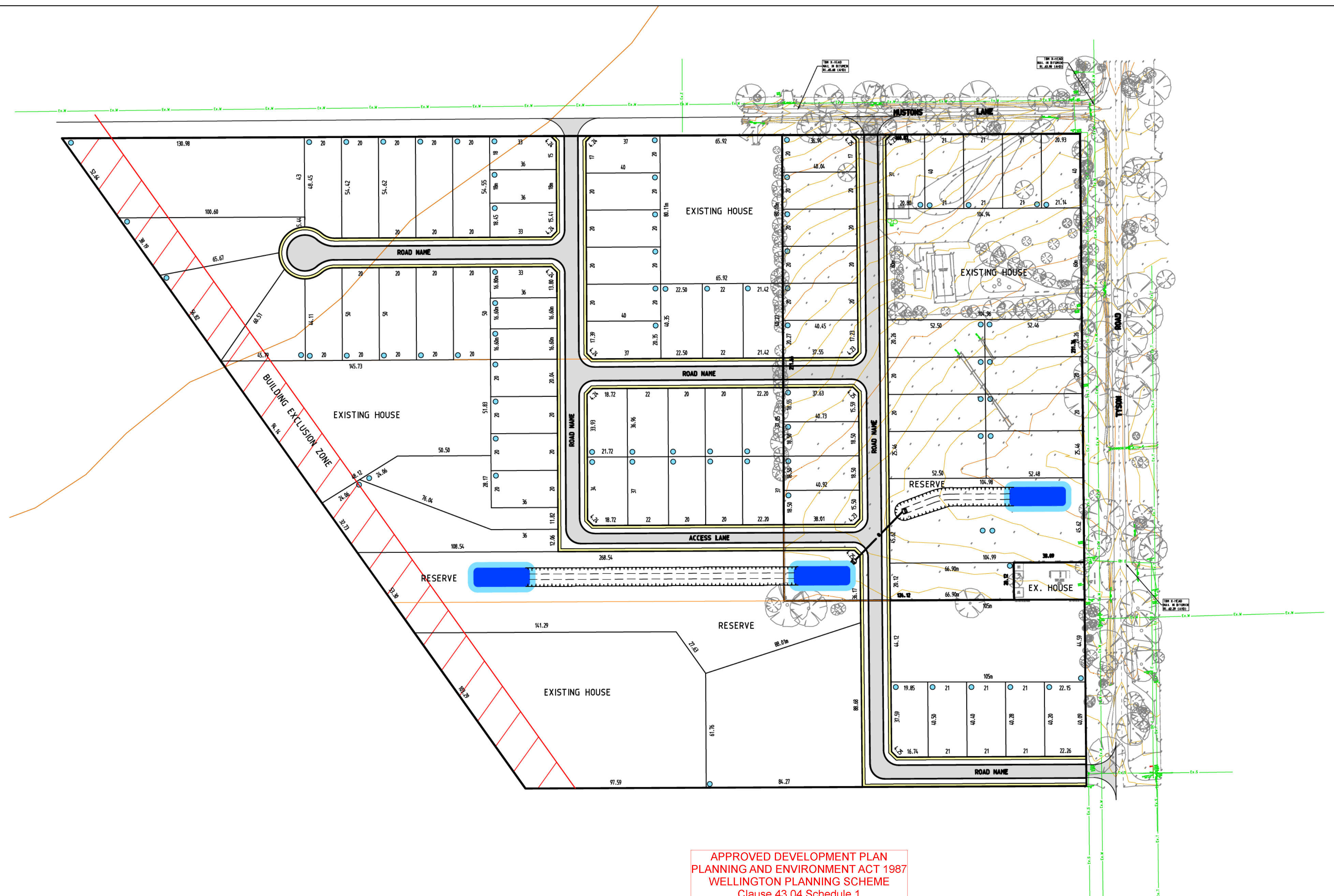




APPROVED DEVELOPMENT PLAN
PLANNING AND ENVIRONMENT ACT 1987
WELLINGTON PLANNING SCHEME
Clause 43.04 Schedule 1

DP NAME: Licola Road East

DATE: 2 August 2024
SIGNED: Miriam Turner
OFFICER TITLE: Strategic Planner

(Page: 1 of 18)

of this drawing only for the purpose described by the status stamp shown below. This drawing should be read in conjunction with all relevant contracts, specifications, reports & drawings.

	Initials	Date
Designed	YAH	AUG 2023
Drafted	YAH	AUG 2023
Checked	CC	25/08/23
Authorised		
Approved by Council		

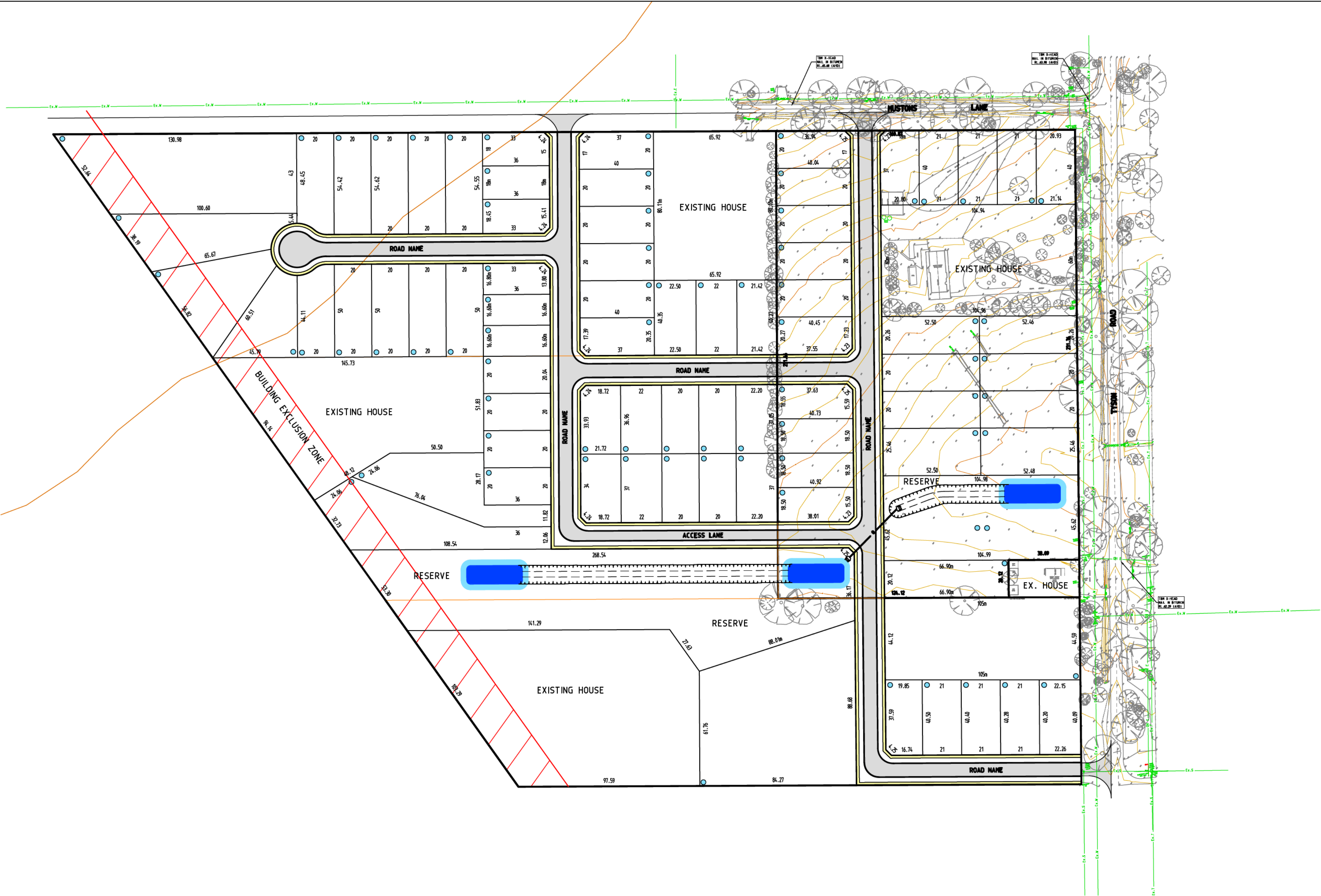
No.	Revision Description	Design	Authorised Date

Civil Engineering
Land Surveying
Landscape Architecture
Project Management
Town Planning
Urban Design

Metro
Regional
Mail

OVERALL FUNCTIONAL PLAN

5



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SUBJECT TO APPROVAL

No.	Revision Description	Design	Authorised	Date

Land Development Consultants

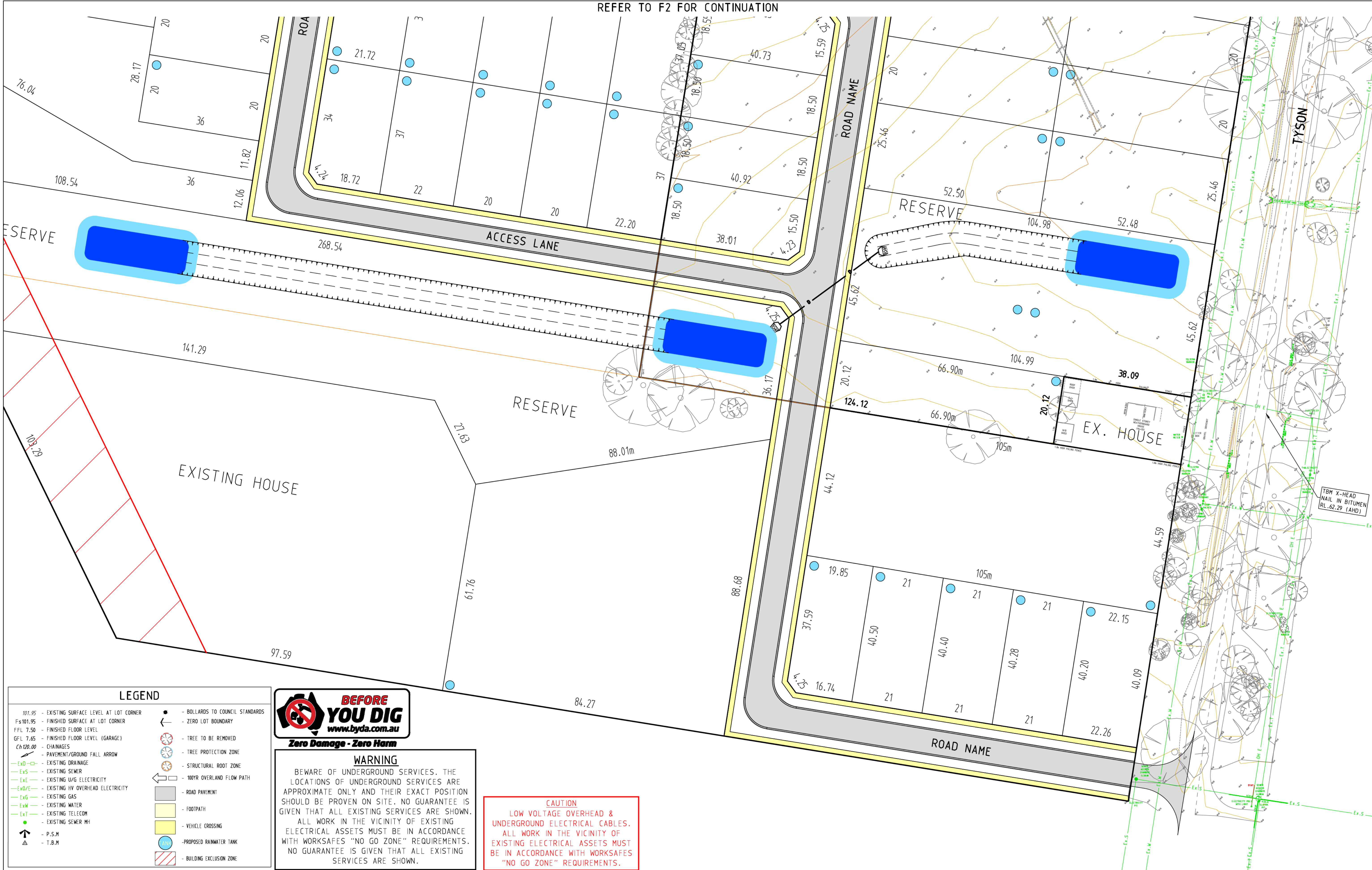
Metro
Regional
Mail

MULTI-LOT DEVELOPMENT
OVERALL FUNCTIONAL PLAN

Tyson Road, Heyfield
Wellington City Council

27317E 00 F5

REFER TO F2 FOR CONTINUATION



LEGEND

101.95	- EXISTING SURFACE LEVEL AT LOT CORNER	•	- BOLLARDS TO COUNCIL STANDARDS
FS101.95	- FINISHED SURFACE AT LOT CORNER	←	- ZERO LOT BOUNDARY
FFL 7.50	- FINISHED FLOOR LEVEL	⊗	- TREE TO BE REMOVED
GFL 7.65	- FINISHED FLOOR LEVEL (GARAGE)	⊗	- TREE PROTECTION ZONE
CH 120.00	- CHAINAGES	⊗	- STRUCTURAL ROOT ZONE
↗	- PAVEMENT/GROUND FALL ARROW	⊗	- 100YR OVERLAND FLOW PATH
ExD	- EXISTING DRAINAGE	⊗	- ROAD PAVEMENT
ExS	- EXISTING SEWER	⊗	- FOOTPATH
ExE	- EXISTING U/G ELECTRICITY	⊗	- VEHICLE CROSSING
ExO/E	- EXISTING HV OVERHEAD ELECTRICITY	⊗	- PROPOSED RAINWATER TANK
ExG	- EXISTING GAS	⊗	- BUILDING EXCLUSION ZONE
ExW	- EXISTING WATER		
ExT	- EXISTING TELECOM		
▲	- EXISTING SEWER MH		
▲	- P.S.M		
▲	- T.B.M		



WARNING

BEWARE OF UNDERGROUND SERVICES. THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

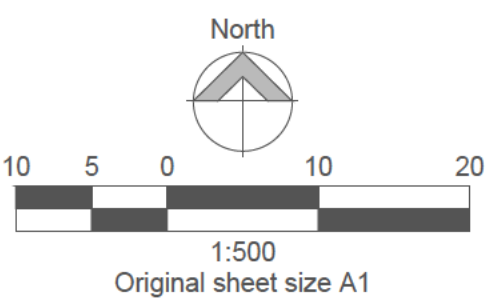
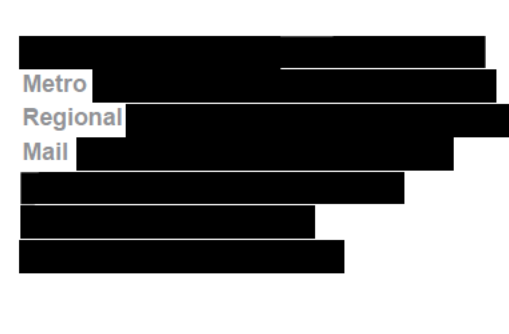
ALL WORK IN THE VICINITY OF EXISTING ELECTRICAL ASSETS MUST BE IN ACCORDANCE WITH WORKSAFES "NO GO ZONE" REQUIREMENTS. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

CAUTION

LOW VOLTAGE OVERHEAD & UNDERGROUND ELECTRICAL CABLES. ALL WORK IN THE VICINITY OF EXISTING ELECTRICAL ASSETS MUST BE IN ACCORDANCE WITH WORKSAFES "NO GO ZONE" REQUIREMENTS.

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Drafted	YAH	AUG 2023	
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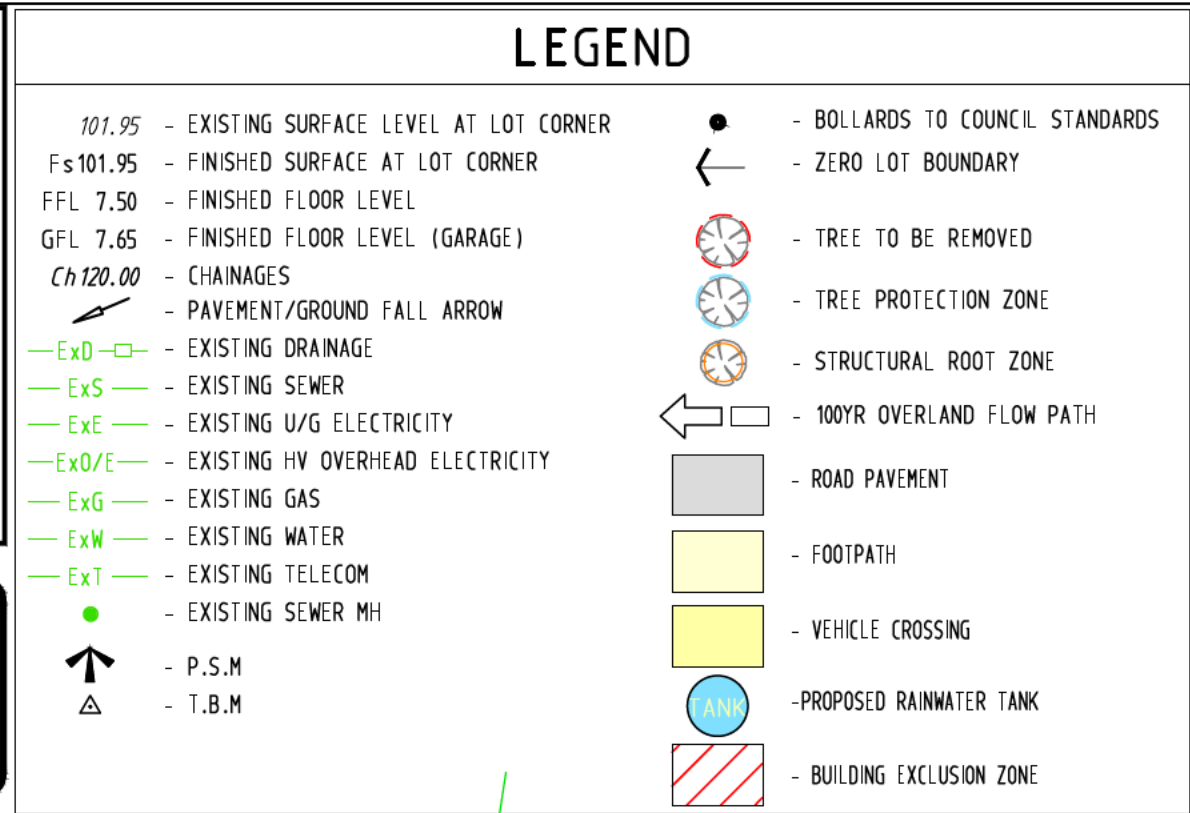
No.	Revision Description	Design	Authorised	Date



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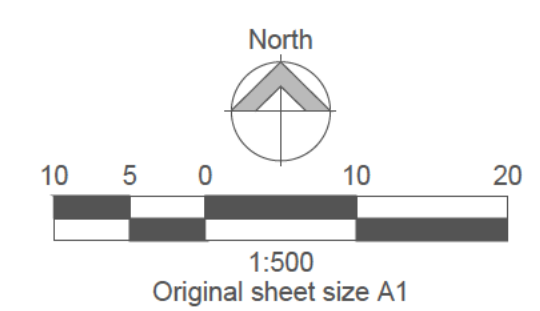
ALL WORK IN THE VICINITY OF EXISTING ELECTRICAL ASSETS MUST BE IN ACCORDANCE WITH WORKSAFES "NO GO ZONE" REQUIREMENTS. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.



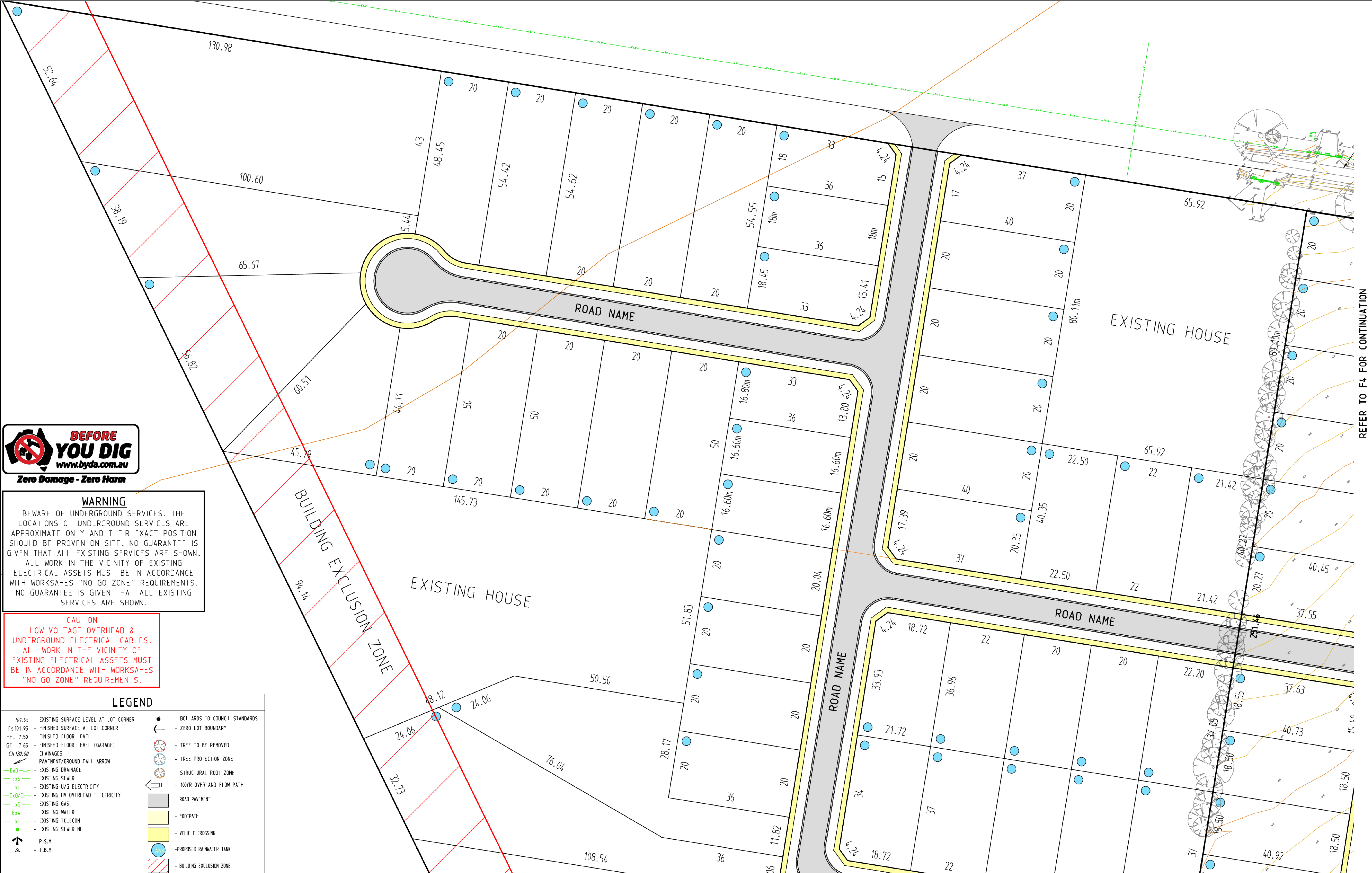
_____ authorize the use of this drawing only for the purpose described by the status stamp shown below. This drawing should be read in conjunction with all relevant contracts, specifications, reports & drawings.

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Designed	YAH	AUG 2023
Drafted	YAH	AUG 2023
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No.	Revision Description	Design	Authorised	Date



=2



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LEGEND	
101.95 - EXISTING SURFACE LEVEL AT LOT CORNER	• - BOLLARDS TO COUNCIL STANDARDS
Fs101.95 - FINISHED SURFACE AT LOT CORNER	← - ZERO LOT BOUNDARY
FFL 7.50 - FINISHED FLOOR LEVEL	⊗ - TREE TO BE REMOVED
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ExG - EXISTING GAS	▒ - BUILDING EXCLUSION ZONE
ExW - EXISTING WATER	
ExT - EXISTING TELECOM	
• - EXISTING SEWER MH	
↑ - P.S.M	
△ - T.B.M	

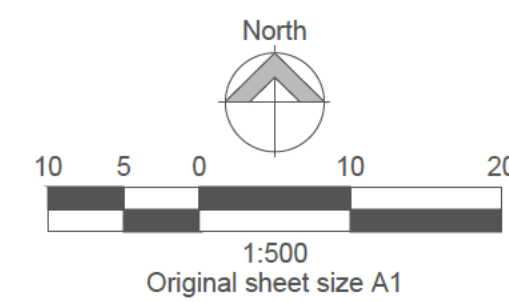
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Designed	YAH AUG 2023
Drafted	YAH AUG 2023
Checked	CC 25/08/23
Authorised	
Approved by Council	

No.	Revision Description	Design	Authorised	Date

Land Development Consultants



Metro Regional Mail



LEGEND

	- ROAD RESERVE AREAS
	- RESERVE AREAS
	- EXISTING HOUSE AREAS
	- LOT AREAS
	- EXTERNAL CATCHMENTS

This site plan illustrates a property divided into several distinct zones, each color-coded and patterned for identification. The zones and their respective areas are as follows:

- Orange Hatched Zones:**
 - Top-left: 24456m²
 - Top-right: 5281m²
 - Middle-right: 12302m²
 - Bottom-right: 8425m²
 - Far-right: 3263m²
 - Bottom-right: 3446m²
 - Bottom-right: 8887m²
- Blue Hatched Zones:**
 - Middle-left: 7338m²
 - Middle-right: 17957m²
 - Bottom-left: 10545m²
 - Bottom-right: 6319m²
- Red Hatched Zones:**
 - Top-right: 4204m²
 - Middle-right: 6297m²
 - Bottom-right: 12086m²
- Purple Hatched Zone:**
 - Far-left: 7725m²
- Other Features:**
 - A small blue hatched area at the bottom right contains a building footprint and is labeled 767m².
 - Two white arrows indicate specific directions or flows within the orange hatched areas.
 - The plan includes a north arrow, a scale bar, and a legend.
 - Surrounding features include a road labeled 'HUSTONS LANE' and a 'ROAD' on the right side.

	Approved by Council		

No.	Revision Description	Design	Authorised	Date

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

Sheet 1 of 2

LEGEND

	- ROAD RESERVE AREAS
	- RESERVE AREAS
	- EXISTING HOUSE AREAS
	- LOT AREAS
	- EXTERNAL CATCHMENTS

MUSTONS LANE

67744m²

NO INCLUDED IN CATCHMENT

24456m²

7338m²

7725m²

$$67744 \text{ m}^2$$

24456m²

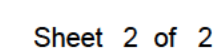
7338m²

 7725 m^2

TO APPROVAL

No.	Revision Description	Design	Authorised	Date

[REDACTED] ACN [REDACTED]
Metro [REDACTED]
Regional [REDACTED]
Mail [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]



Q₅ Overland Flow Calculations

Project Information			
Job Description	Heyfield Development		
MM Reference	27317		
Responsible Authority	Wellington Shire Council		
Authority Reference			
Designer			
IFD Data Issued Date**			
Revision		Date:	04.04.23

Coefficient Parameters (C)	
Region:	Hume & Whittlesea
f	
C5	0.7
C10	
C100	0.9

Calculations													
SECTION	Chainage	Area	Area	Accumalitive Area	Coefficient Runoff	Effective Area (A _e)	Total Effective Area	Length of Catchment	Time to get to Catchment	Time of Concentrat ion (T _c)*	Intensity**	Q ₅ (OVERLAND)	Q ₅ (OVERLAND)
(X-X)	CH/TPCH	(m2)	(ha)	(ha)	(C)	(ha)	(ha)	(m)	(min)	(min)	(mm/hr)	(m ³ /s)	(L/s)
	--	217694	21.77	21.77	0.7	15.24	15.24	869	14.48	20.48	50.99	2.16	2158

	Annual Exceedance Probability (AEP)						
Duration	63.20%	50%#	20%*	10%	5%	2%	1%
1 min	84.8	99.7	150	189	229	288	337
2 min	71.8	83.4	123	154	187	237	280
3 min	64.7	75.3	112	140	170	214	253
4 min	59.4	69.4	104	129	157	198	233
5 min	55.1	64.5	96.7	121	147	185	217
10 min	41.3	48.7	73.9	92.7	113	141	165
15 min	33.7	39.8	60.5	75.9	92.3	116	135
20 min	28.8	34	51.6	64.7	78.7	98.7	115
25 min	25.3	29.8	45.2	56.7	68.9	86.5	101
30 min	22.7	26.7	40.4	50.6	61.5	77.3	90.4
45 min	17.7	20.8	31.1	38.9	47.3	59.4	69.6
1 hour	14.8	17.3	25.7	32.1	38.9	48.9	57.4
1.5 hour	11.5	13.3	19.6	24.3	29.5	37	43.4
2 hour	9.59	11.1	16.1	20	24.2	30.3	35.5
3 hour	7.47	8.57	12.4	15.2	18.4	22.9	26.8
4.5 hour	5.85	6.68	9.53	11.7	14	17.4	20.3
6 hour	4.93	5.61	7.97	9.75	11.6	14.4	16.7
9 hour	3.88	4.42	6.24	7.59	9.02	11.1	12.7
12 hour	3.27	3.73	5.25	6.37	7.54	9.19	10.5
18 hour	2.57	2.93	4.12	4.98	5.86	7.08	8.06
24 hour	2.15	2.46	3.46	4.17	4.88	5.87	6.65
30 hour	1.86	2.13	3.01	3.61	4.22	5.05	5.71
36 hour	1.65	1.89	2.67	3.2	3.74	4.46	5.03
48 hour	1.35	1.55	2.19	2.63	3.06	3.64	4.09
72 hour	0.995	1.15	1.62	1.94	2.25	2.67	2.99
96 hour	0.787	0.908	1.28	1.53	1.77	2.1	2.35
120 hour	0.649	0.747	1.05	1.26	1.46	1.72	1.93

144 hour	0.551	0.631	0.886	1.06	1.23	1.45	1.62
168 hour	0.476	0.543	0.761	0.909	1.05	1.25	1.39

Q₁₀₀ Overland Flow Calculations

Project Information			
Job Description	Heyfield Development		
MM Reference	27317		
Responsible Authority	Wellington Shire Council		
Authority Reference			
Designer			
IFD Data Issued Date**			
Revision		Date:	04.04.23

Coefficient Parameters (C)	
Region:	
f	
C5	0.7
C10	
C100	0.9

Calculations																Overland Flow Summary
SECTION	Chainage	Area	Area	Accumalitive Area	Coefficient Runoff	Effective Area (A _e)	Total Effective Area	Length of Catchment	Time to get to Catchment	Time of Concentration (T _c)*	Intensity**	Q ₁₀₀ (OVERLAND)	Q ₁₀₀ (OVERLAND)	Q ₅ (OVERLAND)	Q _{EXCESS} (GAP FLOW) (Q100-Q5)	Notes
(X-X)	CH/TPCH	(m2)	(ha)	(ha)	(C)	(ha)	(ha)	(m)	(min)	(min)	(mm/hr)	(m³/s)	(L/s)	(L/s)	(L/s)	--
	--	217694	21.77	21.77	0.9	19.59	19.59	869	14.48	20.48	113.66	6.19	6186	2158	4027	

	Annual Exceedance Probability (AEP)							
Duration	63.20%	50%#	20%*	10%	5%	2%	1%	
1 min	84.8	99.7	150.0	189.0	229.0	288.0	337.0	
2 min	71.8	83.4	123.0	154.0	187.0	237.0	280.0	
3 min	64.7	75.3	112.0	140.0	170.0	214.0	253.0	
4 min	59.4	69.4	104.0	129.0	157.0	198.0	233.0	
5 min	55.1	64.5	96.7	121.0	147.0	185.0	217.0	
10 min	41.3	48.7	73.9	92.7	113.0	141.0	165.0	
15 min	33.7	39.8	60.5	75.9	92.3	116.0	135.0	
20 min	28.8	34.0	51.6	64.7	78.7	98.7	115.0	
25 min	25.3	29.8	45.2	56.7	68.9	86.5	101.0	
30 min	22.7	26.7	40.4	50.6	61.5	77.3	90.4	
45 min	17.7	20.8	31.1	38.9	47.3	59.4	69.6	
1 hour	14.8	17.3	25.7	32.1	38.9	48.9	57.4	
1.5 hour	11.5	13.3	19.6	24.3	29.5	37.0	43.4	
2 hour	9.6	11.1	16.1	20.0	24.2	30.3	35.5	
3 hour	7.5	8.6	12.4	15.2	18.4	22.9	26.8	
4.5 hour	5.9	6.7	9.5	11.7	14.0	17.4	20.3	
6 hour	4.9	5.6	8.0	9.8	11.6	14.4	16.7	
9 hour	3.9	4.4	6.2	7.6	9.0	11.1	12.7	
12 hour	3.3	3.7	5.3	6.4	7.5	9.2	10.5	
18 hour	2.6	2.9	4.1	5.0	5.9	7.1	8.1	
24 hour	2.2	2.5	3.5	4.2	4.9	5.9	6.7	
30 hour	1.9	2.1	3.0	3.6	4.2	5.1	5.7	
36 hour	1.7	1.9	2.7	3.2	3.7	4.5	5.0	
48 hour	1.4	1.6	2.2	2.6	3.1	3.6	4.1	
72 hour	1.0	1.2	1.6	1.9	2.3	2.7	3.0	
96 hour	0.8	0.9	1.3	1.5	1.8	2.1	2.4	
120 hour	0.6	0.7	1.1	1.3	1.5	1.7	1.9	
144 hour	0.6	0.6	0.9	1.1	1.2	1.5	1.6	
168 hour	0.5	0.5	0.8	0.9	1.1	1.3	1.4	

Computations

Client: [REDACTED]

Project: Heyfield Development Plan

Subject: WSUD - INPUTS

Designer: [REDACTED]

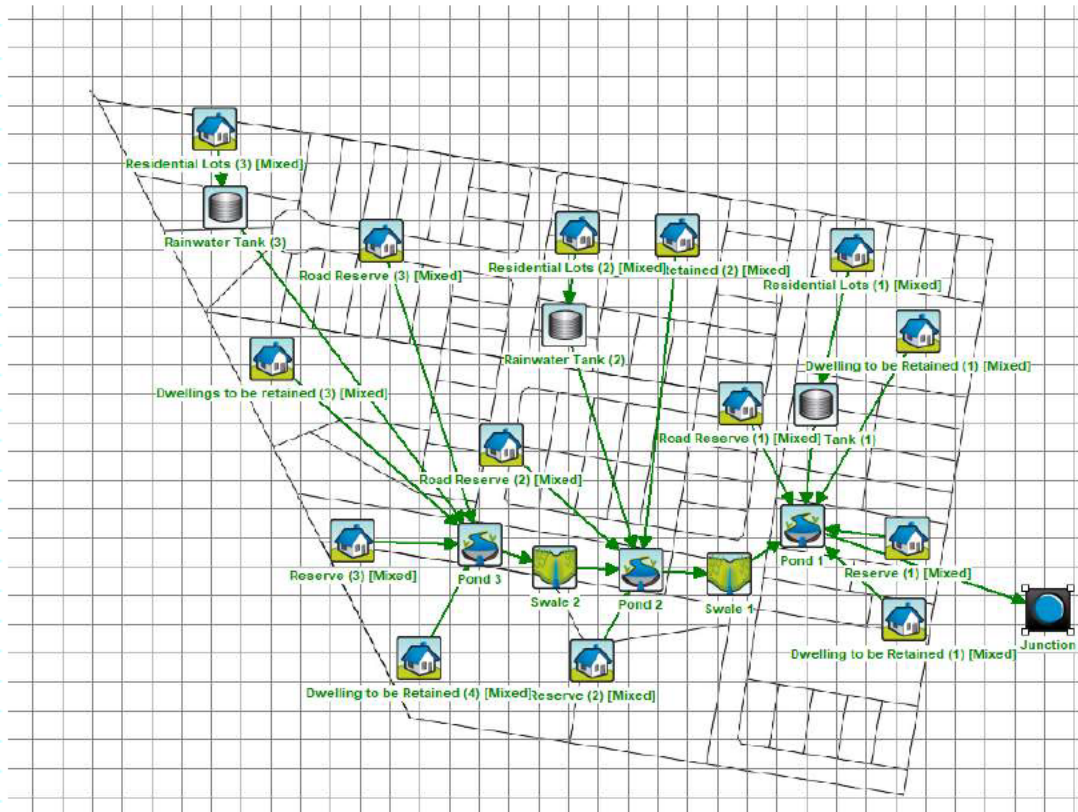
Checker: CC

Date: Oct-2023

Page No: 1 of 4

Reference No: 27317

Schematic Model:



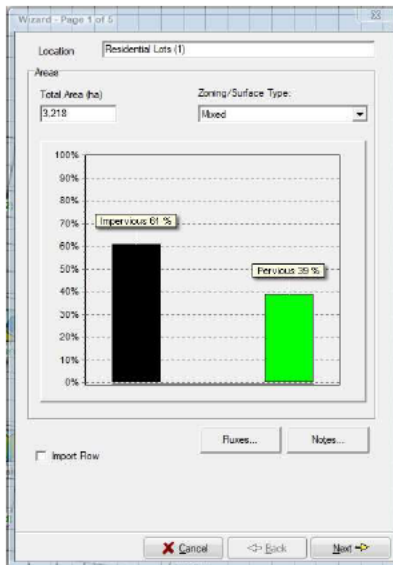
Computations

Client: [REDACTED]
Project: Heyfield Development Plan
Subject: **WSUD SOURCE NODES**
Designer: [REDACTED] Checker CC

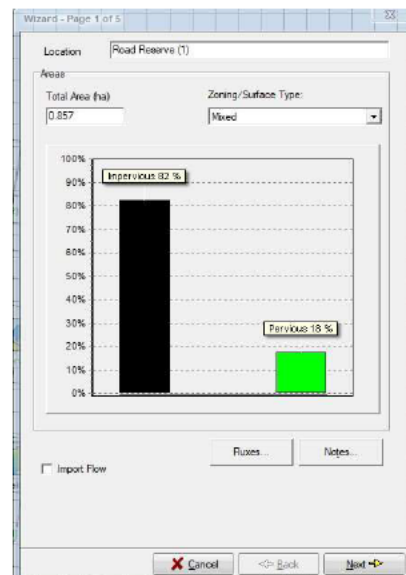
Date: Oct-2023
Page No: 2 of 4
Reference No: 27317

Source Nodes

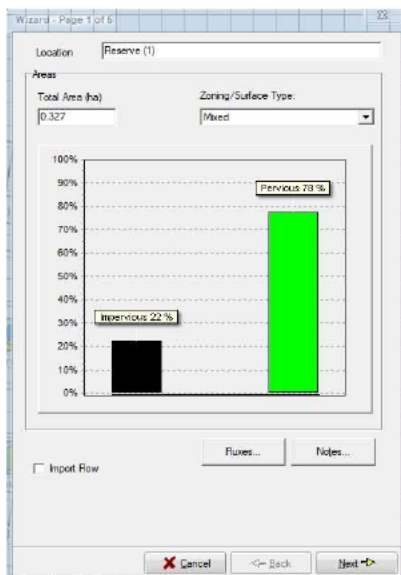
Example Lot Areas



Example Road Areas



Example Reserve Areas



Computations

Client: [REDACTED]
Project: Heyfield Development Plan
Subject: **WSUD TREATMENT NODES**
Designer: [REDACTED] Checker CC

Date: Oct-2023
Page No: 3 of 4
Reference No: 27317

Treatment Nodes

Example Swale

Properties of Swale 1

Location: Swale 1

Inlet Properties

Low Flow By-Pass (cubic metres per sec) 0.000

Storage Properties

Length (metres)	66.0
Bed Slope (%)	6.00
Base Width (metres)	2.0
Top Width (metres)	4.4
Depth (metres)	0.75
Vegetation Height (metres)	0.100
Exfiltration Rate (mm/hr)	0.00

Calculated Swale Properties

Manning's N	0.021
Batter Slope	1:1.6
Velocity (m/s)	7.172
Hazard	5.379
Cross sectional Area (m ²)	2.4
Swale Capacity (cubic metres per sec)	17.214

Fluxes... Notes... More

Cancel Back Finish

Example Pond

Properties of Pond 1

Location: Pond 1

Inlet Properties

Low Flow By-pass (cubic metres per sec) 0.00000

High Flow By-pass (cubic metres per sec) 100.0000

Storage Properties

Surface Area (square metres)	560.0
Extended Detention Depth (metres)	0.50
Permanent Pool Volume (cubic metres)	330.0
Initial Volume (cubic metres)	330.0
Vegetation Cover (% of surface area)	10.0
Exfiltration Rate (mm/hr)	0.00
Evaporative Loss as % of PET	100.00

Outlet Properties

Equivalent Pipe Diameter (mm) 100

Overflow Weir Width (metres) 2.0

Natural Detention Time (hrs) 4.72

☐ Use Custom Outflow and Storage Relationship

Define Custom Outflow and Storage Not Defined

Re-use... Fluxes... Notes... More

Cancel Back Finish

Example Rainwater tank

Properties of Rainwater Tank (1)

Location: Rainwater Tank (1) Products >>

Inlet Properties

Low Flow By-pass (cubic metres per sec) 0.000000

High Flow Bypass (cubic metres per sec) 100.000000

Individual Tank Properties

Number of Tanks 32

Total Tank Properties

Storage Properties

Volume below overflow pipe (kL)	160000.0
Depth above overflow (metres)	0.20
Surface Area (square metres)	86.4
Initial Volume (kL)	160000.0

Outlet Properties

Overflow Pipe Diameter (mm) 566

☐ Use Custom Outflow and Storage Relationship

Define Custom Outflow and Storage Not Defined

Re-use... Fluxes... Notes... More

Cancel Back Finish

Computations

Client: [REDACTED]
Project: Heyfield Development Plan
Subject: **WSUD - SUMMARY**
Designer: [REDACTED] Checker CC

Date: Oct-2023
Page No: 4 of 4
Reference No: 27317

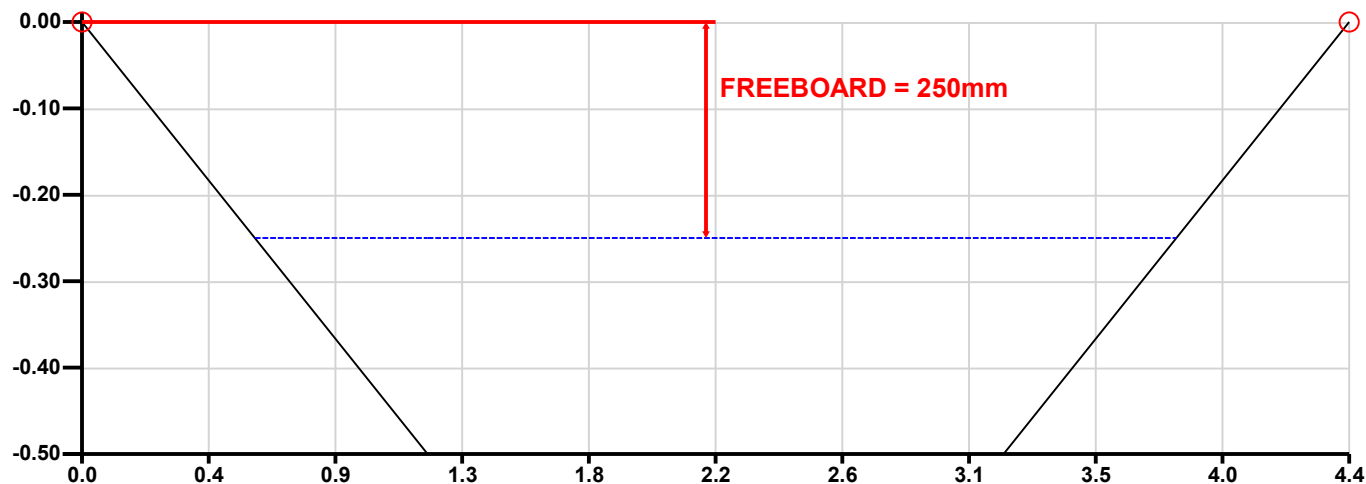
Overall %Removal from MUSIC

	Sources	Residual Load	% Reduction
Flow (ML/yr)	47	42.5	9.5
Total Suspended Solids (kg/yr)	9110	1450	84.1
Total Phosphorus (kg/yr)	18.7	6.24	66.6
Total Nitrogen (kg/yr)	134	70.3	47.5
Gross Pollutants (kg/yr)	1800	0	100

Summary:

* 100% of Best Practice Performance Objectives for Stormwater Quality, as contained in BPEMG

Stormwater Quality	Target* (% reduction)	Achieved (% reduction)	Achieved	Accounted
Total Suspended Solids (TSS)	80	84.1	105%	100%
Total Phosphorus	45	66.6	148%	100%
Total Nitrogen	45	47.5	106%	100%
Gross Pollutants (GP)	70	100.0	143%	
			86%	100%

1. CROSS-SECTION:2. DISCHARGE INFORMATION:

5 year (20%) storm event

Total discharge = 2.16 cumecs

There is no pipe discharge

Overland / Channel / Watercourse discharge = 2.160 cumecs

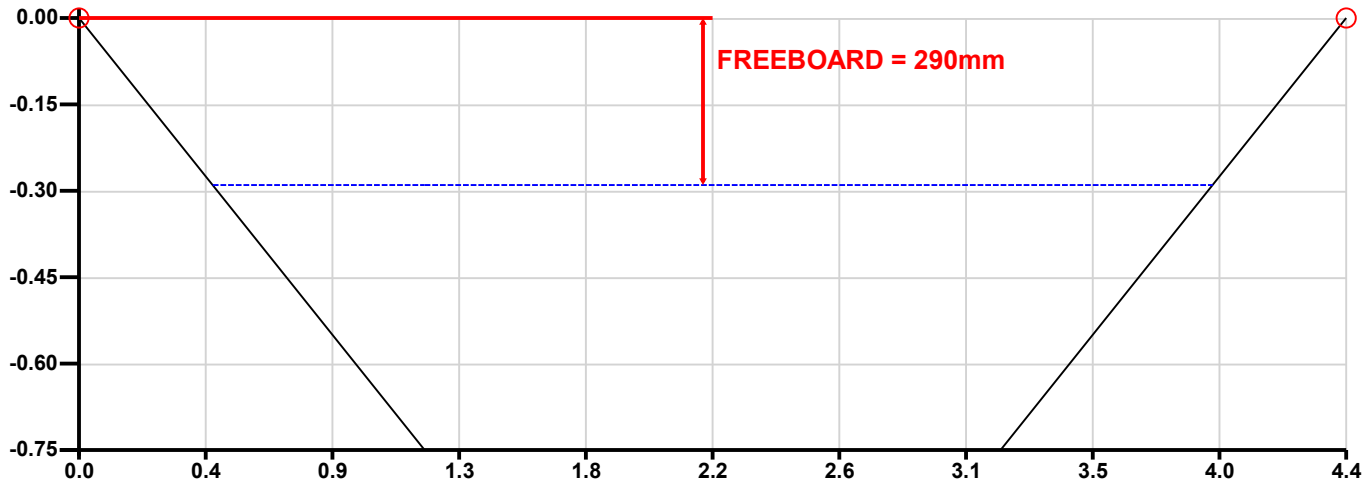
3. RESULTS: Water surface elevation = -0.250m

High Flow Channel grade = 1 in 15, Main Channel / Low Flow Channel grade = 1 in 15.

	<u>LEFT OVERBANK</u>	<u>MAIN CHANNEL</u>	<u>RIGHT OVERBANK</u>	<u>TOTAL CROSS-SECTION</u>
Discharge (cumecs):	0.00	2.27	0.00	2.27
D(Max) = Max. Depth (m):	0.00	0.25	0.00	0.25
D(Ave) = Ave. Depth (m):	0.00	0.20	0.00	0.20
V = Ave. Velocity (m/s):	0.00	3.50	0.00	3.50
D(Max) x V (cumecs/m):	0.00	0.87	0.00	0.87
D(Ave) x V (cumecs/m):	0.00	0.71	0.00	0.71
Froude Number:	0.00	2.48	0.00	2.48
Area (m ²):	0.00	0.65	0.00	0.65
Wetted Perimeter (m):	0.00	3.30	0.00	3.30
Flow Width (m):	0.00	3.20	0.00	3.20
Hydraulic Radius (m):	0.00	0.20	0.00	0.20
Composite Manning's n:	0.000	0.025	0.000	0.025
Split Flow?	-	-	-	No

4. CROSS-SECTION DATA:

<u>SEGMENT NO.</u>	<u>LEFT HAND POINT</u>		<u>RIGHT HAND POINT</u>		<u>MANNING'S N</u>
	<u>CHAINAGE (m)</u>	<u>R.L. (m)</u>	<u>CHAINAGE (m)</u>	<u>R.L. (m)</u>	
1	0.000	0.000	1.200	-0.500	0.025
2	1.200	-0.500	3.200	-0.500	0.025
3	3.200	-0.500	4.400	0.000	0.025

1. CROSS-SECTION:2. DISCHARGE INFORMATION:

100 year (1%) storm event

Total discharge = 6.19 cumecs

There is no pipe discharge

Overland / Channel / Watercourse discharge = 6.190 cumecs

3. RESULTS: Water surface elevation = -0.290m

High Flow Channel grade = 1 in 15, Main Channel / Low Flow Channel grade = 1 in 15.

	<u>LEFT OVERBANK</u>	<u>MAIN CHANNEL</u>	<u>RIGHT OVERBANK</u>	<u>TOTAL CROSS-SECTION</u>
Discharge (cumecs):	0.00	6.29	0.00	6.29
D(Max) = Max. Depth (m):	0.00	0.46	0.00	0.46
D(Ave) = Ave. Depth (m):	0.00	0.36	0.00	0.36
V = Ave. Velocity (m/s):	0.00	5.00	0.00	5.00
D(Max) x V (cumecs/m):	0.00	2.30	0.00	2.30
D(Ave) x V (cumecs/m):	0.00	1.81	0.00	1.81
Froude Number:	0.00	2.65	0.00	2.65
Area (m ²):	0.00	1.26	0.00	1.26
Wetted Perimeter (m):	0.00	3.74	0.00	3.74
Flow Width (m):	0.00	3.47	0.00	3.47
Hydraulic Radius (m):	0.00	0.34	0.00	0.34
Composite Manning's n:	0.000	0.025	0.000	0.025
Split Flow?	-	-	-	No

4. CROSS-SECTION DATA:

<u>SEGMENT NO.</u>	<u>LEFT HAND POINT</u>		<u>RIGHT HAND POINT</u>		<u>MANNING'S N</u>
	<u>CHAINAGE (m)</u>	<u>R.L. (m)</u>	<u>CHAINAGE (m)</u>	<u>R.L. (m)</u>	
1	0.000	0.000	1.200	-0.750	0.025
2	1.200	-0.750	3.200	-0.750	0.025
3	3.200	-0.750	4.400	0.000	0.025

MANNINGS FORMULA FOR BATTERED CHANNELS

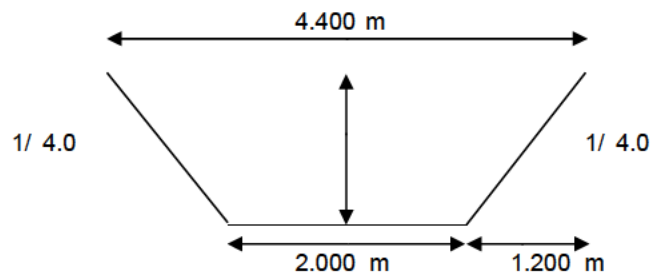
Project Name: 69 Tyson Road, Heyfield

Project No: 27317

Description: Open channel from wetland 3 - 2

Prepared By: [REDACTED]

Date: 05/04/2023



Side Slope on bank 1, z_1 (H:V) = 4.0

Side Slope on bank 2, z_2 (H:V) = 4.0

Discharge, Q : = 3.554 m^3/s

Velocity, V : = 3.702 m/s

Water depth, y : = 0.300 m

Top width, T : = 4.400 m

Bottom width, b : = 2.000 m

Mannings roughness, n : = 0.025

Channel, S : = 15 *grade*

Channel area, A : = 0.960 m^2

Channel wetted perimeter, P : = 4.474 m

Hydraulic radius, R : = 0.215 m

