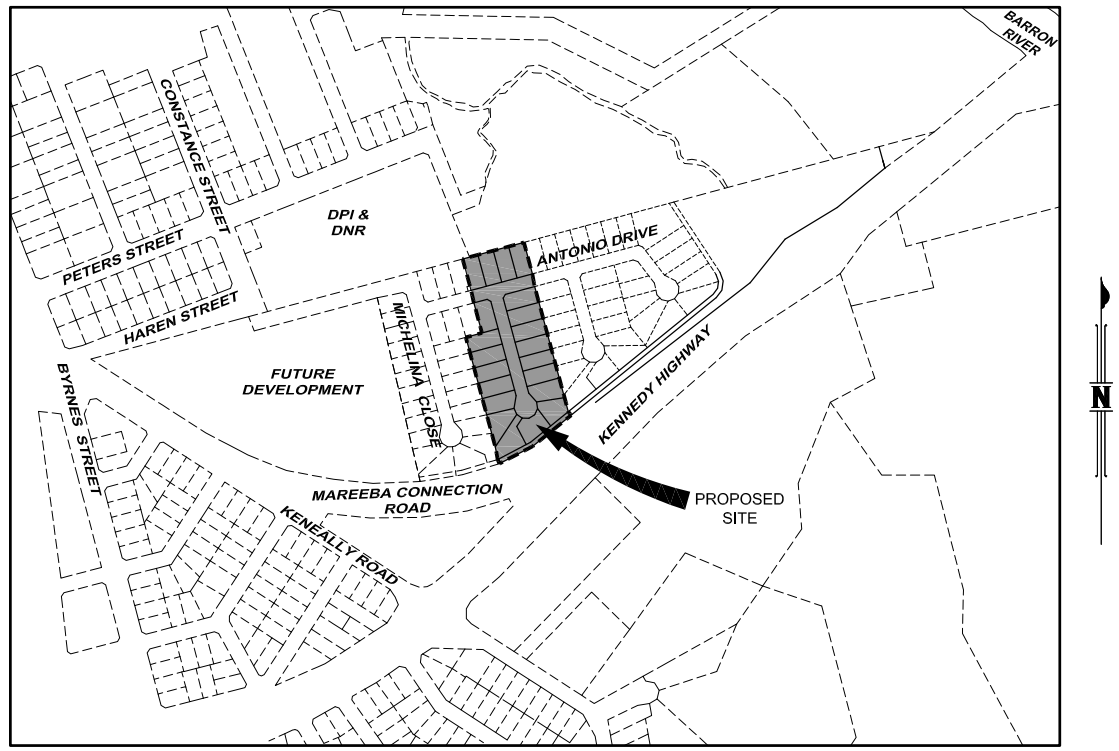
'THE EDGE'
RESIDENTIAL ESTATE
AT ANTONIO DRIVE, MAREEBA
STAGE 2



SITE PLAN
N.T.S.

PROJECT DRAWINGS
PROJECT No. 1291

C 01 – SITE PLAN, TYPICAL CROSS SECTIONS, PAVEMENT DATA, DETAILS & NOTES
C 02 – BULK EARTHWORKS PLAN
C 03 – SOIL AND WATER MANAGEMENT PLAN
C 04 – EARTHWORKS, ROADWORKS & STORMWATER DRAINAGE PLAN
C 05 – SEWERAGE RETICULATION PLAN
C 06 – WATER RETICULATION PLAN
C 07 – EXTERNAL WORKS – INGRESS ROAD – PLAN, LONGITUDINAL SECTION AND TYPICAL CROSS SECTION
C 08 – INGRESS ROAD – CROSS SECTIONS (SHEET 1 OF 3)
C 09 – INGRESS ROAD – CROSS SECTIONS (SHEET 2 OF 3)
C 10 – INGRESS ROAD – CROSS SECTIONS (SHEET 3 OF 3)
C 11 – ANTONIO DRIVE – LONGITUDINAL SECTION AND INTERSECTION DETAILS
C 12 – ANTONIO DRIVE – CROSS SECTIONS (SHEET 1 OF 2)
C 13 – ANTONIO DRIVE – CROSS SECTIONS (SHEET 2 OF 2)
C 14 – ROAD C – LONGITUDINAL SECTION
C 15 – ROAD C – CROSS SECTIONS (SHEET 1 OF 2)
C 16 – ROAD C – CROSS SECTIONS (SHEET 2 OF 2)
C 17 – OPEN DRAIN No. 1 – LONGITUDINAL AND CROSS SECTIONS, RETAINING WALL DETAIL
C 18 – STORMWATER DRAINAGE LONGITUDINAL SECTIONS, SET OUT, PIT SCHEDULE AND NOTES
C 19 – SEWERAGE RETICULATION LONGITUDINAL SECTIONS
C 20 – STORMWATER DRAINAGE CATCHMENT PLAN
C 21 – STORMWATER DRAINAGE CALCULATION SHEET

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Document Set ID: 3366540
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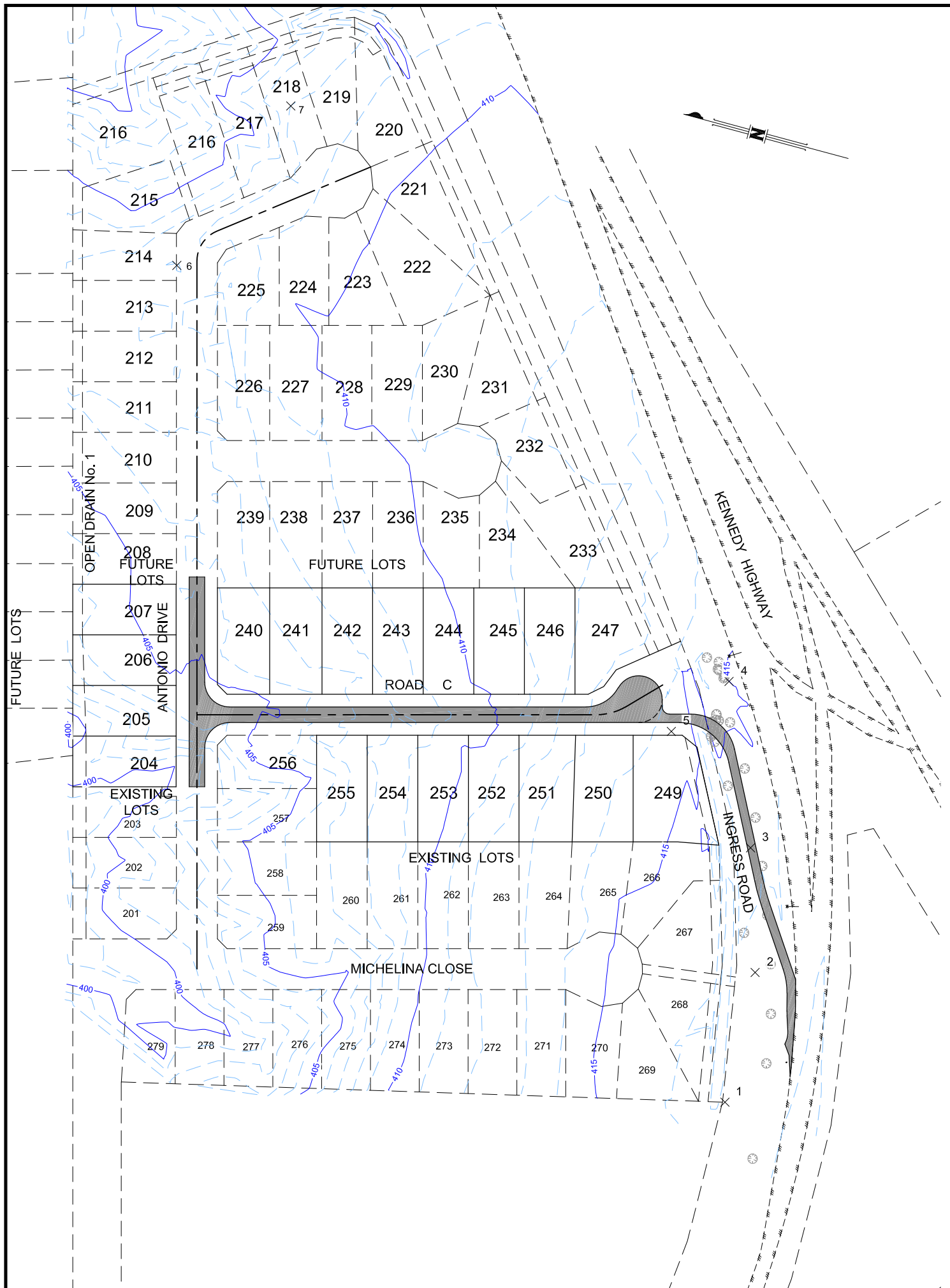


PRE-START MEETING

THE CONTRACTOR SHALL PRODUCE THE FOLLOWING DOCUMENTS AT THE PRESTART MEETING:

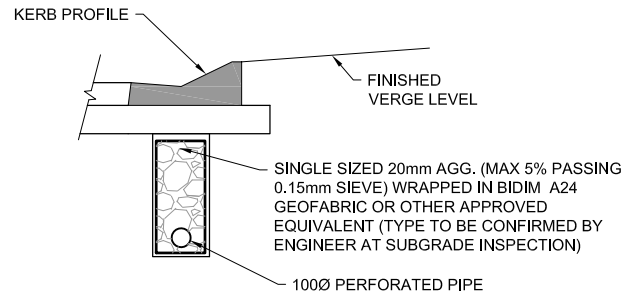
1. EVIDENCE OF PAYMENT OF Q LEAVE LEVY.
2. TRAFFIC MANAGEMENT PLAN
3. PRICED BILL OF QUANTITIES.
4. CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN.
5. EVIDENCES OF INSURANCES:
   - PUBLIC LIABILITY
   - LOSS OR DAMAGE TO THE WORKS
   - WORKERS COMPENSATION
7. NOTICE OF APPOINTMENT OF PRINCIPAL CONTRACTOR AS REQUIRED BY WORKPLACE, HEALTH AND SAFETY ACT.
8. PROGRAMME OF WORKS

NOTES:

FOOTPATHS TO BE DRILL SEEDED WITH GRASS SPECIES AS APPROVED BY THE SUPERINTENDENT.

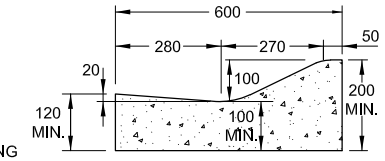
ALL POSTS FOR STREET SIGNS SHALL HAVE AT THE BASE A MOWING STRIP AS SHOWN ON FNQROC STD. DRGS.

PRIOR TO THE COMMENCEMENT OF CONSTRUCTION THE PRINCIPAL SHALL COMPLETE AND SUBMIT TO THE LOCAL AUTHORITY A "NOTICE OF APPOINTMENT OF PRINCIPAL CONTRACTOR" WHICH IDENTIFIES THE PRINCIPAL CONTRACTOR.



SUB SURFACE DRAINAGE DETAIL

NTS



ROLLOVER KERB DETAIL

SCALE: 1:50

RP DESCRIPTION
LOT 301 ON SP 280080

LOCAL AUTHORITY:
MAREEBA SHIRE COUNCIL

NOTES:

SURVEY CONTROL

ORIGIN OF LEVELS:
PM 1877761 RL 687.844 AHD der.

ORIGIN OF COORDINATES:
MGA 94 ZONE 55

CONTOUR INTERVAL EXISTING SURFACE:
0.50m INDEXED AT 0.5m INTERVALS.

NOTES:

THE CONTRACTOR TO CONFIRM SURVEY DATUM WITH SURVEYOR PRIOR TO COMMENCEMENT OF WORK.

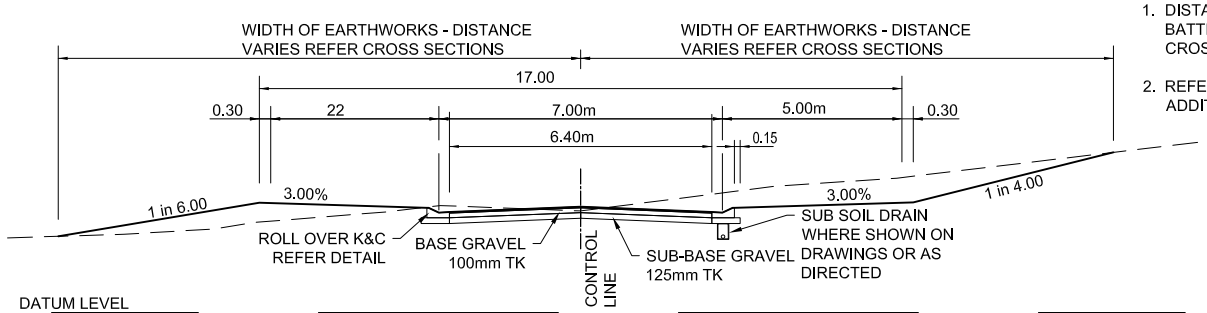
THE PRINCIPAL'S SURVEYOR SHALL PROVIDE INITIAL SURVEY DATA AND FINAL CADASTRAL SURVEY INFORMATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ALL OTHER SURVEY DATA NECESSARY TO CONSTRUCT THE WORKS INCLUDING 'AS CONSTRUCTED' INFORMATION. THE COST OF PROVIDING THIS SURVEY SHALL FORM PART OF THE CONTRACT SUM.

EXISTING SERVICES

1. EXISTING SERVICES ARE PLOTTED FROM THE BEST INFORMATION AVAILABLE. NO RESPONSIBILITY IS TAKEN BY THE SUPERINTENDENT FOR THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN.
2. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR IS TO ESTABLISH ON SITE THE EXACT LOCATION OF ALL UNDERGROUND SERVICES IN THE PROPOSED WORKS AREA. METHODS TO ACHIEVE THIS WILL INCLUDE BUT NOT BE LIMITED TO:-
   - CAREFUL EXAMINATION OF THE CONTRACT DRAWINGS
   - CONSULTATION WITH THE RELEVANT SERVICE AUTHORITIES
   - COMPREHENSIVELY SCANNING THE AFFECTED AREAS WITH A CABLE DETECTOR AND MARKING ON THE GROUND THE POSITION OF ALL SERVICES
   - HAND EXCAVATING TO EXPOSE ALL SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS UNDER THE DIRECTION OF THE RELEVANT SERVICE AUTHORITY.
3. THE CONTRACTOR SHALL BRING TO THE SUPERINTENDENTS ATTENTION ANY DISCREPANCIES BETWEEN THE EXISTING SERVICES THUS IDENTIFIED AND THE DOCUMENTED SERVICES WHICH MIGHT AFFECT THE PROPOSED WORKS. APPROPRIATE MEASURES TO RESOLVE ANY CONFLICTS WILL BE DOCUMENTED BY THE SUPERINTENDENT.

NOTES:

1. DISTANCES FROM ℄ TO TOPS OF BATTER ARE SHOWN ON THE CROSS SECTIONS.
2. REFER CROSS SECTIONS FOR ADDITIONAL BATTER SLOPES.



TYPICAL CROSS SECTION ANTONIO DRIVE AND ROAD C

SCALE: 1:100

PAVEMENT NOTES

PROVISIONAL PAVEMENT DESIGN STATED HEREIN IS BASED ON A MINIMUM CBR UNDER SERVICE CONDITIONS OF 7. PAVEMENT DESIGN IS SUBJECT TO REVISION ON BASIS OF CONFIRMATORY CBR TESTS TAKEN AT THE TIME OF CONSTRUCTION. BASED ON THE INSITU CBR TEST RESULTS, THE FINAL PAVEMENT DESIGN SHALL APPROVED BY COUNCIL PRIOR TO CONSTRUCTION.
THE COMPLETED PAVEMENT DESIGN SHALL GENERALLY COMPLY WITH AUSTROADS OR DTMR PAVEMENT DESIGN MANUAL AS APPLICABLE.

SUBGRADE - COMPACT TO 100% SRDD.
SHOULD ANY SOFT OR UNSUITABLE MATERIAL BE IDENTIFIED SEEK ADVICE OF THE SUPERINTENDENT.

SUBBASE SHALL CONSIST OF TYPE 2 SUBTYPE 2.3 PAVEMENT MATERIAL ('B' OR 'C' GRADED) COMPACTED TO 100% SRDD IN ACCORDANCE WITH SPECIFICATION.
DEPTH OF PAVEMENT 125mm.

BASE SHALL CONSIST OF TYPE 2 SUBTYPE 2.2 PAVEMENT MATERIAL ('B' OR 'C' GRADED) COMPACTED TO 100% SRDD IN ACCORDANCE WITH SPECIFICATION.
DEPTH OF PAVEMENT 100mm

SEAL PAVEMENT AREAS WITH ASPHALT AS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE SPECIFICATION.
DEPTH OF ASPHALT SHALL BE 30mm UNLESS NOTED OTHERWISE ON THE DRAWINGS.

SURVEY MARKS

Point #	Easting	Northing	Level	Description
1	332860.813	8118592.165	416.462	Survey Mark
2	332916.015	8118594.092	416.202	Survey Mark
3	332965.442	8118609.372	415.879	Survey Mark
4	333029.765	8118635.956	414.960	Survey Mark
5	333003.502	8118653.675	414.220	Survey Mark
6	333136.736	8118902.110	408.136	Survey Mark
7	333212.905	8118873.664	408.002	Survey Mark

SCALE 1:100 1.0 0 1.0 2.0 3.0 4.0 5.0m
SCALE 1:1000 10 0 10 20 30 40 50.0m

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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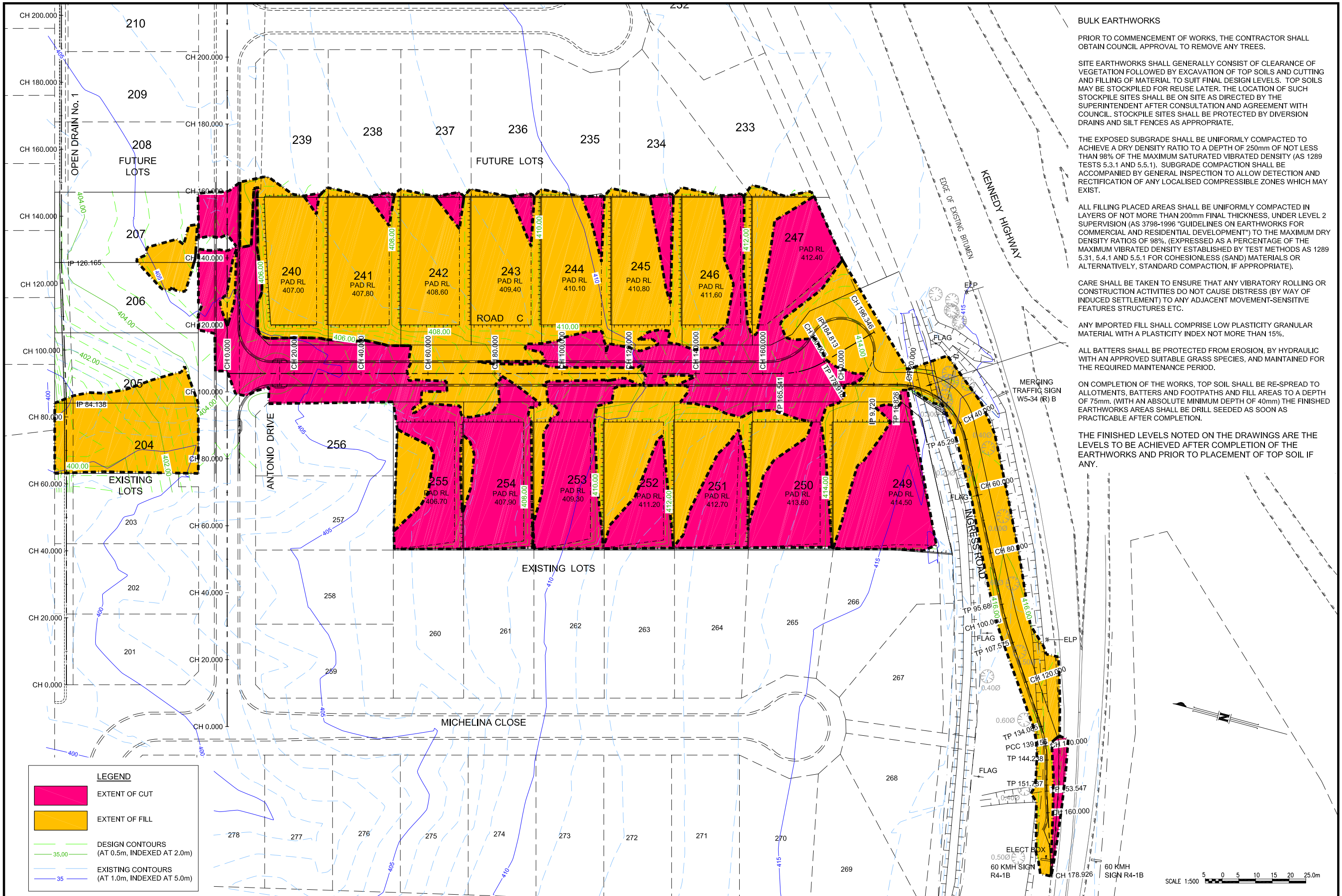
"The Edge Mareeba" Stage 2
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: SITE PLAN, TYPICAL CROSS SECTION, PAVEMENT DATA, DETAILS AND NOTES

SCALE (AT A1 SIZE)	HOR1:1000/100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C01	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



BULK EARTHWORKS

PRIOR TO COMMENCEMENT OF WORKS, THE CONTRACTOR SHALL OBTAIN COUNCIL APPROVAL TO REMOVE ANY TREES.

SITE EARTHWORKS SHALL GENERALLY CONSIST OF CLEARANCE OF VEGETATION FOLLOWED BY EXCAVATION OF TOP SOILS AND CUTTING AND FILLING OF MATERIAL TO SUIT FINAL DESIGN LEVELS. TOP SOILS MAY BE STOCKPILED FOR REUSE LATER. THE LOCATION OF SUCH STOCKPILE SITES SHALL BE ON SITE AS DIRECTED BY THE SUPERINTENDENT AFTER CONSULTATION AND AGREEMENT WITH COUNCIL. STOCKPILE SITES SHALL BE PROTECTED BY DIVERSION DRAINS AND SILT FENCES AS APPROPRIATE.

THE EXPOSED SUBGRADE SHALL BE UNIFORMLY COMPACTED TO ACHIEVE A DRY DENSITY RATIO TO A DEPTH OF 250mm OF NOT LESS THAN 98% OF THE MAXIMUM SATURATED VIBRATED DENSITY (AS 1289 TESTS 5.3.1 AND 5.5.1). SUBGRADE COMPACTION SHALL BE ACCOMPANIED BY GENERAL INSPECTION TO ALLOW DETECTION AND RECTIFICATION OF ANY LOCALISED COMPRESSIBLE ZONES WHICH MAY EXIST.

ALL FILLING PLACED AREAS SHALL BE UNIFORMLY COMPACTED IN LAYERS OF NOT MORE THAN 200mm FINAL THICKNESS, UNDER LEVEL 2 SUPERVISION (AS 3798-1996 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENT") TO THE MAXIMUM DRY DENSITY RATIOS OF 98%. (EXPRESSED AS A PERCENTAGE OF THE MAXIMUM VIBRATED DENSITY ESTABLISHED BY TEST METHODS AS 1289 5.31, 5.4.1 AND 5.5.1 FOR COHESIONLESS (SAND) MATERIALS OR ALTERNATIVELY, STANDARD COMPACTION, IF APPROPRIATE).

CARE SHALL BE TAKEN TO ENSURE THAT ANY VIBRATORY ROLLING OR CONSTRUCTION ACTIVITIES DO NOT CAUSE DISTRESS (BY WAY OF INDUCED SETTLEMENT) TO ANY ADJACENT MOVEMENT-SENSITIVE FEATURES STRUCTURES ETC.

ANY IMPORTED FILL SHALL COMPRISE LOW PLASTICITY GRANULAR MATERIAL WITH A PLASTICITY INDEX NOT MORE THAN 15%.

ALL BATTERS SHALL BE PROTECTED FROM EROSION, BY HYDRAULIC WITH AN APPROVED SUITABLE GRASS SPECIES, AND MAINTAINED FOR THE REQUIRED MAINTENANCE PERIOD.

ON COMPLETION OF THE WORKS, TOP SOIL SHALL BE RE-SPREAD TO ALLOTMENTS, BATTERS AND FOOTPATHS AND FILL AREAS TO A DEPTH OF 75mm. (WITH AN ABSOLUTE MINIMUM DEPTH OF 40mm) THE FINISHED EARTHWORKS AREAS SHALL BE DRILL SEEDED AS SOON AS PRACTICABLE AFTER COMPLETION.

THE FINISHED LEVELS NOTED ON THE DRAWINGS ARE THE LEVELS TO BE ACHIEVED AFTER COMPLETION OF THE EARTHWORKS AND PRIOR TO PLACEMENT OF TOP SOIL IF ANY.

amendments

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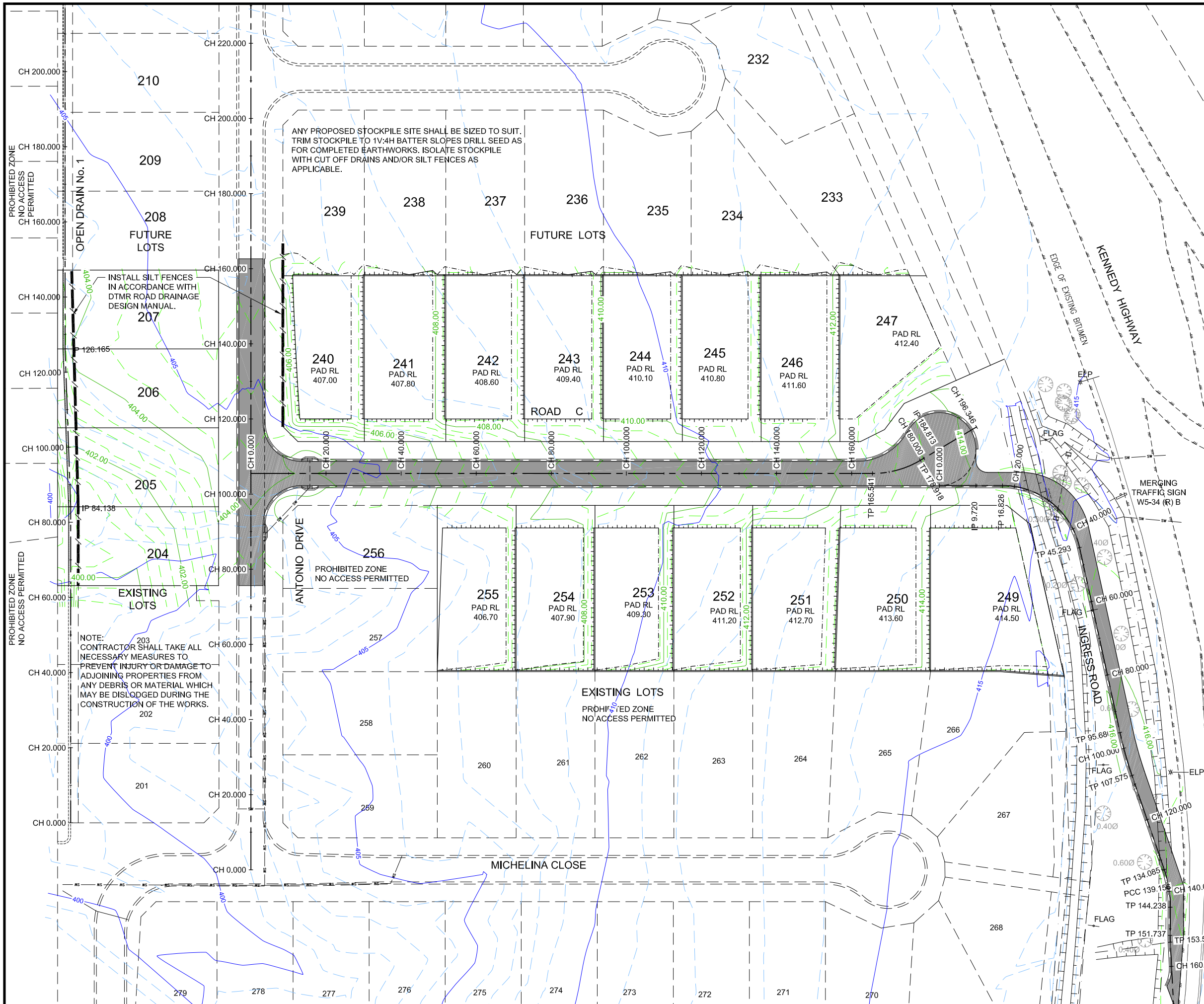
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: BULK EARTHWORKS PLAN

SCALE (AT A1 SIZE)	HOR 1:500	DRAWN	J.P.
	VER	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C02	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



SOIL AND WATER MANAGEMENT

1. THE CONTRACTOR SHALL PREPARE AN EROSION AND SEDIMENT CONTROL PLAN. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL DEVICES/MEASURES NECESSARY TO COMPLY WITH THE PROVISIONS OF THE FNQROC DEVELOPMENT MANUAL, THE ENVIRONMENTAL PROTECTION ACT AND THE REQUIREMENTS OF TABLELANDS REGIONAL COUNCIL.
2. THE CONSTRUCTION AND PLACEMENT OF SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE CONTRACTOR'S SOIL AND WATER MANAGEMENT PLAN AND SHALL COMPLY WITH THE REQUIREMENTS OF THE FNQROC DEVELOPMENT MANUAL, TABLELANDS REGIONAL COUNCIL. OTHER SEDIMENT CONTROL MEASURES SHALL INSTALLED BE AS DIRECTED BY THE SUPERINTENDENT.
3. ALL SEDIMENT CONTROL MEASURES ARE TO REMAIN IN PLACE UNTIL THE END OF THE MAINTENANCE PERIOD, UNLESS NOTED OTHERWISE. ALL SEDIMENT CONTROL DEVICES ARE TO BE FULLY MAINTAINED IN AN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND DURING THE MAINTENANCE PERIOD. THE CONTRACTOR IS TO ENSURE THAT ALL SEDIMENT CONTROL DEVICES ARE KEPT FREE OF SEDIMENT BUILD-UP.
4. SEDIMENT FENCES ARE TO BE INSTALLED SUCH THAT THE BASE OF THE FENCE IS PLACED 200mm MINIMUM BELOW GROUND LEVEL, AND ANCHORED SECURELY IN SUCH POSITION.
5. STOCKPILE SITES SHALL BE LOCATED ON SITE AS DIRECTED BY THE SUPERINTENDENT AFTER CONSULTATION AND AGREEMENT WITH COUNCIL. ENCIRCLE ALL STOCKPILES WITH SILT FENCES AND COVER WITH VISQUEEN OR SIMILAR IN TIMES OF HIGH WIND FOR DUST CONTROL.
6. ALL VEHICLES AND EQUIPMENT ENTRY/EXIT POINTS SHALL HAVE SHAKER GRIDS OR SIMILAR TO PREVENT VEHICLES FROM TRACKING SOIL AND MUD OFF SITE. LOCATION, DETAILS ETC SHALL BE SHOWN ON THE CONTRACTOR'S ESC PLAN.
7. THE DEVICES AND MEASURES INDICATED ON THIS DRAWING ARE MINIMUM RECOMMENDATIONS ONLY.
8. ALL KERB INLETS (INCLUDING FIELD INLETS) SHALL HAVE SEDIMENT TRAPS IN ACCORDANCE WITH CONTRACTORS ESCP PLAN.
9. THE FOLLOWING MEASURES SHALL BE UNDERTAKEN IMMEDIATELY UPON COMPLETION OF EACH SECTION OF EARTHWORKS:
   - CUT AND FILL BATTERS >1V:4H TO BE HYDROMULCHED
   - ALL OTHER AREAS SHALL BE GRASS SEEDED.
   - FOOTPATHS SHALL BE GRASS SEEDED UPON COMPLETION OF FINAL TRIMMING AS REQUIRED BY THE CONTRACTOR'S ESCP.
10. TURF STRIPS (400 WIDE) ARE TO BE PROVIDED ALONG THE BACK OF THE KERB AND CHANNEL,
11. REVEGETATION SHALL BE WATERED AND MAINTAINED UNTIL GROWTH IS ESTABLISHED.

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DRAWING TITLE: SOIL AND WATER MANAGEMENT PLAN

SCALE (AT A1 SIZE)	HOR 1:500	DRAWN	J.P.
	VER	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C03	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018

NOTES:

THE SITE FEATURES AN AMOUNT OF "FLOATING" ROCK WHICH THE CONTRACTOR MAY USE AS OUTLET PROTECTION WORKS.

THE CONTRACTOR MAY USE THIS ROCK OR IMPORT SUITABLE ROCK FOR THE CONSTRUCTION WORKS THE CONTRACTOR SHALL REMOVE ANY EXCESS ROCK GENERATED BY THE WORKS FROM THE SITE.

FOOTPATHS TO BE DRILL SEEDED WITH GRASS SPECIES AS APPROVED BY THE SUPERINTENDENT.

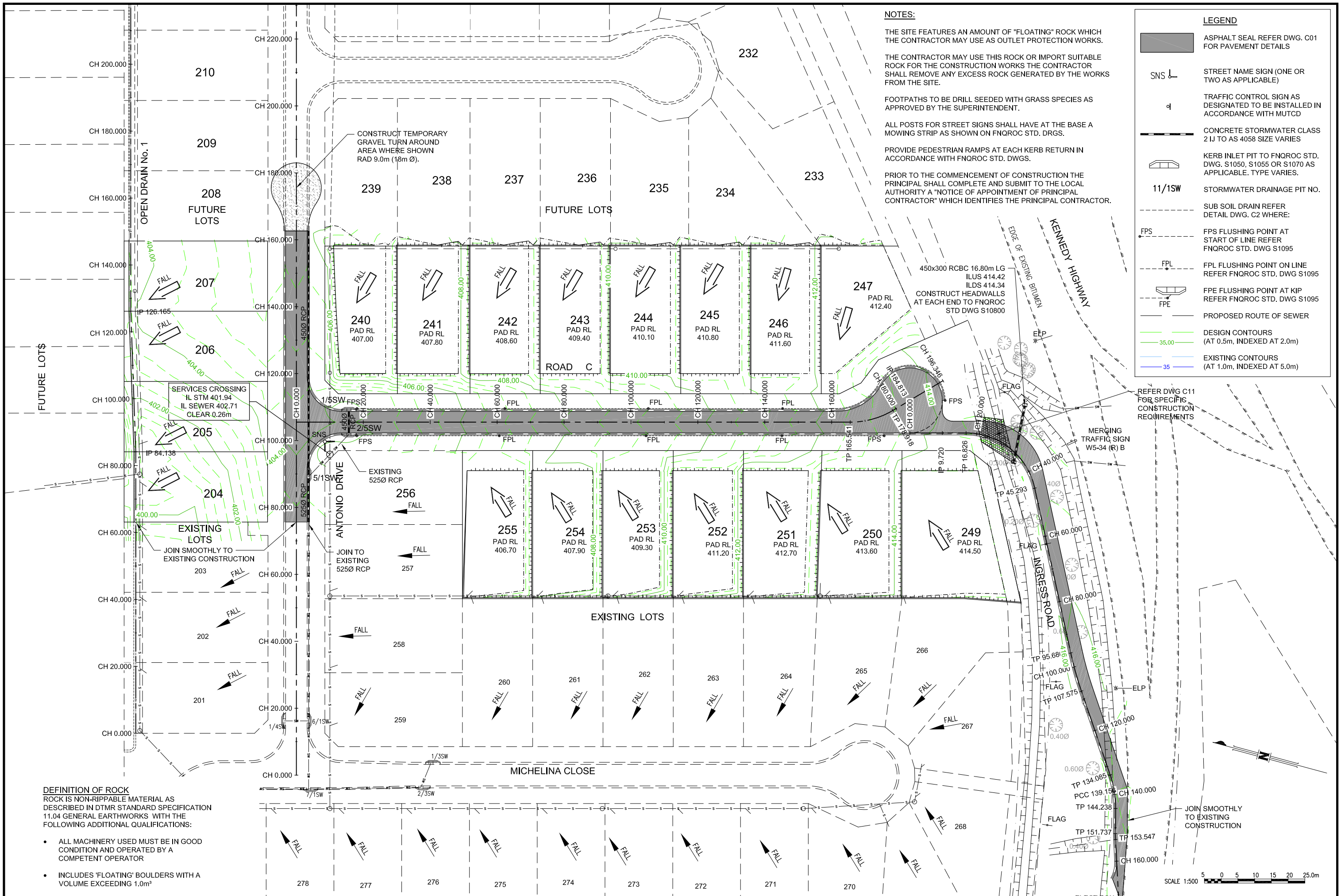
ALL POSTS FOR STREET SIGNS SHALL HAVE AT THE BASE A MOWING STRIP AS SHOWN ON FNQROC STD. DRGS.

PROVIDE PEDESTRIAN RAMPS AT EACH KERB RETURN IN ACCORDANCE WITH FNQROC STD. DWGS.

PRIOR TO THE COMMENCEMENT OF CONSTRUCTION THE PRINCIPAL SHALL COMPLETE AND SUBMIT TO THE LOCAL AUTHORITY A "NOTICE OF APPOINTMENT OF PRINCIPAL CONTRACTOR" WHICH IDENTIFIES THE PRINCIPAL CONTRACTOR.

LEGEND

- ASPHALT SEAL REFER DWG. C01 FOR PAVEMENT DETAILS
- SNS — STREET NAME SIGN (ONE OR TWO AS APPLICABLE)
- TRAFFIC CONTROL SIGN AS DESIGNATED TO BE INSTALLED IN ACCORDANCE WITH MUTCD
- CONCRETE STORMWATER CLASS 2 IJ TO AS 4058 SIZE VARIES
- KERB INLET PIT TO FNQROC STD. DWG. S1050, S1055 OR S1070 AS APPLICABLE. TYPE VARIES.
- 11/1SW — STORMWATER DRAINAGE PIT NO.
- SUB SOIL DRAIN REFER DETAIL DWG. C2 WHERE:
- FPS — FPS FLUSHING POINT AT START OF LINE REFER FNQROC STD. DWG S1095
- FPL — FPL FLUSHING POINT ON LINE REFER FNQROC STD. DWG S1095
- FPE — FPE FLUSHING POINT AT KIP REFER FNQROC STD. DWG S1095
- PROPOSED ROUTE OF SEWER
- DESIGN CONTOURS (AT 0.5m, INDEXED AT 2.0m)
- 35.00 — EXISTING CONTOURS (AT 1.0m, INDEXED AT 5.0m)



DEFINITION OF ROCK

ROCK IS NON-RIPPABLE MATERIAL AS DESCRIBED IN DTMR STANDARD SPECIFICATION 11.04 GENERAL EARTHWORKS WITH THE FOLLOWING ADDITIONAL QUALIFICATIONS:

- ALL MACHINERY USED MUST BE IN GOOD CONDITION AND OPERATED BY A COMPETENT OPERATOR
- INCLUDES 'FLOATING' BOULDERS WITH A VOLUME EXCEEDING 1.0m³

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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DRAWING TITLE: EARTHWORKS, ROADWORKS AND STORMWATER DRAINAGE PLAN

SCALE (AT A1 SIZE)	HOR 1:500	DRAWN	J.P.
	VER	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C04	AMDT	A

Document Set ID: 3366540
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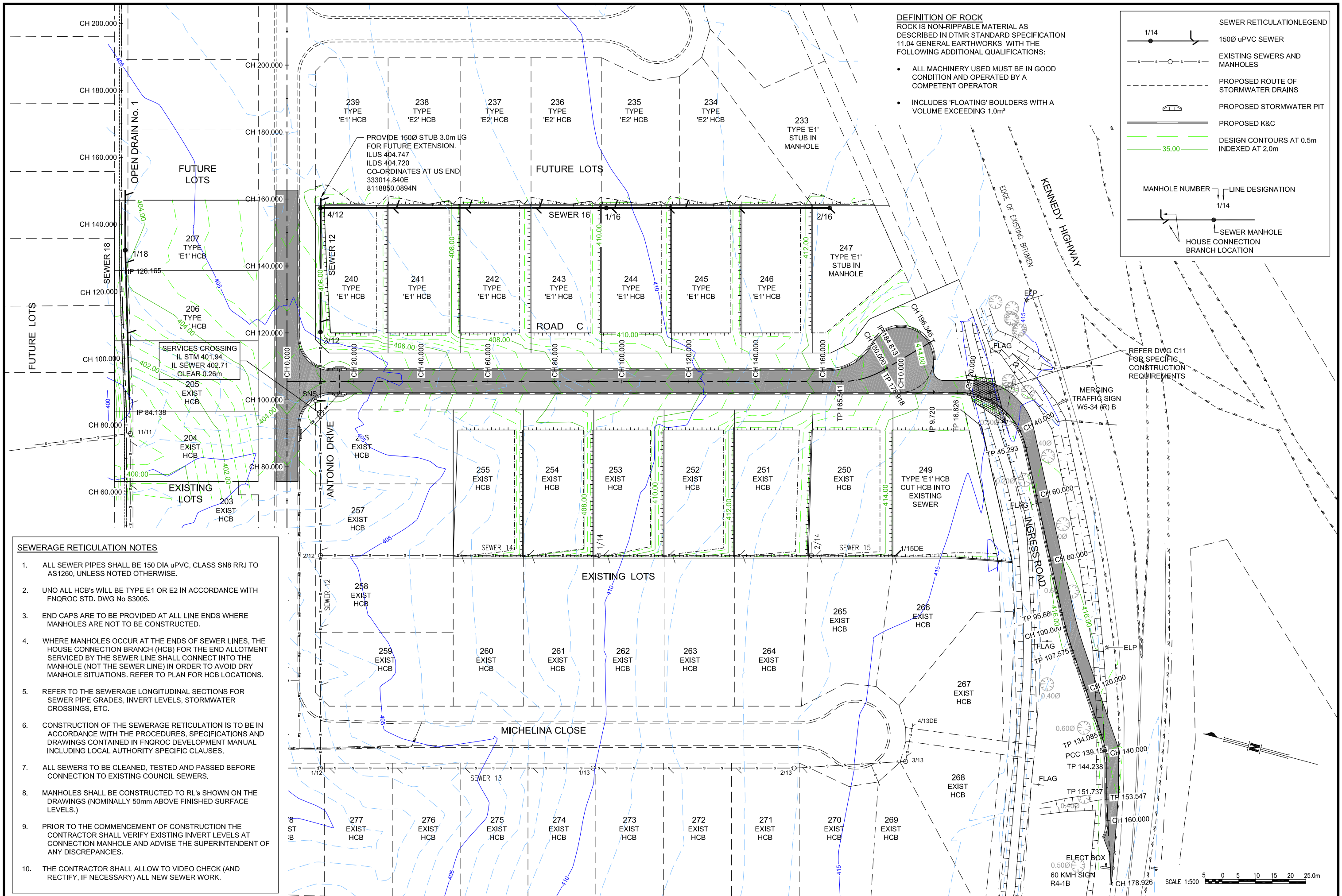

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- ALL MACHINERY USED MUST BE IN GOOD CONDITION AND OPERATED BY A COMPETENT OPERATOR
- INCLUDES 'FLOATING' BOULDERS WITH A VOLUME EXCEEDING 1.0m³

SEWER RETICULATION LEGEND

- 1/14 — 150Ø uPVC SEWER
- EXISTING SEWERS AND MANHOLES
- PROPOSED ROUTE OF STORMWATER DRAINS
- PROPOSED STORMWATER PIT
- PROPOSED K&C
- 35.00 — DESIGN CONTOURS AT 0.5m INDEXED AT 2.0m
- MANHOLE NUMBER — LINE DESIGNATION (1/14)
- SEWER MANHOLE
- HOUSE CONNECTION BRANCH LOCATION

SEWERAGE RETICULATION NOTES

1. ALL SEWER PIPES SHALL BE 150 DIA uPVC, CLASS SN8 RRJ TO AS1260, UNLESS NOTED OTHERWISE.
2. UNO ALL HCB's WILL BE TYPE E1 OR E2 IN ACCORDANCE WITH FNQROC STD. DWG No S3005.
3. END CAPS ARE TO BE PROVIDED AT ALL LINE ENDS WHERE MANHOLES ARE NOT TO BE CONSTRUCTED.
4. WHERE MANHOLES OCCUR AT THE ENDS OF SEWER LINES, THE HOUSE CONNECTION BRANCH (HCB) FOR THE END ALLOTMENT SERVICED BY THE SEWER LINE SHALL CONNECT INTO THE MANHOLE (NOT THE SEWER LINE) IN ORDER TO AVOID DRY MANHOLE SITUATIONS. REFER TO PLAN FOR HCB LOCATIONS.
5. REFER TO THE SEWERAGE LONGITUDINAL SECTIONS FOR SEWER PIPE GRADES, INVERT LEVELS, STORMWATER CROSSINGS, ETC.
6. CONSTRUCTION OF THE SEWERAGE RETICULATION IS TO BE IN ACCORDANCE WITH THE PROCEDURES, SPECIFICATIONS AND DRAWINGS CONTAINED IN FNQROC DEVELOPMENT MANUAL INCLUDING LOCAL AUTHORITY SPECIFIC CLAUSES.
7. ALL SEWERS TO BE CLEANED, TESTED AND PASSED BEFORE CONNECTION TO EXISTING COUNCIL SEWERS.
8. MANHOLES SHALL BE CONSTRUCTED TO RL's SHOWN ON THE DRAWINGS (NOMINALLY 50mm ABOVE FINISHED SURFACE LEVELS.)
9. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION THE CONTRACTOR SHALL VERIFY EXISTING INVERT LEVELS AT CONNECTION MANHOLE AND ADVISE THE SUPERINTENDENT OF ANY DISCREPANCIES.
10. THE CONTRACTOR SHALL ALLOW TO VIDEO CHECK (AND RECTIFY, IF NECESSARY) ALL NEW SEWER WORK.

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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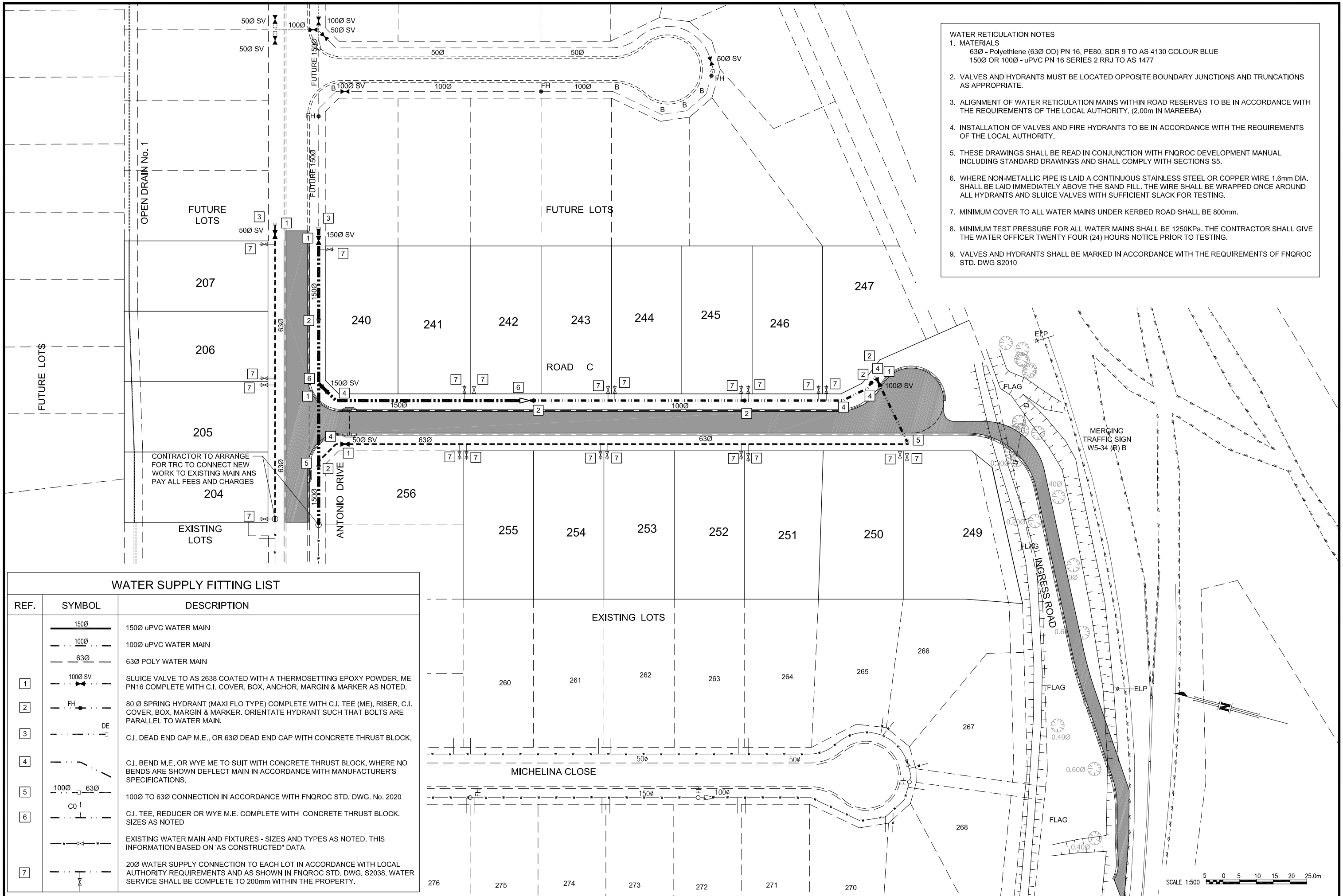
DRAWING TITLE: SEWERAGE RETICULATION PLAN

SCALE (AT A1 SIZE)	HOR 1:500	DRAWN	J.P.
	VER	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C05	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



WATER RETICULATION NOTES

1. MATERIALS
   63Ø - Polyethlene (63Ø OD) PN 16, PE80, SDR 9 TO AS 4130 COLOUR BLUE
   150Ø OR 100Ø - uPVC PN 16 SERIES 2 RRJ TO AS 1477
2. VALVES AND HYDRANTS MUST BE LOCATED OPPOSITE BOUNDARY JUNCTIONS AND TRUNCATIONS AS APPROPRIATE.
3. ALIGNMENT OF WATER RETICULATION MAINS WITHIN ROAD RESERVES TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY. (2.00m IN MAREEBA)
4. INSTALLATION OF VALVES AND FIRE HYDRANTS TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY.
5. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH FNQROC DEVELOPMENT MANUAL INCLUDING STANDARD DRAWINGS AND SHALL COMPLY WITH SECTIONS S5.
6. WHERE NON-METALLIC PIPE IS LAID A CONTINUOUS STAINLESS STEEL OR COPPER WIRE 1.6mm DIA. SHALL BE LAID IMMEDIATELY ABOVE THE SAND FILL. THE WIRE SHALL BE WRAPPED ONCE AROUND ALL HYDRANTS AND SLUICE VALVES WITH SUFFICIENT SLACK FOR TESTING.
7. MINIMUM COVER TO ALL WATER MAINS UNDER KERBED ROAD SHALL BE 800mm.
8. MINIMUM TEST PRESSURE FOR ALL WATER MAINS SHALL BE 1250KPa. THE CONTRACTOR SHALL GIVE THE WATER OFFICER TWENTY FOUR (24) HOURS NOTICE PRIOR TO TESTING.
9. VALVES AND HYDRANTS SHALL BE MARKED IN ACCORDANCE WITH THE REQUIREMENTS OF FNQROC STD. DWG S2010

WATER SUPPLY FITTING LIST

REF.	SYMBOL	DESCRIPTION
	150Ø	150Ø uPVC WATER MAIN
	100Ø	100Ø uPVC WATER MAIN
	63Ø	63Ø POLY WATER MAIN
1	100Ø SV	SLUICE VALVE TO AS 2638 COATED WITH A THERMOSETTING EPOXY POWDER, ME PN16 COMPLETE WITH C.I. COVER, BOX, ANCHOR, MARGIN & MARKER AS NOTED.
2	FH	80 Ø SPRING HYDRANT (MAXI FLO TYPE) COMPLETE WITH C.I. TEE (ME), RISER, C.I. COVER, BOX, MARGIN & MARKER. ORIENTATE HYDRANT SUCH THAT BOLTS ARE PARALLEL TO WATER MAIN.
3	DE	C.I. DEAD END CAP M.E., OR 63Ø DEAD END CAP WITH CONCRETE THRUST BLOCK.
4		C.I. BEND M.E. OR WYE ME TO SUIT WITH CONCRETE THRUST BLOCK. WHERE NO BENDS ARE SHOWN DEFLECT MAIN IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5	100Ø 63Ø	100Ø TO 63Ø CONNECTION IN ACCORDANCE WITH FNQROC STD. DWG. No. 2020
6	CO	C.I. TEE, REDUCER OR WYE M.E. COMPLETE WITH CONCRETE THRUST BLOCK. SIZES AS NOTED
		EXISTING WATER MAIN AND FIXTURES - SIZES AND TYPES AS NOTED. THIS INFORMATION BASED ON 'AS CONSTRUCTED" DATA
7		20Ø WATER SUPPLY CONNECTION TO EACH LOT IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS AND AS SHOWN IN FNQROC STD. DWG. S2038. WATER SERVICE SHALL BE COMPLETE TO 200mm WITHIN THE PROPERTY.

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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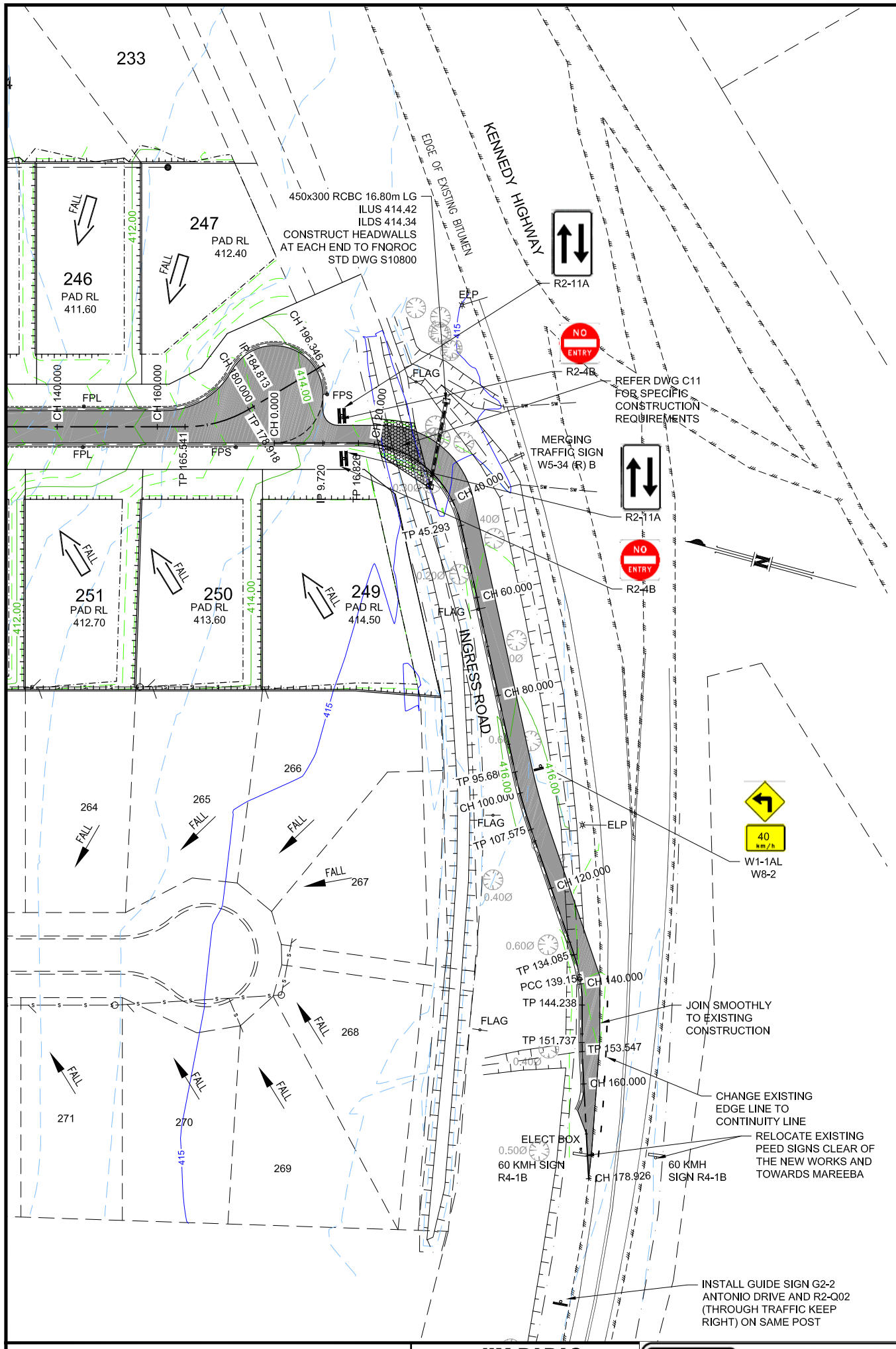
"The Edge Mareeba" Stage 2
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: WATER RETICULATION PLAN

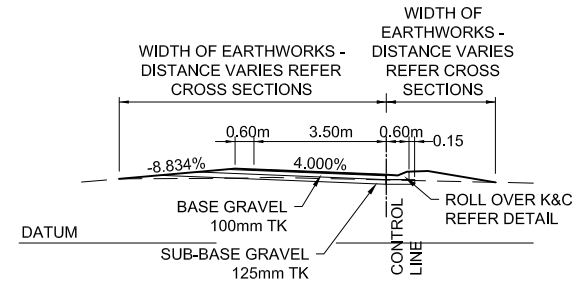
SCALE (AT A1 SIZE)	HOR 1:500	DRAWN	J.P.
	VER	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C06	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



Ingress Road

	CHAINAGE	EASTING	NORTHING	RADII	BEARING
L#10	0.000 9.720	333003.546 333006.075	8118667.669 8118658.284		164°55'00" STRAIGHT 164°55'00" STRAIGHT
L#11	9.720 16.826	333006.075 333007.925	8118658.284 8118651.423		164°55'00" STRAIGHT 164°55'00" STRAIGHT
C# 3	16.826 45.293	333007.925 332997.317	8118651.423 8118627.316	21.000 21.000	164°55'00" ARC 242°35'05" ARC
L#12	45.293 95.680	332997.317 332952.589	8118627.316 8118604.116		242°35'05" STRAIGHT 242°35'05" STRAIGHT
C# 4	95.680 107.575	332952.589 332942.368	8118604.116 8118598.045	103.500 103.500	242°35'05" ARC 235°59'59" ARC
L#13	107.575 134.085	332942.368 332920.390	8118598.045 8118583.221		235°59'59" STRAIGHT 235°59'59" STRAIGHT
C# 5	134.085 139.156	332920.390 332915.966	8118583.221 8118580.753	30.000 30.000	235°59'59" ARC 245°41'06" ARC
C# 6	139.156 144.238	332915.966 332911.181	8118580.753 8118579.062	30.000 30.000	245°41'06" ARC 255°23'27" ARC
L#14	144.238 151.737	332911.181 332903.924	8118579.062 8118577.171		255°23'27" STRAIGHT 255°23'27" STRAIGHT
C# 7	151.737 153.547	332903.924 332902.187	8118577.171 8118576.662	30.000 30.000	255°23'27" ARC 251°56'01" ARC
L#15	153.547 178.926	332902.187 332878.060	8118576.662 8118568.791		251°56'01" STRAIGHT 251°56'01" STRAIGHT

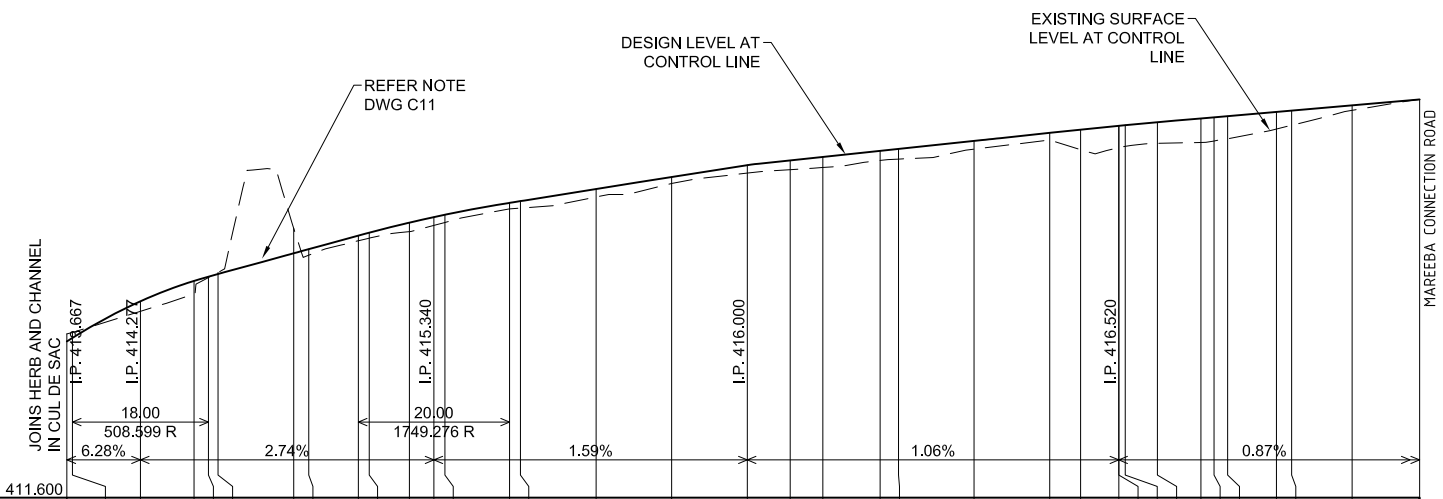


TYPICAL CROSS SECTION
INGRESS ROAD
SCALE: 1:100

DEFINITION OF ROCK

ROCK IS NON-RIPPABLE MATERIAL AS DESCRIBED IN DTMR STANDARD SPECIFICATION 11.04 GENERAL EARTHWORKS WITH THE FOLLOWING ADDITIONAL QUALIFICATIONS:

- ALL MACHINERY USED MUST BE IN GOOD CONDITION AND OPERATED BY A COMPETENT OPERATOR
- INCLUDES 'FLOATING' BOULDERS WITH A VOLUME EXCEEDING 1.0m³



CHAINAGE	Cut (-m) / Fill (+m)	DESIGN LEVELS AT EDGE OF BITUMEN - LHS	DESIGN CONTROL LINE FINISHED LEVELS	EXISTING CONTROL LINE LEVELS
0.000	-0.100	REFER DETAIL DWG C08	413.667	**413.767**
0.720	-0.074		413.712	413.786
9.720	+0.133	414.197	414.197	**414.064**
16.826	+0.175	414.468	414.468	**414.293**
18.720	+0.012	414.523	414.523	414.511
20.000	-0.021	414.558	414.558	414.579
30.000	-0.328	414.832	414.832	415.160
32.000	+0.080	414.887	414.887	414.807
38.548	+0.068	415.066	415.066	414.998
40.000	+0.072	415.105	415.105	415.033
45.293	+0.118	415.238	415.237	**415.119**
48.548	+0.110	415.311	415.311	415.201
50.000	+0.103	415.342	415.342	415.239
58.548	+0.081	415.499	415.499	415.418
60.000	+0.093	415.522	415.522	415.429
70.000	+0.105	415.681	415.681	415.576
80.000	+0.087	415.841	415.841	415.754
90.000	+0.108	416.000	416.000	415.892
95.680	+0.123	416.060	416.060	**415.937**
100.000	+0.140	416.106	416.106	415.966
107.575	+0.127	416.186	416.186	**416.059**
110.000	+0.134	416.212	416.212	416.078
120.000	+0.107	416.318	416.317	416.210
130.000	+0.096	416.423	416.423	416.327
134.085	+0.265	416.467	416.467	**416.202**
139.136	+0.290	416.520	416.520	416.230
139.156	+0.290	416.520	416.520	**416.230**
140.000	+0.282	416.528	416.528	416.246
144.238	+0.277	416.564	416.564	**416.287**
150.000	+0.316	416.615	416.614	416.298
151.737	+0.313	416.630	416.630	**416.317**
153.547	+0.298	416.645	416.645	**416.347**
160.000	+0.225	416.701	416.701	416.476
162.000	+0.194	416.719	416.719	416.525
170.000	+0.066	416.788	416.788	416.722
178.926	+0.000	416.866	416.866	**416.866**

LONGITUDINAL SECTION INGRESS ROAD
SCALES: HOR. 1:500
VER: 1:50

SCALE 1:50 — 0.5 0 0.5 1.0 1.5 2.0 2.50m
SCALE 1:100 — 1 0 1 2 3 4 5.0m
SCALE 1:500 — 5 0 5 10 15 20 25.0m

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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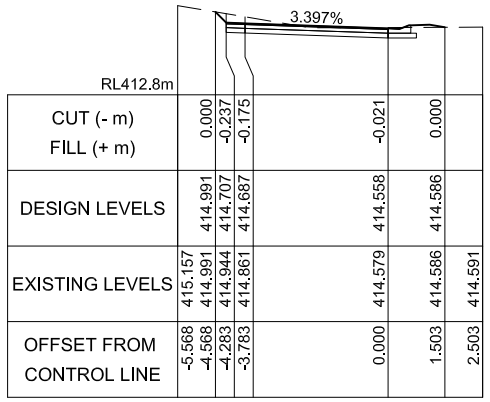
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

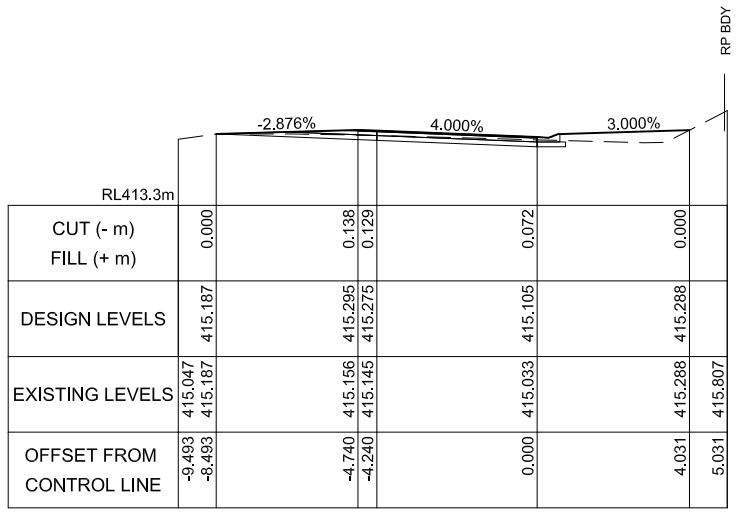
DRAWING TITLE: EXTERNAL WORKS – INGRESS ROAD – PLAN, LONGITUDINAL AND TYPICAL CROSS SECTIONS

SCALE (AT A1 SIZE)	HOR 1:500/100	DRAWN	J.P.
	VER 1:100/50	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C07	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



CH 20.000 m



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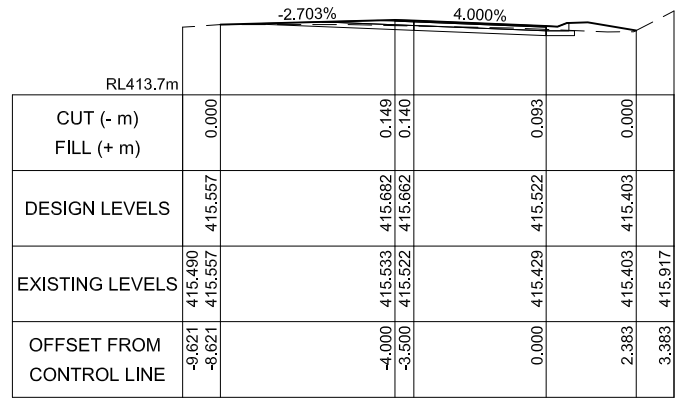

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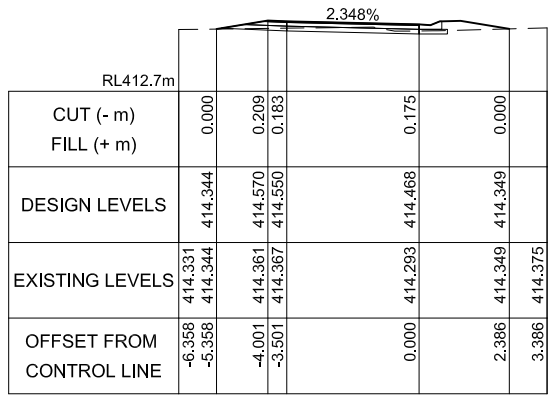
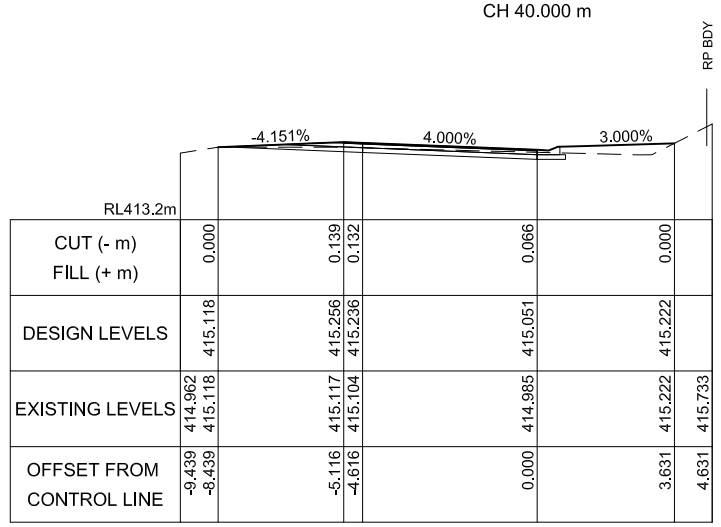
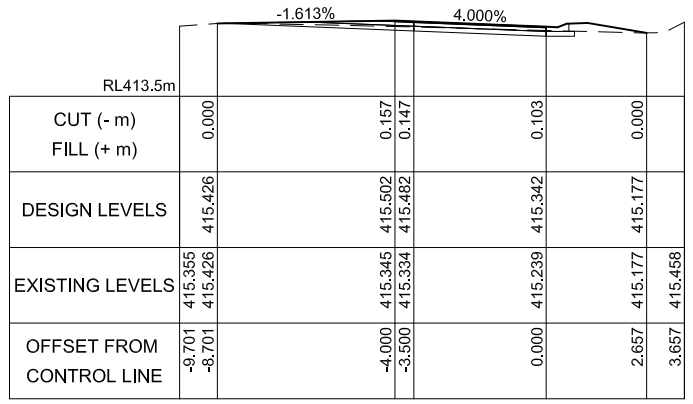


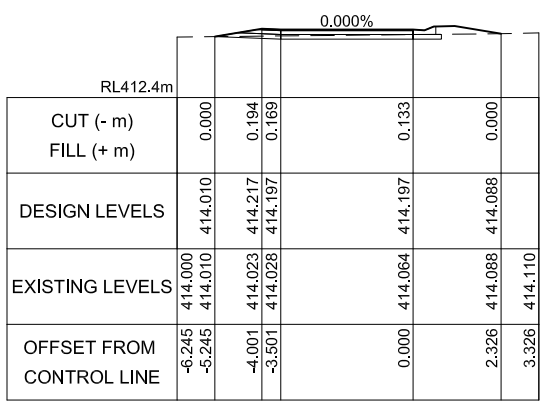
CH 16.826 m



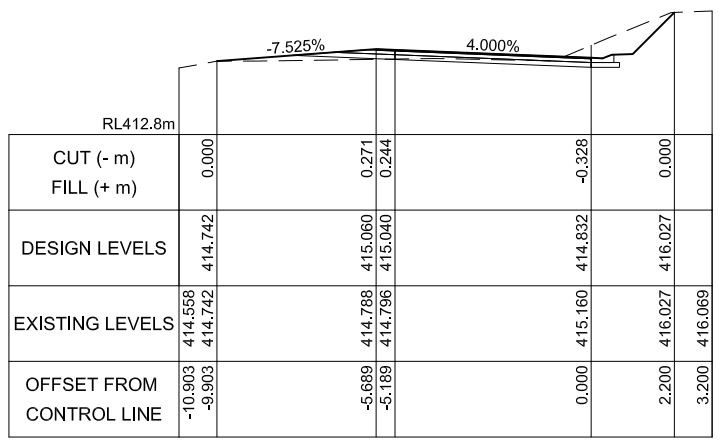
CH 38.000 m



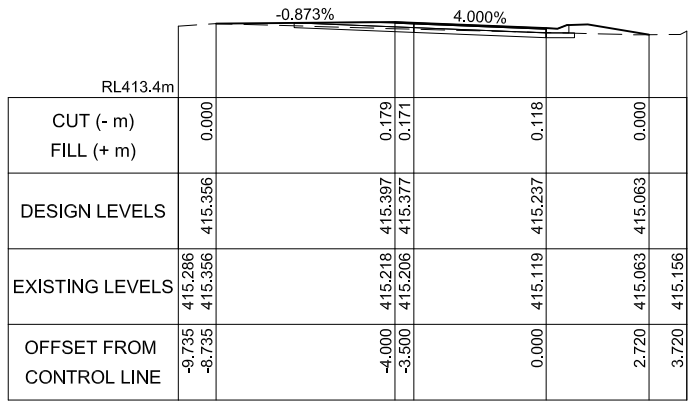
CH 50.000 m



CH 9.720 m



CH 30.000 m



CH 45.293 m

CROSS SECTIONS INGRESS ROAD

SCALES: HOR. 1:100
VER: 1:100

SCALE 1:100 1 0 1 2 3 4 5.0m

amendments		
A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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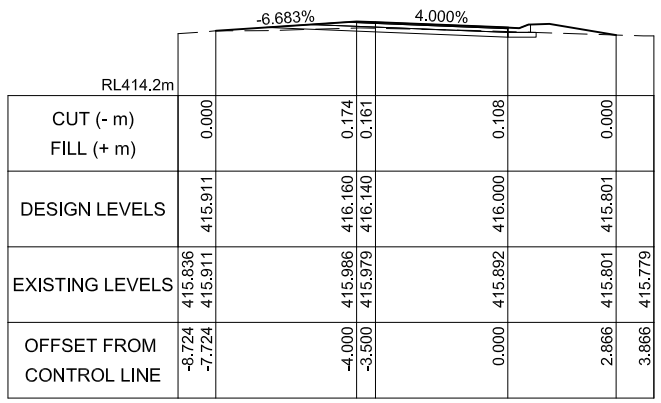
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

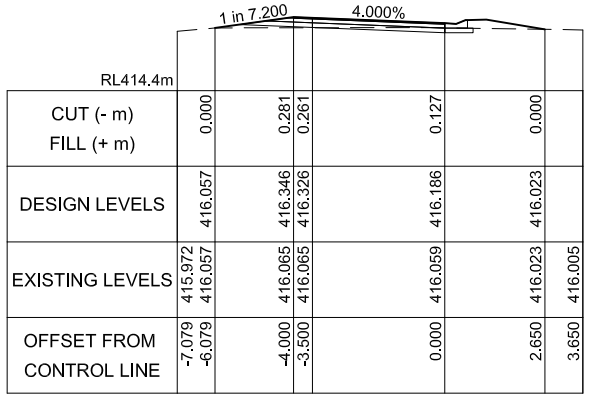
DRAWING TITLE: INGRESS ROAD – CROSS SECTIONS (SHEET 1 OF 3)

SCALE (AT A1 SIZE)	HOR 1:100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C08	AMDT	A

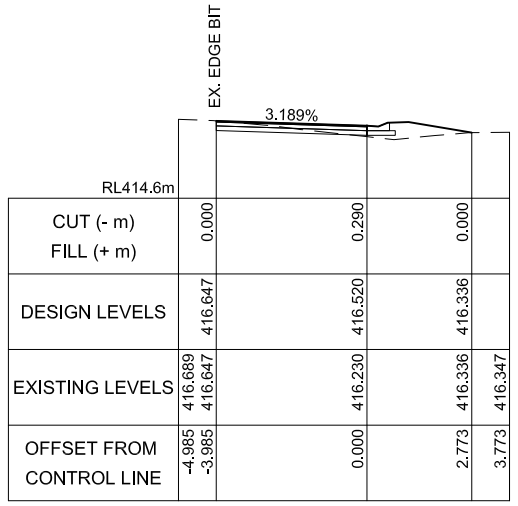
Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



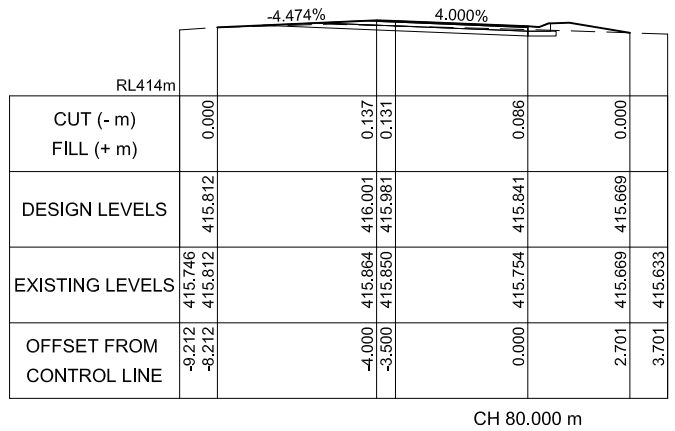
CH 90.000 m



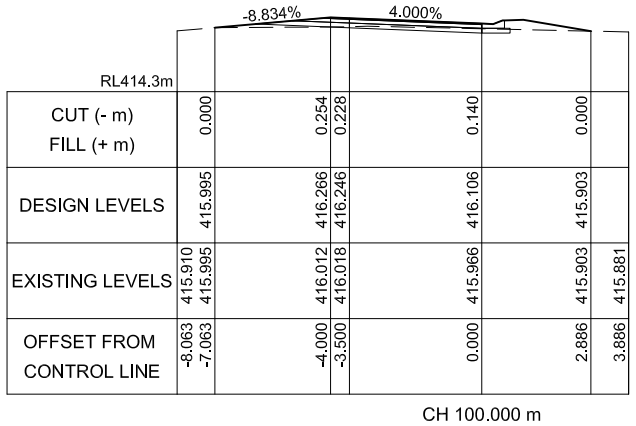
CH 107.575 m



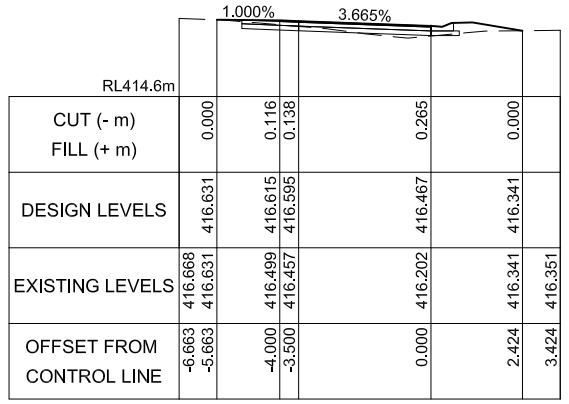
CH 139.156 m



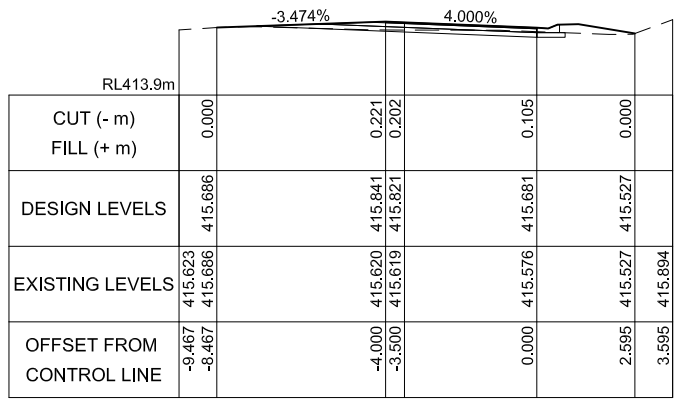
CH 80.000 m



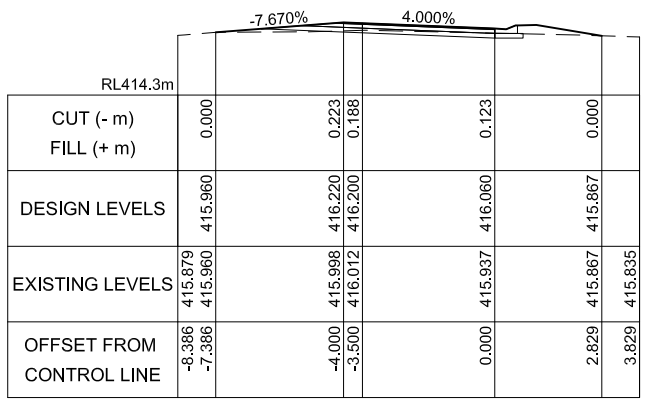
CH 100.000 m



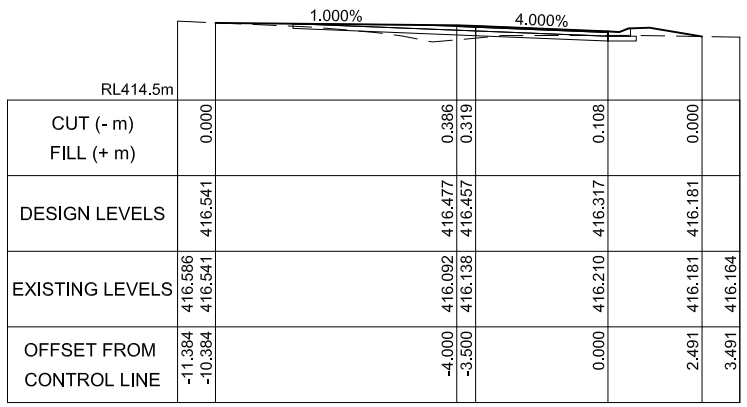
CH 134.085 m



CH 70.000 m



CH 95.680 m



CH 120.000 m

CROSS SECTIONS INGRESS ROAD

SCALES: HOR. 1:100
VER: 1:100

SCALE 1:100 1 0 1 2 3 4 5.0m

amendments		
A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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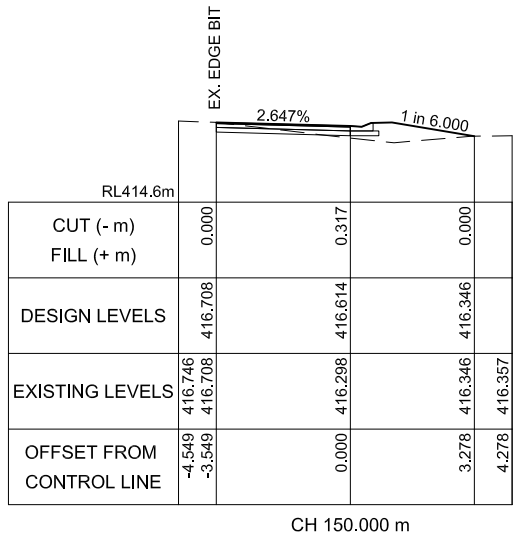
"The Edge Mareeba" Stage 2

PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

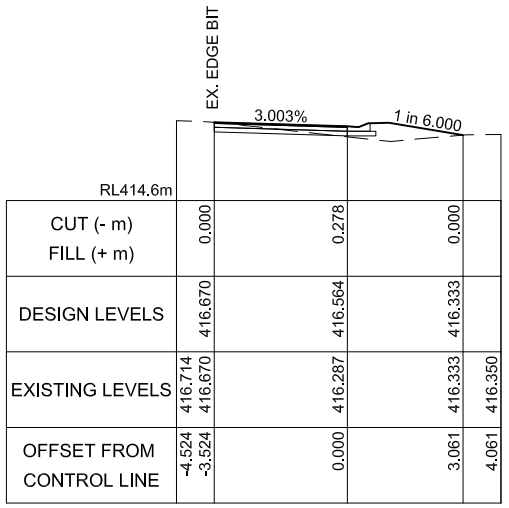
DRAWING TITLE: INGRESS ROAD – CROSS SECTIONS (SHEET 2 OF 3)

SCALE (AT A1 SIZE)	HOR 1:100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C09	AMDT	A

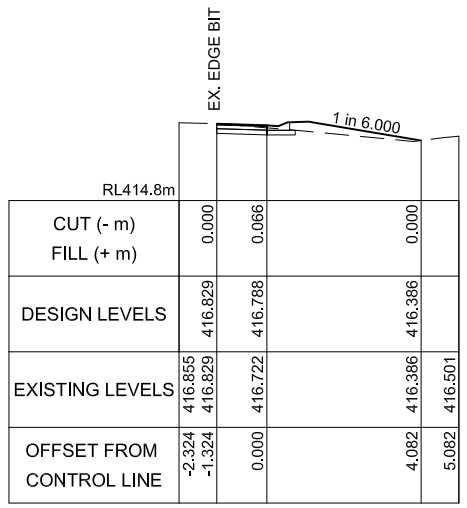
Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



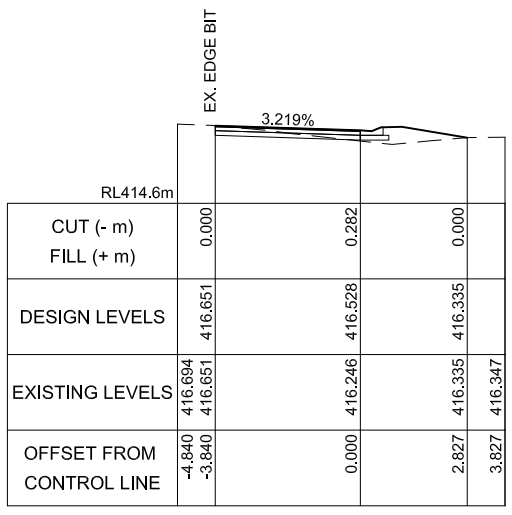
CH 150.000 m



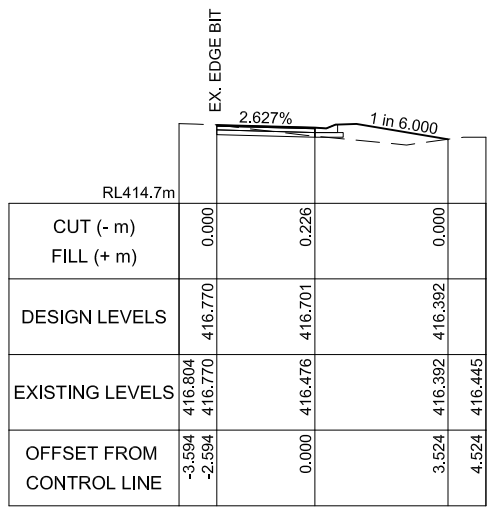
CH 144.238 m



CH 170.000 m



CH 140.000 m



CH 160.000 m

CROSS SECTIONS INGRESS ROAD

SCALES: HOR. 1:100
VER: 1:100

SCALE 1:100 1 0 1 2 3 4 5.0m

amendments		
A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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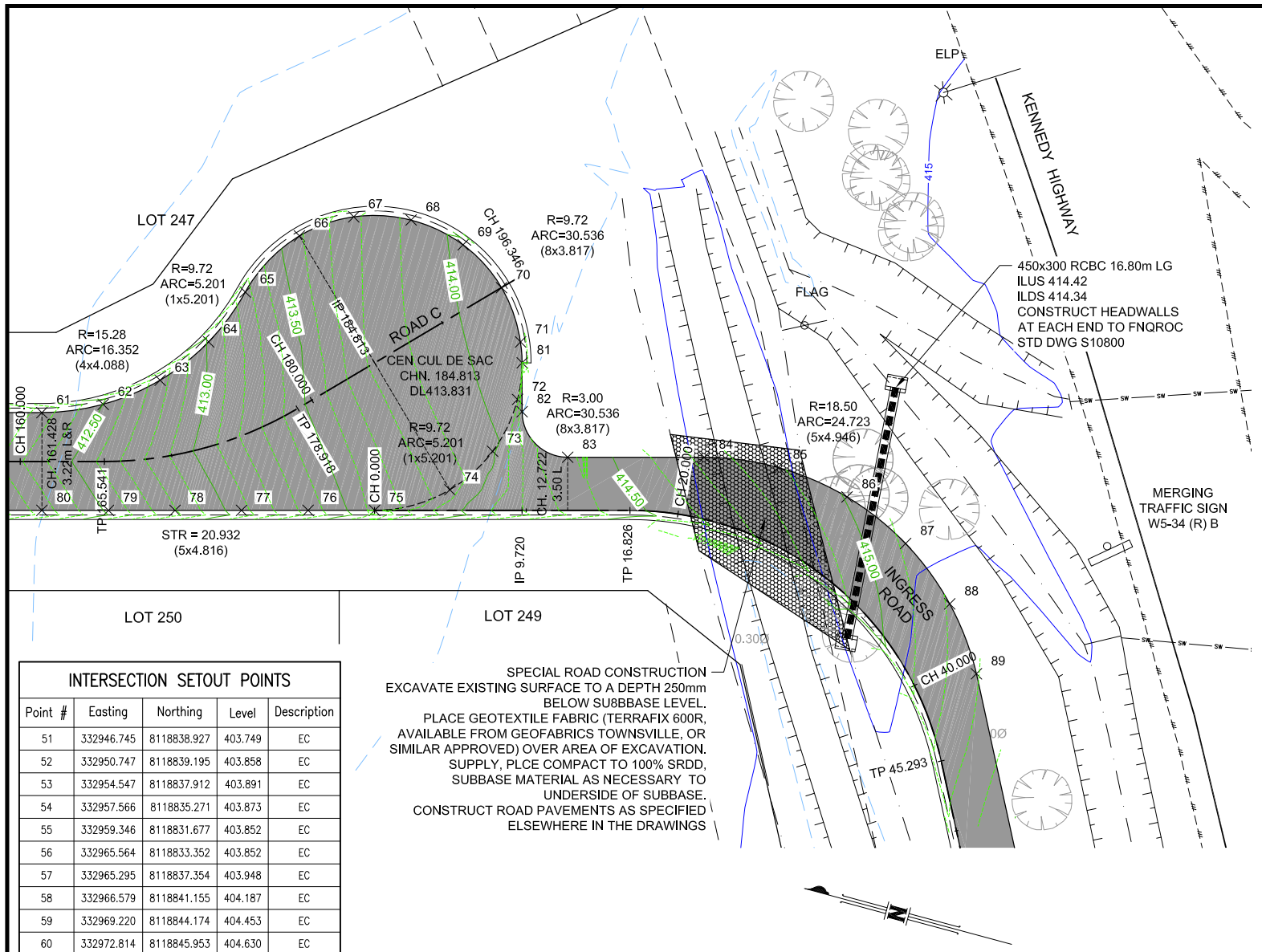
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: INGRESS ROAD – CROSS SECTIONS (SHEET 3 OF 3)

SCALE (AT A1 SIZE)	HOR 1:100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C10	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



DEFINITION OF ROCK

ROCK IS NON-RIPPABLE MATERIAL AS DESCRIBED IN DTMR STANDARD SPECIFICATION 11.04 GENERAL EARTHWORKS WITH THE FOLLOWING ADDITIONAL QUALIFICATIONS:

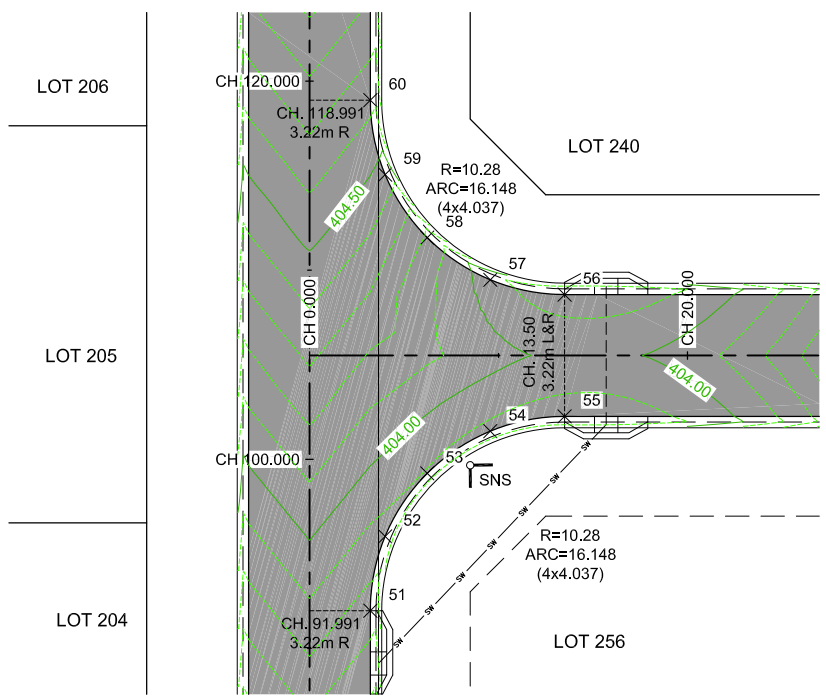
- ALL MACHINERY USED MUST BE IN GOOD CONDITION AND OPERATED BY A COMPETENT OPERATOR
- INCLUDES 'FLOATING' BOULDERS WITH A VOLUME EXCEEDING 1.0m³

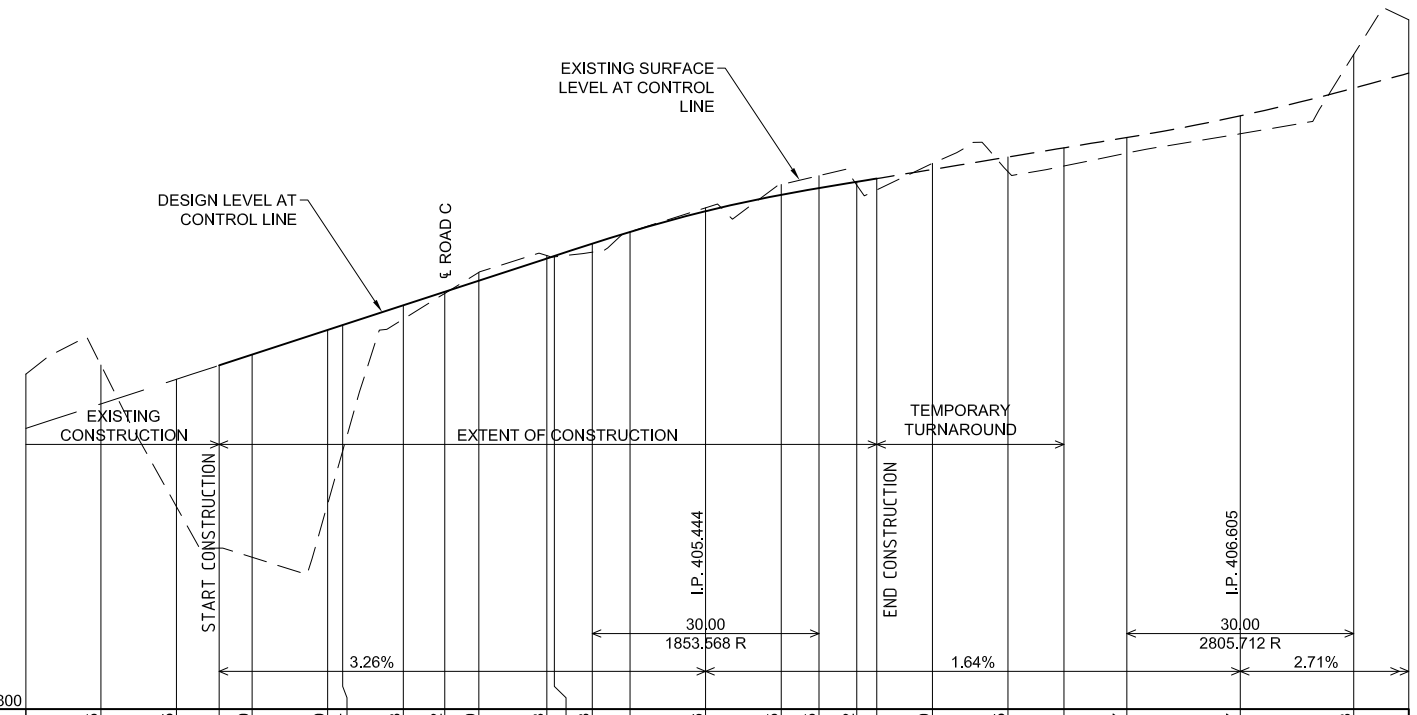
Antonio Drive

	CHAINAGE	EASTING	NORTHING	RADII	BEARING
L#1	0.000 293.637	332857.085 333140.606	8118818.098 8118894.509		74°55'00" STRAIGHT 74°55'00" STRAIGHT
C# 1	293.637 309.506	333140.606 333154.796	8118894.509 8118889.736	13.500 13.500	74°55'00" ARC 142°16'00" ARC
L#2	309.506 363.042	333154.796 333187.559	8118889.736 8118847.396		142°16'00" STRAIGHT 142°16'00" STRAIGHT
L#3	363.042 378.674	333187.559 333197.125	8118847.396 8118835.034		142°16'00" STRAIGHT 142°16'00" STRAIGHT

INTERSECTION SETOUT POINTS

Point #	Easting	Northing	Level	Description
51	332946.745	8118838.927	403.749	EC
52	332950.747	8118839.195	403.858	EC
53	332954.547	8118837.912	403.891	EC
54	332957.566	8118835.271	403.873	EC
55	332959.346	8118831.677	403.852	EC
56	332965.564	8118833.352	403.852	EC
57	332965.295	8118837.354	403.948	EC
58	332966.579	8118841.155	404.187	EC
59	332969.220	8118844.174	404.453	EC
60	332972.814	8118845.953	404.630	EC
61	333004.058	8118690.521	412.249	EC
62	333005.634	8118686.762	412.503	EC
63	333008.147	8118683.554	412.758	EC
64	333011.420	8118681.124	413.012	EC
65	333015.218	8118679.646	413.266	EC
66	333019.716	8118677.160	413.585	EC
67	333021.863	8118674.034	413.778	EC
68	333022.651	8118670.324	413.926	EC
69	333021.960	8118666.595	414.028	EC
70	333019.893	8118663.415	414.084	EC
71	333016.768	8118661.267	414.095	EC
72	333013.058	8118660.479	414.061	EC
73	333009.329	8118661.171	413.979	EC
74	333006.148	8118663.237	413.852	EC
75	333003.547	8118667.669	413.606	EC
76	333002.405	8118671.904	413.340	EC
77	333001.264	8118676.139	413.067	EC
78	333000.122	8118680.375	412.794	EC
79	332998.981	8118684.610	412.522	EC
80	332997.839	8118688.845	412.249	EC
81	333015.463	8118660.814	414.156	EC
82	333012.353	8118659.974	414.275	EC
83	333010.237	8118656.296	414.376	EC
84	333012.579	8118647.607	414.733	EC
85	333013.199	8118642.716	414.886	EC
86	333012.505	8118637.835	415.010	EC
87	333010.547	8118633.311	415.119	EC
88	333007.463	8118629.464	415.213	EC
89	333003.473	8118626.569	415.292	EC





Cut (-m) Fill (+m)	-0.515	+1.685		+2.680	+2.300	+1.664	+0.183	+0.022	-0.110	-0.038	+0.011	+0.113	-0.001	-0.046	-0.135	-0.165	+0.042	-0.080	+0.195		+0.207	+0.237	-0.443		
DESIGN LEVELS AT LIP OF CHANNEL - LHS	402.708	403.034	403.217	403.360	403.686	403.751	404.012	404.191	404.338	404.631	404.664	404.827	404.983	405.255	405.473	405.562	405.644 405.687	405.808	405.973		406.231	406.517	406.884		
DESIGN LEVELS AT LIP OF CHANNEL - RHS	402.708	403.034	403.217	403.360	403.686	403.751	404.012	404.191	404.338	404.631	404.664	404.827	404.983	405.255	405.473	405.562	405.644 405.687	405.808	405.973		406.231	406.517	406.884		
DESIGN CONTROL LINE FINISHED LEVELS	402.836	403.162	403.345	403.488	403.814	403.879	404.140	404.319	404.466	404.759	404.792	404.955	405.111	405.383	405.601	405.690	405.772 405.815	405.936	406.101		406.359	406.645	407.012		
EXISTING CONTROL LINE LEVELS	403.351	401.477		400.808	401.514	402.215	403.957	404.297	404.576	404.797	404.781	404.842	405.112	405.429	405.736	405.855	405.730	406.016	405.906		406.152	406.408	407.455		
CHAINAGE	60.000	70.000	75.640	80.000	90.000	91.991	100.000	105.491	110.000	118.991	120.000	125.000	130.000	140.000	150.000	155.000	160.000 162.640	170.000	180.000	187.400	195.721	210.721	225.721		

LONGITUDINAL SECTION ANTONIO DRIVE

SCALES: HOR. 1:500
VER: 1:50

SCALE 1:50 — 0.5 0 0.5 1.0 1.5 2.0 2.50m
SCALE 1:200 — 2 0 2 4 6 8 10.0m
SCALE 1:500 — 5 0 5 10 15 20 25.0m

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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Mareeba Q 4880 Email: admin@jpced.com.au

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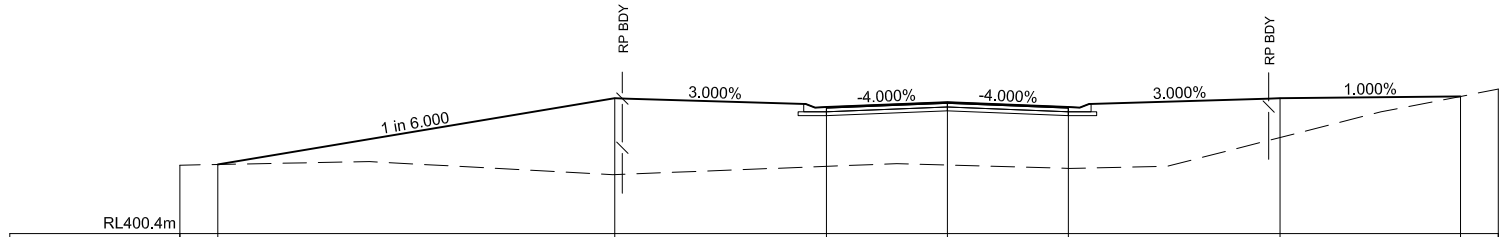
"The Edge Mareeba" Stage 2
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: ANTONIO DRIVE – LONGITUDINAL AND INTERSECTION DETAILS

SCALE (AT A1 SIZE)	HOR 1:500/100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C11	AMDT	A

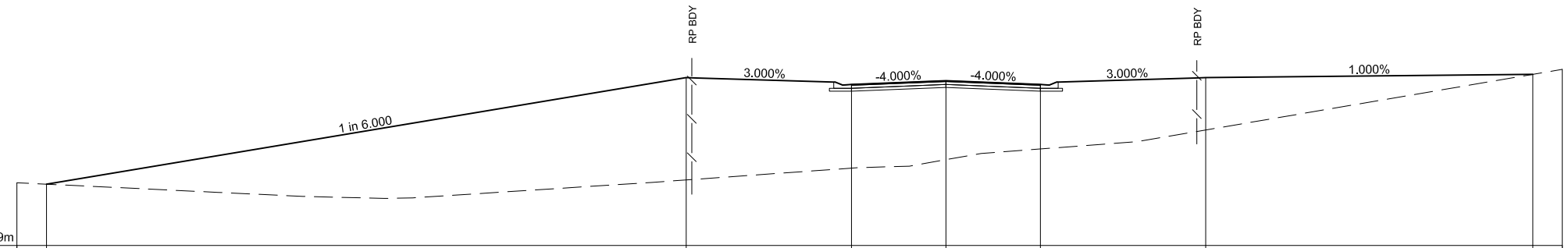
Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



RL400.4m

CUT (- m) FILL (+ m)	0.000	2.018	1.571	1.664	1.625	1.039	0.000	
DESIGN LEVELS	402.230	403.981	403.751	403.879	403.751	403.981	404.029	
EXISTING LEVELS	402.211 402.230	401.963	402.179	402.215	402.126	402.942	404.029	404.222
OFFSET FROM CONTROL LINE	-20.305 -19.305	-8.800	-3.200	0.000	3.200	8.800	13.574	14.574

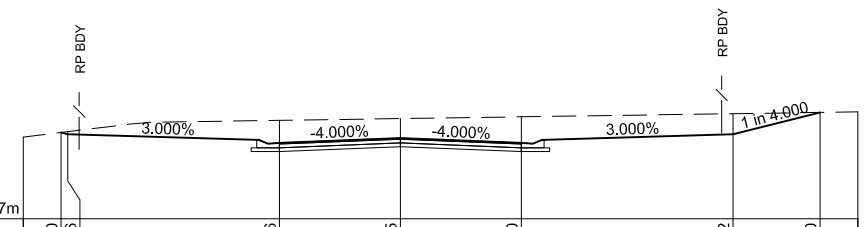
CH 91.991 m



RL397.9m

CUT (- m) FILL (+ m)	0.000	3.469	2.838	2.680	2.188	1.775	0.000	
DESIGN LEVELS	399.977	403.590	403.360	403.488	403.360	403.590	403.701	
EXISTING LEVELS	400.025 399.977	400.121	400.522	400.808	401.172	401.815	403.701	403.871
OFFSET FROM CONTROL LINE	-31.477 -30.477	-8.800	-3.200	0.000	3.200	8.800	19.882	20.882

CH 80.000 m



RL400.7m

CUT (- m) FILL (+ m)	0.000	-0.066	-0.596	-0.515	-0.690	-0.542	0.000	
DESIGN LEVELS	402.982	402.938	402.708	402.836	402.708	402.938	403.514	
EXISTING LEVELS	402.860 402.982	403.004	403.304	403.351	403.398	403.480	403.514	403.528
OFFSET FROM CONTROL LINE	-9.978 -8.978	-8.800	-3.200	0.000	3.200	8.800	11.103	12.103

CH 60.000 m

CROSS SECTIONS ANTONIO DRIVE

SCALES: HOR. 1:100
VER: 1:100

SCALE 1:100 1 0 1 2 3 4 5.0m

amendments		
A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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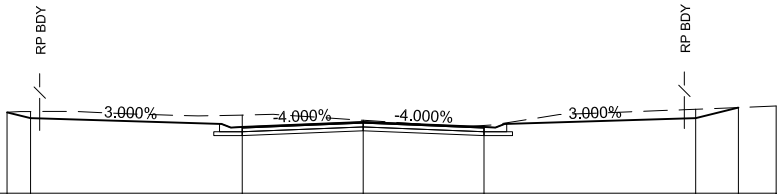
"The Edge Mareeba" Stage 2
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: ANTONIO DRIVE – CROSS SECTIONS (SHEET 1 OF 2)

SCALE (AT A1 SIZE)	HOR 1:100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C12	AMDT	A

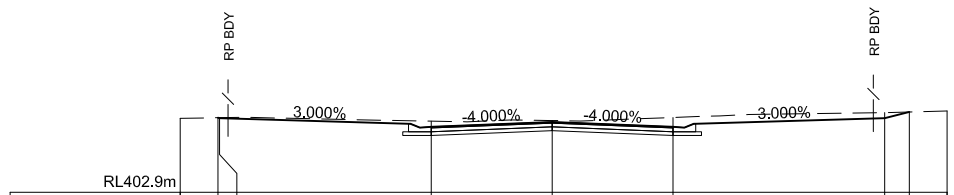
Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



RL403.5m

CUT (- m) FILL (+ m)	0.000	-0.175	-0.311	-0.046	-0.037	-0.236	0.000	
DESIGN LEVELS	405.640	405.485	405.255	405.383	405.255	405.485	405.767	
EXISTING LEVELS	405.585 405.640	405.661	405.567	405.429	405.292	405.721	405.767	405.808
OFFSET FROM CONTROL LINE	-10.420 -9.420	-8.800	-3.200	0.000	3.200	8.800	9.928	10.928

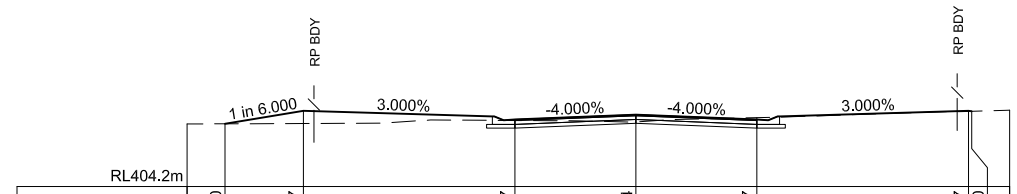
CH 140.000 m



RL402.9m

CUT (- m) FILL (+ m)	0.000	-0.011	-0.149	-0.038	-0.247	-0.145	0.000	
DESIGN LEVELS	404.871	404.861	404.631	404.759	404.631	404.861	405.024	
EXISTING LEVELS	404.857 404.871	404.872	404.780	404.797	404.878	405.006	405.024	405.051
OFFSET FROM CONTROL LINE	-9.842 -8.842	-8.800	-3.200	0.000	3.200	8.800	9.451	10.451

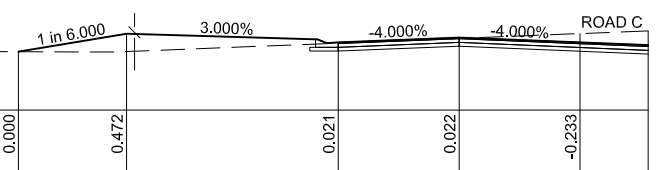
CH 118.991 m



RL404.2m

CUT (- m) FILL (+ m)	0.000	0.337	0.027	0.194	-0.047	0.017	0.000	
DESIGN LEVELS	405.857	406.203	405.973	406.101	405.973	406.203	406.188	
EXISTING LEVELS	405.853 405.857	405.866	405.945	405.906	406.019	406.186	406.188	406.218
OFFSET FROM CONTROL LINE	-11.874 -10.874	-8.800	-3.200	0.000	3.200	8.800	8.885	9.885

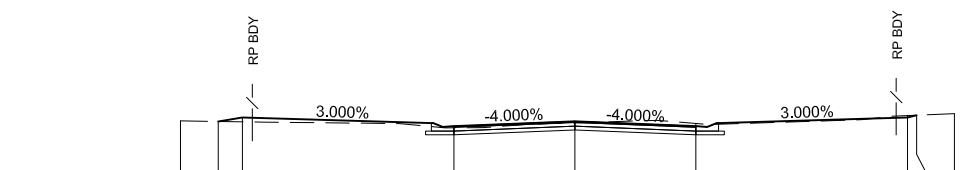
CH 180.000 m



RL402.4m

CUT (- m) FILL (+ m)	0.000	0.472	0.021	0.022	-0.233	
DESIGN LEVELS	403.944	404.421	404.191	404.319	404.191	
EXISTING LEVELS	403.948 403.944	403.949	404.170	404.297	404.424	
OFFSET FROM CONTROL LINE	-12.660 -11.660	-8.800	-3.200	0.000	3.200	

CH 105.491 m



RL403.9m

CUT (- m) FILL (+ m)	0.000	0.116	0.045	0.042	-0.071	-0.050	0.000	
DESIGN LEVELS	405.768	405.874	405.644	405.772	405.644	405.874	405.934	
EXISTING LEVELS	405.782 405.768	405.759	405.600	405.730	405.715	405.924	405.934	405.976
OFFSET FROM CONTROL LINE	-10.438 -9.438	-8.800	-3.200	0.000	3.200	8.800	9.038	10.038

CH 160.000 m

CROSS SECTIONS ANTONIO DRIVE

SCALES: HOR. 1:100
VER: 1:100

SCALE 1:100 1 0 1 2 3 4 5.0m

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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"The Edge Mareeba" Stage 2
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: ANTONIO DRIVE – CROSS SECTIONS (SHEET 2 OF 2)

SCALE (AT A1 SIZE)	HOR 1:100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C13	AMDT	A

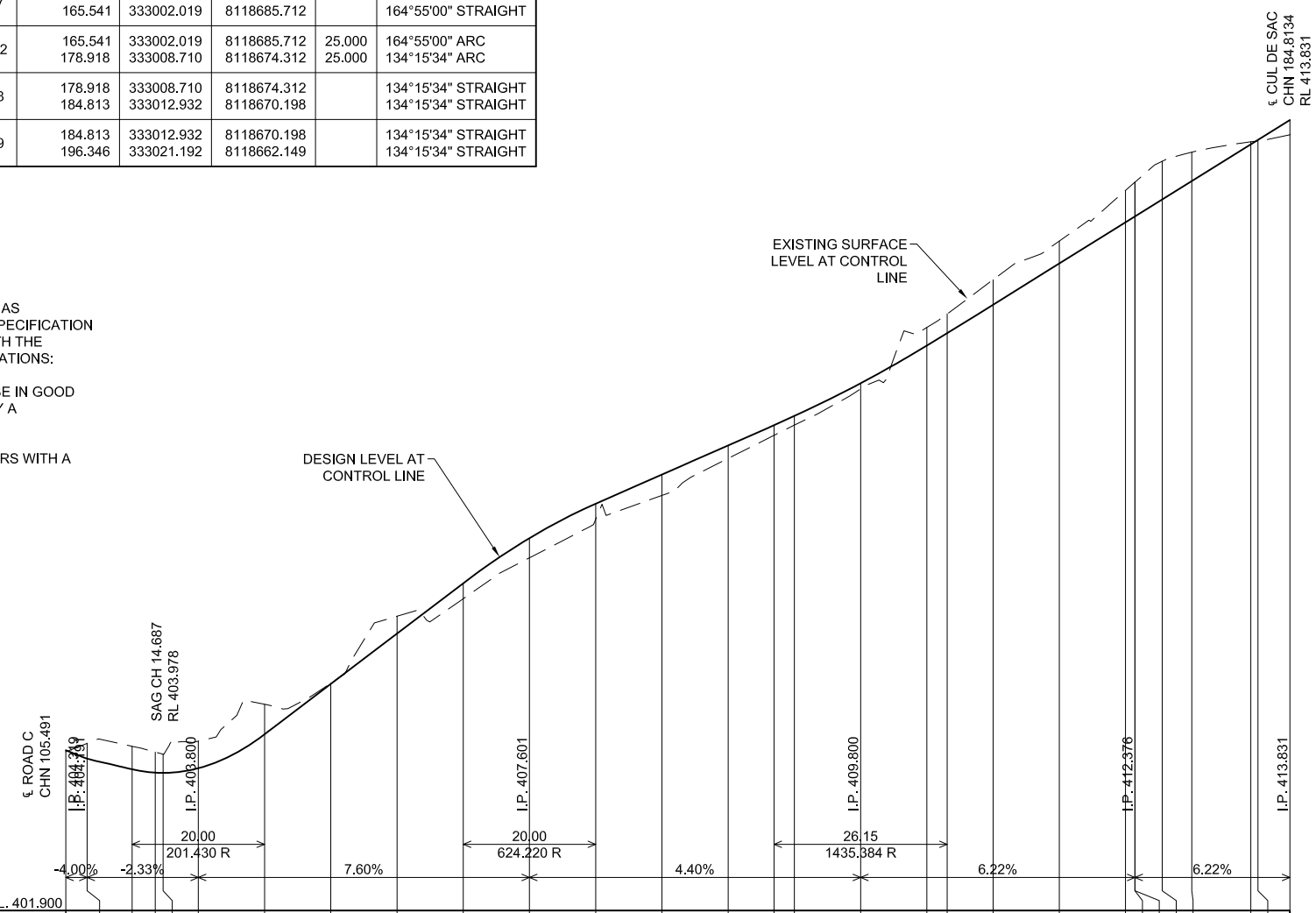
Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018

Road C					
	CHAINAGE	EASTING	NORTHING	RADII	BEARING
L#7	0.000 165.541	332958.942 333002.019	8118845.549 8118685.712		164°55'00" STRAIGHT 164°55'00" STRAIGHT
C# 2	165.541 178.918	333002.019 333008.710	8118685.712 8118674.312	25.000 25.000	164°55'00" ARC 134°15'34" ARC
L#8	178.918 184.813	333008.710 333012.932	8118674.312 8118670.198		134°15'34" STRAIGHT 134°15'34" STRAIGHT
L#9	184.813 196.346	333012.932 333021.192	8118670.198 8118662.149		134°15'34" STRAIGHT 134°15'34" STRAIGHT

DEFINITION OF ROCK

ROCK IS NON-RIPPABLE MATERIAL AS DESCRIBED IN DTMR STANDARD SPECIFICATION 11.04 GENERAL EARTHWORKS WITH THE FOLLOWING ADDITIONAL QUALIFICATIONS:

- ALL MACHINERY USED MUST BE IN GOOD CONDITION AND OPERATED BY A COMPETENT OPERATOR
- INCLUDES 'FLOATING' BOULDERS WITH A VOLUME EXCEEDING 1.0m³



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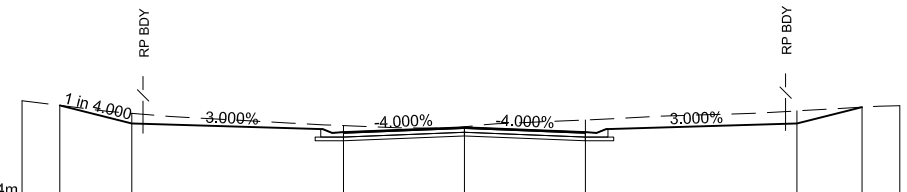
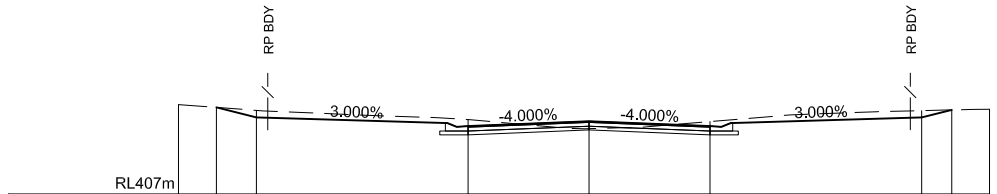


RL403.4m

CUT (- m) FILL (+ m)	0.000	-0.267	-0.172	-0.011	-0.322	-0.331	0.000	
DESIGN LEVELS	405.899	405.422	405.192	405.320	405.192	405.422	405.852	
EXISTING LEVELS	406.023 405.899	405.689	405.365	405.331	405.514	405.753	405.852	405.890
OFFSET FROM CONTROL LINE	-11.705 -10.705	-8.800	-3.200	0.000	3.200	8.800	10.520	11.520

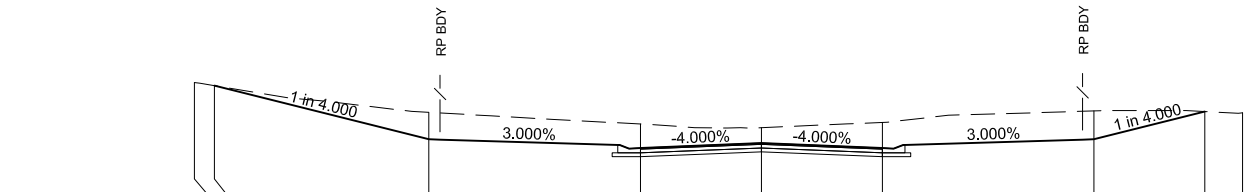
CH 40.000 m



RL407m

CUT (- m) FILL (+ m)	0.000	-0.187	-0.172	0.196	-0.120	-0.179	0.000	
DESIGN LEVELS	409.288	409.022	408.792	408.920	408.792	409.022	409.221	
EXISTING LEVELS	409.362 409.288	409.209	408.964	408.724	408.913	409.202	409.221	409.239
OFFSET FROM CONTROL LINE	-10.860 -9.860	-8.800	-3.200	0.000	3.200	8.800	9.595	10.595

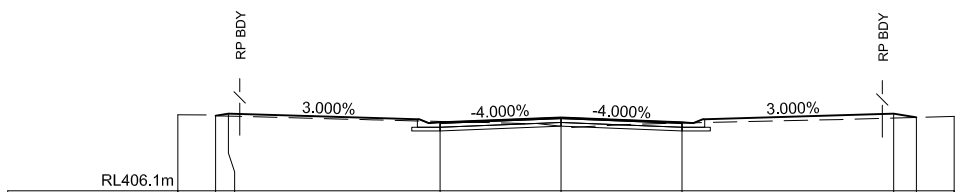
CH 100.000 m



RL402.1m

CUT (- m) FILL (+ m)	0.000	-0.713	-0.633	-0.409	-0.676	-0.751	0.000	
DESIGN LEVELS	405.568	404.150	403.920	404.048	403.920	404.150	404.883	
EXISTING LEVELS	405.648 405.568	404.863	404.553	404.457	404.596	404.901	404.883	404.849
OFFSET FROM CONTROL LINE	-15.473 -15.000 -14.473	-8.800	-3.200	0.000	3.200	8.800	11.731	12.731

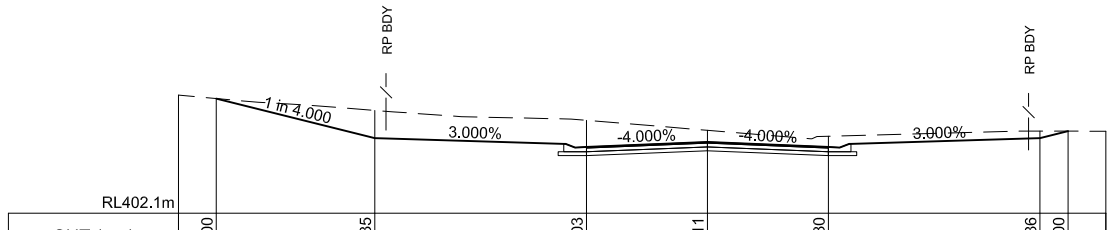
CH 20.000 m



RL406.1m

CUT (- m) FILL (+ m)	0.000	0.066	-0.022	0.235	0.018	0.117	0.000	
DESIGN LEVELS	408.087	408.143	407.913	408.041	407.913	408.143	408.043	
EXISTING LEVELS	408.110 408.087	408.077	407.935	407.806	407.895	408.026	408.043	408.070
OFFSET FROM CONTROL LINE	-10.138 -9.138	-8.800	-3.200	0.000	3.200	8.800	9.402	10.402

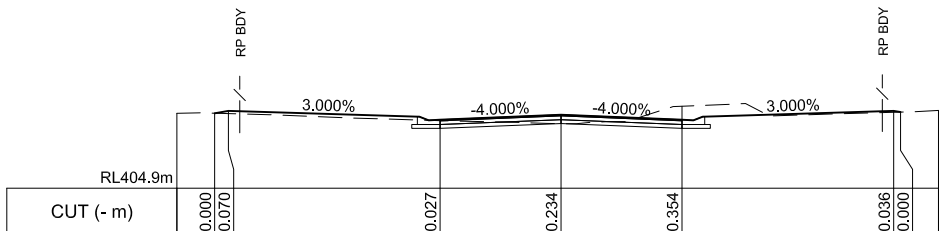
CH 80.000 m



RL402.1m

CUT (- m) FILL (+ m)	0.000	-0.735	-0.703	-0.311	-0.280	-0.186	0.000	
DESIGN LEVELS	405.132	404.084	403.854	403.982	403.854	404.084	404.269	
EXISTING LEVELS	405.224 405.132	404.818	404.556	404.292	404.134	404.270	404.269	404.268
OFFSET FROM CONTROL LINE	-13.993 -12.993	-8.800	-3.200	0.000	3.200	8.800	9.542	10.542

CH 13.500 m



RL404.9m

CUT (- m) FILL (+ m)	0.000	0.070	0.027	0.234	-0.354	0.036	0.000	
DESIGN LEVELS	406.882	406.943	406.713	406.841	406.713	406.943	406.912	
EXISTING LEVELS	406.880 406.882	406.872	406.685	406.607	407.067	406.907	406.912	406.956
OFFSET FROM CONTROL LINE	-10.163 -9.163	-8.800	-3.200	0.000	3.200	8.800	8.984	9.984

CH 60.000 m

CROSS SECTIONS ROAD C

SCALES: HOR. 1:100
VER: 1:100

SCALE 1:100 1 0 1 2 3 4 5.0m

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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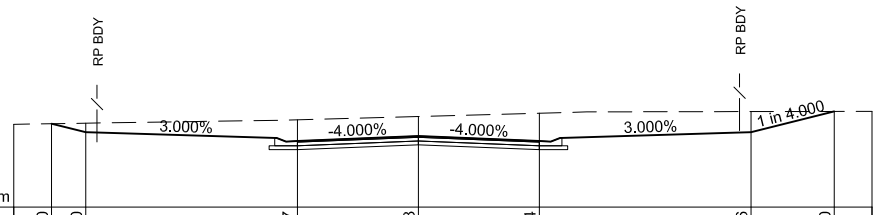
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: ROAD C – CROSS SECTIONS (SHEET 1 OF 2)

SCALE (AT A1 SIZE)	HOR 1:100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C15	AMDT	A

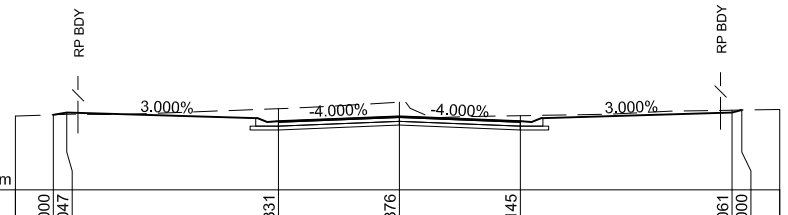
Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



RL410.5m

CUT (- m) FILL (+ m)	0.000	-0.240	-0.557	-0.518	-0.734	-0.546	0.000	
DESIGN LEVELS	412.705	412.479	412.249	412.377	412.249	412.479	413.029	
EXISTING LEVELS	412.690 412.705	412.719	412.806	412.894	412.983	413.025	413.029	413.031
OFFSET FROM CONTROL LINE	-10.704 -9.704	-8.800	-3.200	0.000	3.200	8.800	11.001	12.001

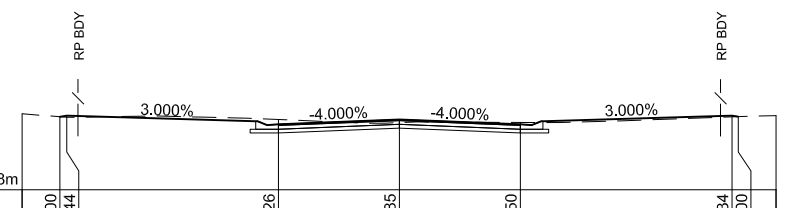
CH 161.428 m



RL409.1m

CUT (- m) FILL (+ m)	0.000	0.047	-0.331	-0.376	-0.145	-0.061	0.000	
DESIGN LEVELS	411.086	411.146	410.916	411.044	410.916	411.146	411.211	
EXISTING LEVELS	411.052 411.086	411.099	411.247	411.420	411.061	411.207	411.211	411.227
OFFSET FROM CONTROL LINE	-10.157 -9.157	-8.800	-3.200	0.000	3.200	8.800	9.062	10.062

CH 140.000 m



RL408m

CUT (- m) FILL (+ m)	0.000	0.044	-0.126	0.085	-0.050	0.034	0.000	
DESIGN LEVELS	409.931	409.962	409.732	409.860	409.732	409.962	409.934	
EXISTING LEVELS	410.008 409.931	409.917	409.858	409.774	409.781	409.928	409.934	409.959
OFFSET FROM CONTROL LINE	-9.981 -8.981	-8.800	-3.200	0.000	3.200	8.800	8.966	9.966

CH 120.000 m

CROSS SECTIONS ROAD C

SCALES: HOR. 1:100
VER: 1:100

SCALE 1:100 1 0 1 2 3 4 5.0m

amendments		
A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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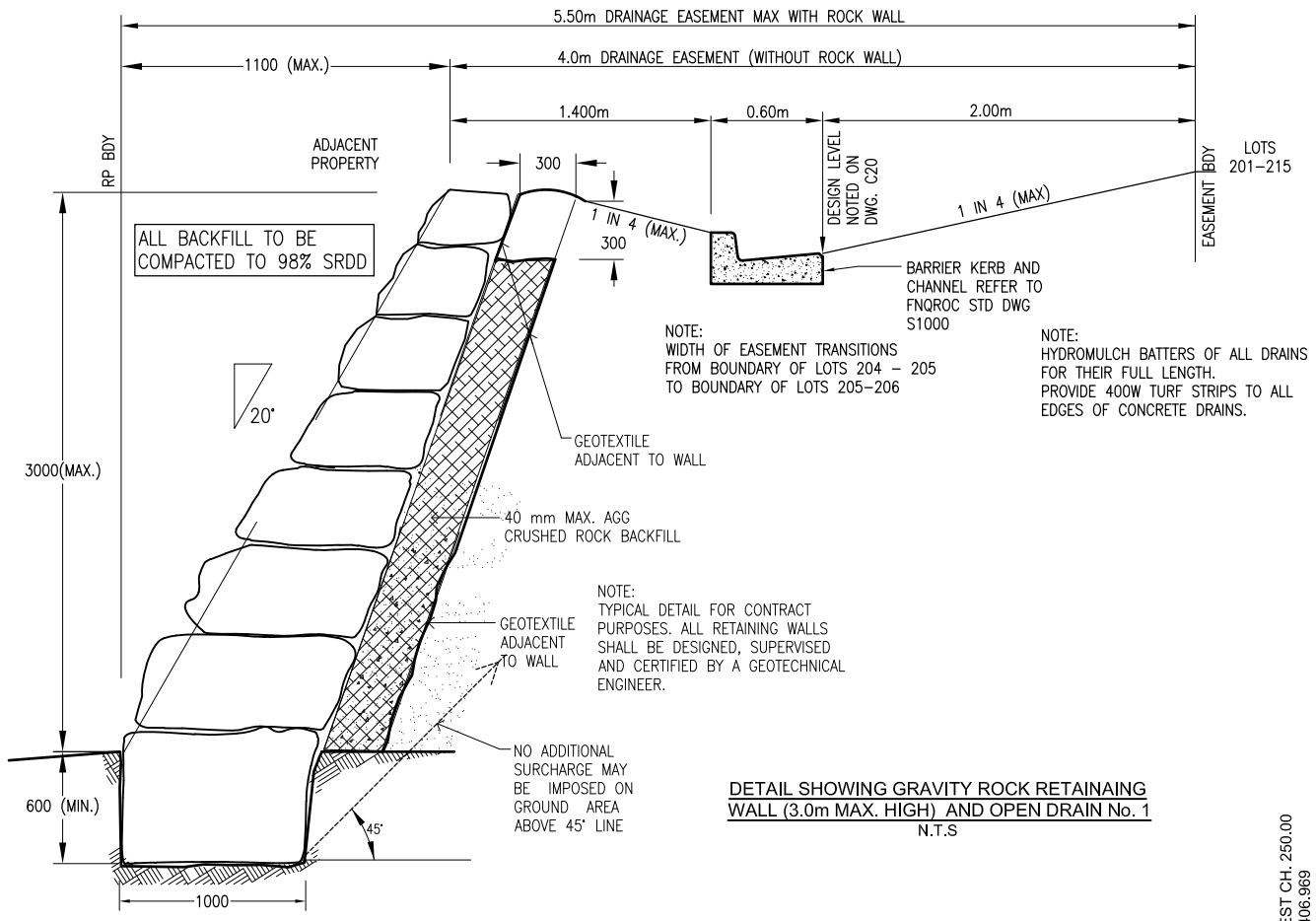
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: ROAD C – CROSS SECTIONS (SHEET 2 OF 2)

SCALE (AT A1 SIZE)	HOR 1:100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C16	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



DETAIL SHOWING GRAVITY ROCK RETAINAING WALL (3.0m MAX. HIGH) AND OPEN DRAIN No. 1
N.T.S

Open Drain No. 1					
	CHAINAGE	EASTING	NORTHING	RADII	BEARING
L#4	0.000 84.138	332856.664 332937.903	8118867.697 8118889.592		74°55'00" STRAIGHT 74°55'00" STRAIGHT
L#5	84.138 126.165	332937.903 332978.066	8118889.592 8118901.970		72°52'17" STRAIGHT 72°52'17" STRAIGHT
L#6	126.165 325.695	332978.066 333170.722	8118901.970 8118953.892		74°55'00" STRAIGHT 74°55'00" STRAIGHT

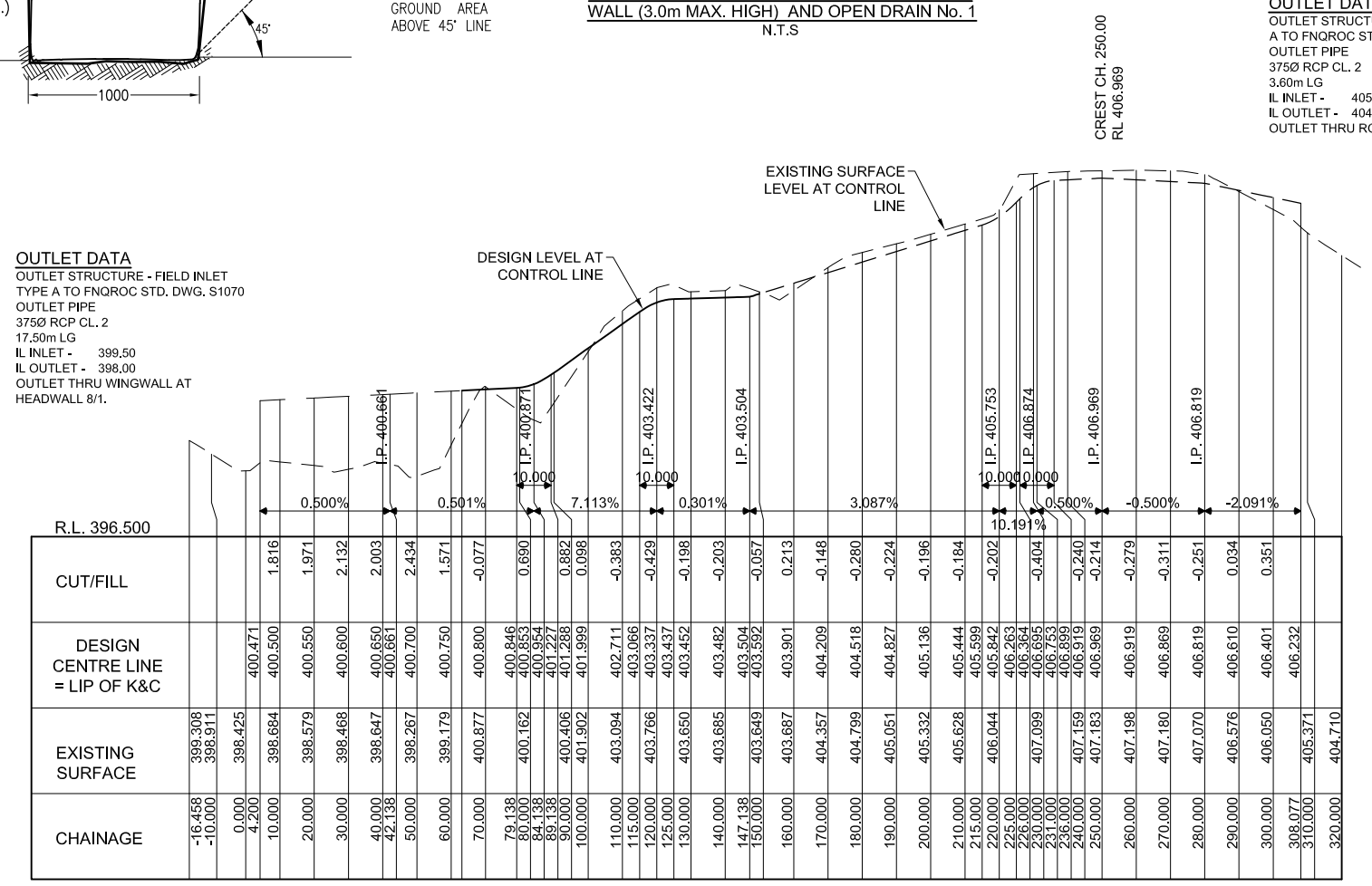
DEFINITION OF ROCK

ROCK IS NON-RIPPABLE MATERIAL AS DESCRIBED IN DTMR STANDARD SPECIFICATION 11.04 GENERAL EARTHWORKS WITH THE FOLLOWING ADDITIONAL QUALIFICATIONS:

- ALL MACHINERY USED MUST BE IN GOOD CONDITION AND OPERATED BY A COMPETENT OPERATOR
- INCLUDES 'FLOATING' BOULDERS WITH A VOLUME EXCEEDING 1.0m³

OUTLET DATA

OUTLET STRUCTURE - FIELD INLET TYPE A TO FNQROC STD. DWG. S1070
OUTLET PIPE
375Ø RCP CL. 2
3.60m LG
IL INLET - 405.20
IL OUTLET - 404.00
OUTLET THRU ROCK RETAINING WALL.

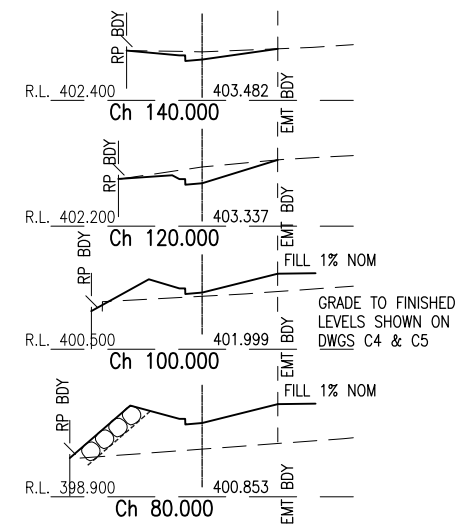


OUTLET DATA

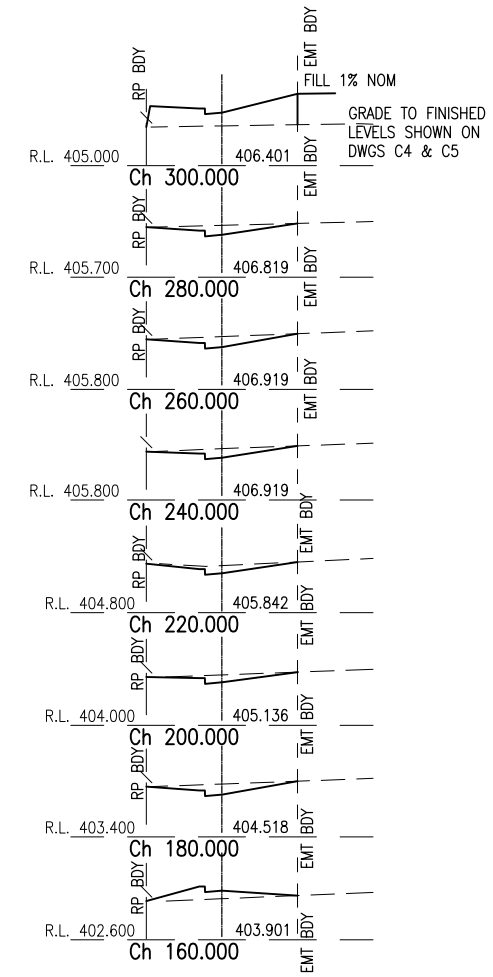
OUTLET STRUCTURE - FIELD INLET TYPE A TO FNQROC STD. DWG. S1070
OUTLET PIPE
375Ø RCP CL. 2
17.50m LG
IL INLET - 399.50
IL OUTLET - 398.00
OUTLET THRU WINGWALL AT HEADWALL 8/1.

CHAINAGE	EXISTING SURFACE	DESIGN CENTRE LINE = LIP OF K&C	CUT/FILL
-16.458	399.308		
-10.000	398.911		
0.000	398.425	400.471	1.816
4.200		400.500	
10.000	398.684	400.500	1.971
20.000	398.579	400.550	2.132
30.000	398.468	400.600	2.003
40.000	398.647	400.650	2.434
42.138		400.661	
50.000	398.267	400.700	1.571
60.000	399.179	400.750	-0.077
70.000	400.877	400.800	0.690
79.138		400.846	
80.000	400.162	400.853	0.882
84.138		400.884	
89.138		401.227	
90.000	400.406	401.288	0.098
100.000	401.902	401.999	-0.383
110.000	403.094	402.711	-0.429
115.000		403.066	
120.000	403.766	403.337	-0.198
125.000		403.437	
130.000	403.650	403.452	-0.203
140.000	403.685	403.482	-0.057
147.138		403.504	
150.000	403.649	403.592	0.213
160.000	403.687	403.901	-0.148
170.000	404.357	404.209	-0.280
180.000	404.799	404.518	-0.224
190.000	405.051	404.827	-0.196
200.000	405.332	405.136	-0.184
210.000	405.628	405.444	-0.202
215.000		405.599	
220.000	406.044	405.842	-0.404
225.000		406.263	
226.000		406.284	
230.000	407.099	406.695	-0.240
231.000		406.753	
236.000		406.899	-0.214
240.000	407.159	406.919	-0.279
250.000	407.183	406.969	-0.311
260.000	407.198	406.919	-0.251
270.000	407.180	406.869	0.034
280.000	407.070	406.819	0.351
290.000	406.576	406.610	
300.000	406.050	406.401	
308.077	405.371	406.232	
310.000			
320.000	404.710		

LONGITUDINAL SECTION OPEN DRAIN No. 1
SCALES: HOR. 1:1000
VER: 1:100



CROSS SECTIONS OPEN DRAIN No. 1
SCALES: HOR. 1:100
VER: 1:100



FUTURE CROSS SECTIONS OPEN DRAIN No. 1
SCALES: HOR. 1:100
VER: 1:100

SCALE 1:100 — 1.0 0 1.0 2.0 3.0 4.0 5.0m
SCALE 1:1000 — 10 0 10 20 30 40 50.0m

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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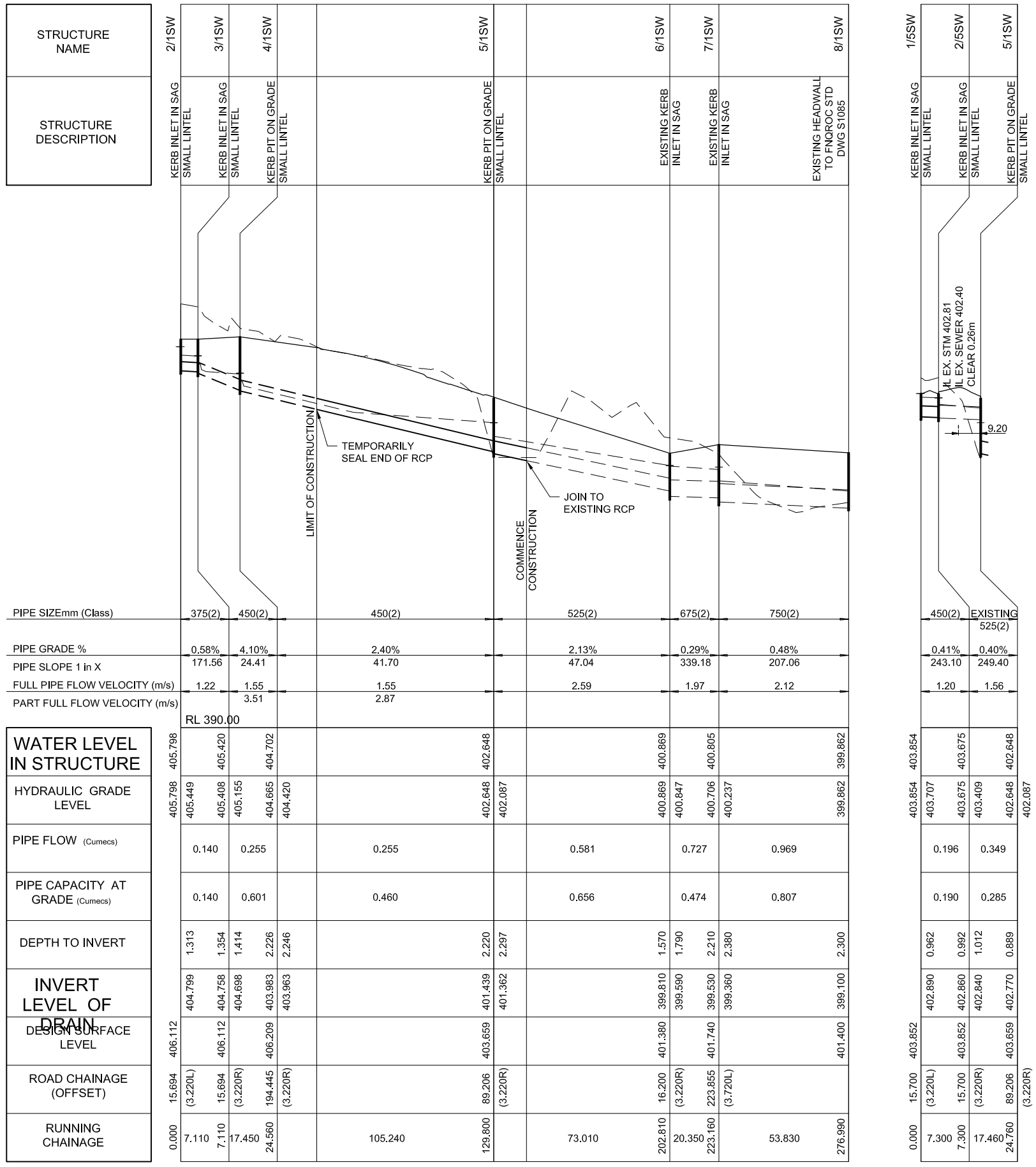
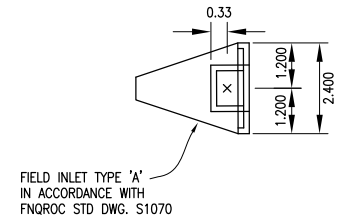
PROPOSED RESIDENTIAL SUBDIVISION AT KENNEDY HIGHWAY, MAREEBA

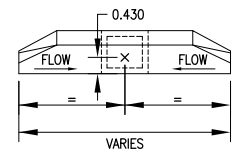
DRAWING TITLE: OPEN DRAIN No. 1 – LONGITUDINAL AND CROSS SECTIONS, RETAINING WALL DETAIL

SCALE (AT A1 SIZE)	HOR 1:1000/100	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C17	AMDT	A

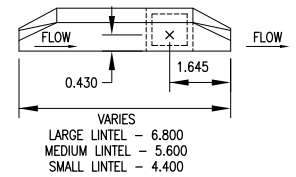
Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018







KERB INLET PIT IN SAG



KERB INLET PIT ON GRADE

STORMWATER DRAINAGE SET OUT

NOTE:
REFER DWG. C18 FOR SETOUT TABLE

NOTE:
IF "BRO PITS" ARE TO BE USED, THEN THE CONTRACTOR SHALL OBTAIN COUNCIL'S APPROVAL AND REFER TO THE DESIGNER FOR AN AMENDED DESIGN.

NOTES:

SET OUT POINT IS CENTRE OF GRATE

WIDTH IS DIMENSION PERPENDICULAR TO PRECAST BACKSTONE (i.e. TYPICALLY PERPENDICULAR TO THE KERB)

LENGTH IS DIMENSION PARALLEL TO KERB.

INSTALL 2.0m SUB SOIL DRAIN AS REQUIRED BY FNQROC. DWGS.

PIPE LENGTHS SHOWN ARE MEASURED FROM CENTRE OF GRATE TO CENTRE OF GRATE

ALL STORMWATER DRAIN PIPES SHALL BE R.C. PIPES CLASS 2 1J TO AS 4058

FSL NOTED IS THE EDGE OF THE KERB AND CHANNEL PERPENDICULAR TO THE SETOUT POINT.

PIT SCHEDULE

PIT No.	TYPE	INTERNAL WIDTH	INTERNAL LEN.	INLET DIA.(CL)	INLET INV R.L.	OUTLET DIA.(CL)	OUTLET INV R.L.	F.S.L.	PIT DEPTH	REMARKS
2/1SW	KERB INLET IN SAG SMALL LINTEL	835	930			375(2)	404.799	406.112	1.31	FUTURE
3/1SW	KERB INLET IN SAG SMALL LINTEL	835	930	375(2)	404.757	450(2)	404.698	406.112	1.41	FUTURE
4/1SW	KERB PIT ON GRADE SMALL LINTEL	835	930	450(2)	403.983	450(2)	403.963	406.209	2.25	FUTURE
1/5SW	KERB INLET IN SAG SMALL LINTEL	835	930			375(2)	402.539	403.852	1.31	
2/5SW	KERB INLET IN SAG SMALL LINTEL	835	930	375(2)	402.283	525(2)	402.130	403.852	1.72	
5/1SW	KERB PIT ON GRADE SMALL LINTEL	835	930	525(2) 450(2)	401.720 401.637	525(2)	401.560	403.659	2.10	
6/1SW	KERB INLET IN SAG SMALL LINTEL	835	930	375(2) 525(2)	399.744 399.740	675(2)	399.590	401.380	1.79	EXISTING
7/1SW	KERB PIT ON GRADE SMALL LINTEL	1000	930	375(2) 675(2)	402.720 399.530	750(2)	399.360	402.060	2.70	EXISTING

STORMWATER SETOUT POINTS

Point #	Easting	Northing	Level	Description
151	332931.069	8118834.251	403.197	START
152	332944.168	8118837.787	403.700	5/1SW
153	333015.070	8118856.896	405.687	END
154	332959.500	8118829.440	403.895	2/5SW
155	332966.554	8118831.341	403.895	1/5SW

DEFINITION OF ROCK
ROCK IS NON-RIPPABLE MATERIAL AS DESCRIBED IN DTMR STANDARD SPECIFICATION 11.04 GENERAL EARTHWORKS WITH THE FOLLOWING ADDITIONAL QUALIFICATIONS:

- ALL MACHINERY USED MUST BE IN GOOD CONDITION AND OPERATED BY A COMPETENT OPERATOR
- INCLUDES 'FLOATING' BOULDERS WITH A VOLUME EXCEEDING 1.0m³

SCALE 1:100 1.0 0 1.0 2.0 3.0 4.0 5.0m
SCALE 1:1000 10 0 10 20 30 40 50.0m

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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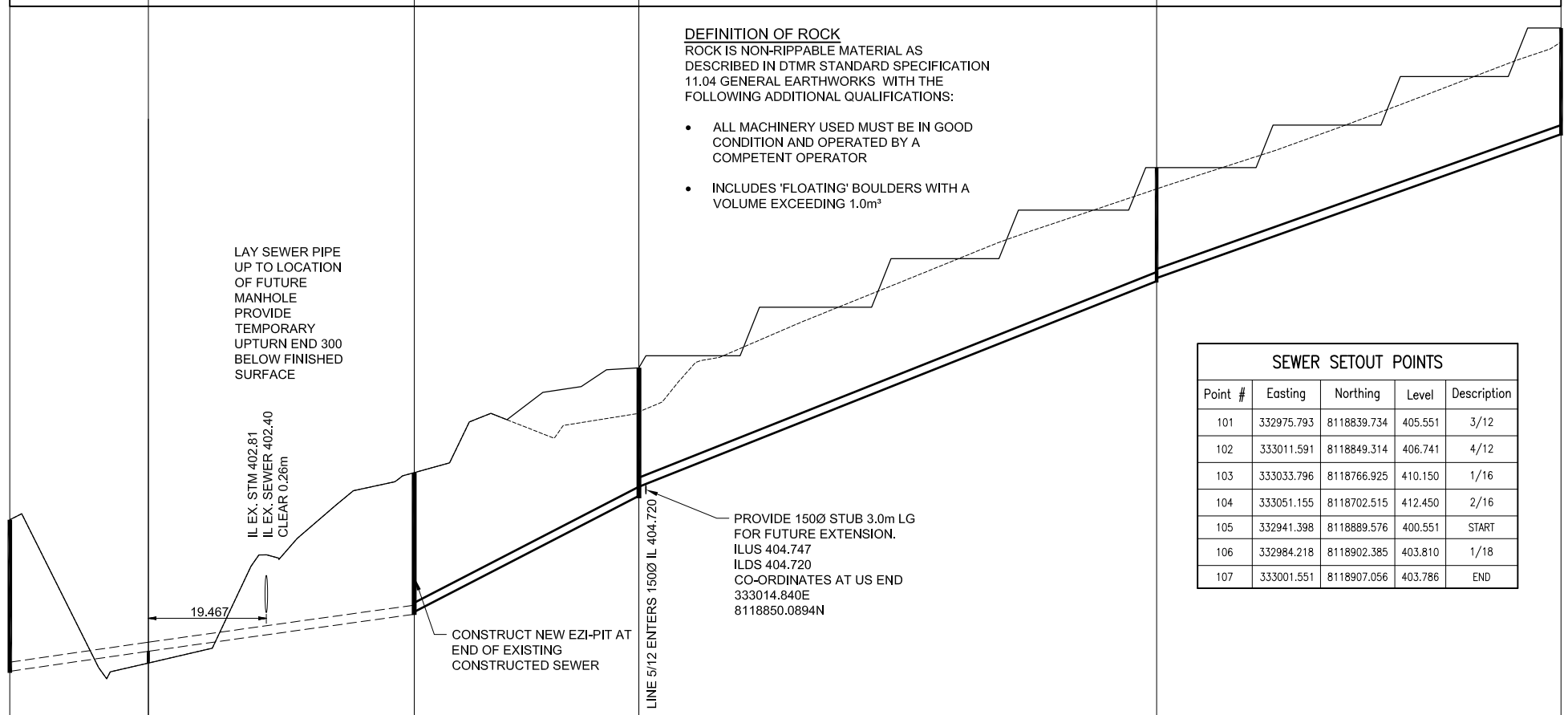
"The Edge Mareeba" Stage 2
PROPOSED RESIDENTIAL SUBDIVISION AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: STORMWATER DRAINAGE LONGITUDINAL SECTIONS, SETOUT, PIT SCHEDULE AND NOTES

SCALE (AT A1 SIZE)	HOR 1:1000	DRAWN	J.P.
	VER 1:100	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C18	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018

MANHOLE NO	2/12 EXIST	3/12	4/12	1/16	2/16
MANHOLE TYPE		EZI-PIT	RECT	EZI-PIT	ROUND
LID TYPE		B	B	B	B



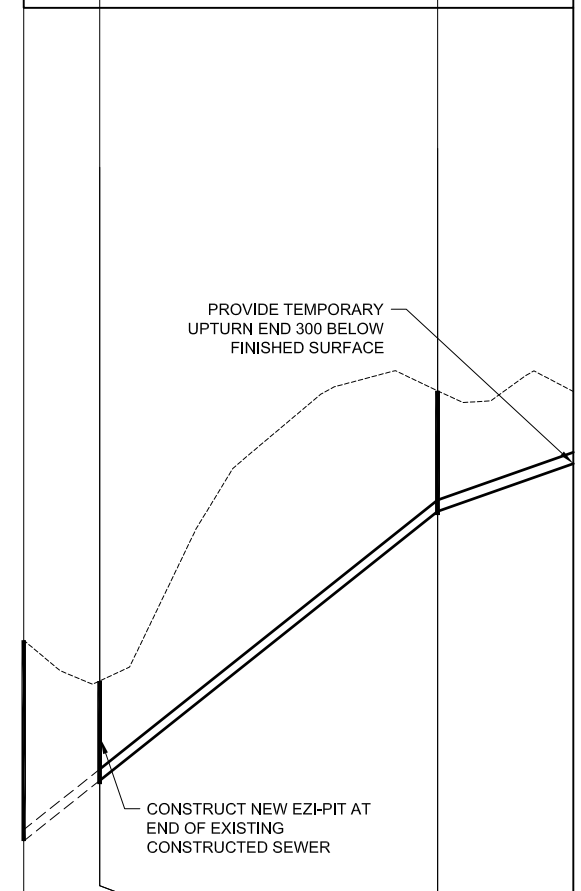
SEWER SETOUT POINTS

Point #	Easting	Northing	Level	Description
101	332975.793	8118839.734	405.551	3/12
102	333011.591	8118849.314	406.741	4/12
103	333033.796	8118766.925	410.150	1/16
104	333051.155	8118702.515	412.450	2/16
105	332941.398	8118889.576	400.551	START
106	332984.218	8118902.385	403.810	1/18
107	333001.551	8118907.056	403.786	END

PIPE DETAILS SLOPE/GRADE	150Ø PVC 1:69.2	150Ø PVC EXISTING 1:71.9	150Ø PVC 1:19.4	150Ø PVC 1:25.2	150Ø PVC 1:28.1
DATUM RL 399.400					
DEPTH TO INVERT	2.497 / -0.194	2.334	2.294 / 2.109	1.959 / 1.870	1.820 / 1.750
DESIGNED INVERT LEVEL	401.800 / 402.130	402.740	402.780 / 404.690	404.840 / 408.230	408.280 / 410.650
DESIGN SURFACE	404.297 / 401.936	405.074	406.799	410.100	412.400
EXISTING SURFACE	404.297 / 401.936	405.074	406.050	409.749	412.164
CHAINAGE	63.546 / 86.396	130.249	167.307	252.701	319.410
	22.850	43.853	37.058	85.394	66.709

LINE 12 – 16

MANHOLE NO	11/11 EXIST	2/16	1/18	2/16
MANHOLE TYPE		EZI-PIT	EZI-PIT	
LID TYPE		B	B	



PIPE DETAILS SLOPE/GRADE	EXISTING 150Ø PVC 1:12.6	150Ø PVC 1:12.6	150Ø PVC 1:28.5
DATUM RL 395.500			
DEPTH TO INVERT	2.656 / 1.317	1.594	0.943
DESIGNED INVERT LEVEL	397.840 / 398.641	398.640 / 402.200	405.360
DESIGN SURFACE	400.496 / 399.957	403.794	406.303
EXISTING SURFACE	400.496 / 399.957	403.794	406.303
CHAINAGE	0.000 / 10.053	54.747	144.747
	10.053	44.695	90.000

LINE 18

SCALE 1:50 0.5 0 0.5 1.0 1.5 2.0 2.50m
SCALE 1:500 5 0 5 10 15 20 25.0m

amendments		
A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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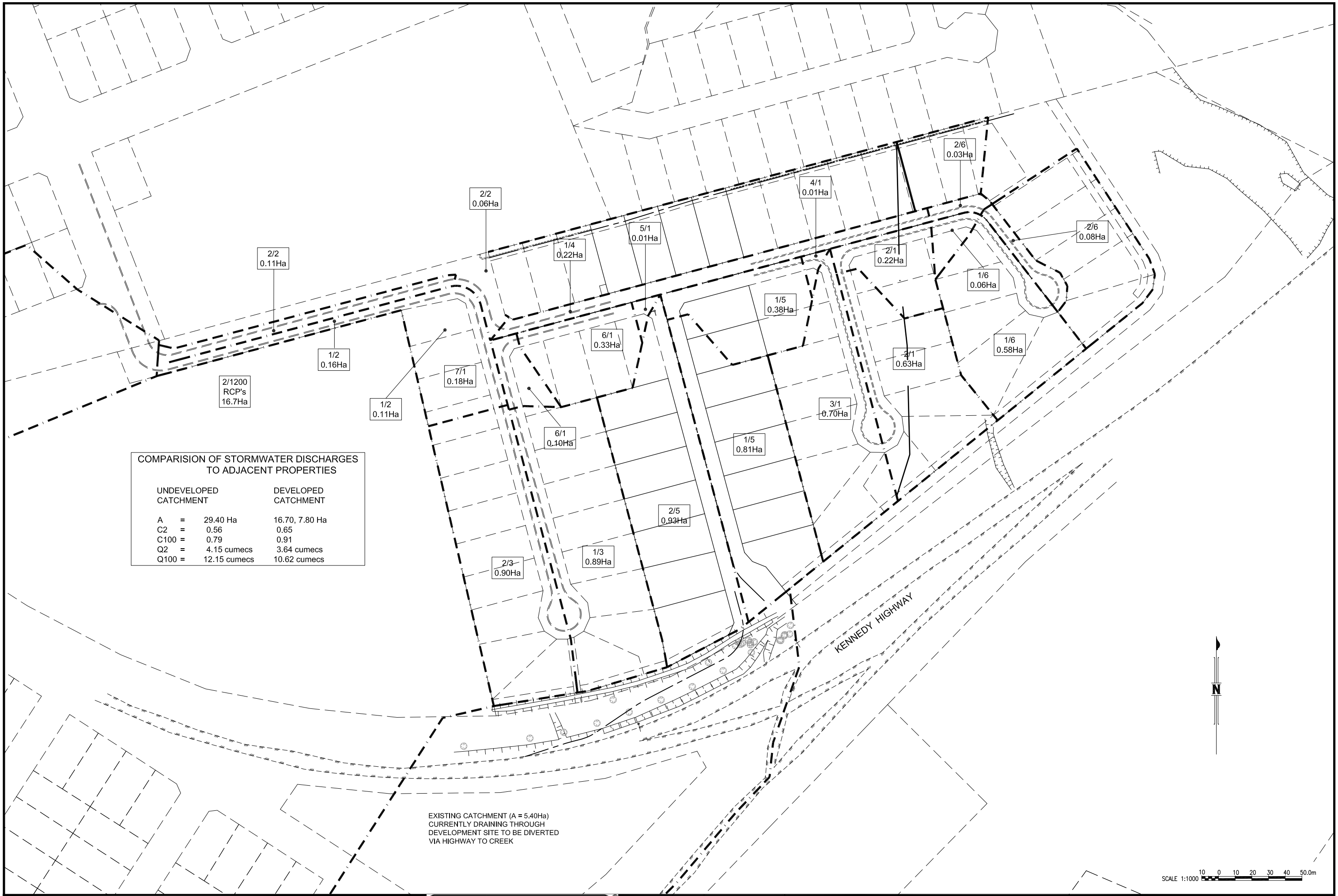
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: SEWERAGE RETICULATION LONGITUDINAL SECTIONS

SCALE (AT A1 SIZE)	HOR 1:500	DRAWN	J.P.
	VER 1:50	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C19	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018



COMPARISION OF STORMWATER DISCHARGES TO ADJACENT PROPERTIES

		UNDEVELOPED CATCHMENT	DEVELOPED CATCHMENT
A	=	29.40 Ha	16.70, 7.80 Ha
C2	=	0.56	0.65
C100	=	0.79	0.91
Q2	=	4.15 cumecs	3.64 cumecs
Q100	=	12.15 cumecs	10.62 cumecs

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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"The Edge Mareeba" Stage 2
PROPOSED RESIDENTIAL SUBDIVISION
AT KENNEDY HIGHWAY, MAREEBA

DRAWING TITLE: STORMWATER DRAINAGE CATCHMENT PLAN

SCALE (AT A1 SIZE)	HOR 1:1000	DRAWN	J.P.
	VER	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
DWG NUMBER	1291 – C20	AMDT	A

Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018

LOCATION					SUB-CATCHMENT RUNOFF							INLET DESIGN												DRAIN DESIGN													HEADLOSSES									PART FULL									
				tc	I	I	A			Q														tc	I		Qt	Qm	Qs	Qo	L	S		V	t		V2/2g	Ku	hu	kl	hl	kw	hw	Sf	hf										
DESIGN A.R.I.	STRUCTURE NO.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	SUB-CATCHMENT TIME OF CONCENTRATION	RAINFALL INTENSITY	COEFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF CONTRIBUTING EQUIVALENT AREAS	SUB-CATCHMENT DISCHARGE	FLOW PAST PREVIOUS GULLIES	FLOW IN K&C (INCLUDING BYPASS)	ROAD GRADE AT INLET	FLOW WIDTH	FLOW DEPTH AT INVERT	GUTTER FLOW VELOCITY	dg x Vg	INLET NUMBER	INLET TYPE	FLOW INTO INLET	WIDTH OF FLOW D/S OF INLET	BYPASS FLOW	CRITICAL TIME OF CONCENTRATION	RAINFALL INTENSITY	TOTAL CONTRIBUTING EQUIVALENT AREA	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	FLOW IN PIPE	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCTURE HEADLOSS	LATERAL HEADLOSS COEFFICIENT	LATERAL PIPE STRUCTURE HEADLOSS	W.S.E COEFFICIENT	CHANGE IN W.S.E	FRICTION SLOPE	PIPE FRICTION HEADLOSS	DEPTH	VELOCITY	OBVERT LEVELS U/S RL D/S RL	DRAIN SECTION H.G.L U/S RL D/S RL	U/S H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	FREEBOARD	STRUCTURE No.
Years				min	mm/h		Ha	Ha	Ha	cumecs	cumecs	cumecs		m	m	m/sec	m/sec			cumecs	m	cumecs	min	mm/h	Ha	cumecs	cumecs	cumecs	cumecs	m	%	mm	m/sec	min		m		m	m	m		m	%	m	m	m/sec	m	m	m	m	m	m	
2 100	1/2	1/2 to 2/2	2/2	5.00 5.00	134 291	0.75 0.75 1.00 1.00	0.160 0.110 0.160 0.110	0.120 0.083 0.160 0.110	0.203 0.270	0.075 0.218	0.000	0.000	0.05	0.717	0.049	0.00	0.00	1/2	B1S0.095	0.075		0.000 2/2	5.00 5.00	134 291	0.202 0.270	0.218	7.965	0.143 (Pipe flow=	0.075 Grate	8.890 flow)	0.45	375(2)	0.66 (1.08)	0.15	Qg 0.075 Qo 0.075 Do 375 CHRT 32: Vo2/2gDo 0.06 H/Do 0.44 Kg side flow 7.47 end flow 5.59	0.022	7.47	0.166			7.47	0.166	0.17	0.015			399.671 399.631	399.838 399.823	400.004	400.004	400.151	0.147	1/2
2 100	2/2	2/2 to 3/2	2/2;3/2	5.00 5.00	134 291	0.75 0.75 1.00 1.00	0.130 0.060 0.130 0.060	0.098 0.045 0.130 0.060	0.143 0.190	0.053 0.154	0.019	0.000	0.05	0.679	0.047	0.00	0.00	2/2	B1S0.095	0.073		0.000	5.15 5.15	132 288	0.345 0.460	0.368	7.965 (Pipe	0.222 flow=	0.146 Sum	6.970 atten	1.87 flows)	375(2)	1.28 (2.19)	0.09	Qg 0.071 Qo 0.146 Do 375 CHART 34 Angle 25 Case3 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.49 K 1.64 S/Do 1.56 cor 0.50 Ku 2.14 Kw 2.14	0.084	2.14	0.179			2.14	0.179	0.63	0.044			399.611 399.481	399.644 399.600	399.823	399.823	400.166	0.343	2/2
2 100	1/6	1/6 to 2/6	1/6	10.00 10.00	106 224	0.75 0.75 1.00 1.00	0.580 0.060 0.580 0.060	0.435 0.045 0.580 0.060	0.480 0.640	0.141 0.398	0.000	0.000	0.08	1.611	0.084	0.00	0.00	1/6	B1S0.095	0.141		0.000 2/6	10.00 10.00	106 224	0.480 0.640	0.398	0.916	0.257 (Pipe flow=	0.141 Grate	8.110 flow)	1.42	375(2)	1.24 (1.91)	0.11	Qg 0.141 Qo 0.141 Do 375 CHRT 32: Vo2/2gDo 0.21 H/Do 0.26 Kg side flow 5.34 end flow 4.38	0.078	5.34	0.419			5.34	0.419	0.60	0.048			406.989 406.874	407.088 407.039	407.506	407.506	407.921	0.415	1/6
2 100	2/6	2/6 to 3/6	1/6;2/6	5.00 5.00	134 291	0.75 0.75 1.00 1.00	0.030 0.080 0.030 0.080	0.023 0.060 0.030 0.080	0.083 0.110	0.031 0.089	0.000	0.000	0.08	0.132	0.025	0.00	0.00	2/6	B1S0.095	0.031		0.000	10.11 10.11	106 223	0.562 0.750	0.465	0.633 (Pipe	0.299 flow=	0.165 Sum	31.840 atten	9.51 flows)	375(2)	1.45 (4.94)	0.37	Qg 0.024 Qo 0.165 Do 375 Angle 31 Chart 36 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.51 K0.5 1.86 Qu/Qo 0.85 Cg 0.36 K 1.63 S/Do 2.0 K0 1.79 K0.5 2.07 K 1.89 S/Do 1.5 K0 2.11 K0.5 2.54 K 2.26	0.107	1.73	0.185	Interp CHART S/Do S/Do Interp	val for 35 2.0 K0 1.5 K0 val for	S/Do 1 1.55 K0.5 1.75 K0.5 S/Do 1	2.18 61 Kw 1.74 K 1.80 K 61 Ku	0.234 2.18 1.62 1.77 1.73	0.82	0.261	0.141	4.29	406.854 403.826	406.854 403.868	407.039	407.088	407.806	0.718	2/6
2 100	3/6	3/6 to 4/6	1/6;2/6															3/6	24				10.48 10.48	104 220	0.562 0.750	0.458		(Pipe	0.165 flow=	5.820 Sum	atten	14.01 flows)	375(2)	1.45 (6.00)	0.07	Qo 0.165 Do 375 CHART 50 Du/Do1.00 alpha 20 K'w 0.21 Vu 1.50 WSE 0.09 Ku 0.58 Kw 0.80	0.107	0.58	0.062			0.80	0.086	0.82	0.048	0.128	4.94	403.806 402.991	403.806 402.991	403.868	403.892	407.470	3.578	3/6
2 100	2/1	2/1 to 3/1	2/1	15.00 15.00	91 188	0.65 0.65 0.91 0.91	0.630 0.220 0.630 0.220	0.410 0.143 0.573 0.200	0.552 0.774	0.140 0.404	0.000	0.000	0.22	1.590	0.084	0.00	0.00	2/1	B1S0.095	0.140		0.000 3/1	15.00 15.00	91 188	0.552 0.773	0.404	1.496	0.264 (Pipe flow=	0.140 Grate	7.110 flow)	0.58	375(2)	1.22 (1.22)	0.10	Qg 0.140 Qo 0.140 Do 375 CHRT 32: Vo2/2gDo 0.20 H/Do 0.71 Kg side flow 4.59 end flow 3.76	0.076	4.59	0.349			4.59	0.349	0.58	0.041			405.180 405.139	405.449 405.408	405.798	405.798	406.112	0.314	2/1
2 100	3/1	3/1 to 4/1	2/1;3/1	15.00 15.00	91 188	0.65 0.91	0.700 0.700	0.455 0.637	0.455 0.637	0.115 0.333	0.000	0.000	0.22	1.270	0.071	0.00	0.00	3/1	B1S0.095	0.115		0.000 4/1	15.10 15.10	91 188	1.007 1.410	0.736	1.496 (Pipe	0.482 flow=	0.255 Sum	17.450 atten	4.10 flows)	450(2)	1.55 (3.66)	0.19	Qg 0.115 Qo 0.255 Do 450 Angle 36 Chart 39 S/Do 2.5 chartdeg Du/Do 0.83 K0 1.90 K0.5 1.79 Qu/Qo 0.55 Cg 0.93 K 1.80 S/Do 2.0 K0 2.11 K0.5 1.90 K 1.92 S/Do 1.5 K0 2.51 K0.5 2.19 K 2.21	0.122	2.07	0.253	Interp CHART S/Do S/Do Interp	val for 38 2.0 K0 1.5 K0 val for	S/Do 1 2.10 K0.5 2.44 K0.5 S/Do 1	2.16 58 Kw 1.83 K 2.09 K 58 Ku	0.265 2.16 1.84 2.11 2.07	0.74	0.128	0.208	3.51	405.155 404.440	405.155 404.665	405.408	405.420	406.112	0.692	3/1
2 100	4/1	4/1 to 5/1	2/1;3/1;4/1	5.00 5.00	134 291	0.65 0.91	0.010 0.010	0.007 0.009	0.007 0.009	0.002 0.007	0.000	0.000	1.64	0.065	0.023	0.53	0.01	4/1	A1	0.002		0.000 1/5	15.29 15.29	90 187	1.013 1.419	0.737	2.858	0.483 (Pipe flow=	0.255 Sum	105.240 atten	2.40 flows)	450(2)	1.55 (2.80)	1.13	Qg 0.001 Qo 0.255 Do 450 Angle 44 Chart 39 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.80 K0.5 1.91 Qu/Qo 1.00 Cg 0.01 K 1.80 S/Do 2.0 K0 1.98 K0.5 2.10 K 1.98 S/Do 1.5 K0 2.39 K0.5 2.52 K 2.39	0.122	2.00	0.245	Interp CHART S/Do S/Do Interp	val for 38 2.0 K0 1.5 K0 val for	S/Do 1 1.84 K0.5 2.05 K0.5 S/Do 1	2.30 62 Kw 1.75 K 1.84 K 62 Ku	0.282 2.30 1.83 2.05 2.00	0.74	0.774	0.243	2.87	404.420 401.896	404.420 402.648	404.665	404.702	406.209	1.507	4/1
2 100	1/5	1/5 to 2/5	1/5	15.00 15.00	91 188	0.65 0.65 0.91 0.91	0.810 0.380 0.810 0.380	0.527 0.247 0.737 0.346	0.774 1.083	0.196 0.566	0.000	0.000	0.50	2.212	0.108	0.00	0.00	1/5	B1S0.095	0.196		0.000 2/5	15.00 15.00	91 188	0.774 1.083	0.566	2.250	0.370 (Pipe flow=	0.196 Grate	7.300 flow)	1.59	450(2)	1.20 (2.28)	0.10		0.073	2.00	0.147			2.00	0.147	0.44	0.032			403.347 403.231	403.622 403.590	403.769	403.769	403.852	0.083	1/5
2 100	2/5	2/5 to 5/1	1/5;2/5	15.00 15.00	91 188	0.65 0.91	0.930 0.930	0.605 0.846	0.605 0.846	0.153 0.442	0.000	0.000	0.50	1.749	0.090	0.00	0.00	2/5	B1S0.095	0.153		0.000 5/1	15.10 15.10	91 188	1.379 1.929	1.007	2.250 (Pipe	0.658 flow=	0.349 Sum	17.460 atten	0.40 flows)	525(2)	1.56 (1.26)	0.19	Qg 0.153 Qo 0.349 Do 525 CHART 37 Angle 44 Case3 S/Do 2.5 Du/Do 0.86 Qg/Qo 0.44 K 1.69 S/Do 1.56 cor 0.45 Ku 2.14 Kw 2.14	0.124	2.14	0.266			2.14	0.266	0.60	0.105			403.288 403.219	403.324 403.219	403.590	403.590	403.852	0.262	2/5
2 100	5/1	5/1 to 6/1	2/1;3/1;4/1; 1/5;2/5;5/1	5.00 5.00	134 291	0.65 0.91	0.010 0.010	0.007 0.009	0.007 0.009	0.002 0.007	0.000	0.000	3.26					5/1	A1	0.002		0.000 6/1	16.42 16.42	87 181	2.398 3.357	1.688	1.443 (Pipe	1.107 flow=	0.581 Sum	73.010 atten	2.13 flows)	525(2)	2.59 (2.93)	0.47	Qg 0.001 Qo 0.581 Do 525 Flow 2/5 made eqv grate flow CHART 33 Angle 0 S/Do 2.5	0.342	1.64	0.561	Du/Do S/Do K vals	0.86 2.41 cor above for stepped pipes as grate flow	Qg/Qo 0.04 Ku	1.64 0.58 K 1.64 Kw	0.561 1.60 1.64	1.67	1.218			401.896 400.344	402.087 400.869	402.648	402.648	403.659	1.011	5/1
2 100	1/4	1/4 to 6/1	1/4	5.00 5.00	134 291	0.75 1.00	0.220 0.220	0.165 0.220	0.165 0.220	0.061 0.178	0.000	0.000	0.21	0.520	0.041	0.00	0.00	1/4	B1S0.095	0.061		0.000	5.00 5.00	134 291	0.165 0.220	0.178	1.443	0.116 (Pipe flow=	0.061 Grate	7.300 flow)	2.37	375(2)	0.54 (2.47)	0.12		0.015	0.55	0.008			0.55	0.008	0.11	0.008			400.448 400.275	400.877 400.869	400.885	400.885	401.380	0.495	1/4
2 100	6/1	6/1 to 7/1	2/1;3/1;4/1; 1/5;2/5;5/1; 1/4;6/1	15.00 15.00	91 188	0.65 0.65 0.91 0.91	0.330 0.100 0.330 0.100	0.215 0.065 0.300 0.091	0.280 0.391	0.071 0.204	0.049	0.000	0.21	1.331	0.073	0.00	0.00	6/1	B1S0.095	0.120		0.000	16.89 16.89	86 178	2.843 3.968	1.962	1.443 (Pipe	1.235 flow=	0.727 Sum	20.350 atten	0.29 flows)	675(2)	1.97 (1.29)	0.17	Qg 0.113 Qo 0.727 Do 675 Routine 2.1 CHART 48 Du/Do 0.78 Qu/Qo 0.79 K −0.05 d/Do 2.0 chrt Qg/Qo 0.16 Kg 0.15 d/Do 1.5 chrt Qg/Qo 0.16 Kg 0.17 d/Do 1.83 Interp value Kg 0.16 Ku=Kw= 0.11 Combined pipes in line case Join Pipes:	0.198	0.11	0.022	5/1 and 1/4 Eq Dia CHART S/Do Du/Do S/Do Interpolated	Vel1 2.653 Vel2 0.357 558 Angle 174 Flow 0.614 33 Angle 0 2.5 0.83 Qg/Qo 1.91 cor Ku=	0.16 K 0.08 Ku 0.11 Kw=	0.11 0.20 0.28 Kw 0.11	0.022 0.28	0.69	0.141			400.275 400.215	400.847 400.706	400.869	400.869	401.380	0.511	6/1
2 100	1/3	1/3 to 2/3	1/3	15.00 15.00	91 188	0.65 0.91	0.890 0.890	0.579 0.810	0.579 0.810	0.146 0.423	0.000	0.000	7.25	1.412	0.076	2.23	0.17	1/3	A1	0.098	0.795	0.048 6/1	15.00 15.00	91 188	0.579 0.810	0.423	2.406	0.325 (Pipe flow=	0.098 Grate	7.890 flow)	6.34	375(2)	0.86 (4.04)	0.13	Qg 0.098 Qo 0.098 Do 375 CHRT 32: Vo2/2gDo 0.10 H/Do 0.00 Kg side flow 7.85 end flow 6.05	0.038	7.85	0.296			7.85	0.296	0.29	0.023	0.119	3.21	403.381 402.881	403.381 403.087	403.677	403.677	404.408	0.731	1/3
2 100	2/3	2/3 to 7/1	1/3;2/3	15.00 15.00	91 188	0.65 0.91	0.900 0.900	0.585 0.819	0.585 0.819	0.148 0.428	0.000	0.000	7.25	1.419	0.077	2.23	0.17	2/3	A1	0.099	0.801	0.049 7/1	15.13 15.13	90 188	1.164 1.629	0.851	2.467 (Pipe	0.656 flow=	0.195 Sum	33.560 atten	4.98 flows)	375(2)	1.71 (3.58)	0.33	Qg 0.098 Qo 0.195 Do 375 Flow 1/3 made eqv grate flow CHRT 32: Vo2/2gDo 0.39 H/Do 0.00 Kg side flow 4.30 end flow 3.69 K vals above for stepped pipes as grate flow grate flow decreased by 0.097 from 1/3 Angle 67 Chart 45 S/Do 2.5 chartdeg Du/Do 1.00 K0 2.16 K0.5 1.81 Qu/Qo 0.50 Cg 1.00 K 1.81	0.149	2.12	0.316	S/Do S/Do Interp CHART S/Do S/Do Interp K vals	2.0 K0 1.5 K0 val for 44 2.0 K0 1.5 K0 val for step pipes as	2.47 K0.5 2.74 K0.5 S/Do 1 1.99 K0.5 2.12 K0.5 S/Do 1 pipe flow	2.40 2.34 K 2.80 K 94 Kw 2.11 K 2.17 K 94 Ku Ku 2.12 Kw	0.358 2.34 2.80 2.40 2.11 2.17 2.12 2.40	1.14	0.381	0.185	3.53	402.771 401.101	402.771 401.101	403.087	403.129	404.190	1.061	2/3
2 100	7/1	7/1 to 8/1	2/1;3/1;4/1; 1/5;2/5;5/1; 1/4;6/1;1/3; 2/3;7/1	15.00 15.00	91 188	0.65 0.91	0.180 0.180	0.117 0.164	0.117 0.164	0.030 0.086	0.049	0.000	7.07	1.042	0.062	1.92	0.12	7/1	A1	0.059	0.442	0.019 2/2	17.06 17.06	86 177	4.124 5.761	2.832	2.467 (Pipe	1.864 flow=	0.969 Sum	53.830 atten	0.48 flows)	750(2)	2.12 (1.77)	0.42	Qg 0.056 Qo 0.969 Do 750 Flow 2/3 made eqv grate flow Angle 88 Chart 47 S/Do 2.5 chartdeg Du/Do 0.90 K0 1.98 K0.5 2.24 Qu/Qo 0.75 Cg 0.58 K 2.13 S/Do 2.0 K0 2.46 K0.5 2.40 K 2.43 S/Do 1.5 K0 2.69 K0.5 2.65 K 2.67	0.229	2.05	0.469	Interp CHART S/Do S/Do Interp K vals	val for 46 2.0 K0 1.5 K0 val for above for stepped pipes as grate flow	S/Do 1 2.01 K0.5 2.09 K0.5 S/Do 1	2.48 90 Kw 2.00 K 2.31 K 90 Ku	0.568 2.48 2.00 2.22 2.05	0.70	0.375			400.122 399.862	400.237 399.862	400.706	400.805	401.740	0.935	7/1

amendments

A	ISSUED FOR OPERATIONAL WORKS APPLICATION	20.04.18

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DRAWING TITLE: STORMWATER DRAINAGE CALCULATION SHEET

SCALE (AT A1 SIZE)	HOR N.T.S.	DRAWN	J.P.
	VER	DESIGNED	J.P.
DATE	APRIL 2018	CHECKED	J.P.
APPROVED	B. J. SMYTH RPEQ No. 9326		
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Document Set ID: 3366540
Version: 1, Version Date: 26/04/2018