Your Ref:
Our Ref: F24/20 OPW

27 February, 2025

Chief Executive Officer
Mareeba Shire Council
PO Box 154
MAREEBA QLD 4880

Attention: Carl Ewin
Planning Services

Dear Sir,

RE: APPLICATION FOR OPERATIONAL WORKS – WYLANDRA ESTATE STAGE 1
LOT 224 ON SP276715, 446 RAY ROAD, MAREEBA.

This application is for an Operational Works Application over land described as Lot 224 on SP276715, situated at 446 Ray Road, Mareeba is submitted on behalf of Wylandra Properties Pty Ltd the owner of the site.

The application comprises of Application Form, Engineering Drawings, Operational Works Design Report, and this Town Planning Letter. It is understood that the proponent will provide payment of the Application Fee with the Mareeba Shire Council.

All required information is understood to be provided on the Engineering Drawings and Operational Works Design Report which are attached and can be provided over the counter by a Representative of Wylandra Properties Pty Ltd or ERSCON Consulting Engineers, if required. If you have any queries or require any further information, please do not hesitate to contact Freshwater Planning Pty Ltd.

Yours faithfully,

MATTHEW ANDREJIC
FRESHWATER PLANNING PTY LTD

Freshwater Planning Pty Ltd
t/e The Freshwater Trust
ACN 603 020 220 | ABN 31 187 983 959

P: 0402729004
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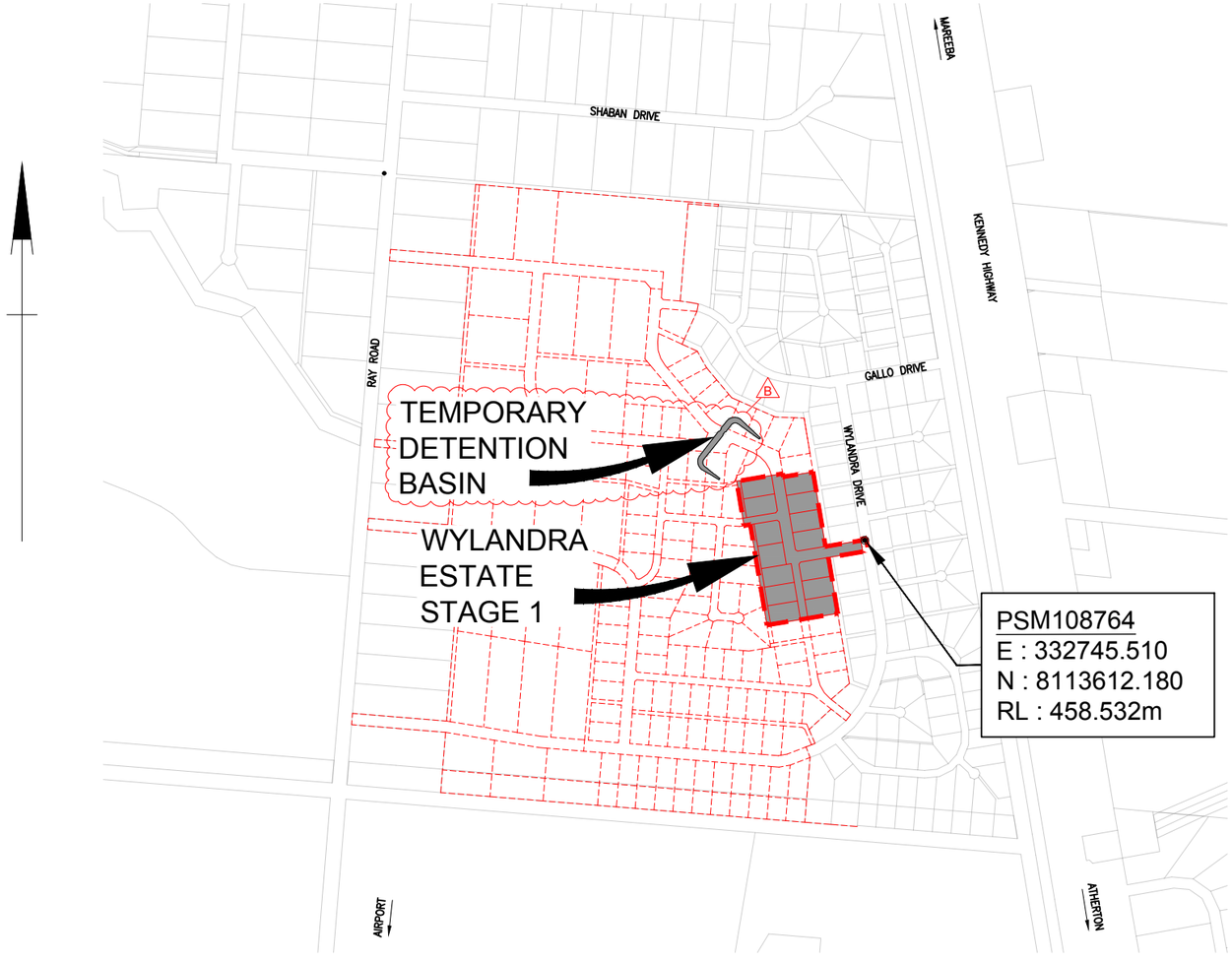
A: 17 Barron View Drive, FRESHWATER QLD 4870

CONMAT PTY. LTD.

WYLANDRA ESTATE

STAGE 1



PROJECT DRAWINGS LIST

160-010-C101	COVER SHEET, LOCALITY PLAN AND DRAWINGS LIST
160-010-C102	GENERAL NOTES
160-010-C103	EXISTING LOT LAYOUT
160-010-C104	GENERAL LOT LAYOUT (SHEET 1 OF 2)
160-010-C105	GENERAL LOT LAYOUT (SHEET 2 OF 2)
160-010-C106	ROAD 1 LONGITUDINAL SECTION (SHEET 1 OF 2)
160-010-C107	ROAD 2 AND 3 LONGITUDINAL SECTION (SHEET 2 OF 2)
160-010-C108	TYPICAL ROAD CROSS SECTION AND DETAILS
160-010-C109	INTERSECTION SETOUT
160-010-C110	GRADING PLAN (SHEET 1 OF 2)
160-010-C111	GRADING PLAN (SHEET 2 OF 2)
160-010-C112	WATER RETICULATION PLAN (SHEET 1 OF 2)
160-010-C113	WATER RETICULATION PLAN (SHEET 2 OF 2)
160-010-C114	STORMWATER Q5 MINOR AND DRAINAGE PLAN (SHEET 1 OF 2)
160-010-C115	STORMWATER Q5 MINOR AND DRAINAGE PLAN (SHEET 2 OF 2)
160-010-C116	DRAIN LONGITUDINAL SECTION
160-010-C117	STORMWATER Q5 MINOR LONGITUDINAL SECTION
160-010-C118	EROSION SEDIMENT CONTROL PLAN (SHEET 1 OF 2)
160-010-C119	EROSION SEDIMENT CONTROL PLAN (SHEET 2 OF 2)
160-010-C120	EROSION AND SEDIMENT CONTROL NOTES
160-010-C121	ROAD 1 CROSS SECTIONS
160-010-C122	ROAD 2 AND 3 CROSS SECTIONS
160-010-C123	DRAIN 1 CROSS SECTION
160-010-C124	DRAIN 2 CROSS SECTION
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160-010-C126	DETENTION BASIN PLAN
160-010-C127	DETENTION BASIN LONGITUDINAL SECTION
160-010-C128	DETENTION BASIN CROSS SECTIONS (SHEET 1 OF 2)
160-010-C129	DETENTION BASIN CROSS SECTIONS (SHEET 2 OF 2)

B

Client:

CONMAT CONSTRUCTION MATERIALS

Prepared by:

ERSCON CONSULTING ENGINEERS

APPROVED FOR CONSTRUCTION

PRINT IN COLOUR 160-010-C101 REV B

GENERAL NOTES:

1. LEVEL DATUM : AHD
2. ORIGIN OF LEVELS: (GDA2020 ZONE 55):

NUMBER	EASTING	NORTHING	RL	LOCATION
PSM108764	332745.510	8113612.180	458.532	WYLANDRA DRIVE, MAREEBA

3. EXISTING CONDITIONS HAVE BEEN BASED ON SURVEY DATA COLLECTED BY TWINE SURVEYORS. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INFORMATION SHOWN.
4. THE CONTRACTOR IS TO LIAISE WITH TWINE SURVEYS TO ESTABLISH SITE SURVEY CONTROLS.
5. DETAILS OF SERVICES ARE PROVIDED FOR INFORMATION ONLY, AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY AND COMPLETENESS OF THE INFORMATION. POSITIONS OF SERVICE CROSSINGS SHALL BE RECORDED AND CHECKED BY THE CONTRACTOR. NOT ALL CROSSINGS HAVE NECESSARILY BEEN SHOWN ON THE DRAWINGS. THE CONTRACTOR IS TO CHECK SERVICES ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. FOR ALL SPECIFICATIONS REFER TO FNQROC STANDARD SPECIFICATIONS.
7. INSPECTION AND TEST PLANS ARE TO BE UNDERTAKEN BY CONTRACTOR IN ACCORDANCE WITH FNQROC DEVELOPMENT MANUAL.
8. AS CONSTRUCTED DATA TO BE PREPARED AND SUBMITTED BY THE CONTRACTOR IN ACCORDANCE WITH FNQROC DEVELOPMENT MANUAL.

EARTHWORKS NOTES:

1. ALL EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT FNQROC DEVELOPMENT MANUAL SPECIFICATION – S1 'EARTHWORKS'.
2. FNQROC SPECIFICALLY REFERENCES AS 3798 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS' IN RELATION TO ALL EARTHWORK OPERATIONS INCLUDING APPROPRIATE METHODS OF TESTING, FREQUENCY OF TESTING AND REPORTING PROCEDURES. GEOTECHNICAL TESTING SERVICES SHALL BE AS DETERMINED BY LEVEL 1 IN ACCORDANCE WITH AS 3798. ALL CERTIFICATION AND TEST RESULTS ARE TO BE COMPILED AND PROVIDED TO THE SUPERINTENDENT PRIOR TO WORKS ACCEPTANCE.
3. ALL BATTERS SHALL BE 1 IN 3 MAX UNLESS NOTED OTHERWISE ON THE PROJECT DRAWINGS.
4. FINISHED SURFACE LEVELS SHOWN ON PROJECT DRAWINGS ARE AFTER ALL EARTHWORKS ARE COMPLETE INCLUDING TOPSOILING. ALL AREAS ARE TO BE GRADED EVENLY BETWEEN FINISHED SURFACE LEVELS UNLESS NOTED OTHERWISE.
5. DRY DENSITY RATIO AS REFERRED TO IN THESE NOTES IS THE RATIO DETERMINED IN ACCORDANCE WITH AS1289.5.4.1 OF COMPACTED DRY DENSITY IN ACCORDANCE WITH AS1289.5.3.1 OR AS1289.5.8.1 TO THE STANDARD MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH AS1259.5.1.11 (STANDARD COMPACTION).
6. NO VEGETATION SHALL BE REMOVED WITHOUT PRIOR APPROVAL OF THE SUPERINTENDENT UNLESS NOTED ON THE PROJECT DRAWINGS.
7. ALL VEGETAL MATTER, TOPSOIL AND OTHER UNSUITABLE MATERIAL SHALL BE STRIPPED/REMOVED FROM AREAS TO BE EXCAVATED OR FILLED. ALL VEGETAL MATTER AND UNSUITABLE MATERIAL SHALL BE DISPOSE OF OFF–SITE UNLESS ADVISED OTHERWISE BY THE SUPERINTENDENT. TOPSOIL SHALL BE STOCKPILED ON–SITE FOR REUSE. SURPLUS TOPSOIL SHALL BE DISPOSED OF OFF–SITE.
8. SHOULD ANY SOFT OR UNSUITABLE MATERIAL BE IDENTIFIED, THE CONTRACTOR SHALL INFORM THE SUPERINTENDENT IMMEDIATELY AND SEEK THE ADVICE OF THE SUPERINTENDENT OR GITA.
9. COMPACT FILL TO 95% DRY DENSITY RATIO IN LAYERS OF THICKNESS APPROPRIATE TO THE COMPACTION PLANT EMPLOYED BT NOT EXCEEDING 300mm.
10. ROAD VERGE SHALL BE FULLY TURFED ON COMPLETION OF TOPSOILING. ELSEWHERE, DISTURBED AREAS 1:3 OR FLATTER SHALL BE GRASS SEEDED AND AREAS STEEPER THAN 1:3 SHALL BE HYDROMULCHED (UNLESS NOTED OTHERWISE).

CONCRETE NOTES:

1. ALL CONCRETE WORKS INCLUDING SUPPLY, PLACEMENT, COMPACTION, REINFORCEMENT AND FINISHING SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT FNQROC DEVELOPMENT MANUAL SPECIFICATION – S7 CONCRETE WORKS.

DRAINAGE NOTES:

1. ALL STORMWATER DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT FNQROC DEVELOPMENT MANUAL SPECIFICATION – S4 'STORMWATER DRAINAGE'.
2. ALL REINFORCED CONCRETE PIPES SHALL BE CLASS 2 UNLESS NOTED OTHERWISE. ALTERNATIVE MATERIAL TYPES SUCH AS HDPE OR FRC MAY BE USED SUBJECT TO SUPERINTENDENTS/COUNCIL APPROVAL.
3. ALL PVC PIPES SHALL BE CLASS SN4 MINIMUM SWJ UNLESS NOTED OTHERWISE.
4. EXCAVATION, BEDDING AND BACKFILL FOR CONCRETE PIPES SHALL BE CARRIED OUT IN ACCORDANCE WITH FNQROC STANDARD DRAWING S1046.
5. EXCAVATION, BEDDING AND BACKFILL FOR PVC PIPES TO BE IN ACCORDANCE WITH AS/NZS 2566.2 "BURIED FLEXIBLE PIPES – PART 2 INSTALLATION".
6. ALL KERB INLET PITS TO BE CONSTRUCTED IN ACCORDANCE WITH FNQROC STD DRG'S S1050 AND S1060.
7. ALL PRECAST HEADWALLS SHALL BE PROVIDED WITH A CUT–OFF WALL IN ACCORDANCE WITH FNQROC STD DRG S1075.

EROSION AND SEDIMENT CONTROL NOTES:

1. PRIOR TO CONSTRUCTION COMMENCING, THE CONTRACTOR MUST PREPARE AN EROSION & SEDIMENT CONTROL PLAN (ESCP) TO MANAGE THE SITE DURING CONSTRUCTION AND THE DEFECT LIABILITY PERIOD.
2. THE ESCP MUST BE CONSISTENT WITH THE APPROVED EROSION & SEDIMENT CONTROL STRATEGY (ESCS) AND SHALL TAKE INTO CONSIDERATION THE CONTRACTOR'S PROPOSED CONSTRUCTION METHODOLOGY AND PROGRAM.
3. AN ESCP THAT DIFFERS TO THE APPROVED ESCS MUST BE SUBMITTED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO SUBMITTING TO COUNCIL.
4. NO EARTHWORKS SHALL COMMENCE ON ANY PART OF THE SITE PRIOR TO APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES BEING INSTALLED DOWNSTREAM OF THE SITE AND IN ACCORDANCE WITH THE APPROVED ESCP.
5. AT ALL TIMES THE CONTRACTOR SHALL MONITOR THE PREVAILING WEATHER CONDITIONS AND TAKE ALL NECESSARY PRECAUTIONS TO CONTROL EROSION AND DOWNSTREAM SEDIMENTATION DURING ALL STAGES OF CONSTRUCTION.
6. THE IMPACT ON THE ENVIRONMENT SHALL BE MINIMISED BY OBSERVING THE FOLLOWING CONSTRUCTION PRACTICES:
   - AREAS DISTURBED BY CONSTRUCTION TRAFFIC AND PROCEDURES SHALL BE MINIMISED.
   - MINIMISE TRAFFIC MOVEMENTS AND SPEEDS ON EXPOSED SURFACES.
   - REVEGETATION OF DISTURBED AREAS SHALL BE CARRIED OUT SOON AFTER THE COMPLETION OF TOPSOIL PLACEMENT.
   - FLOW DIVERSION SHALL BE CARRIED OUT BY EARLY INSTALLATION OF DRAINS ALONG TOPS OF BATTERS WITH APPROPRIATE SILTATION CONTROL DEVICES.
   - SEDIMENT INTERCEPTION BY THE PLACEMENT OF SUITABLE RETENTION SYSTEMS ACROSS DRAINAGE LINES AND AT INTERCEPTION POINTS FOR BOTH THE CONSTRUCTION AND STOCKPILE AREAS.
4. ALL ACCESS TO AND FROM THE SITE SHALL BE VIA A TEMPORARY CONSTRUCTION ENTRY/EXIT. THE CONTRACTOR SHALL NOMINATE A PROPOSED ACCESS LOCATION ON THE ESC PLAN FOR APPROVAL BY THE SUPERINTENDENT.
5. STOCKPILES SHALL ONLY BE LOCATED IN AREAS NOMINATED ON THE PROJECT DRAWINGS OR APPROVED BY THE SUPERINTENDENT. ALL STOCKPILES MUST HAVE APPROPRIATE ESC MEASURES INSTALLED TO PREVENT SEDIMENT TRANSPORT. THE MAXIMUM HEIGHT OF ALL STOCKPILES MUST BE LIMITED TO 2.0m
6. ALL PERMANENT AND TEMPORARY UNLINED SWALES AND DRAINS MUST HAVE APPROPRIATE TEMPORARY EROSION PROTECTION.
7. ALL PARTIALLY CONSTRUCTED DRAINAGE STRUCTURES MUST BE PROTECTED AGAINST SEDIMENT INFILTRATION DURING CONSTRUCTION.
8. ALL COMPLETED DRAINAGE STRUCTURES MUST BE PROTECTED AGAINST SEDIMENT INFILTRATION UNTIL GRASSING IS ESTABLISHED.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE CONTROL OF DUST EMANATING FROM THE SITE AT ALL TIMES FOR THE DURATION OF CONSTRUCTION. WET SUPPRESSION METHODS TO BE USED.
10. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE CHECKED FOR DAMAGE, CLEANED OUT AND FULLY REINSTATED AFTER EACH RAINFALL EVENT RESULTING IN RUNOFF.
11. IF EROSION AND SEDIMENT CONTROL DEVICES HAVE BEEN FOUND TO BE DEFICIENT OR FAILED IN SERVICE, DUE TO UNFORESEEN CIRCUMSTANCES, CORRECTIVE ACTION IS TO BE UNDERTAKEN IMMEDIATELY WHICH MAY INCLUDE AMENDMENTS/ADDITIONS TO THE ORIGINAL APPROVED EROSION CONTROL PLANS.
12. THE INSTALLATION, REMOVAL, RELOCATION OR MODIFICATION TO EROSION AND SEDIMENT CONTROL DEVICES MAY BE MADE BY COUNCIL IF DEEMED NECESSARY AND RELEVANT.
13. EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL THE TREATMENT AREA IS SUITABLY STABILISED/VEGETATED.
14. THE CONTRACTOR SHALL UNDERTAKE A FORMAL COMPLIANCE AUDIT OF THE ESC AT SIX WEEKS INTERVALS DURING THE CONSTRUCTION PERIOD OF THE PROJECT. RECORDS OF THE AUDIT SHALL BE RETAINED ON SITE. WHERE IDENTIFIED AS PART OF THE AUDIT THE ESCP SHALL BE UPDATED AND PROVIDED TO THE SUPERINTENDENT.

WATER NOTES:

1. ALL WATER RETICULATION WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT FNQROC DEVELOPMENT MANUAL SPECIFICATION – S5 'WATER RETICULATION'.
2. ALL PVC AND PE PIPES SHALL BE CLASS PN16. PVC PIPES SHALL BE RUBBER RING JOINTED AND DUCTILE IRON COMPATIBLE.
3. FOR MAIN TRENCHING, BEDDING & ANCHORAGE DETAILS REFER FNQROC STD DRAWINGS S2015 & S2016. ENSURE COVER TO WATER MAINS IS 800mm MINIMUM UNDER ROADWAYS AND 600mm MINIMUM ELSEWHERE.
4. ALL WATER MAINS SHALL BE INSTALLED ON A STANDARD 2.0m OFFSET FROM THE PROPERTY BOUNDARY UNLESS NOTED OTHERWISE ON PLANS.
5. WHERE NON–METALLIC PIPES ARE LAID, A CONTINUOUS STEEL WIRE, 1.6mm MIN DIAMETER, SHALL BE LAID IMMEDIATELY ABOVE THE FILL SAND TO ASSIST IN FUTURE LOCATING. THIS WIRE IS TO BE WRAPPED ONCE AROUND ALL HYDRANTS AND VALVES.
6. COUNCIL MUST BE CONTACTED TO PERFORM ANY DIRECT CONNECTION OR ALTERATION TO LIVE WATER MAINS. THE CONTRACTOR SHALL LODGE WITH COUNCIL THE APPROPRIATE APPLICATION FORMS AND FEES FOR THESE WORKS TO BE COMPLETED. IT MAY BE POSSIBLE FOR SOME WORKS TO BE PERFORMED BY THE CONTRACTOR UNDER SPECIAL CIRCUMSTANCES AND SUBJECT TO APPROPRIATE CONDITIONS AGREED TO WITH COUNCIL.
7. ALL HYDRANTS AND VALVES TO BE LOCATED OPPOSITE PROPERTY BOUNDARY TRUNCATIONS AND CORNERS, UNLESS NOTED OTHERWISE ON PLANS. FOR VALVES & HYDRANT BOXES INSTALLATION DETAILS REFER FNQROC STD DRAWINGS S2000 AND S2005.
8. HYDRANTS OR VALVES CONSTRUCTED IN CONCRETE ARE TO HAVE A COMPRESSIBLE LAYER (ABLEFLEX) INSTALLED ON THE SURROUND. REFER FNQROC STD DRAWING S2000.
9. THE MINIMUM TEST PRESSURE FOR ALL PIPES SHALL BE 1250 KPa. THE CONTRACT SHALL GIVE COUNCILS WATER OFFICER 24 HOURS NOTICE PRIOR TO TESTING. PERIOD.

LANDSCAPING NOTES:

1. ALL LANDSCAPING WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT FNQROC DEVELOPMENT MANUAL SPECIFICATION – S8 'LANDSCAPING'.
2. ALL PLANTS MUST BE ORDER SUPPLIED BY A REPUTABLE NURSERY, AND ORDERED WELL IN ADVANCE TO ENSURE AVAILABILITY.
3. TURF TO BE USED SHALL BE ROLLED B GRADE TURF MIX OF SPECIES 80% BUFFALO GRASS (AXONOPUS COMPRESSUS) AND 20% COUCH GRASS VARIETIES.
4. STREET TREES SHALL BE PROVIDED WHERE INDICATED ON PLAN. FINAL LOCATION TO BE DETERMINED ON SITE FOLLOWING INSTALLATION OF DRIVEWAYS AND CONFIRMATION OF SITE SERVICES
5. STREET TREES FINAL LOCATION SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
   a. GREATER THAN 4.0m FROM ELECTRICITY OR TELECOMMUNICATION POLES OR PILLARS.
   b. GREATER THAN 7.5m FROM STREET LIGHTS
   c. GREATER THAN 2.0m FROM STORMWATER DRAINAGE PITS
   d. GREATER THAN 3.0m FROM DRIVEWAYS
   e. A MINIMUM OF 0.8m AND A MAXIMUM OF 1.0m FROM THE BACK OF KERB
6. TEMPORARY IRRIGATION SHALL BE INSTALLED TO ENABLE WATERING DURING THE ESTABLISHMENT PERIOD.

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PLOT DATE:26/06/2024 5:25:07 PM
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REVISIONS

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A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: NTS

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

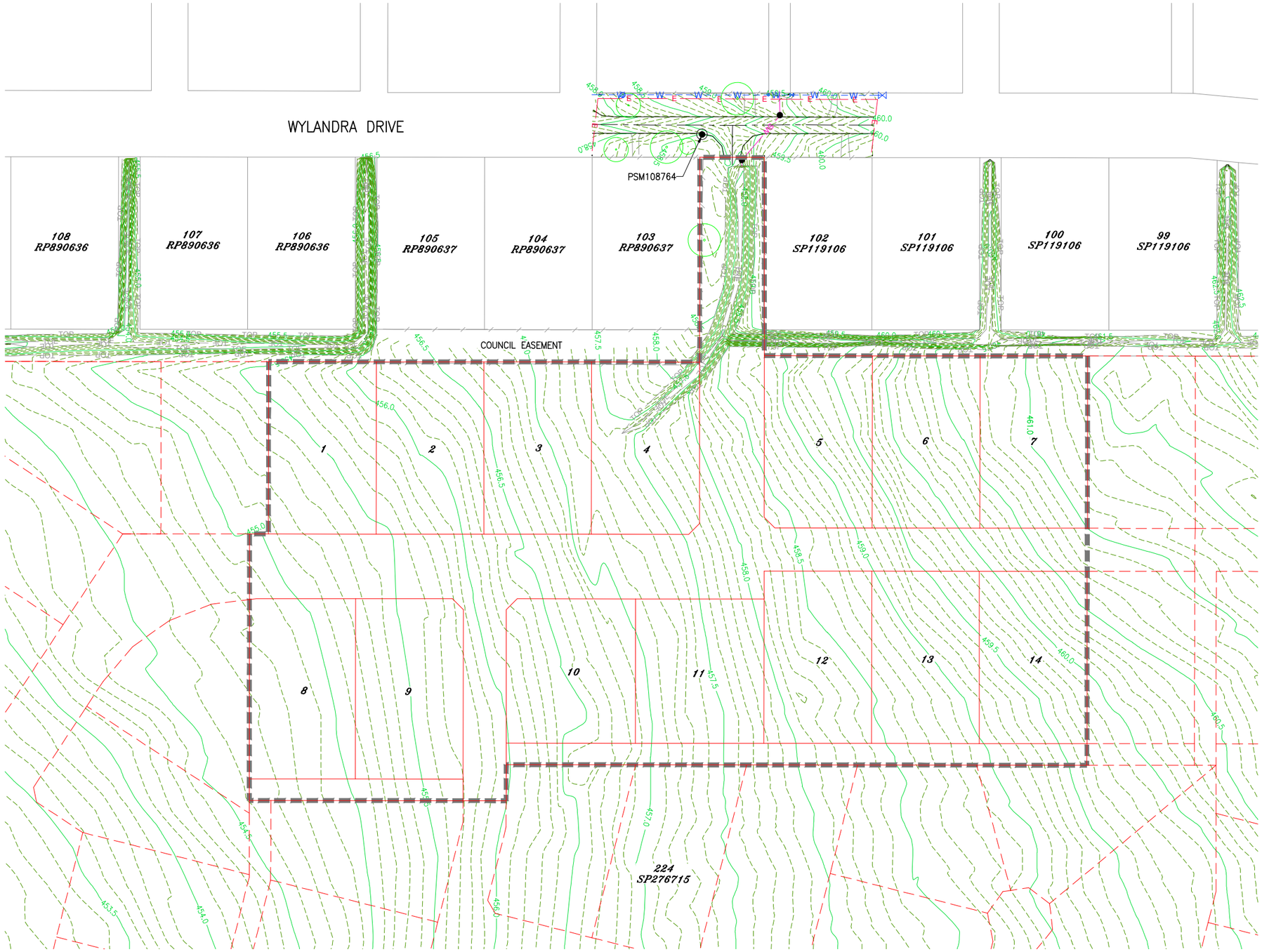
PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: GENERAL NOTES

DRAWING NO: 160-010-C102

SIZE: A3

REVISION: A



LEGEND

- STAGE BOUNDARY
- PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- 1.0 — EXISTING MAJOR CONTOURS (1.0m INTERVAL)
- EXISTING MINOR CONTOURS (0.1m INTERVAL)
- TOP — EXISTING TOP OF BATTER
- TOE — EXISTING TOE OF BATTER
- E — EXISTING ELECTRICITY (POWERLINE)
- SW — EXISTING STORMWATER
- W — EXISTING WATER MAIN
- EXISTING FENCE
- EXISTING DRIVEWAY
- EXISTING ROAD CENTRELINE
- EXISTING FIRE HYDRANT
- EXISTING SLUICE VALVE
- EXISTING STORMWATER MANHOLE
- EXISTING TREE

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PLOT DATE:26/06/2024 5:26:37 PM
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CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:2000 0 10 20 30 40 50 60 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: EXISTING LOT LAYOUT

DRAWING NO: 160-010-C103

SIZE: A3

REVISION: A

GRASS LINED DRAIN 1
TO BE CONSTRUCTED.
REFER DWG 160-010-C116
FOR DETAILS.

TEMPORARY
CUL-DE-SAC HEAD.
30mm ASPHALT.

LAYBACK KERB
AND CHANNEL PER
DETAIL ON DWG C108.

50mm THICK
ASPHALT.

ROAD 1 CONTROL LINE

ROAD 1

ROAD 3

LAYBACK KERB
AND CHANNEL PER
DETAIL ON DWG C108.

LAYBACK KERB
AND CHANNEL PER
DETAIL ON DWG C108.

ROAD 3 CONTROL LINE

NEW GRASS LINED DRAIN 2.
REFER DWG 160-010-C116
FOR DETAILS.

TEMPORARY
CUL-DE-SAC HEAD.
30mm ASPHALT.

224
SP276715

JOINS TO DRAWING 160-010-C105

LEGEND

- STAGE BOUNDARY
- PROPOSED PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- PROPOSED ROAD CENTRELINE
- EXISTING ROAD CENTRELINE
- TOP OF BATTER
- TOE OF BATTER
- PROPOSED BATTER
- WORKS AREA
- 30mm DG14 ASPHALT
- 50mm DG14 ASPHALT
- GRASS LINED DRAIN

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CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 (0, 10, 20, 30) A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: GENERAL LOT LAYOUT (SHEET 1 OF 2)

DRAWING NO: 160-010-C104 | SIZE: A3 | REVISION: A

PLOT DATE:20/02/2025 11:16:50 AM
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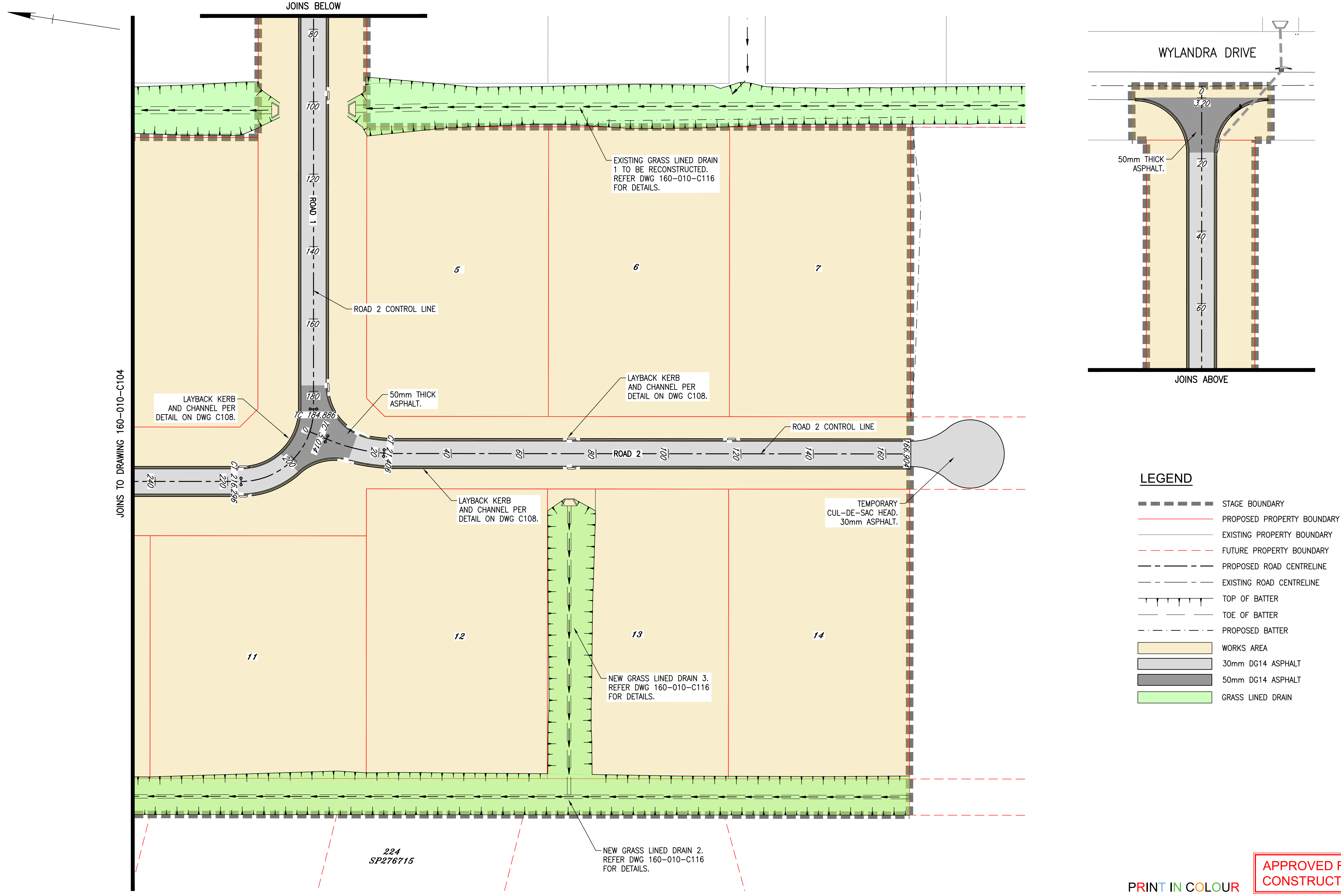

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REVISIONS				
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A	17/06/24	INITIAL ISSUE		

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CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 (0, 10, 20, 30) A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

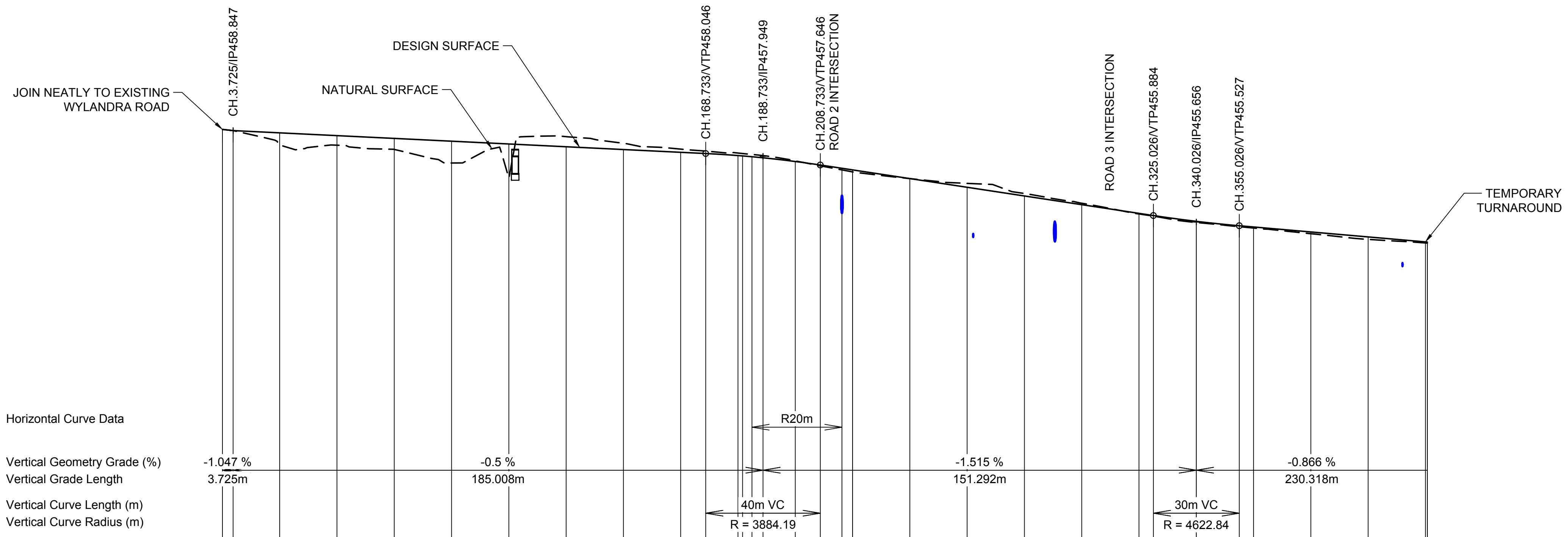
DRAWING REF: GENERAL LOT LAYOUT (SHEET 2 OF 2)

DRAWING NO	SIZE	REVISION
160-010-C105	A3	A

PLOT DATE:21/02/2025 10:50:13 AM
FILE LOCATION:D:\ERSCON Dropbox\Erscon\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C105 GENERAL LAYOUT (2 OF 2).dwg

ROAD 1 - CONTROL LINE

CHAINAGE	EASTING	NORTHING	BRG. IN	BRG. OUT	RADII IN	RADII OUT
0.000	332752.214	8113595.754		260°30'53.40"		
184.886	332569.856	8113565.286	260°30'53.74"	260°30'53.74"		20.000
216.296	332546.835	8113581.710	350°29'47.69"	350°29'47.69"	20.000	
420.681	332513.089	8113783.291	350°29'47.47"	350°15'18.75"		



DATUM RL444.000

CHAINAGE	CUT/FILL DEPTH	DESIGN SURFACE	NATURAL SURFACE
0	-0	458.886	458.886
3.725	-0.001	458.847	458.848
20	0.425	458.768	458.343
40	0.334	458.671	458.337
60	0.383	458.574	458.191
80	0.76	458.477	457.717
100	1.184	458.379	457.195
120	-0.352	458.282	458.634
140	-0.218	458.185	458.403
160	-0.113	458.088	458.201
168.733	-0.087	458.046	458.133
180	-0.089	457.975	458.064
181.6	-0.084	457.962	458.046
184.886	-0.079	457.934	458.013
188.733	-0.078	457.897	457.975
200	-0.021	457.768	457.789
208.733	0.028	457.646	457.618
216.296	0.057	457.531	457.474
219.988	0.07	457.475	457.405
220	0.07	457.475	457.405
240	0	457.172	457.172
260	-0.137	456.869	457.006
280	-0.087	456.566	456.653
300	-0.049	456.263	456.312
320	0.021	455.96	455.939
325.026	0.02	455.884	455.864
340	0.039	455.681	455.642
340.026	0.039	455.681	455.642
355.026	0.032	455.527	455.495
360	0.036	455.483	455.447
380	0.061	455.31	455.249
400	0.085	455.137	455.052
420	0.037	454.964	454.927
420.681	0.036	454.958	454.922
420.681	0.036	454.958	454.922

ROAD 1 - LONGITUDINAL SECTION

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PLOT DATE 26/06/2024 4:29:35 PM
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REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE
1:2000 — 0 10 20 30 40 50 60 — A3 — HORIZONTAL
1:200 — 0 2 4 6 — A3 — VERTICAL
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN: MG | DESIGNED: MG
DRAWN APPROVED: MF | DESIGN APPROVED: MF
CIVIL SIGNOFF APPROVAL
DATE: 17/06/24 RPEQ: 05085

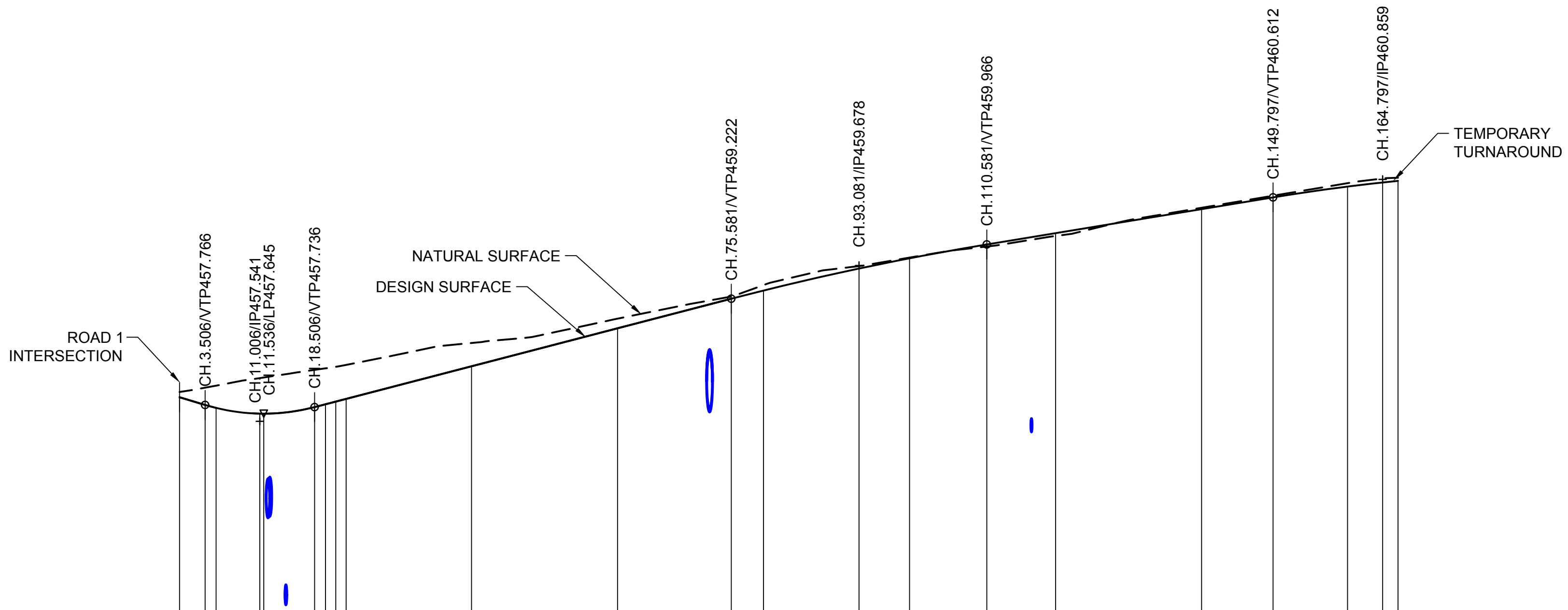
PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1
DRAWING REF: ROAD 1 LONGITUDINAL SECTION (SHEET 1 OF 2)
DRAWING NO: 160-010-C106 | SIZE: A3 | REVISION: A

ROAD 2 - CONTROL LINE

CHAINAGE	EASTING	NORTHING	BRG. IN	BRG. OUT	RADII IN	RADII OUT
0.000	332563.511	8113565.246		193°47'12.37"		
5.014	332562.316	8113560.376	193°47'12.37"	193°47'12.37"		-50.000
21.406	332561.066	8113544.106	175°00'10.70"	175°00'10.70"	-50.000	
22.822	332561.189	8113542.695	175°00'10.70"	175°00'10.70"		
166.904	332584.845	8113400.569	170°33'00.07"			

ROAD 3 - CONTROL LINE

CHAINAGE	EASTING	NORTHING	BRG. IN	BRG. OUT	RADII IN	RADII OUT
0.000	332531.151	8113675.402		260°35'35.02"		
108.619	332423.992	8113657.648	260°35'35.02"			



Horizontal Curve Data: R-50m

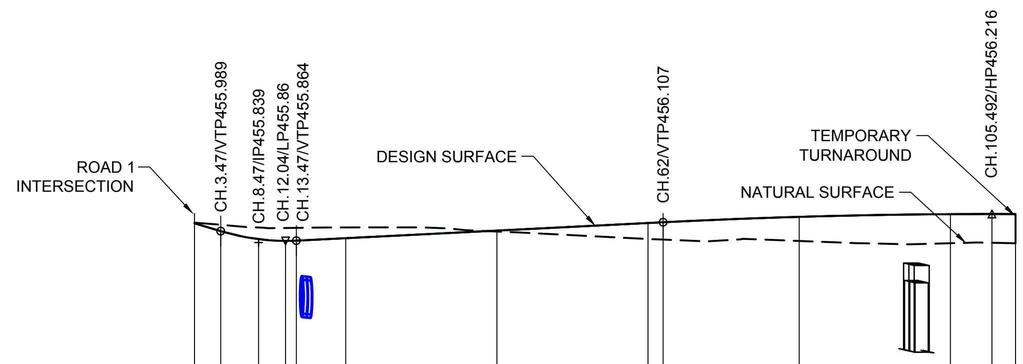
Vertical Geometry Grade (%) / Vertical Grade Length: -3 % 11.006m; 2.604 % 82.075m; 1.647 % 71.717m; 0.525 % 36.331m

Vertical Curve Length (m) / Vertical Curve Radius (m): 15m VC R = 267.65; 35m VC R = 3655.98; 30m VC R = 2675.45

DATUM RL451.000

CUT/FILL DEPTH	-0.072	-0.236	-0.305	-0.488	-0.496	-0.51	-0.493	-0.477	-0.466	-0.319	-0.133	-0.03	-0.074	-0.034	-0.01	0.028	0.038	-0.019	-0.023	-0.047	-0.054	-0.043
DESIGN SURFACE	457.871	457.766	457.725	457.646	457.645	457.736	457.775	457.812	457.848	458.296	458.817	459.222	459.335	459.636	459.777	459.966	460.121	460.451	460.612	460.761	460.817	460.839
NATURAL SURFACE	457.943	458.002	458.030	458.134	458.141	458.246	458.268	458.289	458.314	458.615	458.950	459.252	459.409	459.670	459.787	459.938	460.083	460.470	460.635	460.808	460.871	460.882
CHAINAGE	0	3.506	5.014	11.006	11.536	18.506	20	21.406	22.822	40	60	75.581	80	93.081	100	110.581	120	140	149.797	160	164.797	166.904

ROAD 2 - LONGITUDINAL SECTION



Horizontal Curve Data

Vertical Geometry Grade (%) / Vertical Grade Length: -2.999 % 8.47m; 0.5 % 103.53m

Vertical Curve Length (m) / Vertical Curve Radius (m): 10m VC R = 285.78; 100m VC R = 8692.51

DATUM RL449.000

CUT/FILL DEPTH	-0.009	-0.085	-0.155	-0.171	-0.169	-0.142	0.012	0.211	0.229	0.318	0.384	0.38	0.385
DESIGN SURFACE	456.093	455.989	455.883	455.86	455.864	455.897	455.997	456.097	456.107	456.178	456.214	456.216	456.215
NATURAL SURFACE	456.102	456.074	456.038	456.031	456.033	456.039	455.985	455.886	455.878	455.860	455.830	455.836	455.830
CHAINAGE	0	3.47	8.47	12.04	13.47	20	40	60	62	80	100	105.492	108.619

ROAD 3 - LONGITUDINAL SECTION

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 HORIZONTAL (0 10 20 30) A3; 1:200 VERTICAL (0 2 4 6) A3

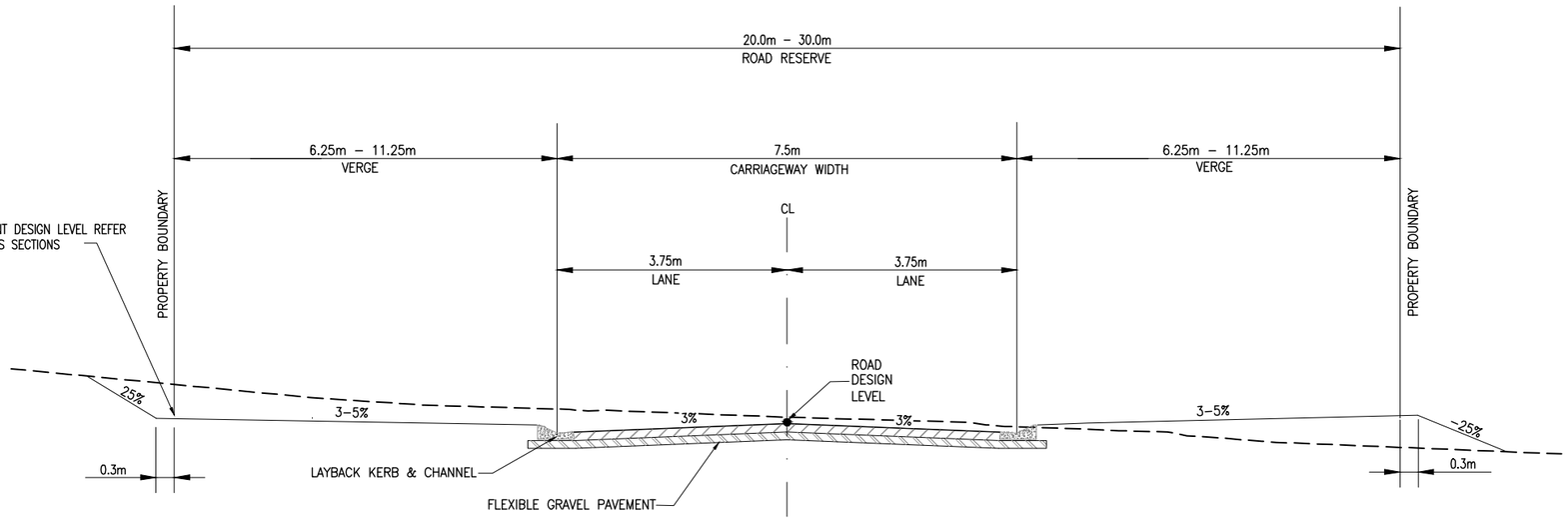
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN: MG — DESIGNED: MG
DRAWN APPROVED: MF — DESIGN APPROVED: MF
CIVIL SIGNOFF APPROVAL — DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

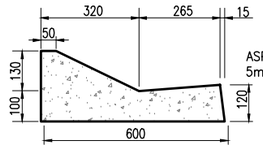
DRAWING REF: ROAD 2 AND 3 LONGITUDINAL SECTION (SHEET 2 OF 2)

DRAWING NO: 160-010-C107 — SIZE: A3 — REVISION: A



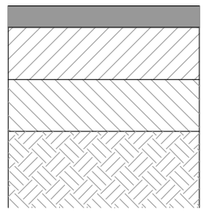
TYPICAL CROSS SECTION

SCALE 1:100



LAYBACK KERB AND CHANNEL

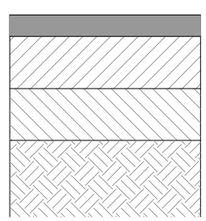
SCALE 1:20



NOTE: SUBGRADE CBR RESULTS AND FINAL PAVEMENT DESIGN ARE TO BE SUBMITTED TO COUNCIL FOR APPROVAL PRIOR TO PLACEMENT OF GRAVEL.

PAVEMENT DETAIL

N.T.S.



NOTE: SUBGRADE CBR RESULTS AND FINAL PAVEMENT DESIGN ARE TO BE SUBMITTED TO COUNCIL FOR APPROVAL PRIOR TO PLACEMENT OF GRAVEL.

PAVEMENT DETAIL - INTERSECTIONS

N.T.S.

PAVEMENT NOTES

1. THE SUB–BASE LAYER SHALL EXTEND A MINIMUM OF 300mm BEHIND THE REAR FACE OF THE KERB AND CHANNEL.
2. THE BASE AND SURFACING SHALL EXTEND TO THE FACE OF ANY KERBING. WHERE THE TOP SURFACE OF THE SUB–BASE LAYER IS BELOW THE LEVEL OF THE UNDERSIDE OF THE KERB AND CHANNEL, THE BASE LAYER SHALL ALSO EXTEND A MINIMUM OF 150MM BEHIND THE REAR FACE OF THE KERB AND CHANNEL.

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

PLOT DATE:26/06/2024 1:59:56 PM
FILE LOCATION:X:\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C108 ROAD DETAILS.dwg

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE
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1:100 0 1 2 3 A3
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

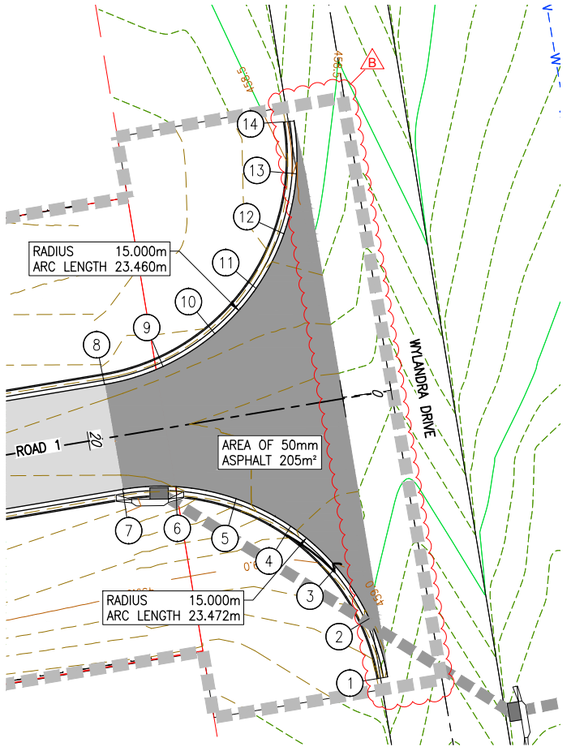
DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL
DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

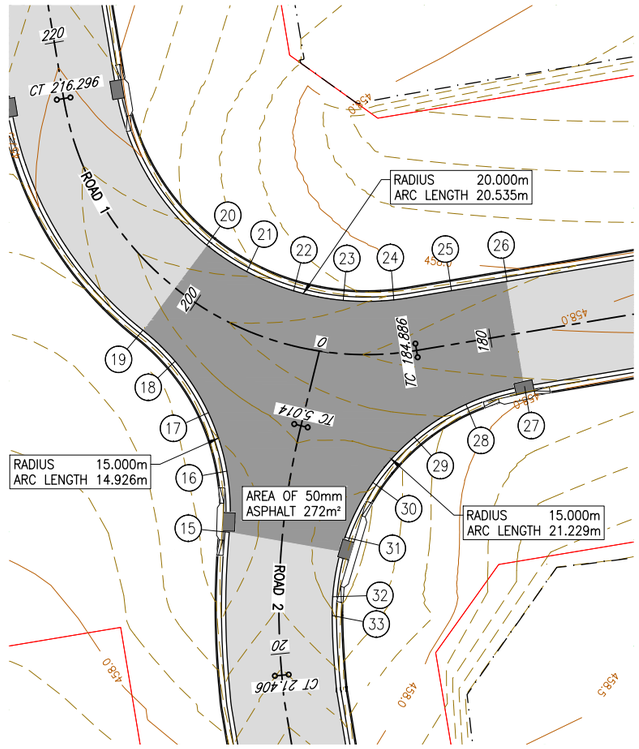
DRAWING REF: TYPICAL ROAD CROSS SECTION AND DETAILS

DRAWING NO: 160-010-C108 | SIZE: A3 | REVISION: A



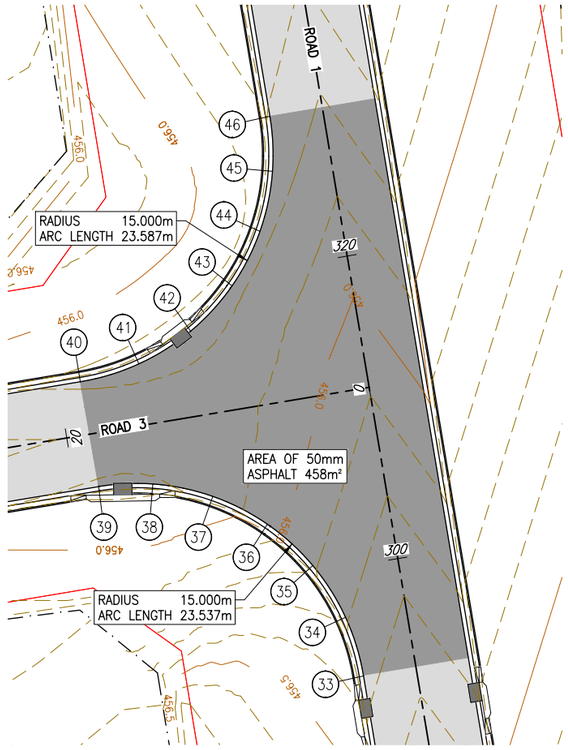
WYLANDRA DRIVE - INTERSECTION

SCALE 1:400



ROAD 2 - INTERSECTION

SCALE 1:400



ROAD 3 - INTERSECTION

SCALE 1:400

WYLANDRA DRIVE INTERSECTION SETOUT

POINT NO.	EASTING	NORTHING	HEIGHT
1	332751.759	8113578.165	459.209
2	332750.343	8113581.759	459.117
3	332747.964	8113584.975	459.009
4	332744.822	8113587.444	458.885
5	332741.137	8113588.997	458.775
6	332737.183	8113589.520	458.703
7	332734.707	8113589.310	458.672
8	332733.520	8113596.148	458.672
9	332737.340	8113597.318	458.680
10	332740.718	8113599.458	458.664
11	332743.410	8113602.410	458.626
12	332745.228	8113605.974	458.573
13	332746.039	8113609.892	458.513
14	332746.077	8113610.836	458.454

ROAD 2 INTERSECTION SETOUT

POINT NO.	EASTING	NORTHING	HEIGHT
15	332557.636	8113553.424	457.543
16	332557.477	8113557.418	457.571
17	332556.271	8113561.228	457.633
18	332554.099	8113564.585	457.664
19	332551.997	8113566.608	457.644
20	332556.170	8113572.157	457.638
21	332558.780	8113570.428	457.689
22	332561.831	8113569.174	457.733
23	332565.071	8113568.550	457.777
24	332568.371	8113568.582	457.820
25	332572.130	8113569.184	457.852
26	332575.757	8113569.790	457.883
27	332576.901	8113562.943	457.883
28	332573.081	8113561.773	457.833
29	332569.700	8113559.633	457.742
30	332567.014	8113556.673	457.617
31	332565.194	8113553.110	457.555
32	332564.386	8113549.224	457.582
33	332564.348	8113547.996	457.609

ROAD 3 INTERSECTION SETOUT

POINT NO.	EASTING	NORTHING	HEIGHT
33	332530.777	8113656.613	456.267
34	332529.605	8113660.434	456.192
35	332527.464	8113663.814	456.089
36	332524.506	8113666.505	455.958
37	332520.945	8113668.318	455.846
38	332517.029	8113669.129	455.789
39	332513.496	8113668.959	455.785
40	332512.301	8113675.796	455.785
41	332516.124	8113676.960	455.771
42	332519.504	8113679.094	455.767
43	332522.201	8113682.046	455.775
44	332524.023	8113685.606	455.775
45	332524.840	8113689.522	455.751
46	332524.668	8113693.105	455.710

LEGEND

- STAGE BOUNDARY
- PROPOSED PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- 1.0 PROPOSED MAJOR CONTOURS (0.5m INTERVAL)
- PROPOSED MINOR CONTOURS (0.1m INTERVAL)
- 1.0 EXISTING MAJOR CONTOURS (1.0m INTERVAL)
- EXISTING MINOR CONTOURS (0.1m INTERVAL)
- PROPOSED BATTER
- PROPOSED ROAD CENTRELINE
- 30mm DG14 ASPHALT
- 50mm DG14 ASPHALT

NOTES

1. REFER TO 160-010-C106 AND C107 FOR ROAD CONTROL LINE SETOUT.

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

REVISIONS NO.	DATE	DESCRIPTION	DESIGN	APPROVED
B	19/02/25	CONTOURS AMENDED	MG	
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE 1:400 (0 2 4 6 8 10 12) A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: INTERSECTION SETOUT

DRAWING NO: 160-010-C109 | SIZE: A3 | REVISION: B

PLOT DATE: 21/02/2025 10:50:49 AM
FILE LOCATION: D:\ERSCON Dropbox\Erscon\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C109 INTERSECTION DETAILS.dwg

DIRECT TABLE DRAIN OUTLET TOWARDS THE TEMPORARY DETENTION BASIN

NEATLY TIE IN TURNAROUND

OVERLAND FLOW DIRECTED TOWARDS DETENTION BASIN. REFER DWG 160-010-C126 FOR DETAILS.

ROAD 1

ROAD 3

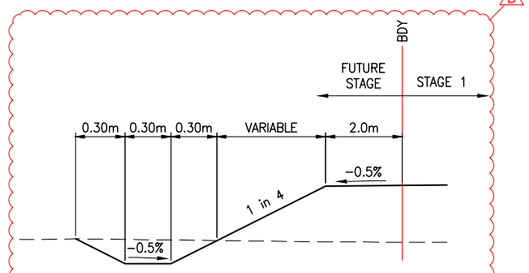
JOINS TO DRAWING 160-010-C111

224 SP276715

NEATLY TIE IN TURNAROUND

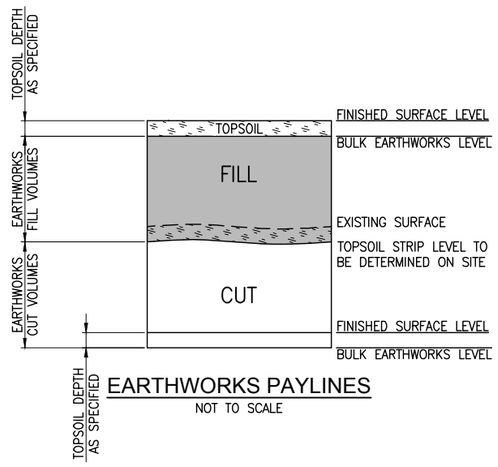
QUANTITIES

CUT	8788.14m³
FILL	7317.80m³
BALANCE	1470.34m³



SECTION A – NOT TO SCALE

TEMPORARY BLOCK BATTER AND TABLE DRAIN



EARTHWORKS PAYLINES
NOT TO SCALE

LEGEND

- STAGE BOUNDARY
- PROPOSED PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- 1.0 PROPOSED MAJOR CONTOURS (0.5m INTERVAL)
- PROPOSED MINOR CONTOURS (0.1m INTERVAL)
- 1.0 EXISTING MAJOR CONTOURS (1.0m INTERVAL)
- EXISTING MINOR CONTOURS (0.1m INTERVAL)
- PROPOSED BATTER
- TOP OF BATTER
- TOE OF BATTER
- PROPOSED ROAD CENTRELINE
- 457.00 PROPOSED FINISHED SURFACE
- PROPOSED FILL

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

REVISIONS NO.	DATE	DESCRIPTION	DESIGN	APPROVED
B	12/02/25	DETENTION BASIN NOTE	MG	
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 0 10 20 30 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: GRADING PLAN (SHEET 1 OF 2)

DRAWING NO: 160-010-C110 | SIZE: A3 | REVISION: B

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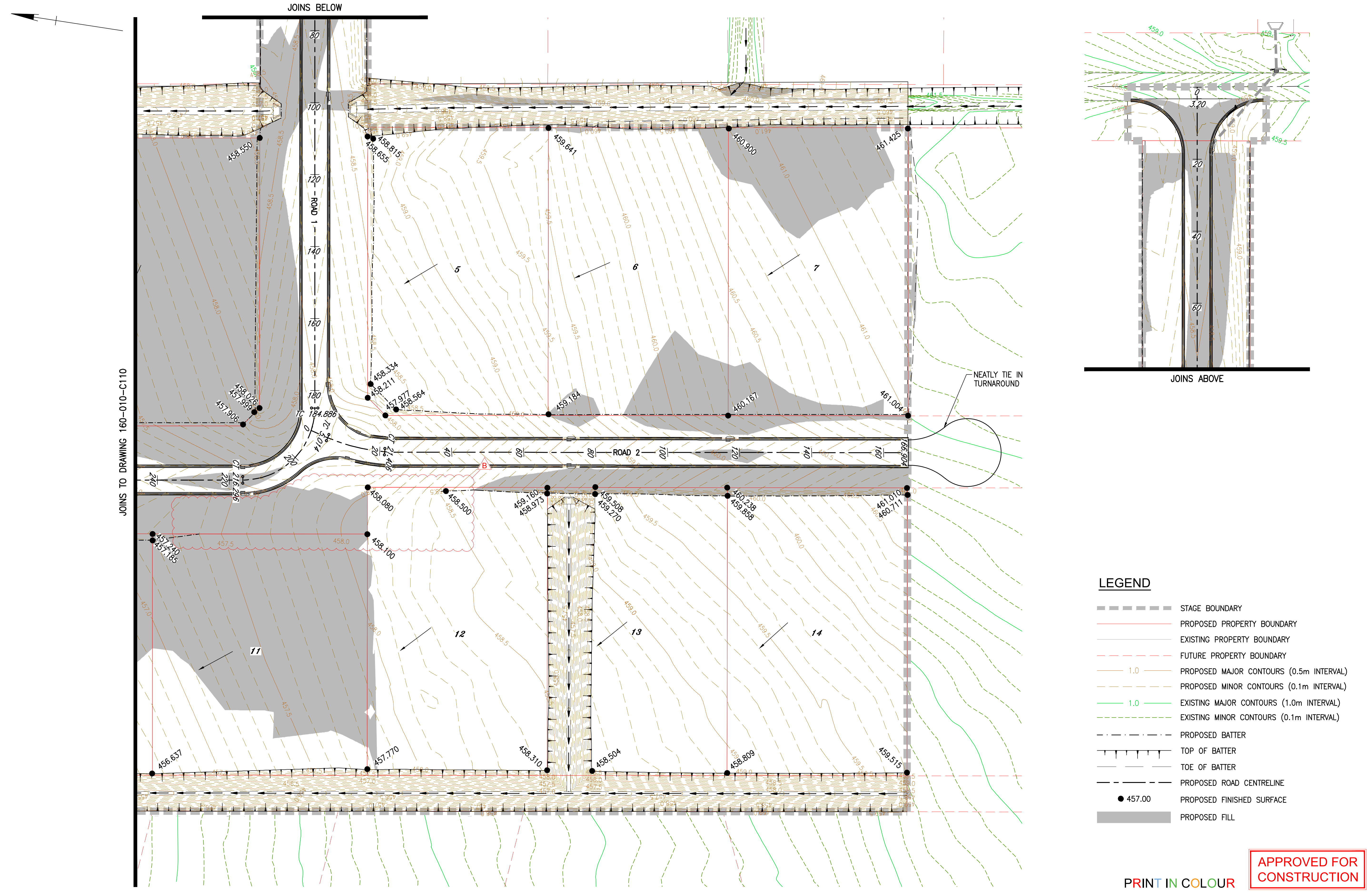


LEGEND

- STAGE BOUNDARY
- PROPOSED PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- PROPOSED MAJOR CONTOURS (0.5m INTERVAL)
- PROPOSED MINOR CONTOURS (0.1m INTERVAL)
- EXISTING MAJOR CONTOURS (1.0m INTERVAL)
- EXISTING MINOR CONTOURS (0.1m INTERVAL)
- PROPOSED BATTER
- TOP OF BATTER
- TOE OF BATTER
- PROPOSED ROAD CENTRELINE
- ● 457.00 PROPOSED FINISHED SURFACE
- PROPOSED FILL

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

PLOT DATE:24/02/2025 9:13:48 AM
FILE LOCATION:X:\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C111 GRADING PLAN (2 OF 2).dwg

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
B	20/02/25	GRADING AMENDMENTS	MG	
A	17/06/24	INITIAL ISSUE		

REVISIONS

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE 1:1000 (A3)

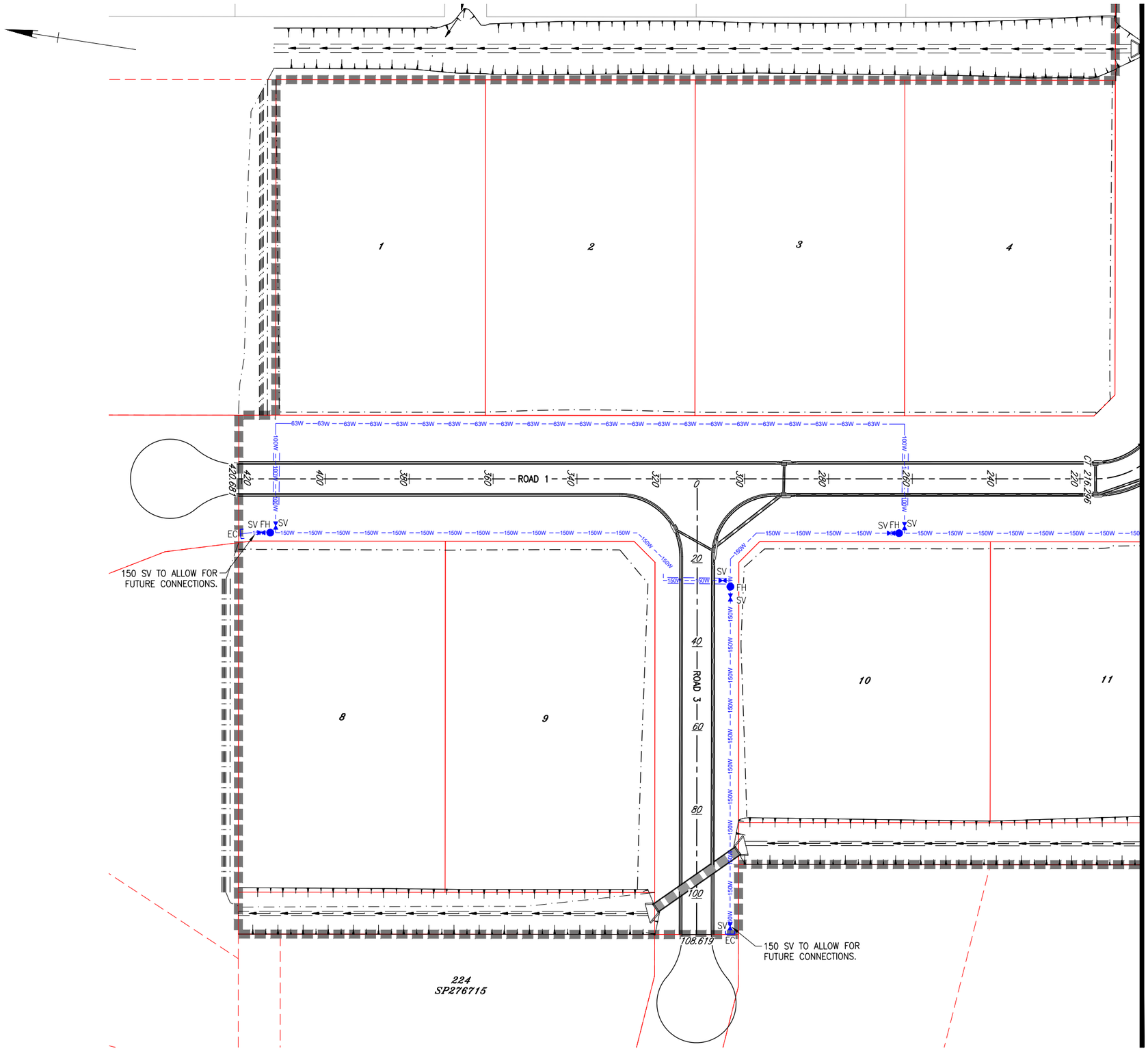
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN: MG | DESIGNED: MG
DRAWN APPROVED | DESIGN APPROVED
CIVIL SIGNOFF APPROVAL
DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: GRADING PLAN (SHEET 2 OF 2)

DRAWING NO: 160-010-C111 | SIZE: A3 | REVISION: B



LEGEND

- STAGE BOUNDARY
- PROPOSED PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- TOP OF BATTER
- TOE OF BATTER
- PROPOSED BATTER
- ROAD CENTRELINE
- 63W — PROPOSED ø63 uPVC WATER MAIN (CLASS 16)
- 150W — PROPOSED ø150 uPVC WATER MAIN (CLASS 16)
- 100W — DICL PIPE
- FH — FIRE HYDRANT
- SV — SLUICE VALVE
- EC — END CAP
- W — EXISTING WATER
- PROPOSED STORMWATER PIPE
- NEW GULLY PIT
- NEW HEADWALL WITH GRATED INLET

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 (0, 10, 20, 30 A3)

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD WYLANDRA ESTATE STAGE 1

DRAWING REF: WATER RETICULATION PLAN (SHEET 1 OF 2)

DRAWING NO: 160-010-C112

SIZE: A3

REVISION: A

PLOT DATE:20/02/2025 11:27:35 AM
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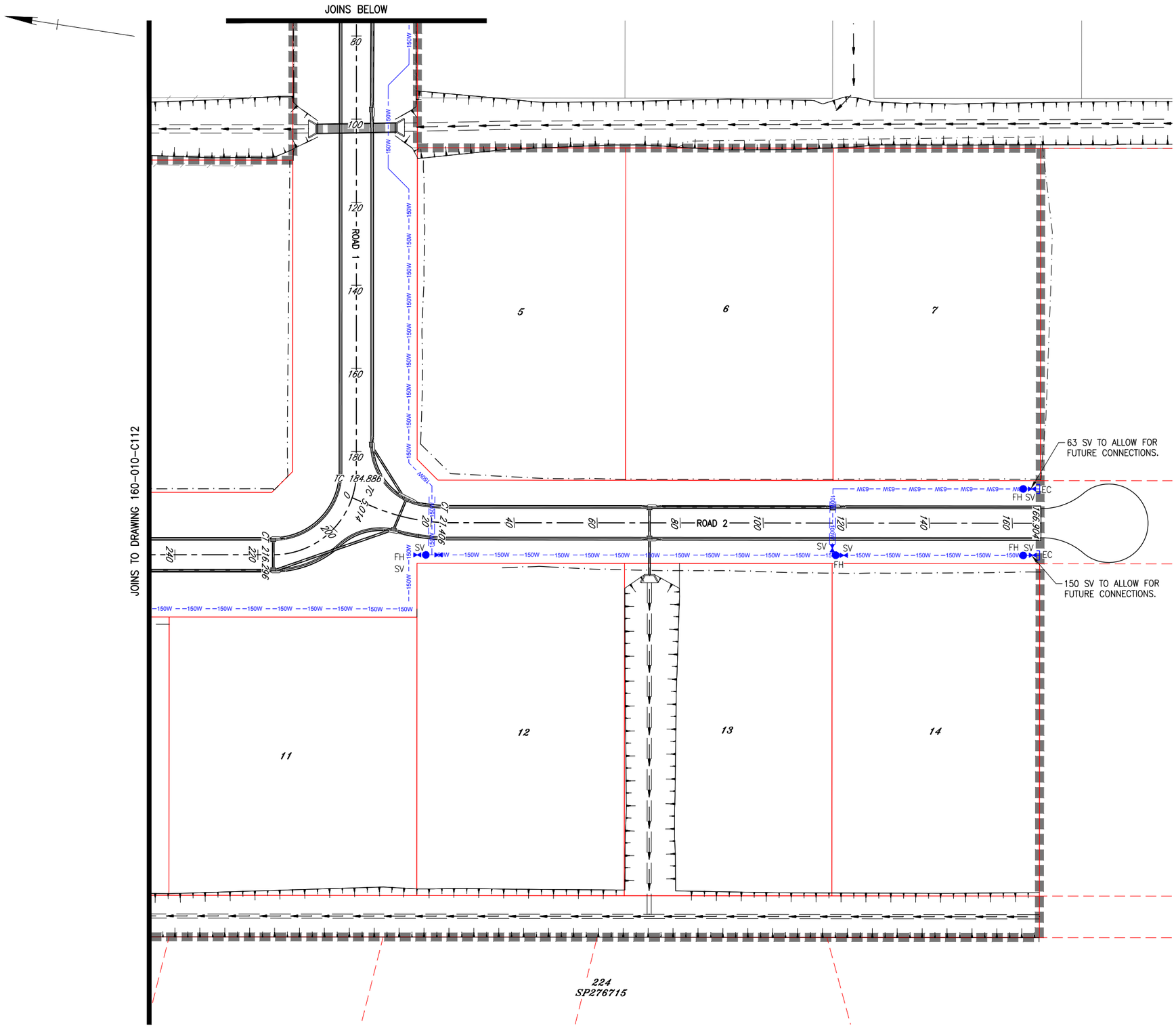

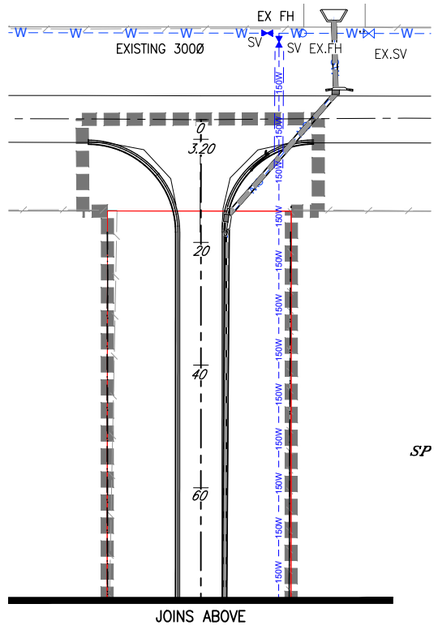

LEGEND

- STAGE BOUNDARY
- PROPOSED PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- TOP OF BATTER
- TOE OF BATTER
- PROPOSED BATTER
- ROAD CENTRELINE
- 63W — PROPOSED Ø63 uPVC WATER MAIN (CLASS 16)
- 150W — PROPOSED Ø150 uPVC WATER MAIN (CLASS 16)
- 100W — DICL PIPE
- FH — FIRE HYDRANT
- SV — SLUICE VALVE
- EC — END CAP
- W — EXISTING WATER
- PROPOSED STORMWATER PIPE
- NEW GULLY PIT
- NEW HEADWALL WITH GRATED INLET

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 (0, 10, 20, 30) A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: WATER RETICULATION PLAN (SHEET 2 OF 2)

DRAWING NO: 160-010-C113

SIZE: A3

REVISION: A

PLOT DATE:21/02/2025 10:51:36 AM
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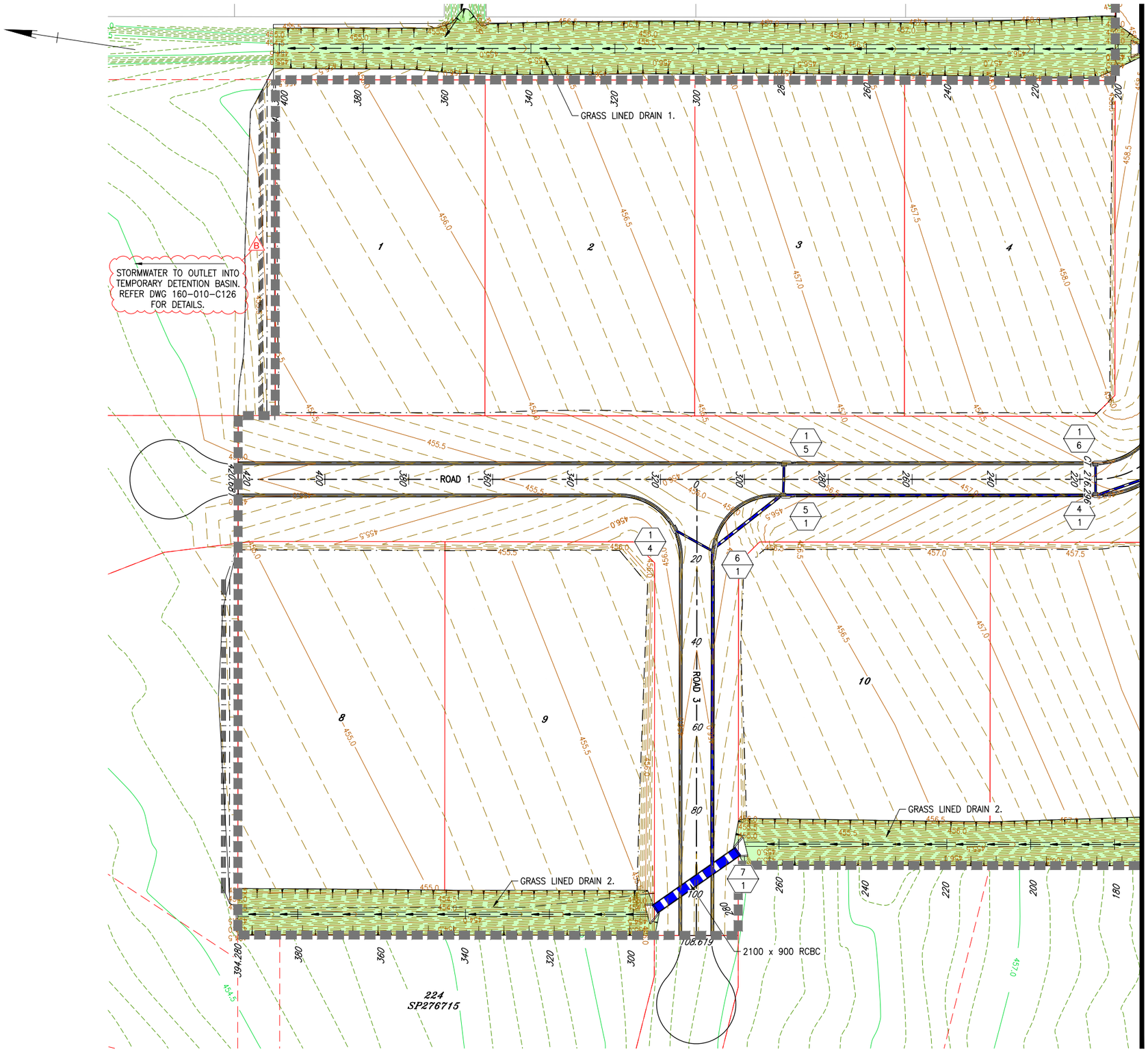


STORMWATER STRUCTURE SETOUT

PIT NO.	EASTING	NORTHING
1/4	332518.722	8113678.831
1/5	332538.272	8113655.575
1/6	332550.533	8113582.330
4/1	332543.136	8113581.091
5/1	332530.851	8113654.487
6/1	332515.070	8113668.858
7/1	332441.001	8113656.665

LEGEND

- STAGE BOUNDARY
- PROPOSED PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- 1.0 — FINISHED MAJOR CONTOURS (0.5m INTERVAL)
- FINISHED MINOR CONTOURS (0.1m INTERVAL)
- PROPOSED BATTER
- TOP OF BATTER
- TOE OF BATTER
- PROPOSED ROAD CENTRELINE
- STORMWATER PIPE
- NEW GULLY PIT
- NEW HEADWALL WITH GRATED INLET
- 3/1 STRUCTURE NAME
- GRASS LINED DRAIN

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

REVISIONS					
B	12/02/25	DETENTION BASIN NOTE	MG	
A	17/06/24	INITIAL ISSUE		
NO.	DATE	DESCRIPTION	DESIGN	APPROVED

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 (0, 10, 20, 30 A3)

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: STORMWATER Q5 MINOR AND DRAINAGE PLAN (SHEET 1 OF 2)

DRAWING NO: 160-010-C114

SIZE: A3

REVISION: B

PLOT DATE:20/02/2025 11:28:14 AM
FILE LOCATION:D:\ERSCON Dropbox\Erscon\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C114 SW PLAN (1 OF 2).dwg

JOINS BELOW

2100 x 600 RCBC

GRASS LINED DRAIN 1.

GRASS LINED DRAIN 1.

EXTEND TABLE DRAIN TO INVERT OF THE EXISTING DRAIN OVER 40m.

ROAD 1

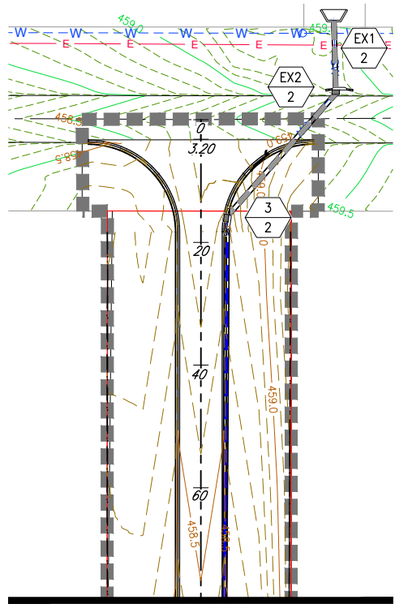
ROAD 2

TC 184.886

GRASS LINED DRAIN 3.

GRASS LINED DRAIN 2.

JOINS TO DRAWING 160-010-C114



JOINS ABOVE

STORMWATER STRUCTURE SETOUT

PIT NO.	EASTING	NORTHING
1/1	332576.922	8113562.664
EX1/2	332771.546	8113577.002
1/3	332580.319	8113450.602
1/6	332550.533	8113582.330
2/1	332565.227	8113552.304
EX2/2	332760.478	8113574.858
2/3	332573.063	8113494.203
3/1	332557.405	8113554.111
3/2	332737.087	8113588.825
3/3	332565.664	8113492.971
4/1	332543.138	8113581.092
4/2	332656.461	8113575.954
4/3	332557.113	8113491.549
5/2	332652.227	8113575.246

LEGEND

- STAGE BOUNDARY
- PROPOSED PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- 1.0 FINISHED MAJOR CONTOURS (0.5m INTERVAL)
- FINISHED MINOR CONTOURS (0.1m INTERVAL)
- PROPOSED BATTER
- TOP OF BATTER
- TOE OF BATTER
- PROPOSED ROAD CENTRELINE
- STORMWATER PIPE
- EXISTING STORMWATER PIPE
- NEW GULLY PIT
- NEW HEADWALL WITH GRATED INLET
- 3/1 STRUCTURE NAME
- GRASS LINED DRAIN

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

PLOT DATE:21/02/2025 10:52:27 AM
FILE LOCATION:\\ERSCON Dropbox\Erscon\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C115 SW PLAN (2 OF 2).dwg

REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 0 10 20 30 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

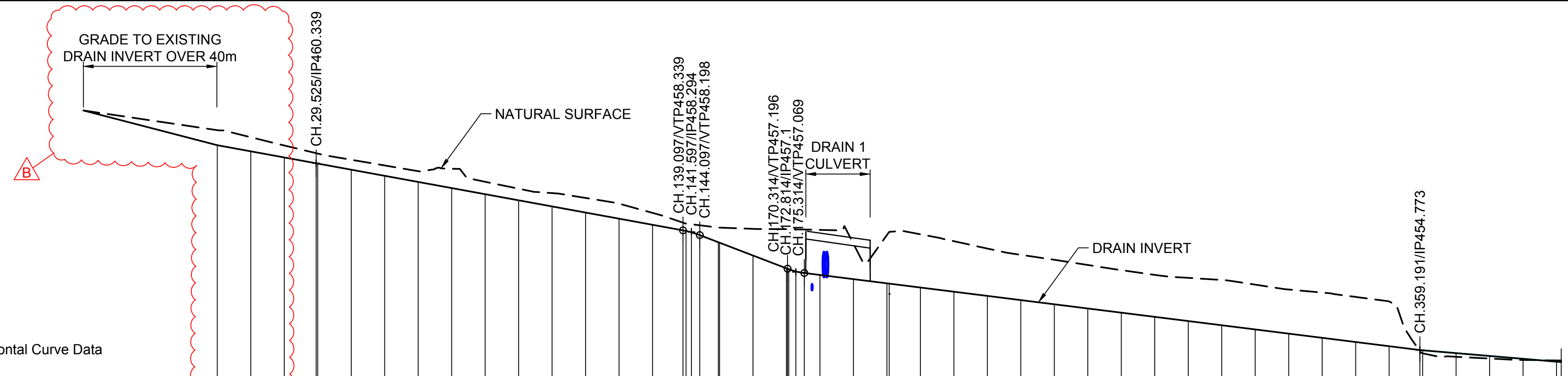
PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: STORMWATER Q5 MINOR AND DRAINAGE PLAN (SHEET 2 OF 2)

DRAWING NO: 160-010-C115

SIZE: A3

REVISION: A



Horizontal Curve Data

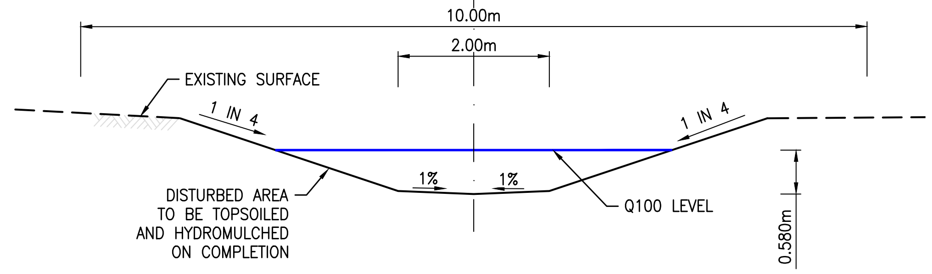
Vertical Geometry Grade (%) / Vertical Grade Length: -1.825 % 141.597m; -3.824 % 31.218m; -1.249 % 186.377m; -0.846 % 42.203m

Vertical Curve Length (m) / Vertical Curve Radius (m): 5m VC R = 250.09; 5m VC R = 194.13

DATUM RL450.000

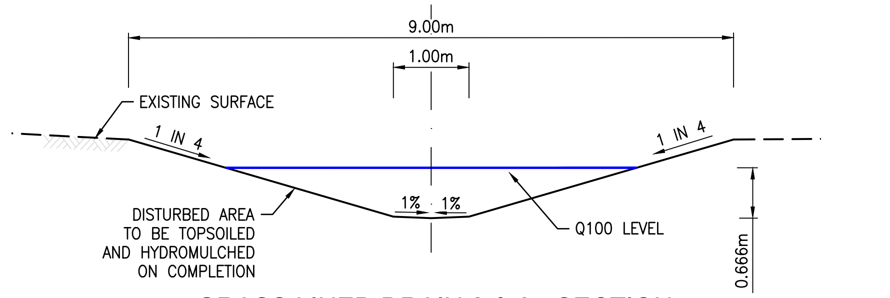
CHAINAGE	CUT/FILL DEPTH	DESIGN SURFACE	NATURAL SURFACE
0	-0.447	461.771	461.323
10	-0.42	461.535	461.115
20	-0.357	461.216	460.869
29.525	-0.301	460.339	460.640
30	-0.297	460.33	460.627
40	-0.296	460.148	460.444
50	-0.308	459.965	460.273
60	-0.32	459.783	460.103
70	-0.576	459.6	460.176
80	-0.37	459.418	459.788
90	-0.346	459.235	459.581
100	-0.397	459.053	459.450
110	-0.435	458.87	459.305
120	-0.448	458.688	459.136
130	-0.355	458.505	458.86
139.097	-0.229	458.339	458.568
140	-0.22	458.321	458.541
141.597	-0.24	458.281	458.521
144.097	-0.293	458.198	458.491
149.642	-0.437	457.986	458.423
150	-0.45	457.972	458.422
160	-0.794	457.59	458.384
170	-1.169	457.208	458.377
170.314	-1.181	457.196	458.377
170.695	-1.195	457.181	458.376
172.814	-1.255	457.116	458.371
175.314	-1.296	457.069	458.365
180	-1.343	457.01	458.353
190	-1.054	456.885	457.939
200	-1.44	456.761	458.201
200.691	-1.543	456.752	458.295
210	-1.587	456.636	458.223
220	-1.506	456.511	458.017
230	-1.412	456.386	457.798
240	-1.349	456.261	457.610
250	-1.326	456.136	457.462
260	-1.296	456.011	457.307
270	-1.267	455.887	457.154
280	-1.251	455.762	457.013
290	-1.287	455.637	456.924
300	-1.352	455.512	456.864
310	-1.334	455.387	456.721
320	-1.315	455.262	456.577
330	-1.348	455.137	456.485
340	-1.344	455.013	456.357
350	-1.335	454.888	456.223
359.191	0.035	454.773	454.738
360	0.09	454.766	454.676
370	0.109	454.682	454.573
380	0.076	454.597	454.521
390	0.036	454.512	454.476
400	-0.036	454.428	454.464
401.395	-0.046	454.416	454.462

DRAIN 1 - LONGITUDINAL SECTION



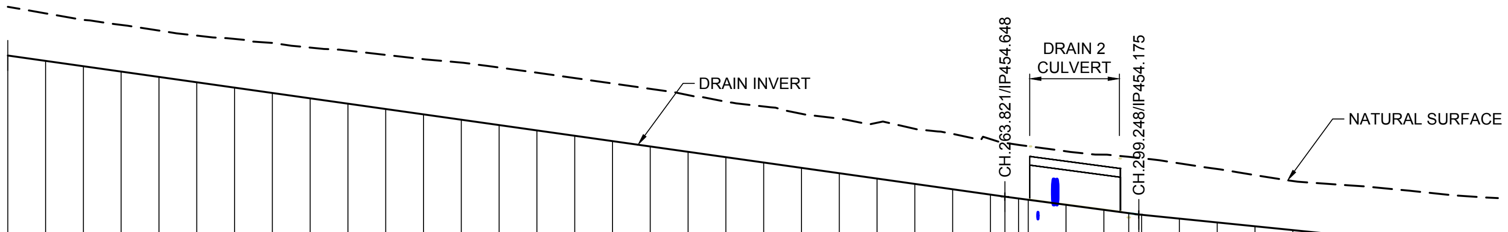
GRASS LINED DRAIN 1 - SECTION

SCALE 1:100



GRASS LINED DRAIN 2 & 3 - SECTION

SCALE 1:100



Horizontal Curve Data

Vertical Geometry Grade (%) / Vertical Grade Length: -1.415 % 263.821m; -1.336 % 35.428m; -1.013 % 95.032m

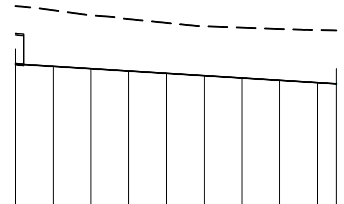
Vertical Curve Length (m)

Vertical Curve Radius (m)

DATUM RL450.000

CHAINAGE	CUT/FILL DEPTH	DESIGN SURFACE	NATURAL SURFACE
0	-1.29	458.382	459.672
10	-1.257	458.24	459.497
20	-1.225	458.098	459.323
30	-1.234	457.957	459.191
40	-1.226	457.815	459.041
50	-1.234	457.674	458.900
60	-1.288	457.532	458.820
70	-1.323	457.391	458.714
80	-1.342	457.249	458.591
90	-1.403	457.108	458.511
100	-1.431	456.966	458.397
110	-1.46	456.825	458.285
120	-1.511	456.683	458.194
130	-1.522	456.542	458.064
140	-1.527	456.4	457.927
150	-1.526	456.259	457.785
160	-1.525	456.117	457.642
170	-1.524	455.976	457.500
180	-1.501	455.834	457.335
190	-1.466	455.693	457.159
200	-1.482	455.551	457.033
210	-1.431	455.41	456.841
220	-1.444	455.268	456.712
230	-1.476	455.127	456.603
240	-1.456	454.985	456.441
250	-1.466	454.844	456.310
260	-1.468	454.702	456.17
263.821	-1.423	454.648	456.071
267.438	-1.417	454.6	456.017
270	-1.417	454.566	455.983
280	-1.416	454.432	455.848
290	-1.461	454.299	455.760
296.589	-1.491	454.211	455.702
299.248	-1.497	454.175	455.672
300	-1.497	454.167	455.664
310	-1.463	454.066	455.529
320	-1.416	453.965	455.381
330	-1.354	453.863	455.217
340	-1.299	453.762	455.061
350	-1.321	453.661	454.982
360	-1.35	453.559	454.909
370	-1.356	453.458	454.814
380	-1.351	453.357	454.708
390	-1.377	453.255	454.632
394.28	-1.397	453.212	454.609

DRAIN 2 - LONGITUDINAL SECTION



Horizontal Curve Data

Vertical Geometry Grade (%) / Vertical Grade Length: -0.618 % 85m

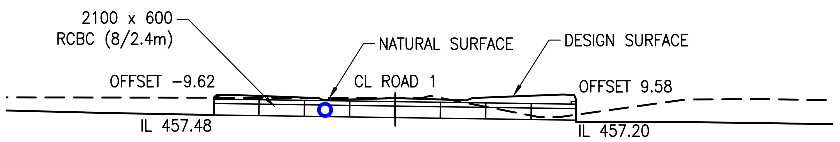
Vertical Curve Length (m)

Vertical Curve Radius (m)

DATUM RL450.000

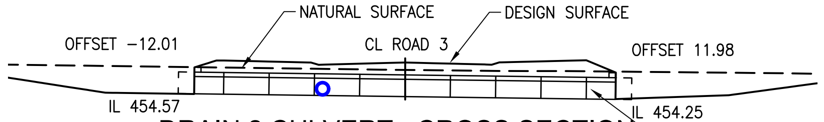
CHAINAGE	CUT/FILL DEPTH	DESIGN SURFACE	NATURAL SURFACE
0	-1.537	457.576	459.113
10	-1.487	457.514	459.001
20	-1.414	457.452	458.866
30	-1.376	457.391	458.767
40	-1.338	457.329	458.667
50	-1.31	457.267	458.577
60	-1.335	457.205	458.540
70	-1.361	457.144	458.505
80	-1.395	457.082	458.477
85	-1.415	457.051	458.466

DRAIN 3 - LONGITUDINAL SECTION



DRAIN 1 CULVERT - CROSS SECTION

SCALE 1:200



DRAIN 2 CULVERT - CROSS SECTION

SCALE 1:200

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

PLOT DATE 21/02/2025 9:59:48 AM
FILE LOCATION D:\ERSCON Dropbox\Erscon\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C116 DRAIN LONG SECTION.dwg

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
B	19/02/25	DRAIN AMENDMENTS	MG	
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:2000 0 10 20 30 40 50 60 A3 HORIZONTAL; 1:200 0 2 4 6 A3 VERTICAL

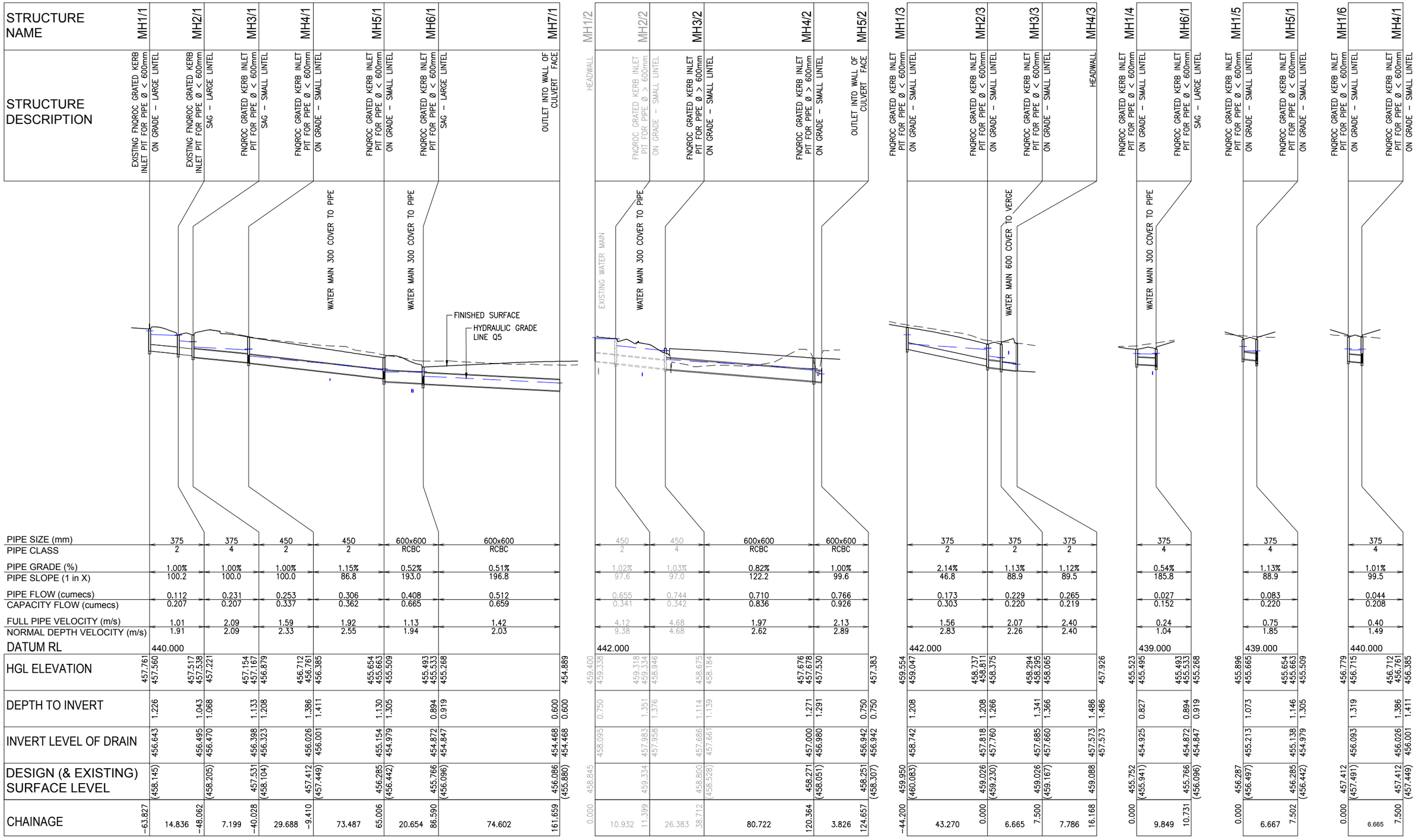
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN MG | DESIGNED MG
DRAWN APPROVED MF | DESIGN APPROVED MF
CIVIL SIGNOFF APPROVAL
DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: DRAIN LONGITUDINAL SECTION

DRAWING NO: 160-010-C116 | SIZE A3 | REVISION B



PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

PLOT DATE:26/06/2024 4:26:22 PM
FILE LOCATION:X:\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C117 MINOR SW LONG SECTION.dwg

REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE
1:2000 0 10 20 30 40 50 60 A3 HORIZONTAL
1:200 0 2 4 6 A3 VERTICAL
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL
DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1
DRAWING REF: STORMWATER Q5 MINOR LONGITUDINAL SECTION
DRAWING NO: 160-010-C117
SIZE: A3
REVISION: A

TURF BASE OF DRAIN
AND 300mm OF SIZES.
REMAINDER OF SIDES
TO BE HYDROMULCHED.

ROAD 1

ROAD 3

1
2
3
4
8
9
10

224
SP276715

TURF BASE OF DRAIN
AND 300mm OF SIZES.
REMAINDER OF SIDES
TO BE HYDROMULCHED.

JOINS TO DRAWING 160-010-C120

LEGEND

- GRATED KERB INLET PIT WITH SAND BAG SURROUND IN ACCORDANCE WITH FNQROC STD DWG S5000.
- NEW Q100 MAJOR STORMWATER PIPE
- 1.0 — PROPOSED MAJOR CONTOURS (0.5m INTERVAL)
- PROPOSED MINOR CONTOURS (0.1m INTERVAL)
- 1.0 — EXISTING MAJOR CONTOURS (1.0m INTERVAL)
- EXISTING MINOR CONTOURS (0.1m INTERVAL)
- TEMPORARY ROCK/SHAKER GRID
- PROPOSED TURF
- PROPOSED HYDROMULCH
- PROPOSED GRASS/DRILL SEED
- DIVERSION BUND
- SF — SEDIMENT FENCING
- ROCK FILTER DAM
- SAND BAG CHECK DAM.
- TURF BATTER CHUTE

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

PLOT DATE:20/02/2025 11:26:57 AM
FILE LOCATION:D:\ERSCON Dropbox\Erscon\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C118 ESC PLAN (1 OF 2).dwg

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 0 10 20 30 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: EROSION AND SEDIMENT CONTROL PLAN (SHEET 1 OF 2)

DRAWING NO: 160-010-C118

SIZE: A3

REVISION: A

JOINS BELOW

JOINS TO DRAWING 160-010-C118

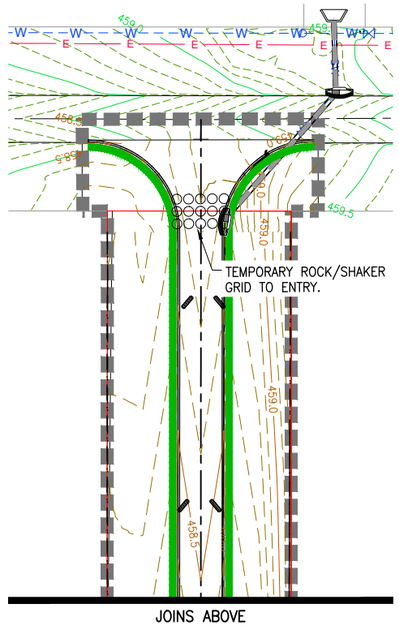
ROAD 1

ROAD 2

TURF BASE OF DRAIN AND 300mm OF SIZES. REMAINDER OF SIDES TO BE HYDROMULCHED.

TURF BASE OF DRAIN AND 300mm OF SIZES. REMAINDER OF SIDES TO BE HYDROMULCHED.

TURF BASE OF DRAIN AND 300mm OF SIZES. REMAINDER OF SIDES TO BE HYDROMULCHED.



LEGEND

- GRATED KERB INLET PIT WITH SAND BAG SURROUND IN ACCORDANCE WITH FNQROC STD DWG S5000.
- NEW Q100 MAJOR STORMWATER PIPE
- 1.0 FINISHED MAJOR CONTOURS (0.5m INTERVAL)
- FINISHED MINOR CONTOURS (0.1m INTERVAL)
- TEMPORARY ROCK/SHAKER GRID
- PROPOSED TURF
- PROPOSED HYDROMULCH
- PROPOSED GRASS/DRILL SEED
- DIVERSION BUND
- SF SEDIMENT FENCING
- ROCK FILTER DAM
- SAND BAG CHECK DAM.
- TURF BATTER CHUTE

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

PLOT DATE:21/02/2025 10:53:17 AM
FILE LOCATION:D:\ERSCON Dropbox\Erscon\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C119 ESC PLAN (2 OF 2).dwg

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1000 0 10 20 30 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: EROSION AND SEDIMENT CONTROL PLAN (SHEET 2 OF 2)

DRAWING NO: 160-010-C119

SIZE: A3

REVISION: A

SEDIMENT FENCE

MATERIAL

FABRIC:
POLYPROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN FABRIC, AT LEAST 700mm IN WIDTH AND A MINIMUM UNIT WEIGHT OF 140GSM. ALL FABRICS TO CONTAIN ULTRAVIOLET INHIBITORS AND STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).

FABRIC REINFORCEMENT:
WIRE OR STEEL MESH MINIMUM 14-GAUGE WITH A MAXIMUM MESH SPACING OF 200mm.

SUPPORT POSTS/STAKES:
1500mm² (MIN) HARDWOOD, 2500mm² (MIN) SOFTWOOD, OR 1.5kg/m (MIN) STEEL STAR PICKETS SUITABLE FOR ATTACHING FABRIC.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT AND REQUIRED TYPE OF FABRIC (IF SPECIFIED). IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, FABRIC TYPE, OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. TO THE MAXIMUM DEGREE PRACTICAL, AND WHERE THE PLANS ALLOW, ENSURE THE FENCE IS LOCATED:
   i. TOTALLY WITHIN THE PROPERTY BOUNDARIES;
   ii. ALONG A LINE OF CONSTANT ELEVATION WHEREVER PRACTICAL;
   iii. AT LEAST 2m FROM THE TOE OF ANY FILLING OPERATIONS THAT MAY RESULT IN SHIFTING SOIL/FILL DAMAGING THE FENCE.
3. INSTALL RETURNS WITHIN THE FENCE AT MAXIMUM 20m INTERVALS IF THE FENCE IS INSTALLED ALONG THE CONTOUR, OR 5 TO 10m MAXIMUM SPACING (DEPENDING ON SLOPE) IF THE FENCE IS INSTALLED AT AN ANGLE TO THE CONTOUR. THE 'RETURNS' SHALL CONSIST OF EITHER:
   i. V-SHAPED SECTION EXTENDING AT LEAST 1.5m UP THE SLOPE; OR
   ii. SANDBAG OR ROCK/AGGREGATE CHECK DAM A MINIMUM 1/3 AND MAXIMUM 1/2 FENCE HEIGHT, AND EXTENDING AT LEAST 1.5m UP THE SLOPE.
4. ENSURE THE EXTREME ENDS OF THE FENCE ARE TURNED UP THE SLOPE AT LEAST 1.5m, OR AS NECESSARY, TO MINIMISE WATER BYPASSING AROUND THE FENCE.
5. ENSURE THE SEDIMENT FENCE IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE FENCE, AND THE UNDESIRABLE DISCHARGE OF WATER AROUND THE ENDS OF THE FENCE.
6. IF THE SEDIMENT FENCE IS TO BE INSTALLED ALONG THE EDGE OF EXISTING TREES, ENSURE CARE IS TAKEN TO PROTECT THE TREES AND THEIR ROOT SYSTEMS DURING INSTALLATION OF THE FENCE. DO NOT ATTACH THE FABRIC TO THE TREES.
7. UNLESS DIRECTED BY THE SITE SUPERVISOR OR THE APPROVED PLANS, EXCAVATE A 200mm WIDE BY 200mm DEEP TRENCH ALONG THE PROPOSED FENCE LINE, PLACING THE EXCAVATED MATERIAL ON THE UP-SLOPE SIDE OF THE TRENCH.
8. ALONG THE LOWER SIDE OF THE TRENCH, APPROPRIATELY SECURE THE STAKES INTO THE GROUND SPACED NO GREATER THAN 3m IF SUPPORTED BY A TOP SUPPORT WIRE OR WEIR MESH BACKING, OTHERWISE NO GREATER THAN 2m.
9. IF SPECIFIED, SECURELY ATTACH THE SUPPORT WIRE OR MESH TO THE UP-SLOPE SIDE OF THE STAKES WITH THE MESH EXTENDING AT LEAST 200mm INTO THE EXCAVATED TRENCH, ENSURE THE MESH AND FABRIC IS ATTACHED TO THE UP-SLOPE SIDE OF THE STAKES EVEN WHEN DIRECTING A FENCE AROUND A CORNER OR SHARP CHANGE OF DIRECTION.
10. WHEREVER POSSIBLE, CONSTRUCT THE SEDIMENT FENCE FROM A CONTINUOUS ROLL OF FABRIC. TO JOIN FABRIC EITHER:
    i. ATTACH EACH END TO TWO OVERLAPPING STAKES WITH THE FABRIC FOLDING AROUND THE ASSOCIATED STAKE ONE TURN, AND WITH THE TWO STAKES TIED TOGETHER WITH WIRE; OR
    ii. OVERLAP THE FABRIC TO THE NEXT ADJACENT SUPPORT POST.
11. SECURELY ATTACH THE FABRIC TO THE SUPPORT POSTS USING 25 X 12.5mm STAPLES, OR TIE WIRE AT MAXIMUM 150mm SPACING.
12. SECURELY ATTACH THE FABRIC TO THE SUPPORT WIRE/MESH (IF ANY) AT A MAXIMUM SPACING OF 1m.
13. ENSURE THE COMPLETED SEDIMENT FENCE IS AT 450mm, BUT NOT MORE THAN 700mm HIGH. IF A SPILL-THOUGH WEIR IS INSTALLED, ENSURE THE CREST OF THE WEIR IS AT LEAST 300mm ABOVE GROUND LEVEL.
14. BACKFILL THE TRENCH AND TAMP THE FILL TO FIRMLY ANCHOR THE BOTTOM OF THE FABRIC AND MESH TO PREVENT WATER FROM FLOWING UNDER THE FENCE.

ADDITIONAL REQUIREMENTS FOR THE INSTALLATION OF SPILL-THROUGH WEIR

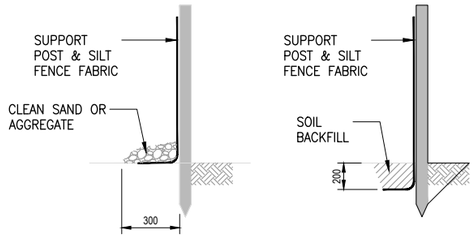
15. LOCATE THE SPILL -THROUGH WEIR SUCH THAT THE WEIR CREST WILL BE LOWER THAN THE GROUND LEVEL AT EACH END OF THE FENCE.
16. ENSURE THE CREST OF THE SPILL-THROUGH WEIR IS AT LEAST 300mm THE GROUND ELEVATION.
17. SECURELY TIE A HORIZONTAL CROSS MEMBER (WEIR) TO THE SUPPORT POSTS/STAKES EACH SIDE OF THE WEIR. CUT THE FABRIC DOWN THE SIDE OF EACH POST AND FOLD THE FABRIC OVER THE CROSS MEMBER AND APPROPRIATELY SECURE THE FABRIC.
18. INSTALL A SUITABLE SPLASH PAD AND/OR CHUTE IMMEDIATELY DOWN-SLOPE OF THE SPILL-THROUGH WEIR TO CONTROL SOIL EROSION AND APPROPRIATELY DISCHARGE THE CONCENTRATED FLOW PASSING OVER THE WEIR.

MAINTENANCE

19. INSPECT THE SEDIMENT FENCE AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY REPAIRS IMMEDIATELY.
20. REPAIR ANY TORN SECTIONS WITH A CONTINUOUS PIECE OF FABRIC FROM POST TO POST.
21. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED LAYOUT IS REQUIRED OR SPECIFIED.
22. IF THE FENCE IS SAGGING BETWEEN STAKES, INSTALL ADDITIONAL SUPPORT POSTS.
23. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 1/3 THE HEIGHT OF THE FENCE.
24. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
25. REPLACE THE FABRIC IS THE SERVICE LIFE OF THE EXISTING FABRIC EXCEEDS 6 MONTHS.

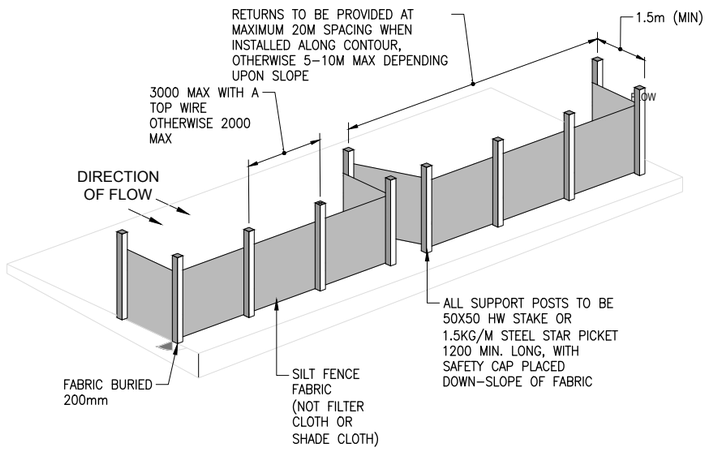
REMOVAL

26. WHEN DISTURBED AREAS UP-SLOPE OF THE SEDIMENT FENCE ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE FENCE MUST BE REMOVED.
27. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
28. REHABILITATE/REVEGETATE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.



ANCHORING BASE OF FABRIC

NOT TO SCALE



SEDIMENT FENCE

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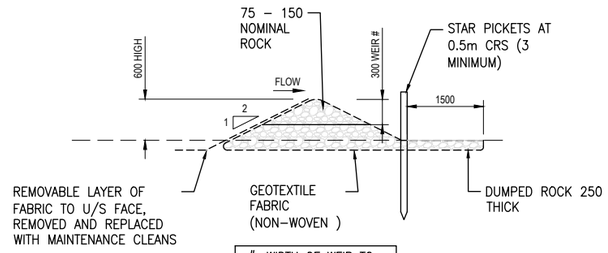


ROCK FILTER DAM

NOT TO SCALE

MATERIALS

ROCK:
75 TO 150mm NOMINAL DIAMETER, HARD, EROSION RESISTANT ROCK.

GEOTEXTILE FABRIC:
HEAVY-DUTY, NEEDLE-PUNCHES, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION

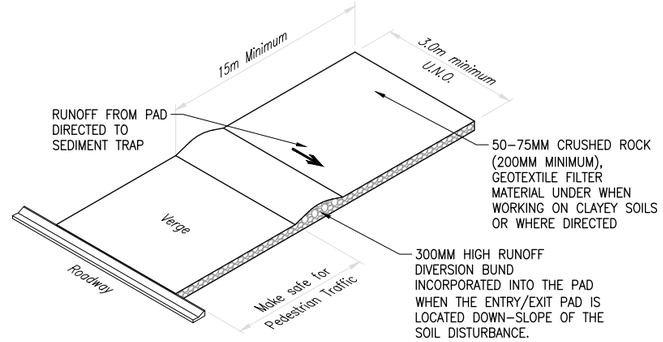
1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. PRIOR TO PLACEMENT OF THE FILTER DAM, ENSURE THE TYPE AND SIZE OF EACH CHECK DAMS WILL NOT CAUSE A SAFETY HAZARD OR CAUSE WATER TO SPILL OUT OF THE DRAIN.
3. CONSTRUCT THE FILTER DAM TO THE DIMENSIONS AND PROFILE SHOWN WITHIN THE APPROVED PLAN.
4. WHERE SPECIFIED, THE FILTER DAM SHALL BE CONSTRUCTED ON A SHEET OF GEOTEXTILE FABRIC USED AS A DOWNSTREAM SPLASH PAD.

MAINTENANCE

1. INSPECT EACH FILTER DAM AND THE DRAINAGE CHANNEL AT LEAST WEEKLY AND AFTER RUNOFF-PRODUCING RAINFALL.
2. CHECK FOR DISPLACEMENT OF THE FILTER DAM
3. CHECK FOR SOIL SCOUR AROUND THE ENDS OF THE FILTER DAM. IF SUCH EROSION IS OCCURRING, CONSIDER EXTENDING THE WIDTH OF THE FILTER DAM TO AVOID SUCH PROBLEMS.
4. IF SEVERE SOIL EROSION OCCURS EITHER UNDER OR AROUND THE FILTER DAM, THEN SEEK EXPERT ADVICE ON AN ALTERNATIVE TREATMENT MEASURE.
5. REMOVE AND SEDIMENT ACCUMULATED BY THE FILTER DAM, UNLESS IT IS INTENDED THAT THIS SEDIMENT WILL REMAIN WITHIN THE CHANNEL.
6. DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
7. REPLACE GEOFABRIC LAYER ON UPSTREAM FACE WITH A CLEAN LAYER AS REQUIRED.

REMOVAL

1. WHEN CONSTRUCTION WORK WITHIN THE DRAINAGE AREA ABOVE THE FILTER DAM HAS BEEN COMPLETED, AND THE DISTURBED AREAS AND THE DRAINAGE CHANNEL ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, ALL TEMPORARY CHECK DAMS MUST BE REMOVED.
2. REMOVE THE FILTER DAM AND ASSOCIATED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.



TEMPORARY CONSTRUCTION ENTRY / EXIT

NOT TO SCALE

MATERIAL

ROCK:
WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, NOMINAL DIAMETER OF 50 TO 75mm (SMALL DISTURBANCES) OR 100 TO 150mm (LARGE DISTURBANCES). ALL REASONABLE MEASURES MUST BE TAKEN TO OBTAIN ROCK OF NEAR UNIFORM SIZE.

FOOTPATH STABILISING AGGREGATE:
25 TO 50mm GRAVEL OR AGGREGATE.

GEOTEXTILE FABRIC:
HEAVY-DUTY, NEEDLE-PUNCHES, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION

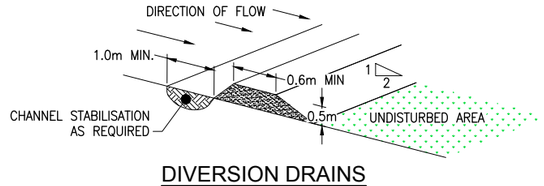
1. REFER TO APPROVED PLANS FOR LOCATION AND DIMENSIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. CLEAR THE LOCATION OF THE ROCK PAD, REMOVING STUMPS, ROOTS AND OTHER VEGETATION TO PROVIDE A FIRM FOUNDATION SO THAT THE ROCK IS NOT PRESSED INTO SOFT GROUND. CLEAR SUFFICIENT WIDTH TO ALLOW PASSAGE OF LARGE VEHICLES, BUT CLEAR ONLY THAT NECESSARY FOR THE EXIT. DO NOT CLEAR ADJACENT AREAS UNTIL THE REQUIRED EROSION AND SEDIMENT CONTROL DEVICES ARE IN PLACE.
3. IF THE EXPOSED SOIL IS SOFT, PLASTIC OR CLAYEY, PLACE A SUB-BASE OF CRUSHED ROCK OR A LAYER OF HEAVY-DUTY FILTER CLOTH TO PROVIDE A FIRM FOUNDATION.
4. PLACE THE ROCK PAD FORMING A MINIMUM 200mm THICK LAYER OF CLEAN, OPEN-VOID ROCK.
5. IF THE ASSOCIATED CONSTRUCTION SITE IS UP-SLOPE OF THE ROCK PAD, THUS CAUSING STORMWATER RUNOFF TO FLOW TOWARDS THE ROCK PAD, THEN FORM A MINIMUM 300mm HIGH FLOW CONTROL BERM ACROSS THE ROCK PAD TO DIVERT SUCH RUNOFF TO A SUITABLE SEDIMENT TRAP.
6. THE LENGTH OF THE ROCK PAD SHOULD BE AT LEAST 15M WHERE PRACTICABLE, AND AS WISE AS THE FULL WIDTH OF THE ENTRY OR EXIT AND AT LEAST 3m. THE ROCK PAD SHOULD COMMENCE AT THE EDGE OF THE OFF-SITE SEALED ROAD OR PAVEMENT.
7. FLARE THE END OF THE ROCK PAD WHERE IT MEETS THE PAVEMENT SO THAT THE WHEELS OF TURNING VEHICLES DO NOT TRAVEL OVER UNPROTECTED SOIL.
8. IF THE FOOTPATH IS OPEN TO PEDESTRIAN MOVEMENT, THE COVER THE COARSE ROCK WITH FINE AGGREGATE OR GRAVEL, OR OTHERWISE TAKE WHATEVER MEASURES ARE NEEDED TO MAKE THE AREA SAFE.

MAINTENANCE

9. INSPECT ALL SITE ENTRY AND EXIT POINTS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER RUNNOFF-PRODUCING RAINFALL, OR OTHERWISE AT FORTNIGHTLY INTERVALS.
10. IF SAND, SOIL, SEDIMENT OR MUD IS TRACKED OR WASHED ONTO THE ADJACENT SEALED ROADWAY, THEN SUCH MATERIAL MUST BE PHYSICALLY REMOVED, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.
11. IF NECESSARY FOR SAFETY REASONS, THE ROADWAY SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE ROADWAY.
12. WHEN THE VOIDS BETWEEN THE ROCK BECOMES FILLED WITH MATERIAL AND THE EFFECTIVENESS OF THE ROCK PAD IS REDUCED TO A POINT WHERE SEDIMENT IS BEING TRACKED OFF THE SITE. A NEW 100MM LAYER OF ROCK MUST BE ADDED AND/OR THE ROCK PAD MUST BE EXTENDED.
13. ENSURE ANY ASSOCIATED DRAINAGE CONTROL MEASURES (e.g. FLOW CONTROL BERM) ARE MAINTAINED IN ACCORDANCE WITH THEIR DESIRED OPERATIONAL CONDITIONS.
14. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

REMOVAL

1. THE ROCK PAD SHOULD BE REMOVED ONLY AFTER IT IS NO LONGER NEEDED AS A SEDIMENT TRAP.
2. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
3. RE-GRADE AND STABILISE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.



DIVERSION DRAINS

NOT TO SCALE

MAINTENANCE

1. SHOULD BE CHECKED WEEKLY
2. EXCESSIVE SEDIMENT SHOULD BE REMOVED TO AVOID PONDING
3. REPAIR ANY SLUMPS OR DAMAGE

SPACING

1. THE SPACING OF CATCH DRAINS DOWN EXPOSED SLOPES SHOULD NOT EXCEED THE DISTANCE DEFINED BY:

MAXIMUM SPACING ≈ 48 [LOG(H)] - 25 METRES
≡ 71 - 48 [LOG(% SLOPE)] METRES

WHERE: H IS THE HORIZONTAL SLOPE COMPONENT AS DEFINED BY H(H):1(V) AND (% SLOPE)= 100/H

APPROVED FOR CONSTRUCTION

PLOT DATE:17/06/2024 2:50:44 PM
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REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: NTS

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

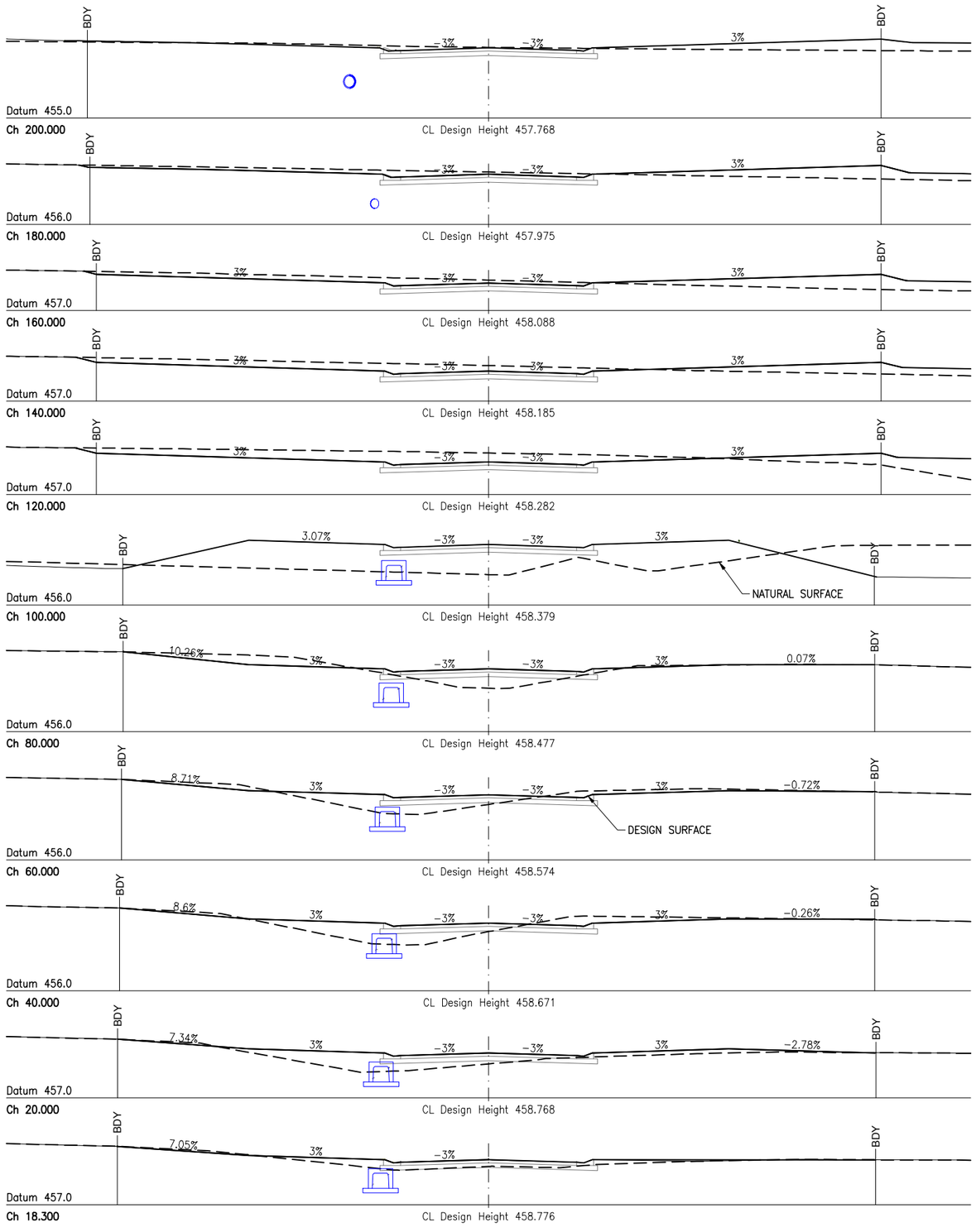
CIVIL SIGNOFF APPROVAL

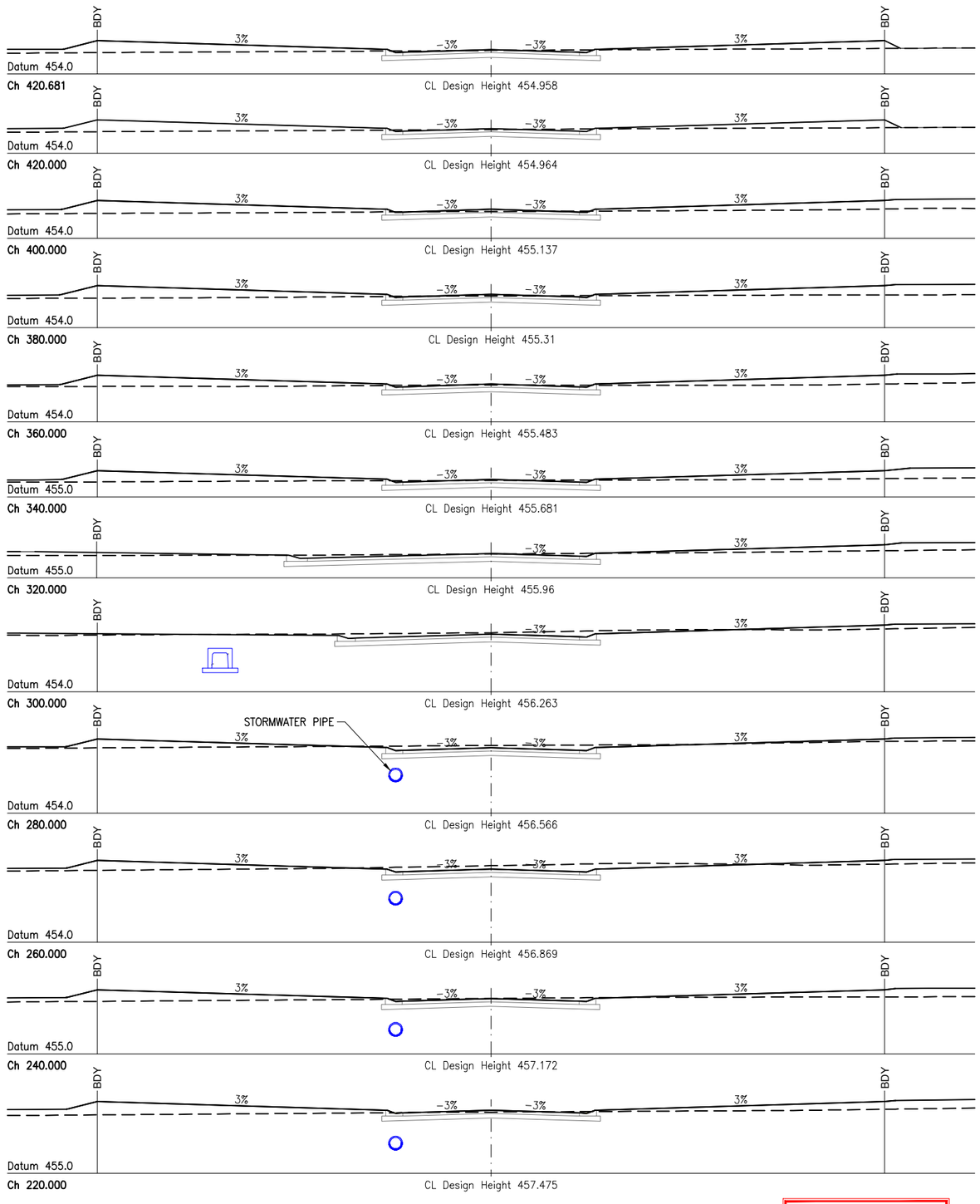
DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: EROSION AND SEDIMENT CONTROL NOTES

DRAWING NO: 160-010-C120 | SIZE: A3 | REVISION: A





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REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

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ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

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CIVIL SIGNOFF APPROVAL
DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1
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CROSS SECTIONS
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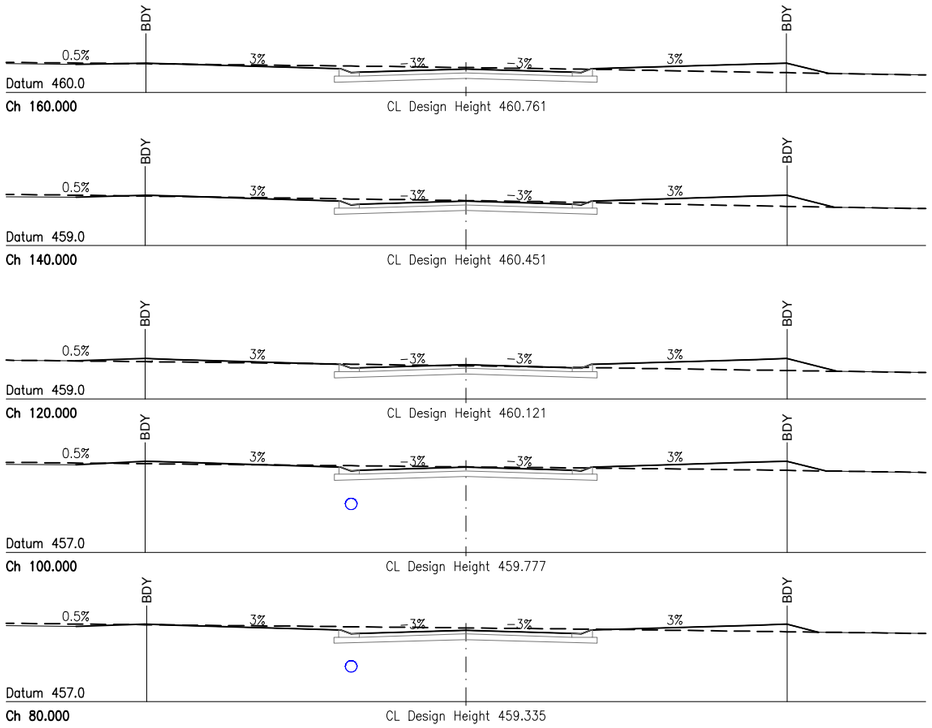
REVISION: A



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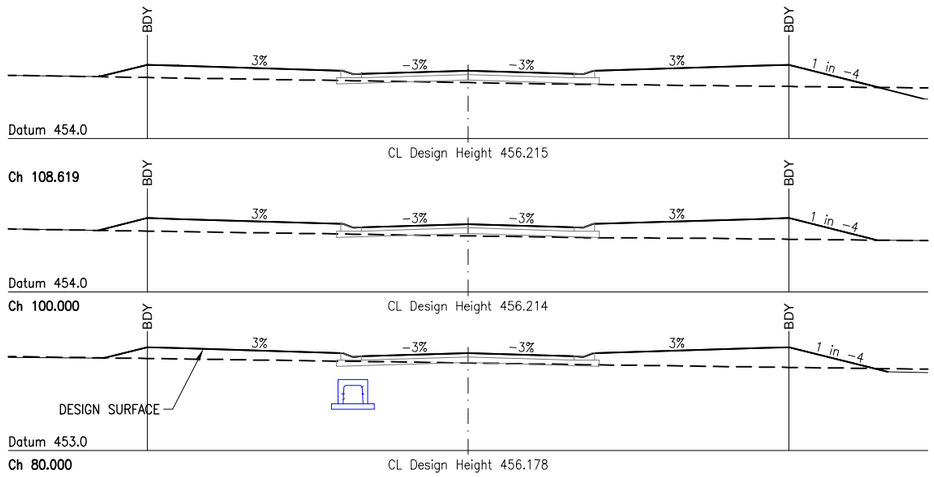

ROAD 3

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APPROVED FOR CONSTRUCTION

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REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	17/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE
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ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL
DATE: 17/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1
DRAWING REF: ROAD 2 AND 3
CROSS SECTIONS
DRAWING NO: 160-010-C122
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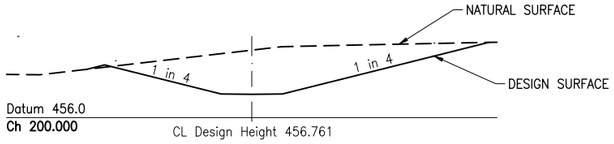
REVISION: A



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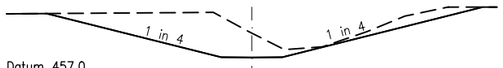

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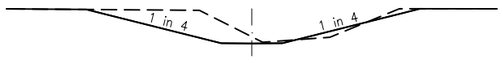

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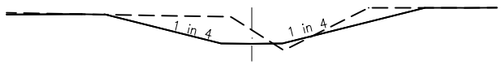

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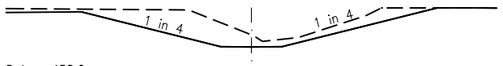

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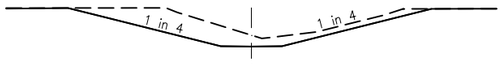

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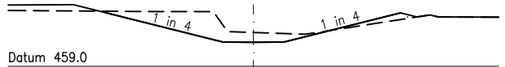

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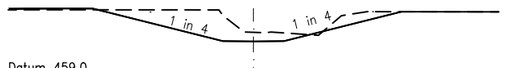

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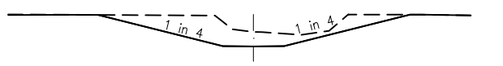

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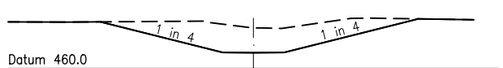

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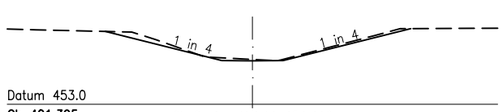

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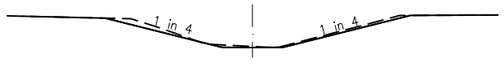

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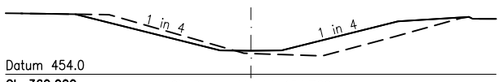

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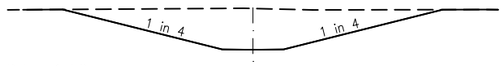

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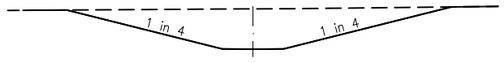

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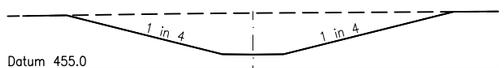

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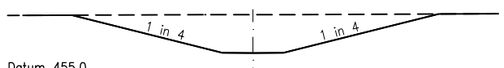

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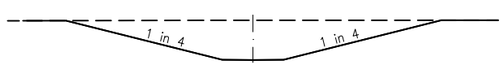

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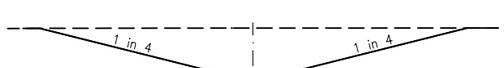

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PRINT IN COLOUR

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REVISIONS					
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	26/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

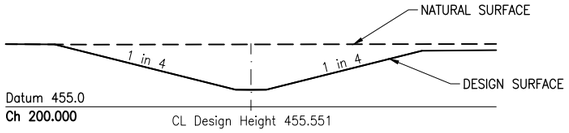
SCALE
1:200 0 2 4 6 A3 HORIZONTAL
1:20 0 0.1 0.2 0.3 0.4 0.5 0.6 A3 VERTICAL
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

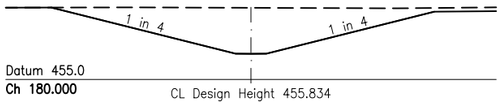
DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

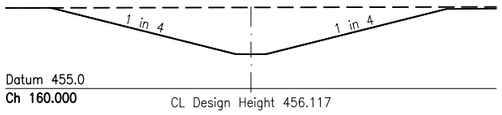
CIVIL SIGNOFF APPROVAL
DATE: 26/06/24 RPEQ: 05085

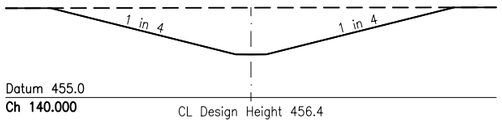
PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1
DRAWING REF: DRAIN 1
CROSS SECTIONS
DRAWING NO: 160-010-C123
SIZE: A3
REVISION: A

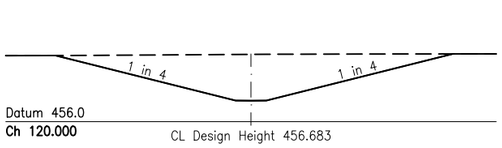
PLOT DATE:26/06/2024 3:23:16 PM
FILE LOCATION:D:\ERSCON Dropbox\ERSCON\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C123 DRAIN CROSS SECTION (1 OF 3).dwg

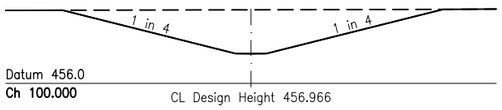


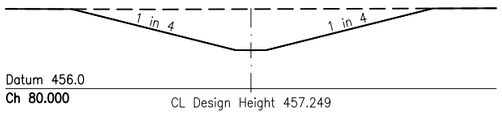


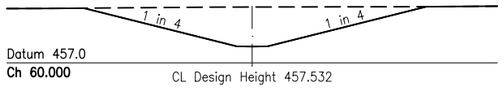


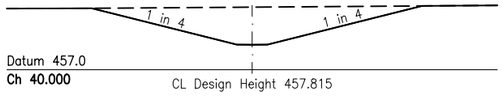


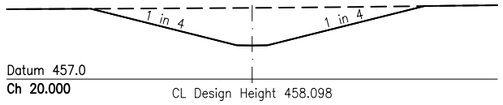


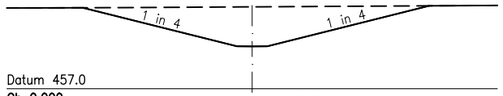


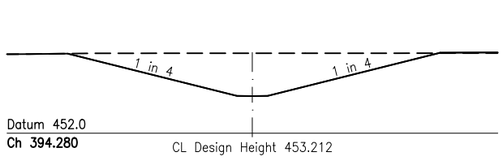


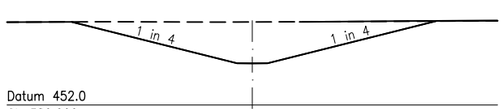


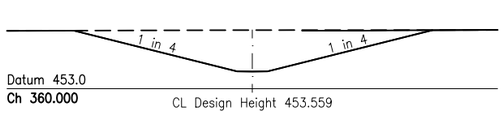


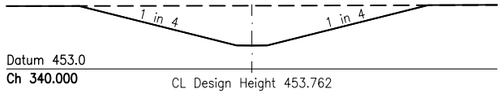


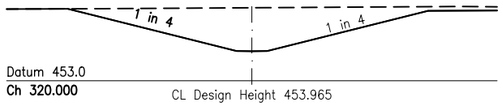


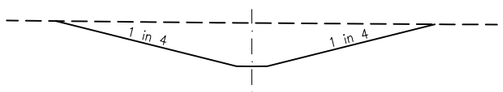


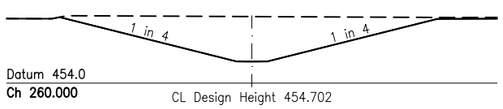


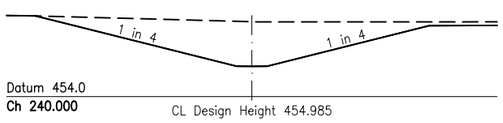


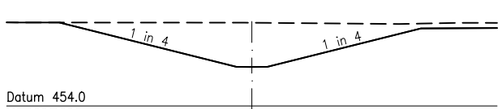












PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	26/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE
1:200 0 2 4 6 A3 HORIZONTAL
1:20 0 0.1 0.2 0.3 0.4 0.5 0.6 A3 VERTICAL
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL
DATE: 26/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1
DRAWING REF: DRAIN 2
CROSS SECTIONS
DRAWING NO: 160-010-C124
SIZE: A3
REVISION: A

PLOT DATE:26/06/2024 3:06:44 PM
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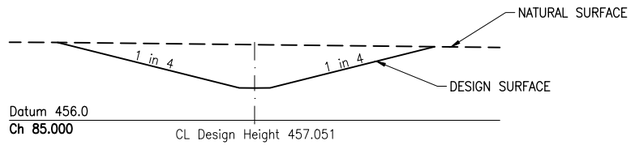

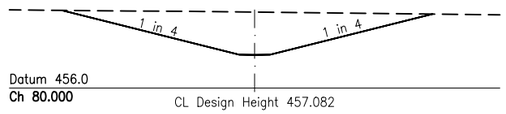

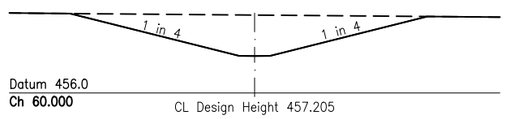

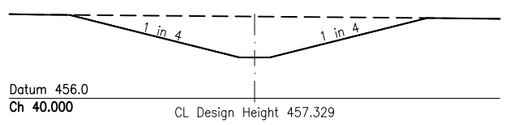

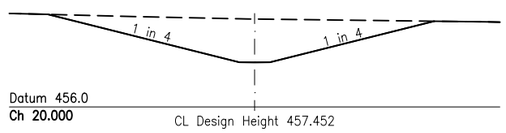

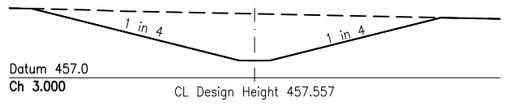

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APPROVED FOR CONSTRUCTION

PLOT DATE:26/06/2024 3:21:02 PM
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REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	26/06/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE
1:200 0 2 4 6 A3 HORIZONTAL
1:20 0 0.1 0.2 0.3 0.4 0.5 0.6 A3 VERTICAL
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

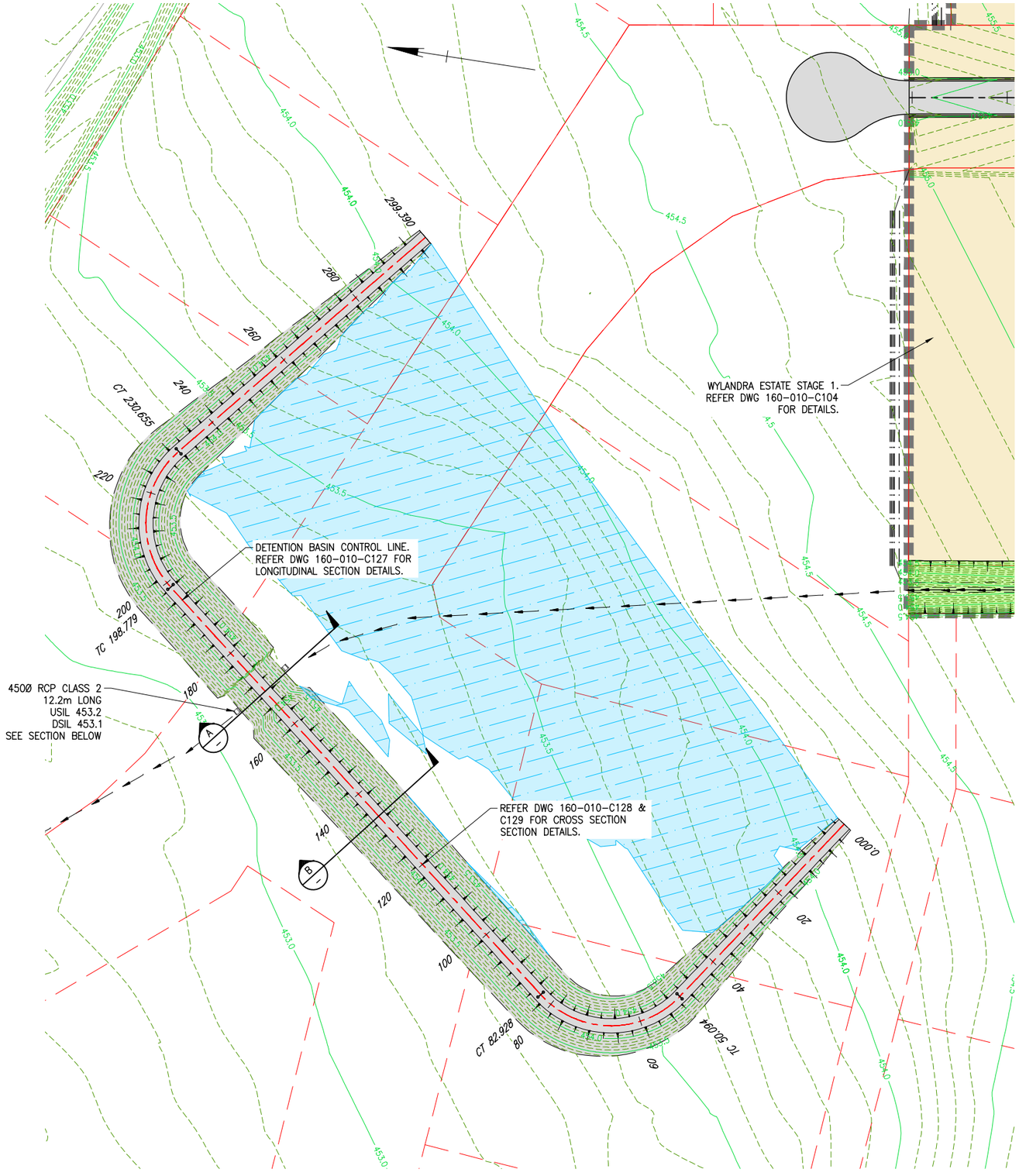
DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF

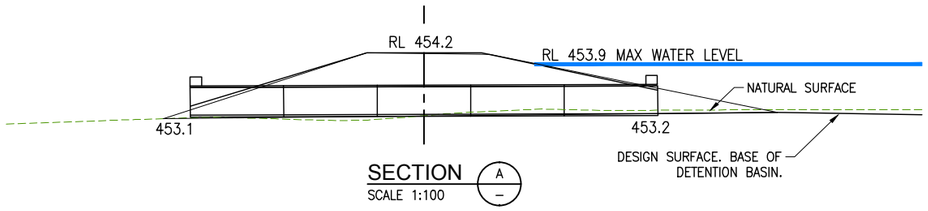
CIVIL SIGNOFF APPROVAL
DATE: 26/06/24 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: DRAIN 3
CROSS SECTIONS

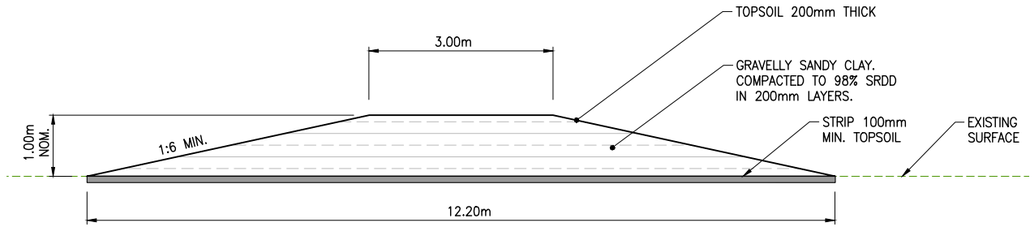
DRAWING NO	SIZE	REVISION
160-010-C125	A3	A





SECTION A
SCALE 1:100

450 RCP (5/2.44) (CLASS 2, BUTT JOINT) (12.2 OVERALL LENGTH) CH170
ENDWALLS: (U)CONC. 1.3m³
REINFORCED CONC. APRON (TYPE 3) CONC. 0.5m³, C/O WALL CONC. 0.3m³, LENGTH 900mm
OVERLAY MATERIAL 4.6m³, BEDDING/HAUNCH MATERIAL 2.3m³ (H2)
STANDARD DRAWINGS – 1305, 1359
EXTERNAL DIA. 698mm, PIPE THICK. 44mm, HEADWALL HT. 230mm



TYPICAL EMBANKMENT PROFILE
SECTION B
SCALE 1:100

LEGEND

- STAGE BOUNDARY
- PROPOSED PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- PROPOSED ALIGNMENT
- EXISTING ROAD CENTRELINE
- TOP OF BATTER
- TOE OF BATTER
- FLOW PATH
- 1.0 MAJOR CONTOURS (0.5m INTERVAL)
- MINOR CONTOURS (0.1m INTERVAL)
- PROPOSED EXCAVATION/CUT EXTENTS

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

PLOT DATE:24/02/2025 9:36:52 AM
FILE LOCATION:K:\160 Conmat\010 Wylandra Stage 1\5 Drawings\160-010-C126 DETENTION BASIN PLAN.dwg

REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	14/02/25	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE
1:1000 0 10 20 30 A3
1:100 0 1 2 3 A3
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

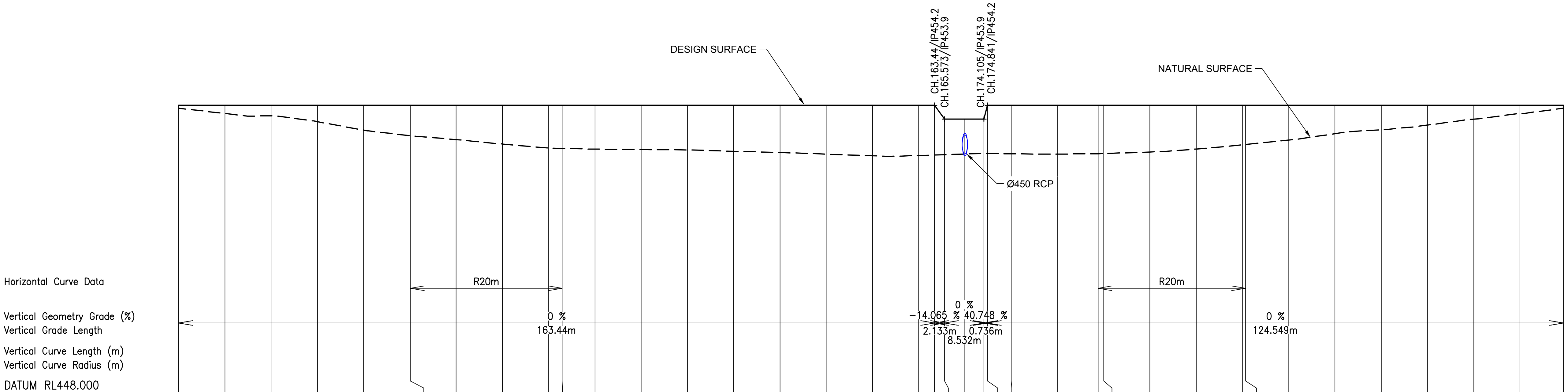
DRAWN	MG	DESIGNED	MF
DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL
DATE: 12/02/25 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1
DRAWING REF: DETENTION BASIN PLAN
DRAWING NO: 160-010-C126
SIZE: A3
REVISION: A

DETENTION BASIN - CONTROL LINE

CHAINAGE	EASTING	NORTHING	BRG. IN	BRG. OUT	RADII IN	RADII OUT
0.000	332360.015	8113771.524		304°11'02.12"		
50.094	332318.575	8113799.669	304°11'02.12"	304°11'02.12"		20.000
82.928	332314.105	8113828.595	38°14'41.19"	38°14'41.19"	20.000	
198.779	332385.819	8113919.581	38°14'41.19"	38°14'41.19"		20.000
230.655	332414.265	8113922.619	129°33'46.55"	129°33'46.55"	20.000	
299.390	332467.255	8113878.840	129°33'46.55"			



CHAINAGE	NATURAL SURFACE	DESIGN SURFACE	CUT/FILL
0	454.136	454.2	0.064
10	454.022	454.2	0.178
20	453.97	454.2	0.23
30	453.845	454.2	0.355
40	453.664	454.2	0.536
50	453.545	454.2	0.655
50.094	453.544	454.2	0.656
60	453.459	454.2	0.741
70	453.363	454.2	0.837
80	453.28	454.2	0.92
82.928	453.27	454.2	0.93
90	453.253	454.2	0.947
100	453.245	454.2	0.955
110	453.236	454.2	0.964
120	453.208	454.2	0.992
130	453.18	454.2	1.02
140	453.145	454.2	1.055
150	453.109	454.2	1.091
160	453.116	454.2	1.084
163.44	453.127	454.2	1.073
165.573	453.134	453.9	0.766
170	453.148	453.9	0.752
174.105	453.159	453.9	0.741
174.841	453.158	454.2	1.042
180	453.153	454.2	1.047
190	453.148	454.2	1.052
198.779	453.155	454.2	1.045
200	453.158	454.2	1.042
210	453.191	454.2	1.009
220	453.256	454.2	0.944
230	453.348	454.2	0.852
230.655	453.354	454.2	0.846
240	453.45	454.2	0.75
250	453.588	454.2	0.612
260	453.673	454.2	0.527
270	453.772	454.2	0.428
280	453.9	454.2	0.3
290	454.019	454.2	0.181
299.39	454.136	454.2	0.064

DETENTION BASIN - LONGITUDINAL SECTION

PRINT IN COLOUR

APPROVED FOR CONSTRUCTION

REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	12/02/25	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE
1:2000 0 10 20 30 40 50 60 A3 HORIZONTAL
1:200 0 2 4 6 A3 VERTICAL
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MF
DRAWN APPROVED	MF	DESIGN APPROVED	JM

CIVIL SIGNOFF APPROVAL
DATE: 12/02/25 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: DETENTION BASIN LONGITUDINAL SECTION

DRAWING NO: 160-010-C127 | SIZE: A3 | REVISION: A

PLOT DATE24/02/2025 9:38:19 AM
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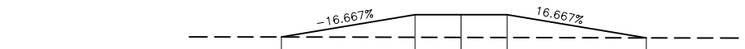
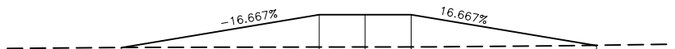


Datum 452

CUT / FILL	0		0.737	0.741	0.745	0
DESIGN HEIGHT	453.473		454.200	454.200	454.200	453.443
EXISTING SURFACE	453.473		453.463	453.459	453.455	453.443
DESIGN OFFSET	-5.863		-1.500	0.000	1.500	6.043

Ch 60.00



Datum 452

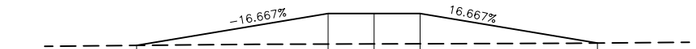
CUT / FILL	0		1.057	1.055	1.053	0
DESIGN HEIGHT	453.124		454.200	454.200	454.200	453.192
EXISTING SURFACE	453.124		453.143	453.145	453.147	453.192
DESIGN OFFSET	-7.956		-1.500	0.000	1.500	7.547

Ch 140.00

Datum 452

CUT / FILL	0		0.534	0.536	0.542	0
DESIGN HEIGHT	453.686		454.200	454.200	454.200	453.638
EXISTING SURFACE	453.686		453.666	453.664	453.658	453.638
DESIGN OFFSET	-4.587		-1.500	0.000	1.500	4.873

Ch 40.00



Datum 452

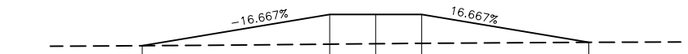
CUT / FILL	0		0.997	0.992	0.988	0
DESIGN HEIGHT	453.159		454.200	454.200	454.200	453.236
EXISTING SURFACE	453.159		453.203	453.208	453.212	453.236
DESIGN OFFSET	-7.747		-1.500	0.000	1.500	7.286

Ch 120.00

Datum 452

CUT / FILL	0		0.233	0.23	0.236	0
DESIGN HEIGHT	453.963		454.200	454.200	454.200	453.958
EXISTING SURFACE	453.963		453.967	453.970	453.964	453.958
DESIGN OFFSET	-2.924		-1.500	0.000	1.500	2.951

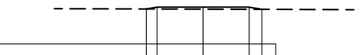
Ch 20.00



Datum 452

CUT / FILL	0		0.969	0.955	0.942	0
DESIGN HEIGHT	453.181		454.200	454.200	454.200	453.291
EXISTING SURFACE	453.181		453.231	453.245	453.258	453.291
DESIGN OFFSET	-7.615		-1.500	0.000	1.500	6.951

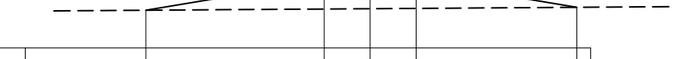
Ch 100.00



Datum 453

CUT / FILL	0	0.06		0.064	0.068	0
DESIGN HEIGHT	454.141	454.200		454.200	454.200	454.130
EXISTING SURFACE	454.141	454.140		454.136	454.132	454.130
DESIGN OFFSET	-1.853	-1.500		0.000	1.500	1.918

Ch 0.00



Datum 452

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Ch 80.00

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REVISIONS

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A	13/02/25	INITIAL ISSUE		

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CLIENT: CONMAT CONSTRUCTION MATERIALS

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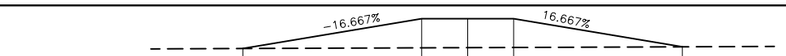
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN	MG	DESIGNED	MF
DRAWN APPROVED	MF	DESIGN APPROVED	JM

CIVIL SIGNOFF APPROVAL
DATE: 13/02/25 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1
DRAWING REF: DETENTION BASIN
CROSS SECTIONS (SHEET 1 OF 2)
DRAWING NO: 160-010-C128
SIZE: A3
REVISION: A



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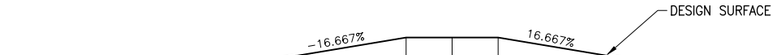
Ch 220.00



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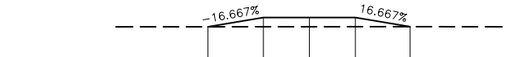
Ch 200.00



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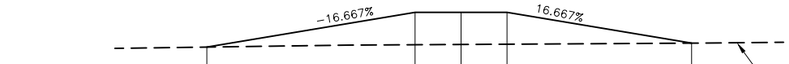
Ch 280.00



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Ch 180.00

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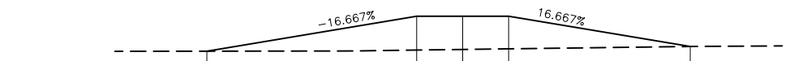
Ch 260.00



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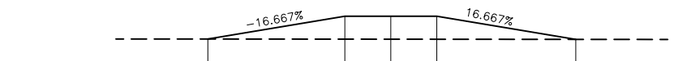
Ch 160.00



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Ch 240.00

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ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

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DRAWN APPROVED	MF	DESIGN APPROVED	JM

CIVIL SIGNOFF APPROVAL
DATE: 13/02/25 RPEQ: 05085

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1
DRAWING REF: DETENTION BASIN
CROSS SECTIONS (SHEET 2 OF 2)
DRAWING NO: 160-010-C129
SIZE: A3
REVISION: A

ERSCON
CONSULTING ENGINEERS

Wylandra Estate
Stage 1

Operational Works Design Report

File No: 160-010

February 2025

Client: CONMAT CONSTRUCTION MATERIALS

www.erscon.com.au

Prepared by:

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DOCUMENT ISSUE RECORD

Revision Code	Date Revised	Revision Details	Author	Checked	Approved
A	20/06/24	Operational Works Application	MG	MF	JM
B	17/02/25	Operational Works Application	MG	MF	JM

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1 SUMMARY

1.1 DEVELOPMENT APPLICATION DETAILS

Proposed development:	Land development at Wylandra Estate, Mareeba. Works include earthworks, road works, water connections, and stormwater drainage.
Type of approval sought:	**Operational Works**
Site address:	Off Wylandra Drive, Mareeba
Real property description:	Lot 224 on SP276715
Site area:	74,548 m²
Assessment manager:	Mareeba Shire Council
Owner details:	Conmat Pty Ltd
Applicant details:	Conmat Pty Ltd C/-ERSCON PTY. LTD. PO BOX 7890 CAIRNS QLD 4870

1.2 PLANNING INSTRUMENT DETAILS

Planning scheme:	Mareeba Shire Council Planning Scheme 2016
Zone:	Medium Density Residential
Local plan:	Nil
Level of assessment:	Code Assessment
Applicable codes:	Nil

1.3 REFERRAL AGENCIES

Referral agency and role
Nil

2 SITE DETAILS

2.1 SITE DESCRIPTION

The site is located off Wylandra Drive, Mareeba. This application seeks operational works approval to complete construction of a 14-lot land development as approved for re-configuration by Council.

Table 1: Site description

Site characteristic	Description
Existing land use	The existing land was used for farming.
Existing structures	There is an existing intersection with a temporary drainage outlet that flows into the lots. Existing drainage overland drains are also present to the East of the lots.
Frontage and access	Access will be provided via the new road off Wylandra Drive.
Topography and views	The elevation change is 7m from RL 461.5m to 454.5m and slopes from the South-East towards the North-West at a grade of 1-2%.
Existing vegetation	The existing land is predominantly overgrown grassed areas with scattered trees.
Existing waterways	Drainage pathways are located along the eastern lot boundary and discharge into pathways near the north boundary. These then flow from east to west towards Chinaman Creek and Ray Road.

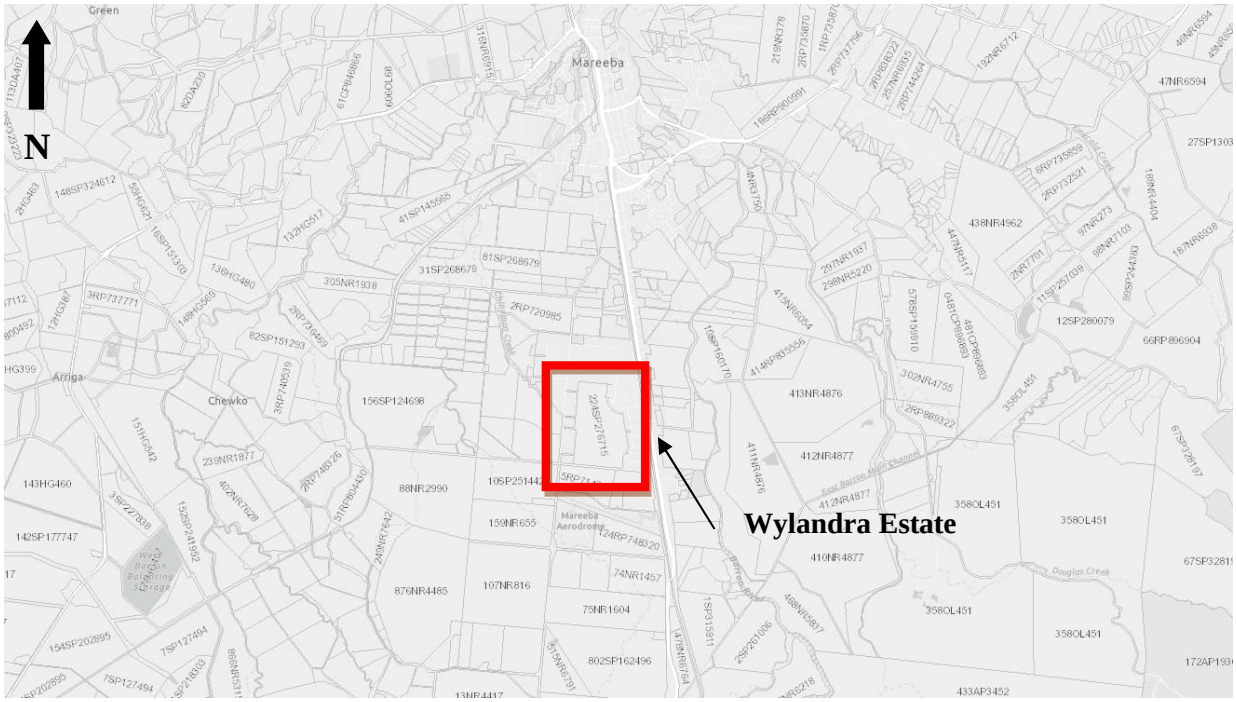


Figure 1: Aerial View of Site Identification
Source: DA Mapping System

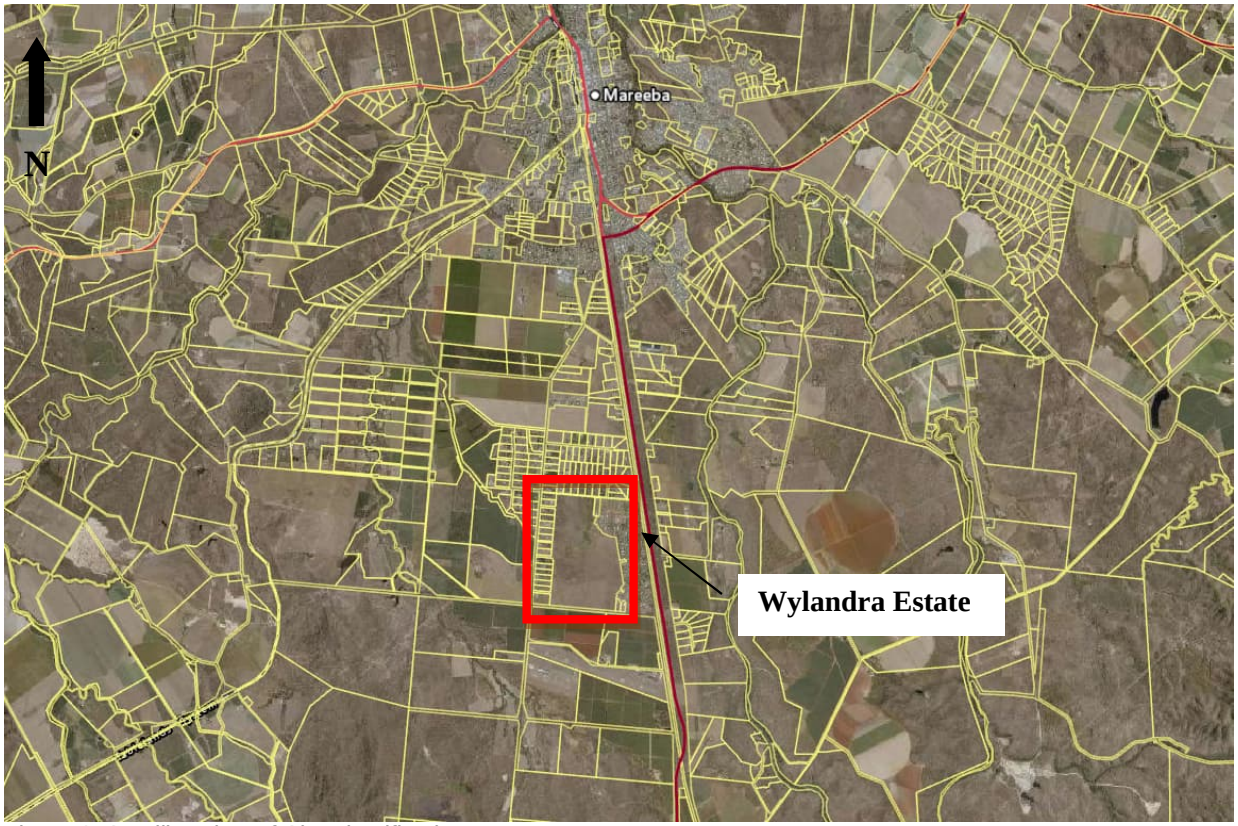


Figure 2: Satellite View of Site Identification
Source: QLD Globe

2.2 SURROUNDING LAND USES

Table 2: Surrounding land uses

	Surrounding land uses
North	Existing residential area
South	Airport and Existing residential area
East	Existing residential area and farmland
West	Existing residential area

3 PROPOSED DEVELOPMENT DETAILS

The purpose of this application is the development of 14 new allotments, including all municipal services (excluding sewer) and access road. This stage is designed in accordance with Council's conditions, and relevant specifications and standards.

Table 3: Summary of development aspects

Building or operational work	
Operational work	Construction of 14 new rural residential allotments including roadworks, bulk earthworks, water, and stormwater connections.
Value of proposed work	Approx $1,062,000

4 DEVELOPMENT APPLICATION FORM 1

DA Form 1 – Development application details

Approved form (version 1.6 effective 2 August 2024) made under section 282 of the Planning Act 2016.

This form **must** be used to make a development application **involving code assessment or impact assessment**, except when applying for development involving only building work.

For a development application involving **building work only**, use *DA Form 2 – Building work details*.

For a development application involving **building work associated with any other type of assessable development (i.e. material change of use, operational work or reconfiguring a lot)**, use this form (*DA Form 1*) **and** parts 4 to 6 of *DA Form 2 – Building work details.*

Unless stated otherwise, all parts of this form **must** be completed in full and all required supporting information **must** accompany the development application.

One or more additional pages may be attached as a schedule to this development application if there is insufficient space on the form to include all the necessary information.

This form and any other form relevant to the development application must be used to make a development application relating to strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994*, and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008.* For the purpose of assessing a development application relating to strategic port land and Brisbane core port land, any reference to a planning scheme is taken to mean a land use plan for the strategic port land, Brisbane port land use plan for Brisbane core port land, or a land use plan for airport land.

Note: *All terms used in this form have the meaning given under the Planning Act 2016, the Planning Regulation 2017, or the Development Assessment Rules (DA Rules).*

PART 1 – APPLICANT DETAILS

1) Applicant details	
Applicant name(s) (*individual or company full name*)	Wylandra Properties Pty Ltd
Contact name *(only applicable for companies)*	
Postal address *(P.O. Box or street address)*	C/ Freshwater Planning Pty Ltd 17 Barronview Drive
Suburb	Freshwater
State	QLD
Postcode	4870
Country	Australia
Contact number	0402729004
Email address *(non-mandatory)*	FreshwaterPlanning@outlook.com
Mobile number *(non-mandatory)*	
Fax number *(non-mandatory)*	
Applicant's reference number(s) *(if applicable)*	F24/20 OPW

1.1) Home-based business
☐ Personal details to remain private in accordance with section 264(6) of *Planning Act 2016*

2) Owner's consent
2.1) Is written consent of the owner required for this development application?
☐ Yes – the written consent of the owner(s) is attached to this development application ☒ No – proceed to 3)

PART 2 – LOCATION DETAILS

3) Location of the premises *(complete 3.1) or 3.2), and 3.3) as applicable)*

***Note**: Provide details below and attach a site plan for any or all premises part of the development application. For further information, see DA Forms Guide: Relevant plans.*

3.1) Street address and lot on plan

☒ Street address **AND** lot on plan (*all lots must be listed*), ***or***

☐ Street address **AND** lot on plan for an adjoining or adjacent property of the premises *(appropriate for development in water but adjoining or adjacent to land e.g. jetty, pontoon. All lots must be listed).*

a)	Unit No.	Street No.	Street Name and Type	Suburb
			Ray Road	Mareeba
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)
	4880	224	SP276715	Mareeba Shire Council
b)	Unit No.	Street No.	Street Name and Type	Suburb
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)

3.2) Coordinates of premises *(appropriate for development in remote areas, over part of a lot or in water not adjoining or adjacent to land e.g. channel dredging in Moreton Bay)*

***Note**: Place each set of coordinates in a separate row.*

☐ Coordinates of premises by longitude and latitude

Longitude(s)	Latitude(s)	Datum	Local Government Area(s) *(if applicable)*
		☐ WGS84 ☐ GDA94 ☐ Other:	

☐ Coordinates of premises by easting and northing

Easting(s)	Northing(s)	Zone Ref.	Datum	Local Government Area(s) *(if applicable)*
		☐ 54 ☐ 55 ☐ 56	☐ WGS84 ☐ GDA94 ☐ Other:	

3.3) Additional premises

☐ Additional premises are relevant to this development application and the details of these premises have been attached in a schedule to this development application

☒ Not required

4) Identify any of the following that apply to the premises and provide any relevant details

☐ In or adjacent to a water body or watercourse or in or above an aquifer

Name of water body, watercourse or aquifer:	

☐ On strategic port land under the *Transport Infrastructure Act 1994*

Lot on plan description of strategic port land:	
Name of port authority for the lot:	

☐ In a tidal area

Name of local government for the tidal area *(if applicable)*:	
Name of port authority for tidal area *(if applicable)*	

☐ On airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*	
Name of airport:	
☐ Listed on the Environmental Management Register (EMR) under the *Environmental Protection Act 1994*	
EMR site identification:	
☐ Listed on the Contaminated Land Register (CLR) under the *Environmental Protection Act 1994*	
CLR site identification:	

5) Are there any existing easements over the premises?

Note: Easement uses vary throughout Queensland and are to be identified correctly and accurately. For further information on easements and how they may affect the proposed development, see DA Forms Guide.

☒ Yes – All easement locations, types and dimensions are included in plans submitted with this development application

☐ No

PART 3 – DEVELOPMENT DETAILS

Section 1 – Aspects of development

6.1) Provide details about the first development aspect

a) What is the type of development? *(tick only one box)*

☐ Material change of use ☐ Reconfiguring a lot ☒ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☒ Development permit ☐ Preliminary approval ☐ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☒ Code assessment ☐ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

Construction of a 14 lot Rural Residential Subdivision including roads, stormwater and water reticulation.

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms guide: Relevant plans.*

☒ Relevant plans of the proposed development are attached to the development application

6.2) Provide details about the second development aspect

a) What is the type of development? *(tick only one box)*

☐ Material change of use ☐ Reconfiguring a lot ☐ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☐ Development permit ☐ Preliminary approval ☐ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☐ Code assessment ☐ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*

☐ Relevant plans of the proposed development are attached to the development application

6.3) Additional aspects of development
☐ Additional aspects of development are relevant to this development application and the details for these aspects that would be required under Part 3 Section 1 of this form have been attached to this development application
☒ Not required
6.4) Is the application for State facilitated development?
☐ Yes - Has a notice of declaration been given by the Minister?
☒ No

Section 2 – Further development details

7) Does the proposed development application involve any of the following?	
Material change of use	☐ Yes – complete division 1 if assessable against a local planning instrument
Reconfiguring a lot	☐ Yes – complete division 2
Operational work	☒ Yes – complete division 3
Building work	☐ Yes – complete *DA Form 2 – Building work details*

Division 1 – Material change of use

***Note**: This division is only required to be completed if any part of the development application involves a material change of use assessable against a local planning instrument.*

8.1) Describe the proposed material change of use			
Provide a general description of the proposed use	Provide the planning scheme definition *(include each definition in a new row)*	Number of dwelling units *(if applicable)*	Gross floor area (m^2) *(if applicable)*

8.2) Does the proposed use involve the use of existing buildings on the premises?
☐ Yes
☐ No

8.3) Does the proposed development relate to temporary accepted development under the Planning Regulation?	
☐ Yes – provide details below or include details in a schedule to this development application	
☐ No	
Provide a general description of the temporary accepted development	Specify the stated period dates under the Planning Regulation

Division 2 – Reconfiguring a lot

***Note**: This division is only required to be completed if any part of the development application involves reconfiguring a lot.*

9.1) What is the total number of existing lots making up the premises?

9.2) What is the nature of the lot reconfiguration? *(tick all applicable boxes)*	
☐ Subdivision *(complete 10)*	☐ Dividing land into parts by agreement *(complete 11)*
☐ Boundary realignment *(complete 12)*	☐ Creating or changing an easement giving access to a lot from a constructed road *(complete 13)*

10) Subdivision				
10.1) For this development, how many lots are being created and what is the intended use of those lots:				
Intended use of lots created	Residential	Commercial	Industrial	Other, please specify:
Number of lots created				

10.2) Will the subdivision be staged?	
☐ Yes – provide additional details below ☐ No	
How many stages will the works include?	
What stage(s) will this development application apply to?	

11) Dividing land into parts by agreement – how many parts are being created and what is the intended use of the parts?				
Intended use of parts created	Residential	Commercial	Industrial	Other, please specify:
Number of parts created				

12) Boundary realignment			
12.1) What are the current and proposed areas for each lot comprising the premises?			
Current lot		Proposed lot	
Lot on plan description	Area (m^2)	Lot on plan description	Area (m^2)
12.2) What is the reason for the boundary realignment?			

13) What are the dimensions and nature of any existing easements being changed and/or any proposed easement? *(attach schedule if there are more than two easements)*				
Existing or proposed?	Width (m)	Length (m)	Purpose of the easement? *(e.g. pedestrian access)*	Identify the land/lot(s) benefitted by the easement

Division 3 – Operational work

***Note**: This division is only required to be completed if any part of the development application involves operational work.*

14.1) What is the nature of the operational work?		
☒ Road work	☒ Stormwater	☒ Water infrastructure
☒ Drainage work	☒ Earthworks	☐ Sewage infrastructure
☐ Landscaping	☐ Signage	☐ Clearing vegetation
☐ Other – please specify:		

14.2) Is the operational work necessary to facilitate the creation of new lots? *(e.g. subdivision)*	
☒ Yes – specify number of new lots:	14
☐ No	

14.3) What is the monetary value of the proposed operational work? *(include GST, materials and labour)*

$1,062,000 (Includes GST)

PART 4 – ASSESSMENT MANAGER DETAILS

15) Identify the assessment manager(s) who will be assessing this development application

Mareeba Shire Council

16) Has the local government agreed to apply a superseded planning scheme for this development application?

☐ Yes – a copy of the decision notice is attached to this development application
☐ The local government is taken to have agreed to the superseded planning scheme request – relevant documents attached
☒ No

PART 5 – REFERRAL DETAILS

17) Does this development application include any aspects that have any referral requirements?
***Note**: A development application will require referral if prescribed by the* Planning Regulation 2017.

☒ No, there are no referral requirements relevant to any development aspects identified in this development application – proceed to Part 6

Matters requiring referral to the **Chief Executive of the *Planning Act 2016*:**

☐ Clearing native vegetation
☐ Contaminated land *(unexploded ordnance)*
☐ Environmentally relevant activities (ERA) *(only if the ERA has not been devolved to a local government)*
☐ Fisheries – aquaculture
☐ Fisheries – declared fish habitat area
☐ Fisheries – marine plants
☐ Fisheries – waterway barrier works
☐ Hazardous chemical facilities
☐ Heritage places – Queensland heritage place *(on or near a Queensland heritage place)*
☐ Infrastructure-related referrals – designated premises
☐ Infrastructure-related referrals – state transport infrastructure
☐ Infrastructure-related referrals – State transport corridor and future State transport corridor
☐ Infrastructure-related referrals – State-controlled transport tunnels and future state-controlled transport tunnels
☐ Infrastructure-related referrals – near a state-controlled road intersection
☐ Koala habitat in SEQ region – interfering with koala habitat in koala habitat areas outside koala priority areas
☐ Koala habitat in SEQ region – key resource areas
☐ Ports – Brisbane core port land – near a State transport corridor or future State transport corridor
☐ Ports – Brisbane core port land – environmentally relevant activity (ERA)
☐ Ports – Brisbane core port land – tidal works or work in a coastal management district
☐ Ports – Brisbane core port land – hazardous chemical facility
☐ Ports – Brisbane core port land – taking or interfering with water
☐ Ports – Brisbane core port land – referable dams
☐ Ports – Brisbane core port land – fisheries
☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*
☐ SEQ development area
☐ SEQ regional landscape and rural production area or SEQ rural living area – tourist activity or sport and recreation activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – community activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – indoor recreation
☐ SEQ regional landscape and rural production area or SEQ rural living area – urban activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – combined use
☐ SEQ northern inter-urban break – tourist activity or sport and recreation activity

☐ SEQ northern inter-urban break – community activity
☐ SEQ northern inter-urban break – indoor recreation
☐ SEQ northern inter-urban break – urban activity
☐ SEQ northern inter-urban break – combined use
☐ Tidal works or works in a coastal management district
☐ Reconfiguring a lot in a coastal management district or for a canal
☐ Erosion prone area in a coastal management district
☐ Urban design
☐ Water-related development – taking or interfering with water
☐ Water-related development – removing quarry material *(from a watercourse or lake)*
☐ Water-related development – referable dams
☐ Water-related development –levees *(category 3 levees only)*
☐ Wetland protection area

Matters requiring referral to the **local government:**
☐ Airport land
☐ Environmentally relevant activities (ERA) (*only if the ERA has been devolved to local government)*
☐ Heritage places – Local heritage places

Matters requiring referral to the **Chief Executive of the distribution entity or transmission entity:**
☐ Infrastructure-related referrals – Electricity infrastructure

Matters requiring referral to:
- The **Chief Executive of the holder of the licence**, if not an individual
- The **holder of the licence**, if the holder of the licence is an individual

☐ Infrastructure-related referrals – Oil and gas infrastructure

Matters requiring referral to the **Brisbane City Council:**
☐ Ports – Brisbane core port land

Matters requiring referral to the **Minister responsible for administering the *Transport Infrastructure Act 1994*:**
☐ Ports – Brisbane core port land *(where inconsistent with the Brisbane port LUP for transport reasons)*
☐ Ports – Strategic port land

Matters requiring referral to the **relevant port operator**, if applicant is not port operator**:**
☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*

Matters requiring referral to the **Chief Executive of the relevant port authority:**
☐ Ports – Land within limits of another port *(below high-water mark)*

Matters requiring referral to the **Gold Coast Waterways Authority:**
☐ Tidal works or work in a coastal management district *(in Gold Coast waters)*

Matters requiring referral to the **Queensland Fire and Emergency Service:**
☐ Tidal works or work in a coastal management district *(involving a marina (more than six vessel berths))*

18) Has any referral agency provided a referral response for this development application?

☐ Yes – referral response(s) received and listed below are attached to this development application
☒ No

Referral requirement	Referral agency	Date of referral response

Identify and describe any changes made to the proposed development application that was the subject of the referral response and this development application, or include details in a schedule to this development application *(if applicable).*

PART 6 – INFORMATION REQUEST

19) Information request under the DA Rules

☒ I agree to receive an information request if determined necessary for this development application

☐ I do not agree to accept an information request for this development application

***Note**: By not agreeing to accept an information request I, the applicant, acknowledge:*

- *that this development application will be assessed and decided based on the information provided when making this development application and the assessment manager and any referral agencies relevant to the development application are not obligated under the DA Rules to accept any additional information provided by the applicant for the development application unless agreed to by the relevant parties*
- *Part 3 under Chapter 1 of the DA Rules will still apply if the application is an application listed under section 11.3 of the DA Rules or*
- *Part 2under Chapter 2 of the DA Rules will still apply if the application is for state facilitated development*

Further advice about information requests is contained in the DA Forms Guide.

PART 7 – FURTHER DETAILS

20) Are there any associated development applications or current approvals? *(e.g. a preliminary approval)*

☒ Yes – provide details below or include details in a schedule to this development application

☐ No

List of approval/development application references	Reference number	Date	Assessment manager
☐ Approval ☒ Development application	RAL/24/0009	28 June, 2024	Mareeba Shire Council
☐ Approval ☐ Development application			

21) Has the portable long service leave levy been paid? *(only applicable to development applications involving building work or operational work)*

☐ Yes – a copy of the receipted QLeave form is attached to this development application

☐ No – I, the applicant will provide evidence that the portable long service leave levy has been paid before the assessment manager decides the development application. I acknowledge that the assessment manager may give a development approval only if I provide evidence that the portable long service leave levy has been paid

☒ Not applicable *(e.g. building and construction work is less than $150,000 excluding GST)*

Amount paid	Date paid (dd/mm/yy)	QLeave levy number (A, B or E)
$		

22) Is this development application in response to a show cause notice or required as a result of an enforcement notice?

☐ Yes – show cause or enforcement notice is attached

☒ No

23) Further legislative requirements

Environmentally relevant activities

23.1) Is this development application also taken to be an application for an environmental authority for an **Environmentally Relevant Activity (ERA)** under section 115 of the *Environmental Protection Act 1994*?

☐ Yes – the required attachment (form ESR/2015/1791) for an application for an environmental authority accompanies this development application, and details are provided in the table below

☒ No

***Note**: Application for an environmental authority can be found by searching "ESR/2015/1791" as a search term at www.qld.gov.au. An ERA requires an environmental authority to operate. See www.business.qld.gov.au for further information.*

Proposed ERA number:		Proposed ERA threshold:	
Proposed ERA name:			

☐ Multiple ERAs are applicable to this development application and the details have been attached in a schedule to this development application.

Hazardous chemical facilities

23.2) Is this development application for a **hazardous chemical facility**?

☐ Yes – *Form 536: Notification of a facility exceeding 10% of schedule 15 threshold* is attached to this development application

☒ No

***Note**: See www.business.qld.gov.au for further information about hazardous chemical notifications.*

Clearing native vegetation

23.3) Does this development application involve **clearing native vegetation** that requires written confirmation that the chief executive of the *Vegetation Management Act 1999* is satisfied the clearing is for a relevant purpose under section 22A of the *Vegetation Management Act 1999*?

☐ Yes – this development application includes written confirmation from the chief executive of the *Vegetation Management Act 1999* (s22A determination)

☒ No

***Note**: 1. Where a development application for operational work or material change of use requires a s22A determination and this is not included, the development application is prohibited development.*

2. See https://www.qld.gov.au/environment/land/vegetation/applying for further information on how to obtain a s22A determination.

Environmental offsets

23.4) Is this development application taken to be a prescribed activity that may have a significant residual impact on a **prescribed environmental matter** under the *Environmental Offsets Act 2014*?

☐ Yes – I acknowledge that an environmental offset must be provided for any prescribed activity assessed as having a significant residual impact on a prescribed environmental matter

☒ No

***Note**: The environmental offset section of the Queensland Government's website can be accessed at www.qld.gov.au for further information on environmental offsets.*

Koala habitat in SEQ Region

23.5) Does this development application involve a material change of use, reconfiguring a lot or operational work which is assessable development under Schedule 10, Part 10 of the Planning Regulation 2017?

☐ Yes – the development application involves premises in the koala habitat area in the koala priority area

☐ Yes – the development application involves premises in the koala habitat area outside the koala priority area

☒ No

***Note**: If a koala habitat area determination has been obtained for this premises and is current over the land, it should be provided as part of this development application. See koala habitat area guidance materials at www.desi.qld.gov.au for further information.*

Water resources

23.6) Does this development application involve **taking or interfering with underground water through an artesian or subartesian bore, taking or interfering with water in a watercourse, lake or spring, or taking overland flow water under the *Water Act 2000***?

☐ Yes – the relevant template is completed and attached to this development application and I acknowledge that a relevant authorisation or licence under the *Water Act 2000* may be required prior to commencing development

☒ No

***Note**: Contact the Department of Resources at www.resources.qld.gov.au for further information.*

*DA templates are available from planning.statedevelopment.qld.gov.au**.** If the development application involves:*

- *Taking or interfering with underground water through an artesian or subartesian bore: complete DA Form 1 Template 1*
- *Taking or interfering with water in a watercourse, lake or spring: complete DA Form1 Template 2*
- *Taking overland flow water: complete DA Form 1 Template 3.*

Waterway barrier works

23.7) Does this application involve **waterway barrier works?**

☐ Yes – the relevant template is completed and attached to this development application

☒ No

DA templates are available from planning.statedevelopment.qld.gov.au. For a development application involving waterway barrier works, complete DA Form 1 Template 4.

Marine activities

23.8) Does this development application involve **aquaculture, works within a declared fish habitat area or removal, disturbance or destruction of marine plants?**

☐ Yes – an associated *resource* allocation authority is attached to this development application, if required under the *Fisheries Act 1994*

☒ No

***Note**: See guidance materials at www.daf.qld.gov.au for further information.*

Quarry materials from a watercourse or lake

23.9) Does this development application involve the **removal of quarry materials from a watercourse or lake** under the *Water Act 2000?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development

☒ No

***Note**: Contact the Department of Resources at www.resources.qld.gov.au and www.business.qld.gov.au for further information.*

Quarry materials from land under tidal waters

23.10) Does this development application involve the **removal of quarry materials from land under tidal water** under the *Coastal Protection and Management Act 1995?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development

☒ No

***Note**: Contact the Department of Environment, Science and Innovation at www.desi.qld.gov.au for further information.*

Referable dams

23.11) Does this development application involve a **referable dam** required to be failure impact assessed under section 343 of the *Water Supply (Safety and Reliability) Act 2008* (the Water Supply Act)?

☐ Yes – the 'Notice Accepting a Failure Impact Assessment' from the chief executive administering the Water Supply Act is attached to this development application

☒ No

***Note**: See guidance materials at www.resources.qld.gov.au for further information.*

Tidal work or development within a coastal management district

23.12) Does this development application involve **tidal work or development in a coastal management district**?

☐ Yes – the following is included with this development application:
- ☐ Evidence the proposal meets the code for assessable development that is prescribed tidal work *(only required if application involves prescribed tidal work)*
- ☐ A certificate of title

☒ No

***Note**: See guidance materials at www.desi.qld.gov.au for further information.*

Queensland and local heritage places

23.13) Does this development application propose development on or adjoining a place entered in the **Queensland heritage register** or on a place entered in a local government's **Local Heritage Register**?

☐ Yes – details of the heritage place are provided in the table below

☒ No

***Note**: See guidance materials at www.desi.qld.gov.au for information requirements regarding development of Queensland heritage places.*

For a heritage place that has cultural heritage significance as a local heritage place and a Queensland heritage place, provisions are in place under the Planning Act 2016 that limit a local categorising instrument from including an assessment benchmark about the effect or impact of, development on the stated cultural heritage significance of that place. See guidance materials at www.planning.statedevelopment.qldgov.au for information regarding assessment of Queensland heritage places.

Name of the heritage place:		Place ID:	

Decision under section 62 of the *Transport Infrastructure Act 1994*

23.14) Does this development application involve new or changed access to a state-controlled road?

☐ Yes – this application will be taken to be an application for a decision under section 62 of the *Transport Infrastructure Act 1994* (subject to the conditions in section 75 of the *Transport Infrastructure Act 1994* being satisfied)

☒ No

Walkable neighbourhoods assessment benchmarks under Schedule 12A of the Planning Regulation

23.15) Does this development application involve reconfiguring a lot into 2 or more lots in certain residential zones (except rural residential zones), where at least one road is created or extended?

☐ Yes – Schedule 12A is applicable to the development application and the assessment benchmarks contained in schedule 12A have been considered

☒ No

***Note**: See guidance materials at www.planning.statedevelopment.qld.gov.au for further information.*

PART 8 – CHECKLIST AND APPLICANT DECLARATION

24) Development application checklist	
I have identified the assessment manager in question 15 and all relevant referral requirement(s) in question 17 ***Note**: See the Planning Regulation 2017 for referral requirements*	☒ Yes
If building work is associated with the proposed development, Parts 4 to 6 of *DA Form 2 – Building work details* have been completed and attached to this development application	☐ Yes ☒ Not applicable
Supporting information addressing any applicable assessment benchmarks is with the development application ***Note**: This is a mandatory requirement and includes any relevant templates under question 23, a planning report and any technical reports required by the relevant categorising instruments (e.g. local government planning schemes, State Planning Policy, State Development Assessment Provisions). For further information, see DA Forms Guide: Planning Report Template.*	☒ Yes
Relevant plans of the development are attached to this development application ***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*	☒ Yes
The portable long service leave levy for QLeave has been paid, or will be paid before a development permit is issued *(see 21)*	☐ Yes ☒ Not applicable

25) Applicant declaration
☒ By making this development application, I declare that all information in this development application is true and correct ☒ Where an email address is provided in Part 1 of this form, I consent to receive future electronic communications from the assessment manager and any referral agency for the development application where written information is required or permitted pursuant to sections 11 and 12 of the *Electronic Transactions Act 2001* ***Note**: It is unlawful to intentionally provide false or misleading information.*
Privacy – Personal information collected in this form will be used by the assessment manager and/or chosen assessment manager, any relevant referral agency and/or building certifier (including any professional advisers which may be engaged by those entities) while processing, assessing and deciding the development application. All information relating to this development application may be available for inspection and purchase, and/or published on the assessment manager's and/or referral agency's website. Personal information will not be disclosed for a purpose unrelated to the *Planning Act 2016*, Planning Regulation 2017 and the DA Rules except where: • such disclosure is in accordance with the provisions about public access to documents contained in the *Planning Act 2016* and the Planning Regulation 2017, and the access rules made under the *Planning Act 2016* and Planning Regulation 2017; or • required by other legislation (including the *Right to Information Act 2009*); or • otherwise required by law. This information may be stored in relevant databases. The information collected will be retained as required by the *Public Records Act 2002.*

PART 9 – FOR COMPLETION OF THE ASSESSMENT MANAGER – FOR OFFICE USE ONLY

Date received: | Reference number(s):

Notification of engagement of alternative assessment manager	
Prescribed assessment manager	
Name of chosen assessment manager	
Date chosen assessment manager engaged	
Contact number of chosen assessment manager	
Relevant licence number(s) of chosen assessment manager	

QLeave notification and payment *Note: For completion by assessment manager if applicable*			
Description of the work			
QLeave project number			
Amount paid ($)		Date paid (dd/mm/yy)	
Date receipted form sighted by assessment manager			
Name of officer who sighted the form			

5 SUBDIVISION CONDITIONS

6 STORMWATER DRAINAGE

6.1 DESIGN METHOD

The stormwater design has been carried out using the Rational Method, in accordance with the Queensland Urban Drainage Manual (QUDM). Rainfall values from FNQROC Development Manual D4 (05/23) have been utilised. The majority of the hydrological and hydraulic computations undertaken during the development of the stormwater drainage system have been performed utilising the stormwater design module of Version 14 of 12d Model.

In accordance with the QUDM recommendations, the major system design has been calculated based on a 100-year recurrence interval, using a combination of underground and overland flow. Minor flows in rural residential streets are carried entirely by the underground pipe system, which is designed based on a 5-year recurrence interval, in accordance with the requirements of QUDM and FNQROC. Road crossings have been designed to a 10-year recurrence interval for rural areas in accordance with QUDM and FNQROC.

Runoff has been calculated using Rainfall intensities that have been obtained from FNQROC Development Manual - D4 **Stormwater Drainage** - Chart 18 and checked against the Australian Government's - Bureau of Meteorology - Design Rainfall Data System (2016) for the area.

Gully pit capacities have been estimated using FNQROC Section D4 Appendix B "Kerb Inlet Capacity Charts". Roadway flow widths have been calculated using Manning's equation for both major and minor flows.

As a rural residential subdivision, pits have been spaced at intervals to ensure road flows do not exceed the reserve, typical of the adjacent development.

6.2 MINOR DRAINAGE

6.2.1 Hydrological Design Philosophy

The minor drainage system consists of a combination of grass open drains and underground drainage infrastructure consisting of pits and pipes.

The major drainage system involves overland flow on both the street surfaces, open drains and underground system. The major drainage system has a capacity of Q100 plus 300mm freeboard, as required by QUDM.

6.2.2 Hydrological Analysis

12d Model requires various data to be input by the operator for it to perform hydrological computations as detailed below.

Coefficients of Runoff have been determined in accordance with Section 5.04 of QUDM assuming an Urban Residential Development Category. Rainfall intensities have been obtained from the Australian Government's - Bureau of Meteorology - Design Rainfall Data System (2016) for the area.

Times of Concentration have been determined in accordance with Section 4.6.11 of QUDM, specifically the Recommended Standard Inlet Times detailed in Table 4.6.2. Larger catchment Tc has been calculated on an average slope calculation using the Bransby- Williams' equation in accordance with QUDM.

The Hydrological Analysis for a Q5 and Q100 event have been undertaken including pit flow, catchment, bypass and flow widths for the pit layout are shown in the calculation tables contained in Appendix C. Stormwater longitudinal sections showing pipe grades and a graphical representation of the Hydraulic Grade Line are referred to in **Appendix A**.

Results of the Hydraulic Analysis of the stormwater drainage system including pit and pipe head losses and pipe discharge are detailed in the calculation tables contained in **Appendix E**.

Pipe sizes and invert levels have been determined through the utilisation of 12d Model with the stipulation of a minimum pipe cover of 600mm. The K values utilised by 12d Model in the determination of pit head losses are based on the QUDM K value charts from Table 7.16.5.

6.3 MAJOR DRAINAGE

6.3.1 Overland Flow

In accordance with the requirements of QUDM, the major drainage system, which incorporates overland flow from the cane fields to the south, along the street network and open drains, has been designed for a recurrence interval of 100 years. A portion of the total runoff will be carried by the minor drainage system in the underground pipes and the remainder of the run-off is conveyed by the streets and park drains to the lawful point of discharge.

Depth by velocity calculations for half the road flow have been undertaken and all pits produce satisfactory results regarding pedestrian safety ($dv < 0.6m^2/s$).

6.3.2 Flood Immunity

The open drains have been designed to have the capacity to accept a 1% AEP (1 in 100 ARI) with 300mm freeboard. This ensures that a Q100 flood event is below the floor level of residences.

The minor stormwater network can contain a 18% AEP (1 in 5 ARI) with adequate freeboard to the invert. The 1% AEP (1 in 100 ARI) has acceptable flooded widths of the road network and diverts excess flows to the open drains. Refer to **Appendix B** for flooded width plans for Q100 event.

6.4 STORMWATER OUTLETS

Stormwater outlets have been designed to be in council owned land (drainage easements). Outlets have been designed to have outlet scour protection and energy dissipation through rock outlet pads. The outflow from the drains will be directed towards the north-west where it is anticipated future stages will incorporate Detention Basins.

Upstream flows have been calculated for the existing channels and crossroad drainage culverts to ensure the existing drains have capacity for these flows and minimise the risk of disturbance to property.

Rear of allotment cut off drains have been designed to direct existing overland flows adjacent Stage 1 into the existing open drain system.

6.5 WATER QUALITY

The design addresses the "State Planning Policy 4/10 Healthy Waterways" as below:

Part A – Urban Stormwater Management

Protecting Water Quality	
Performance Outcome P01 The development is compatible with the land use constraints of the site for achieving stormwater design objectives.	**Acceptable outcome A01.1** The nature, design and stormwater management of the development is in accordance with design objectives stated in Chapter 4 (section 4.9) of the State Planning Policy Guideline for Healthy Waters (the guideline) **And** Prepare a site stormwater quality management plan (SQMP) that: a. Is consistent with any local area stormwater management planning; and b. Provides for achievable stormwater quality treatment measures reflecting land use constraints, such as soil type, landscape features (including landform), nutrient hazardous areas, acid sulfate soil, and rainfall erosivity.
Outcome achieved – Stormwater design has been undertaken to incorporate as much of the existing flow paths and dams as practical. All stormwater outlets are directed towards or directly into existing stormwater drainage paths/gullies. Stormwater flows exiting pipe networks have been designed with outlet scour and energy dissipation to reduce velocities to minimise impacts to existing ground. Previous development has shown that outlet drains have naturally re-vegetated to provide additional protection.	

Performance Outcome P02 The entry of contaminants into, and transport of contaminants, in stormwater is avoided and minimized.	**Acceptable outcome A02.1** Any development application incorporates: • Stormwater management measures to achieve relevant design objectives outlined in Chapter 4 of the guideline • Management of nutrients of concern and acid sulfate soils. **And** Prepare a site stormwater quality management plan (SQMP) that: a. Accounts for development type, construction phase, local landscape, climatic conditions and design objectives in accordance with the guideline; and b. Is consistent with the Queensland Acid Sulfate Soil Technical Manual.
Outcome achieved – The site is not expected to be subject to Acid Sulfate Soils. Should Acid Sulfate Soils be encountered, appropriate measures will be undertaken in accordance with Queensland Acid Sulfate Soil Technical Manual. An appropriate Erosion and Sediment Control (ESC) plan will be implemented during and post construction as part of the SQMP.	
Performance Outcome P03 Construction activities for the development avoid or minimize adverse impacts on stormwater quality.	**Acceptable outcome A03.1** Any development application for the development is accompanied by an erosion and sediment control plan (ESCP) prepared in accordance with the guideline that demonstrates release of sediment laden stormwater is avoided for the nominated design storm, and minimized when the nominated design storm is exceeded by addressing design objectives in the guideline, Chapter 4, for: • Drainage control; • Erosion control; • Sediment control; and • Water quality outcomes.

	Addressing the design objectives may include enhancing the achievement of some objectives if achievement of other objectives is impractical. **And**
	Acceptable outcome A03.2 Erosion and sediment control practices including any proprietary erosion and sediment control products are designed, installed, constructed, operated, monitored and maintained, and any other erosion and sediment control practices are carried out, in accordance with local conditions and appropriate recommendations from a suitable qualified person. Or The ESCP demonstrates how stormwater quality will be managed in accordance with an acceptable regional or local guideline so that target contaminants are treated to a design objective at least equivalent to Acceptable Outcome A03.1
Outcome achieved - An appropriate Erosion and Sediment Control (ESC) plan will be implemented during and post construction as part of the SQMP. The ESC is designed for the application of best practices to erosion and sediment control during and post construction. Stormwater flows exiting pipe networks have been designed with outlet scour and energy dissipation to reduce velocities to minimize impacts to existing ground.	
Protection of Natural flows	
Performance Outcome P04 Construction and operation activities for the development avoid or minimize changes to waterway hydrology from adverse impacts of altered stormwater quality and flow.	**Acceptable outcome A04.1** Development incorporates stormwater flow control measures to achieve at least the design objectives set out in Chapter 4 of the guideline. Both the construction and operational phases for the development comply with advice and the design objectives in Chapter 4 of the guideline including management of frequent flows, peak flows, and construction phase hydrological impacts.
Outcome achieved – Stormwater flows have been designed to be directed to existing stormwater flow paths, with post-development catchments remaining similar to pre-	

development. Stormwater outlets have been designed with energy dissipation to reduce velocities of flows out letting from piped networks. The existing flow regime to existing dams is generally unchanged.

Part C – Non-tidal artificial waterways ('the waterway')

Protecting Water Quality in existing natural waterways	
Performance Outcome P01 The waterway is not designed only for stormwater flow management or stormwater quality management.	**Acceptable outcome A01.1** The waterway is designed and managed for any of the following end use purposes: • Amenity including aesthetics, landscaping, and recreation; • Flood management; • Stormwater harvesting as part of an integrated water cycle management plan; • Aquatic habitat. **And** The end use purpose is designed and operated in a way that protects water environmental values.
Outcome achieved – The waterway end use purposes have not changed from the pre-development case. Flows that were directed towards the existing dams in the pre-development case are still current post-development. Flows to the larger gullies also remain generally the same. No new dams are proposed as part of the development, and no flows to existing flow paths are proposed to be significantly altered.	

Performance Outcome P02 The waterway is located in a way that is compatible with the land use constraints of the site for protecting water environmental values in existing natural waterways.	**Acceptable outcome A02.1** Where relevant: a. Environmental values in downstream waterways are protected; b. Any groundwater recharge areas are not affected; c. The location of the waterway incorporates low lying areas of a catchment connected to an existing waterway; d. Any existing areas of ponded water are included. **And** **Acceptable outcome A02.2** Waterways are located:

	a. Outside natural wetlands and any associated buffer areas; and b. To avoid disturbing soils or sediments and c. To avoid altering the natural hydrologic regime in acid sulfate soil and nutrient hazardous areas.
Outcome achieved – The catchments and flow directions on site remain generally the same between pre and post development. No additional dams are proposed, with the existing gullies being maintained toward existing dams and piped flows out letting to these. The larger gullies are also maintained with piped networks out letting toward these.	

Performance Outcome P03 The waterway is located in a way that is compatible with existing tidal waterways.	**Acceptable outcome A03.1** Where the waterway is located adjacent to, or connected to, a tidal waterway by means of a weir, lock, pumping system or similar: a. There is sufficient flushing or a tidal range of >0.3m; or b. Any tidal flow alteration does not adversely impact on the tidal waterway; or c. There is no introduction of salt water into freshwater environments.
Outcome achieved – Not adjacent tidal waterways.	
Performance Outcome P04 The construction phase for the waterway is compatible with protecting water environmental values in existing natural waterways.	**Acceptable outcome A04.1** Erosion and sediment control measures are incorporated during construction to achieve design objectives set out in Chapter 4 of the guideline.
Outcome achieved – Erosion and sediment control has been designed in accordance with best practices. The construction contractor will also be responsible for preparing an erosion and sediment control plan in reference to the civil design ESC to ensure appropriate controls are in place during and after construction.	
Performance Outcome P05 Stormwater overflows from the waterway provide for the achievement of water quality objectives in existing natural waterways	**Acceptable outcome A05.1** Stormwater run-off that may enter the non-tidal waterway is pre-treated in accordance with the guideline design objectives, water quality objectives of local waterways, and any relevant local area stormwater management plan.
Outcome achieved – Stormwater has been designed to be captured and conveyed to the existing stormwater flow paths as per previous stages of the development. Run-off quality is enhanced by large areas of natural grass and vegetation to prevent sediment runoff.	
Designing, managing and operating the non-tidal artificial waterway	

Performance Outcome P06 The waterway is designed, managed and operated by suitably qualified persons.	**Acceptable outcome A06.1** To help achieve water quality objectives in and downstream of the waterway, the waterway is designed, constructed and managed under the responsibility of a suitably qualified registered professional engineer, Queensland with specific experience in establishing and managing artificial waterways.
Outcome achieved – No additional artificial waterways are to be constructed as part of the works. Flows to existing artificial waterways and drainage paths have been designed under the responsibility of an RPEQ.	
Performance Outcome P07 The waterway Is managed and operated in ways that demonstrate achievement of water quality objectives in natural waterways.	**Acceptable outcome A07.1** Monitoring and maintenance programs adaptively manage water quality in the waterway to achieve relevant water quality objectives downstream of the waterway. **And** **Acceptable outcome A07.2** Aquatic weeds are managed in ways that achieve a low percentage of coverage of the water surface area (less than 10%). Pests and vectors (such as mosquitoes) are managed such as by avoiding stagnant water areas, providing for native fish predators, and if necessary, other best practices for monitoring and treating pests. **And** **Acceptable outcome A07.3** The waterway is managed and operated by a responsible entity under agreement for the life of the waterway. The responsibility entity is to implement a deed of agreement for the management and operation of the waterway that: a. Identifies the waterway; b. States a period of responsibility for the

	entity for the management and operation of the waterway; c. States a process for any transfer of responsibility for the waterway; d. States required actions under the agreement for monitoring of the water quality of the water and receiving waters; e. States required actions under the agreement for maintaining the waterway to achieve the outcomes of this policy and any relevant approval conditions of the development; and f. Identifies funding sources for the above including bonds, headworks charges or levies.
Outcome achieved – No additional artificial waterways are to be constructed as part of the works. Existing flow paths remain in place post development and no significant catchment changes are proposed.	

6.6 DETENTION BASIN

Since our initial submission of the Stormwater Plan as part of the Operational Works package in June 2024, we have been requested by Council to do further investigations into downstream capacities. We have supplied different options for containing and directing overland flow towards either Coolamon Close or Chinaman Creek Drainage Easements.

On Council's recommendation we were asked to provide a "no worsening" effect on the downstream properties of our development. We have provided a temporary Detention Basin downstream of the Stage 1 works. Specifications and calculations for this basin have been provided in the Stormwater Management Plan.

7 POTABLE WATER RETICULATION

7.1 DESIGN METHOD

All reticulation mains have been designed in accordance with the FNQROC Development Manual for 500 litres/person/day as follows:

• Single Family Dwelling (>1500 m²)	= 3.7 EP/Connection	
• Average Day Consumption (AD)	= 1,850 L/day	
• Mean Day Maximum Month (MDMM)	= 1.5 x AD	= 2,775 L/day
• Maximum Day	= 2.25 x AD	= 4,163 L/day
• Maximum Hour	= 1/12 MD	= 347 L/hour
	= 0.0964 L/s	

The following design criterion was assessed:

• Pressure in system to remain above 22m and below 60m during Maximum Hour Demand.

• Pressure in system to remain above 12m during firefighting flows of 15 L/s.

7.2 GENERAL LAYOUT

7.2.1 Alignment

Water mains have been designed on an alignment of 2.0m from the RP boundary as per the Mareeba Shire requirement in Table D6.2 of the FNQROC Development Manual.

7.2.2 Cover

The minimum cover for mains located on the footpath is 600mm and 800mm for a road crossing, whilst complying with a maximum of 1200mm.

The minimum separation between the water main and other services is as follows:

Minimum Clearance for Water Mains ≤ 300mm diameter

Service	Horizontal Clearance (mm)	Vertical Clearance (mm)
Ergon	500	225
Telstra	300	150
Stormwater	300	150
Sewer	1000	500
Water Crossing	300	150

*Based on WSA 03 Table 4.1

7.2.3 Fittings

Road crossings shall be DICL with a minimum diameter of 100mm.

Rider Mains

Properties located on the opposite side of the road to the water main are serviced by a DN63mm MDPE pipe to serve a maximum of 15 allotments.

Hydrants

Fire hydrants shall be located opposite RP boundaries at a maximum spacing of 80m and shall be located on mains 100mm dia. or greater only.

Valves

Valves are installed throughout the system to provide minimum disturbance during maintenance. The maximum number of houses inconvenienced is no greater than 15.

7.3 DESIGN

EPA Net modelling was carried out using the above design information and parameters. Two models were assessed (refer **Appendix G**), the first model simulated Maximum Hour demand "MH", and the second model simulating the system under Fire Fighting conditions "FF". Both EPA Net models used a water supply 'reservoir' with a Head of 35 metres to represent the pressure in the existing 300mm diameter trunk main, this conservative estimate reflects pressure testing conducted at 9 Hellcat Close refer to (**Appendix G**).

The EPA Net simulations confirm all required pressures have been comfortably achieved in the two Stage 1 model scenarios. Preliminary assessment of future stages show there is acceptable capacity in the supply network.

The water main reticulation layout is detailed in the Operational Works drawings. Water Reticulation EPANET calculations are provided in **Appendix G**.

7.3.1 Maximum Hour Demand

The local water network has been modelled with the proposed network and demands added. The network shows that the network complies with pressures between the minimum 22m and maximum 60m pressure requirements at maximum hour demand, in both the interim & ultimate development cases.

7.3.2 Fire Fighting Demand

The assessment undertaken as part of the design works shows that the network is able to operate at the minimum required pressure head of 12m at 15L/s flow, in both the interim & ultimate development cases. With future network upgrades planned for the water reticulation network in the area, this will only further improve the serviceability beyond the minimum as these are undertaken.

8 SEWERAGE RETICULATION

The proposed rural residential lots are to be serviced by on-site effluent disposal systems that are to be approved on a lot-by-lot basis at the time of construction.

9 ROAD PAVEMENT DESIGN

All roadway pavements have been designed in accordance with the FNQROC Development Manual section D3 – Road Pavements.

9.1 DESIGN METHOD

9.1.1 Design Life

A Design Life of 20 years has been adopted for all streets and roads.

9.1.2 Subgrade

California Bearing Ratio (CBR) testing has not been completed as part of the design. The CBR testing is to be evaluated prior to construction by in situ CBR, and 4-day soaked CBR by a NATA registered materials testing authority using the procedures described by the Department of Main Roads and Standards Association of Australia. A value of 7% has been adopted for design purposes.

9.1.3 Flexible Pavement Design

In accordance with Table D3.1 of the FNQROC Development Manual the minimum allowable traffic loading for each pavement type has been reviewed and, in each case, the allowable traffic exceeds the minimum allowable.

The road classification is “Low Density Rural Road” which allows for a sealed carriageway, kerb and channel, and verge. The road reserve width is nominally 20.0m. Table D3.2 of the FNQROC Development Manual requires a minimum pavement thickness of 200mm and a minimum surfacing of 30mm AC.

A copy of the pavement design standard drawings is contained within **Appendix A**.

10 ELECTRICAL, COMMUNICATIONS, AND GAS RETICULATION

Ergon Energy and Telstra have been approached to supply conditions and conduit drawings by the electrical consultant.

There is no provision for gas in this subdivision.

11 SOIL AND WATER MANAGEMENT

A Soil and Water Management Strategy (SWMS) has been produced that identifies policies and development conditions relevant to the site and recommend measures required to satisfy those requirements. In accordance with the FNQROC Section D5. The strategy consists of:

- A Concept Report that identifies the constraints of the site and recommends measures to address those constraints; and
- Soil and Water Management Plan (SWMP) providing measures that can be adopted to address those constraints.

The following documents have been referenced in preparing this SWMP:

- ERSCON Pty Ltd construction drawings;
- FNQROC Development Manual;
- IEAust Soil Erosion and Sediment Control Guidelines;
- NSW DLWC – Construction and Sediment Control (Course Notes);
- Queensland Urban Drainage Manual; and
- Australian and New Zealand Guidelines for Freshwater and Marine Water Quality.

11.1 EROSION AND SEDMENT CONTROL STANDARDS

11.1.1 Duty of Care

In accordance with the Environmental Protection Act, 1994 (the Act), all Queenslanders have a legal duty to take all reasonable and practicable measures to minimise or prevent environmental harm.

In accordance with the Integrated Planning Act, 1997, it is a requirement to comply with Council's Planning Scheme and conditions issued in Development Permits.

This SWMP considers environmental harm caused by sediment-laden runoff from the subject site entering stormwater drains and/or waterways.

11.2 CONCEPT REPORT

11.2.1 Site Conditions

The subject site is currently generally well vegetated with medium slopes.

11.2.2 Control Measures

Erosion and sediment control measures are to be designed and constructed in accordance with the FNQROC Development Manual. Specific requirements are provided on drawing 160-001-C118 - C120**.**

11.2.3 Water Quality Strategy

In accordance with the requirements of the Queensland Urban Drainage Manual, management of water quality involves:

- Identifying and enhancing environmental values;
- Establishing objectives to achieve the required level of protection;
- Establishing water quality management strategies;
- Monitoring and surveillance programs;
- Research.

11.2.4 Water Quality Monitoring

The soil and water management strategy requires water sampling 50m downstream of the point where stormwater drainage discharges. Sampling is required only after significant rainfall i.e. 10mm.

11.3 EROSION AND SEDIMENT CONTROL PLAN

Erosion and sediment control measures are to be designed and constructed in accordance with the FNQROC Development Manual, as detailed in the Soil and Water Management Strategy, and 160-001-C118-119 “Erosion and Sediment Control Plan” and 160-001-C120 “Erosion and Sediment Control Notes”.

The Contractor shall take all reasonable precautions to minimise erosion and prevent sediment-laden runoff from leaving the site. This goal will be monitored to ensure minimal erosion on site and no visible siltation of waterways by implementing effective erosion and sediment control.

The purpose of this SWMP is to ensure the Contractor meets the following objectives:

- Comply with all relevant legislation;
- Ensure erosion and sedimentation is controlled in an appropriate and cost-effective manner;
- Maintain and if possible, enhance the existing environment;
- Reinforce and improve environmental awareness within the workforce and the general community.

11.3.1 Environmental Responsibilities of Key Staff

Inspection Officer

The Inspection Officer is to be nominated by the Contractor.

Project Manager (PM)

The Project Manager will be responsible for:

- Coordinating the response to any major environmental incident and reporting serious or material harm to the Inspection Officer, Council, EPA and/or other agencies as appropriate;
- Monitoring, review and continuous improvement of the SWMP;
- Assess the need and if required ensure the proper completion of all internal and sub-contractor audits;
- Ensuring compliance of construction activities with the EP Act and other relevant legislation, codes and specifications;
- Liaison with all external authorities and stakeholders;
- Investigating and addressing complaints in the shortest possible time frame;
- Ensuring appropriate document control is maintained and;
- Supporting and providing advice to the project team.

Contractor Environmental Representative (CER):

The Contractors Environmental Representative will be responsible for:

- The implementation and operation of the environmental control measures as detailed in the SWMP;
- Monitoring the effectiveness of control measures;
- Recording and reporting non-conformances to the SWMP;
- Recording and reporting environmental complaints and incidents;
- Advising the PM and Inspection Officer of all environmental issues;
- Ensuring all staff on-site receive an appropriate environmental induction;
- Taking all reasonable and practical measures to prevent or minimise environmental harm occurring at jobsites under his/her supervision and;
- Seeking advice from the Project Manager if uncertain of environmental requirements.

Works Supervisor (WS):

The Works Supervisor will assist the CER in the implementation of the SWMP, and the ongoing awareness of environmental issues for the Construction Workforce. The overseer shall:

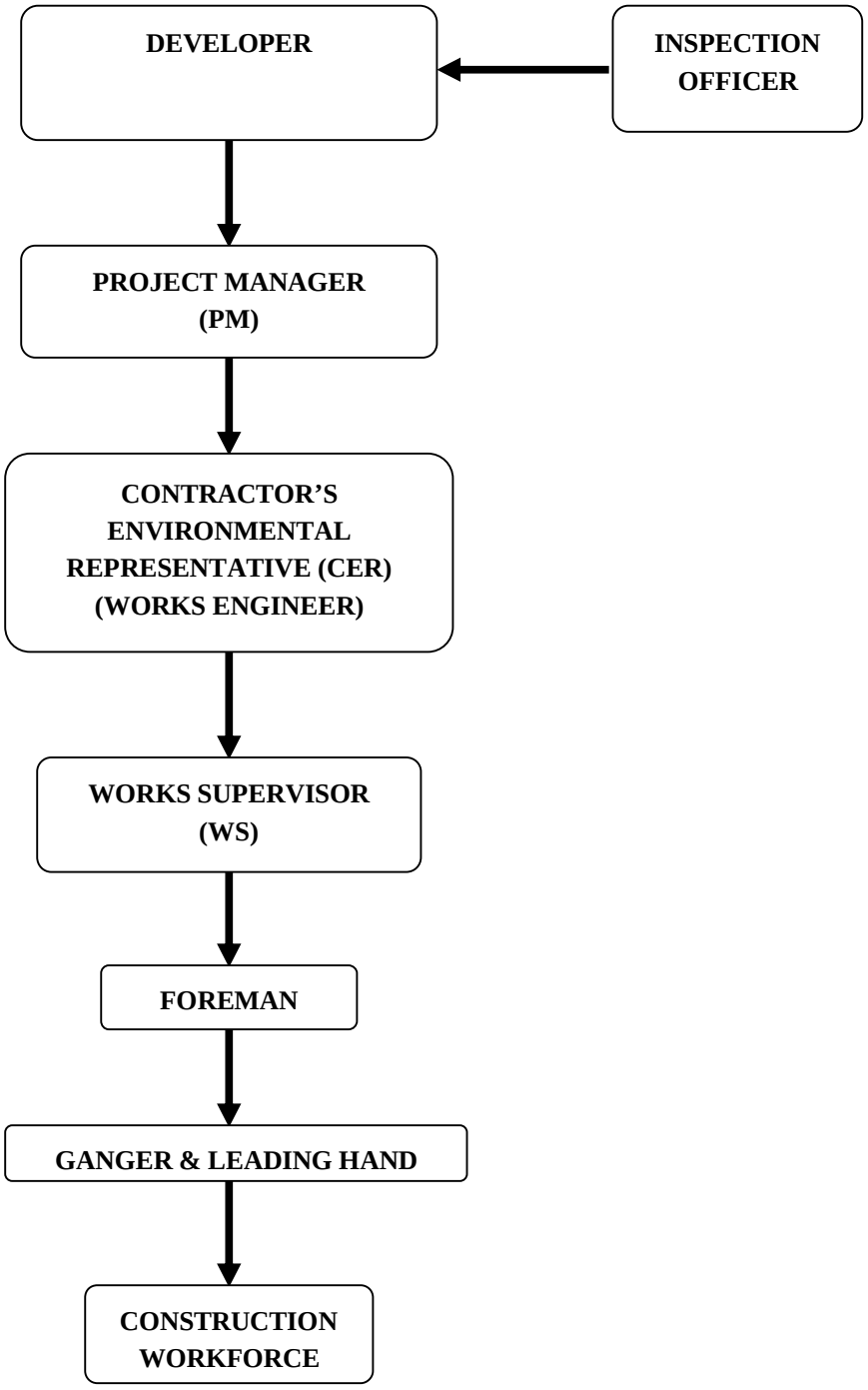
- Have a full understanding of the SWMP;
- Be fully aware of all environmental issues associated with the project; and
- Be responsible for the maintenance of control measures.

Construction Workforce:

Each member of the construction workforce will be responsible for:

- Ensuring they have a full understanding of their own environmental responsibilities;
- Assist in the implementation and maintenance of environmental protection measures in accordance with the SWMP and as directed by the CER; and
- Immediately reporting environmental complaints and incidents to the Environmental Supervisor.

Environmental Organisation Structure



11.3.2 Erosion Potential

Observations from site inspections concur that the risk of sediment laden runoff leaving site is low. The site is naturally well vegetated.

Short sharp rainfall events will create silt/sediment that can be trapped on site. In the event of catastrophic failure of sediment control structures (due to vandalism or other undefined event) clean up operations would quickly mitigate the impacts.

The risk of long-term environmental impacts due to sedimentation from the proposed works is considered very low if the SWMP is fully implemented.

11.3.3 Evaluation of the Project

Investigation into erosion and sedimentation control has been reviewed as follows:

Timing of the Works:

Construction works are will be timed to coincide with a moderate to low rainfall month. Stormwater and sewer works will be constructed first which provide a low risk in terms of erosion and sediment control. Once these works are completed, an assessment of the potential rainfall will be made in consultation with Council to determine if bulk earthworks and road construction will proceed immediately after.

Works Program:

It is expected the works will be completed as follows:

- Approval to proceed;
- Install erosion sediment control devices and site facilities;
- Strip and grub;
- Install Services;
- Commence bulk earthworks (after assessment of potential rainfall);
- Construct Roads;
- Turf batters;
- Grass footpath and other exposed areas;
- Complete works; and
- Hand over.

11.3.4 Best Management Practice

The review of this site has been made in conjunction with the Institute of Engineers Australia “Soil Erosion and Sediment Control Guidelines.” All erosion and sedimentation control works are to be completed in accordance with that publication.

The selection methodology for the most appropriate control methods has due regard to cost-effectiveness, availability of materials, feasibility, durability, and compatibility. The most significant of the above is compatibility (i.e. has the system been used and proved on previous local works).

Perimeter Channel and Bunds

Diversion Channels and Cut Off Bunds are to be constructed to direct clean water away from the works and through culvert structures. The surrounding landform is steep with good vegetal

cover. Overland flow velocities will be maintained at less than 2.31 m/s, which is considered acceptable (refer IEAust Table A8.5 given full cover).

Permanent Stabilisation Measures

The proposed works do not include hard "engineered" stabilisation methods. It is not considered appropriate (cost effective) to construct "engineered" stabilisation as the existing (where undisturbed) vegetation cover provides appropriate and visually attractive stabilisation.

As part of this SWMP, rehabilitation of vegetation by seeding, drill seeding, turfing and hydro mulching, at an early stage is considered vital to the successful control of erosion (and capture of sedimentation).

Site Office

The site office and plant compound shall be fully fenced with all fuels and hazardous liquids shall be stored in a bunded area 110% the volume of stored liquid. All parking areas shall be maintained in a stable condition including surfacing as required.

Site Entry Points

There shall be only one site entry and exit point. All vehicles must enter and leave the site at these locations only. Site entry points shall also have a wash down area adjacent when stripping, and clearing and grubbing works expose plant and equipment to transportation of weeds.

The following items are proposed for incorporation into the works and details of their use and limitations have been assessed as part of the design process:

- Construction Exits (A5-C3)
- Sediment Fences (A5-C10)
- Catch Drains and Perimeter Banks (A5-A1)
- Rock Check Dams (A5-A2)

11.3.5 Erosion and Sediment Control Plan

For ESCP drawing, refer 160-001-C118 & 119

11.3.6 Implementation, Monitoring and Review

It is the responsibility of the CER to correctly implement and monitor this ESCP. It is also critical that the CER reviews and documents and provide appropriate suggestions for improvements through the project life.

11.3.7 Implementation Strategies

To ensure the objectives of the Erosion and Sediment Control Plan (ESCP) check list of responsibilities and requirements are provided below.

Actions	Locations	Timing	Responsibility
Induct all personnel as appropriate	All	Prior to Disturbance	CER

Flag the limits of disturbance and advise workforce of these limits.	Each stage of excavation.	Prior to disturbance.	CER
Divert clean water around site using lined or vegetated drains.	Perimeter of site.	Prior to disturbance.	CER
Install sediment control devices.	As per ESCP.	Prior to disturbance.	CER
Flag limits of stockpile sites clear of drainage paths and enclose with sediment fence.	As approved	Duration of works	CER
Prevent stormwater from running over exposed batters by installing catch banks/drains and directing into a stabilized batter chute or off site.	All exposed batters.	As work progresses.	WS
Install check dams in bare earth table drains if required.	Bare earth table drains	As soon as practicable.	WS
Topsoil shall be stockpiled and respread over bare areas prior to grassing to assist re-vegetation.	Bare batters and footpaths	After earthworks are completed	WS
As far as possible, the surface of batters and drains should be left in a roughened state to reduce runoff velocity and promote re-vegetation.	Earth batters and drains	As earthworks proceed.	WS
Bare earth batters to be hydro mulched to protect the surfaces using suitable species mix and application rates.	Earth Batters	As works progress or immediately following final trim of an area.	WS
Footpaths and disturbed areas to be seeded within 1 week of final trim	All exposed areas	As works progress	WS
All ESC devices to remain in place until at least 70% vegetation cover	All exposed areas	At completion of project	WS

11.3.8 Monitoring Requirements

Parameter / Item	Locations	Timing	Responsibility
Visually assess condition of erosion and sediment control devices, clean out sediment (if required), and repair any damage.	All job sites	Daily	WS
Visually inspect the turbidity of runoff leaving the site to determine effectiveness of erosion and sediment controls devices.	All job sites.	During and following any significant rainfall/runoff event.	WS
Record turbidity (photo of turbidity tube) of water over topping sediment control devices.	Downstream of structure.	During and following any significant rainfall/runoff event.	CER
Measure turbidity 50m upstream and 50m downstream.	Downstream of site.	Following rainfall event >10mm	CER
Obtain regular weather forecasts from the Bureau of Meteorology to assess risk.	Forecasts for Cairns district.	Daily.	WS

11.3.9 Reporting

The CER shall maintain appropriate records of each inspection and/or action and shall report any non-conformance incidents to the PM and Inspection Officer for action.

11.3.10 Audit

Auditing shall be completed by the PM following a major non-conformance and during random inspections if deemed necessary.

The PM shall report audit findings to the CER for action.

11.3.11 Emergency Procedures

In the event that a significant failure occurs, and that sediment-laden runoff is leaving the site the CER shall immediately protect the erosion source by:

- Covering the affected area with plastic or geofabric if localised;
- Reducing the flow velocities by installing check dams;
- Rock armour channels where velocities and turbulence are excessive;
- Other methods as deemed appropriate;

The PM shall be notified to jointly assess clean up requirements and if further action is required.

11.3.12 Corrective Action

The CER shall record any non-conformance with the EMP(C) on the Non-Conformance Report (NCR) located within Council's Quality System and notify the Inspection Officer.

11.3.13 Environmental Site Induction

All personnel (staff, workforce, sub-contractors, and plant operators) working on site are to receive appropriate induction as to the requirements of this SWMP.

It is the responsibility of the CER to ensure all site personnel receive appropriate awareness training and induction prior to or as soon as practicable after, commencement on site. The induction shall include instruction regarding the following:

- Environmental objectives and policies;
- Due diligence;
- Environmental duty of care;
- Duties and responsibilities of environmental officers;
- Key environmental issues relating to this project;
- Project specific requirements contained in the Management Plans;

Where deemed appropriate for short-term personnel (including visitors), the CER may elect to provide a brief environmental explanation/induction and control access to the site.

The CER shall maintain a register, signed by all inductees. The CER shall also monitor the existing workforce to ascertain if additional training is required.

11.3.14 Environmental Reporting

The Inspection Officer shall submit an Environmental Report on a monthly basis that will cover the following items:

- Results of all monitoring;
- NCR's against the EMP(C) in accordance with the Quality procedures;
- Monthly EMP(C) review and revisions;
- Results of internal and external audits.

Where an event of potential or actual serious environmental harm is identified, the CER shall immediately inform the PM. The PM shall inform the Inspection Officer (or his representative), Council and the EPA as soon as practicable (but no later than 24 hours).

The PM shall monitor environmental performance throughout the project to determine if and when additional Environmental Audits are required.

11.3.15 Environmental Audits

Environmental Audits of the EMP(C) shall be completed by the PM at the following times:

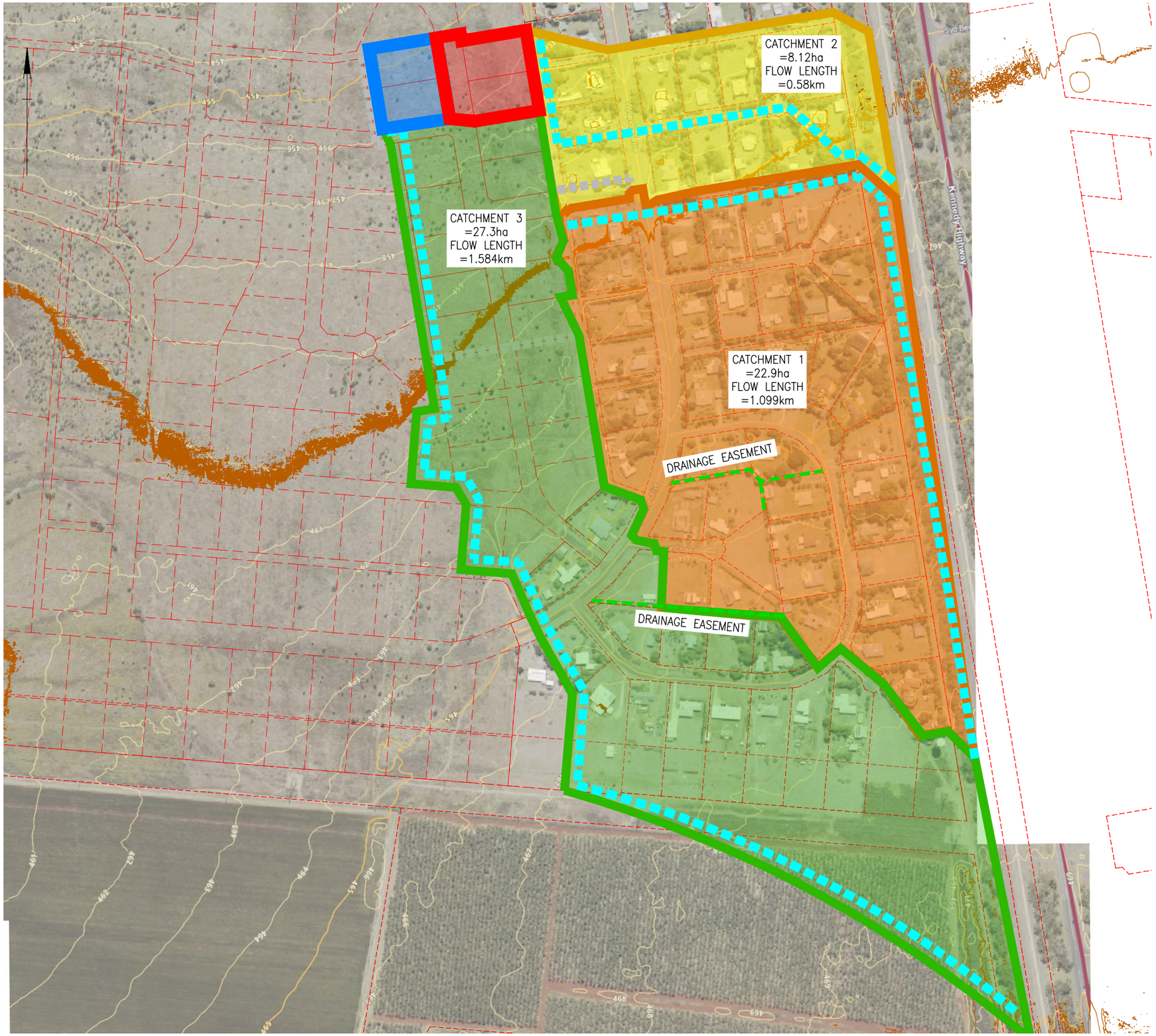
- Following and event of potential or actual serious environmental harm;
- Prior to submission of "Practical Completion";
- As deemed necessary.

APPENDIX A

Design Drawings

APPENDIX B

Q100 Design Sketches



LEGEND

- STAGE BOUNDARY
- PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- 10.0 EXISTING MAJOR CONTOURS (10.0m INTERVAL)

FOR INFORMATION ONLY

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REVISIONS

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1	18/03/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:5000 (0, 50, 100, 150) A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

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DRAWN APPROVED	MF	DESIGN APPROVED	MF

CIVIL SIGNOFF APPROVAL

DATE: RPEQ:

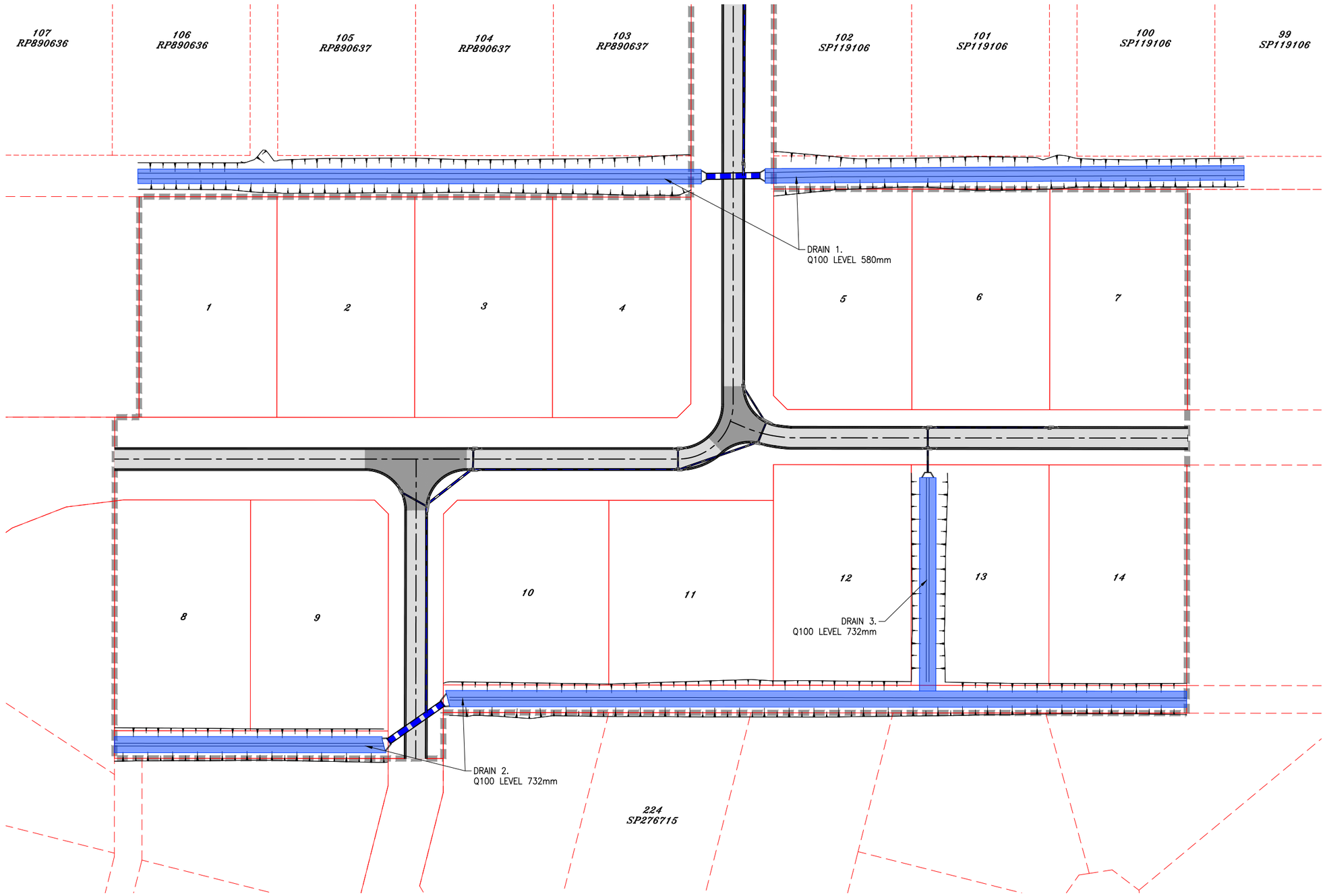
PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: CATCHMENT AREAS

DRAWING NO: 160-010-SK02

SIZE: A3

REVISION: 2



LEGEND

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- PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- Q100 LEVEL

PRELIMINARY
NOT FOR CONSTRUCTION

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REVISIONS				
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2	14/05/24	REVISION	MG	
1	18/03/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1500 (0, 15, 30, 45) A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

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DRAWN APPROVED	MF	DESIGN APPROVED	MF
CIVIL SIGNOFF APPROVAL			
DATE:		RPEQ:	

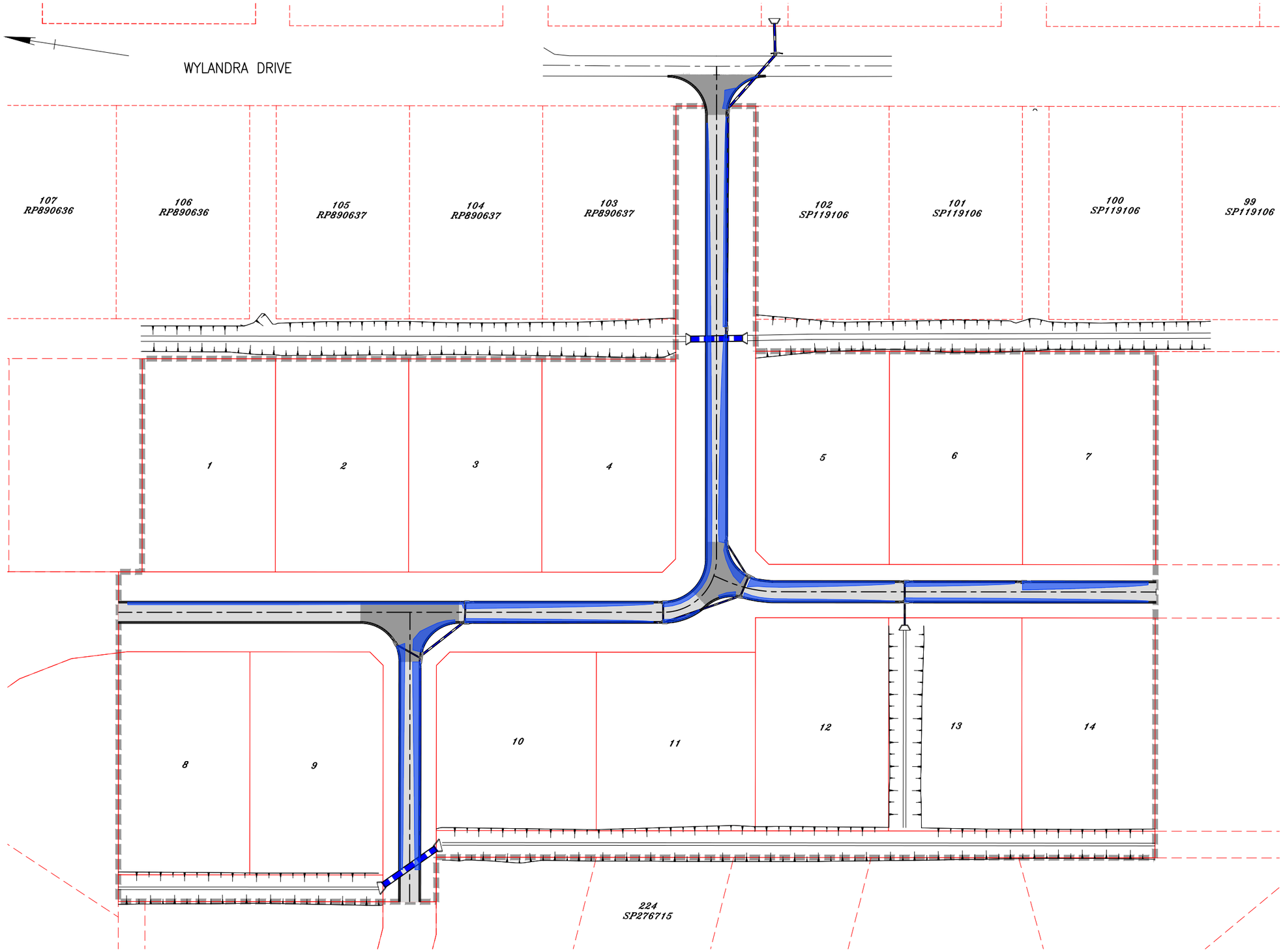
PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: Q100 PLAN

DRAWING NO: 160-010-SK01

SIZE: A3

REVISION: 2



LEGEND

- STAGE BOUNDARY
- PROPERTY BOUNDARY
- EXISTING PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- Q5 LEVEL

PRELIMINARY
NOT FOR CONSTRUCTION

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1	14/05/24	INITIAL ISSUE		

ERSCON CONSULTING ENGINEERS

CLIENT: CONMAT CONSTRUCTION MATERIALS

SCALE: 1:1500 (0, 15, 30, 45) A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

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DRAWN APPROVED	MF	DESIGN APPROVED	MF
CIVIL SIGNOFF APPROVAL			
DATE:		RPEQ:	

PROJECT REF: CONMAT PTY LTD
WYLANDRA ESTATE STAGE 1

DRAWING REF: Q5 PLAN

DRAWING NO	SIZE	REVISION
160-010-SK05	A3	1

APPENDIX C

Statement of Compliance

FNQROC DEVELOPMENT MANUAL

Council .....Mareeba Shire Council.....
(INSERT COUNCIL NAME)

STATEMENT OF COMPLIANCE
OPERATIONAL WORKS DESIGN

This form duly completed and signed by an authorised agent of the Designer shall be submitted with the Operational Works Application for Council Approval.

Name of Development Wylandra Estate Stage 1

Location of Development . Wylandra Drive, Mareeba

Applicant Tyronne Corporation

Designer ERSCON Consulting Engineers

It is hereby certified that the Calculations, Drawings, Specifications and related documents submitted herewith have been prepared, checked and amended in accordance with the requirements of the FNQROC Development Manual and that the completed works comply with the requirements therein, **except** as noted below.

Compliance with the requirements of the Operational Works Design Guidelines	Non-Compliance refer to non-compliance report / drawing number
Plan Presentation	
Geotechnical requirements	
Geometric Road Design	
Pavements	
Structures / Bridges	N/A
Subsurface Drainage	
Stormwater Drainage	
Site Re-grading	
Erosion Control and Stormwater Management	
Pest Plant Management	N/A
Cycleway / Pathways	N/A

Landscaping	N/A
Water Source and Disinfection/Treatment Infrastructure (if applicable)	N/A
Water Reticulation, Pump Stations and water storages	
Sewer Reticulation and Pump Stations	N/A
Electrical Reticulation and Street Lighting	N/A
Public Transport	N/A
Associated Documentation/ Specification	
Priced Schedule of Quantities	
Referral Agency Conditions	
Supporting Information (AP1.08)	
Other	

Conscientiously believing the above statements to be true and correct, signed on behalf of:

Designer ...ERSCON Consulting Engineers..... **RPEQ No** ...05085...

Name in Full .John Dale Martin.

Signature .... **Date** .25/06/2024.

APPENDIX D

Hydrological Analysis

JOB NO: 160-010
JOB: Wylandra Stage 1 Drainage
TITLE : Catchment 1
DATE: 1/05/2024

Time of concentration Calculation
(Using Bransby-Williams' Equation)

Proportionality Factor P= 58 (for Ha)

Length of Flow Path L= 1.099 km
Top of Catchment (RL) RL = 467 m
Area of Catchment A = 22.90 Ha

Catchment Profile 459 [to utilise graph area better]

Chainage	RL	RL	Area under Graph (m²)
0	459	0	-----
500	462	3	750
1000	467	8	2750
1000	467	8	0
1000	467	8	0
1000	467	8	0
1000	467	8	0
1000	467	8	0
1000	467	8	0
1099	468.5	9.5	866

Average Slope Calculation	
Outlet Chainage	0
Catchment length	1099
Outlet RL	0
Top RL (Av Slope)	7.9

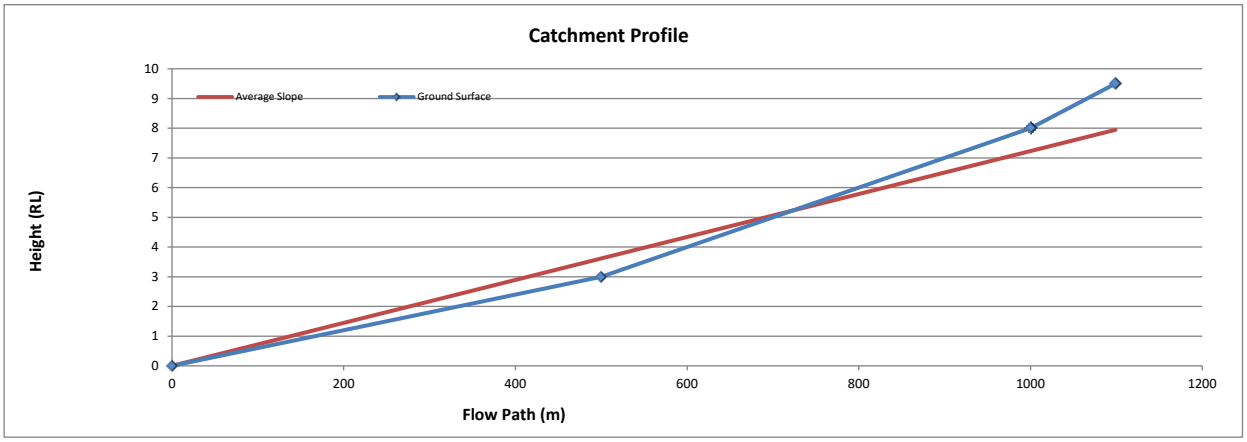
$$Tc = \frac{P \times L}{(A \wedge 0.1) \times (S \wedge 0.2)}$$

Tc = 49.7 min

Adopted Tc 50.0 min

Total area under graph **4366** m^2
Area below outlet level 0 m^2
Area above outlet 4366 m^2

Height for average slope 7.95 m
Average Slope S = 0.7 %



Flow Calculation for Upstream Catchment

Catchment 1

Fraction Impervious = f_i = 0.1 Table Below (QUDM Table 4.5.3)
1 hour @ 10 year ARI = $^{1}I_{10}$ = 60.4 mm/hr (IFD CHARTS)
C_{10} = 0.59 (QUDM Table 4.5.3)

AEP		63%	39%	18%	10%	5%	2%	1%		
Design ARI		**1**	**2**	**5**	**10**	**20**	**50**	**100**		
Frequency Factor	F_Y	0.8	0.85	0.95	1	1.05	1.15	1.2		(QUDM Table 4.5.2)
Coefficient of Discharge	C_Y	0.472	0.5015	0.5605	0.59	0.6195	0.6785	0.708		(QUDM Equation 4.3)
Time of Concentration	T_C	50	50	50	50	50	50	50	min	
Rainfall Intensity	$^{97min}I_{10}$	39	44	59	68	77	88	96	mm/hr	(IFD CHARTS)
Area	A	22.9	22.9	22.9	22.9	22.9	22.9	22.90	Ha	
Path A Flow		**1.17**	**1.40**	**2.09**	**2.55**	**3.02**	**3.78**	**4.30**	**m^3/s**	
Velocity		**1.357**	**1.429**	**1.599**	**1.689**	**1.769**	**1.879**	**1.944**	**m/s**	Taken from ERSCON Super Drain Table
Height		**0.318**	**0.347**	**0.419**	**0.460**	**0.497**	**0.551**	**0.585**	**m**	

JOB NO: 160-010
JOB: Wylandra Stage 1 Drainage
TITLE : Catchment 2
DATE: 1/05/2024

Time of concentration Calculation
(Using Bransby-Williams' Equation)

Proportionality Factor P= 58 (for Ha)

Length of Flow Path L= 0.580 km
Top of Catchment (RL) RL = 460 m
Area of Catchment A = 8.12 Ha

Catchment Profile **455.7** [to utilise graph area better]

Chainage	RL	RL	Area under Graph (m²)
0	455.7	0	-----
300	456.2	0.5	75
300	456.2	0.5	0
300	456.2	0.5	0
300	456.2	0.5	0
300	456.2	0.5	0
300	456.2	0.5	0
300	456.2	0.5	0
300	456.2	0.5	0
580	460	4	630

Average Slope Calculation	
Outlet Chainage	0
Catchment length	580
Outlet RL	0
Top RL (Av Slope)	2.4

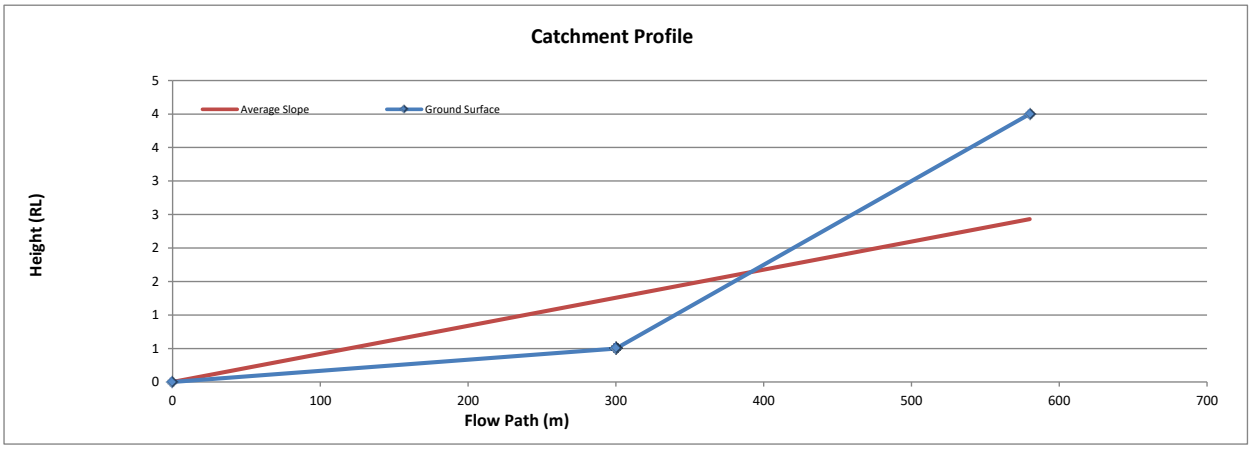
$$Tc = \frac{P \times L}{(A \wedge 0.1) \times (S \wedge 0.2)}$$

Tc = 32.5 min

Adopted Tc **32.0** **min**

Total area under graph **705** m^2
Area below outlet level 0 m^2
Area above outlet 705 m^2

Height for average slope 2.43 m
Average Slope **S =** **0.4** **%**



Flow Calculation for Upstream Catchment

Catchment 2

Fraction Impervious = f_i = 0.1 Table Drain (QUDM Table 4.5.3)
1 hour @ 10 year ARI = $^{1}I_{10}$ = 60.4 mm/hr (IFD CHARTS)
C_{10} = 0.59 (QUDM Table 4.5.3)

AEP		63%	39%	18%	10%	5%	2%	1%		
Design ARI		**1**	**2**	**5**	**10**	**20**	**50**	**100**		
Frequency Factor	F_Y	0.8	0.85	0.95	1	1.05	1.15	1.2		(QUDM Table 4.5.2)
Coefficient of Discharge	C_Y	0.472	0.5015	0.5605	0.59	0.6195	0.6785	0.708		(QUDM Equation 4.3)
Time of Concentration	T_C	32.0	32	32	32	32	32	32.0	min	
Rainfall Intensity	$^{10min}I_{10}$	51	57	77	89	100	115	125	mm/hr	(IFD CHARTS)
Area	A	8.12	8.12	8.12	8.12	8.12	8.12	8.12	Ha	
Path B Flow		**0.54**	**0.65**	**0.97**	**1.18**	**1.40**	**1.76**	**2.00**	**m^3/s**	
Velocity		**1.026**	**1.082**	**1.222**	**1.293**	**1.359**	**1.450**	**1.503**	**m/s**	Taken from ERSCON Super Drain Table
Height		**0.206**	**0.224**	**0.271**	**0.297**	**0.322**	**0.359**	**0.381**	**m**	

JOB NO: 160-010
JOB: Wylandra Stage 1 Drainage
TITLE : Catchment 3
DATE: 1/05/2024

Time of concentration Calculation
(Using Bransby-Williams' Equation)

Proportionality Factor P= 58 (for Ha)

Length of Flow Path L= 1.584 km
Top of Catchment (RL) RL = 469 m
Area of Catchment A = 27.30 Ha

Catchment Profile **454.8** [to utilise graph area better]

Chainage	RL	RL	Area under Graph (m²)
0	454.8	0	-----
250	457.8	3	375
500	460.8	6	1125
750	462.9	8.1	1763
1000	466.7	11.9	2500
1500	468	13.2	6275
1500	468	13.2	0
1500	468	13.2	0
1500	468	13.2	0
1584	469.0	14.2	1151

Average Slope Calculation	
Outlet Chainage	0
Catchment length	1584
Outlet RL	0
Top RL (Av Slope)	16.7

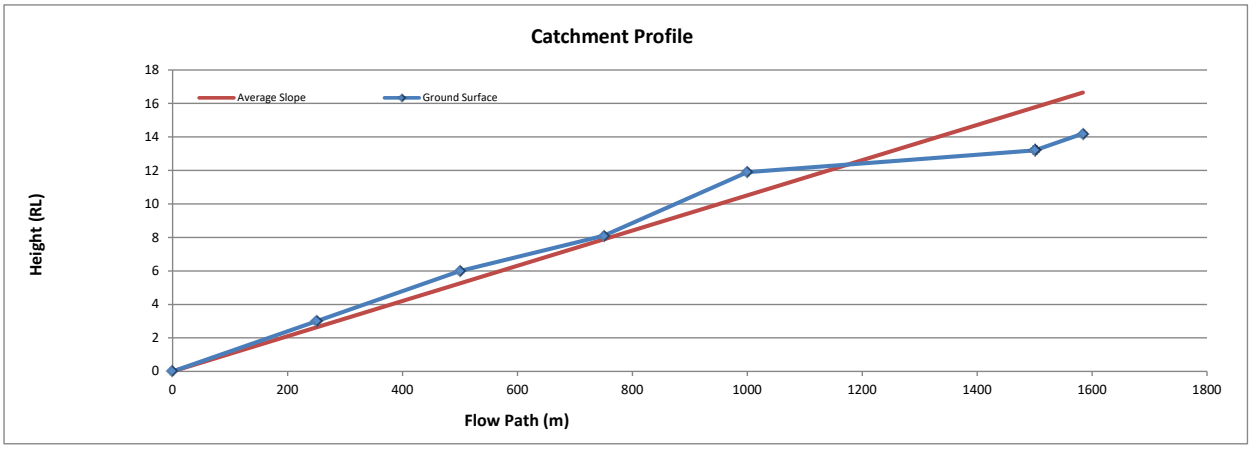
$$Tc = \frac{P \times L}{(A \wedge 0.1) \times (S \wedge 0.2)}$$

Tc = 65.3 min

Adopted Tc **65.0** **min**

Total area under graph **13188** m^2
Area below outlet level 0 m^2
Area above outlet 13188 m^2

Height for average slope 16.65 m
Average Slope **S =** **1.1** **%**



Flow Calculation for Upstream Catchment

Catchment 3

Fraction Impervious = f_i = 0.1 Table Drain (QUDM Table 4.5.3)
1 hour @ 10 year ARI = $^{1}I_{10}$ = 60.4 mm/hr (IFD CHARTS)
C_{10} = 0.59 (QUDM Table 4.5.3)

AEP		63%	39%	18%	10%	5%	2%	1%		
Design ARI		**1**	**2**	**5**	**10**	**20**	**50**	**100**		
Frequency Factor	F_Y	0.8	0.85	0.95	1	1.05	1.15	1.2		(QUDM Table 4.5.2)
Coefficient of Discharge	C_Y	0.472	0.5015	0.5605	0.59	0.6195	0.6785	0.708		(QUDM Equation 4.3)
Time of Concentration	T_C	65	65	65	65	65	65	65	min	
Rainfall Intensity	$^{9min}I_{10}$	33	37	49	57	65	74	80	mm/hr	(IFD CHARTS)
Area	A	27.3	27.3	27.3	27.3	27.3	27.3	27.30	Ha	
Path C Flow		**1.18**	**1.41**	**2.10**	**2.56**	**3.03**	**3.79**	**4.31**	**m^3/s**	
Velocity		**1.332**	**1.393**	**1.541**	**1.619**	**1.689**	**1.786**	**1.844**	**m/s**	Taken from ERSCON Super Drain Table
Height		**0.423**	**0.457**	**0.542**	**0.589**	**0.632**	**0.694**	**0.732**	**m**	

APPENDIX E

Hydraulic Analysis

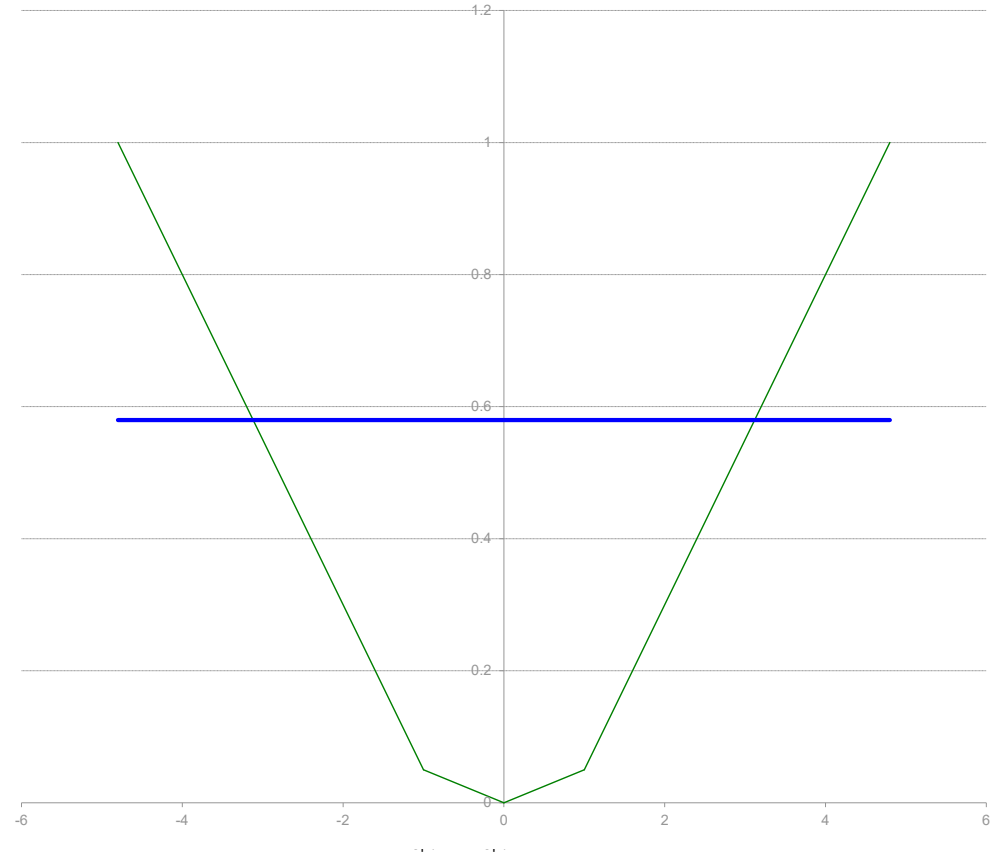
WYLANDRA ESTATE STAGE 1
DRAIN 1
Q100 FLOW

Q =	4.3	Slope	1.6 %	Depth	0.580	n	0.032	q	4.2999	A	2.232	v	1.9269

Label	Constraints	Horizontal (m)	Vertical (m)	Grade %	Surface	n
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	2	3.8	0.95	25.0%	Poorly Grassed	0.035
	2	1	0.05	5.0%	Poorly Grassed	0.035
	Invert Line					
	2	1	0.05	5.0%	Poorly Grassed	0.035
	2	3.8	0.95	25.0%	Poorly Grassed	0.035
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					

Left of Invert

Right of Invert



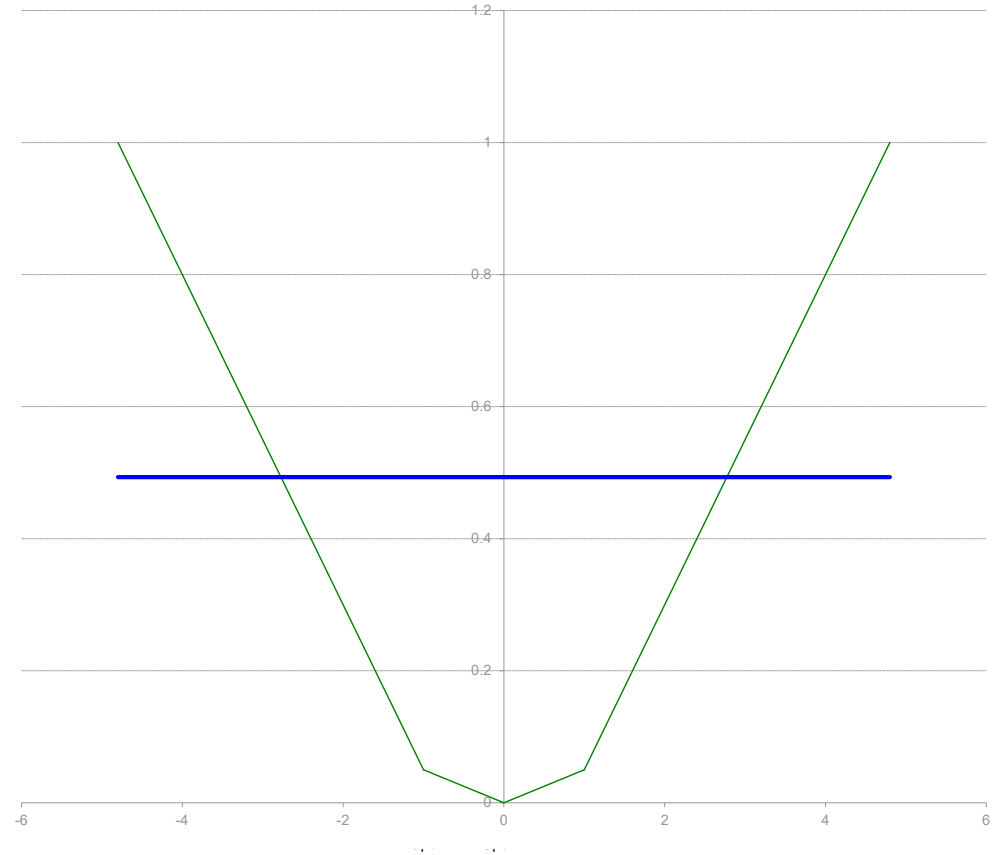
WYLANDRA ESTATE STAGE 1
DRAIN 1
Q5 FLOW

Q =	3.02	Slope	1.6 %	Depth	0.493	n	0.0319	q	3.0199	A	1.722	v	1.7535

Label	Constraints	Horizontal (m)	Vertical (m)	Grade %	Surface	n
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	2	3.8	0.95	25.0%	Poorly Grassed	0.035
	2	1	0.05	5.0%	Poorly Grassed	0.035
Invert Line						
	2	1	0.05	5.0%	Poorly Grassed	0.035
	2	3.8	0.95	25.0%	Poorly Grassed	0.035
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					

Left of Invert

Right of Invert



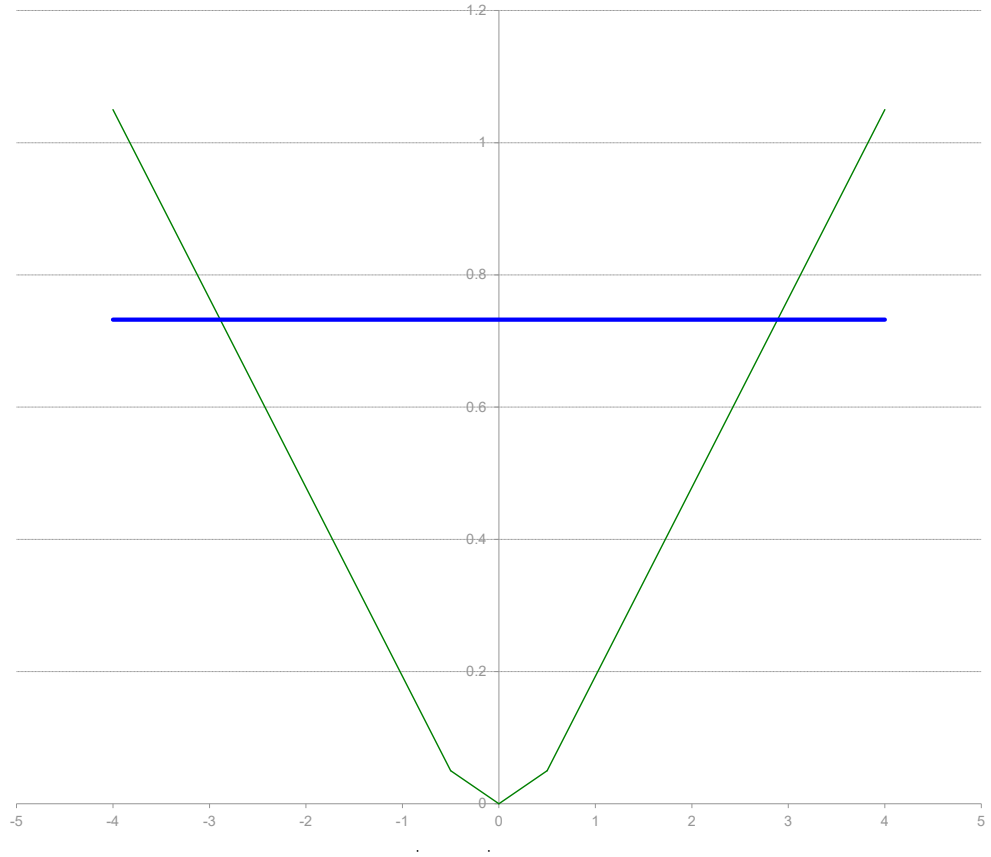
WYLANDRA ESTATE STAGE 1
DRAIN 2 & 3
Q100 FLOW

Q =	4.31	Slope	1.3 %	Depth	0.732	n	0.0327	q	4.3099	A	2.337	v	1.8444

Label	Constraints	Horizontal (m)	Vertical (m)	Grade %	Surface	n
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	2	3.5	1	28.6%	Poorly Grassed	0.035
	2	0.5	0.05	10.0%	Poorly Grassed	0.035
	Invert Line					
	2	0.5	0.05	10.0%	Poorly Grassed	0.035
	2	3.5	1	28.6%	Poorly Grassed	0.035
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					

Left of Invert

Right of Invert



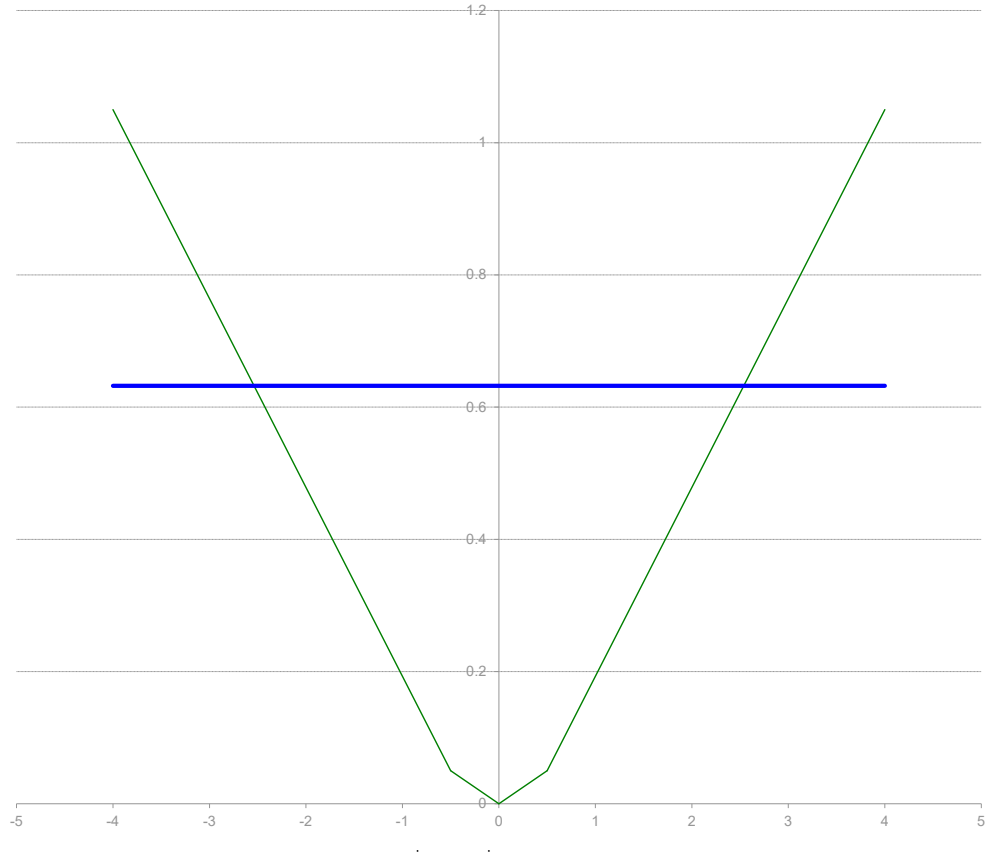
WYLANDRA ESTATE STAGE 1
DRAIN 2 & 3
Q5 FLOW

Q =	3.03	Slope	1.3 %	Depth	0.632	n	0.0324	q	3.03	A	1.794	v	1.6892

Label	Constraints	Horizontal (m)	Vertical (m)	Grade %	Surface	n
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	2	3.5	1	28.6%	Poorly Grassed	0.035
	2	0.5	0.05	10.0%	Poorly Grassed	0.035
		Invert Line				
	2	0.5	0.05	10.0%	Poorly Grassed	0.035
	2	3.5	1	28.6%	Poorly Grassed	0.035
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					

Left of Invert

Right of Invert

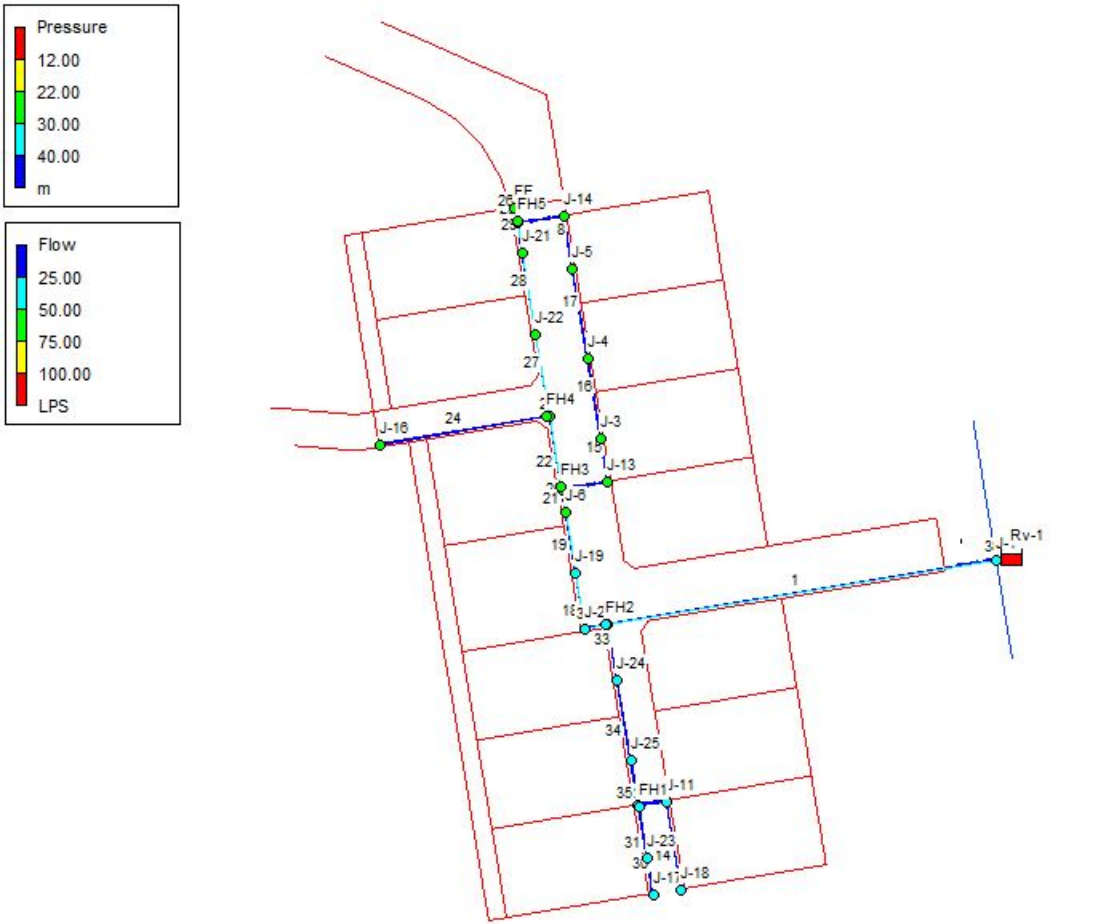


APPENDIX F

Decision Notice

APPENDIX G

EPANet


Pressure
12.00
22.00
30.00
40.00
m
Flow
25.00
50.00
75.00
100.00
LPS
FF
FH5
J-14
J-21
J-5
J-22
J-4
FH4
J-3
J-16
24
FH3
J-13
J-6
J-19
Rv-1
1
J-2
FH2
J-24
J-25
FH1
J-11
J-23
J-18
J-17

Network Table - Nodes

Node ID	Base Demand LPS	Demand LPS	Head m	Pressure m
Junc J-1	1	0.10	494.00	35.00
Junc J-2	1	0.10	489.87	31.87
Junc J-7	1	0.10	486.01	28.01
Junc J-8	1	0.10	484.31	26.31
Junc J-9	1	0.10	481.70	23.70
Junc J-10	1	0.10	490.47	32.47
Junc J-11	1	0.10	490.47	32.47
Junc J-12	1	0.10	490.47	32.47
Junc J-13	1	0.10	485.92	27.92
Junc J-14	1	0.10	481.76	23.76
Junc FF	290	27.96	481.33	23.33
Junc J-16	1	0.10	484.31	26.31
Junc J-17	1	0.10	490.47	32.47
Junc J-18	1	0.10	490.47	32.47
Junc J-3	1	0.10	485.16	27.16
Junc J-4	1	0.10	483.85	25.85
Junc J-5	1	0.10	482.51	24.51
Junc J-6	1	0.10	486.64	28.64
Junc J-19	1	0.10	488.31	30.31
Junc FH3	1	0.10	485.96	27.96
Junc FH4	1	0.10	484.31	26.31
Junc FH5	1	0.10	481.64	23.64
Junc J-21	1	0.10	481.90	23.90
Junc J-22	1	0.10	482.46	24.46
Junc J-23	1	0.10	490.47	32.47
Junc FH1	1	0.10	490.47	32.47
Junc J-24	1	0.10	490.47	32.47
Junc J-25	1	0.10	490.47	32.47

Node ID	Base Demand LPS	Demand LPS	Head m	Pressure m
Junc FH2	1	0.10	490.46	32.46
Resvr Rv-1	#N/A	-30.66	494.00	0.00

Network Table - Links

Link ID	Length m	Diameter mm	Flow LPS	Velocity m/s
Pipe 1	219.76	150	30.56	1.73
Pipe 7	85.35	100	-1.97	0.25
Pipe 9	84.85	100	-2.45	0.31
Pipe 13	52.64	100	0.19	0.02
Pipe 14	163.57	150	0.10	0.01
Pipe 8	99.94	63	2.06	0.66
Pipe 15	79.60	63	2.35	0.75
Pipe 16	148.31	63	2.26	0.72
Pipe 17	165.83	63	2.16	0.69
Pipe 18	103.64	150	-29.50	1.67
Pipe 19	111.76	150	-29.40	1.66
Pipe 20	42.17	150	29.31	1.66
Pipe 21	4.04	150	-26.76	1.51
Pipe 22	132.04	150	-26.66	1.51
Pipe 23	5.48	150	-0.19	0.01
Pipe 24	309.77	150	-0.10	0.01
Pipe 25	3.88	150	28.05	1.59
Pipe 26	23.22	150	27.96	1.58
Pipe 27	151.72	150	26.37	1.49
Pipe 28	46.03	150	26.28	1.49
Pipe 29	16.67	150	26.18	1.48
Pipe 30	68.77	150	-0.10	0.01
Pipe 31	92.82	150	0.19	0.01
Pipe 32	3.18	150	0.29	0.02
Pipe 33	31.76	150	-0.77	0.04
Pipe 34	146.66	150	0.67	0.04
Pipe 35	87.65	150	0.58	0.03
Pipe 36	0.99	150	29.69	1.68

Link ID	Length m	Diameter mm	Flow LPS	Velocity m/s
Pipe 37	39.00	150	-29.59	1.67
Pipe 38	1	300	30.66	0.43


Pressure
12.00
22.00
30.00
40.00
m
Flow
25.00
50.00
75.00
100.00
LPS
J-15
FH5
J-14
J-21
J-5
J-22
J-4
FH4
J-3
J-16
24
FH3
J-13
J-6
J-19
Rv-1
1
FH2
J-24
J-25
FH1
J-11
J-23
J-17
J-18

Network Table - Nodes

Node ID	Base Demand LPS	Demand LPS	Head m	Pressure m
Junc J-1	1	0.10	494.00	35.00
Junc J-2	1	0.10	493.96	35.96
Junc J-7	1	0.10	493.94	35.94
Junc J-8	1	0.10	493.94	35.94
Junc J-9	1	0.10	493.93	35.93
Junc J-10	1	0.10	493.96	35.96
Junc J-11	1	0.10	493.96	35.96
Junc J-12	1	0.10	493.96	35.96
Junc J-13	1	0.10	493.94	35.94
Junc J-14	1	0.10	493.93	35.93
Junc J-15	1	0.10	493.93	35.93
Junc J-16	1	0.10	493.94	35.94
Junc J-17	1	0.10	493.96	35.96
Junc J-18	1	0.10	493.96	35.96
Junc J-3	1	0.10	493.93	35.93
Junc J-4	1	0.10	493.93	35.93
Junc J-5	1	0.10	493.93	35.93
Junc J-6	1	0.10	493.94	35.94
Junc J-19	1	0.10	493.95	35.95
Junc FH3	1	0.10	493.94	35.94
Junc FH4	1	0.10	493.94	35.94
Junc FH5	1	0.10	493.93	35.93
Junc J-21	1	0.10	493.93	35.93
Junc J-22	1	0.10	493.93	35.93
Junc J-23	1	0.10	493.96	35.96
Junc FH1	1	0.10	493.96	35.96
Junc J-24	1	0.10	493.96	35.96
Junc J-25	1	0.10	493.96	35.96
Junc FH2	1	0.10	493.96	35.96
Resvr Rv-1	#N/A	-2.80	494.00	0.00

Network Table - Links

Link ID	Length m	Diameter mm	Flow LPS	Velocity m/s
Pipe 1	219.76	150	2.70	0.15
Pipe 7	85.35	100	0.20	0.03
Pipe 9	84.85	100	-0.28	0.04
Pipe 13	52.64	100	0.19	0.02
Pipe 14	163.57	150	0.10	0.01
Pipe 8	99.94	63	-0.10	0.03
Pipe 15	79.60	63	0.19	0.06
Pipe 16	148.31	63	0.09	0.03
Pipe 17	165.83	63	-0.01	0.00
Pipe 18	103.64	150	-1.64	0.09
Pipe 19	111.76	150	-1.54	0.09
Pipe 20	42.17	150	1.45	0.08
Pipe 21	4.04	150	-1.07	0.06
Pipe 22	132.04	150	-0.97	0.05
Pipe 23	5.48	150	-0.19	0.01
Pipe 24	309.77	150	-0.10	0.01
Pipe 25	3.88	150	0.19	0.01
Pipe 26	23.22	150	0.10	0.01
Pipe 27	151.72	150	0.68	0.04
Pipe 28	151.02	150	0.59	0.03
Pipe 29	54.70	150	0.49	0.03
Pipe 30	68.77	150	-0.10	0.01
Pipe 31	92.82	150	0.19	0.01
Pipe 32	3.18	150	0.29	0.02
Pipe 33	31.76	150	-0.77	0.04
Pipe 34	146.66	150	0.67	0.04
Pipe 35	87.65	150	0.58	0.03
Pipe 36	0.99	150	1.83	0.10
Pipe 37	39.00	150	-1.74	0.10
Pipe 38	1	300	2.80	0.04

P05-F-DD01 Document Transmittal

Project: **Wylandra Estate Stage 1**

Attention: Patrick McNamee

Company: Tyrone Corp Pty Ltd

From: ERSCON Consulting Engineers

ERSCON CONSULTING ENGINEERS

www.erscon.com.au

	Date of Issue													
Day	29	09	25	2	23	11	12	12	12	24				
Month	02	05	06	08	10	12	12	12	12	02				
Year	24	24	24	24	24	24	24	24	24	25				

Dwg/Doc Number	Dwg/Doc Title	Revision												
160-010-C101	Cover Sheet, Locality Plan and Drawing List	1	3	A						B				
160-010-C102	General Notes	1	1	A						A				
160-010-C103	Existing Layout	1	2	A						A				
160-010-C104	General Layout (Sheet 1 of 2)	1	3	A						A				
160-010-C105	General Layout (Sheet 2 of 2)	1	3	A						A				
160-010-C106	Road Longitudinal Section (Sheet 1 of 2)	1	3	A						A				
160-010-C107	Road Longitudinal Section (Sheet 2 of 2)	1	3	A						A				
160-010-C108	Typical Road Cross Section and Details	1	2	A						A				
160-010-C109	Intersection Details	1	3	A						B				
160-010-C110	Grading Plan (Sheet 1 of 2)	1	3	A						B				
160-010-C111	Grading Plan (Sheet 2 of 2)	1	3	A						B				
160-010-C112	Water Plan (Sheet 1 of 2)	1	3	A						A				
160-010-C113	Water Plan (Sheet 2 of 2)	1	3	A						A				
160-010-C114	Stormwater Q5 Minor and Drainage Plan (Sheet 1 of 2)	1	3	A						B				
160-010-C115	Stormwater Q5 Minor and Drainage Plan (Sheet 2 of 2)	1	3	A						A				
160-010-C116	Drain Longitudinal Section	1	3	A						B				
160-010-C117	Stormwater Q5 Minor Longitudinal Section		1	A						A				
160-010-C118	Erosion and Sediment Control Plan (Sheet 1 of 2)	1	3	A						A				
160-010-C119	Erosion and Sediment Control Plan (Sheet 2 of 2)	1	3	A						A				
160-010-C120	Erosion and Sediment Control Notes	1		A						A				
160-010-C121-125	Cross Sections	1		A						A				
160-010-C126	Detention Basin Plan	1		A						A				
160-010-C127	Detention Basin Long Section	1		A						A				
160-010-C128	Detention Basin Cross Section (Sheet 1 of 2)	1		A						A				
160-010-C129	Detention Basin Cross Section (Sheet 2 of 2)	1		A						A				
		1		A										
060-010-SK09	Catchment Plan				1									
160-010-R001	Wylandra Operational Works Application			A						B				
160-010-R002	Wylandra Stormwater Management Plan			A						B				
160-101-SK12	Options 2 - Drainage Park					1								
160-010-SK13	Total Catchments					1								
161-010-R003	Stage 1 Extra overland Flow generated report						A	B	C	D				
Minutes No 3	Minutes No 3 (24 October 2024)					1								

Company Name	Attention	Number of Copies												
Tyrone Corp	Patrick McNamee	1	1		1	1	1	1	1	1				
Tyrone Corp	Peter McNamee	1	1			1	1	1	1	1				
	Monique Quirk		1			1								
ConMat	Roy Lavis	1	1		1	1	1	1	1	1				
ConMat	Steven Lavis	1	1			1	1	1	1	1				

A - Approval	T - Tender Issue	R - As Requested	Reason for Issue											
P - Preliminary	C - Constructon Issue	FI - For Information	P	P		FI	FI	FI	FI	FI	FI	FI				

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