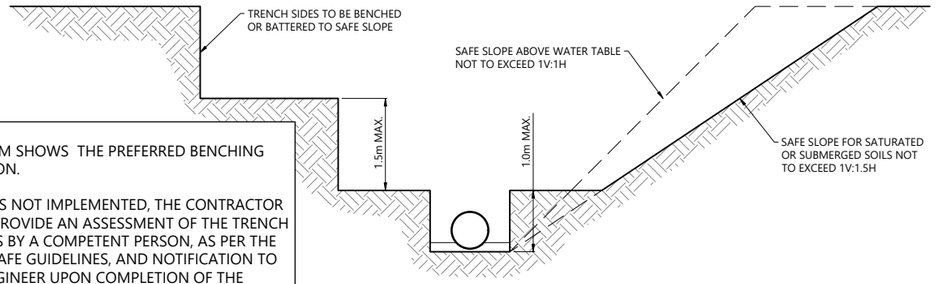
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 9 OF 19)

STATUS	FOR FAST TRACK CONSENT
SCALE	H 1:1000 @ A3 V 1:200 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3508-DR
REV	3

Plot Date: 11:44:41 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

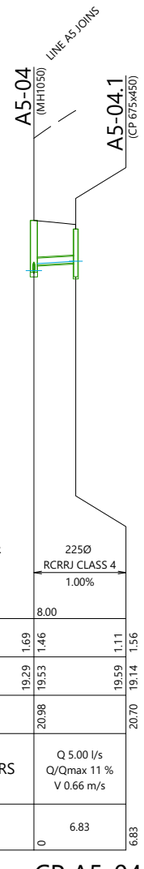
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

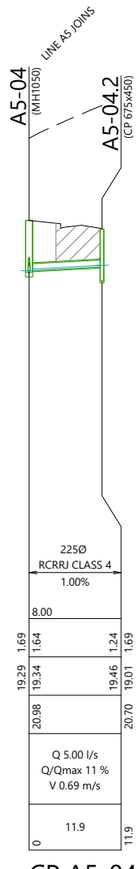
LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



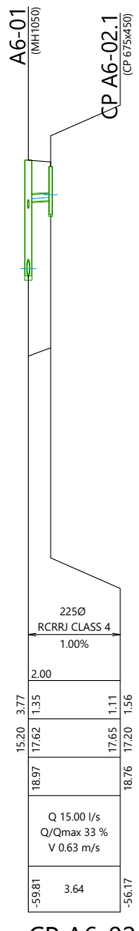
PIPE DIAMETER	225Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	1.00%
DATUM RL=	8.00
DEPTH TO INVERT	1.69 / 1.46 / 1.11 / 1.56
INVERT LEVEL	19.29 / 19.53 / 19.59 / 19.14
MANHOLE LID LEVEL	20.98 / 20.70
HYDRAULIC PARAMETERS	Q 5.00 l/s, Q/Qmax 11 %, V 0.66 m/s
CHAINAGE/ LENGTH	0 / 6.83

CP A5-04.1



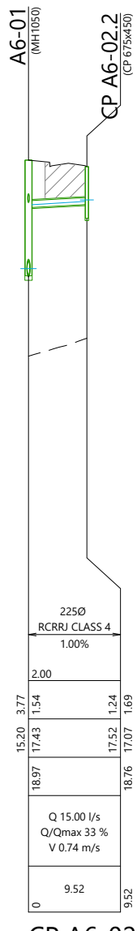
PIPE DIAMETER	225Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	1.00%
DATUM RL=	8.00
DEPTH TO INVERT	1.69 / 1.64 / 1.24 / 1.69
INVERT LEVEL	19.29 / 19.34 / 19.46 / 19.01
MANHOLE LID LEVEL	20.98 / 20.70
HYDRAULIC PARAMETERS	Q 5.00 l/s, Q/Qmax 11 %, V 0.69 m/s
CHAINAGE/ LENGTH	0 / 11.9

CP A5-04.2



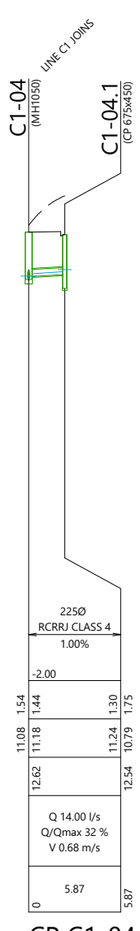
PIPE DIAMETER	225Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	1.00%
DATUM RL=	2.00
DEPTH TO INVERT	3.77 / 1.35 / 1.11 / 1.56
INVERT LEVEL	15.20 / 17.62 / 17.65 / 17.20
MANHOLE LID LEVEL	18.97 / 18.76
HYDRAULIC PARAMETERS	Q 15.00 l/s, Q/Qmax 33 %, V 0.63 m/s
CHAINAGE/ LENGTH	-59.81 / 3.64 / -56.17

CP A6-02.1



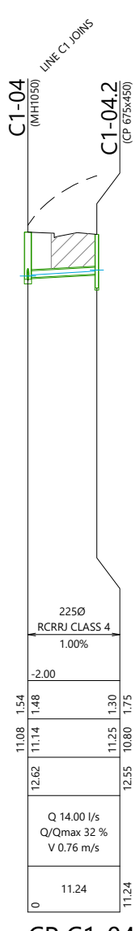
PIPE DIAMETER	225Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	1.00%
DATUM RL=	2.00
DEPTH TO INVERT	3.77 / 1.54 / 1.24 / 1.69
INVERT LEVEL	15.20 / 17.43 / 17.52 / 17.07
MANHOLE LID LEVEL	18.97 / 18.76
HYDRAULIC PARAMETERS	Q 15.00 l/s, Q/Qmax 33 %, V 0.74 m/s
CHAINAGE/ LENGTH	0 / 9.52

CP A6-02.2



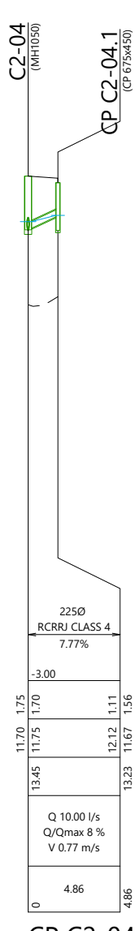
PIPE DIAMETER	225Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	1.00%
DATUM RL=	-2.00
DEPTH TO INVERT	1.54 / 1.44 / 1.30 / 1.75
INVERT LEVEL	11.08 / 11.18 / 11.24 / 10.79
MANHOLE LID LEVEL	12.62 / 12.54
HYDRAULIC PARAMETERS	Q 14.00 l/s, Q/Qmax 32 %, V 0.68 m/s
CHAINAGE/ LENGTH	0 / 5.87

CP C1-04.1



PIPE DIAMETER	225Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	1.00%
DATUM RL=	-2.00
DEPTH TO INVERT	1.54 / 1.48 / 1.30 / 1.75
INVERT LEVEL	11.08 / 11.14 / 11.25 / 10.80
MANHOLE LID LEVEL	12.62 / 12.55
HYDRAULIC PARAMETERS	Q 14.00 l/s, Q/Qmax 32 %, V 0.76 m/s
CHAINAGE/ LENGTH	0 / 11.24

CP C1-04.2



PIPE DIAMETER	225Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	7.77%
DATUM RL=	-3.00
DEPTH TO INVERT	1.75 / 1.70 / 1.11 / 1.56
INVERT LEVEL	11.70 / 11.75 / 12.12 / 11.67
MANHOLE LID LEVEL	13.45 / 13.23
HYDRAULIC PARAMETERS	Q 10.00 l/s, Q/Qmax 8 %, V 0.77 m/s
CHAINAGE/ LENGTH	0 / 4.86

CP C2-04.1

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE-STAGE 2

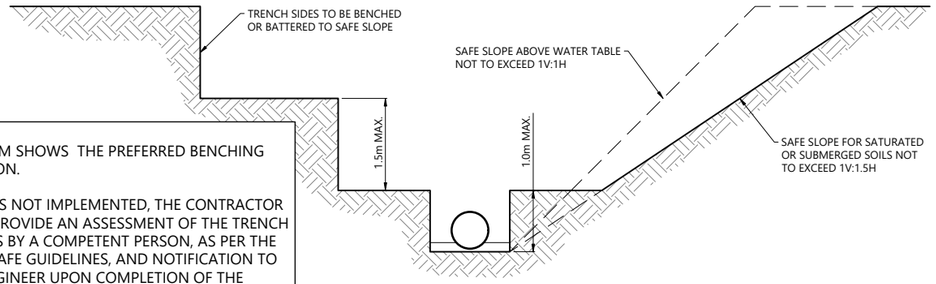
STORMWATER LONGSECTION (SHEET 10 OF 19)

		REV
STATUS	FOR FAST TRACK CONSENT	
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3509-DR	

WOODS Est.1970

Plot Date: 11:44:42 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

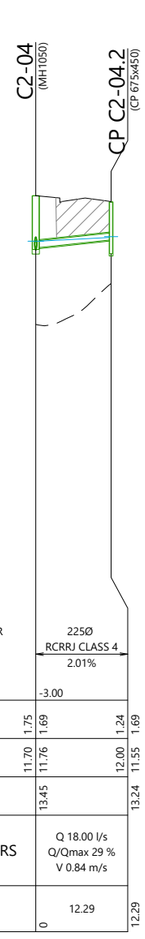
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

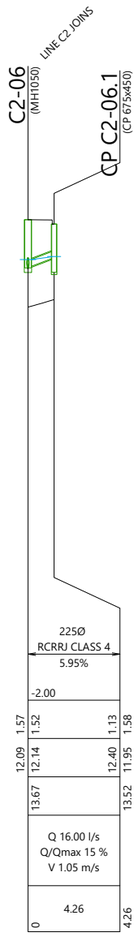
LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



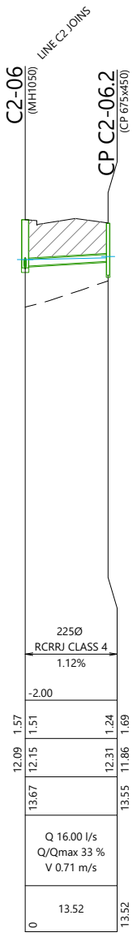
PIPE DIAMETER	225Ø	
PIPE TYPE	RCRRJ CLASS 4	
PIPE GRADE	2.01%	
DATUM RL=	-3.00	
DEPTH TO INVERT	1.75	1.24
INVERT LEVEL	11.70 / 11.76	12.00 / 11.55
MANHOLE LID LEVEL	13.45	13.24
HYDRAULIC PARAMETERS	Q 18.00 l/s Q/Qmax 29 % V 0.84 m/s	
CHAINAGE/ LENGTH	0 / 12.29	12.29

CP C2-04.2



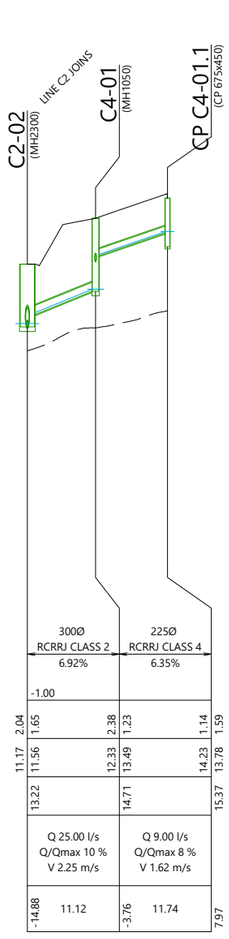
PIPE DIAMETER	225Ø	
PIPE TYPE	RCRRJ CLASS 4	
PIPE GRADE	5.95%	
DATUM RL=	-2.00	
DEPTH TO INVERT	1.57	1.13
INVERT LEVEL	12.09 / 12.14	12.40 / 11.95
MANHOLE LID LEVEL	13.67	13.52
HYDRAULIC PARAMETERS	Q 16.00 l/s Q/Qmax 15 % V 1.05 m/s	
CHAINAGE/ LENGTH	0 / 4.26	4.26

CP C2-06.1



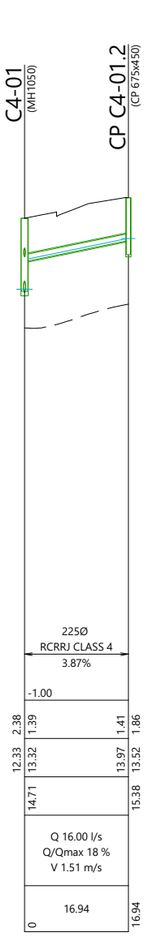
PIPE DIAMETER	225Ø	
PIPE TYPE	RCRRJ CLASS 4	
PIPE GRADE	1.12%	
DATUM RL=	-2.00	
DEPTH TO INVERT	1.57	1.24
INVERT LEVEL	12.09 / 12.15	12.31 / 11.86
MANHOLE LID LEVEL	13.67	13.55
HYDRAULIC PARAMETERS	Q 16.00 l/s Q/Qmax 33 % V 0.71 m/s	
CHAINAGE/ LENGTH	0 / 13.52	13.52

CP C2-06.2



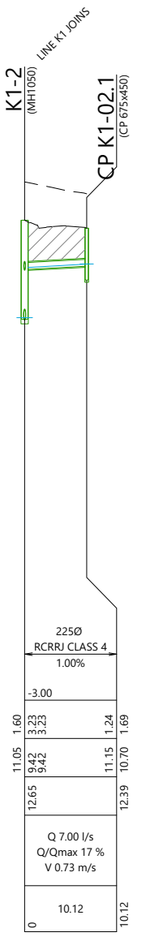
PIPE DIAMETER	300Ø	225Ø
PIPE TYPE	RCRRJ CLASS 2	RCRRJ CLASS 4
PIPE GRADE	6.92%	6.35%
DATUM RL=	-1.00	
DEPTH TO INVERT	2.04 / 1.65	2.38 / 1.23 — 1.14
INVERT LEVEL	11.17 / 11.56	12.33 / 13.49 — 14.23 / 13.78 — 1.59
MANHOLE LID LEVEL	13.22	14.71 — 15.37
HYDRAULIC PARAMETERS	Q 25.00 l/s Q/Qmax 10 % V 2.25 m/s	Q 9.00 l/s Q/Qmax 8 % V 1.62 m/s
CHAINAGE/ LENGTH	-14.88 / 11.12	-3.76 / 11.74 — 7.97

CP C4-01.1



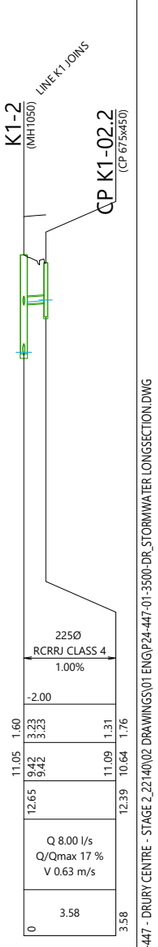
PIPE DIAMETER	225Ø	
PIPE TYPE	RCRRJ CLASS 4	
PIPE GRADE	3.87%	
DATUM RL=	-1.00	
DEPTH TO INVERT	2.38	1.41
INVERT LEVEL	12.33 / 13.32	13.97 / 13.52 — 1.86
MANHOLE LID LEVEL	14.71	15.38
HYDRAULIC PARAMETERS	Q 16.00 l/s Q/Qmax 18 % V 1.51 m/s	
CHAINAGE/ LENGTH	0 / 16.94	16.94

CP C4-01.2



PIPE DIAMETER	225Ø	
PIPE TYPE	RCRRJ CLASS 4	
PIPE GRADE	1.00%	
DATUM RL=	-3.00	
DEPTH TO INVERT	1.60	1.24
INVERT LEVEL	11.05 / 9.42	11.15 / 10.70 — 1.69
MANHOLE LID LEVEL	12.65	12.39
HYDRAULIC PARAMETERS	Q 7.00 l/s Q/Qmax 17 % V 0.73 m/s	
CHAINAGE/ LENGTH	0 / 10.12	10.12

CP K1-02.1



PIPE DIAMETER	225Ø	
PIPE TYPE	RCRRJ CLASS 4	
PIPE GRADE	1.00%	
DATUM RL=	-2.00	
DEPTH TO INVERT	1.60	1.31
INVERT LEVEL	11.05 / 9.42	11.09 / 10.64 — 1.76
MANHOLE LID LEVEL	12.65	12.39
HYDRAULIC PARAMETERS	Q 8.00 l/s Q/Qmax 17 % V 0.63 m/s	
CHAINAGE/ LENGTH	0 / 3.58	3.58

CP K1-02.

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

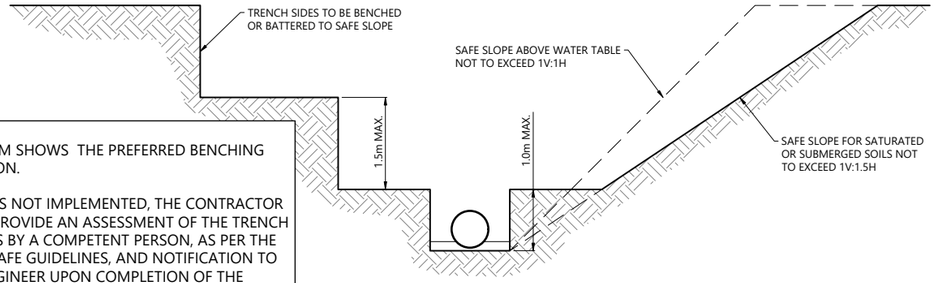
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 11 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV	
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3	
COUNCIL	AUCKLAND COUNCIL		
DWG NO	P24-447-01-3510-DR		

Plot Date: 11:44:42 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

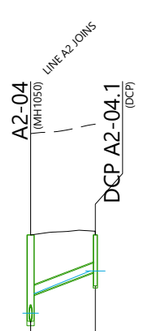
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

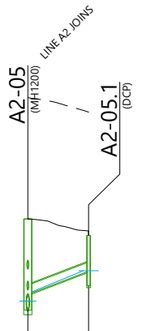
LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



PIPE DIAMETER	300Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	7.00%
DATUM RL=	5.00
DEPTH TO INVERT	2.81 1.95 1.21 1.66
INVERT LEVEL	15.83 16.69 17.43 16.98
MANHOLE LID LEVEL	18.64 18.64
HYDRAULIC PARAMETERS	Q 7.00 l/s Q/Qmax 3 % V 1.55 m/s
CHAINAGE/ LENGTH	0 10.56 10.56

DCP A2-04.1

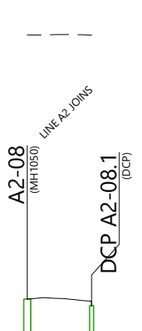


PIPE DIAMETER	300Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	7.00%
DATUM RL=	5.00
DEPTH TO INVERT	2.97 2.42 1.18 1.63
INVERT LEVEL	16.19 16.74 17.44 16.99
MANHOLE LID LEVEL	19.16 18.62
HYDRAULIC PARAMETERS	Q 7.00 l/s Q/Qmax 3 % V 1.52 m/s
CHAINAGE/ LENGTH	0 9.91 9.91

DCP A2-05.1

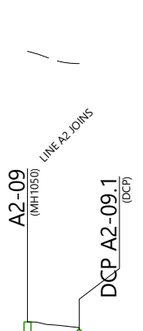
PIPE DIAMETER	225Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	7.00%
DATUM RL=	6.00
DEPTH TO INVERT	2.97 1.60 1.12 1.57
INVERT LEVEL	16.19 17.56 17.92 17.47
MANHOLE LID LEVEL	19.16 19.03
HYDRAULIC PARAMETERS	Q 14.00 l/s Q/Qmax 12 % V 1.62 m/s
CHAINAGE/ LENGTH	0 5.14 5.14

DCP A2-05.2



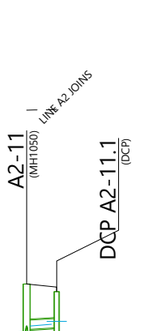
PIPE DIAMETER	300Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	4.28%
DATUM RL=	9.00
DEPTH TO INVERT	2.77 1.85 1.18 1.63
INVERT LEVEL	17.78 18.70 19.15 18.70
MANHOLE LID LEVEL	20.55 20.33
HYDRAULIC PARAMETERS	Q 11.00 l/s Q/Qmax 5 % V 1.43 m/s
CHAINAGE/ LENGTH	0 10.5 10.5

DCP A2-08.1



PIPE DIAMETER	300Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	5.00%
DATUM RL=	10.00
DEPTH TO INVERT	2.71 1.94 1.26 1.71
INVERT LEVEL	18.09 18.86 19.29 18.84
MANHOLE LID LEVEL	20.80 20.54
HYDRAULIC PARAMETERS	Q 11.00 l/s Q/Qmax 5 % V 1.50 m/s
CHAINAGE/ LENGTH	0 8.44 8.44

DCP A2-09.1



PIPE DIAMETER	300Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	1.00%
DATUM RL=	9.00
DEPTH TO INVERT	1.75 1.48 1.18 1.63
INVERT LEVEL	19.28 19.56 19.61 19.16
MANHOLE LID LEVEL	21.04 20.79
HYDRAULIC PARAMETERS	Q 26.00 l/s Q/Qmax 27 % V 0.76 m/s
CHAINAGE/ LENGTH	0 4.9 4.9

DCP A2-11.1

PIPE DIAMETER	300Ø
PIPE TYPE	RCRRJ CLASS 4
PIPE GRADE	1.00%
DATUM RL=	9.00
DEPTH TO INVERT	1.75 1.69 1.31 1.76
INVERT LEVEL	19.28 19.34 19.48 19.03
MANHOLE LID LEVEL	21.04 20.79
HYDRAULIC PARAMETERS	Q 26.00 l/s Q/Qmax 27 % V 0.90 m/s
CHAINAGE/ LENGTH	0 13.2 13.2

DCP A2-11.2

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

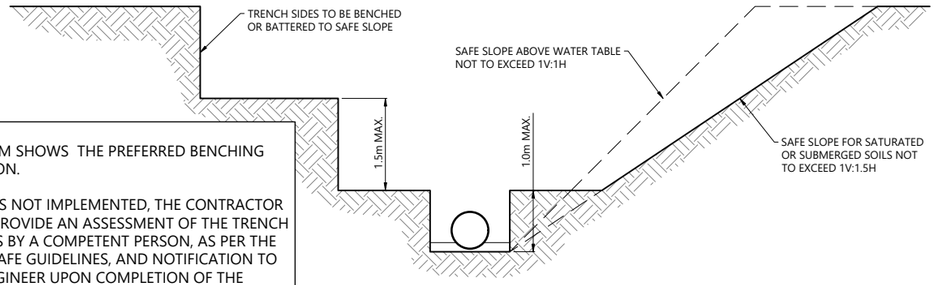
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 12 OF 19)

STATUS	FOR FAST TRACK CONSENT
SCALE	H 1:1000 @ A3 V 1:200 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3511-DR
REV	3

Plot Date: 11:44:42 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

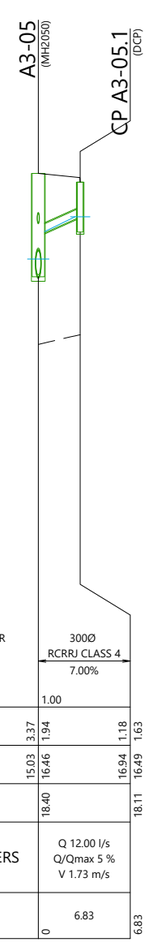
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

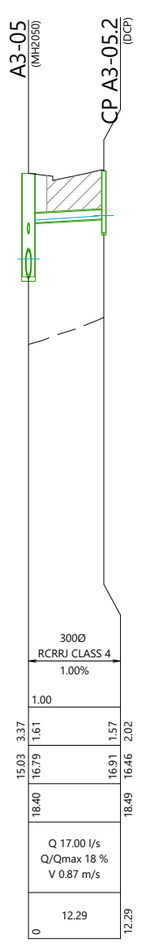
LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



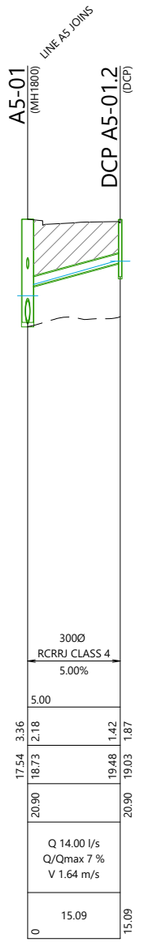
PIPE DIAMETER		300Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		7.00%	
DATUM RL=		1.00	
DEPTH TO INVERT	3.37	1.94	1.18 1.63
INVERT LEVEL	15.03	16.46	16.94 16.49
MANHOLE LID LEVEL	18.40		18.11
HYDRAULIC PARAMETERS		Q 12.00 l/s Q/Qmax 5 % V 1.73 m/s	
CHAINAGE/ LENGTH	0	6.83	6.83

DCP A3-05.1



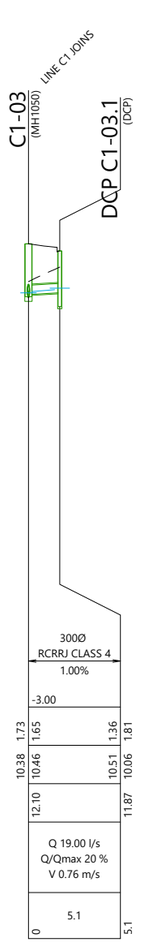
PIPE DIAMETER		300Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		1.00%	
		1.00	
DEPTH TO INVERT	3.37	1.61	1.57 2.02
INVERT LEVEL	15.03	16.79	16.91 16.46
MANHOLE LID LEVEL	18.40		18.49
HYDRAULIC PARAMETERS		Q 17.00 l/s Q/Qmax 18 % V 0.87 m/s	
CHAINAGE/ LENGTH	0	12.29	12.29

DCP A3-05.2



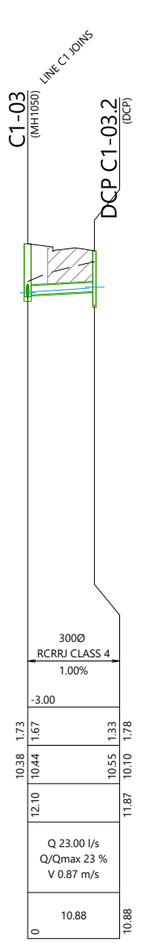
PIPE DIAMETER		300Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		5.00%	
		5.00	
DEPTH TO INVERT	3.36	2.18	1.42 1.87
INVERT LEVEL	17.54	18.73	19.48 19.03
MANHOLE LID LEVEL	20.90		20.90
HYDRAULIC PARAMETERS		Q 14.00 l/s Q/Qmax 7 % V 1.64 m/s	
CHAINAGE/ LENGTH	0	15.09	15.09

DCP A5-01.2



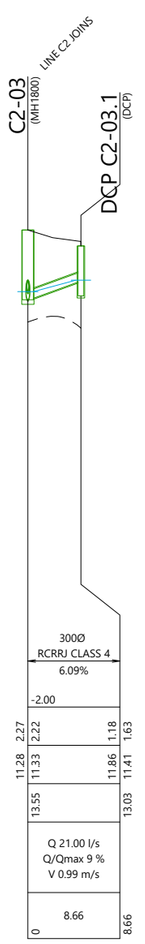
PIPE DIAMETER		300Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		1.00%	
		-3.00	
DEPTH TO INVERT	1.73	1.65	1.36 1.81
INVERT LEVEL	10.38	10.46	10.51 10.06
MANHOLE LID LEVEL	12.10		11.87
HYDRAULIC PARAMETERS		Q 19.00 l/s Q/Qmax 20 % V 0.76 m/s	
CHAINAGE/ LENGTH	0	5.1	5.1

DCP C1-03.1



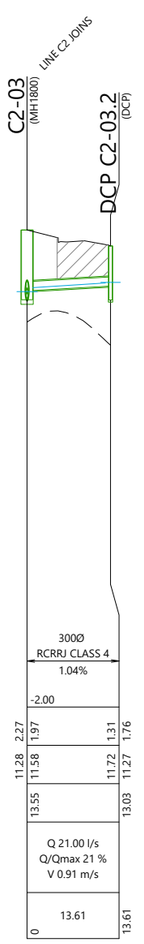
PIPE DIAMETER		300Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		1.00%	
		-3.00	
DEPTH TO INVERT	1.73	1.67	1.33 1.78
INVERT LEVEL	10.38	10.44	10.55 10.10
MANHOLE LID LEVEL	12.10		11.87
HYDRAULIC PARAMETERS		Q 23.00 l/s Q/Qmax 23 % V 0.87 m/s	
CHAINAGE/ LENGTH	0	10.88	10.88

DCP C1-03.2



PIPE DIAMETER		300Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		6.09%	
		-2.00	
DEPTH TO INVERT	2.27	2.22	1.18 1.63
INVERT LEVEL	11.28	11.33	11.86 11.41
MANHOLE LID LEVEL	13.55		13.03
HYDRAULIC PARAMETERS		Q 21.00 l/s Q/Qmax 9 % V 0.99 m/s	
CHAINAGE/ LENGTH	0	8.66	8.66

DCP C2-03.1



PIPE DIAMETER		300Ø	
PIPE TYPE		RCRRJ CLASS 4	
PIPE GRADE		1.04%	
		-2.00	
DEPTH TO INVERT	2.27	1.97	1.31 1.76
INVERT LEVEL	11.28	11.58	11.72 11.27
MANHOLE LID LEVEL	13.55		13.03
HYDRAULIC PARAMETERS		Q 21.00 l/s Q/Qmax 21 % V 0.91 m/s	
CHAINAGE/ LENGTH	0	13.61	13.61

DCP C2-03.2

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

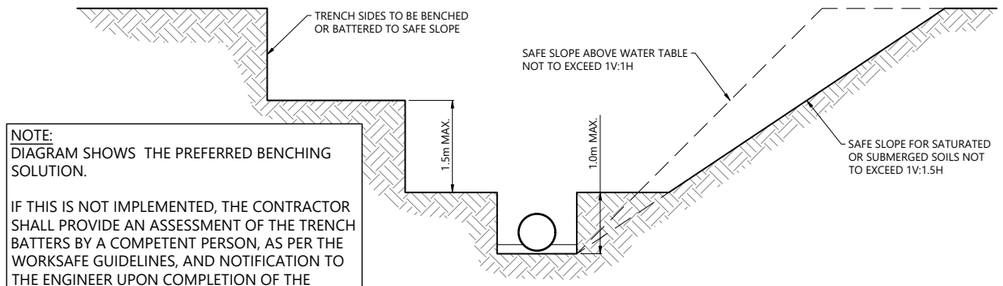
BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 13 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3512-DR	



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

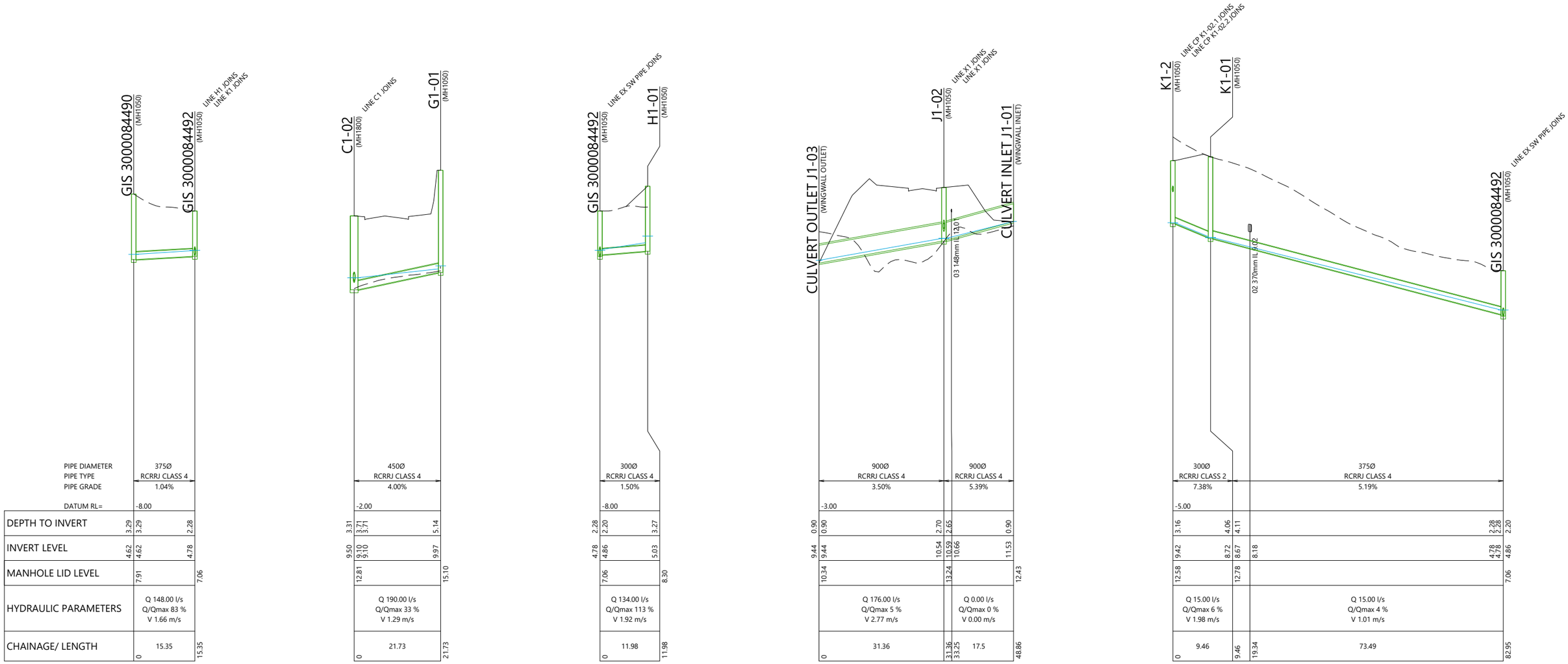
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



	EX SW PIPE	G1	H1	J1		K1	
PIPE DIAMETER	375Ø	450Ø	300Ø	900Ø	900Ø	300Ø	375Ø
PIPE TYPE	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 2	RCRRJ CLASS 4
PIPE GRADE	1.04%	4.00%	1.50%	3.50%	5.39%	7.38%	5.19%
DATUM RL=	-8.00	-2.00	-8.00	-3.00		-5.00	
DEPTH TO INVERT	3.29 3.29 2.28	3.31 3.71 3.71 5.14	2.28 2.20 3.27	0.90 0.90 2.70	2.65 0.90	3.16 4.06	4.11 2.28 2.20
INVERT LEVEL	4.62 4.62 4.78	9.50 9.10 9.10 9.97	4.78 4.86 5.03	9.44 9.44 10.54	10.59 10.66 11.53	9.42 8.72	8.67 4.78 4.86
MANHOLE LID LEVEL	7.91 7.06	12.81 15.10	7.06 8.30	10.34 12.43	13.24	12.58	12.78 7.06
HYDRAULIC PARAMETERS	Q 148.00 l/s Q/Qmax 83 % V 1.66 m/s	Q 190.00 l/s Q/Qmax 33 % V 1.29 m/s	Q 134.00 l/s Q/Qmax 113 % V 1.92 m/s	Q 176.00 l/s Q/Qmax 5 % V 2.77 m/s	Q 0.00 l/s Q/Qmax 0 % V 0.00 m/s	Q 15.00 l/s Q/Qmax 6 % V 1.98 m/s	Q 15.00 l/s Q/Qmax 4 % V 1.01 m/s
CHAINAGE/ LENGTH	0 15.35 15.35	0 21.73 21.73	0 11.98 11.98	0 31.36 31.36	33.25 17.5 48.86	0 9.46 9.46	19.34 73.49 82.95

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

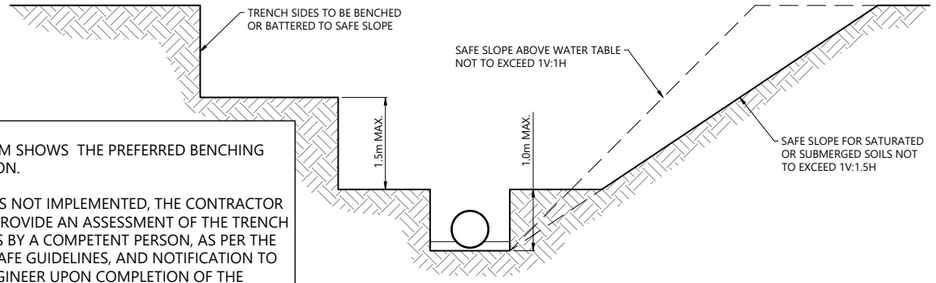
Kiwi Property

DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 14 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3513-DR	

Plot Date: 8:59:26 am,28 February 2025, ELLAWA
File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

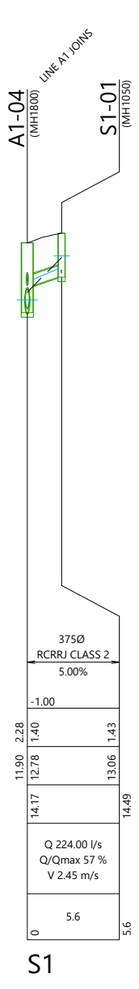
NOT TO SCALE

NOTES

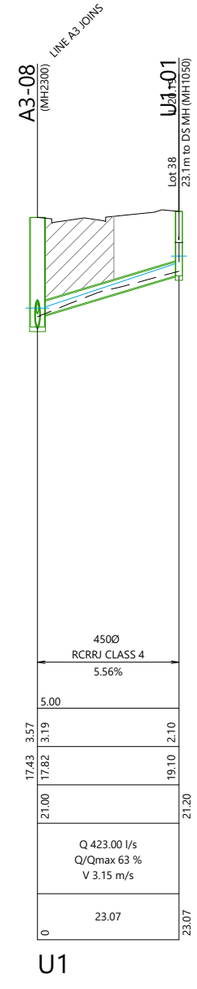
1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



S1



U1

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
4	FOR FAST TRACK CONSENT	GW	21/03/2025	APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

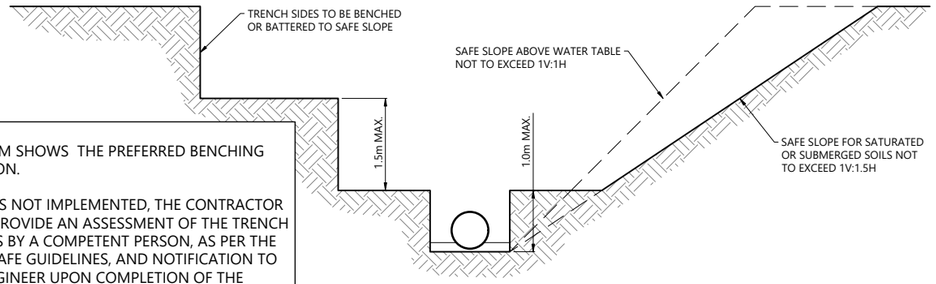
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 15 OF 19)

STATUS	FOR FAST TRACK CONSENT
SCALE	H 1:1000 @ A3 V 1:200 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3514-DR
REV	4

Plot Date: 4:09:56 pm,21 March 2025, GLENNW

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND

PIPE DIAMETER		675Ø
PIPE TYPE		RCRRJ CLASS 4
PIPE GRADE		3.00%
DATUM RL=		4.00
DEPTH TO INVERT	3.39	3.32 / 2.37
INVERT LEVEL	17.86	17.92 / 18.57
MANHOLE LID LEVEL	21.24	20.94
HYDRAULIC PARAMETERS		Q 520.00 l/s Q/Qmax 38 % V 1.97 m/s
CHAINAGE/ LENGTH	0	21.45 / 21.45

W1

PIPE DIAMETER		375Ø
PIPE TYPE		RCRRJ CLASS 2
PIPE GRADE		0.98%
		-2.00
	2.70	2.04 / 2.42
	10.54	11.20 / 11.29
	13.24	13.71
		Q 71.00 l/s Q/Qmax 41 % V 0.92 m/s
	0	2.22 / 9.19 / 9.19

X1

PIPE DIAMETER		375Ø
PIPE TYPE		RCRRJ CLASS 2
PIPE GRADE		2.81%
		-3.00
	2.70	2.18 / 2.06
	10.54	11.06 / 11.50
	13.24	13.56
		Q 105.00 l/s Q/Qmax 36 % V 1.65 m/s
	0	3.95 / 15.75 / 15.75

X1

PIPE DIAMETER		225Ø
PIPE TYPE		RCRRJ CLASS 4
PIPE GRADE		1.00%
		-2.00
	1.57	1.50 / 1.44
	12.09	12.16 / 12.39
	13.67	13.82
		Q 22.00 l/s Q/Qmax 48 % V 0.84 m/s
	0	22.08 / 15.99 / 22.08

X1-04

PIPE DIAMETER		450Ø
PIPE TYPE		RCRRJ CLASS 4
PIPE GRADE		10.60%
		2.00
	3.77	3.72 / 2.54
	15.20	15.25 / 17.32
	18.97	19.86
		Q 431.00 l/s Q/Qmax 46 % V 4.27 m/s
	0	19.54 / 19.54

Y1

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

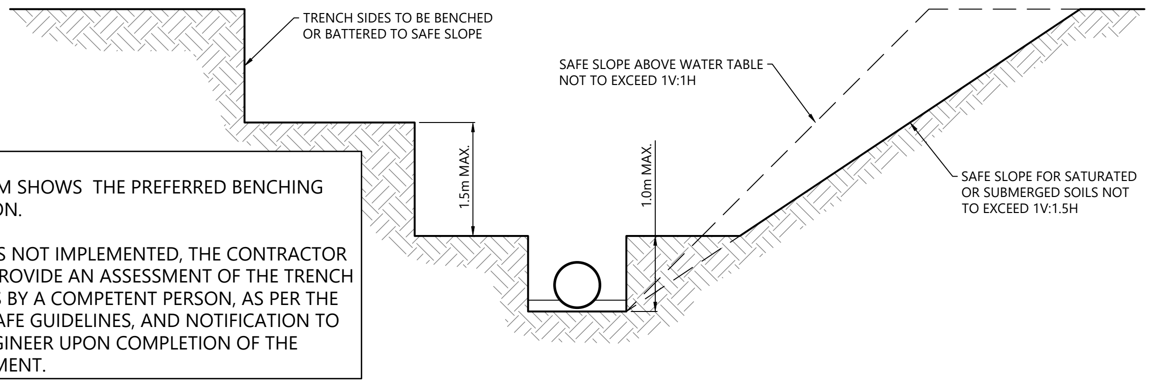
Kiwi Property

DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 16 OF 19)

STATUS	FOR FAST TRACK CONSENT
SCALE	H 1:1000 @ A3 V 1:200 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3515-DR
REV	3

Plot Date: 11:44:44 am,21 February 2025, ELLAWA
File: C:\2DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

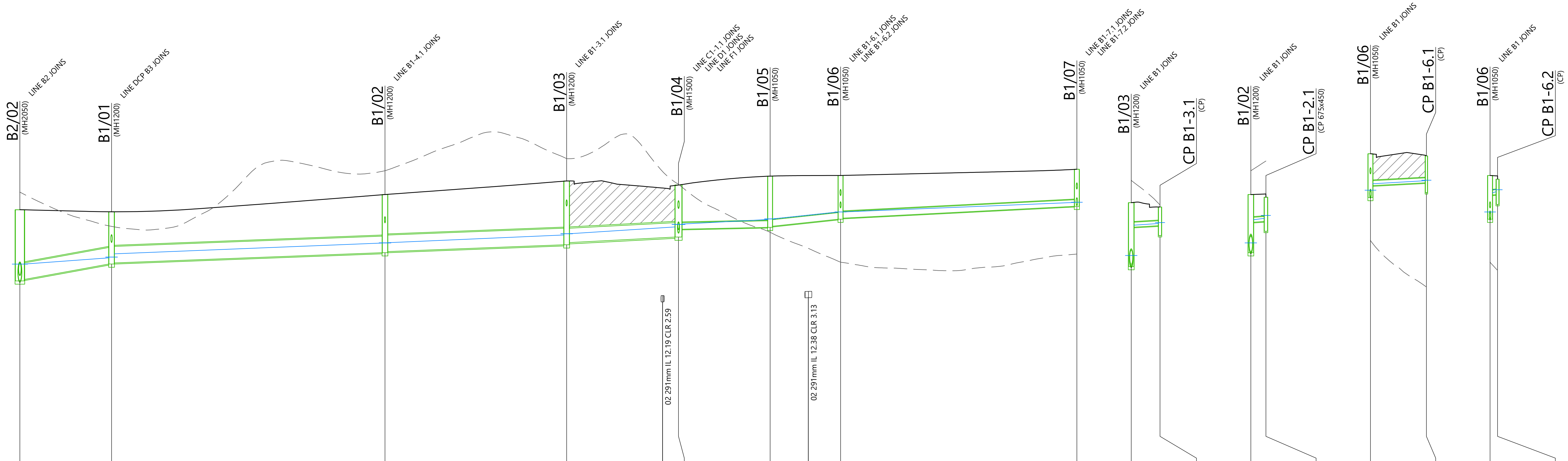
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

▨	PROPOSED HARDFILL BACKFILL
━━━	PROPOSED FINISHED SURFACE
───	DEPTH OF FLOW (HYDRAULIC GRADELINE)
— — —	EXISTING GROUND



PIPE DIAMETER	750Ø	750Ø	750Ø	675Ø		300Ø	300Ø	300Ø	
PIPE TYPE	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 4		RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 2	
PIPE GRADE	3.37%	0.75%	0.75%	1.00%		0.40%	2.00%	1.00%	
DATUM RL=	2.00								
DEPTH TO INVERT	3.27 3.21 2.40	2.35 2.68	2.63 2.94	2.84	2.39	2.03 2.36	2.31 2.01	1.96 1.70	
INVERT LEVEL	13.15 13.22 13.93	13.98 14.45	14.50 14.81	14.91	15.14 15.17	15.53 15.62	15.67 15.84 15.99	16.04 16.58	
MANHOLE LID LEVEL	16.42	16.33	17.12	17.75		17.56	17.97	18.00	18.29
HYDRAULIC PARAMETERS	Q 805.3 l/s Qcap 1300.6 l/s V 3.10 m/s	Q 750.4 l/s Qcap 964.5 l/s V 2.41 m/s	Q 728.4 l/s Qcap 964.5 l/s V 2.40 m/s	Q 713.2 l/s Qcap 840.9 l/s V 2.64 m/s		Q 116.7 l/s Qcap 169.1 l/s V 2.58 m/s	Q 117.2 l/s Qcap 136.8 l/s V 2.17 m/s	Q 80.8 l/s Qcap 96.7 l/s V 1.53 m/s	
CHAINAGE/ LENGTH	-185.28 21.08	-164.2 62.86	-101.34 41.76	-59.58 25.72	-37.52	-33.85 21.06	-12.8 16.2 -4.01	3.4 54.33	57.73

B1

	B1-3.1	B1-4.1	B1-6.1	B1-6.2
PIPE DIAMETER	225Ø	225Ø	225Ø	225Ø
PIPE TYPE	RCRRJ CLASS 2	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 2
PIPE GRADE	1.00%	1.00%	1.00%	1.00%
DATUM RL=	3.00	2.00	1.00	2.00
DEPTH TO INVERT	2.94 1.12 0.86 1.31	2.68 1.27 1.12 1.57	2.01 1.46 1.24 1.69	2.01 0.90 0.71 1.16
INVERT LEVEL	14.81 16.62 16.69 16.24	14.45 15.85 15.89 15.44	15.99 16.54 16.66 16.21	15.99 17.10 17.12 16.67
MANHOLE LID LEVEL	17.75 17.55	17.12 17.00	18.00 17.90	18.00 17.83
HYDRAULIC PARAMETERS	Q 19.4 l/s Qcap 44.9 l/s V 1.09 m/s	Q 29.7 l/s Qcap 44.9 l/s V 1.21 m/s	Q 17.1 l/s Qcap 44.9 l/s V 1.05 m/s	Q 21.8 l/s Qcap 44.9 l/s V 1.12 m/s
CHAINAGE/ LENGTH	0 6.61 6.61	0 3.46 3.46	0 12.86 12.86	0 1.72 1.72

B1-3.1 B1-4.1 B1-6.1 B1-6.2

REVISION DETAILS		INT	DATE
1	FOR DISCUSSION	MK	22/01/2025
2	FOR THE 99% SUBMISSION	MK	10/02/2025
3	FOR FAST TRACK CONSENT	EW	21/02/2025

SURVEYED	
DESIGNED	MK
DRAWN	MK
CHECKED	GW
APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

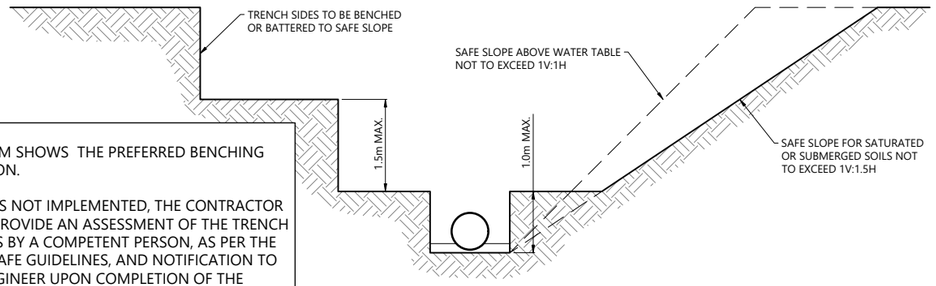
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 17 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3516-DR	

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG

Plot Date: 11:44:44 am,21 February 2025, ELLAWA



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

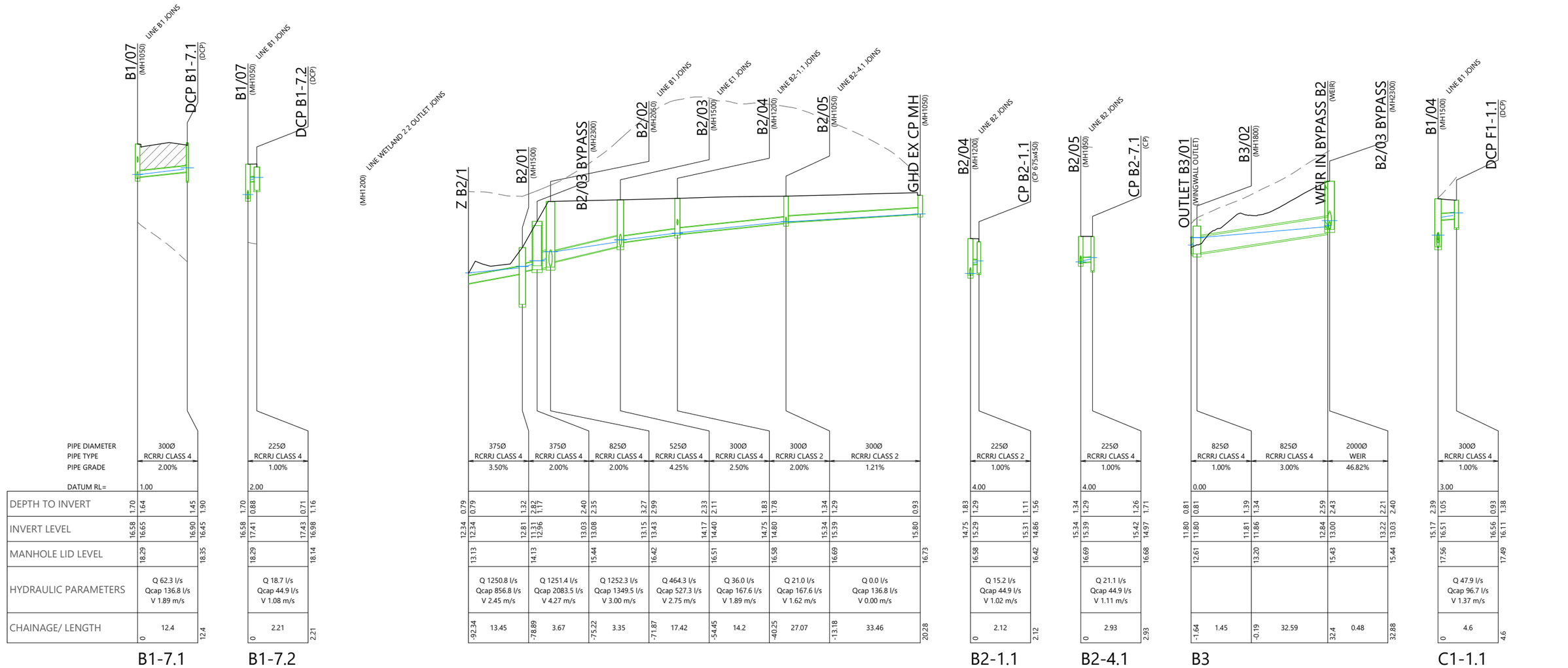
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



	B1-7.1	B1-7.2	B2-1.1	B2-4.1	B3	C1-1.1
PIPE DIAMETER	300Ø	225Ø	375Ø / 375Ø / 825Ø / 525Ø / 300Ø / 300Ø / 300Ø	225Ø	225Ø	825Ø / 825Ø / 2000Ø	300Ø
PIPE TYPE	RCRRJ CLASS 4	RCRRJ CLASS 4	RCRRJ CLASS 4 / RCRRJ CLASS 4 / RCRRJ CLASS 4 / RCRRJ CLASS 4 / RCRRJ CLASS 4 / RCRRJ CLASS 2 / RCRRJ CLASS 2	RCRRJ CLASS 2	RCRRJ CLASS 4	RCRRJ CLASS 4 / RCRRJ CLASS 4 / WEIR	RCRRJ CLASS 4
PIPE GRADE	2.00%	1.00%	3.50% / 2.00% / 2.00% / 4.25% / 2.50% / 2.00% / 1.21%	1.00%	1.00%	1.00% / 3.00% / 46.82%	1.00%
DATUM RL=	1.00	2.00	4.00	4.00	0.00	3.00
DEPTH TO INVERT	1.70 / 1.64 / 1.45 / 1.90	1.70 / 0.88 / 0.71 / 1.16	0.79 / 0.79 / 1.32 / 2.82 / 1.17 / 2.40 / 2.35 / 3.27 / 2.99 / 2.33 / 2.11 / 1.83 / 1.78 / 1.34 / 1.29 / 0.93	1.83 / 1.29 / 1.11 / 1.56	1.34 / 1.29 / 1.26 / 1.71	0.81 / 0.81 / 1.39 / 1.34 / 2.59 / 2.43 / 2.21 / 2.40	2.39 / 1.05 / 0.93 / 1.38
INVERT LEVEL	16.58 / 16.65 / 16.90 / 16.45	16.58 / 17.41 / 17.43 / 16.98	12.34 / 12.34 / 12.81 / 11.31 / 12.96 / 13.03 / 13.08 / 13.15 / 13.43 / 14.17 / 14.40 / 14.75 / 14.80 / 15.34 / 15.39 / 15.80	14.75 / 15.29 / 15.31 / 14.86	15.34 / 15.39 / 15.42 / 14.97	11.80 / 11.80 / 11.81 / 11.86 / 12.84 / 13.00 / 13.22 / 13.03	15.17 / 16.51 / 16.56 / 16.11
MANHOLE LID LEVEL	18.29 / 18.35	18.29 / 18.14	13.13 / 14.13 / 15.44 / 16.42 / 16.51 / 16.58 / 16.69 / 16.73	16.58 / 16.42	16.69 / 16.68	12.61 / 13.20 / 15.43 / 15.44	17.56 / 17.49
HYDRAULIC PARAMETERS	Q 62.3 l/s Qcap 136.8 l/s V 1.89 m/s	Q 18.7 l/s Qcap 44.9 l/s V 1.08 m/s	Q 1250.8 l/s Qcap 856.8 l/s V 2.45 m/s / Q 1251.4 l/s Qcap 2083.5 l/s V 4.27 m/s / Q 1252.3 l/s Qcap 1349.5 l/s V 3.00 m/s / Q 464.3 l/s Qcap 527.3 l/s V 2.75 m/s / Q 36.0 l/s Qcap 167.6 l/s V 1.89 m/s / Q 21.0 l/s Qcap 167.6 l/s V 1.62 m/s / Q 0.0 l/s Qcap 136.8 l/s V 0.00 m/s	Q 15.2 l/s Qcap 44.9 l/s V 1.02 m/s	Q 21.1 l/s Qcap 44.9 l/s V 1.11 m/s		Q 47.9 l/s Qcap 96.7 l/s V 1.37 m/s
CHAINAGE/ LENGTH	0 / 12.4 / 12.4	0 / 2.21 / 2.21	-92.34 / 13.45 / -78.89 / 3.67 / -75.22 / 3.35 / -71.87 / 17.42 / -54.45 / 14.2 / -40.25 / 27.07 / -13.18 / 33.46 / 20.28	0 / 2.12 / 2.12	0 / 2.93 / 2.93	-1.64 / 1.45 / -0.19 / 32.59 / 32.4 / 0.48 / 32.88	0 / 4.6 / 4.6

REVISION DETAILS		INT	DATE		
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

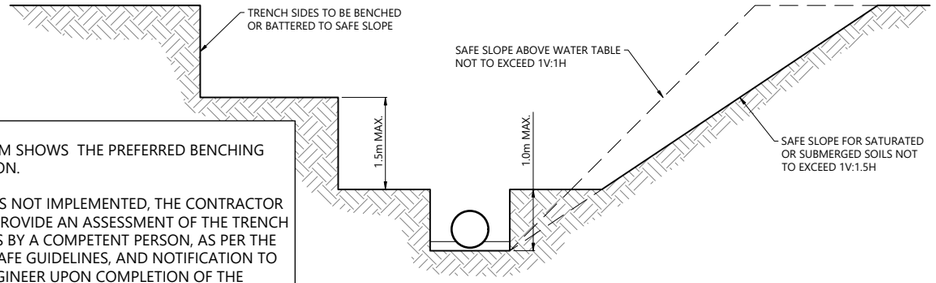
DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 18 OF 19)

STATUS	FOR FAST TRACK CONSENT	REV
SCALE	H 1:1000 @ A3 V 1:200 @ A3	3
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-447-01-3517-DR	

Plot Date: 11:44:44 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENGP\24-447-01-3500-DR_STORMWATER LONGSECTION.DWG



NOTE:
DIAGRAM SHOWS THE PREFERRED BENCHING SOLUTION.

IF THIS IS NOT IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE AN ASSESSMENT OF THE TRENCH BATTERS BY A COMPETENT PERSON, AS PER THE WORKSAFE GUIDELINES, AND NOTIFICATION TO THE ENGINEER UPON COMPLETION OF THE ASSESSMENT.

EXCAVATION FACES BENCHED AND BATTERED TO A SAFE SLOPE

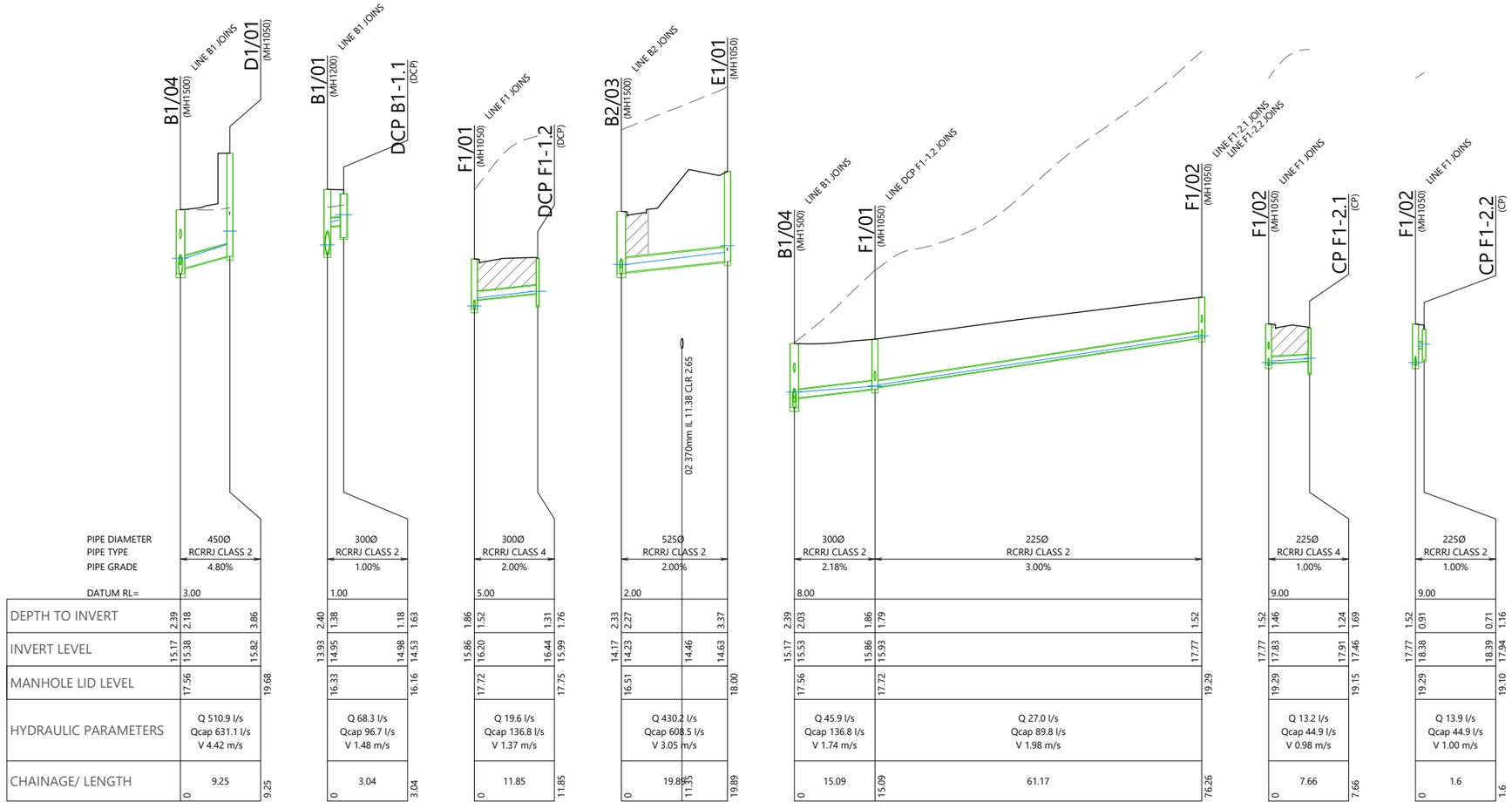
NOT TO SCALE

NOTES

1. PIPE LENGTHS MEASURED FROM MANHOLE CENTRE TO MANHOLE CENTRE.
2. VERTICAL CLEARANCES BETWEEN STORMWATER AND WASTEWATER SERVICES TO COMLPY WITH WATERCARE CODE OF PRACTICE TABLE 5.6.
3. VERTICAL CLEARANCES BETWEEN 500mm AND 300mm TO UTILISE HARD FILL BACKFILL BETWEEN CLASH.
4. IN ALL CASES, PIPES CLASHES SHOULD NOT CONCIDE WITH STORMWATER RCRRJ PIPE SOCKET ENDS.
5. ALL PIPES STEEPER THAN 10% GRADE TO BE INSTALLED WITH CONCRETE BEDDING PER THE STORMWATER COP.
6. NETWORK MODELLED TO TP108 2.1CC.

LEGEND

- PROPOSED HARDFILL BACKFILL
- PROPOSED FINISHED SURFACE
- DEPTH OF FLOW (HYDRAULIC GRADELINE)
- EXISTING GROUND



D1 DCP B3 DCP F1-1.2 E1 F1 F1-2.1 F1-2.2

REVISION DETAILS		INT	DATE	SURVEYED	
1	FOR DISCUSSION	MK	22/01/2025	DESIGNED	MK
2	FOR THE 99% SUBMISSION	MK	10/02/2025	DRAWN	MK
3	FOR FAST TRACK CONSENT	EW	21/02/2025	CHECKED	GW
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE-STAGE 2

STORMWATER LONGSECTION (SHEET 19 OF 19)

STATUS	FOR FAST TRACK CONSENT
SCALE	H 1:1000 @ A3 V 1:200 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-447-01-3518-DR
REV	3

Plot Date: 11:44:44 am,21 February 2025, ELLAWA

File: C:\12DS\DATA\WP-AKL-APP-02\P24-447 - DRURY CENTRE - STAGE 2_22140\02 DRAWINGS\01 ENG\P24-447-01-3500-DR_STORMWATER LONGSECTION.DWG