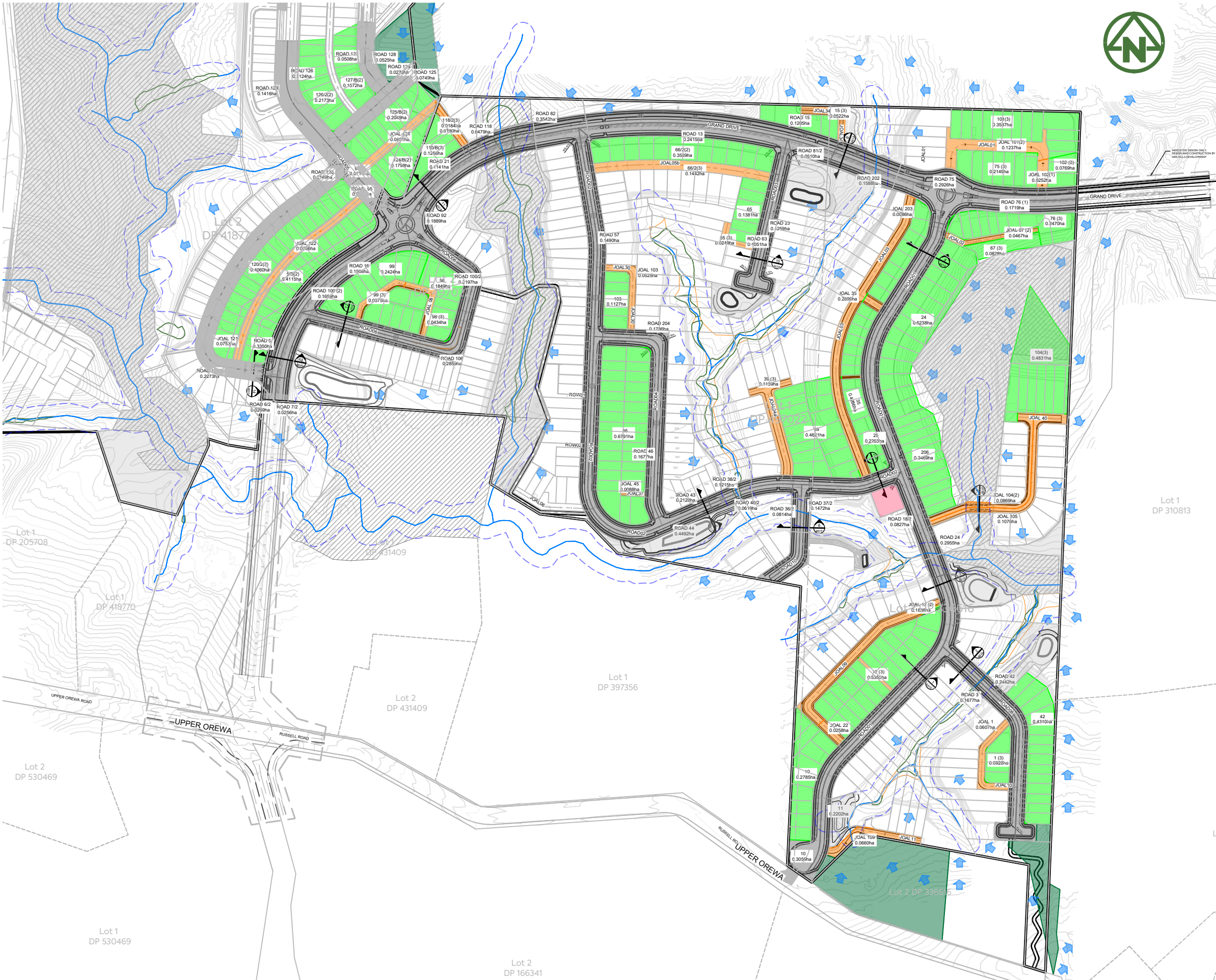




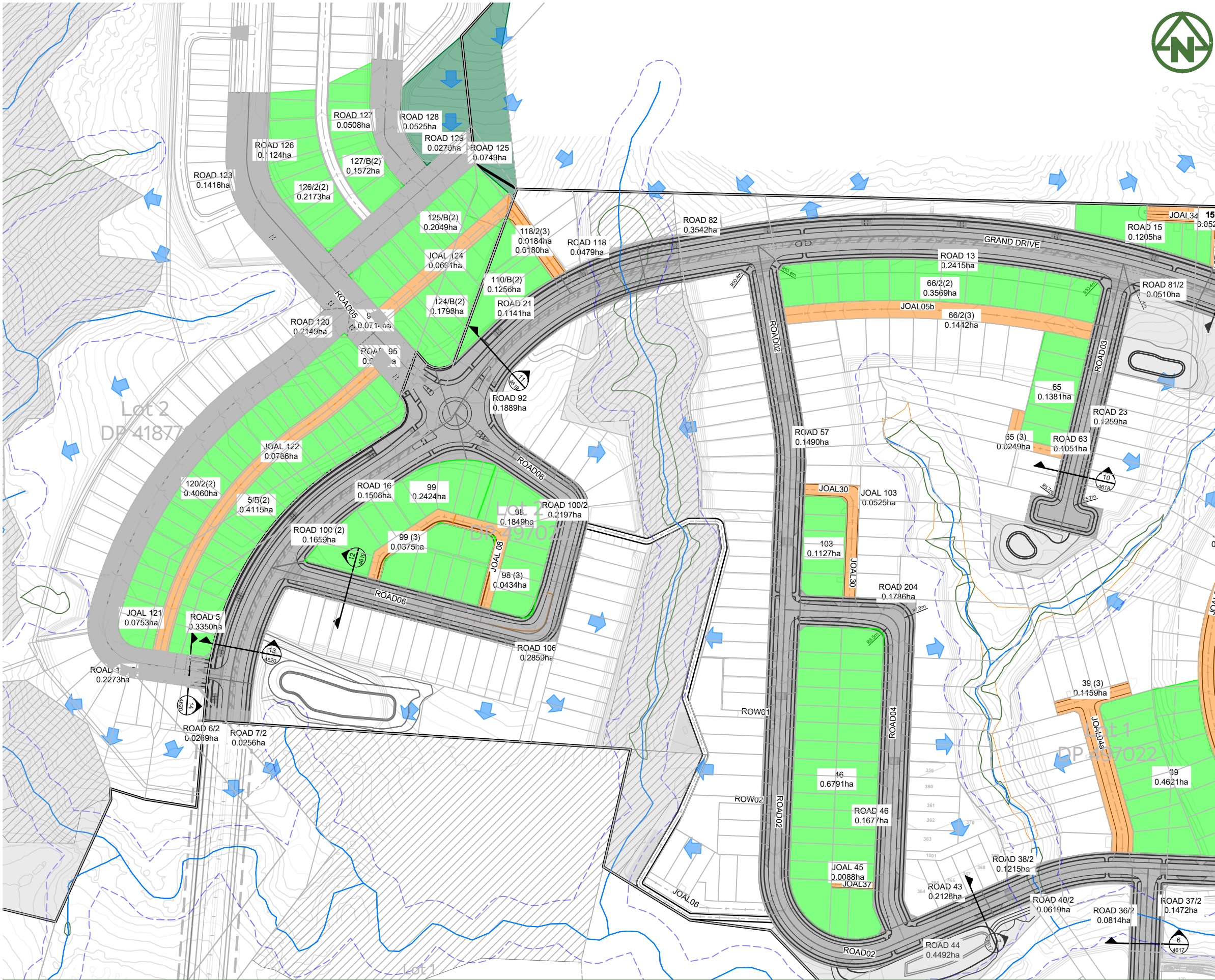
NOTES:

- OVERLAND FLOWS WAS COMPUTED BY ARC TP 108 METHOD AT 1% AEP STORM RAINFALL, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- MANNING'S ROUGHNESS 0.02 ADOPT FOR ENGINEERING FORMED CHANNEL.
- FLOW DEPTHS AND VELOCITIES WERE MODELLED FROM HYDRAULIC TOOLBOX SOFTWARE.

LEGEND

- (1) CATCHMENT ROADS
@ 65% IMPERVIOUSNESS
- (2) CATCHMENT JOALs
@ 95% IMPERVIOUSNESS
- (3) CATCHMENT RESIDENCYs
@ 60% IMPERVIOUSNESS
- (4) CATCHMENT UPSTREAM UNDEVELOPED
@ 5% IMPERVIOUSNESS
- 1% AEP OLFP SPREAD
- EXISTING STREAM & 25m SETBACK
- POST DEVELOPMENT FLOOD PLAIN

CLIENT:				PROJECT:		TITLE:		PURPOSE OF ISSUE:	
VINEWAY LTD				DELMORE STAGE 1		STORMWATER		FOR RESOURCE CONSENT	
				53A, 53B & 55 RUSSELL ROAD		1% AEP CATCHMENT		SCALE:	
				OREWA		PLAN		1:3500 @ A3	
						OVERALL		DO NOT SCALE	
								DRAWING NO:	
								3725-1-4610	
								REV:	
								C	



NOTES:

- OVERLAND FLOWS WAS COMPUTED BY ARC TP 108 METHOD AT 1% AEP STORM RAINFALL, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- MANNING'S ROUGHNESS 0.02 ADOPT FOR ENGINEERING FORMED CHANNEL.
- FLOW DEPTHS AND VELOCITIES WERE MODELLED FROM HYDRAULIC TOOLBOX SOFTWARE.

LEGEND

- (1) CATCHMENT ROADS
@ 65% IMPERVIOUSNESS
- (2) CATCHMENT JOALs
@ 95% IMPERVIOUSNESS
- (3) CATCHMENT RESIDENCYs
@ 60% IMPERVIOUSNESS
- (4) CATCHMENT UPSTREAM UNDEVELOPED
@ 5% IMPERVIOUSNESS
- 1% AEP OLFP SPREAD
- EXISTING STREAM & 25m SETBACK
- POST DEVELOPMENT FLOOD PLAIN

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
PLAN

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
1:2000 @ A3

DO NOT SCALE

DRAWING NO:

3725-1-4611

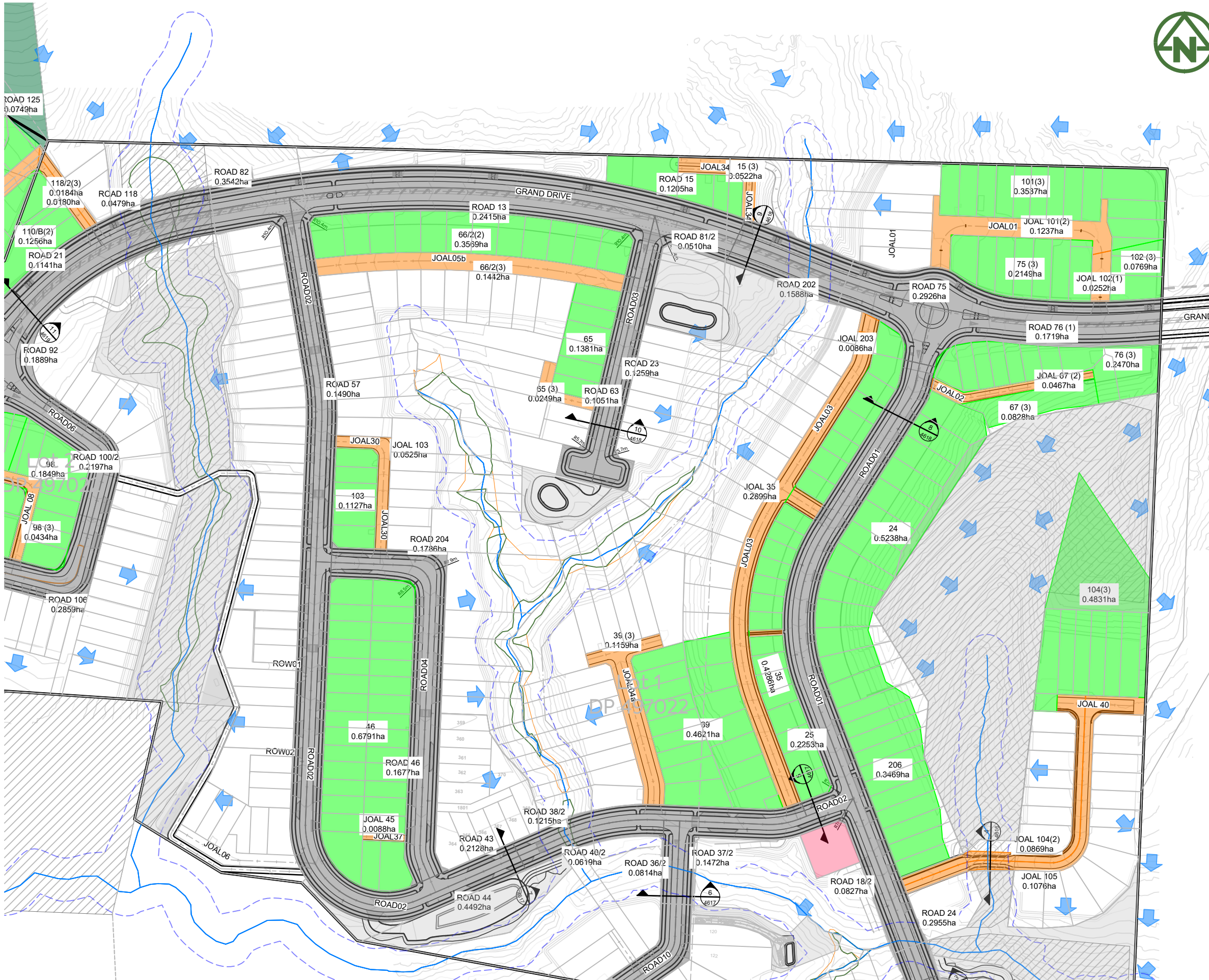
REV:

C

C	FOR CONSENT	SJO	LV	JK	16/04/26
B	HYDRO MODEL BY TP108	-	-	-	02/12/25
A	FIRST ISSUE	DK	-	-	25/11/25
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE



MCKENZIE & CO.



NOTES:

- OVERLAND FLOWS WAS COMPUTED BY ARC TP 108 METHOD AT 1% AEP STORM RAINFALL, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- MANNING'S ROUGHNESS 0.02 ADOPT FOR ENGINEERING FORMED CHANNEL.
- FLOW DEPTHS AND VELOCITIES WERE MODELLED FROM HYDRAULIC TOOLBOX SOFTWARE.

LEGEND

- (1) CATCHMENT ROADS
@ 65% IMPERVIOUSNESS
- (2) CATCHMENT JOALS
@ 95% IMPERVIOUSNESS
- (3) CATCHMENT RESIDENCYs
@ 60% IMPERVIOUSNESS
- (4) CATCHMENT UPSTREAM UNDEVELOPED
@ 5% IMPERVIOUSNESS
- 1% AEP OLFP SPREAD
- EXISTING STREAM & 25m SETBACK
- POST DEVELOPMENT FLOOD PLAIN

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
PLAN

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
1:2000 @ A3
DO NOT SCALE

DRAWING NO: 3725-1-4612
REV: C

C	FOR CONSENT	SJO	LV	JK	16/04/26
B	HYDRO MODEL BY TP108	-	-	-	02/12/25
A	FIRST ISSUE	DK	-	-	25/11/25
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE



MCKENZIE & CO.



Lot
DP 31

NOTES:

- OVERLAND FLOWS WAS COMPUTED BY ARC TP 108 METHOD AT 1% AEP STORM RAINFALL, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- MANNING'S ROUGHNESS 0.02 ADOPT FOR ENGINEERING FORMED CHANNEL.
- FLOW DEPTHS AND VELOCITIES WERE MODELLED FROM HYDRAULIC TOOLBOX SOFTWARE.

LEGEND

(1) CATCHMENT ROADS @ 65% IMPERVIOUSNESS	
(2) CATCHMENT JOALs @ 95% IMPERVIOUSNESS	
(3) CATCHMENT RESIDENCYs @ 60% IMPERVIOUSNESS	
(4) CATCHMENT UPSTREAM UNDEVELOPED @ 5% IMPERVIOUSNESS	
1% AEP OLFP SPREAD	
EXISTING STREAM & 25m SETBACK	
POST DEVELOPMENT FLOOD PLAIN	

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
PLAN

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
1:2000 @ A3
DO NOT SCALE

DRAWING NO:

3725-1-4613

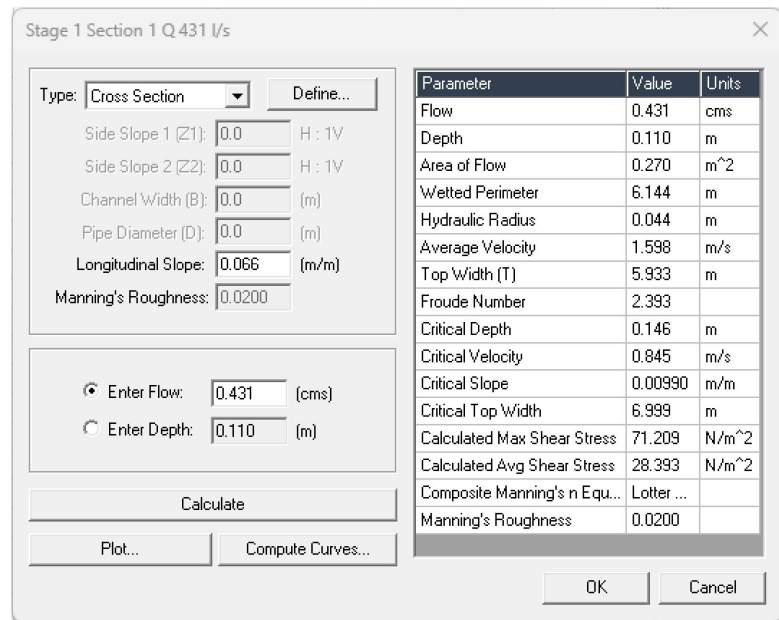
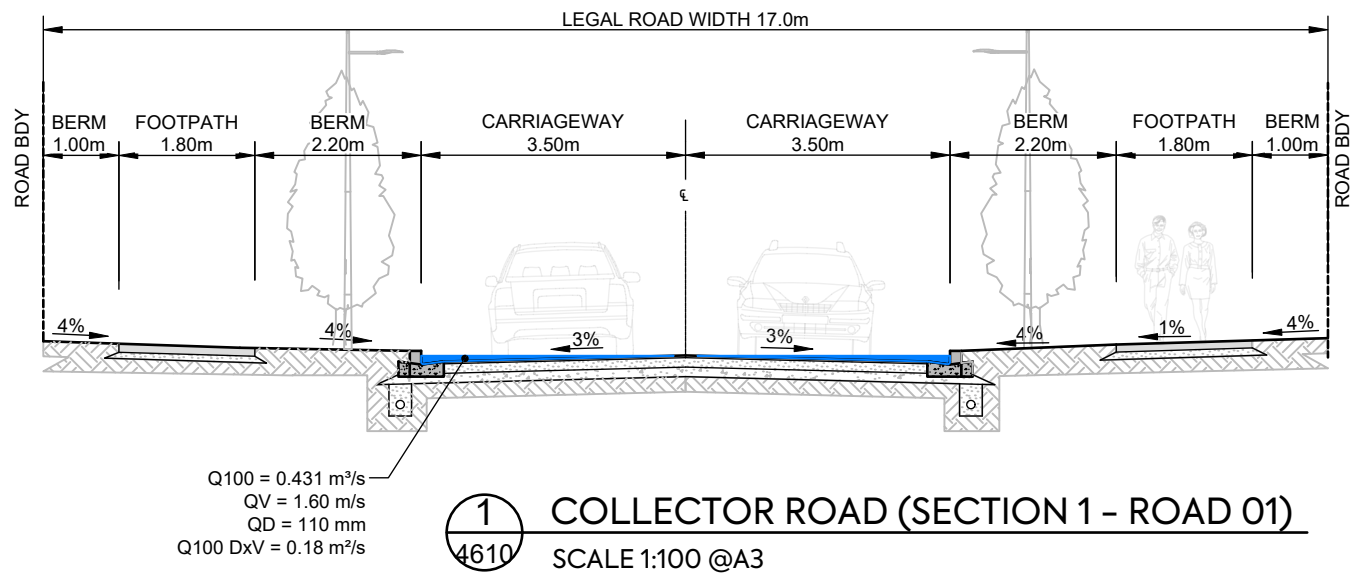
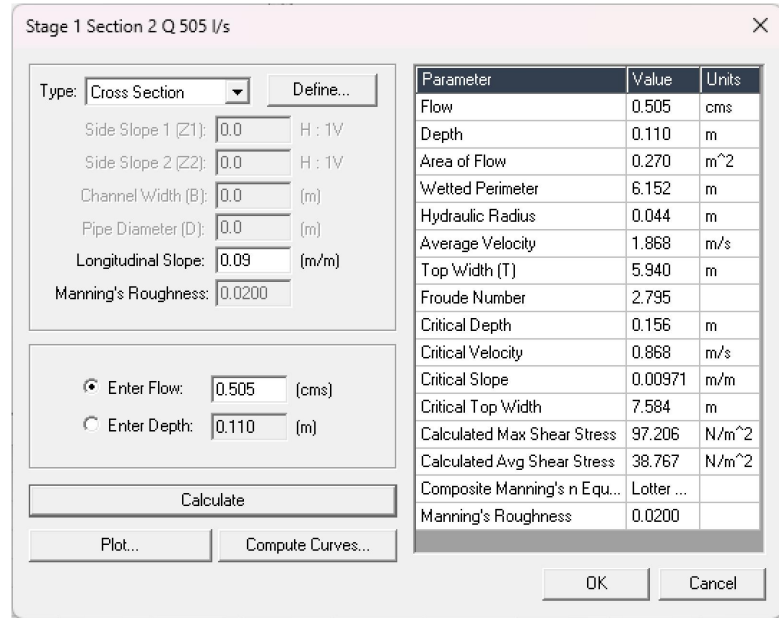
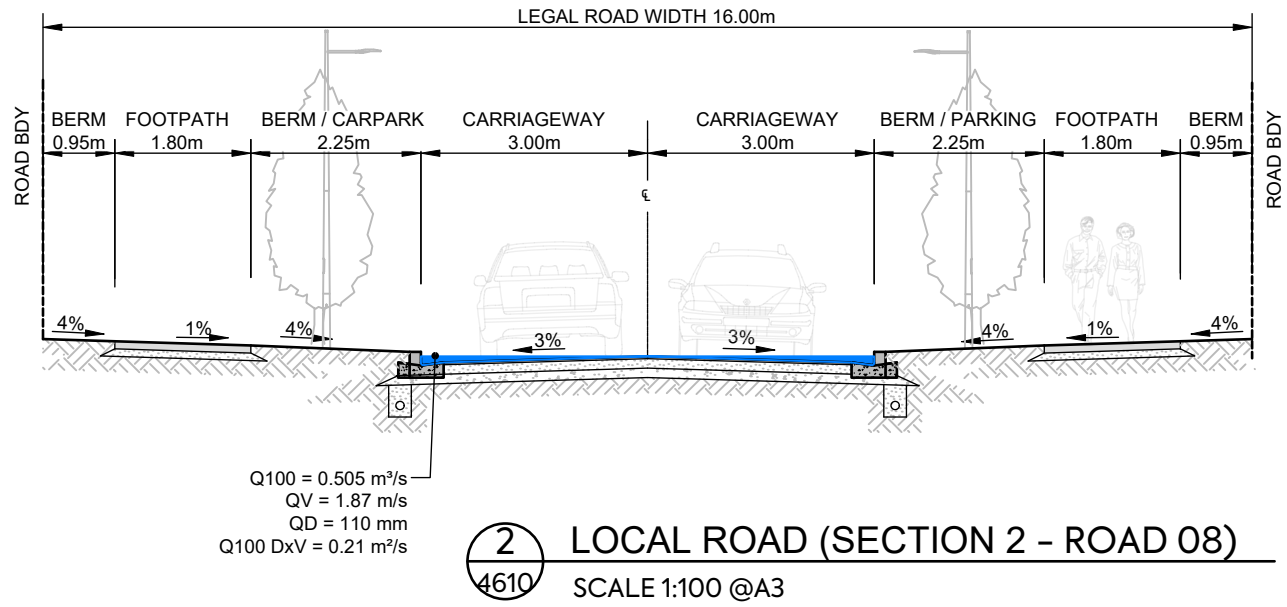
REV:

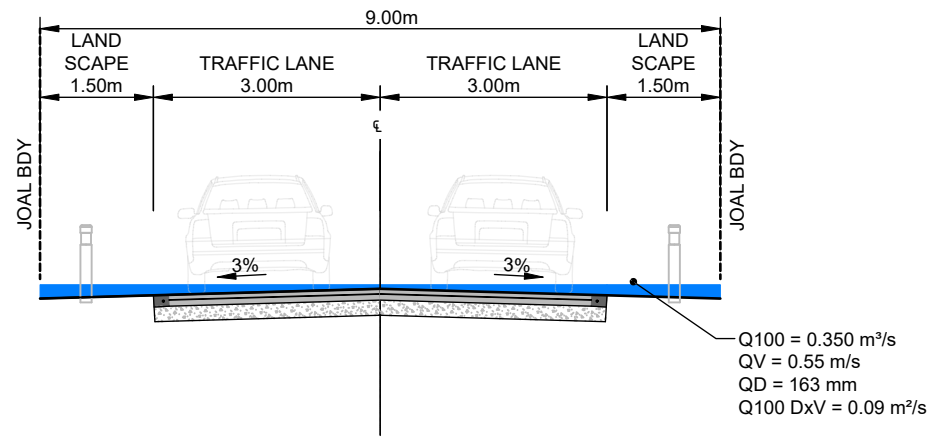
C

C	FOR CONSENT	SJO	LV	JK	16/04/26
B	HYDRO MODEL BY TP108	-	-	-	02/12/25
A	FIRST ISSUE	DK	-	-	25/11/25
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE



MCKENZIE & CO.





4 9m JOAL (SECTION 4 - JOAL 40)
4610 SCALE 1:100 @A3

Stage 1 Section 4 Q 350 l/s

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: 0.004 (m/m)
Manning's Roughness: 0.0205

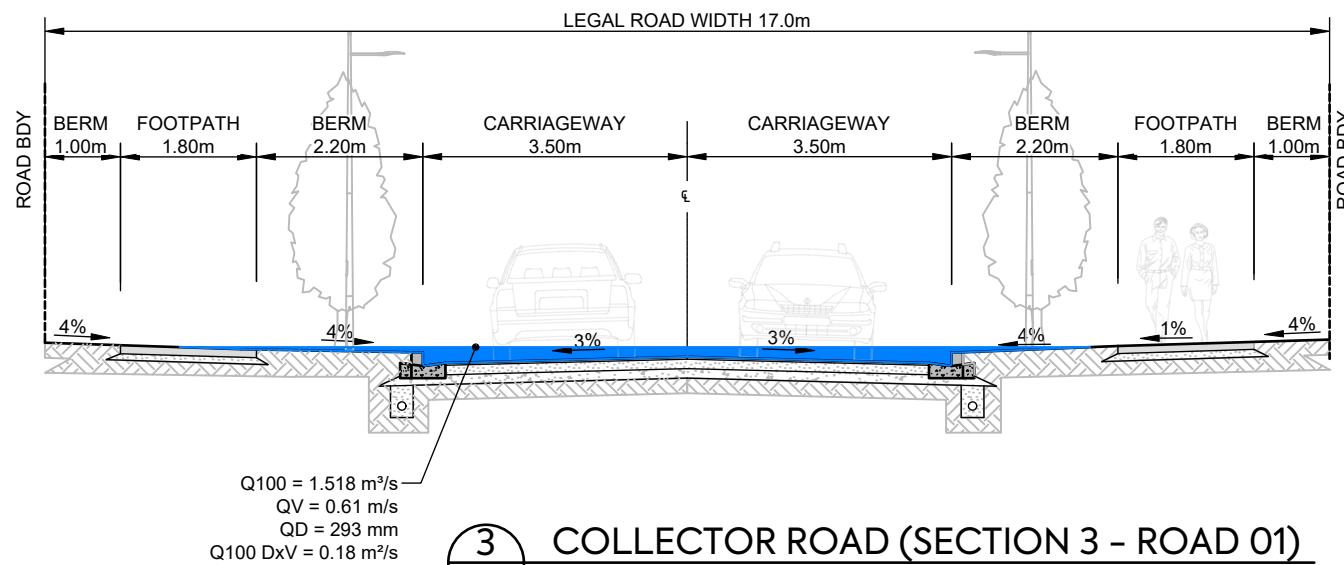
Enter Flow: 0.350 (cms)
Enter Depth: 0.163 (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	0.350	cms
Depth	0.163	m
Area of Flow	0.642	m ²
Wetted Perimeter	8.653	m
Hydraulic Radius	0.074	m
Average Velocity	0.545	m/s
Top Width (T)	8.366	m
Froude Number	0.628	
Critical Depth	0.136	m
Critical Velocity	0.789	m/s
Critical Slope	0.01227	m/m
Critical Top Width	6.998	m
Calculated Max Shear Stress	6.401	N/m ²
Calculated Avg Shear Stress	2.911	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0205	

OK Cancel



3 COLLECTOR ROAD (SECTION 3 - ROAD 01)
4610 SCALE 1:100 @A3

Stage 1 Section 3 Q 1518 l/s

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: 0.002 (m/m)
Manning's Roughness: 0.0199

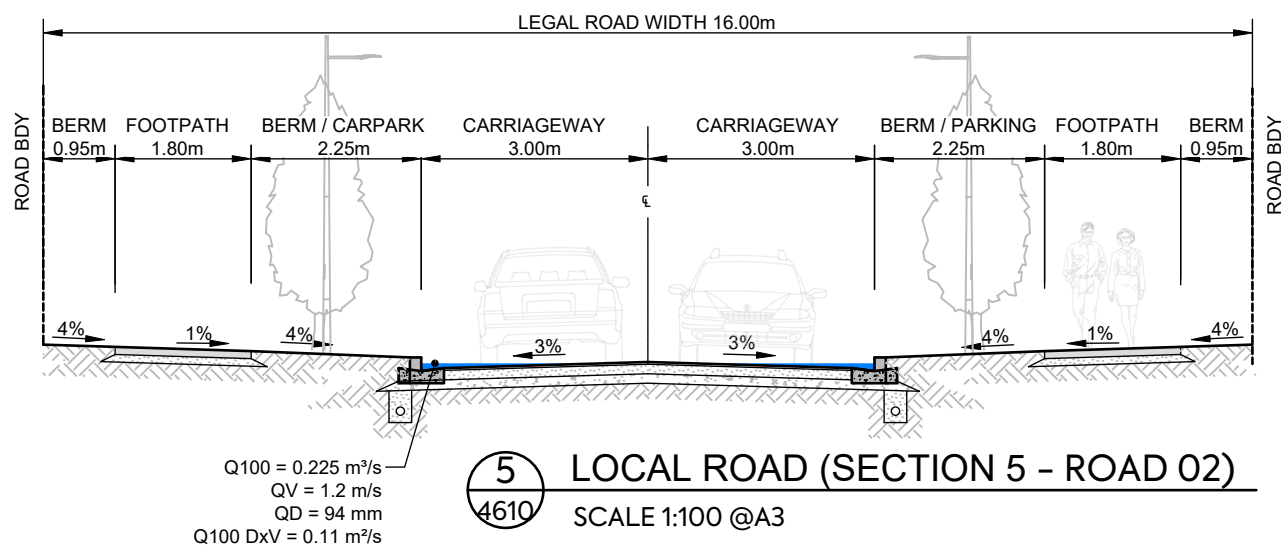
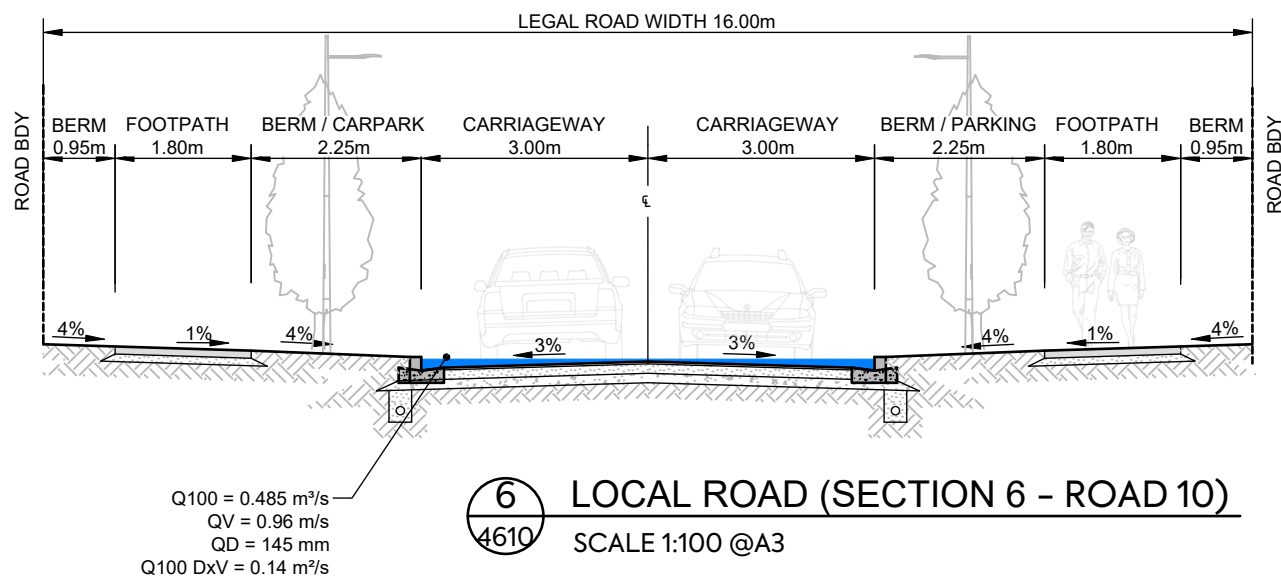
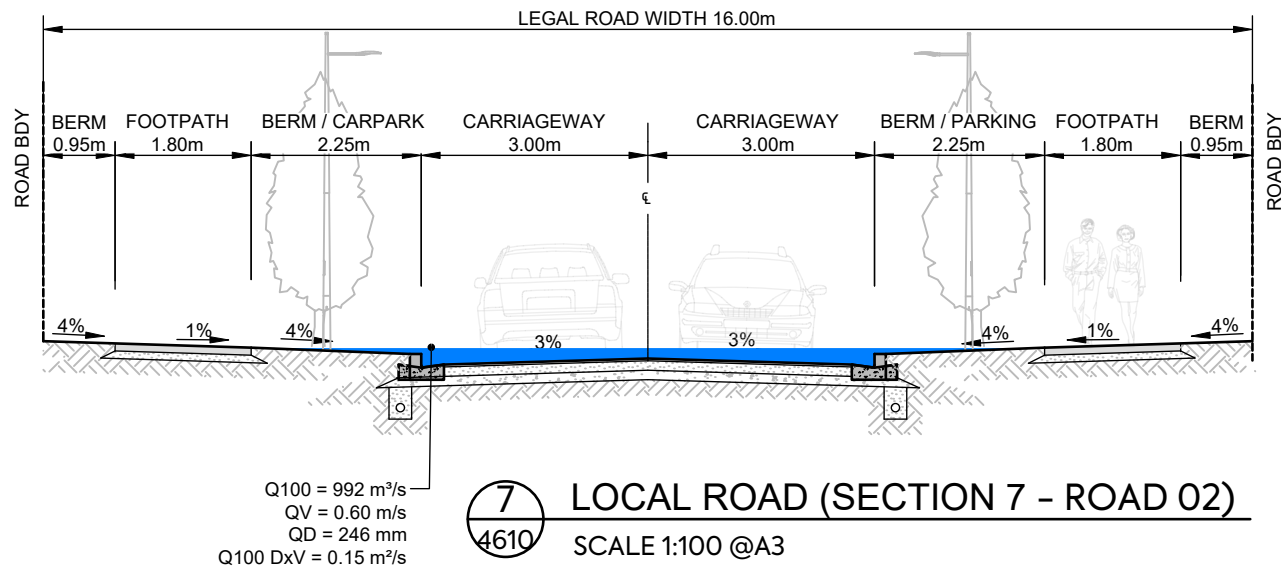
Enter Flow: 1.518 (cms)
Enter Depth: 0.293 (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	1.518	cms
Depth	0.293	m
Area of Flow	2.478	m ²
Wetted Perimeter	17.380	m
Hydraulic Radius	0.143	m
Average Velocity	0.613	m/s
Top Width (T)	17.000	m
Froude Number	0.512	
Critical Depth	0.238	m
Critical Velocity	0.975	m/s
Critical Slope	0.00875	m/m
Critical Top Width	16.081	m
Calculated Max Shear Stress	5.735	N/m ²
Calculated Avg Shear Stress	2.796	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0199	

OK Cancel



Stage 1 Section 7 Q 992l/s

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: 0.003 (m/m)
Manning's Roughness: 0.0197

Enter Flow: 0.992 (cms)
Enter Depth: 0.246 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.992	cms
Depth	0.246	m
Area of Flow	1.680	m²
Wetted Perimeter	17.137	m
Hydraulic Radius	0.098	m
Average Velocity	0.591	m/s
Top Width (T)	16.849	m
Froude Number	0.597	
Critical Depth	0.205	m
Critical Velocity	0.916	m/s
Critical Slope	0.00889	m/m
Critical Top Width	12.686	m
Calculated Max Shear Stress	7.220	N/m²
Calculated Avg Shear Stress	2.882	N/m²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0197	

OK Cancel

Stage 1 Section 6 Q 484 l/s

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: 0.015 (m/m)
Manning's Roughness: 0.0216

Enter Flow: 0.484 (cms)
Enter Depth: 0.145 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.484	cms
Depth	0.145	m
Area of Flow	0.506	m²
Wetted Perimeter	7.277	m
Hydraulic Radius	0.069	m
Average Velocity	0.957	m/s
Top Width (T)	6.999	m
Froude Number	1.137	
Critical Depth	0.152	m
Critical Velocity	0.869	m/s
Critical Slope	0.01103	m/m
Critical Top Width	7.236	m
Calculated Max Shear Stress	21.318	N/m²
Calculated Avg Shear Stress	10.215	N/m²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0216	

OK Cancel

Stage 1 Section 5 Q 225 l/s

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: 0.07 (m/m)
Manning's Roughness: 0.0232

Enter Flow: 0.225 (cms)
Enter Depth: 0.094 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.225	cms
Depth	0.094	m
Area of Flow	0.181	m²
Wetted Perimeter	5.009	m
Hydraulic Radius	0.036	m
Average Velocity	1.245	m/s
Top Width (T)	4.829	m
Froude Number	2.053	
Critical Depth	0.119	m
Critical Velocity	0.698	m/s
Critical Slope	0.01383	m/m
Critical Top Width	6.500	m
Calculated Max Shear Stress	64.191	N/m²
Calculated Avg Shear Stress	24.761	N/m²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0232	

OK Cancel

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 1
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
CROSS SECTION

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
AS SHOWN

DO NOT SCALE

DRAWING NO:

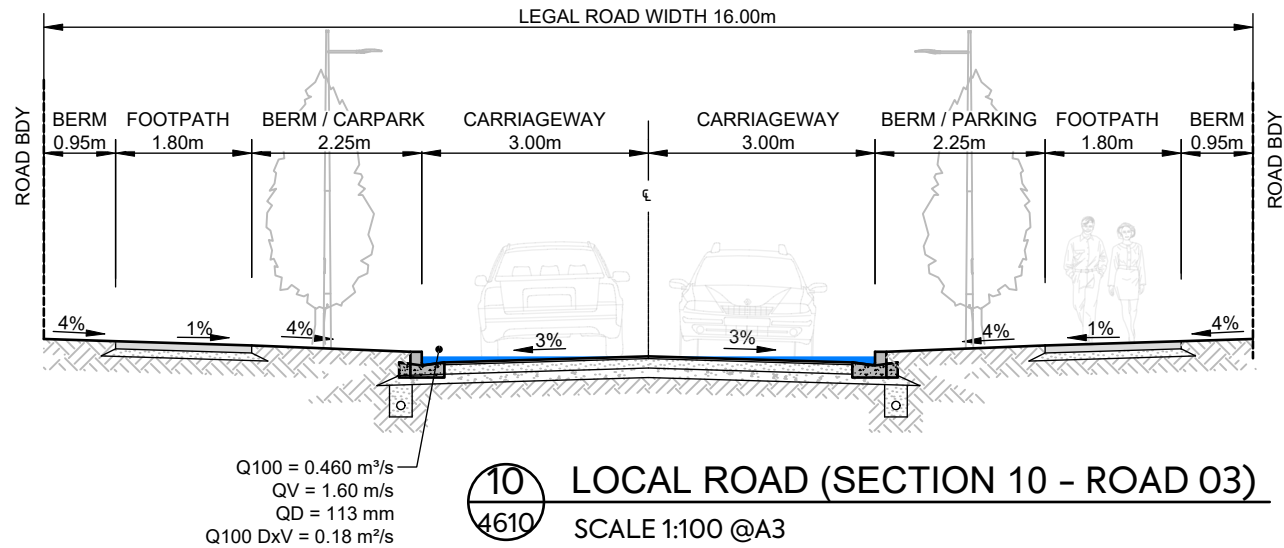
3725-1-4617

REV:

B

B	HYDRO MODEL BY TP108	-	-	-	02/12/25
A	FIRST ISSUE	DK	-	-	25/11/25
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE

MCKENZIE & CO.



Stage 1 Section 10 Q 460l/s

Type: Cross Section Define...

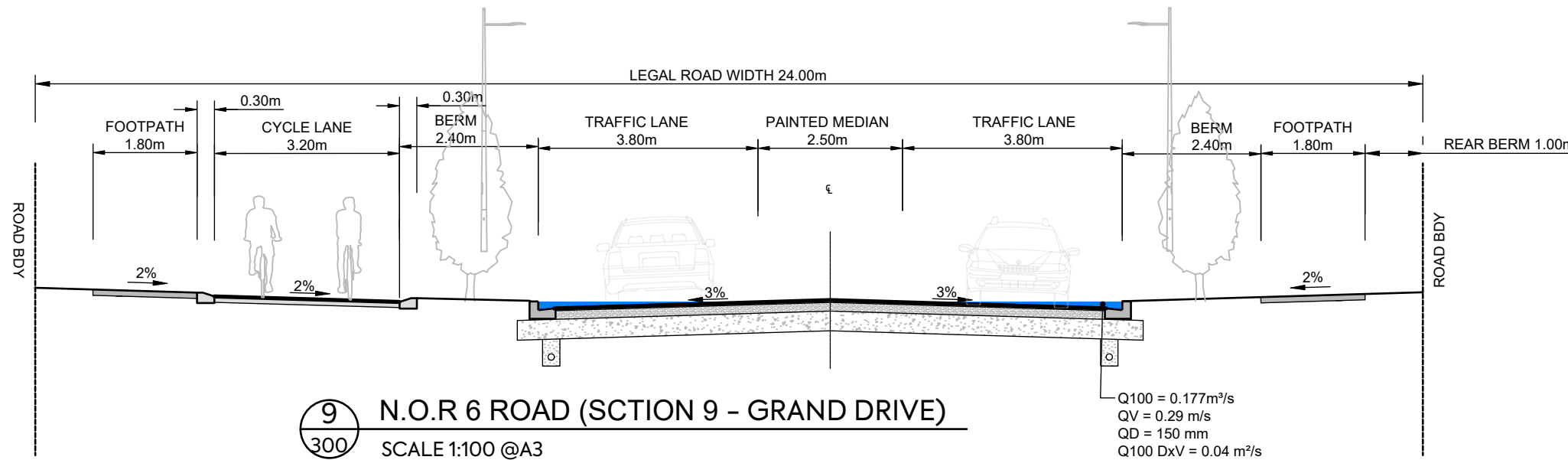
Side Slope 1 (Z1): 0.0 H : 1V
Side Slope 2 (Z2): 0.0 H : 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.08 (m/m)
Manning's Roughness: 0.0224

Enter Flow: 0.460 (cms)
Enter Depth: 0.113 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.460	cms
Depth	0.113	m
Area of Flow	0.287	m²
Wetted Perimeter	6.341	m
Hydraulic Radius	0.045	m
Average Velocity	1.603	m/s
Top Width (T)	6.124	m
Froude Number	2.364	
Critical Depth	0.149	m
Critical Velocity	0.864	m/s
Critical Slope	0.01135	m/m
Critical Top Width	7.000	m
Calculated Max Shear Stress	88.561	N/m²
Calculated Avg Shear Stress	35.484	N/m²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0224	

OK Cancel



Stage 1 Section 9 Q 177l/s

Type: Cross Section Define...

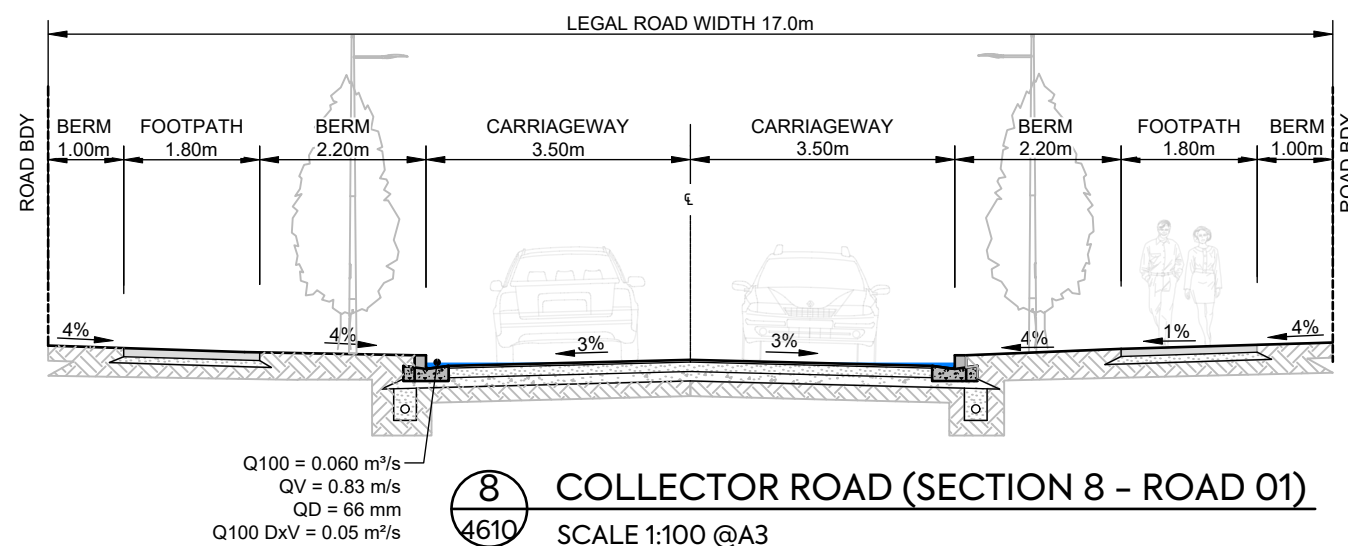
Side Slope 1 (Z1): 0.0 H : 1V
Side Slope 2 (Z2): 0.0 H : 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.0014 (m/m)
Manning's Roughness: 0.0214

Enter Flow: 0.177 (cms)
Enter Depth: 0.150 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.177	cms
Depth	0.150	m
Area of Flow	0.609	m²
Wetted Perimeter	8.984	m
Hydraulic Radius	0.068	m
Average Velocity	0.291	m/s
Top Width (T)	8.698	m
Froude Number	0.351	
Critical Depth	0.102	m
Critical Velocity	0.674	m/s
Critical Slope	0.01416	m/m
Critical Top Width	5.669	m
Calculated Max Shear Stress	2.056	N/m²
Calculated Avg Shear Stress	0.930	N/m²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0214	

OK Cancel



Stage 1 Section 8 Q 60l/s

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: 0.07 (m/m)
Manning's Roughness: 0.0259

Enter Flow: 0.060 (cms)
Enter Depth: 0.066 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.060	cms
Depth	0.066	m
Area of Flow	0.072	m²
Wetted Perimeter	3.090	m
Hydraulic Radius	0.023	m
Average Velocity	0.834	m/s
Top Width (T)	2.963	m
Froude Number	1.709	
Critical Depth	0.077	m
Critical Velocity	0.540	m/s
Critical Slope	0.01987	m/m
Critical Top Width	3.745	m
Calculated Max Shear Stress	45.024	N/m²
Calculated Avg Shear Stress	15.972	N/m²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0259	

OK Cancel

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 1
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
CROSS SECTION

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
AS SHOWN

DO NOT SCALE

DRAWING NO:

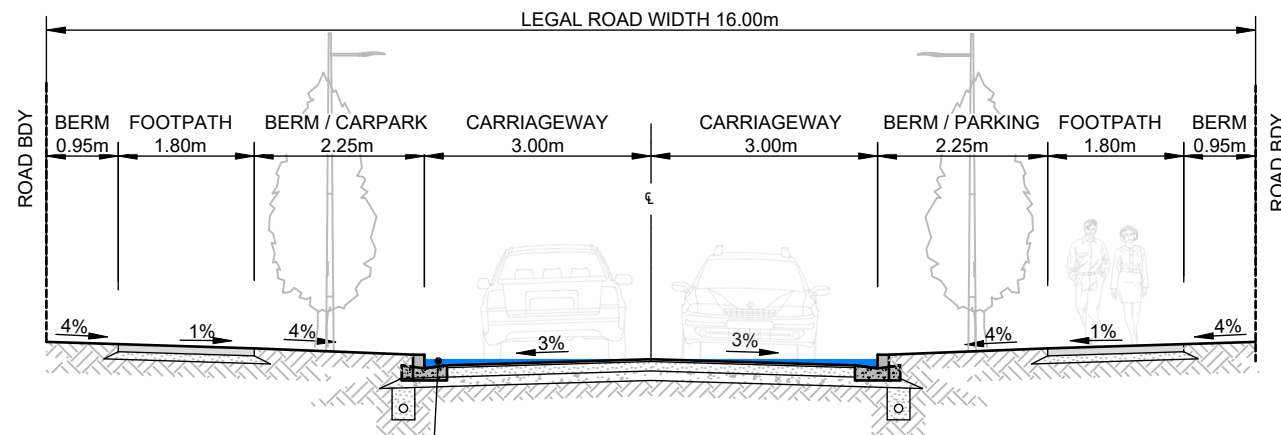
3725-1-4618

REV:

B

B	HYDRO MODEL BY TP108	-	-	-	02/12/25
A	FIRST ISSUE	DK	-	-	25/11/25
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE

MCKENZIE & CO.



Q100 = 0.462 m³/s
QV = 1.45 m/s
QD = 118 mm
Q100 DxV = 0.17 m²/s

12 LOCAL ROAD (SECTION 12 - ROAD 06)
4610 SCALE 1:100 @A3

Stage 1 Section 12 Q 462l/s

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: 0.06 (m/m)

Manning's Roughness: 0.0222

Enter Flow: 0.462 (cms)

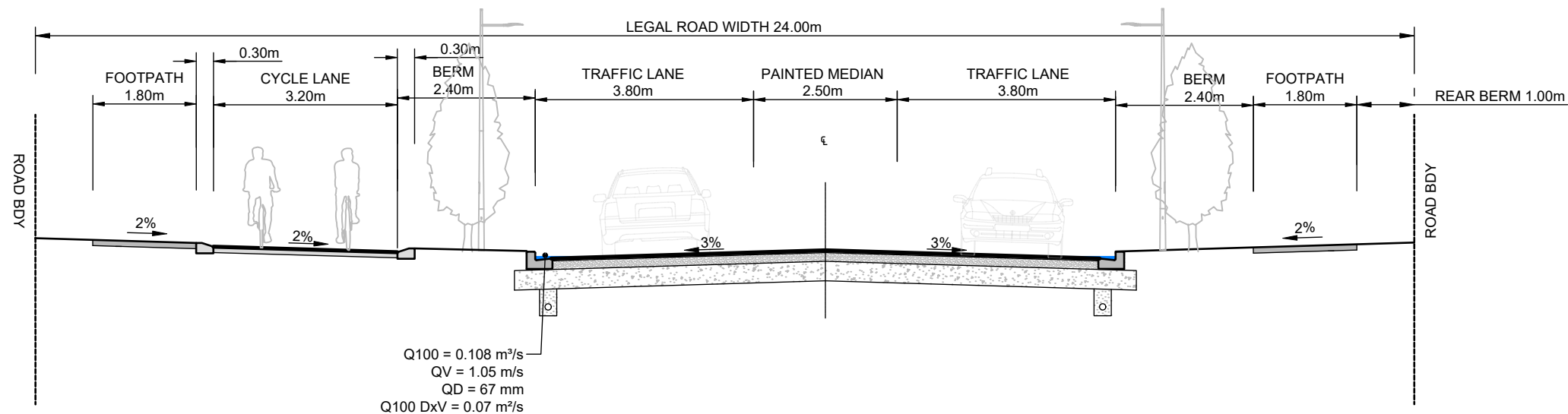
Enter Depth: 0.118 (m)

Calculate

Plot... Compute Curves...

OK Cancel

Parameter	Value	Units
Flow	0.462	cms
Depth	0.118	m
Area of Flow	0.319	m^2
Wetted Perimeter	6.692	m
Hydraulic Radius	0.048	m
Average Velocity	1.448	m/s
Top Width (T)	6.466	m
Froude Number	2.080	
Critical Depth	0.149	m
Critical Velocity	0.865	m/s
Critical Slope	0.01134	m/m
Critical Top Width	7.000	m
Calculated Max Shear Stress	69.428	N/m^2
Calculated Avg Shear Stress	28.045	N/m^2
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0222	



Q100 = 0.108 m³/s
QV = 1.05 m/s
QD = 67 mm
Q100 DxV = 0.07 m²/s

11 N.O.R 6 ROAD (SECTION 11 - GRAND DRIVE)
300 SCALE 1:100 @A3

Stage 1 Section 11 Q 108l/s

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: 0.07 (m/m)

Manning's Roughness: 0.0237

Enter Flow: 0.108 (cms)

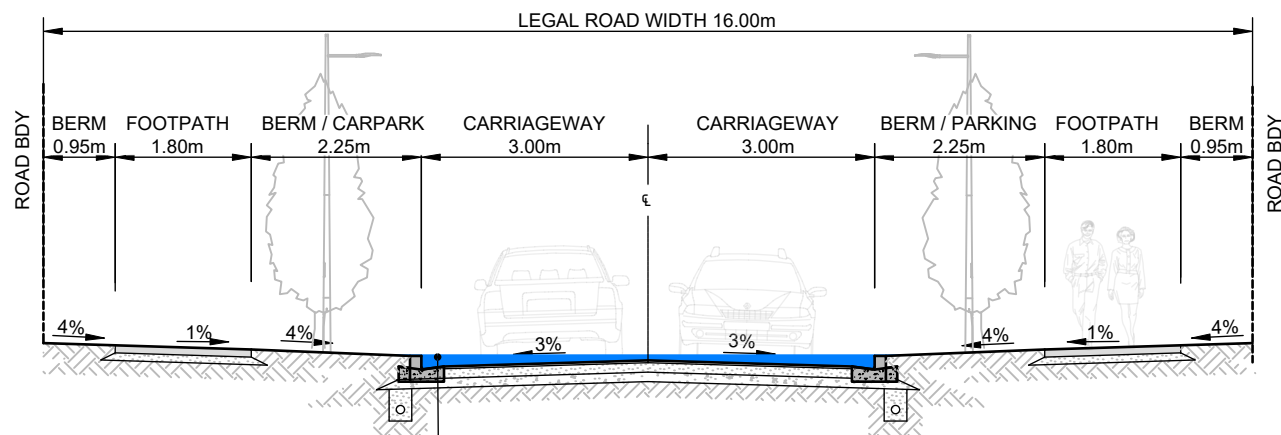
Enter Depth: 0.067 (m)

Calculate

Plot... Compute Curves...

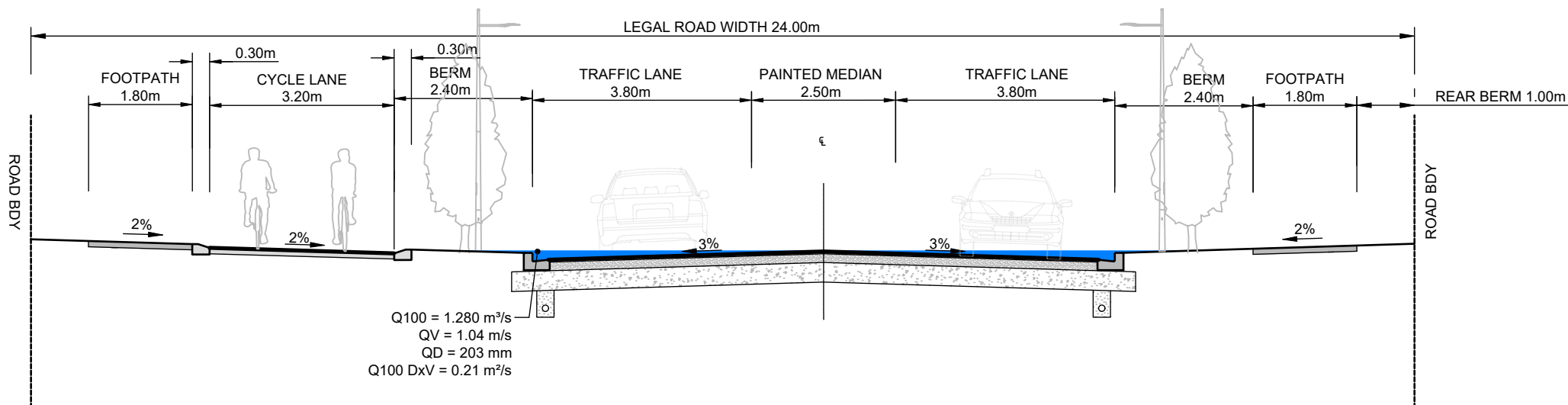
OK Cancel

Parameter	Value	Units
Flow	0.108	cms
Depth	0.067	m
Area of Flow	0.103	m^2
Wetted Perimeter	3.613	m
Hydraulic Radius	0.029	m
Average Velocity	1.045	m/s
Top Width (T)	3.485	m
Froude Number	1.937	
Critical Depth	0.085	m
Critical Velocity	0.612	m/s
Critical Slope	0.01585	m/m
Critical Top Width	4.617	m
Calculated Max Shear Stress	45.841	N/m^2
Calculated Avg Shear Stress	19.626	N/m^2
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0237	



Q100 = 0.575 m³/s
QV = 0.78 m/s
QD = 167 mm
Q100 DxV = 0.13 m²/s

14 LOCAL ROAD (SECTION 14 - STG 2AB)
4610 SCALE 1:100 @A3



Q100 = 1.280 m³/s
QV = 1.04 m/s
QD = 203 mm
Q100 DxV = 0.21 m²/s

13 N.O.R 6 ROAD (SECTION 13 - GRAND DRIVE)
300 SCALE 1:100 @A3

Stage 1 Section 13 Q 1280l/s

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: 0.013 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 1.280 (cms)
☐ Enter Depth: 0.203 (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	1.280	cms
Depth	0.203	m
Area of Flow	1.226	m ²
Wetted Perimeter	15.637	m
Hydraulic Radius	0.078	m
Average Velocity	1.044	m/s
Top Width (T)	15.347	m
Froude Number	1.179	
Critical Depth	0.214	m
Critical Velocity	0.917	m/s
Critical Slope	0.00912	m/m
Critical Top Width	16.290	m
Calculated Max Shear Stress	25.868	N/m ²
Calculated Avg Shear Stress	9.989	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

Stage 1 Section 14 Q 575l/s

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: 0.01 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 0.575 (cms)
☐ Enter Depth: 0.167 (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	0.575	cms
Depth	0.167	m
Area of Flow	0.733	m ²
Wetted Perimeter	11.812	m
Hydraulic Radius	0.062	m
Average Velocity	0.784	m/s
Top Width (T)	11.524	m
Froude Number	0.992	
Critical Depth	0.167	m
Critical Velocity	0.790	m/s
Critical Slope	0.01017	m/m
Critical Top Width	11.450	m
Calculated Max Shear Stress	16.370	N/m ²
Calculated Avg Shear Stress	6.086	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 1
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
CROSS SECTION

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
AS SHOWN

DO NOT SCALE

DRAWING NO:

3725-1-4620

REV:

A



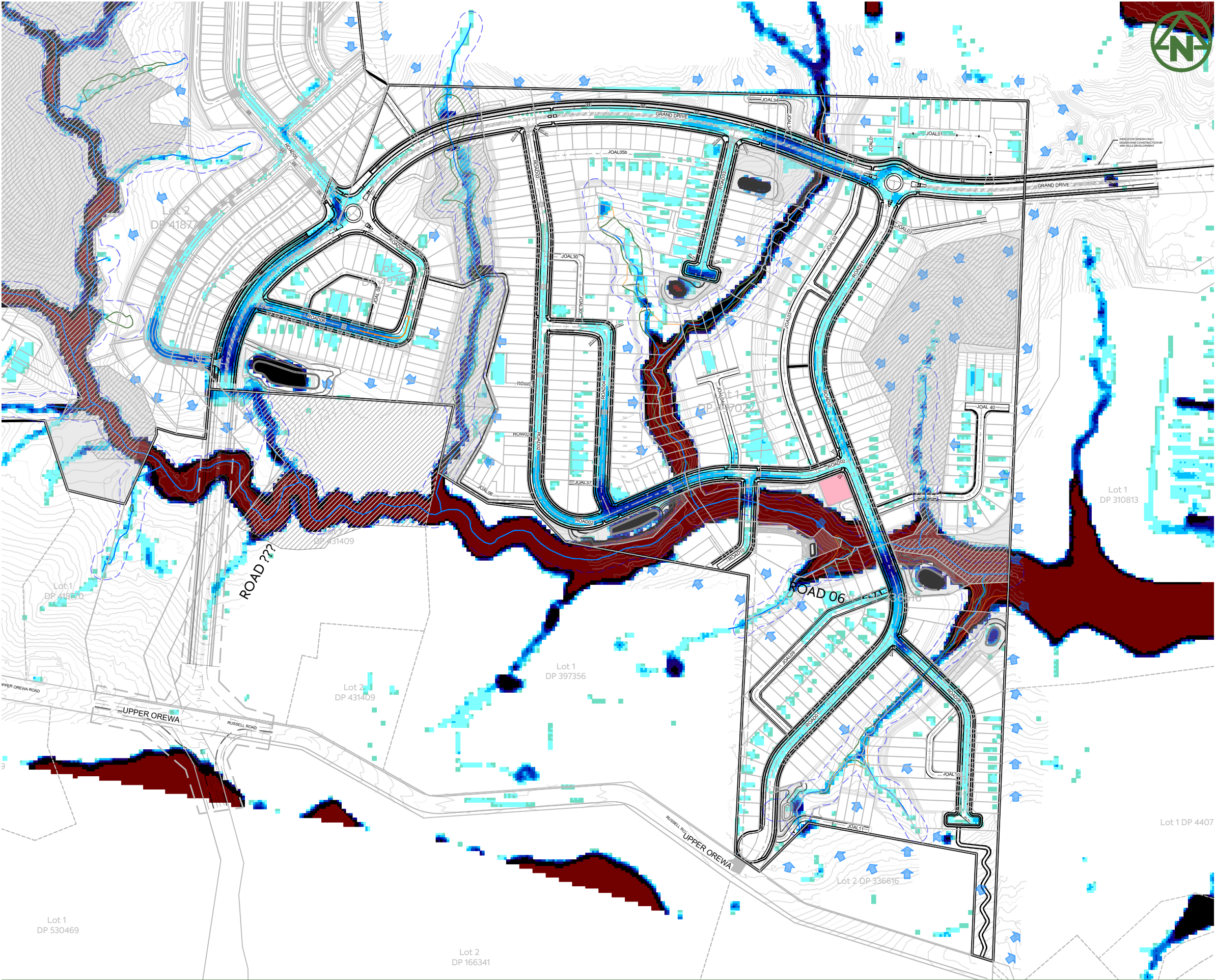
MCKENZIE & CO.

A FIRST ISSUE DK - - 02/12/25

REV DESCRIPTION DRN BY CHK BY APP BY DATE

PLOT DATE 2026-04-16 12:43:12 WWW.MCKENZIEANDCO.CO.NZ THIS DRAWING IS SOLELY FOR USE BY THE CLIENT ON THIS PROJECT ONLY. NO LIABILITY IS ACCEPTED IN ITS USE BY ANY OTHER ENTITY OR FOR ANY OTHER PURPOSE

C:\12DS\DATA\MCKFS01\3725-1 DELMORE STAGE 1_5231\06000. ENGINEERING DESIGN\6500. DRAWINGS\4610.DWG



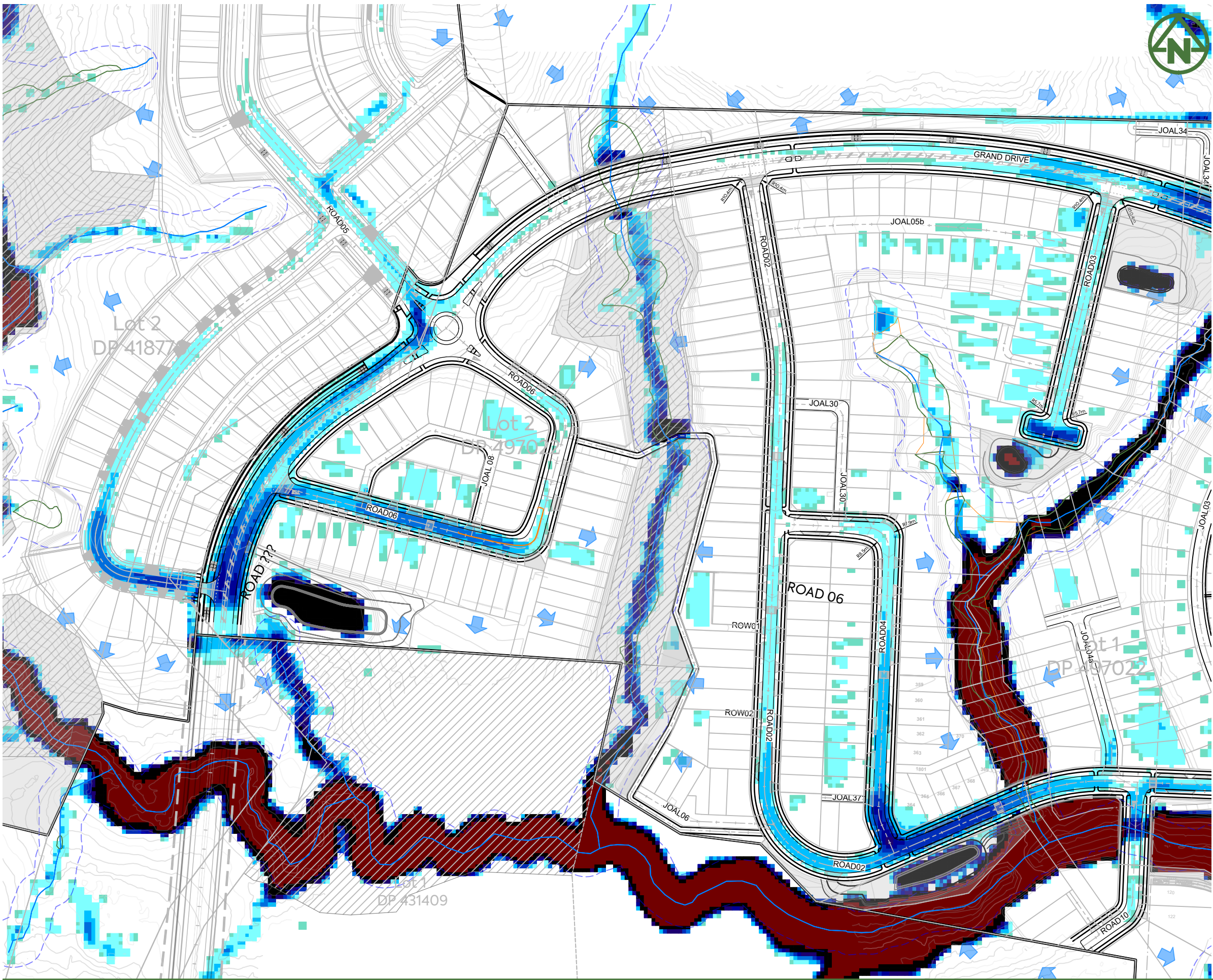
NOTES:

1. RAIN ON GRID FLOWS COMPUTED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
2. DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK

FLOOD DEPTH 0-50mm	
FLOOD DEPTH 50-100mm	
FLOOD DEPTH 100-150mm	
FLOOD DEPTH 150-200mm	
FLOOD DEPTH 200-250mm	
FLOOD DEPTH 250-300mm	
FLOOD DEPTH 300-350mm	
FLOOD DEPTH 350-400mm	
FLOOD DEPTH 400-450mm	
FLOOD DEPTH 450-500mm	
FLOOD DEPTH 500-550mm	
FLOOD DEPTH 550-600mm	
FLOOD DEPTH 600-650mm	
FLOOD DEPTH 650-700mm	
FLOOD DEPTH 700-750mm	
FLOOD DEPTH 750-800mm	
FLOOD DEPTH 800-850mm	
FLOOD DEPTH 850-900mm	
FLOOD DEPTH 900-950mm	
FLOOD DEPTH 950-1000mm	
FLOOD DEPTH 1000mm +	

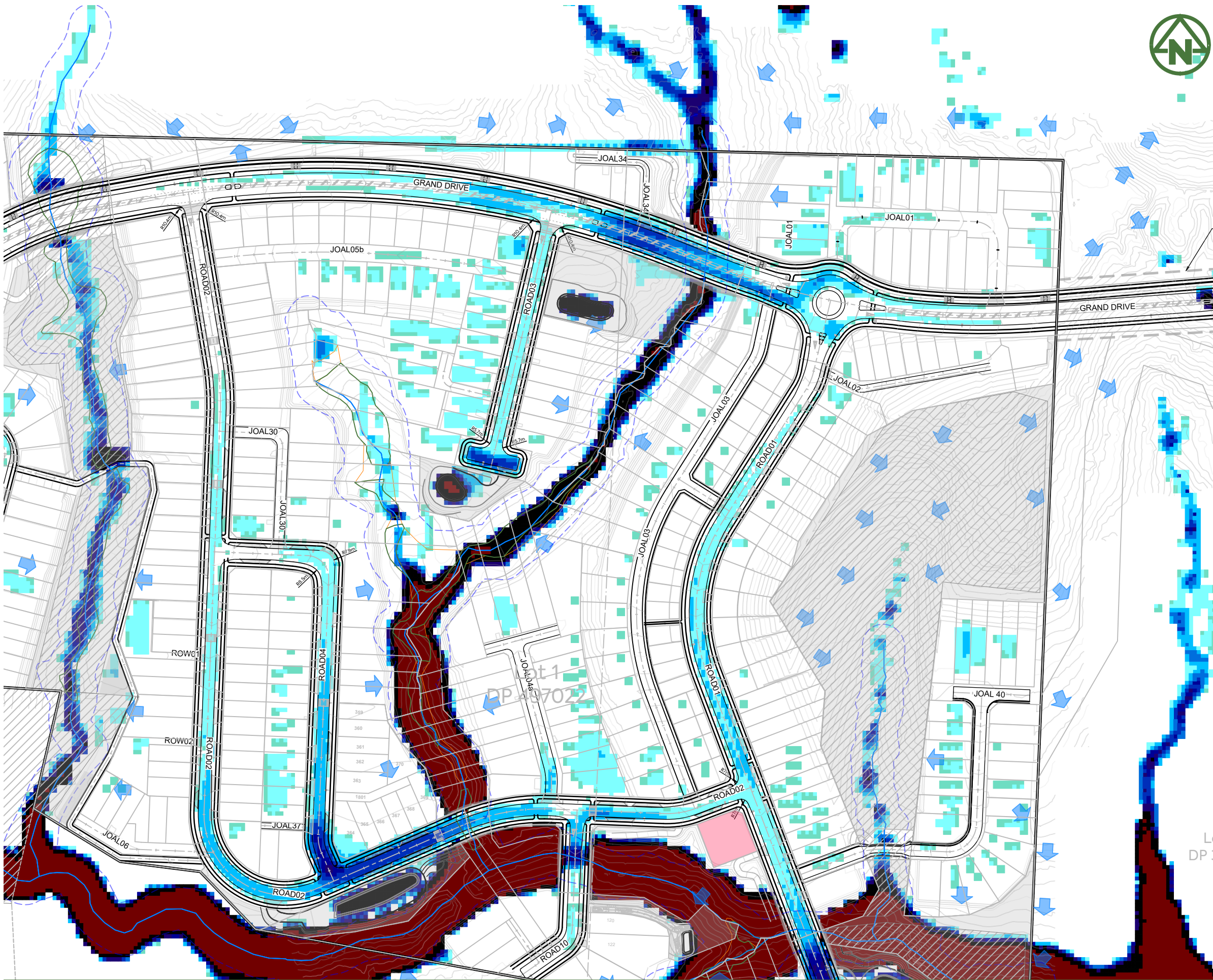


- NOTES:
- RAIN ON GRID FLOWS COMPUTATED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
 - DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK

FLOOD DEPTH 0-50mm	
FLOOD DEPTH 50-100mm	
FLOOD DEPTH 100-150mm	
FLOOD DEPTH 150-200mm	
FLOOD DEPTH 200-250mm	
FLOOD DEPTH 250-300mm	
FLOOD DEPTH 300-350mm	
FLOOD DEPTH 350-400mm	
FLOOD DEPTH 400-450mm	
FLOOD DEPTH 450-500mm	
FLOOD DEPTH 500-550mm	
FLOOD DEPTH 550-600mm	
FLOOD DEPTH 600-650mm	
FLOOD DEPTH 650-700mm	
FLOOD DEPTH 700-750mm	
FLOOD DEPTH 750-800mm	
FLOOD DEPTH 800-850mm	
FLOOD DEPTH 850-900mm	
FLOOD DEPTH 900-950mm	
FLOOD DEPTH 950-1000mm	
FLOOD DEPTH 1000mm +	



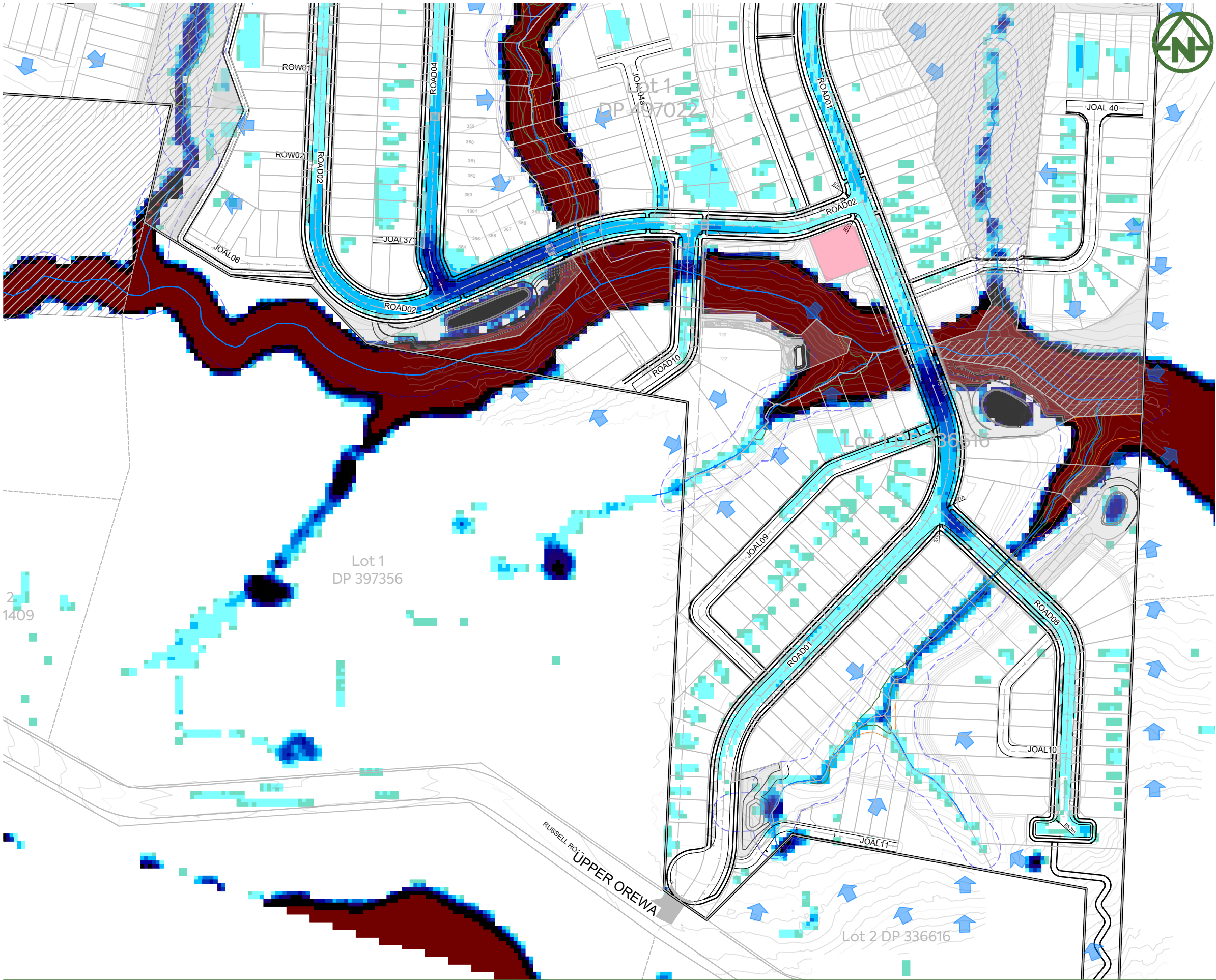
NOTES:

- RAIN ON GRID FLOWS COMPUTATED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK

FLOOD DEPTH 0-50mm	
FLOOD DEPTH 50-100mm	
FLOOD DEPTH 100-150mm	
FLOOD DEPTH 150-200mm	
FLOOD DEPTH 200-250mm	
FLOOD DEPTH 250-300mm	
FLOOD DEPTH 300-350mm	
FLOOD DEPTH 350-400mm	
FLOOD DEPTH 400-450mm	
FLOOD DEPTH 450-500mm	
FLOOD DEPTH 500-550mm	
FLOOD DEPTH 550-600mm	
FLOOD DEPTH 600-650mm	
FLOOD DEPTH 650-700mm	
FLOOD DEPTH 700-750mm	
FLOOD DEPTH 750-800mm	
FLOOD DEPTH 800-850mm	
FLOOD DEPTH 850-900mm	
FLOOD DEPTH 900-950mm	
FLOOD DEPTH 950-1000mm	
FLOOD DEPTH 1000mm +	

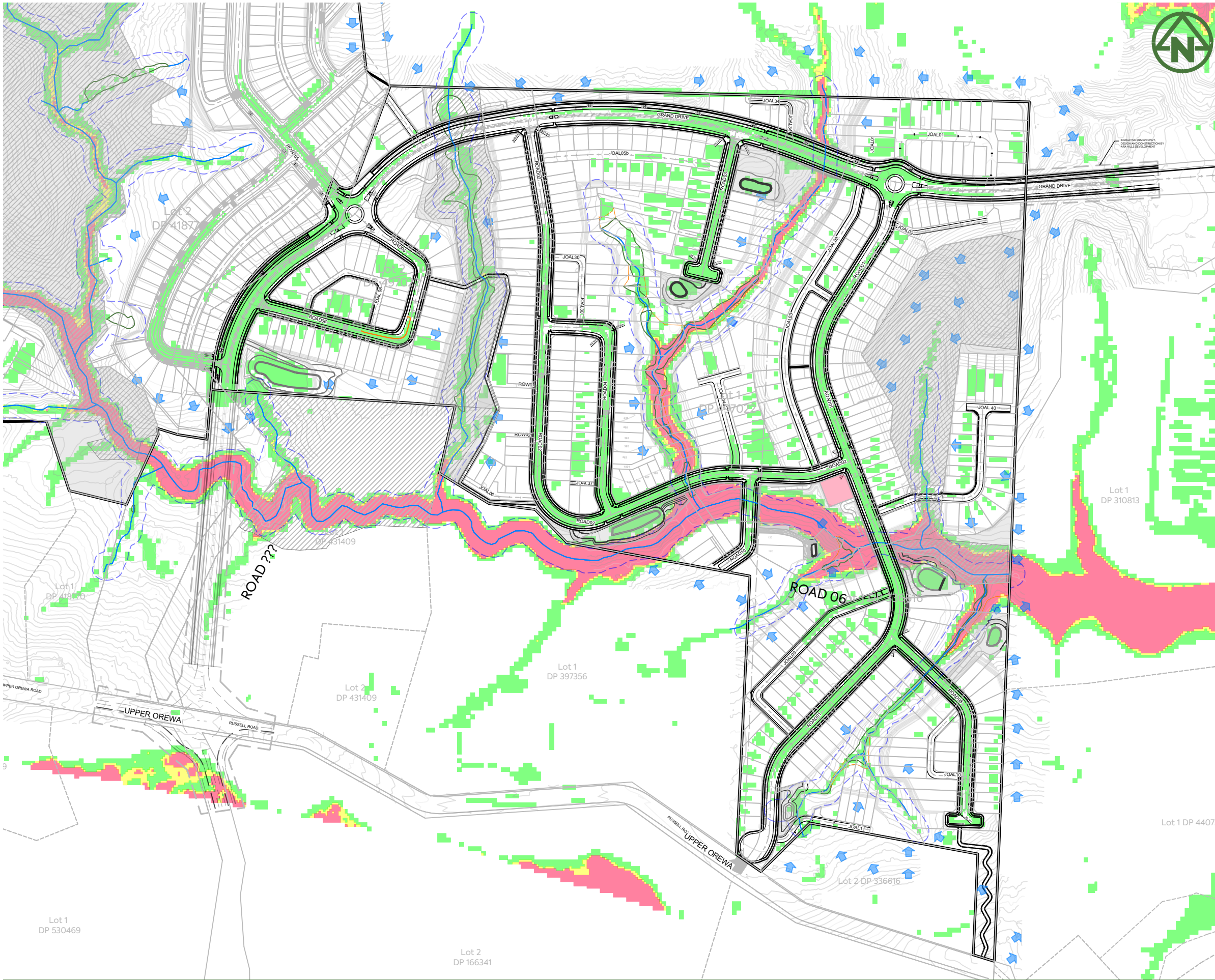


NOTES:

- RAIN ON GRID FLOWS COMPUTATED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK	
FLOOD DEPTH 0-50mm	
FLOOD DEPTH 50-100mm	
FLOOD DEPTH 100-150mm	
FLOOD DEPTH 150-200mm	
FLOOD DEPTH 200-250mm	
FLOOD DEPTH 250-300mm	
FLOOD DEPTH 300-350mm	
FLOOD DEPTH 350-400mm	
FLOOD DEPTH 400-450mm	
FLOOD DEPTH 450-500mm	
FLOOD DEPTH 500-550mm	
FLOOD DEPTH 550-600mm	
FLOOD DEPTH 600-650mm	
FLOOD DEPTH 650-700mm	
FLOOD DEPTH 700-750mm	
FLOOD DEPTH 750-800mm	
FLOOD DEPTH 800-850mm	
FLOOD DEPTH 850-900mm	
FLOOD DEPTH 900-950mm	
FLOOD DEPTH 950-1000mm	
FLOOD DEPTH 1000mm +	

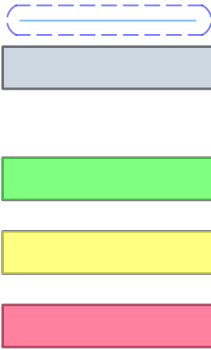


NOTES:

- 1. RAIN ON GRID FLOWS COMPUTED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- 2. DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

- 1% AEP OLFP SPREAD
- EXISTING STREAM & 25m SETBACK
- POST DEVELOPMENT FLOOD PLAIN
- PEDESTRIAN SAFETY HAZARDS
Less than 0.4 m²/s DxV
- Between 0.4 to 0.6 m²/s DxV
- More than 0.6 m²/s DxV



CLIENT:

VINEWAY LTD

PROJECT:

DELMORE
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP RAIN ON GRID
FLOOD HAZARD PLAN

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
1:3500 @ A3
DO NOT SCALE

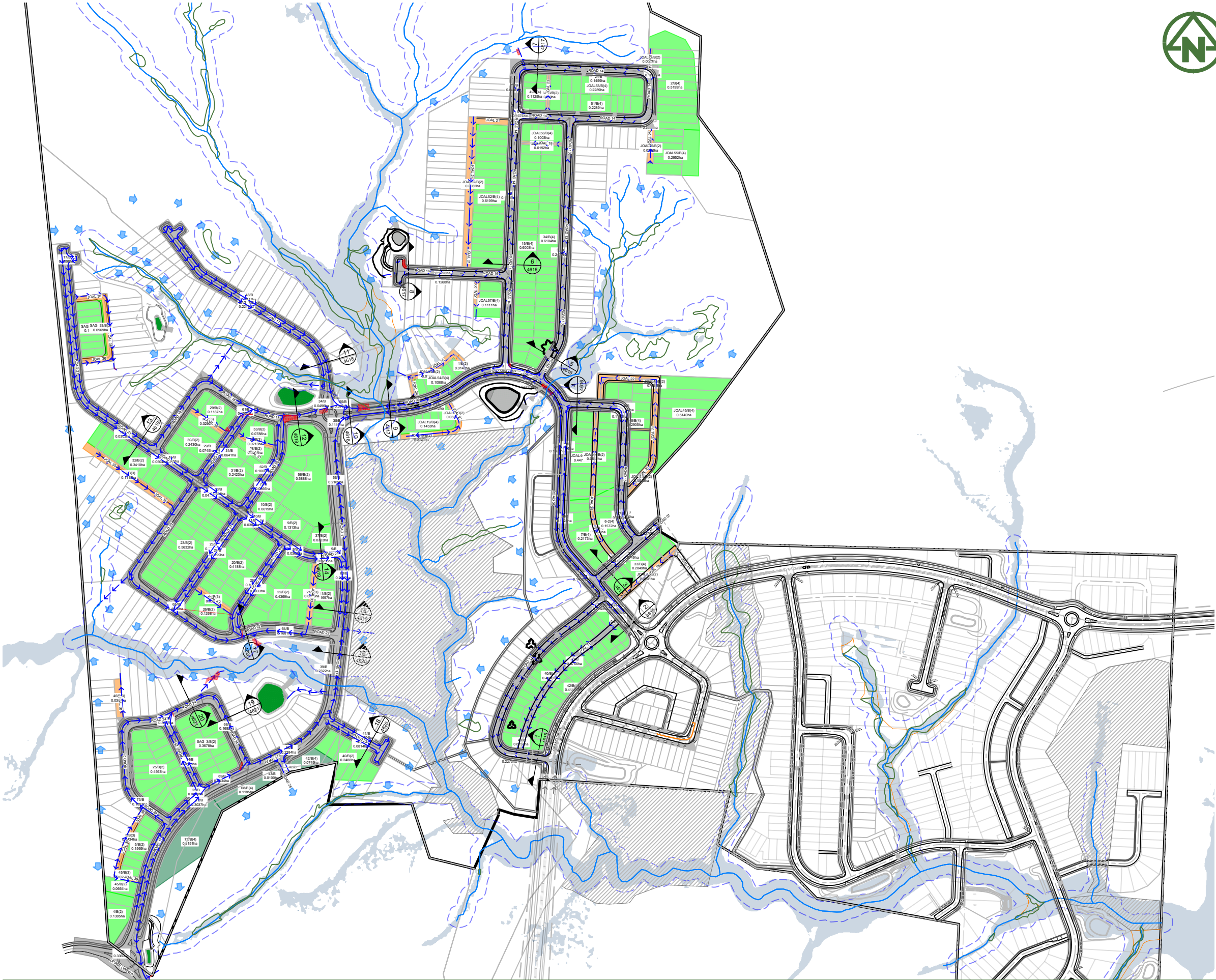
DRAWING NO:

3725-1-4640

REV:

A

A	FIRST ISSUE	JK	LV	14/04/26	
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE



NOTES:

- OVERLAND FLOWS WAS COMPUTED BY ARC TP 108 METHOD AT 1% AEP STORM RAINFALL, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- MANNING'S ROUGHNESS 0.02 ADOPT FOR ENGINEERING FORMED CHANNEL.
- FLOW DEPTHS AND VELOCITIES WERE MODELLED FROM HYDRAULIC TOOLBOX SOFTWARE.

LEGEND

- (1) CATCHMENT ROADS @ 65% IMPERVIOUSNESS
- (2) CATCHMENT JOALs @ 95% IMPERVIOUSNESS
- (3) CATCHMENT RESIDENCYs @ 60% IMPERVIOUSNESS
- (4) CATCHMENT UPSTREAM UNDEVELOPED @ 5% IMPERVIOUSNESS
- EXISTING STREAM & 25m SETBACK
- POST DEVELOPMENT FLOOD PLAIN

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
PLAN
OVERALL

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
1:4500
DO NOT SCALE

DRAWING NO:

3725-2-4610

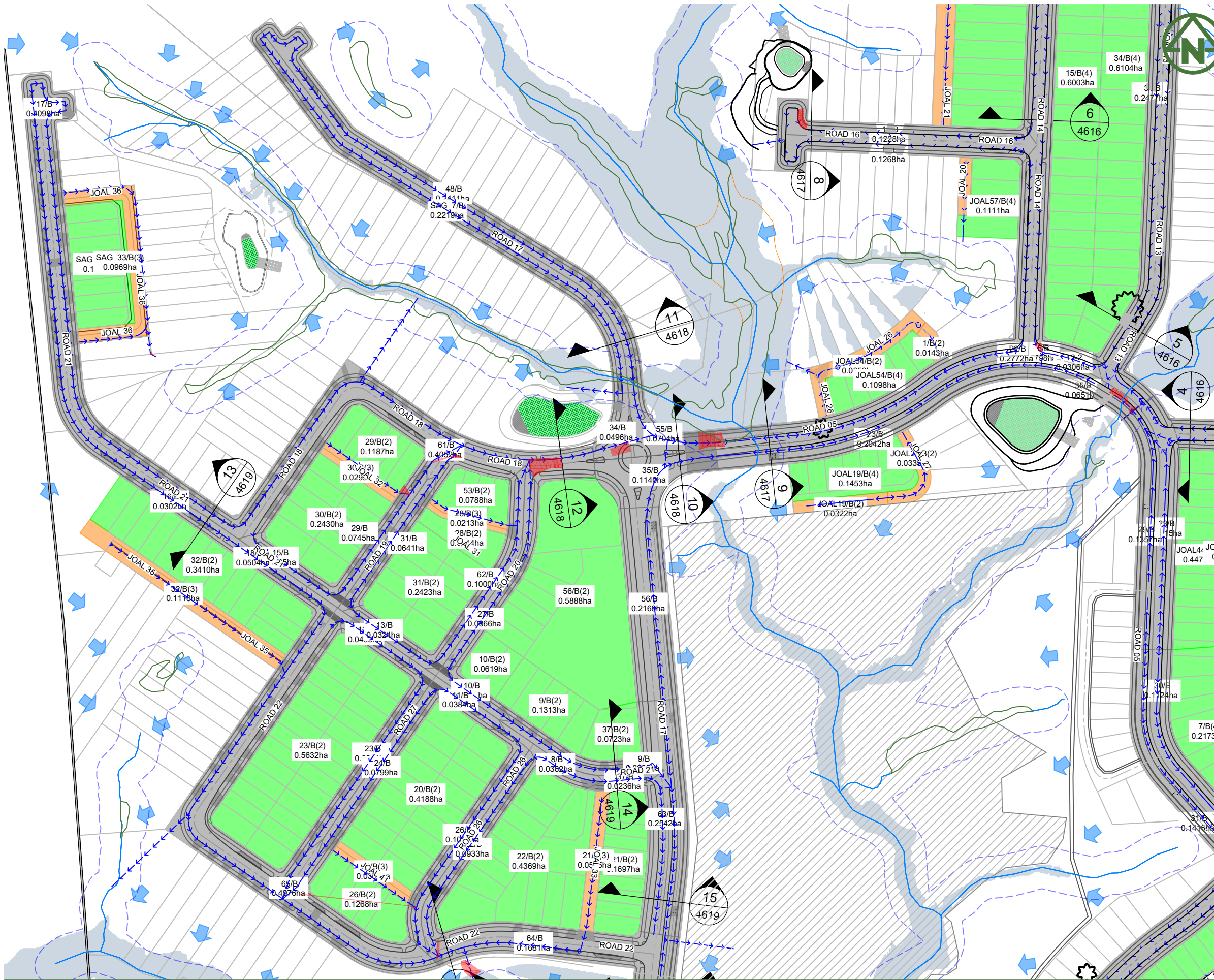
REV:

B

B	FOR CONSENT	SJO	LV	JK	16/04/26
A	FIRST ISSUE	DK	-	-	04/12/25
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE



MCKENZIE & CO.



NOTES:

- OVERLAND FLOWS WAS COMPUTED BY ARC TP 108 METHOD AT 1% AEP STORM RAINFALL, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- MANNING'S ROUGHNESS 0.02 ADOPT FOR ENGINEERING FORMED CHANNEL.
- FLOW DEPTHS AND VELOCITIES WERE MODELLED FROM HYDRAULIC TOOLBOX SOFTWARE.

LEGEND

- (1) CATCHMENT ROADS
@ 65% IMPERVIOUSNESS
- (2) CATCHMENT JOALS
@ 95% IMPERVIOUSNESS
- (3) CATCHMENT RESIDENCYs
@ 60% IMPERVIOUSNESS
- (4) CATCHMENT UPSTREAM UNDEVELOPED
@ 5% IMPERVIOUSNESS
- EXISTING STREAM & 25m SETBACK
- POST DEVELOPMENT FLOOD PLAIN

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
PLAN

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
1:2000

DO NOT SCALE

DRAWING NO:

3725-2-4612

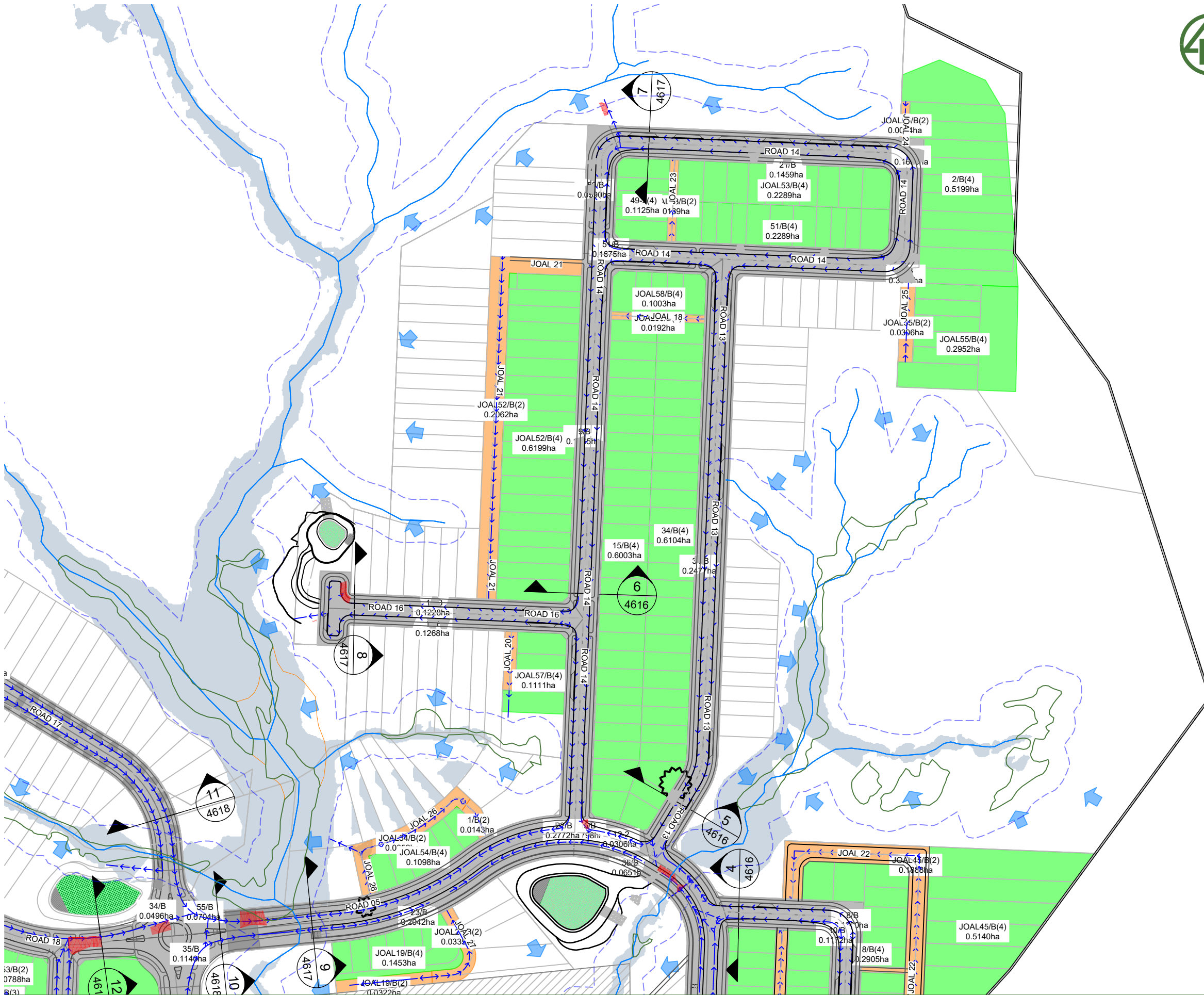
REV:

B

B	FOR CONSENT	SJO	LV	JK	16/04/26
A	FIRST ISSUE	DK	-	-	04/12/25
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE



MCKENZIE & CO.



1. OVERLAND FLOWS WAS COMPUTATED BY ARC TP 108 METHOD AT 1% AEP STORM RAINFALL, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
2. MANNING'S ROUGHNESS 0.02 ADOPT FOR ENGINEERING FORMED CHANNEL.
3. FLOW DEPTHS AND VELOCITIES WERE MODELLED FROM HYDRAULIC TOOLBOX SOFTWARE.

(1) CATCHMENT ROADS
@ 65% IMPERVIOUSNESS

(2) CATCHMENT JOALS
@ 95% IMPERVIOUSNESS

(3) CATCHMENT RESIDENCYs
@ 60% IMPERVIOUSNESS

(4) CATCHMENT UPSTREAM UNDEVELOPED
@ 5% IMPERVIOUSNESS

EXISTING STREAM & 25m SETBACK

POST DEVELOPMENT FLOOD PLAIN

TITLE:

FOR RESOURCE CONSENT

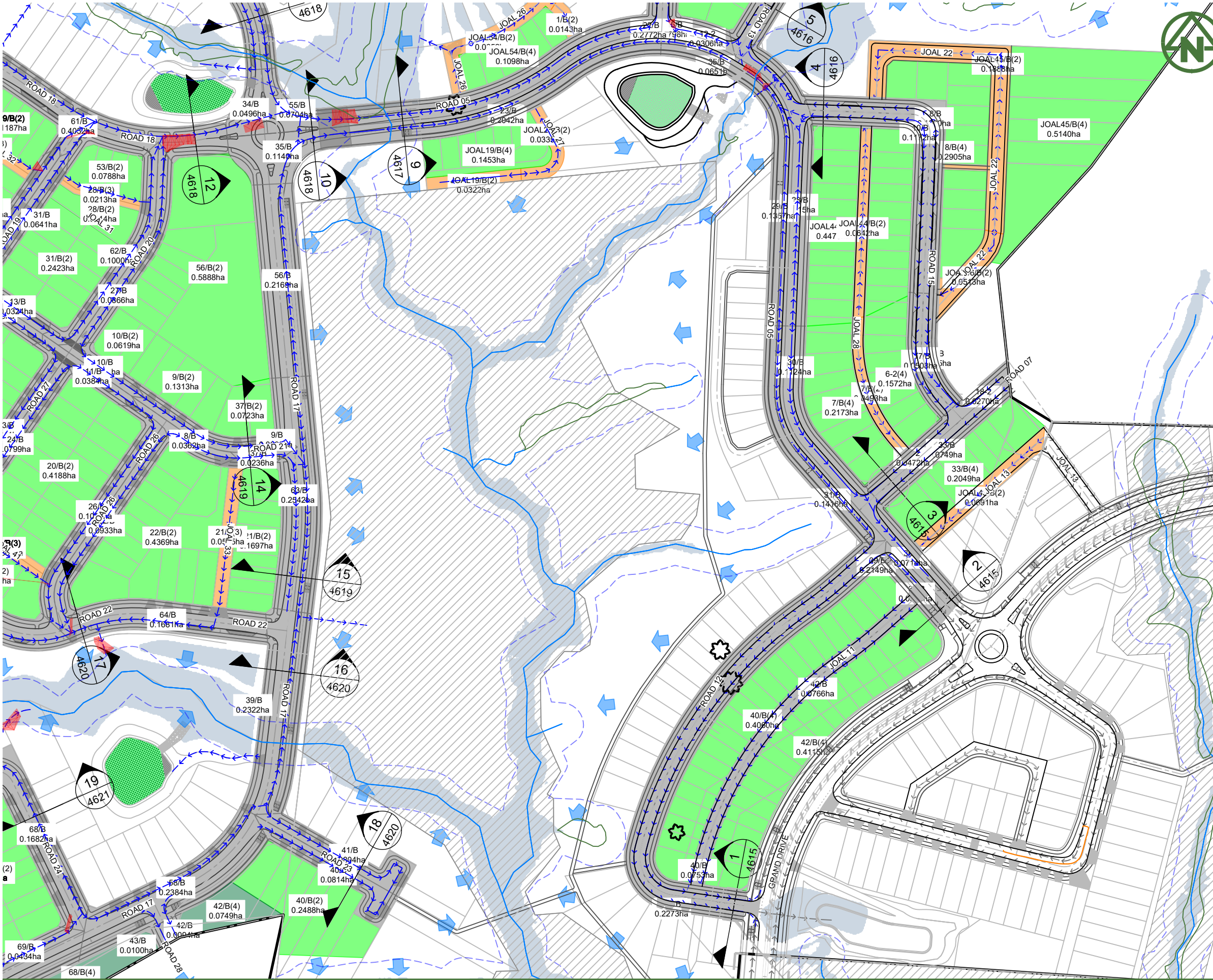
DRAWING NO: 3725-2-4613 REV: B



MCKENZIE & CO.

DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

STORMWATER
1% AEP CATCHMENT
PLAN



NOTES:

- OVERLAND FLOWS WAS COMPUTED BY ARC TP 108 METHOD AT 1% AEP STORM RAINFALL, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- MANNING'S ROUGHNESS 0.02 ADOPT FOR ENGINEERING FORMED CHANNEL.
- FLOW DEPTHS AND VELOCITIES WERE MODELLED FROM HYDRAULIC TOOLBOX SOFTWARE.

LEGEND

- (1) CATCHMENT ROADS
@ 65% IMPERVIOUSNESS
- (2) CATCHMENT JOALS
@ 95% IMPERVIOUSNESS
- (3) CATCHMENT RESIDENCYs
@ 60% IMPERVIOUSNESS
- (4) CATCHMENT UPSTREAM UNDEVELOPED
@ 5% IMPERVIOUSNESS
- EXISTING STREAM & 25m SETBACK
- POST DEVELOPMENT FLOOD PLAIN

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
PLAN

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:
1:2000
DO NOT SCALE

DRAWING NO:

3725-2-4614

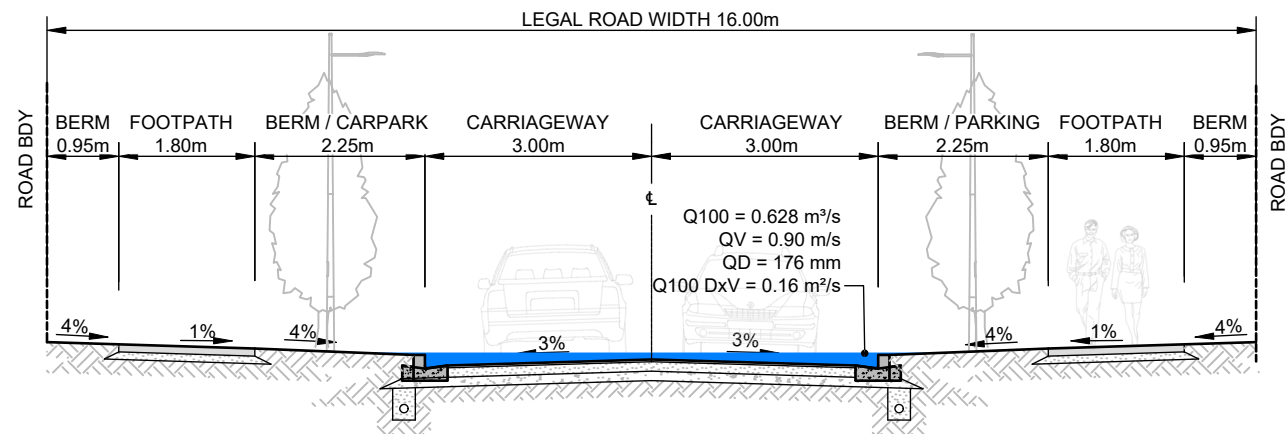
REV:

B

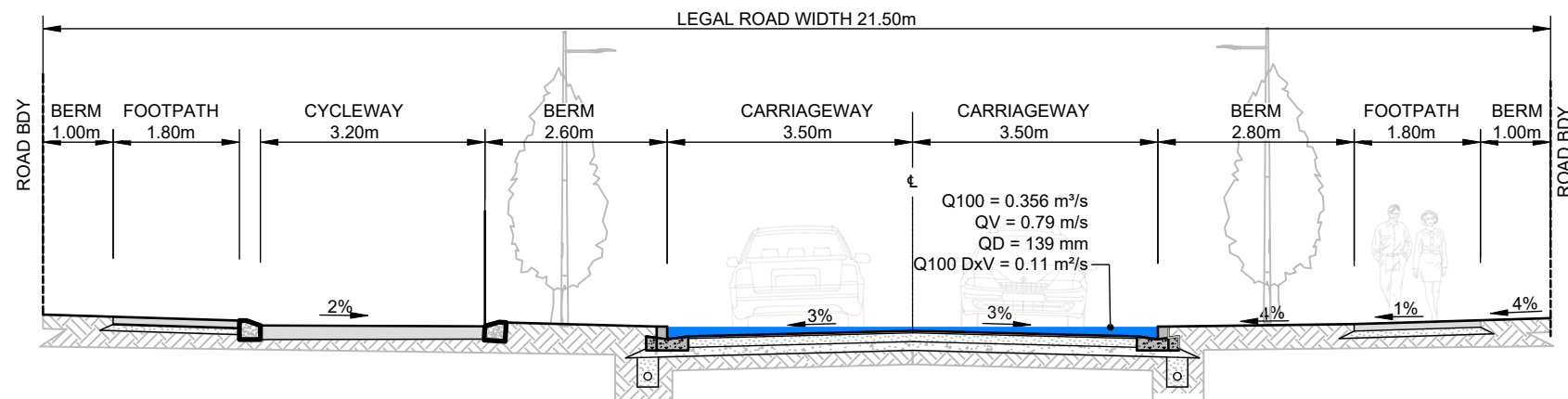
B	FOR CONSENT	SJO	LV	JK	16/04/26
A	FIRST ISSUE	DK	-	-	04/12/25
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE



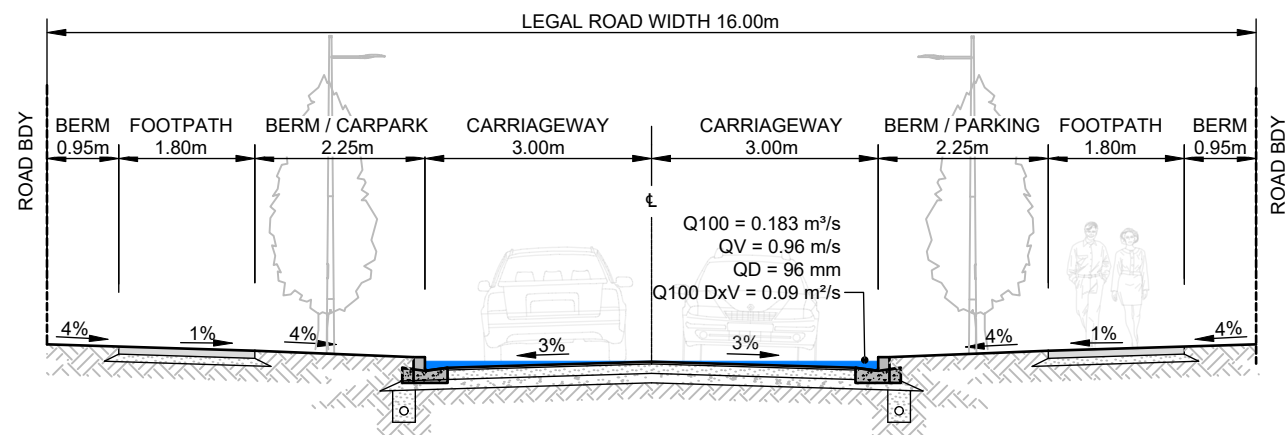
MCKENZIE & CO.



1 LOCA ROAD-STAGE 2 (ROAD 12)
4610 SCALE 1:100 @A3



2 COLLECTOR ROAD-STAGE 2 (ROAD 05)
4610 SCALE 1:100 @A3



3 LOCA ROAD-STAGE 2 (ROAD 07)
4610 SCALE 1:100 @A3

STG 2 Section 1 - Q 628 l/s

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: 0.01 (m/m)
Manning's Roughness: 0.0200

Enter Flow: 0.628 (cms)
Enter Depth: 0.176 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.628	cms
Depth	0.176	m
Area of Flow	0.695	m ²
Wetted Perimeter	9.053	m
Hydraulic Radius	0.077	m
Average Velocity	0.903	m/s
Top Width (T)	8.765	m
Froude Number	1.024	
Critical Depth	0.177	m
Critical Velocity	0.883	m/s
Critical Slope	0.00952	m/m
Critical Top Width	8.944	m
Calculated Max Shear Stress	17.218	N/m ²
Calculated Avg Shear Stress	7.527	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 2 - Q 356 l/s

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: 0.01 (m/m)
Manning's Roughness: 0.0200

Enter Flow: 0.356 (cms)
Enter Depth: 0.139 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.356	cms
Depth	0.139	m
Area of Flow	0.453	m ²
Wetted Perimeter	7.265	m
Hydraulic Radius	0.062	m
Average Velocity	0.786	m/s
Top Width (T)	6.999	m
Froude Number	0.986	
Critical Depth	0.139	m
Critical Velocity	0.793	m/s
Critical Slope	0.01031	m/m
Critical Top Width	6.998	m
Calculated Max Shear Stress	13.654	N/m ²
Calculated Avg Shear Stress	6.110	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 3 - Q 183 l/s

Type: Cross Section Define...

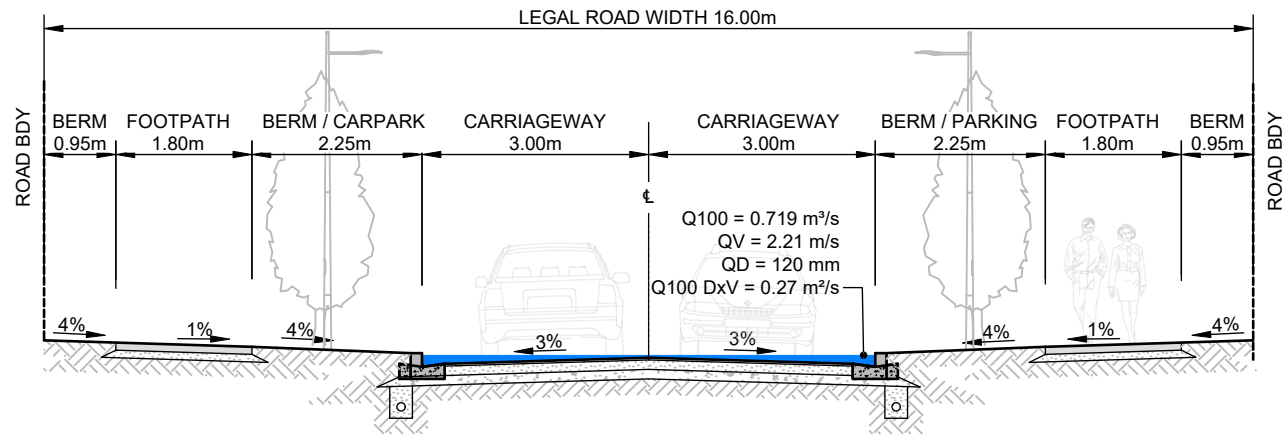
Side Slope 1 (Z1): 0.0 H: 1V
Side Slope 2 (Z2): 0.0 H: 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.03 (m/m)
Manning's Roughness: 0.0200

Enter Flow: 0.183 (cms)
Enter Depth: 0.096 (m)

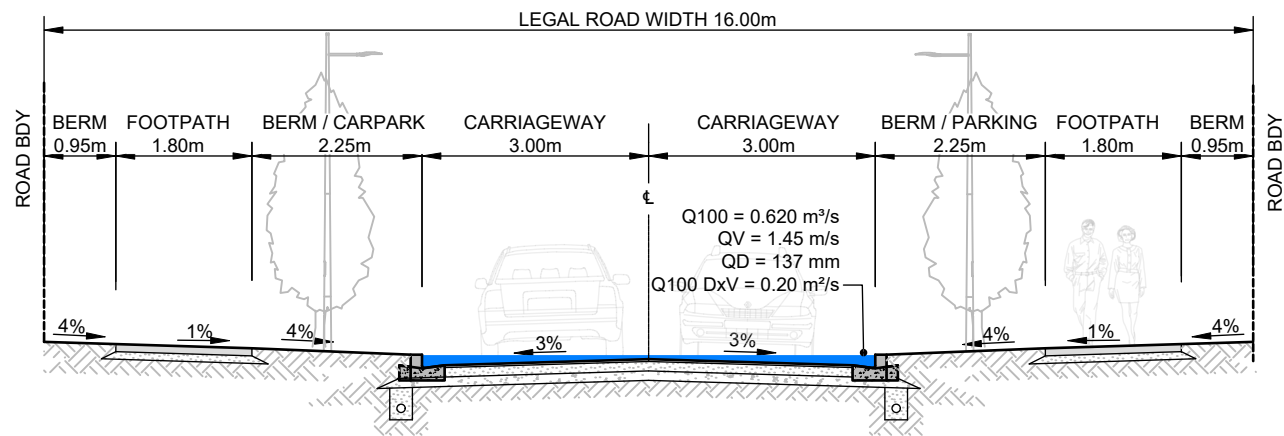
Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.183	cms
Depth	0.096	m
Area of Flow	0.190	m ²
Wetted Perimeter	5.141	m
Hydraulic Radius	0.037	m
Average Velocity	0.962	m/s
Top Width (T)	4.955	m
Froude Number	1.567	
Critical Depth	0.112	m
Critical Velocity	0.670	m/s
Critical Slope	0.01150	m/m
Critical Top Width	5.968	m
Calculated Max Shear Stress	28.357	N/m ²
Calculated Avg Shear Stress	10.884	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

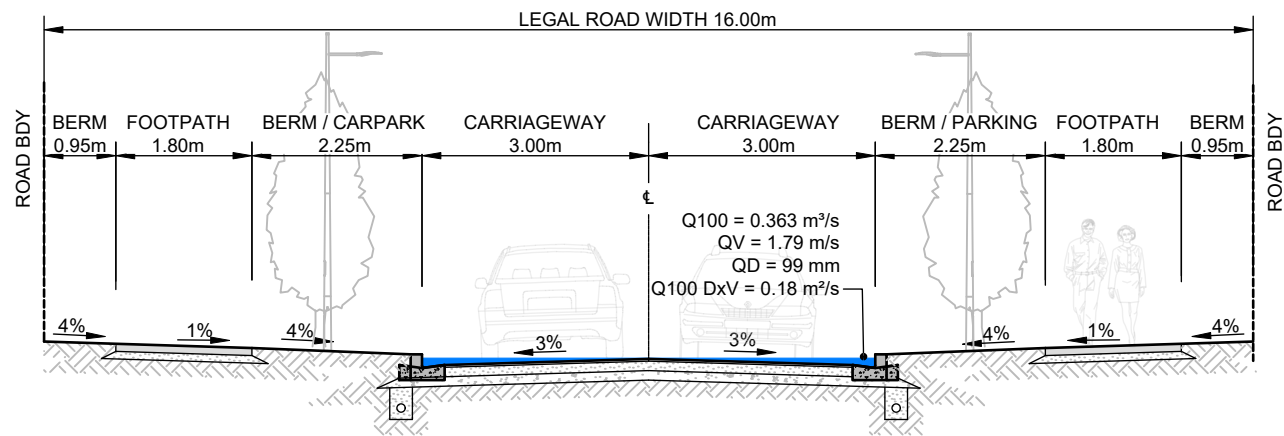
OK Cancel



4 LOCA ROAD-STAGE 2 (ROAD 15)
4610 SCALE 1:100 @A3



5 LOCA ROAD-STAGE 2 (ROAD 13)
4610 SCALE 1:100 @A3



6 LOCA ROAD-STAGE 2 (ROAD 14)
4610 SCALE 1:100 @A3

STG 2 Section 4 - Q 719 l/s

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: 0.1 (m/m)
Manning's Roughness: 0.0200

Enter Flow: 0.719 (cms)
Enter Depth: 0.120 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.719	cms
Depth	0.120	m
Area of Flow	0.325	m²
Wetted Perimeter	6.227	m
Hydraulic Radius	0.052	m
Average Velocity	2.210	m/s
Top Width (T)	5.996	m
Froude Number	3.028	
Critical Depth	0.188	m
Critical Velocity	0.892	m/s
Critical Slope	0.00942	m/m
Critical Top Width	9.953	m
Calculated Max Shear Stress	117.934	N/m²
Calculated Avg Shear Stress	51.216	N/m²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 5 - Q 620 l/s

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: 0.620 (cms)
Enter Depth: 0.137 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.620	cms
Depth	0.137	m
Area of Flow	0.428	m²
Wetted Perimeter	6.261	m
Hydraulic Radius	0.068	m
Average Velocity	1.448	m/s
Top Width (T)	5.998	m
Froude Number	1.730	
Critical Depth	0.176	m
Critical Velocity	0.883	m/s
Critical Slope	0.00953	m/m
Critical Top Width	8.847	m
Calculated Max Shear Stress	40.420	N/m²
Calculated Avg Shear Stress	20.107	N/m²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 6 - Q 363 l/s

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: 0.1 (m/m)
Manning's Roughness: 0.0200

Enter Flow: 0.363 (cms)
Enter Depth: 0.099 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.363	cms
Depth	0.099	m
Area of Flow	0.203	m²
Wetted Perimeter	5.308	m
Hydraulic Radius	0.038	m
Average Velocity	1.792	m/s
Top Width (T)	5.118	m
Froude Number	2.876	
Critical Depth	0.138	m
Critical Velocity	0.841	m/s
Critical Slope	0.00999	m/m
Critical Top Width	5.998	m
Calculated Max Shear Stress	96.914	N/m²
Calculated Avg Shear Stress	37.403	N/m²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
CROSS SECTION

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:

AS SHOWN

DO NOT SCALE

DRAWING NO:

3725-2-4616

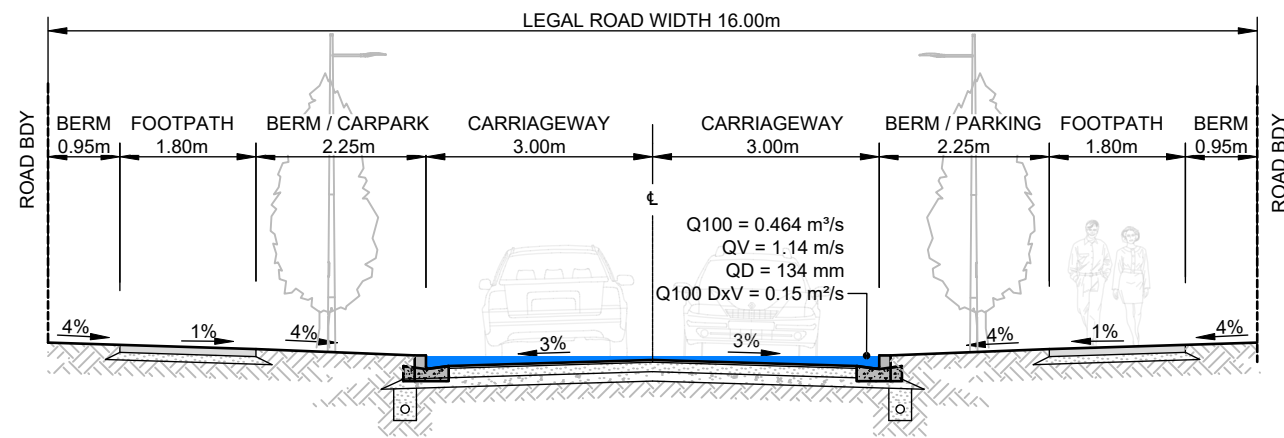
REV:

A

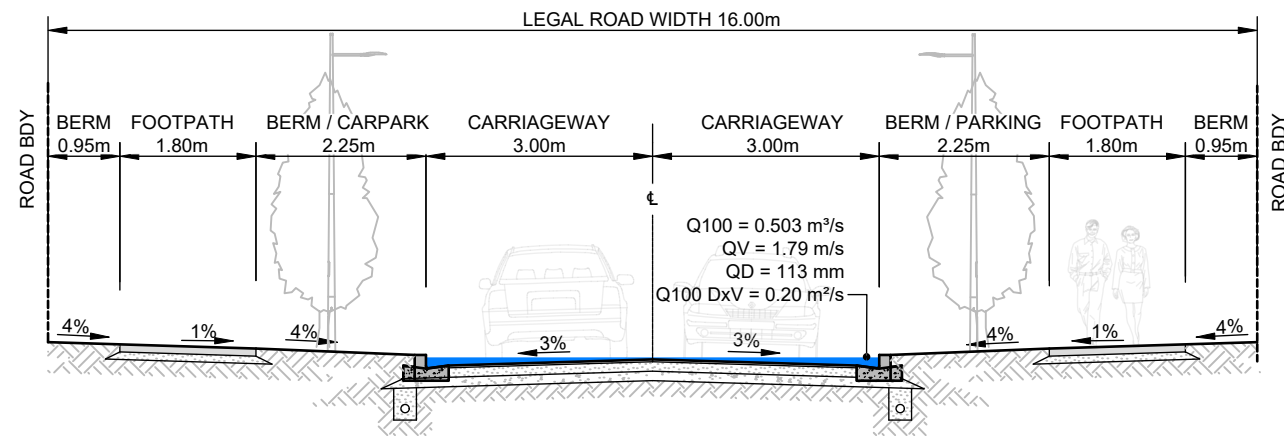


MCKENZIE & CO.

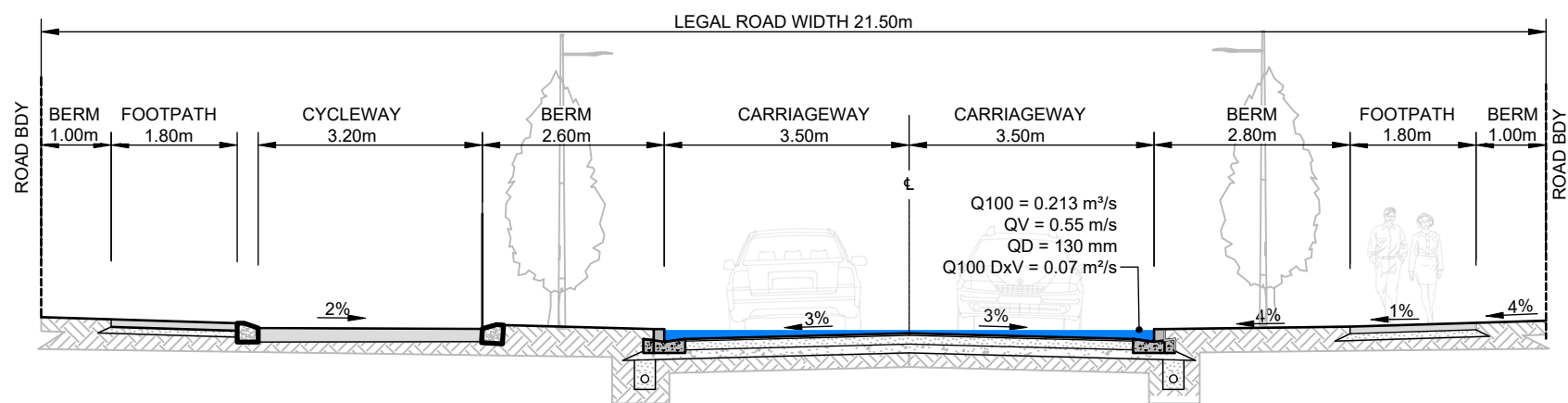
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	DK	-	-	04/12/25



7 LOCA ROAD-STAGE 2 (ROAD 14)
4610 SCALE 1:100 @A3



8 LOCA ROAD-STAGE 2 (ROAD 16)
4610 SCALE 1:100 @A3



9 COLLECTOR ROAD-STAGE 2 (ROAD 5)
4610 SCALE 1:100 @A3

STG 2 Section 7 - Q 464 l/s

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: 0.02 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 0.464 (cms)
☐ Enter Depth: 0.134 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.464	cms
Depth	0.134	m
Area of Flow	0.406	m ²
Wetted Perimeter	6.254	m
Hydraulic Radius	0.065	m
Average Velocity	1.142	m/s
Top Width (T)	5.998	m
Froude Number	1.401	
Critical Depth	0.153	m
Critical Velocity	0.888	m/s
Critical Slope	0.00964	m/m
Critical Top Width	6.504	m
Calculated Max Shear Stress	26.228	N/m ²
Calculated Avg Shear Stress	12.731	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 8 - Q 503 l/s

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: 0.08 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 0.503 (cms)
☐ Enter Depth: 0.113 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.503	cms
Depth	0.113	m
Area of Flow	0.280	m ²
Wetted Perimeter	6.212	m
Hydraulic Radius	0.045	m
Average Velocity	1.793	m/s
Top Width (T)	5.995	m
Froude Number	2.646	
Critical Depth	0.160	m
Critical Velocity	0.882	m/s
Critical Slope	0.00963	m/m
Critical Top Width	7.204	m
Calculated Max Shear Stress	88.479	N/m ²
Calculated Avg Shear Stress	35.408	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 9 - Q 213 l/s

Type: **Cross Section** Define...

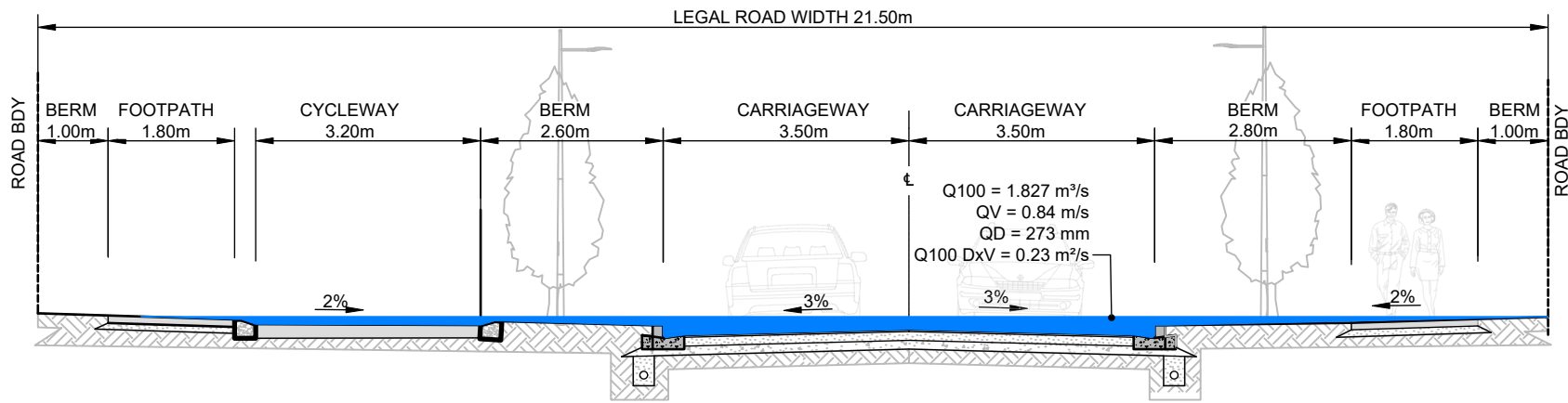
Side Slope 1 (Z1): 0.0 H: 1V
Side Slope 2 (Z2): 0.0 H: 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.005 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 0.213 (cms)
☐ Enter Depth: 0.133 (m)

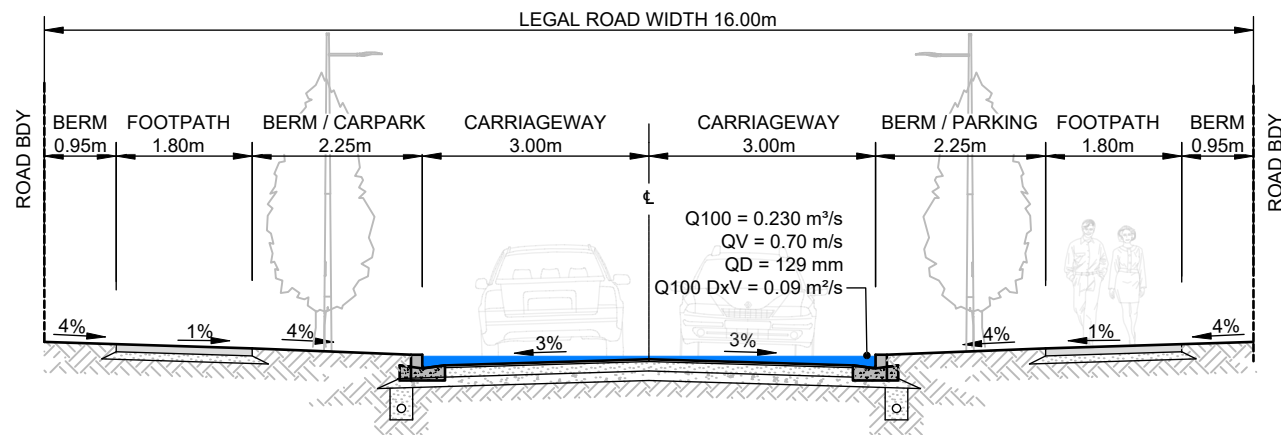
Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.213	cms
Depth	0.133	m
Area of Flow	0.409	m ²
Wetted Perimeter	7.253	m
Hydraulic Radius	0.056	m
Average Velocity	0.520	m/s
Top Width (T)	6.998	m
Froude Number	0.687	
Critical Depth	0.118	m
Critical Velocity	0.696	m/s
Critical Slope	0.01123	m/m
Critical Top Width	6.203	m
Calculated Max Shear Stress	6.523	N/m ²
Calculated Avg Shear Stress	2.766	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

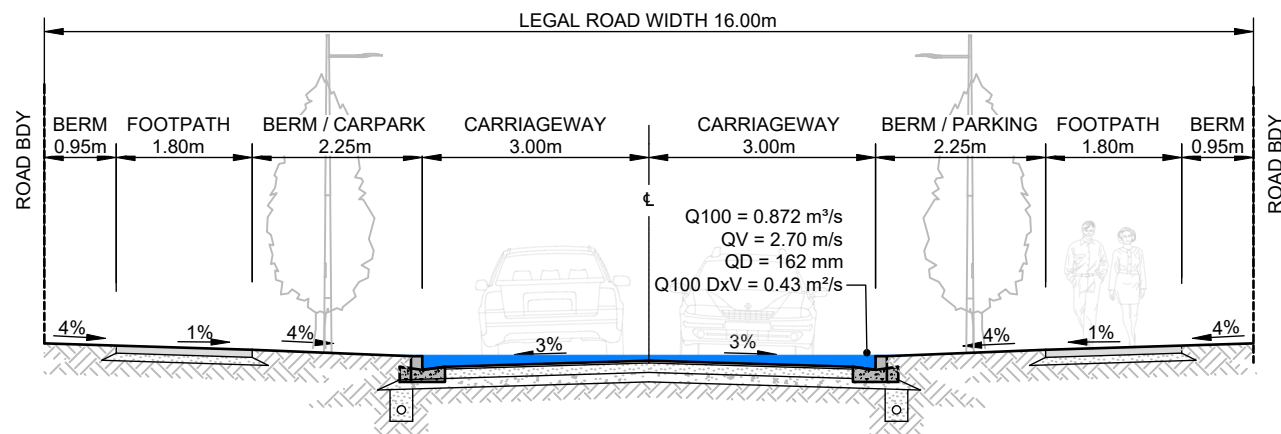
OK Cancel



10 COLLECTOR ROAD-STAGE 2 (ROAD 5)
4610 SCALE 1:100 @A3



11 LOCA ROAD-STAGE 2 (ROAD 17)
4610 SCALE 1:100 @A3



12 LOCA ROAD-STAGE 2 (ROAD 18)
4610 SCALE 1:100 @A3

STG 2 Section 10 - Q 1827 l/s

Type: Define...

Side Slope 1 (Z1): H : 1V

Side Slope 2 (Z2): H : 1V

Channel Width (B): (m)

Pipe Diameter (D): (m)

Longitudinal Slope: (m/m)

Manning's Roughness:

☒ Enter Flow: (cms)

☐ Enter Depth: (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	1.827	cms
Depth	0.273	m
Area of Flow	2.169	m ²
Wetted Perimeter	18.680	m
Hydraulic Radius	0.116	m
Average Velocity	0.842	m/s
Top Width (T)	18.367	m
Froude Number	0.782	
Critical Depth	0.253	m
Critical Velocity	1.011	m/s
Critical Slope	0.00853	m/m
Critical Top Width	17.346	m
Calculated Max Shear Stress	13.403	N/m ²
Calculated Avg Shear Stress	5.691	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 11 - Q 230 l/s

Type: Define...

Side Slope 1 (Z1): H : 1V

Side Slope 2 (Z2): H : 1V

Channel Width (B): (m)

Pipe Diameter (D): (m)

Longitudinal Slope: (m/m)

Manning's Roughness:

☒ Enter Flow: (cms)

☐ Enter Depth: (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	0.230	cms
Depth	0.129	m
Area of Flow	0.328	m ²
Wetted Perimeter	6.246	m
Hydraulic Radius	0.053	m
Average Velocity	0.701	m/s
Top Width (T)	5.997	m
Froude Number	0.957	
Critical Depth	0.127	m
Critical Velocity	0.722	m/s
Critical Slope	0.01102	m/m
Critical Top Width	5.996	m
Calculated Max Shear Stress	12.630	N/m ²
Calculated Avg Shear Stress	5.148	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 12 - Q 872 l/s*

Type: Define...

Side Slope 1 (Z1): H : 1V

Side Slope 2 (Z2): H : 1V

Channel Width (B): (m)

Pipe Diameter (D): (m)

Longitudinal Slope: (m/m)

Manning's Roughness:

☒ Enter Flow: (cms)

☐ Enter Depth: (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	0.872	cms
Depth	0.162	m
Area of Flow	0.324	m ²
Wetted Perimeter	5.339	m
Hydraulic Radius	0.061	m
Average Velocity	2.695	m/s
Top Width (T)	5.195	m
Froude Number	3.447	
Critical Depth	0.236	m
Critical Velocity	0.939	m/s
Critical Slope	0.00900	m/m
Critical Top Width	10.325	m
Calculated Max Shear Stress	193.287	N/m ²
Calculated Avg Shear Stress	72.478	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
CROSS SECTION

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:

AS SHOWN

DO NOT SCALE

DRAWING NO:

3725-2-4618

REV:

A



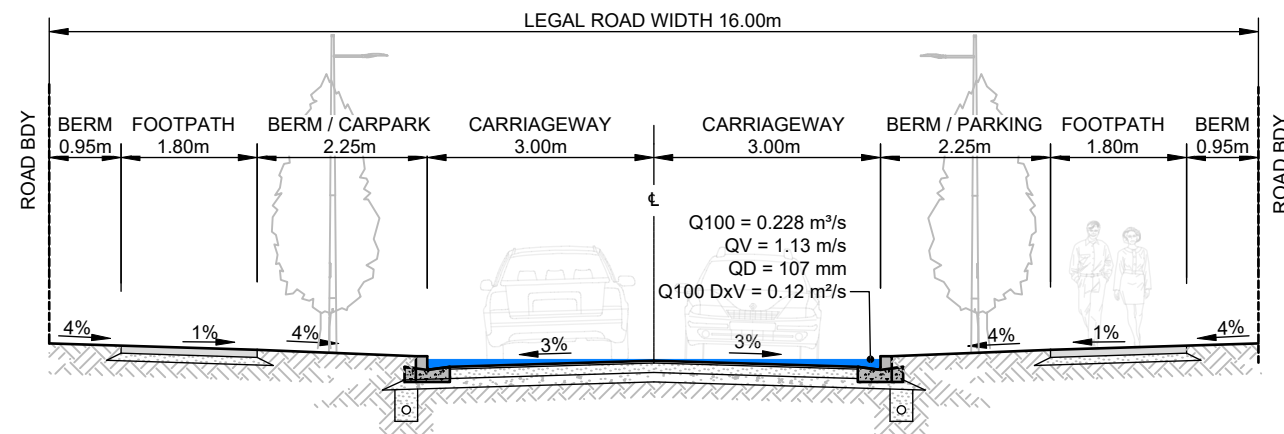
MCKENZIE & CO.

A FIRST ISSUE DK - - 04/12/25

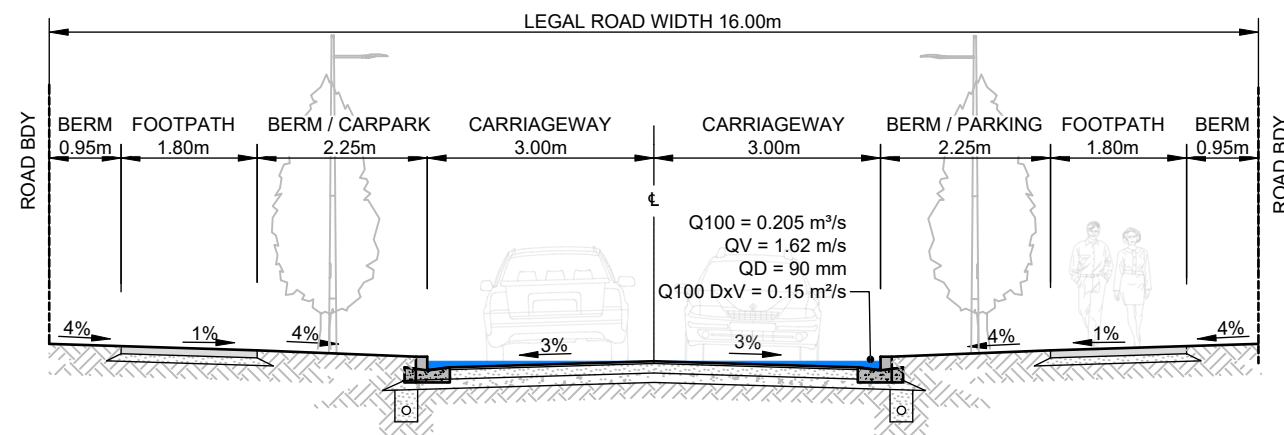
REV DESCRIPTION DRN BY CHK BY APP BY DATE

PLOT DATE 2026-04-17 15:10:09 WWW.MCKENZIEANDCO.CO.NZ THIS DRAWING IS SOLELY FOR USE BY THE CLIENT ON THIS PROJECT ONLY. NO LIABILITY IS ACCEPTED IN ITS USE BY ANY OTHER ENTITY OR FOR ANY OTHER PURPOSE

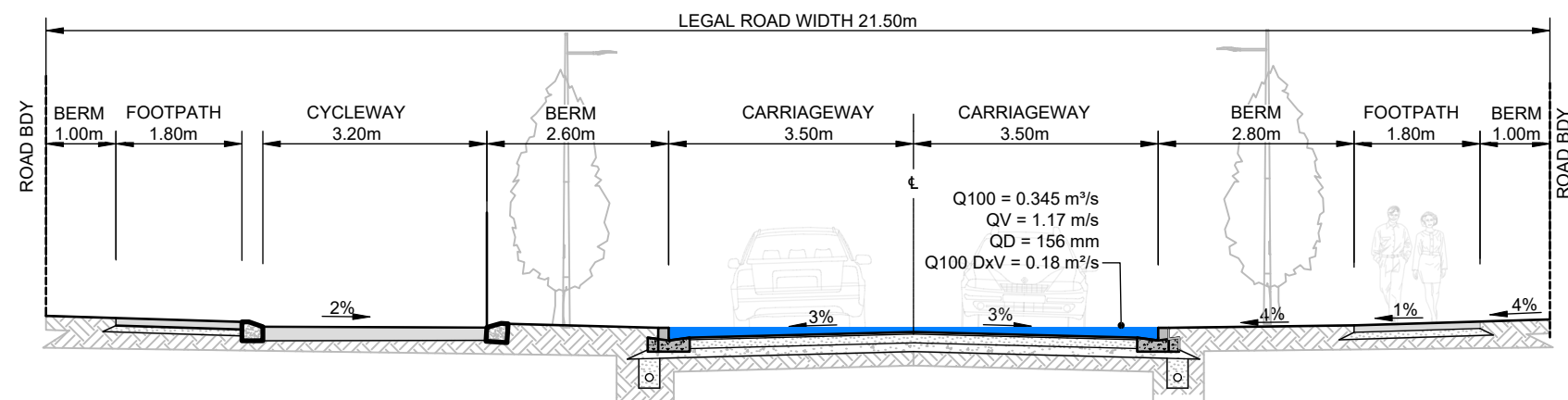
C:\12DS\DATA\MCKFS01\3725-2 DELMORE STAGE 2_5201\06000. ENGINEERING DESIGN\6500. DRAWINGS\4610 STG 2.DWG



13 LOCA ROAD-STAGE 2 (ROAD 21)
4610 SCALE 1:100 @A3



14 LOCA ROAD-STAGE 2 (ROAD 21)
4610 SCALE 1:100 @A3



15 COLLECTOR ROAD-STAGE 2 (ROAD 17)
4610 SCALE 1:100 @A3

STG 2 Section 13 - Q 228 l/s

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: 0.04 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 0.228 (cms)
☐ Enter Depth: 0.107 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.228	cms
Depth	0.107	m
Area of Flow	0.202	m ²
Wetted Perimeter	5.312	m
Hydraulic Radius	0.038	m
Average Velocity	1.130	m/s
Top Width (T)	5.104	m
Froude Number	1.814	
Critical Depth	0.127	m
Critical Velocity	0.720	m/s
Critical Slope	0.01104	m/m
Critical Top Width	5.996	m
Calculated Max Shear Stress	41.881	N/m ²
Calculated Avg Shear Stress	14.893	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 14 - Q 205 l/s

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: 0.11 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 0.205 (cms)
☐ Enter Depth: 0.090 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.205	cms
Depth	0.090	m
Area of Flow	0.127	m ²
Wetted Perimeter	4.165	m
Hydraulic Radius	0.030	m
Average Velocity	1.617	m/s
Top Width (T)	3.989	m
Froude Number	2.895	
Critical Depth	0.123	m
Critical Velocity	0.695	m/s
Critical Slope	0.01129	m/m
Critical Top Width	5.996	m
Calculated Max Shear Stress	97.392	N/m ²
Calculated Avg Shear Stress	32.824	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 15 - Q 345 l/s*

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: 0.023 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 0.345 (cms)
☐ Enter Depth: 0.156 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.345	cms
Depth	0.156	m
Area of Flow	0.295	m ²
Wetted Perimeter	4.881	m
Hydraulic Radius	0.060	m
Average Velocity	1.169	m/s
Top Width (T)	4.737	m
Froude Number	1.494	
Critical Depth	0.180	m
Critical Velocity	0.793	m/s
Critical Slope	0.01011	m/m
Critical Top Width	6.795	m
Calculated Max Shear Stress	35.152	N/m ²
Calculated Avg Shear Stress	13.637	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP CATCHMENT
CROSS SECTION

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:

AS SHOWN

DO NOT SCALE

DRAWING NO:

3725-2-4619

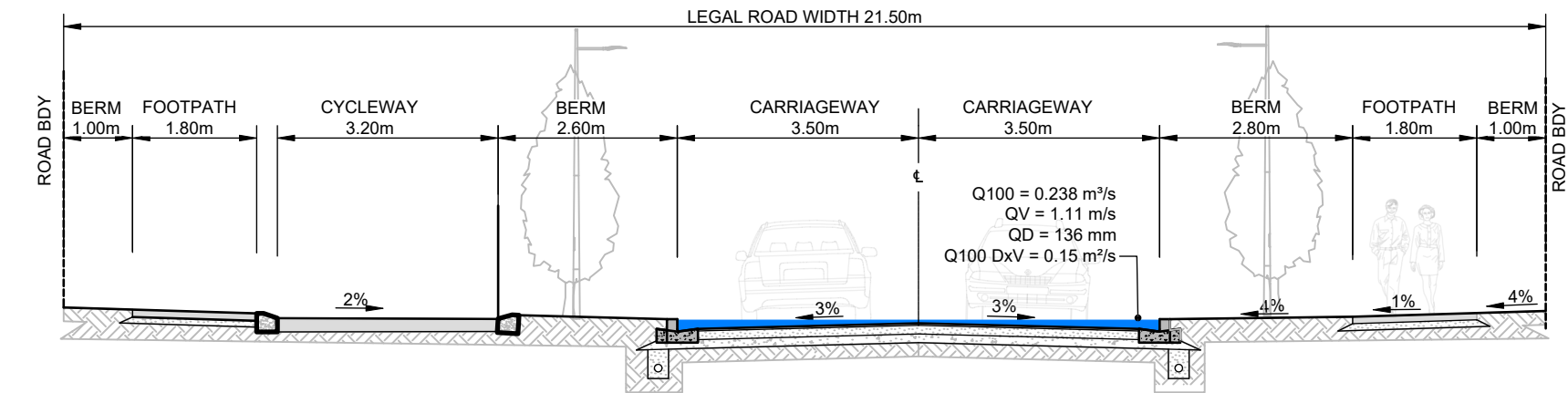
REV:

A

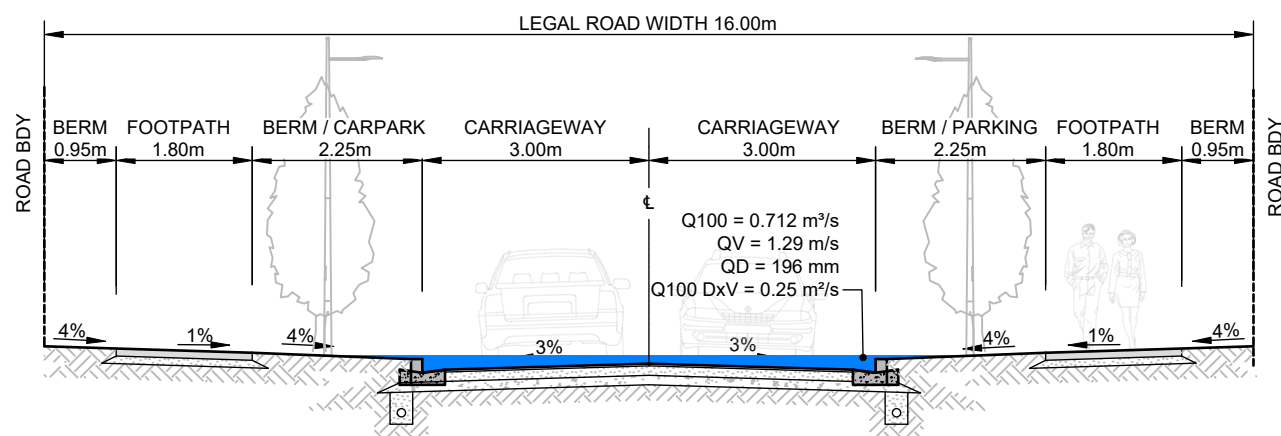


MCKENZIE & CO.

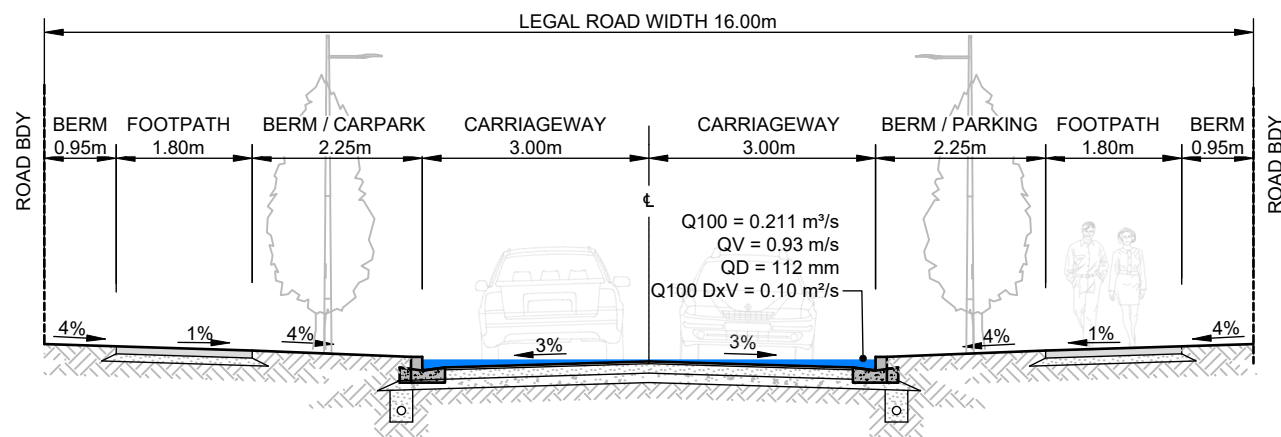
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	DK	-	-	04/12/25



16 COLLECTOR ROAD-STAGE 2 (ROAD 17)
4610 SCALE 1:100 @A3



17 LOCA ROAD-STAGE 2 (ROAD 22)
4610 SCALE 1:100 @A3



18 LOCA ROAD-STAGE 2 (ROAD 23)
4610 SCALE 1:100 @A3

STG 2 Section 16 - Q 238 l/s*

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: 0.023 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 0.238 (cms)
☐ Enter Depth: 0.136 (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	0.238	cms
Depth	0.136	m
Area of Flow	0.214	m ²
Wetted Perimeter	3.791	m
Hydraulic Radius	0.056	m
Average Velocity	1.114	m/s
Top Width (T)	3.661	m
Froude Number	1.473	
Critical Depth	0.158	m
Critical Velocity	0.782	m/s
Critical Slope	0.01030	m/m
Critical Top Width	4.891	m
Calculated Max Shear Stress	30.625	N/m ²
Calculated Avg Shear Stress	12.700	N/m ²
Composite Manning's n Equ...	Lotter...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 17 - Q 712 l/s*

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: 0.025 (m/m)
Manning's Roughness: 0.0200

☒ Enter Flow: 0.712 (cms)
☐ Enter Depth: 0.196 (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	0.712	cms
Depth	0.196	m
Area of Flow	0.552	m ²
Wetted Perimeter	8.365	m
Hydraulic Radius	0.066	m
Average Velocity	1.291	m/s
Top Width (T)	8.194	m
Froude Number	1.588	
Critical Depth	0.223	m
Critical Velocity	0.897	m/s
Critical Slope	0.00928	m/m
Critical Top Width	9.670	m
Calculated Max Shear Stress	47.996	N/m ²
Calculated Avg Shear Stress	16.162	N/m ²
Composite Manning's n Equ...	Lotter...	
Manning's Roughness	0.0200	

OK Cancel

STG 2 Section 18 - Q 211 l/s

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: 0.025 (m/m)
Manning's Roughness: 0.0200

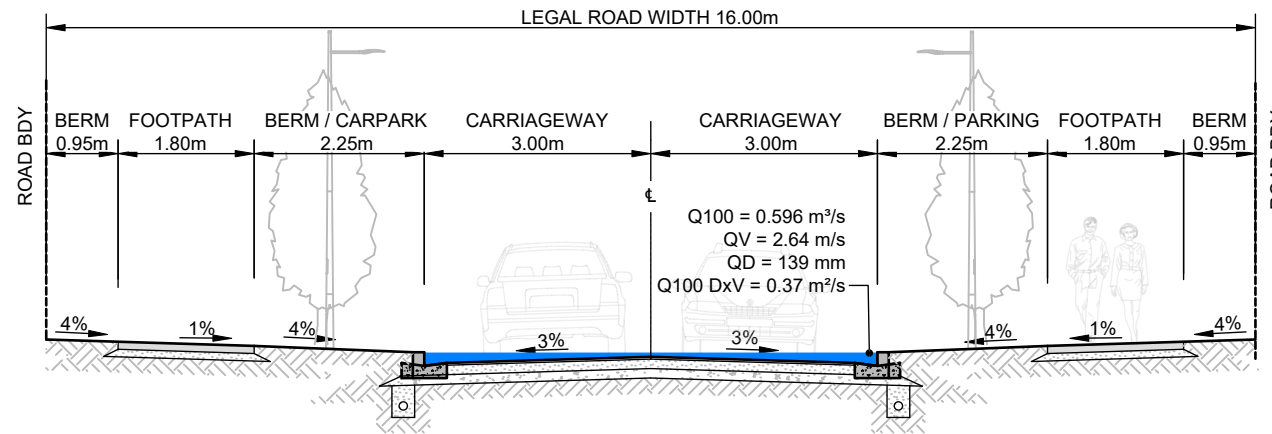
☒ Enter Flow: 0.211 (cms)
☐ Enter Depth: 0.112 (m)

Calculate

Plot... Compute Curves...

Parameter	Value	Units
Flow	0.211	cms
Depth	0.112	m
Area of Flow	0.227	m ²
Wetted Perimeter	5.648	m
Hydraulic Radius	0.040	m
Average Velocity	0.928	m/s
Top Width (T)	5.431	m
Froude Number	1.449	
Critical Depth	0.124	m
Critical Velocity	0.702	m/s
Critical Slope	0.01122	m/m
Critical Top Width	5.996	m
Calculated Max Shear Stress	27.363	N/m ²
Calculated Avg Shear Stress	9.860	N/m ²
Composite Manning's n Equ...	Lotter...	
Manning's Roughness	0.0200	

OK Cancel



19 LOCA ROAD-STAGE 2 (ROAD 24)
4610 SCALE 1:100 @A3

STG 2 Section 19 - Q 596 l/s*

Type: Cross Section Define...

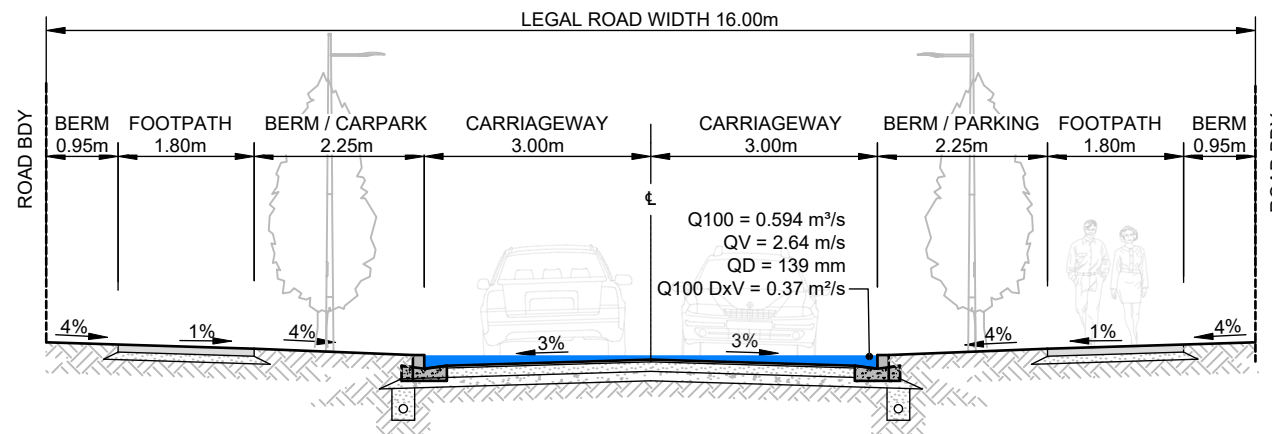
Side Slope 1 (Z1): 0.0 H: 1V
Side Slope 2 (Z2): 0.0 H: 1V
Channel Width (B): 0.0 (m)
Pipe Diameter (D): 0.0 (m)
Longitudinal Slope: 0.125 (m/m)
Manning's Roughness: 0.0200

Enter Flow: 0.596 (cms)
Enter Depth: 0.139 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.596	cms
Depth	0.139	m
Area of Flow	0.225	m ²
Wetted Perimeter	3.896	m
Hydraulic Radius	0.058	m
Average Velocity	2.644	m/s
Top Width (T)	3.762	m
Froude Number	3.449	
Critical Depth	0.212	m
Critical Velocity	0.862	m/s
Critical Slope	0.00953	m/m
Critical Top Width	9.145	m
Calculated Max Shear Stress	170.337	N/m ²
Calculated Avg Shear Stress	70.888	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel



20 LOCA ROAD-STAGE 2 (ROAD 24)
4610 SCALE 1:100 @A3

STG 2 Section 20 - Q 594 l/s*

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: 0.125 (m/m)
Manning's Roughness: 0.0200

Enter Flow: 0.594 (cms)
Enter Depth: 0.139 (m)

Calculate Plot... Compute Curves...

Parameter	Value	Units
Flow	0.594	cms
Depth	0.139	m
Area of Flow	0.225	m ²
Wetted Perimeter	3.891	m
Hydraulic Radius	0.058	m
Average Velocity	2.642	m/s
Top Width (T)	3.757	m
Froude Number	3.448	
Critical Depth	0.212	m
Critical Velocity	0.861	m/s
Critical Slope	0.00954	m/m
Critical Top Width	9.135	m
Calculated Max Shear Stress	170.152	N/m ²
Calculated Avg Shear Stress	70.799	N/m ²
Composite Manning's n Equ...	Lotter ...	
Manning's Roughness	0.0200	

OK Cancel



VINEWAY LTD

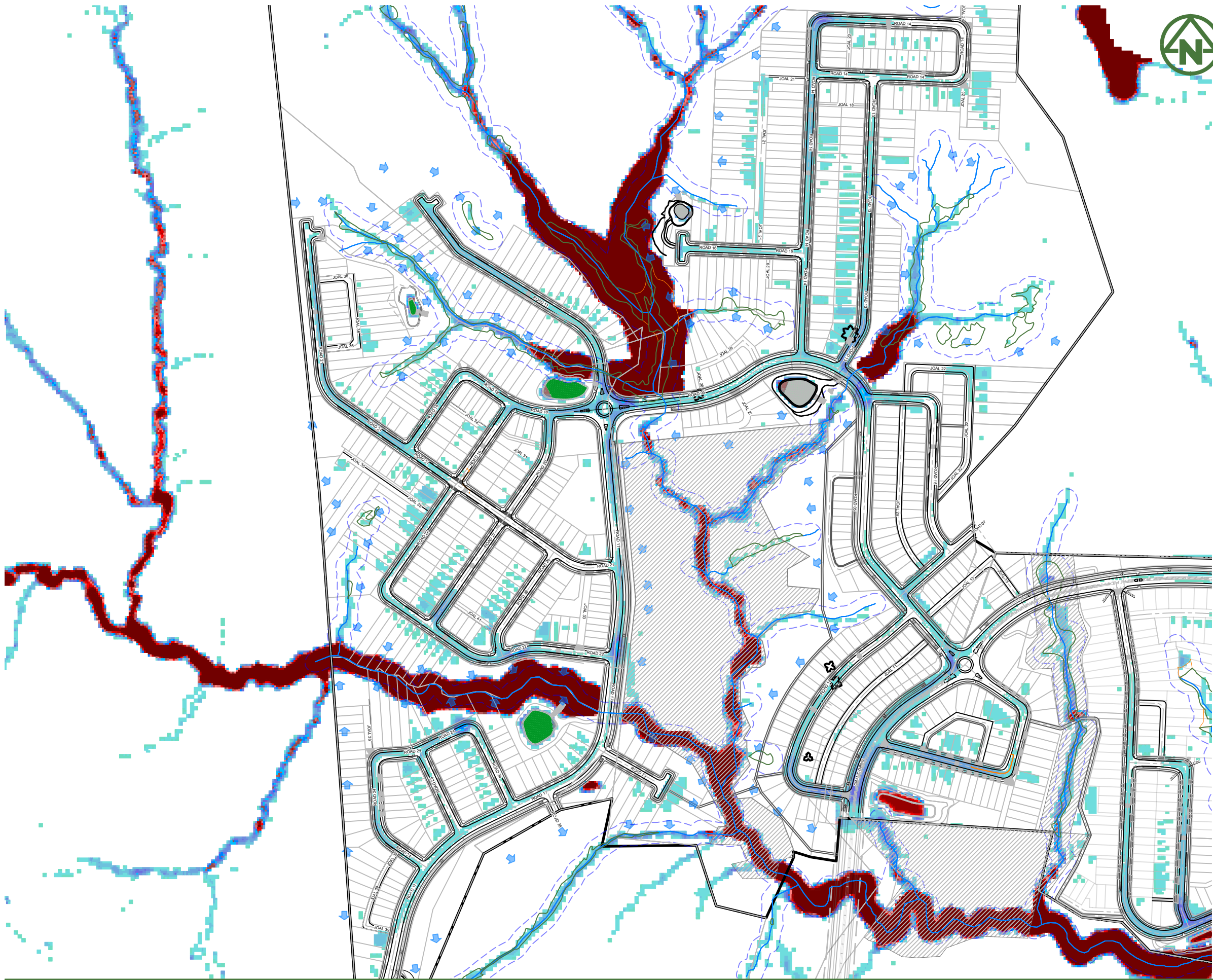
DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

STORMWATER
1% AEP CATCHMENT
CROSS SECTION

PURPOSE OF ISSUE:
FOR RESOURCE CONSENT

SCALE:
AS SHOWN
DO NOT SCALE

DRAWING NO: 3725-2-4621
REV: A



NOTES:

1. RAIN ON GRID FLOWS COMPUTED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
2. DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK	
FLOOD DEPTH 0-50mm	
FLOOD DEPTH 50-100mm	
FLOOD DEPTH 100-150mm	
FLOOD DEPTH 150-200mm	
FLOOD DEPTH 200-250mm	
FLOOD DEPTH 250-300mm	
FLOOD DEPTH 300-350mm	
FLOOD DEPTH 350-400mm	
FLOOD DEPTH 400-450mm	
FLOOD DEPTH 450-500mm	
FLOOD DEPTH 500-550mm	
FLOOD DEPTH 550-600mm	
FLOOD DEPTH 600-650mm	
FLOOD DEPTH 650-700mm	
FLOOD DEPTH 700-750mm	
FLOOD DEPTH 750-800mm	
FLOOD DEPTH 800-850mm	
FLOOD DEPTH 850-900mm	
FLOOD DEPTH 900-950mm	
FLOOD DEPTH 950-1000mm	
FLOOD DEPTH 1000mm	



VINEWAY LTD

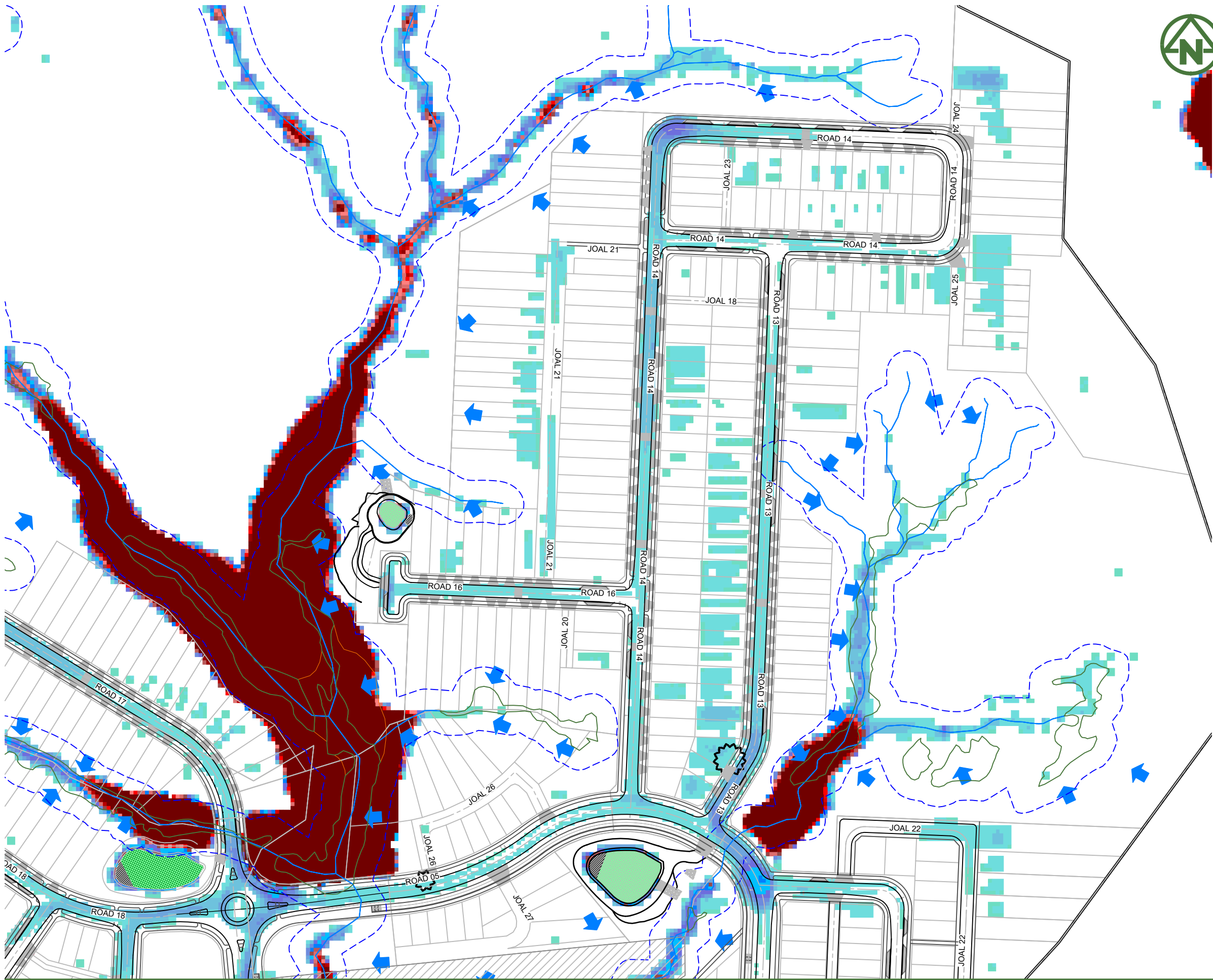
DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

STORMWATER
1% AEP OLFP
DEPTH PLAN

PURPOSE OF ISSUE:	FOR RESOURCE CONSENT
SCALE:	1:4000
DO NOT SCALE	
DRAWING NO:	3725-2-4630
REV:	A

REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	JK	LV		14/04/26

PLOT DATE 2026-04-17 15:10:17 WWW.MCKENZIEANDCO.CO.NZ THIS DRAWING IS SOLELY FOR USE BY THE CLIENT ON THIS PROJECT ONLY. NO LIABILITY IS ACCEPTED IN ITS USE BY ANY OTHER ENTITY OR FOR ANY OTHER PURPOSE



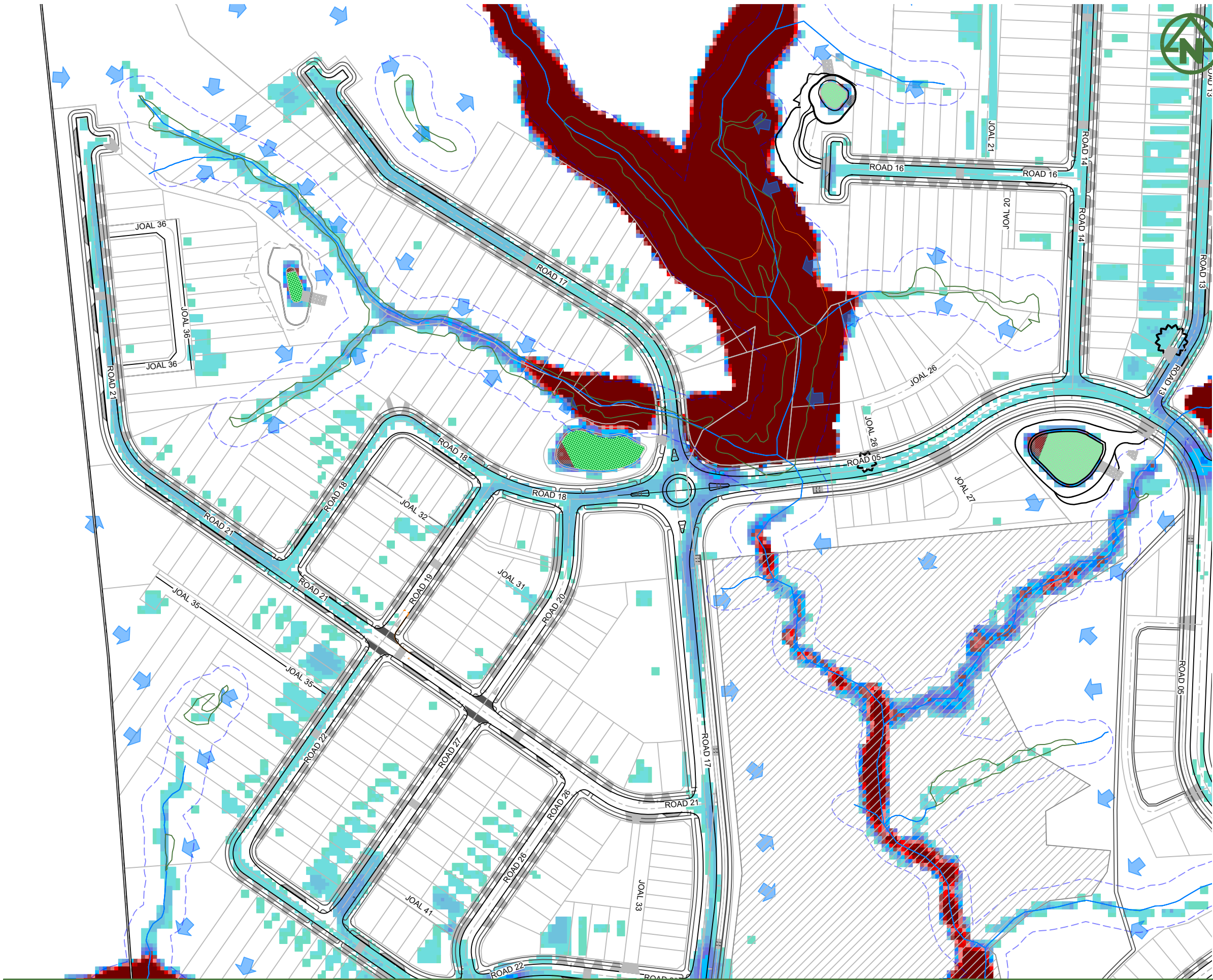
NOTES:

1. RAIN ON GRID FLOWS COMPUTED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
2. DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK

FLOOD DEPTH 0-50mm	
FLOOD DEPTH 50-100mm	
FLOOD DEPTH 100-150mm	
FLOOD DEPTH 150-200mm	
FLOOD DEPTH 200-250mm	
FLOOD DEPTH 250-300mm	
FLOOD DEPTH 300-350mm	
FLOOD DEPTH 350-400mm	
FLOOD DEPTH 400-450mm	
FLOOD DEPTH 450-500mm	
FLOOD DEPTH 500-550mm	
FLOOD DEPTH 550-600mm	
FLOOD DEPTH 600-650mm	
FLOOD DEPTH 650-700mm	
FLOOD DEPTH 700-750mm	
FLOOD DEPTH 750-800mm	
FLOOD DEPTH 800-850mm	
FLOOD DEPTH 850-900mm	
FLOOD DEPTH 900-950mm	
FLOOD DEPTH 950-1000mm	
FLOOD DEPTH 1000mm	

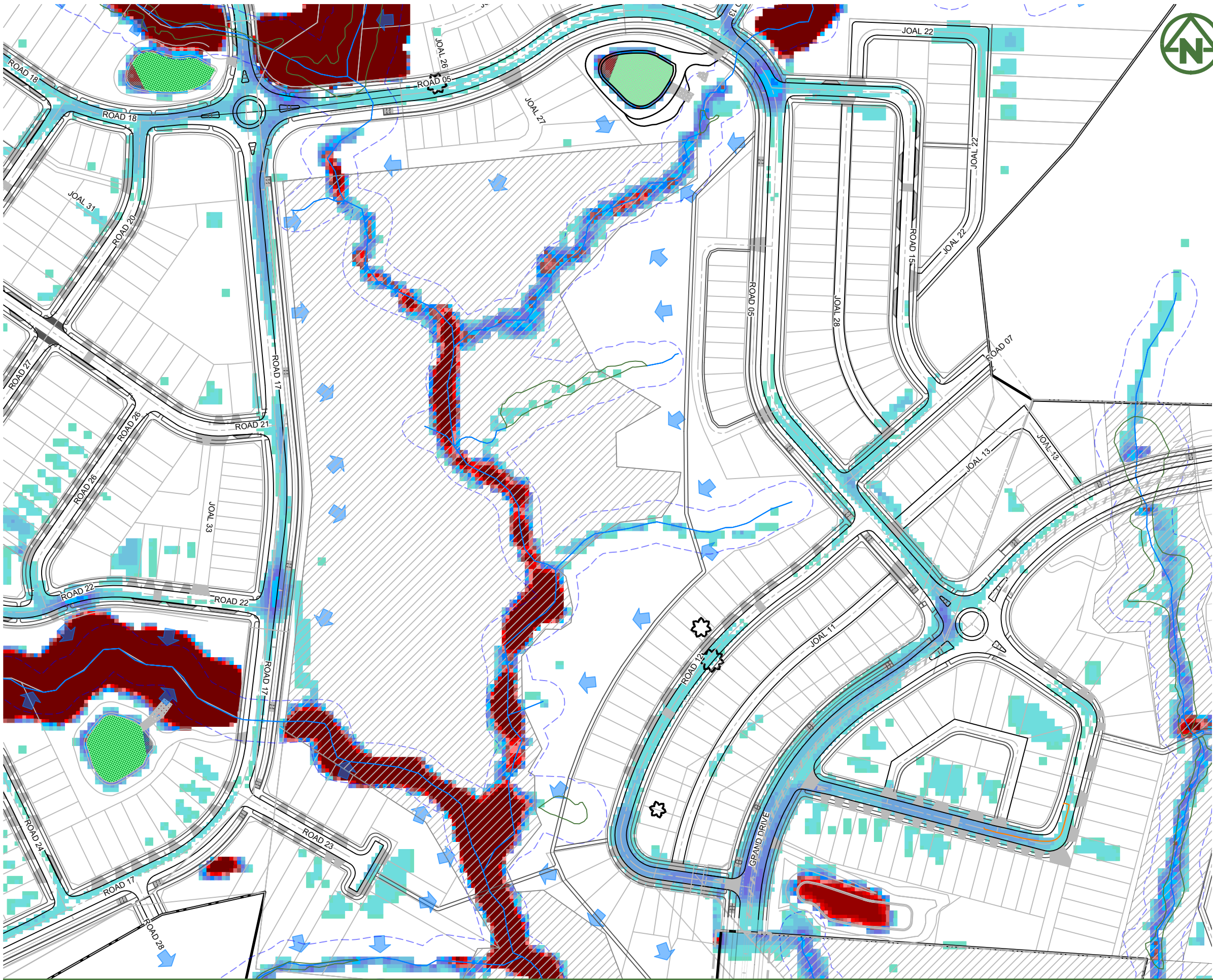


NOTES:

1. RAIN ON GRID FLOWS COMPUTED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
2. DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK	
FLOOD DEPTH 0-50mm	
FLOOD DEPTH 50-100mm	
FLOOD DEPTH 100-150mm	
FLOOD DEPTH 150-200mm	
FLOOD DEPTH 200-250mm	
FLOOD DEPTH 250-300mm	
FLOOD DEPTH 300-350mm	
FLOOD DEPTH 350-400mm	
FLOOD DEPTH 400-450mm	
FLOOD DEPTH 450-500mm	
FLOOD DEPTH 500-550mm	
FLOOD DEPTH 550-600mm	
FLOOD DEPTH 600-650mm	
FLOOD DEPTH 650-700mm	
FLOOD DEPTH 700-750mm	
FLOOD DEPTH 750-800mm	
FLOOD DEPTH 800-850mm	
FLOOD DEPTH 850-900mm	
FLOOD DEPTH 900-950mm	
FLOOD DEPTH 950-1000mm	
FLOOD DEPTH 1000mm	



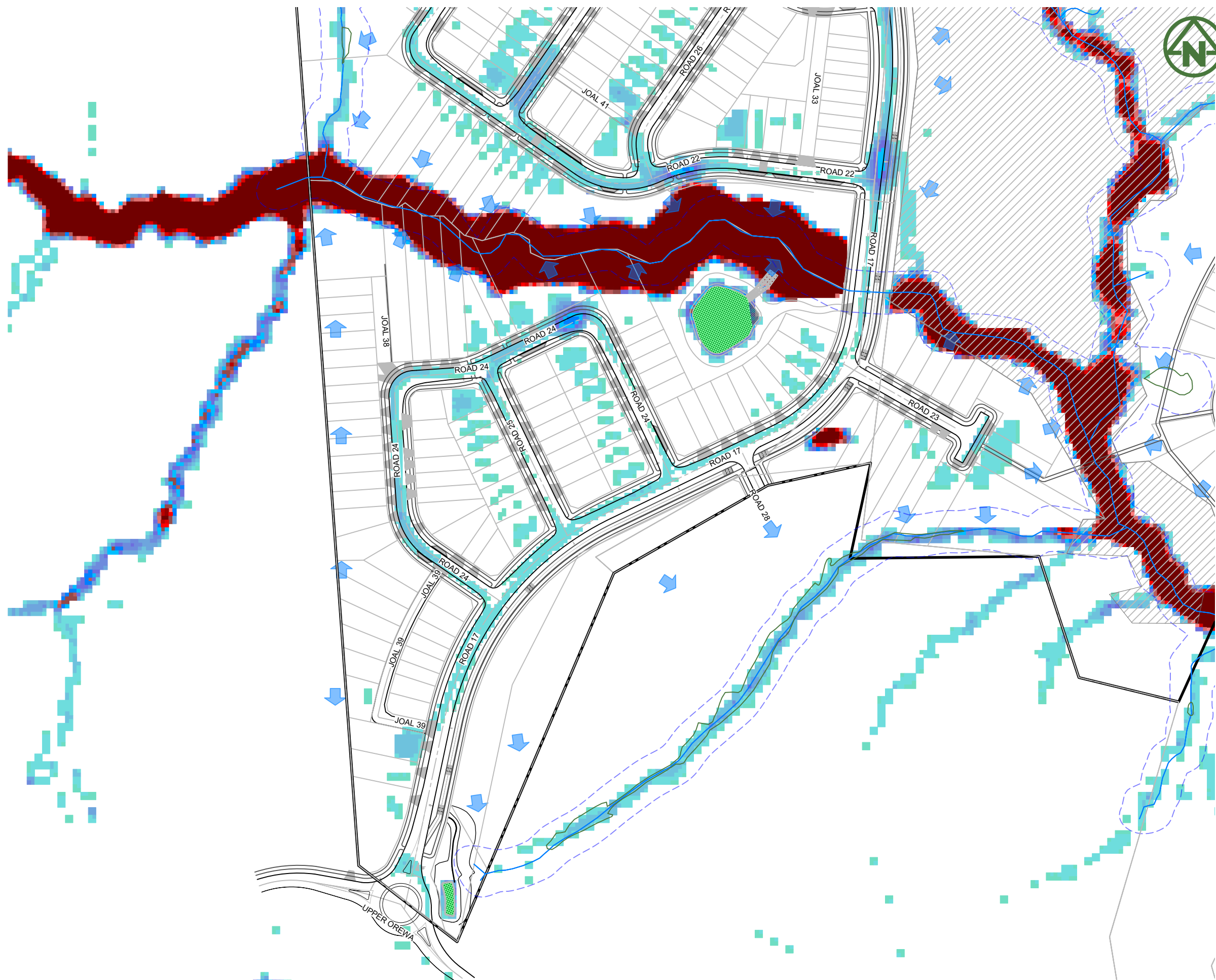
NOTES:

- RAIN ON GRID FLOWS COMPUTED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK

FLOOD DEPTH 0-50mm	
FLOOD DEPTH 50-100mm	
FLOOD DEPTH 100-150mm	
FLOOD DEPTH 150-200mm	
FLOOD DEPTH 200-250mm	
FLOOD DEPTH 250-300mm	
FLOOD DEPTH 300-350mm	
FLOOD DEPTH 350-400mm	
FLOOD DEPTH 400-450mm	
FLOOD DEPTH 450-500mm	
FLOOD DEPTH 500-550mm	
FLOOD DEPTH 550-600mm	
FLOOD DEPTH 600-650mm	
FLOOD DEPTH 650-700mm	
FLOOD DEPTH 700-750mm	
FLOOD DEPTH 750-800mm	
FLOOD DEPTH 800-850mm	
FLOOD DEPTH 850-900mm	
FLOOD DEPTH 900-950mm	
FLOOD DEPTH 950-1000mm	
FLOOD DEPTH 1000mm	

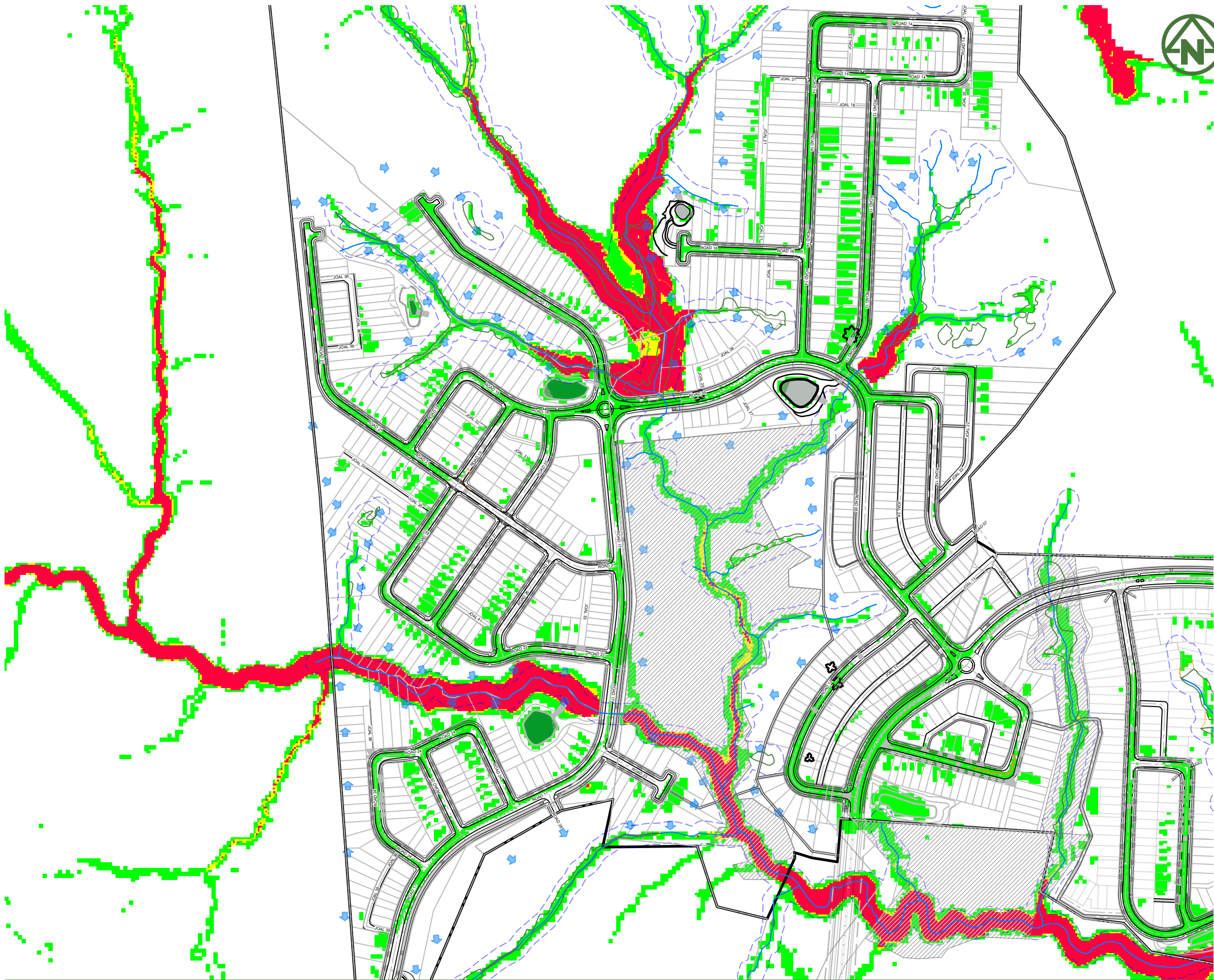


- NOTES:
- RAIN ON GRID FLOWS COMPUTED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
 - DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK

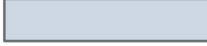
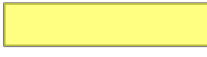
FLOOD DEPTH 0-50mm	
FLOOD DEPTH 50-100mm	
FLOOD DEPTH 100-150mm	
FLOOD DEPTH 150-200mm	
FLOOD DEPTH 200-250mm	
FLOOD DEPTH 250-300mm	
FLOOD DEPTH 300-350mm	
FLOOD DEPTH 350-400mm	
FLOOD DEPTH 400-450mm	
FLOOD DEPTH 450-500mm	
FLOOD DEPTH 500-550mm	
FLOOD DEPTH 550-600mm	
FLOOD DEPTH 600-650mm	
FLOOD DEPTH 650-700mm	
FLOOD DEPTH 700-750mm	
FLOOD DEPTH 750-800mm	
FLOOD DEPTH 800-850mm	
FLOOD DEPTH 850-900mm	
FLOOD DEPTH 900-950mm	
FLOOD DEPTH 950-1000mm	
FLOOD DEPTH 1000mm	



NOTES:

1. RAIN ON GRID FLOWS COMPUTATED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
2. DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

- EXISTING STREAM & 25m SETBACK 
- POST DEVELOPMENT FLOOD PLAIN 
- PEDESTRIAN SAFETY HAZARDS
- Less than 0.4 m²/s DxV 
- Between 0.4 to 0.6 m²/s DxV 
- More than 0.6 m²/s DxV 



MCKENZIE & CO.

CLIENT:

VINEWAY LTD

PROJECT:

DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

TITLE:

STORMWATER
1% AEP OLFP
HAZARD PLAN

PURPOSE OF ISSUE:

FOR RESOURCE CONSENT

SCALE:

1:4000

DO NOT SCALE

DRAWING NO:

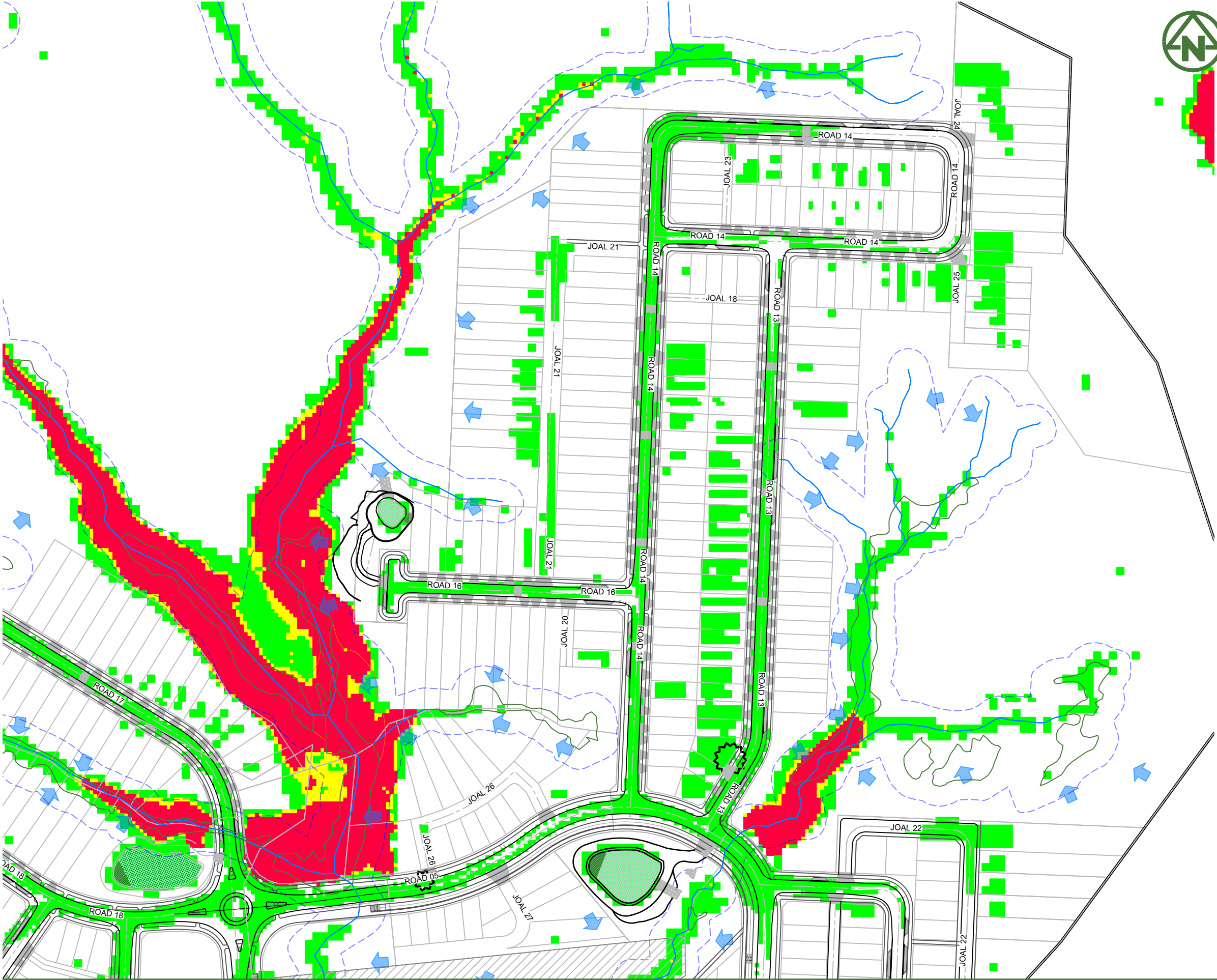
3725-2-4640

REV:

A

A FIRST ISSUE JK LV 14/04/26

REV DESCRIPTION DRN BY CHK BY APP BY DATE

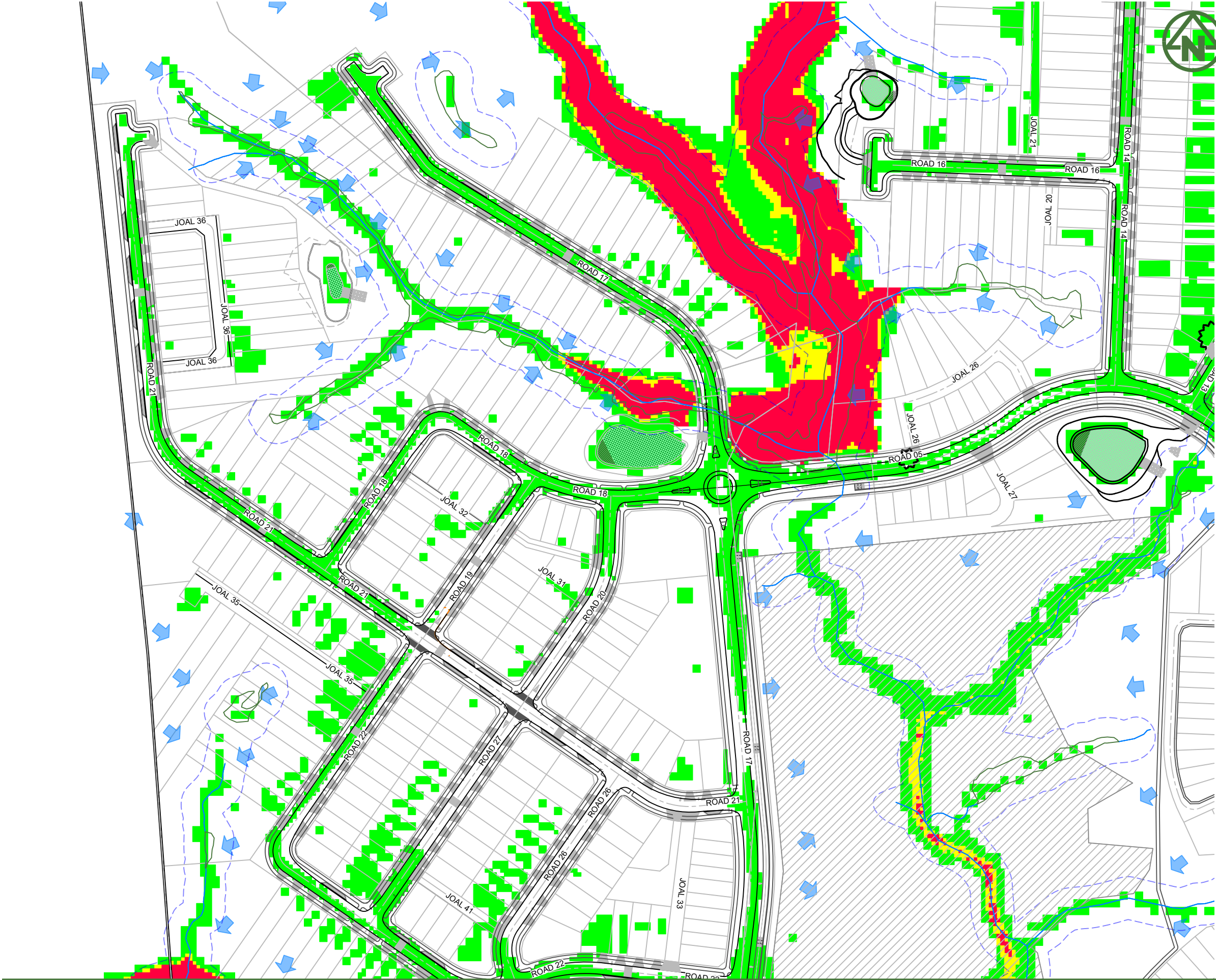


NOTES:

1. RAIN ON GRID FLOWS COMPUTATED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
2. DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK	
POST DEVELOPMENT FLOOD PLAIN	
PEDESTRIAN SAFETY HAZARDS Less than 0.4 m ² /s DxV	
Between 0.4 to 0.6 m ² /s DxV	
More than 0.6 m ² /s DxV	



NOTES:

1. RAIN ON GRID FLOWS COMPUTATED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
2. DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK	
POST DEVELOPMENT FLOOD PLAIN	
PEDESTRIAN SAFETY HAZARDS Less than 0.4 m²/s DxV	
Between 0.4 to 0.6 m²/s DxV	
More than 0.6 m²/s DxV	



MCKENZIE & CO.

CLIENT: VINEWAY LTD

PROJECT: DELMORE STAGE 2
53A, 53B & 55 RUSSELL ROAD
OREWA

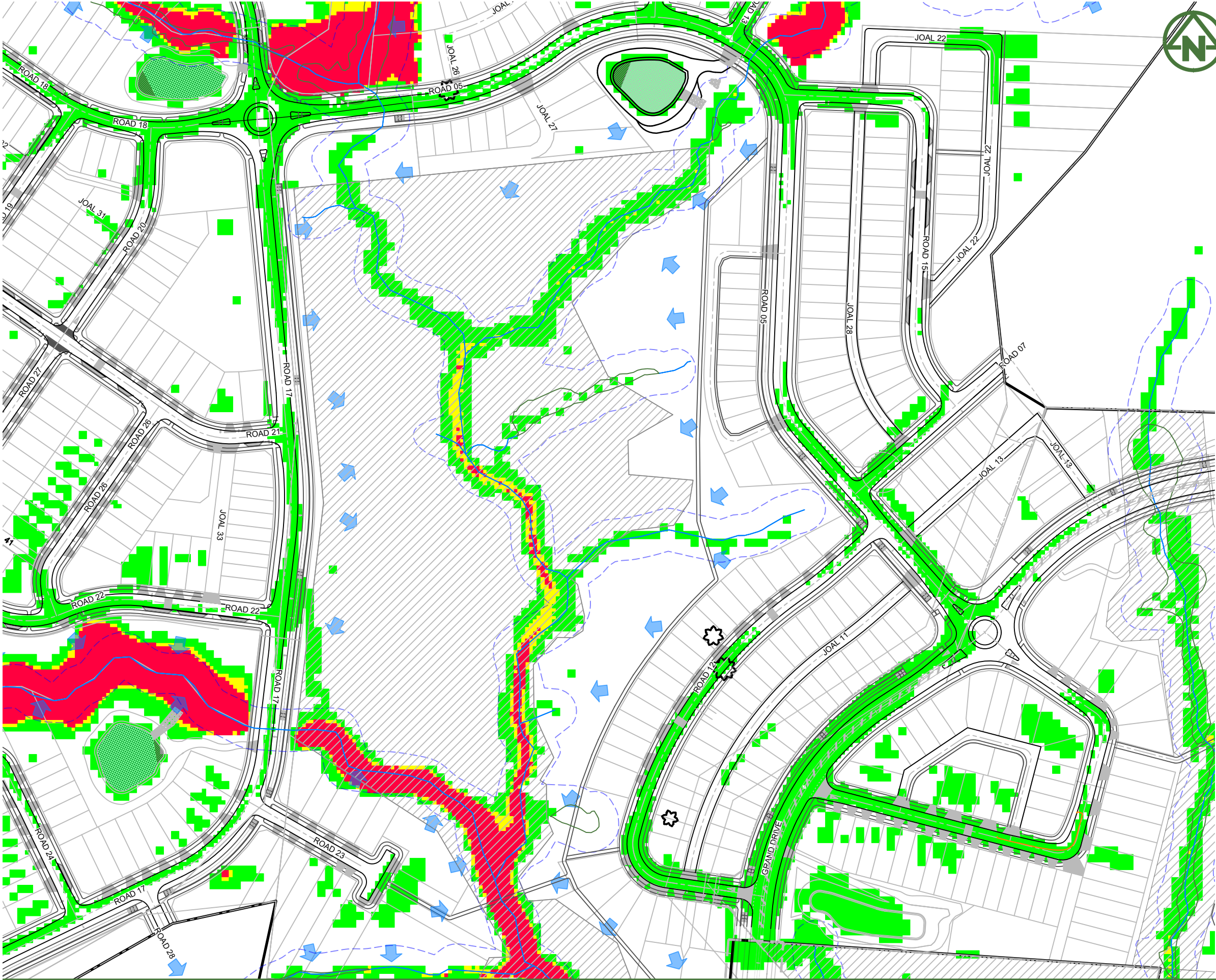
TITLE: STORMWATER
1% AEP OLFP
HAZARD PLAN

PURPOSE OF ISSUE: FOR RESOURCE CONSENT

SCALE: 1:2000
DO NOT SCALE

DRAWING NO: 3725-2-4642

REV: A



NOTES:

- RAIN ON GRID FLOWS COMPUTATED BY TUFLOW, WITH 3.8°C CLIMATE CHANGE. DESIGN RAINFALL INTENSITY = 214.9mm/hr
- DRAWINGS HAVE BEEN PREPARED TO SHOW OVERLAND FLOWS WITHIN THE ROAD RESERVE. FOR FLOWS OUTSIDE OF THE ROAD RESERVE PLEASE REFER TO FLOOD DRAWING (4500 SERIES).

LEGEND

EXISTING STREAM & 25m SETBACK	
POST DEVELOPMENT FLOOD PLAIN	
PEDESTRIAN SAFETY HAZARDS Less than 0.4 m²/s DxV	
Between 0.4 to 0.6 m²/s DxV	
More than 0.6 m²/s DxV	

