From:	Neil Beck
To:	Krista Kenna
Cc:	Liza Dowling
Subject:	FW: Proposed Craiglie Subdivision - OP 2019_3370/1 (932112)
Date:	Monday, 6 April 2020 3:11:11 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png 20191217161934186.pdf

Hi Krista,

Can you please download and get on the Op works folder. Can you let Liza know once this is done so it can get on the website.

Liza – can you put on the website once on the file so I can refer to it externally.

Cheers

Neil

From: Maurice Sheehan <maurice.sheehan@cardno.com.au>
Sent: Monday, 6 April 2020 2:16 PM
To: Neil Beck <Neil.Beck@douglas.qld.gov.au>
Cc: Ernest Duval <etp@etp.co.nz>; Rob Wheeler <robert.wheeler@cardno.com.au>
Subject: Proposed Craiglie Subdivision - OP 2019_3370/1 (932112)

Good Afternoon Neil,

Please see the following link to the responses to Councils RFI's (attached, dated 17/12/2019), for the proposed Craiglie Subdivision.

https://fileshare.cardno.com/wl/?id=1CBNgDLzUZVozh5XarFAs9YyCPHIGI2d

The following additional amendments are also included:

- SARA / DAF culvert crossing details / amendments
- Additional Water & Waste amendments following additional email and telephone correspondence.

Please let me know if you require any further information

Maurice Sheehan
SENIOR CIVIL ENGINEER
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Earthworks

1. During the pre-lodgement and design phase meetings, there was no discussion regarding the proposed 30,000m^3 of cut from this stage. Justification for the high volume of cut is required given no approvals exist over the proposed filling areas. It is also noted that the proposed cut profile compromises the road grades and stormwater (surface flow) capacity. Council Officers are not supportive of the design in its current form.

   The cut has been introduced to ensure future stages of the development do not require excessive imported fill.

   The masterplanning undertaken to date has determined that, to meet the various flood immunity, sewer reticulation and stormwater management requirements, the southern and eastern areas of the proposed estate will need to be filled.

   Lowering the finished levels of the Stage 1 works to introduce cut ensures:
   - **lot levels for future stage can be reduced**
   - **there is less total fill required for future stages**
   - **there is a higher percentage of the fill sourced from within the site extents.**

2. Part of the proposed fill area is on road reserve. As there is no tenure over the road reserves, plans are to amended to exclude filling of these areas.

   These areas have been removed from the proposed scope.

3. Part of the filling is proposed on lots that are not the subject of the application. Please remove the fill from these lots or provide a new application with the lots nominated in the application.

   These areas have been removed from the proposed scope.

Roadworks

4. Significant sections of the proposed road have grades less than the 0.5% minimum grade nominated in the FNQROC Development Manual. Council does not support the reduced grades. It is noted that by reducing the extent of cut at the western ends of the road the road grades could be increased and provide improved drainage and maintenance outcomes.

   Amended drawings are to be submitted with all roads meeting or exceeding the minimum road grade of 0.5%.

   All road grades are now minimum 0.5%.

   Verge widths are to be in accordance with the FNQROC Development Manual. Particular attention should be made to verge widths adjacent truncations of lot boundaries (i.e. Lot 8 at intersection of Roads 2 & 5).

   Boundary truncations amended at Lot 8. All other boundary truncations ok.

Stormwater

5. The proposed filling is not consistent with the extent modelled in the advice to Council under cover of letter dated 12 April 2019 - Cardno Reference: Q184103 L003 01.
   Confirmation is required that the proposed filling will not have a detrimental drainage impact on adjoining landowners. The advice must include appropriate supporting documentation to enable the confirmation to be verified.

   The letter dated 12 April 2019 - Cardno Reference: Q184103 L003 01 was in the earlier stages of the flood modelling. The proposed design is consistent with the requirements of the Flood Model Report.

   The flood storage area in the NE extents of stage 1 adjacent the culvert has been added to the stage 1 civil design. This will require the removal of the existing stockpile in this area which has been area situated there since the construction of the diversion drain in 2012.

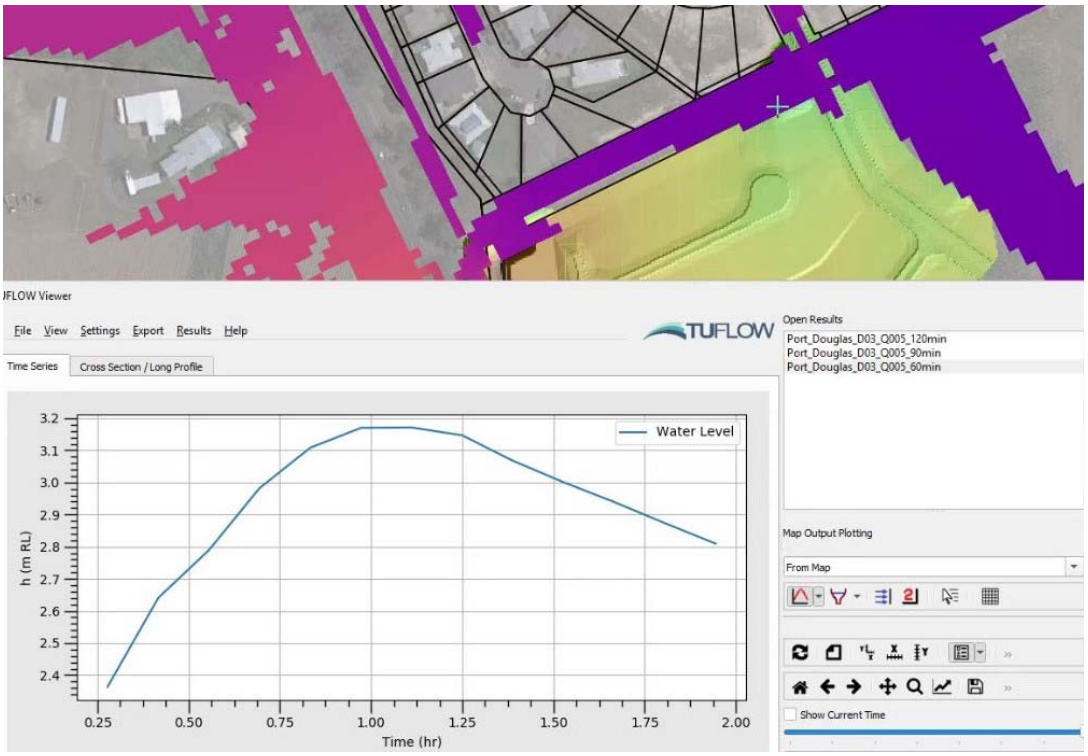
6. It is noted that the underground stormwater system (minor event system) appears to have been designed to convey flows from a larger recurrence interval event than the FNQROC recommended design ARI per Section D4 Table 4.3. The hydraulic grade line on the drawings is for the 5-year ARI event. Please provide the hydraulic grade line for the 100-year ARI (or other design event if applicable) to show that the pipe flows and captures are achieved.

   The underground stormwater has been designed for a 5-year ARI event. It has been amended to suit the revised road grading.

   The calculation tables have been reviewed and amended.

7. The starting water level for the pipe system does not appear to correlate with the levels shown in the flood modelling outputs in Appendix B of the Flood Impact Assessment report, {Cardno Reference Q184103 dated 16 October 2019).

The time of concentration for the drainage channel on the northern side of the site is 57minutes. The critical time of concentration for the proposed subdivision is 17 minutes. A conservative starting water level of 2.8m has been adopted at the culvert outlets. This figure is derived from the flood model hydrograph below. The 2.8m starting level corresponds to an approx. 35 - 40minute storm duration in the upstream catchment.



8. Page 16 of the flood impact assessment report indicates that "drainage gully works" have been modelled in assessing the flood immunity of Stage 1. The operational works does not appear to detail the drainage gully works for the footprint shown on the image on page 16 of the report. Clarification is required on the works necessary to provide the appropriate flood immunity and drainage capacity to service Stage 1.

The report states “Earthworks within the drainage gully/reserve immediately east of Wabul Street were required to allow for the free drainage and attenuation of the future development areas.”

The flood storage area in the NE extents of stage 1 adjacent the culvert has been added to the stage 1 civil design. This will require the removal of the existing stockpile in this area which has been situated there since the construction of the diversion drain in 2012.

9. Provide the cross sections of the drain profile as required in Condition 13 d. of the ROL which states the following:-
It is unclear how the ground levels for the existing lots have been entered into the flood model and whether the current model set up excludes flow from entering existing lots. In order to properly understand the proposed drain and culverts operation and impacts, cross sections of the drain profile at regular intervals upstream and downstream from the culverts are required.
The sections should show:
   i. the proposed drain profile, including the need for a finish to stabilise the drain banks, such as rock lining;
   ii. existing lot levels on the north side and proposed development levels on the south;
   iii. the modelled peak flood level for the 5, 10- and 100-year AEP events, and
   iv. the resulting freeboard;

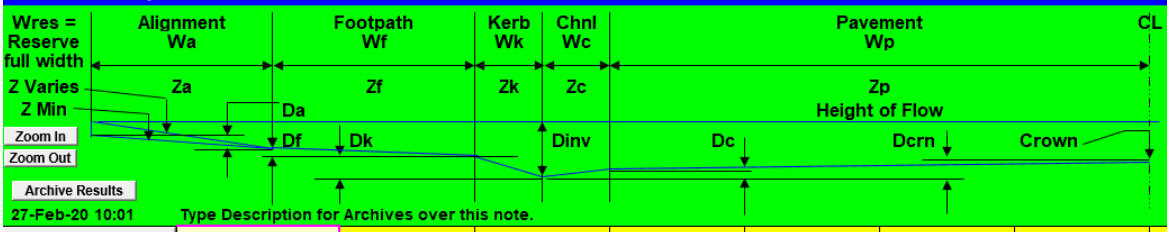
Now included in DWG 1268-1270.

10. For the revised design submission with the amended road grades, provide engineering calculations to demonstrate that the flows from the 100 year ARI event is contained within the road reserves.

The "worst case" cross-section will be on the downstream side of Road 2. The Q_{100} flow is 1.45m³/s at the downstream side of pit 10/1.

Assuming the underground system in blocked, the flow depth for the "Road 2" cross section at 0.5% grade, conveying 1. 45m³/s, is 225mm from the invert. See the snippet of spreadsheet calculations below.

Max Q — **Qudm ALLOWABLE ROADWAY FLOWS** — Help — **Max Q**



Allowable VxD	0.6		Road		Alignment		Footpath		Kerb		Channel		Pavement	
Max Inv Depth	0.225	User	Wres	15.50	Wa	2.180	Wf	2.000	Wk	0.320	Wc	0.280	Wp	2.970
Flow Width	Full Width		Wchk	15.50	Zmin	33	Zf	50	Zk	2.29	Zc	11.2	Zp	33
Kerb Type	Mountable-M1		fm fct	0.900	na	0.100	nf	0.100	nk	0.013	nc	0.013	np	0.015
Pavement X-fall	33	Zp	Expn	2.667	Da	0.066	Df	0.040	Dk	0.140	Dc	0.025	Dcrn	0.115

Flow m3/s

Type Inlet Descriptions >>>

Half Road Flow			0.726	1.026	1.451	1.778	1.752	1.647	1.346	1.304	1.243	1.167	1.081	1.030	0.958	1.024
Full Road Flow			1.451	2.052	2.903	3.555	3.503	3.293	2.691	2.609	2.487	2.335	2.161	2.060	1.915	2.048
Flow Width Invert >> Crown			3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
D Invert	W Flow	W inv-crn	0.50%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	12.0%	14.0%	16.0%
Reset D Invert		Reset Grades	15-80 x 1mm		55-120 x 1mm		85-150 x 1mm		135-200 x 1mm		80-210x 2mm		90-300 x 3mm		45-500 x 7mm	
0.045	1.04	0.94	0.007	0.010	0.015	0.018	0.021	0.023	0.025	0.027	0.029	0.031	0.033	0.036	0.039	0.041
0.052	1.29	1.17	0.011	0.016	0.023	0.028	0.032	0.036	0.040	0.043	0.046	0.048	0.051	0.056	0.060	0.065
0.059	1.54	1.40	0.017	0.024	0.034	0.041	0.048	0.054	0.059	0.063	0.068	0.072	0.076	0.083	0.090	0.096
0.066	1.78	1.63	0.024	0.034	0.048	0.059	0.068	0.076	0.083	0.090	0.096	0.102	0.107	0.118	0.127	0.136
0.073	2.03	1.86	0.033	0.046	0.066	0.080	0.093	0.104	0.113	0.123	0.131	0.139	0.147	0.161	0.173	0.185
0.080	2.28	2.10	0.043	0.061	0.087	0.106	0.123	0.137	0.150	0.162	0.174	0.184	0.194	0.213	0.230	0.245
0.087	2.52	2.33	0.056	0.079	0.112	0.137	0.158	0.177	0.194	0.210	0.224	0.238	0.251	0.274	0.296	0.317
0.094	2.77	2.56	0.071	0.100	0.142	0.173	0.200	0.224	0.245	0.265	0.283	0.300	0.317	0.347	0.375	0.401
0.101	3.02	2.79	0.088	0.124	0.176	0.215	0.249	0.278	0.304	0.329	0.351	0.373	0.393	0.430	0.465	0.497
0.108	3.27	3.02	0.107	0.152	0.215	0.263	0.304	0.339	0.372	0.402	0.429	0.455	0.480	0.526	0.568	0.607
0.115	3.51	3.25	0.129	0.183	0.259	0.317	0.366	0.409	0.448	0.484	0.518	0.549	0.579	0.634	0.685	0.732

11. The calculations table provided indicate the approach flow to stormwater pit 7 /1 is 93L/s. The calculations table indicates that the capture into pit 7 /1 is 93L/s and that there is no bypass flow.

    The kerb return grading confirms that this pit is an on-grade pit. With reference to the Kerb inlet Capacity charts in FNQROC, a comparison of the captured flow to the approach flow for and "On-grade - Type S "pit confirms that it is not possible to capture all of the approach flow at this approach flow rate. The inputs and setup of the PC drain model are to be reviewed to confirm that the appropriate pit designations are adopted and reflect the finalised road and kerb designs.

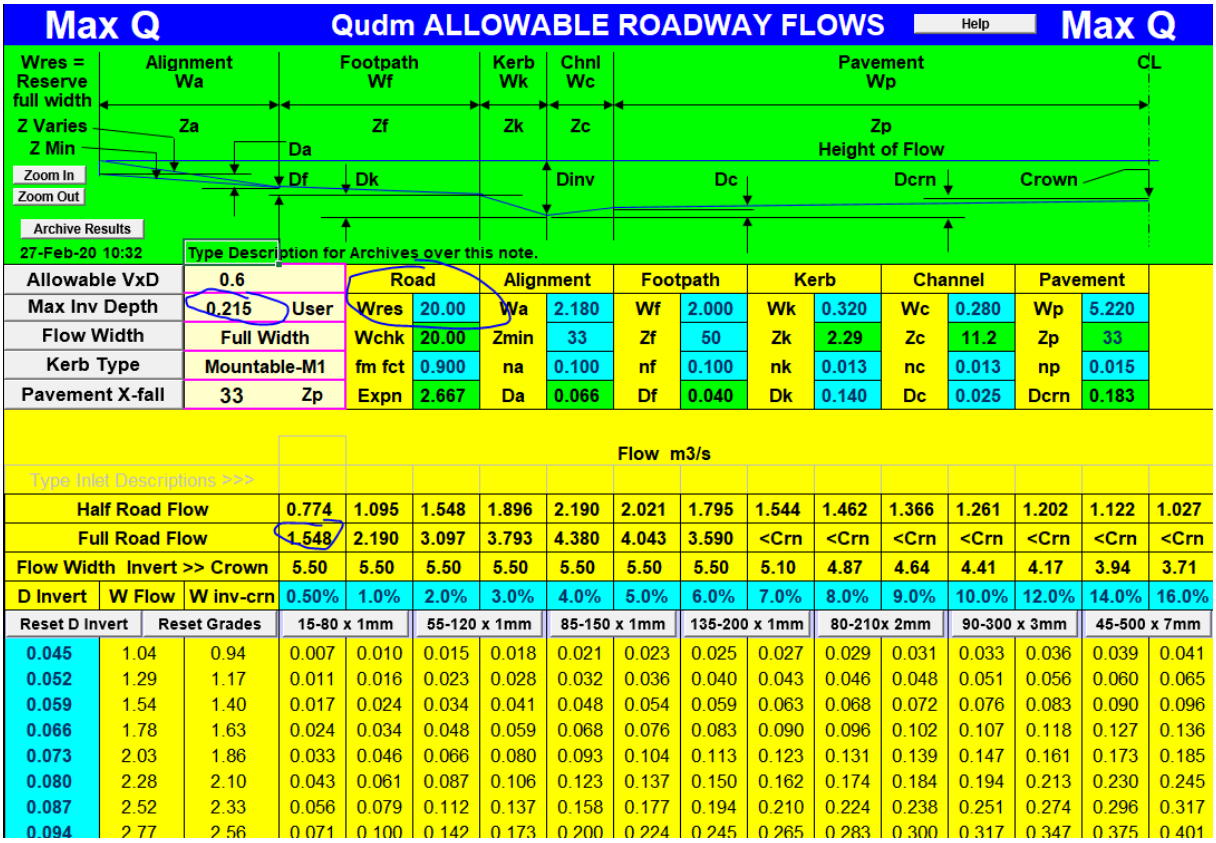
    The calculation tables have been reviewed and amended.

12. Provide a severe impact assessment to demonstrate safe conveyance of flows in the event the downstream water levels "drown out" the pipe system. Note: this applies to the revised road grading as the current road grades are not supported by Council Officers.

    As discussed in the response to RFI #10, in the event the underground system is not conveying any flow, the "Road 2" cross section at 0.5% grade, conveying 1.45m³/s, is 225mm from the invert. This does not encroach on any properties.

    There is a minor sag on Wabul Rd adjacent the intersection to "Road 2". The Wabul Rd flow depth to convey the same 1.45m³/s is 215mm. See the snippet of spreadsheet calculations below. The crest invert height is 3.76. This gives a water surface elevation of 3.975 if Wabul Road is conveying 1.45m³/s.

All properties in the vicinity are higher than this level. See the snippet of spreadsheet calculations for Wabul St below.



Max Q — Qudm ALLOWABLE ROADWAY FLOWS — Help — Max Q

Wres = Reserve full width | Alignment Wa | Footpath Wf | Kerb Wk | Chnl Wc | Pavement Wp | CL

Z Varies | Za | Zf | Zk | Zc | Zp

Z Min | Da | Height of Flow

Zoom In | Zoom Out | Df | Dk | Dinv | Dc | Dcrn | Crown

Archive Results

27-Feb-20 10:32 | Type Description for Archives over this note.

			Road		Alignment		Footpath		Kerb		Channel		Pavement	
Allowable VxD	0.6													
Max Inv Depth	0.215	User	Wres	20.00	Wa	2.180	Wf	2.000	Wk	0.320	Wc	0.280	Wp	5.220
Flow Width	Full Width		Wchk	20.00	Zmin	33	Zf	50	Zk	2.29	Zc	11.2	Zp	33
Kerb Type	Mountable-M1		fm fct	0.900	na	0.100	nf	0.100	nk	0.013	nc	0.013	np	0.015
Pavement X-fall	33	Zp	Expn	2.667	Da	0.066	Df	0.040	Dk	0.140	Dc	0.025	Dcrn	0.183

Flow m3/s

Type Inlet Descriptions >>>

Half Road Flow			0.774	1.095	1.548	1.896	2.190	2.021	1.795	1.544	1.462	1.366	1.261	1.202	1.122	1.027
Full Road Flow			1.548	2.190	3.097	3.793	4.380	4.043	3.590	<Crn	<Crn	<Crn	<Crn	<Crn	<Crn	<Crn
Flow Width Invert >> Crown			5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.10	4.87	4.64	4.41	4.17	3.94	3.71
D Invert	W Flow	W inv-crn	0.50%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	12.0%	14.0%	16.0%
Reset D Invert		Reset Grades	15-80 x 1mm		55-120 x 1mm		85-150 x 1mm		135-200 x 1mm		80-210x 2mm		90-300 x 3mm		45-500 x 7mm	
0.045	1.04	0.94	0.007	0.010	0.015	0.018	0.021	0.023	0.025	0.027	0.029	0.031	0.033	0.036	0.039	0.041
0.052	1.29	1.17	0.011	0.016	0.023	0.028	0.032	0.036	0.040	0.043	0.046	0.048	0.051	0.056	0.060	0.065
0.059	1.54	1.40	0.017	0.024	0.034	0.041	0.048	0.054	0.059	0.063	0.068	0.072	0.076	0.083	0.090	0.096
0.066	1.78	1.63	0.024	0.034	0.048	0.059	0.068	0.076	0.083	0.090	0.096	0.102	0.107	0.118	0.127	0.136
0.073	2.03	1.86	0.033	0.046	0.066	0.080	0.093	0.104	0.113	0.123	0.131	0.139	0.147	0.161	0.173	0.185
0.080	2.28	2.10	0.043	0.061	0.087	0.106	0.123	0.137	0.150	0.162	0.174	0.184	0.194	0.213	0.230	0.245
0.087	2.52	2.33	0.056	0.079	0.112	0.137	0.158	0.177	0.194	0.210	0.224	0.238	0.251	0.274	0.296	0.317
0.094	2.77	2.56	0.071	0.100	0.142	0.173	0.200	0.224	0.245	0.265	0.283	0.300	0.317	0.347	0.375	0.401

In addition, the GPT access pad (Pit 9/1) adjacent the intersection of Wabul Road and "Road 2" grades away from the road and will provide additional outlet capacity.

As such, considering the underground system has been assumed to convey no flow and the additional flow outlet capacity at the GPT pad, these calculations are considered to be very conservative.

13. The southern diversion drain shown on Cardno Drawing Q184103-CI-1266 shows a longitudinal grade of 0.06% for 200m. This is not acceptable to Council and the design must be revised to ensure that there will not be issues with standing water and that the capacity of the drain is appropriate to provide immunity to the adjoining developed land. Calculations on the catchment, runoff and capacity of the drain are to be provided.

    The detail has been amended to provide a min 300mm bund instead. The existing natural flow path is approx. 30m south of the bund, flowing eastwards parallel to the bund.

    The area to the south of the bund will be regraded to ensure it drains freely to the natural low point in the existing paddock.

14. The eastern diversion drain shown on Cardno Drawing Q184103-CI-1267 does not include chainages or sufficient setout for Council officers to review the levels and the relationship to the outlet 10/1. In addition, the longitudinal section shows a grade of 0.1%. As per the previous condition, this flat grade is not supported by Council for operational and maintenance reasons and potential health issues with standing water. Appropriate calculations are required to demonstrate drainage capacity.

    The setout information and drain longsection has been amended to provide a 0.5% grade.

15. Drainage outlet 10/1 does not drain to the invert of the eastern drain. Provide details of the grading and capacity of the drain including upstream (diversion drain) flows. The starting tailwater level must be justified based on drain hydraulics or backwater flooding per the flood model, whichever is the greater.

    The drain longsection has been amended to provide a 0.5% grade. The drain capacity for a 300mm deep, 1m wide, flat bottom, grass lined swale is approximately 0.7m^3/s. It is noted, as per the response to RFI#7, the detention basin is expected to have commenced filling at this stage.

Water Reticulation

16. Provide details of the 100mm dia and 63mm dia water mains crossing over the proposed 7 /2700x900 RCBC on Wabul Street.

    A teleconference with Water and Waste on 7th February 2020 requested further amendments to the water reticulation to remove the rider mains and adopt a more typical SEQ Water reticulation layout rather than the FNQROC standard. The Water Reticulation has been redesigned to provide a single main on one side of the road with road crossings servicing the lots on the other side of the road.

    Refer revised water reticulation drawing Q184103-CI-1350. The details for the water service crossing are included in Detail B. The proposed structural bracket details are shown on Q184103-CI-1271.

17. Drawings to include details of trunk water main along Captain Cook Highway in accordance with Conditions 8.c. and 10.a

The teleconference with Councils Water and Waste team on 7th February 2020 and further correspondence via email has resulted in the following agreement:

- **300mm trunk watermain not required for Stage 1. The 300mm main connection will be required to be constructed in the eastern verge of the Captain Cook Highway in conjunction with the Stage 3 works. See staging plan attached.**

The email correspondence is also attached.

Sewer Reticulation

18. Noting amendments required to the design from the earthworks and roadworks RFI items above, the sewer reticulation grading is to be revised and optimised so that gravity sewers shall have a depth of no greater than 3m in accordance with the FNQROC Development Manual.

    A sewer Masterplanning Drawing is attached which shows the future sewer layout.

    Due to the length to the sewer main running from the future stages to the south, the Stage 1 works will involve the deepest sections of sewer.

    The deeper sections of sewer have been re-routed to be adjacent the road verges.

Sewage Pump Station and Rising Main

19. In accordance with Condition 8.a., the applicant is to meet with Council Sewerage Officers to confirm known capacity issues and determine a suitable connection point where sufficient capacity exists.

    The teleconference with Councils Water and Waste team on 7th February 2020 and further correspondence via email has resulted in the following:

    - **Council requested an interim sewer discharge point for the early stages of the proposed development as the 300mm Rising Main at Beor St is currently disused and would likely require regular flushing / maintenance due to the lower loads in the early stages. Cardno undertook additional sewer modelling at Councils request.**
    - **As such, the proposed Sewer RM discharge point has been amended. The revised discharge point has enough capacity for Stages 1-3 and some of Stage 4.**

    The Water and Sewer Report has been updated accordingly.

    Please see attached correspondence regarding the interim connection.

20. Provide advice as to why minimum rising main velocity of 0. 75m/s is not achieved.

    This query was related to the previous rising main which was discharging to the existing 300mm Rising Main at the Beor St / Captain Cook Highway Intersection.

    The revised rising main drawings for the interim connection to the Council wastewater network, as discussed in the response to RFI#19 above, will be issued to Council for Approval prior to arranging the pre-start meeting.

21. Sewage Pump Station access and pad area details to be shown on drawings in accordance with Condition 10.b. It is noted that Trunk Infrastructure drawing Q184103-CI-003(3) refers to civil drawings for these details which appear to be missing from the drawings.

    This has been added to civil drawings, see Drawing Q184103-CI-003

22. The Engineering Drawings provided for the pump station do not comply with FNQROC D7.17. With reference to D7.17, please provide a 'project specific design drawing' which includes:

a) Generator building (if applicable);
b) Switchboard drawings;
c) Detailed cross-section and plan of emergency storage infrastructure, or calculations confirming additional emergency storage infrastructure is not required;
d) Calculations supporting the provision of wet well storage;
e) Calculations showing that flotation forces are counteracted for all buried or partially buried structures; and
f) Structural calculations where necessary for the pump well and associated works;

Alternatively, where the pump station is proposed to be a packaged system, please include a notation requiring the details to be provided prior to placing the order. Elements including storage volume and times should be provided with the response to this request for further information.

As discussed with Councils Water and Waste team on 7th February 2020 at the teleconference meeting, the proposed pump station is a packaged system to be supplied by Mullally and the SCADA integration is to be supplied by Welcon. The Construction documentation is to be Approved by Council prior to arranging the pre-start meeting.

A spreadsheet is provided which demonstrates the storage volumes in the pump station and nearby sewer pits can cater for the 4 x ADWF for the full development.

General

23. Provide details for vehicle access gate between lots 19 and 20 to allow vehicular access to the drainage reserve in accordance with Condition 3.d.

    The drainage reserve access is proposed to be “Park Access Gate” as per FNQROC standard drawing S9010.
    Note added to drawing Q184103-CI-1003.

24. Confirmation is required as to why the proposed Ergon pad mount substation and cable connection to Road 5 cul-de-sac are shown as easement in the park lot rather than road reserve or freehold lot in favour of Ergon Energy.

    The proposed Ergon pad mount substation and cable connection to Road 5 cul-de-sac will become a road reserve.
    The area designated as “Park” will become a Council freehold lot.

25. Civil Works drawings included in “Appendix C.1" are noted as “For Approval - Not To Be Used For Construction Purposes". These drawings are to be approved by a suitably qualified RPEQ and submitted to Council prior to the pre-start meeting.

    Noted.

26. External Works drawings included in “Appendix C.2 - Trunk Infrastructure" are noted as Preliminary Only-Not To Be Used For Construction Purposes". These drawings are to be approved by a suitably qualified RPEQ and submitted to Council prior to the pre-start meeting.

    Noted.

Advice Statement

Douglas Shire Council will nominate the installation location of district water meters (required under Condition 10.c of the ROL approval) as a condition of the operational works approval.

Noted.

Cardno (QLD) Pty Ltd | ABN 57 051 074 992
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PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

COVER SHEET

DATE PLOTTED: 1 April 2020 11:44 AM BY : MARY DOZA
CAD File: C:\Users\mary.doza\Documents_C DRIVE_\JOBS\PORT DOUGLAS_Acad\Q184103-CI-1000.dwg

Q184103-CI-1000
Drawing Number

B
Revision

DATE PLOTTED: 1 April 2020 12:05 PM BY: MARY DOZA

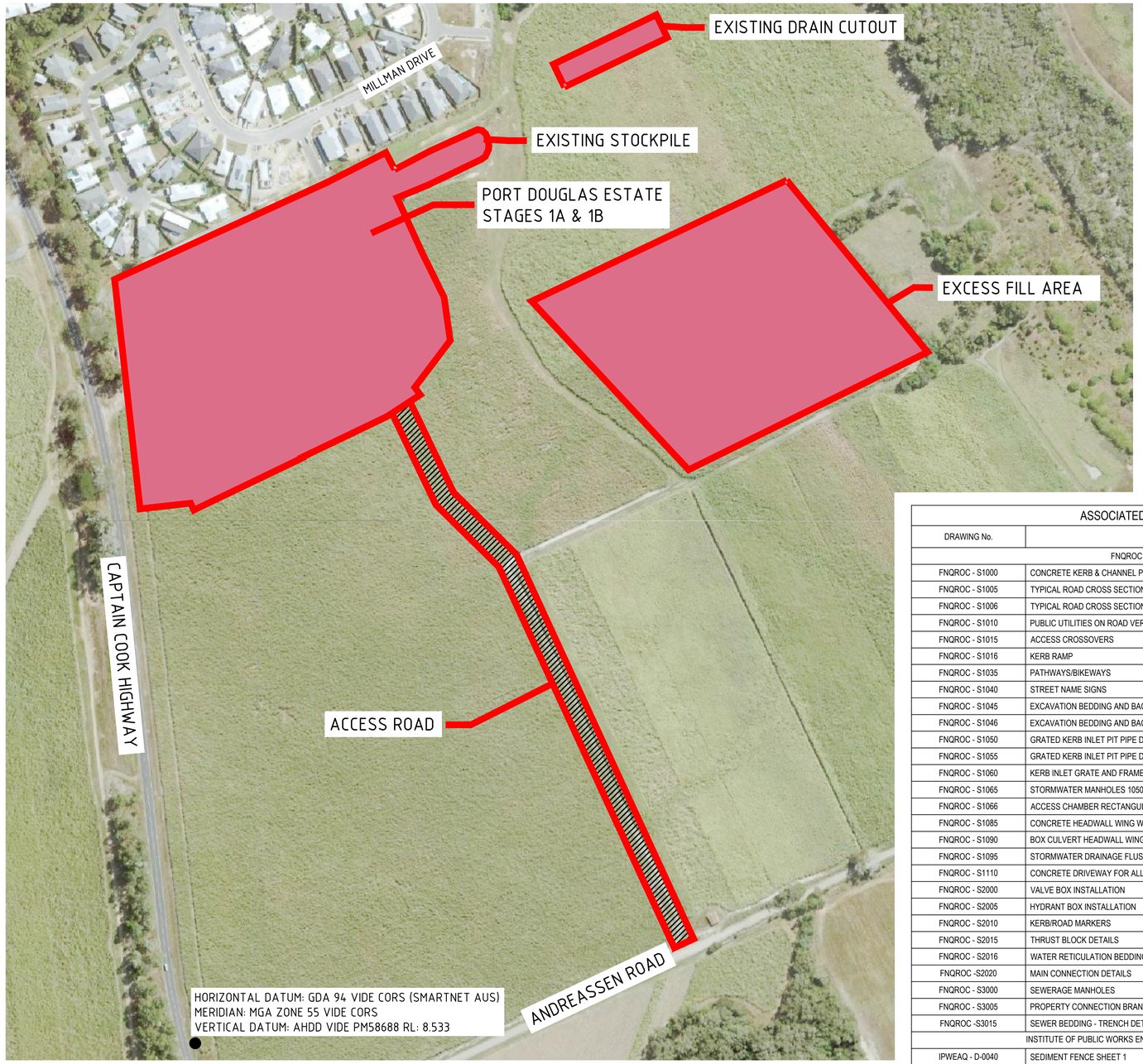
SCHEDULE OF DRAWINGS

DRAWING No.	DESCRIPTION
Q184103-CI-1000	COVER SHEET
Q184103-CI-1001	DRAWING SCHEDULE AND LOCALITY PLAN
Q184103-CI-1002	NOTES
Q184103-CI-1003	OVERALL SITE PLAN SHEET 1 OF 2
Q184103-CI-1004	OVERALL SITE PLAN SHEET 2 OF 2
Q184103-CI-1005	SEDIMENT CONTROL DETAILS SHEET 1 OF 2
Q184103-CI-1006	SEDIMENT CONTROL DETAILS SHEET 2 OF 2
EARTHWORKS	
Q184103-CI-1100	BULK EARTHWORKS PLAN
Q184103-CI-1101	EXCESS CUT STOCKPILING PLAN
Q184103-CI-1102	SITE CROSS SECTIONS
ROADWORKS	
Q184103-CI-1200	ROADWORKS PLAN
Q184103-CI-1201	ROADWORKS - TYPICAL CROSS SECTIONS
Q184103-CI-1202	WABUL STREET LONGITUDINAL SECTION & CROSS SECTIONS
Q184103-CI-1203	WABUL STREET CROSS SECTIONS
Q184103-CI-1204	ROAD 2 LONGITUDINAL SECTION
Q184103-CI-1205	ROAD 2 CROSS SECTIONS SHEET 1 OF 2
Q184103-CI-1206	ROAD 2 CROSS SECTIONS SHEET 2 OF 2
Q184103-CI-1207	ROAD 3 LONGITUDINAL SECTION & CROSS SECTIONS
Q184103-CI-1208	ROAD 4 LONGITUDINAL SECTION & CROSS SECTIONS
Q184103-CI-1209	ROAD 5 LONGITUDINAL SECTION
Q184103-CI-1210	ROAD 5 CROSS SECTIONS
Q184103-CI-1211	INTERSECTION PLAN SHEET 1 OF 6
Q184103-CI-1212	INTERSECTION PLAN SHEET 2 OF 6
Q184103-CI-1213	INTERSECTION PLAN SHEET 3 OF 6
Q184103-CI-1214	INTERSECTION PLAN SHEET 4 OF 6
Q184103-CI-1215	INTERSECTION PLAN SHEET 5 OF 6
Q184103-CI-1216	INTERSECTION PLAN SHEET 6 OF 6
DRAINAGE	
Q184103-CI-1250	STORMWATER LAYOUT PLAN
Q184103-CI-1251	STORMWATER CATCHMENT PLAN
Q184103-CI-1252	STORMWATER LONGITUDINAL SECTIONS SHEET 1 OF 2
Q184103-CI-1253	STORMWATER LONGITUDINAL SECTIONS SHEET 2 OF 2
Q184103-CI-1260	STORMWATER CALCULATION TABLES SHEET 1 OF 2
Q184103-CI-1261	STORMWATER CALCULATION TABLES SHEET 2 OF 2
Q184103-CI-1262	CULVERT LAYOUT PLAN
Q184103-CI-1263	CULVERT SECTION PLAN
Q184103-CI-1264	DRAIN DESIGN SHEET 1 OF 2
Q184103-CI-1265	DRAIN DESIGN SHEET 2 OF 2
Q184103-CI-1266	SOUTHERN DIVERSION DRAIN
Q184103-CI-1267	EASTERN DIVERSION DRAIN
Q184103-CI-1268	EXISTING DRAIN CROSS SECTIONS SHEET 1 OF 3
Q184103-CI-1269	EXISTING DRAIN CROSS SECTIONS SHEET 2 OF 3
Q184103-CI-1270	EXISTING DRAIN CROSS SECTIONS SHEET 3 OF 3
Q184103-CI-1271	CULVERT DETAILS PLAN
SEWERAGE	
Q184103-CI-1300	SEWER LAYOUT PLAN
Q184103-CI-1301	SEWER LONGITUDINAL SECTIONS SHEET 1 OF 2
Q184103-CI-1302	SEWER LONGITUDINAL SECTIONS SHEET 2 OF 2
WATER	
Q184103-CI-1350	WATER LAYOUT PLAN
MISCELLANEOUS	
Q184103-CI-1400	EROSION AND SEDIMENT CONTROL STRATEGY
Q184103-CI-1401	VEGETATION MANAGEMENT PLAN
Q184103-CI-1402	MISCELLANEOUS DETAILS PLAN
Q184103-CI-1403	COMBINED SERVICES PLAN
Q184103-CI-1404	RETAINING WALL DETAILS PLAN

LEGEND:

EXTENT OF WORKS

SITE ACCESS



LOCALITY PLAN
SCALE 1:3000m

ASSOCIATED DRAWINGS SCHEDULE

DRAWING No.	DESCRIPTION
FNQROC DEVELOPMENT MANUAL	
FNQROC - S1000	CONCRETE KERB & CHANNEL PROFILES & DIMENSIONS
FNQROC - S1005	TYPICAL ROAD CROSS SECTIONS SHEET 1
FNQROC - S1006	TYPICAL ROAD CROSS SECTIONS SHEET 2
FNQROC - S1010	PUBLIC UTILITIES ON ROAD VERGES
FNQROC - S1015	ACCESS CROSSOVERS
FNQROC - S1016	KERB RAMP
FNQROC - S1035	PATHWAYS/BIKEWAYS
FNQROC - S1040	STREET NAME SIGNS
FNQROC - S1045	EXCAVATION BEDDING AND BACKFILLING OF PRECAST BOX CULVERTS
FNQROC - S1046	EXCAVATION BEDDING AND BACKFILLING OF CONCRETE PIPES
FNQROC - S1050	GRATED KERB INLET PIT PIPE DIA. LESS THAN 600mm
FNQROC - S1055	GRATED KERB INLET PIT PIPE DIA. GREATER THAN 600mm
FNQROC - S1060	KERB INLET GRATE AND FRAME
FNQROC - S1065	STORMWATER MANHOLES 1050 TO 1500
FNQROC - S1066	ACCESS CHAMBER RECTANGULAR ROOF SLAB
FNQROC - S1085	CONCRETE HEADWALL WING WALLS AND APRON
FNQROC - S1090	BOX CULVERT HEADWALL WINGWALLS AND APRON
FNQROC - S1095	STORMWATER DRAINAGE FLUSHING POINTS OUTLET
FNQROC - S1110	CONCRETE DRIVEWAY FOR ALLOTMENT ACCESS
FNQROC - S2000	VALVE BOX INSTALLATION
FNQROC - S2005	HYDRANT BOX INSTALLATION
FNQROC - S2010	KERB/ROAD MARKERS
FNQROC - S2015	THRUST BLOCK DETAILS
FNQROC - S2016	WATER RETICULATION BEDDING DETAILS
FNQROC -S2020	MAIN CONNECTION DETAILS
FNQROC - S3000	SEWERAGE MANHOLES
FNQROC - S3005	PROPERTY CONNECTION BRANCHES
FNQROC -S3015	SEWER BEDDING - TRENCH DETAILS
INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALIA QUEENSLAND (IPWEAQ)	
IPWEAQ - D-0040	SEDIMENT FENCE SHEET 1
IPWEAQ - D-0041	SEDIMENT CONTROL DEVICES SHEET 2
MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)	
DEPARTMENT OF TRANSPORT AND MAIN ROADS	
SD1250	RC BOX BULVERTS & SLAB LINK CULVERTS - CULVERT HEIGHTS > 600

Rev.	Date	Description	Des.	Verif.	Appd.
C	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
B	22.10.2019	EXCESS FILL AREA REVISED	MS	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

0 50 100 200 300m
SCALE 1:3000 @A1

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Checked	MS	Date 10.10.2019
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Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: DRAWING SCHEDULE AND LOCALITY PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1001
Revision: C

XREFs: GOOGLE EARTH
CAD File: C:\Users\mary.doza\Documents_C DRIVE_JOBS\PORT DOUGLAS_Acad\Q184103-CI-1001.dwg

DATE PLOTTED: 1 April 2020 11:44 AM BY: MARY DOZA

GENERAL

G1 IF IN DOUBT ASK.
G2 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATIONS INCLUDING FNQROC AND ALL INFORMATION ISSUED BY THE SUPERINTENDENT DURING THE COURSE OF THE CONTRACT AND INCLUDES THE DOUGLAS SHIRE COUNCIL DECISION NOTICE.
G3 ALL LEVELS ARE TO AHD.
G4 ALL CO-ORDINATES ARE TO MGA ZONE 55.
G5 ALL SET OUT SHALL BE RELATED TO ROAD CENTRE LINES.
G6 ALL DIMENSIONS AND RADII ARE EXPRESSED IN METRES (UNO).
G7 DRAWINGS SHALL NOT BE SCALED.
G8 EXISTING CONTOURS, LEVELS AND FEATURES SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY AND ARE BASED ON SURVEY DRAWINGS AND DATA PROVIDED BY CARDNO (QLD) PTY LTD CONSULTING SURVEYORS.
G9 ALL DIMENSIONS RELEVANT TO SETTING OUT, SURFACE LEVELS AND INVERT LEVELS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE SUPERINTENDENT.
G10 THE CONTRACTOR SHALL ENSURE THAT ALL WORKS ARE MAINTAINED IN A SAFE AND STABLE CONDITION AND THAT ADEQUATE PROTECTION AGAINST EROSION AND SILTATION IS IN PLACE.
G11 WORKMANSHIP AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RELEVANT STANDARDS AND THE REQUIREMENTS OF DOUGLAS SHIRE COUNCIL AND OTHER AUTHORITIES SHALL BE MAINTAINED.
G12 GRADE EVENLY BETWEEN LEVELS SHOWN EXCEPT WHERE LEVELS INDICATE VERTICAL CURVES.
G13 THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION PROTECTION AND SEDIMENT CONTROL FOR THE WORKS AS SPECIFIED AND TO THE SATISFACTION OF DOUGLAS SHIRE COUNCIL.
G14 REFER FNQROC DEVELOPMENT MANUAL

SITE CLEARANCE

C1 THE SITE SHALL BE CLEARED ONLY TO THE EXTENT NECESSARY TO PERMIT CONSTRUCTION OF THE PERMANENT WORKS U.N.O.
C2 AREAS TO BE USED FOR STOCKPILING EXCESS EXCAVATED MATERIALS SHALL BE CLEARED AND STRIPPED OF TOPSOIL AND OTHER UNSUITABLE MATERIAL.
C3 ALL ITEMS NOMINATED ON THE DRAWINGS TO BE REMOVED ARE TO BE DISPOSED OF OFF SITE. REMOVED VEGETATION IS TO HAVE ALL ROOTS GRUBBED OUT AND DISPOSED OF OFF SITE. ALL OFFSITE DISPOSAL IS AT CONTRACTORS EXPENSE.

EARTHWORKS

E1 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).
E2 STRIP ALL VEGETAL MATTER, TOPSOIL AND OTHER UNSUITABLE MATERIAL FROM AREAS TO BE EXCAVATED OR FILLED. STOCKPILE SUITABLE TOPSOIL MATERIAL IN APPROVED LOCATIONS FOR SUBSEQUENT RE-USE.
E3 EXCAVATE AS REQUIRED AND DEPOSIT EXCAVATED MATERIAL AS NECESSARY. COMPACT SURFACES EXPOSED BY STRIPPING OR EXCAVATION TO 98% DRY DENSITY RATIO TO A DEPTH OF AT LEAST 250mm, SHOULD ANY SOFT OR UNSUITABLE MATERIAL BE IDENTIFIED SEEK THE ADVICE OF THE SUPERINTENDENT.
E4 COMPACT FILL TO 98% DRY DENSITY RATIO IN LAYERS OF THICKNESS APPROPRIATE TO THE COMPACTION PLANT EMPLOYED BUT NOT EXCEEDING 200mm.
E5 ALL MATERIALS WITHIN 300mm BELOW ROAD PAVEMENT/SUBGRADE INTERFACE SHALL BE COMPACTED TO 98% DRY DENSITY RATIO.
E6 IN PLACING FILL IN AND AROUND ROAD FOOTPATHS AND BATTERS ALLOW FOR TOPSOIL THICKNESS AS DETERMINED ON BASIS OF ACTUAL TOPSOIL MATERIALS BALANCE.
E7 ALL AREAS EXPOSED BY EARTHWORKS SHALL BE TOPSOILED AND GRASSED BY DRILL SEEDING EXCEPT THAT HYDROMULCHING IS REQUIRED ON BATTERS STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL. ALL AREAS TO BE GRASSED WILL HAVE 80% ROOT MAT AT THE END OF DEFECTS LIABILITY PERIOD AND SHALL BE FREE OF ROCK AND LOOSE STONE WHEN WORKS ARE TAKEN "ON MAINTENANCE".
E8 CONTROL TESTING OF BULK EARTHWORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH A.S.3798 - 2007.
E9 ALL EARTHWORKS ARE TO BE CONTROLLED BY LEVEL 1 INSPECTION AND TESTING BY A QUALIFIED GEOTECHNICAL, TESTING AND INSPECTION AUTHORITY.
E10 COMPACTION TEST FREQUENCY FOR EARTHWORKS ARE TO BE IN ACCORDANCE WITH TABLE 8.1 OF AS3798-2007.
E11 MINIMUM RELATIVE COMPACTION STANDARDS FOR EARTHWORKS ARE TO BE IN ACCORDANCE WITH TABLE 5.1 OF AS3798-2007.
E12 FOR SETTING OUT DETAILS OF ROADS AND KERB REFER TO TYPICAL CROSS SECTIONS, ROAD SETTING OUT DETAILS AND INTERSECTION DETAILS.
E13 LOTS ARE TO BE GRADED EVENLY BETWEEN FINISHED SURFACE LEVELS SHOWN UNLESS OTHERWISE NOTED.
E14 EXCESS MATERIAL FROM EXCAVATION IS TO BE MOVED TO FUTURE STAGE.
E15 REFER VEGETATION MANAGEMENT PLAN FOR CLEARING DETAILS
E16 ALL EXISTING SERVICES SHALL BE CHECKED FOR CLEARANCE PRIOR TO CONSTRUCTION.
E17 FINISHED SURFACE LEVELS SHOWN ON ALLOTMENTS (EXCLUDING VERGES) ARE AT COMPLETION OF EARTHWORKS AND TOPSOILING.
E18 ALL AREAS EXPOSED BY EARTHWORKS SHALL BE TOPSOILED AND GRASSED BY DRILL SEEDING EXCEPT THAT HYDROMULCHING IS REQUIRED ON BATTERS STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL. ALL AREAS TO BE GRASSED WILL HAVE 80% ROOT MAT AT THE END OF DEFECTS LIABILITY PERIOD AND SHALL BE FREE OF ROCK AND LOOSE STONE WHEN WORKS ARE TAKEN "ON MAINTENANCE".
E19 WHERE BATTERS FRONT A ROAD, ENSURE THERE IS AN EXTENSION OF VERGE GRADE INTO LOT WITH GRADE TO MATCH. REFER FNQROC STD. DWG. S1005 FOR DETAILS

DRAINAGE

D1 STORMWATER DRAINAGE PIPE SHALL BE RCP FJ CLASS 2 PIPE UNO. JOINTS TO HAVE MANUFACTURER APPROVED BANDS AT ALL JOINTS TO PREVENT MOVEMENT OF FINE MATERIAL THROUGH JOINT e.g. ROCLA SAND BANDS
D2 BEDDING SHALL BE TYPE HS2 AS SPECIFIED IN AS3725.
D3 PIPE LAYING SHALL COMMENCE AT THE DOWNSTREAM END OF THE WORKS AT ALL TIMES.
D4 STORMWATER HEADWALLS TO BE CONSTRUCTED AS DETAILED ON FNQROC STANDARD DRAWING S1080. SEEK SUPERINTENDENTS APPROVAL OF VARIATION PRIOR TO CONSTRUCTION. LIDS SHALL BE CAST AFTER COMPLETION OF ALL EARTHWORKS
D5 STORMWATER KERB INLET PITS TO BE CONSTRUCTED AS DETAILED ON FNQROC STANDARD DRAWINGS S1050, S1055 AND S1060 U.N.O. REFER PLANS FOR POSITION OF LINTEL IN RELATION TO GRATE. THE NOTATIONS OF "SAG" AND "ON-GRADE" ON DRAINAGE LONG SECTIONS RELATES TO FLOW CHARACTERISTICS - NOT GRATE/LINTEL ARRANGEMENT.
D6 ALL "FINISHED SURFACE LEVELS" ON STORMWATER LONG SECTIONS ARE BASED ON TOP OF KERB FOR KERB INLETS OR TOP OF MANHOLE FOR MANHOLES AND GPT'S.
D7 SUBSOIL DRAIN MIN GRADE 0.5%. REFER FNQROC STD DWG S1095 FOR DETAILS
D8 ALL STORMWATER DRAINAGE LINES SHALL HAVE CCTV SURVEY COMPLETED IN ACCORDANCE WITH THE FNQROC DEVELOPMENT MANUAL.
D9 ALL TOP OF PIT, INLETS AND GPT UNITS TO BE CONFIRMED BY CONTRACTOR ON SITE PRIOR TO ORDERING. ANY VARIATION IN LEVELS FROM THE DESIGN PLANS TO BE REPORTED TO THE SUPERINTENDENT
D10 ALL TOP OF PIT, INLETS AND GPT UNITS TO BE CONFIRMED BY CONTRACTOR ON SITE PRIOR TO ORDERING. ANY VARIATION IN LEVELS FROM THE DESIGN PLANS TO BE REPORTED TO THE SUPERINTENDENT
D11 STORMWATER INFRASTRUCTURE TESTING AND HOLD POINTS SHALL BE AS PER THE FNQROC "CONSTRUCTION PROCEDURES" MANUAL.

WATER

W1 CONTRACTOR SHALL ADVISE DOUGLAS SHIRE COUNCIL PRIOR TO UNDERTAKING ANY SEWERAGE AND WATER RELATED WORK.
W2 COMPLY WITH FNQROC - STANDARD DRAWINGS.
W3 POTABLE WATER MAINS TO BE INSTALLED 2.80m FROM PROPERTY BOUNDARY U.N.O. GENERALLY IN ACCORDANCE WITH FNQROC STD. DWG S1010.
W4 CONNECTION TO EXISTING MAINS TO BE CARRIED OUT BY DOUGLAS SHIRE COUNCIL AT THE CONTRACTOR'S EXPENSE.
W5 ALL PVC WATER MAINS SHALL BE CLASS 16 PVC-M RUBBER RING JOINTED U.N.O. ALL DICL WATER MAINS SHALL BE PN35 DICL RUBBER RING JOINTED U.N.O. ALL 63Ø POLY PIPES SHALL BE MDPE CLASS 16.
W6 WATER MAINS 225Ø OR GREATER SHALL HAVE 900mm MINIMUM COVER.
W7 BEDDING AND SURROUND TO PIPES AND FITTINGS SHALL BE IN IN ACCORDANCE WITH FNQROC STANDARD DRAWING S2016
W8 HYDRANTS AND VALVES ARE TO BE NYLON POWDER COATED OR EQUIVALENT AND HYDRANTS ARE TO BE OF THE MAXI-FLOW TYPE.
W9 HYDRANTS TO BE IDENTIFIED BY KERB MARKER PLATE AND BLUE RETRO-REFLECTIVE MARKER IN ACCORDANCE WITH FNQROC STANDARD DRAWING S2010 & S2005
W10 VALVES TO BE IDENTIFIED BY KERB MARKER PLATE AND YELLOW RETRO-REFLECTIVE MARKER IN ACCORDANCE WITH FNQROC STANDARD DRAWING S2010
W11 WATER MAINS CROSSING ROADS SHALL BE PN35 DICL FOR THE FULL ROAD CROSSING WIDTH, FINISHING 100mm BEHIND THE BACK OF KERB AND CHANNEL AT A MINIMUM AND AS SHOWN ON THE DRAWINGS.
W12 MINIMUM TEST PRESSURE OF WATER MAINS SHALL BE 1200kPa. IN ACCORDANCE WITH DOUGLAS SHIRE COUNCIL AND FNQROC SPECIFICATIONS.
W13 EXISTING HYDRANTS OR VALVES SHALL BE PROVIDED WITH NEW COVER BOXES AND SURROUNDS AS PER FNQROC STD. DWGS. S2000 AND S2005.
W14 WHERE VALVE SURROUNDS ARE TO BE SET IN CONCRETE, A COMPRESSIBLE LAYER IS TO BE PROVIDED TO ALLOW FOR MAINTENANCE
W15 LOWER WATER MAIN UNDER ROADS AS NECESSARY TO AVOID SUBGRADE IMPROVEMENT LAYER IF APPLICABLE
W16 WATER INFRASTRUCTURE TESTING AND HOLD POINTS SHALL BE AS PER THE FNQROC "CONSTRUCTION PROCEDURES" MANUAL.

SEWER

S1 PROPERTY CONNECTION BRANCHES SHALL BE 100 DIA. AND TERMINATE AT THE INLET END OF THE INSPECTION PIPE. THE END SHALL BE SEALED WITH PLUG AND CLIP AND THE INVERT LEVEL OF THE BEND SHALL BE AS DIRECTED BY THE SUPERINTENDENT.
S2 ALL SEWER MAINS SHALL BE 150 DIA. UPVC CLASS DWV SN10 R.R.J. UNLESS NOTED OTHERWISE.
S3 MANHOLE LIDS TO BE CONSTRUCTED 50mm ABOVE GROUND LEVEL.OR FLUSH WITH PATHWAYS, ROADWAYS AND PAVED SURFACES
S4 ENSURE MANHOLES ARE 1.5m CLEAR ON 3 SIDES FROM BATTERS. STEEPEN BATTERS LOCALLY IF REQUIRED. MEASUREMENT TAKEN AS A RADIUS AROUND THE CENTRE OF LID.
S5 ENSURE MANHOLES ARE MIN 0.1m CLEAR FROM PROPERTY BOUNDARIES
S6 ENSURE HCBs ARE MIN 0.5m CLEAR FROM PROPERTY BOUNDARIES
S7 WHERE SEWER IS IN VERGE, E2 HCB's SHALL EXTEND PAST TOP OF BATTER MIN 1.0m
S8 SEWER INFRASTRUCTURE TESTING AND HOLD POINTS SHALL BE AS PER THE FNQROC "CONSTRUCTION PROCEDURES" MANUAL.

GEOTECHNICAL

GT1 ETS GEOTECHNICAL HAVE PREPARED A GEOTECHNICAL INVESTIGATION REPORT DATED AUGUST 2019. THE CONTRACTOR IS TO COMPLY WITH THE REPORT OR NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
GT2 ALL EARTHWORKS SHALL BE SUPERVISED IN ACCORDANCE WITH L1 OF AS3798. THE CONTRACTOR SHALL EMPLOY AN RPEQ GEOTECHNICAL CONSULTANT WHO SHALL PROVIDE A CERTIFICATE THAT THE WORKS HAVE BEEN COMPLETED SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION AND TO LEVEL 1 OF AS 3798.
GT3 ALL BATTERS STEEPER THAN 1 IN 2 AND HIGHER THAN 1.5m ARE TO BE CHECKED BY A GEOTECHNICAL ENGINEER AND CERTIFIED AS TO THEIR STABILITY TO SATISFY DOUGLAS SHIRE COUNCIL.
GT4 ALL STRUCTURE DESIGN CRITERIA SHALL BE CONFIRMED ONCE A GEOTECHNICAL INVESTIGATION HAS BEEN COMPLETED. THIS INCLUDES PAVEMENT DESIGN
GT5 ALL BATTERS TO BE CONFIRMED BY GEOTECHNICAL INVESTIGATION RECOMMENDATIONS

ROADWORKS

R1 PAVEMENT DESIGN IS BASED ON SUBGRADE RESULTS AS PER GEOTECHNICAL REPORT AND IS SUBJECT TO REVISION ON THE BASIS OF CONFIRMATORY CBR TESTS OF THE SUBGRADE AT TIME OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE 7 No. CONFIRMATORY SUBGRADE SOAKED CBR TESTING TO THE SUPERINTENDENT AS SOON AS POSSIBLE LOCATIONS TO BE AGREED WITH THE SUPERINTENDENT.
R2 EXCAVATE OR FILL AS NECESSARY TO PAVEMENT/SUBGRADE INTERFACE AS DESCRIBED IN THE SPECIFICATION AND EARTHWORKS NOTES.
R3 PRIOR TO PLACING ROAD PAVEMENT MATERIAL THE SUBGRADE SHALL BE TESTED AND PROOF ROLLED IN THE PRESENCE OF THE SUPERINTENDENT AND DOUGLAS SHIRE COUNCIL'S INSPECTING OFFICER.
R4 PAVEMENT CONSTRUCTION DETAILS SHALL BE AS SHOWN ON DRAWINGS
R5 SUBGRADE AND PAVEMENT TESTING AND HOLD POINTS SHALL BE AS PER THE FNQROC "CONSTRUCTION PROCEDURES" MANUAL.

SAFETY IN CONSTRUCTION

CONSTRUCTION ACTIVITY CAN BE HAZARDOUS. POTENTIAL SAFETY HAZARDS CONSIDERED BY THE DESIGNERS TO HAVE A HIGHER RISK THAN NORMAL CONSTRUCTION ACTIVITY ARE IDENTIFIED WITH APPROPRIATE NOTES ON THESE DRAWINGS. IT SHOULD BE NOTED THAT DESIGNERS HAVE A LOWER UNDERSTANDING OF THE RISKS INVOLVED IN CONSTRUCTION COMPARED WITH THAT OF A COMPETENT CONTRACTOR. IT IS THEREFORE ESSENTIAL THAT AN ADEQUATE SAFETY PLAN FOR THE WORKS IS PREPARED BY THE CONTRACTOR. SAFETY PLANS ARE TO BE PREPARED IN COMPLIANCE WITH THE STATUTORY REQUIREMENTS. THE DESIGNERS MAY NOT BE AWARE OF ALL SAFETY RISKS AND HAZARDS INVOLVED IN THIS PROJECT AND THE ABSENCE OF COMMENT DOES NOT IMPLY THAT THERE ARE ONLY LOW LEVEL RISKS OF HAZARDS INVOLVED IN THE PROJECT. APPROPRIATE WORK METHOD STATEMENTS ARE TO BE PREPARED FOR ANY HIGH RISK ACTIVITY BY THE CONTRACTOR. THE DESIGNERS ARE AVAILABLE TO BE CONSULTED WHEN REQUIRED CONCERNING THEIR AREA OF CONTROL WITH REGARD TO SAFETY PLANS.

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

XREF's:
CAD File: C:\Users\mary.doza\Documents_C DRIVE_\JOBS\PORT DOUGLAS_Acad\Q184103-CI-1002.dwg

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Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: NOTES

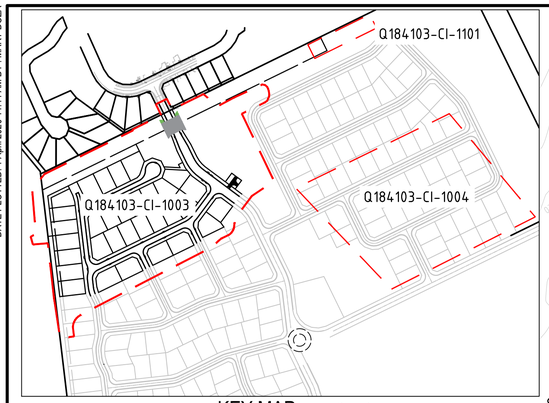
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1002

Revision: B

DATE PLOTTED: 1 April 2020 11:44 AM BY: MARY DOZA



KEY MAP
SCALE 1:4000m

LEGEND:

- STAGE BOUNDARY
- LIMIT OF WORKS
- DRAINAGE RESERVE
- NATURAL SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- 1.8m HIGH TIMBER PACING FENCE
- 1.8m HIGH NOISE MOUND FENCE
- 5 EXISTING 1.54x1.1m CULVERTS

NORTH

RETAIN EXISTING CHANNEL AND ROCK PROTECTION

REFER Q184103-CI-1262 & 1263 FOR ROCK PROTECTION DETAILS

REFER Q184103-CI-1264 & 1265 FOR ROCK PROTECTION DETAILS

INSTALL PARK ACCESS GATE IN ACCORDANCE WITH FNQROC DRAWING S9010

DRAIN 1

PARK

ROAD RESERVE

ROAD 5 — STAGE 1B

STAGE 1A

ROAD 2

ROAD 3

ROAD 4

CAPTAIN COOK HIGHWAY

WABUL STREET

SEWER PUMP STATION

Lot	Area
1	700m²
2	702m²
3	601m²
4	600m²
5	600m²
6	600m²
7	600m²
8	700m²
9	600m²
10	600m²
11	600m²
12	600m²
13	600m²
14	600m²
15	607m²
16	700m²
17	600m²
18	600m²
19	700m²
20	702m²
21	612m²
22	612m²
23	681m²
24	681m²
25	681m²
26	681m²
27	700m²
28	658m²
29	641m²
30	641m²
31	625m²
32	614m²

Lot	SP
17	SP192596
18	SP192596
19	SP192596
20	SP192596
21	SP192596
33	SP276051
34	SP276051
35	SP276051
37	SP276051
38	SP276051

Rev.	Date	Description	Des.	Verif.	Appd.
C	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
B	22.10.2019	EXCESS FILL AREA REVISED	MS	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

0 10 20 30 40 50m
SCALE 1:500 @A1

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		Date
Drawn	JJ	10.10.2019
Checked	MS	10.10.2019
Designed	JJ	10.10.2019
Verified	MS	10.10.2019
Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: OVERALL SITE PLAN
SHEET 1 OF 2

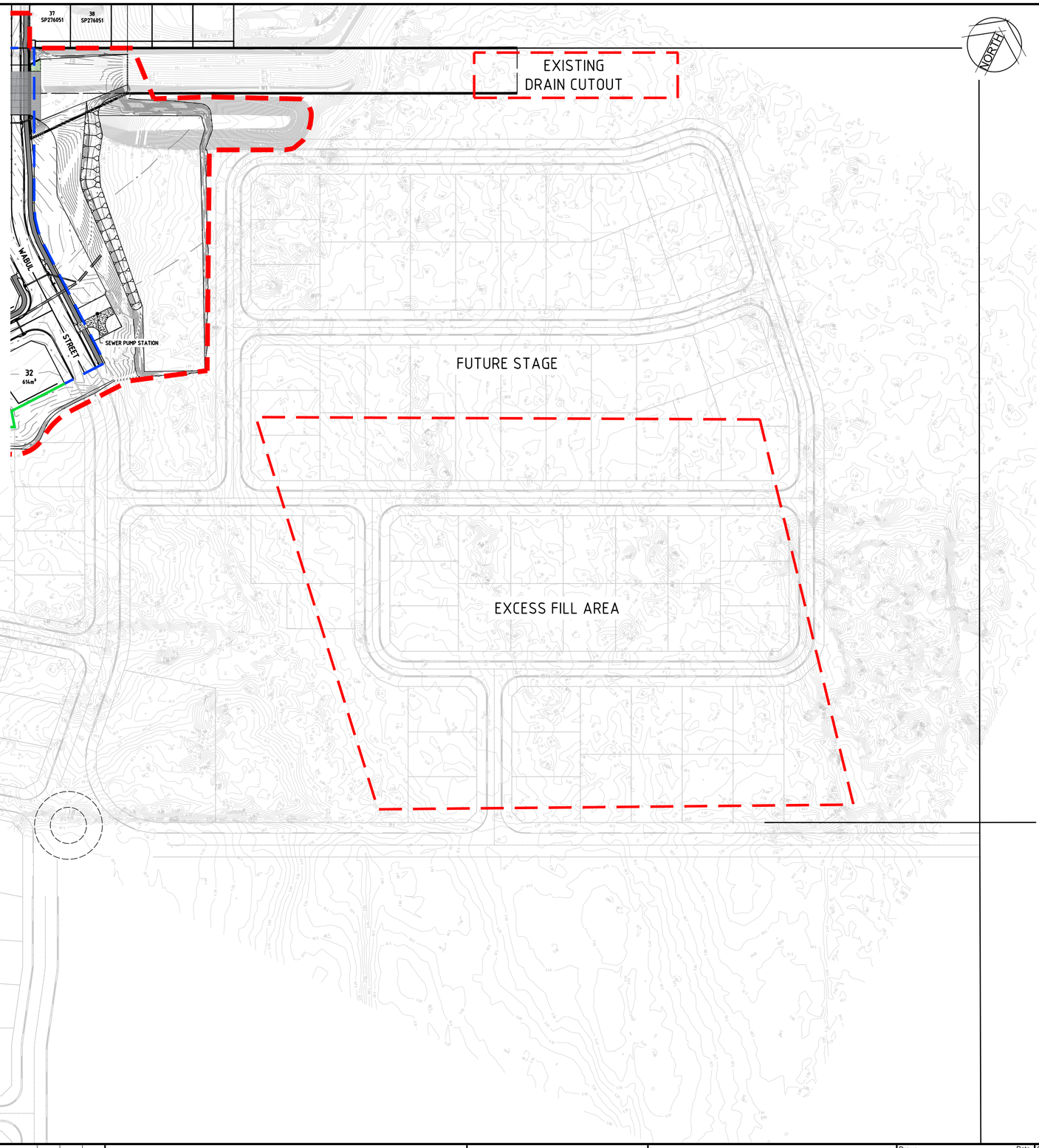
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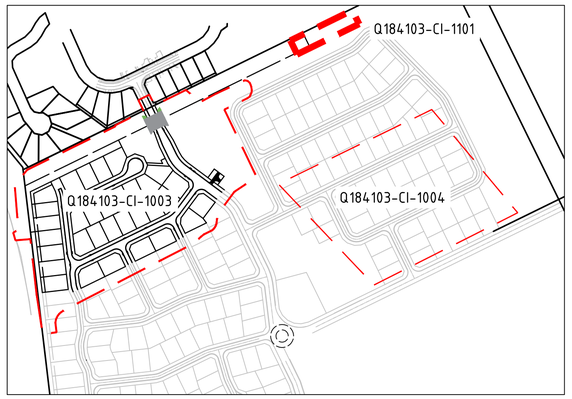
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Revision: C

XREFs: XR-Q184103-CI-BASE, XR-Q184103-SURV, XR-Q184103-DSGN-CNTRS, XR-Q184103-EXST-CNTRS
CAD File: C:\Users\mary.doza\Documents_C DRIVE_JOBS\PORT DOUGLAS_Acad\Q184103-CI-1003-1004.dwg

DATE PLOTTED: 1 April 2020 11:45 AM BY: MARY DOZA





KEY MAP
SCALE 1:4000m

LEGEND:

- SITE BOUNDARY
- LIMIT OF WORKS
- 3.50 NATURAL SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- 3.50 FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)

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0 20 40 60 80 100m
SCALE 1:1000 @A1

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Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: OVERALL SITE PLAN
SHEET 2 OF 2

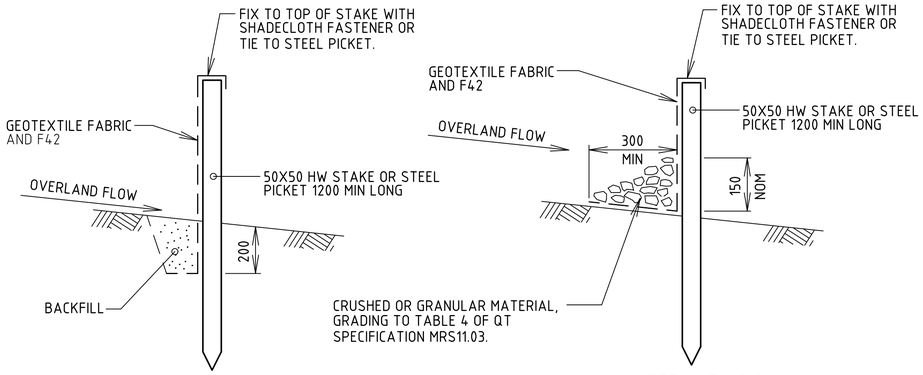
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Drawing Number: Q184103-CI-1004
Revision: C

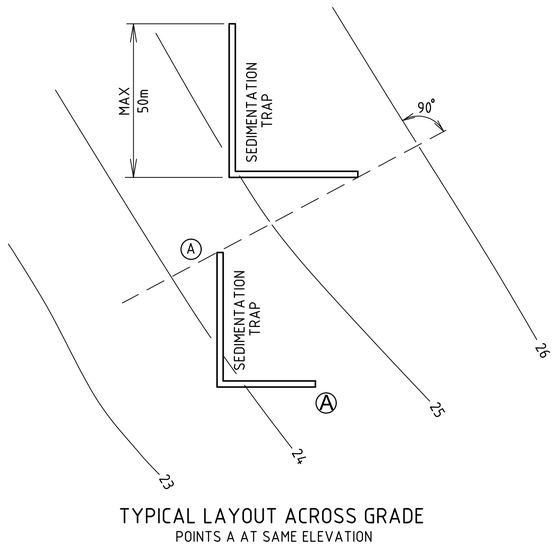
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DATE PLOTTED: 1 April 2020 11:45 AM BY: MARY DOZA

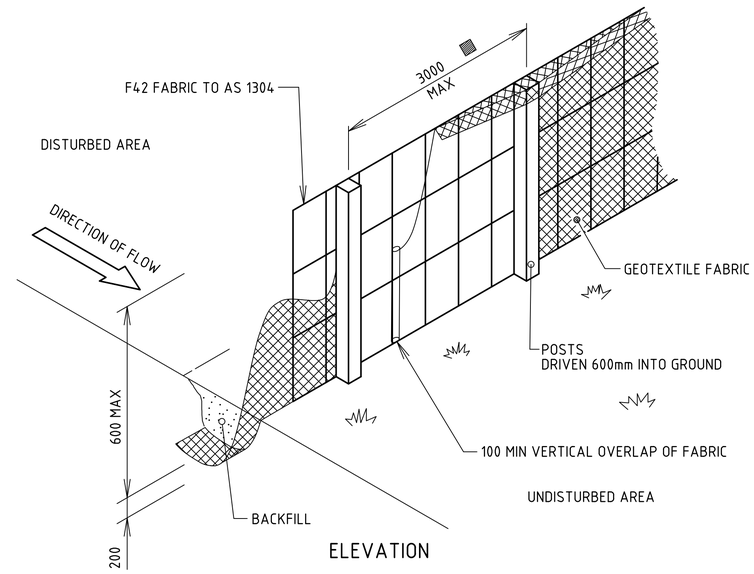


ALTERNATIVE 1

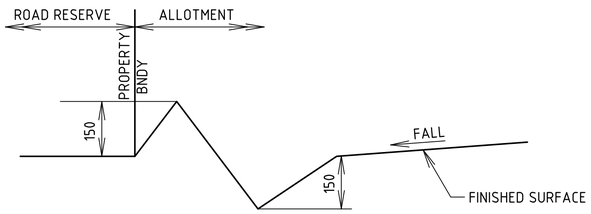
ALTERNATIVE 2



TYPICAL LAYOUT ACROSS GRADE
POINTS A AT SAME ELEVATION

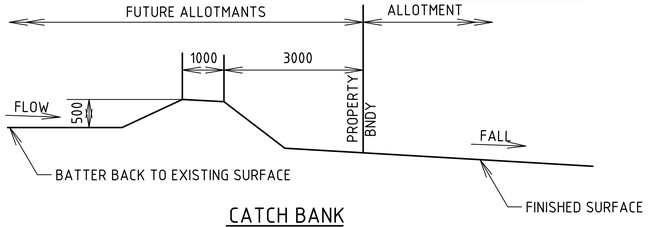


ELEVATION

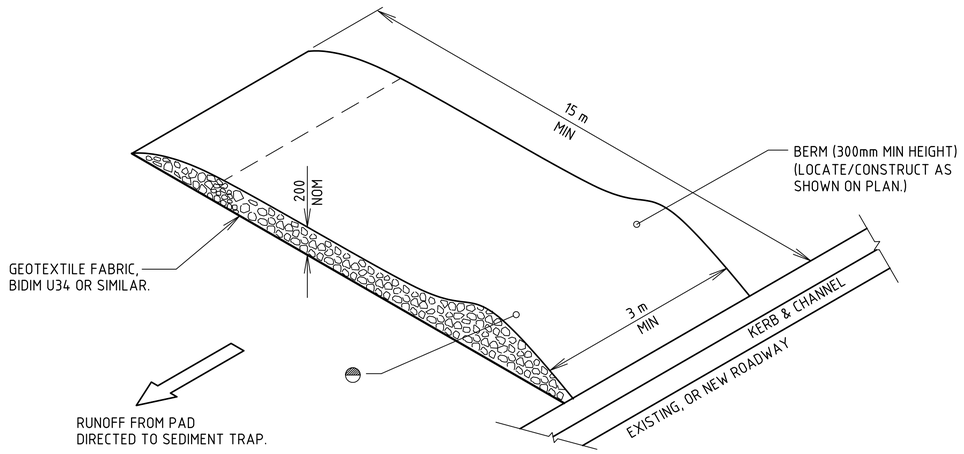


SILT TRAP TRENCH

SEDIMENT FENCE



CATCH BANK



TEMPORARY CONSTRUCTION ENTRY / EXIT
SEDIMENT TRAP

LEGEND

- UNBOUND PAVEMENT MATERIAL (GRAVEL) TO GRADING B, TABLE 9 OF TMR SPECIFICATION MRS11.05, EXCLUDE MATERIAL FINER THAN AS SIEVE 2.36mm.
- WITHOUT F42 FABRIC, 2000 MAX C\C

NOTES

1. GENERAL
   - (A) TEMPORARY DRAINAGE CONTROL. FLOW SHOULD BE DIVERTED AROUND THE WORK SITE WHERE POSSIBLE.
   - (B) ALL DRAINAGE, EROSION AND SEDIMENT CONTROLS TO BE INSTALLED AND BE OPERATIONAL BEFORE COMMENCING UP-SLOPE EARTHWORKS.
   - (C) ALL CONTROL MEASURES TO BE INSPECTED AT LEAST WEEKLY AND AFTER SIGNIFICANT RUNOFF PRODUCING STORMS.
   - (D) CONTROL MEASURES MAY BE REMOVED WHEN ON-SITE EROSION IS CONTROLLED AND 70% PERMANENT SOIL COVERAGE IS OBTAINED OVER ALL UPSTREAM DISTURBED LAND.
   - (E) IN AREAS WHERE RUNOFF TURBIDITY IS TO BE CONTROLLED, EXPOSED SURFACES TO BE EITHER MULCHED, COVERED WITH EROSION CONTROL BLANKETS OR TURFED IF EARTHWORKS ARE EXPECTED TO BE DELAYED FOR MORE THAN 14 DAYS.
2. SEDIMENT FENCE
   - (A) NORMALLY LOCATED ALONG THE CONTOUR WITH A MAXIMUM CATCHMENT AREA 0.6 ha PER 100m LENGTH OF FENCE.
   - (B) WOVEN FABRICS ARE PREFERRED, I.E. OPERATIONAL PERIOD LESS THAN 6 MONTHS OR ON SITES WHERE SIGNIFICANT SEDIMENT RUNOFF IS NOT EXPECTED.
   - (C) WHERE FENCES NEED TO BE LOCATED ACROSS THE CONTOUR THE LAYOUT SHALL CONFORM TO 'TYPICAL LAYOUT ACROSS GRADE'.
   - (D) FENCES ARE REQUIRED 2m MIN FROM TOE OF CUT OR FILL BATTERS, WHERE NOT PRACTICAL ONE FENCE CAN BE AT THE TOE WITH A SECOND FENCE 1m MIN AWAY. FENCE SHOULD NOT BE LOCATED PARALLEL WITH TOE IF CONCENTRATION OF FLOW WILL OCCUR BEHIND THE FENCE.
3. TEMP CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP.
   - (A) ADJACENT STORMWATER RUNOFF TO BE DIVERTED AWAY FROM ENTRY/EXIT.
   - (B) WHEEL – WASH OR SPRAY UNIT MAY BE REQUIRED DURING WET WEATHER.
4. SAFETY ISSUES MUST BE CONSIDERED AT ALL TIMES, INCORPORATE TRAFFIC CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT.
5. ALL DIMENSIONS IN MILLIMETRES UNLESS INDICATED OTHERWISE.

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Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: SEDIMENT CONTROL DETAILS
SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

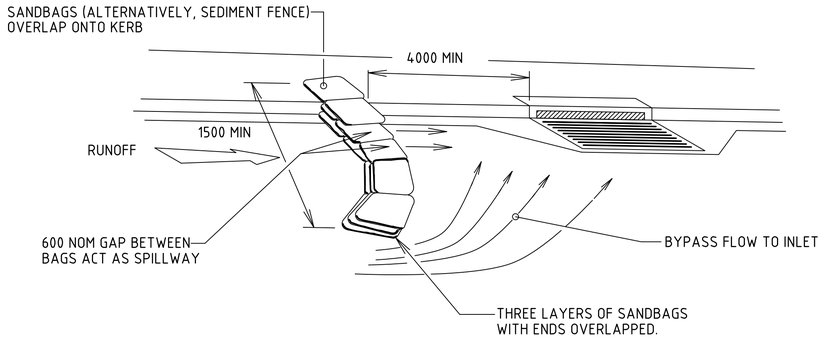
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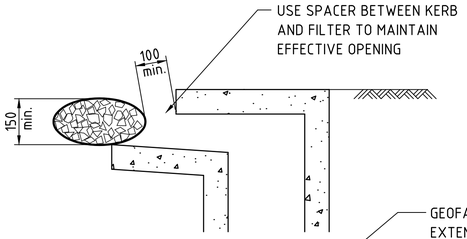
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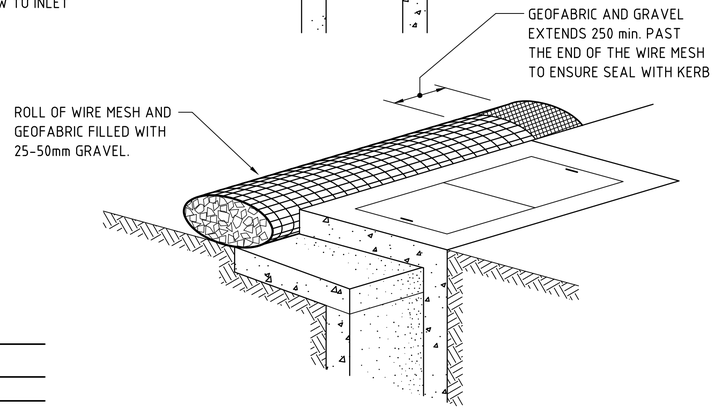
XREFs:
CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1005-1006.dwg

DATE PLOTTED: 1 April 2020 11:45 AM BY: MARY DOZA



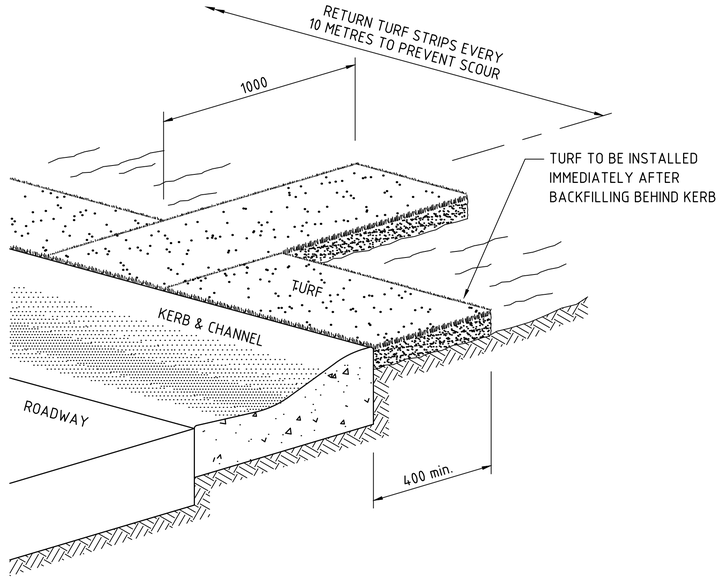
ON GRADE KERB INLET SEDIMENT TRAP





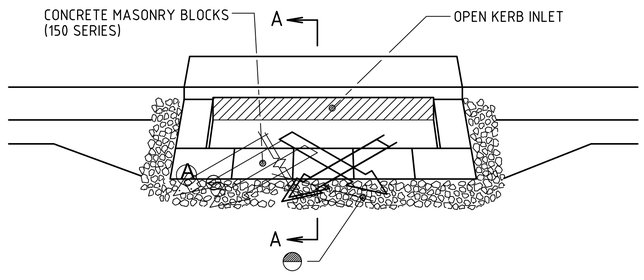
FILTER TO SIDE INLET GULLY PIT

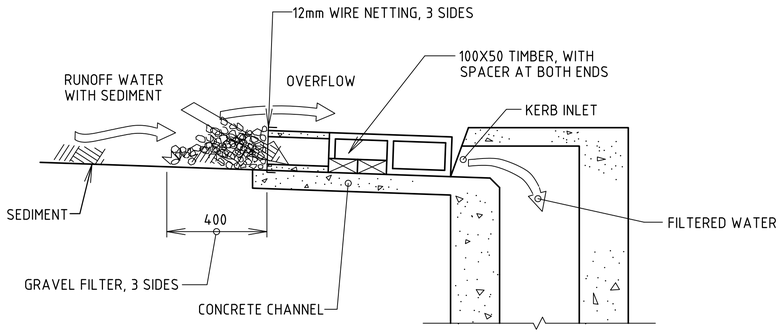
NOT TO SCALE



TURF STRIPS TO KERBLINE

NOT TO SCALE

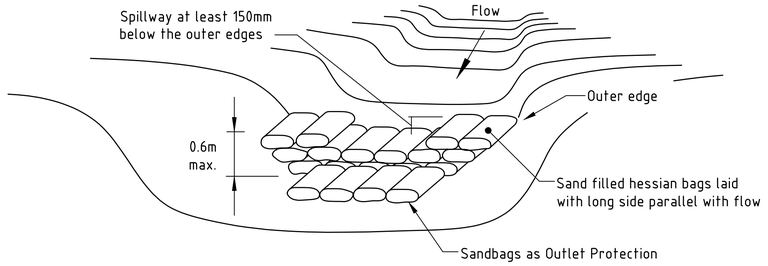




SECTION A-A

SAG INLET SEDIMENT TRAP, ST-1

A STABILISED BYPASS 'OVERLAND FLOW PATH' SHOULD EXIST ADJACENT TO INLET IN GENUINE SAGS.



SAND BAG CHECK DAM SECTION DETAIL

NOT TO SCALE

LEGEND

GRAVEL FILTER, REFER GRADING B, TABLE 9 OF QT SPECIFICATION MRS11.05, EXCLUDE MATERIAL FINER THEN AS SIEVE 2.36mm.

NOTES

1. FIELD INLET
   - A) A STABILISED BYPASS OVERLAND FLOW PATH SHOULD EXIST ADJACENT TO THE FIELD INLET.
   - B) WATER LEVEL CONTROL PERIMETER BANKS MAY BE REQUIRED.
   - C) BLOCKS TO BE RESTRAINED BY A HORIZONTAL TIMBER RAIL AT BLOCK JOINT HEIGHT FIXED TO TIMBER STAKES AT CORNERS.
2. CHECK DAMS
   - A) CATCHMENT AREA LIMITED TO 4 ha
   - B) USE IN MINOR OPEN DRAINS ONLY, (VELOCITY CONTROL), SEDIMENT COLLECTION IS A SECONDARY PURPOSE.
3. STRAW BALE BANKS
   - A) BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR ON THE CONTOUR,IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
   - B) EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 100mm ON THE DOWNSTREAM SIDE AND PLACED SO THE BINDINGS ARE HORIZONTAL.
   - C) BALES SHALL BE SECURELY ANCHORED IN PLACE WITH EITHER TWO STAKES OR STEEL PICKETS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER.
   - D) INSPECTIONS SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED. REPLACE AT LEAST 3 monthly.
4. SAFETY ISSUES MUST BE CONSIDERED AT ALL TIMES, INCORPORATE TRAFFIC CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT.
5. ALL DIMENSIONS IN MILLIMETRES UNLESS INDICATED OTHERWISE.

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Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: SEDIMENT CONTROL DETAILS
SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

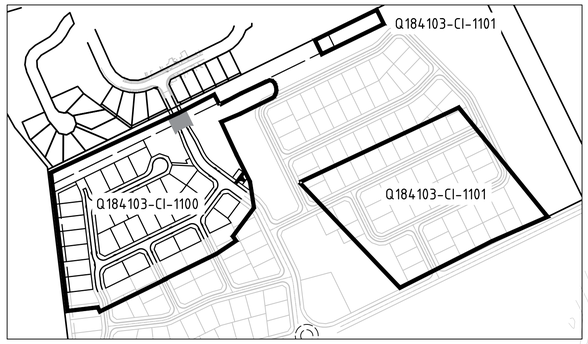
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Revision: B

XREFs:
CAD File: C:\Users\mary.dozat\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1005-1006.dwg

DATE PLOTTED: 1 April 2020 11:46 AM BY: MARY DOZA



KEY MAP
SCALE 1:4000m

GENERAL NOTES

1. DESIGN CONTOURS SHOWN ON ROADS ARE FINISHED SURFACE DESIGN LEVELS. BOXING CONTOURS CAN BE PROVIDED AT CONTRACTOR'S REQUEST
2. ALL RUBBISH IS TO BE REMOVED FROM SITE AND DISPOSED.

CUT AND FILL LEGEND

CUT > 1.5m	FILL 0m - 0.25m
CUT 1.5m - 1.25m	FILL 0.25m - 0.5m
CUT 1.25m - 1.0m	FILL 0.5m - 0.75m
CUT 1.0m - 0.75m	FILL 0.75m - 1.0m
CUT 0.75m - 0.5m	FILL 1.0m - 1.25m
CUT 0.5m - 0.25m	FILL 1.25m - 1.5m
CUT 0.25m - 0m	FILL > 1.5m

LEGEND

- 3.50 — NATURAL SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- 3.50 — FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- TOP OF BATTER
- × FS0.000 — FINISHED SURFACE LEVEL

NOTE

VOLUMES NOMINATED ARE PRELIMINARY ONLY & REFLECT THE DIFFERENCES BETWEEN EXISTING & FINISHED SURFACES.

VOLUMES (ESTIMATED)

CUT = 32,129.540m^3
FILL = 3,527.528m^3
BALANCE TO PADDOCK FILL AREAS = 28,602.012m^3

NORTH

Q100 WSL = 3.89m
Q100 WSL = 3.75m
Q100 WSL = 3.64m
Q100 WSL = 3.57m
Q100 WSL = 3.42m

ROAD 5
ROAD 4
ROAD 3
ROAD 2
ROAD RESERVE
PARK
WABUL
STREET

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0 5 10 15 20 25m
SCALE 1:250 @A1

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CAPTAIN COOK HIGHWAY, CRAIGLIE
Title: BULK EARTHWORKS PLAN

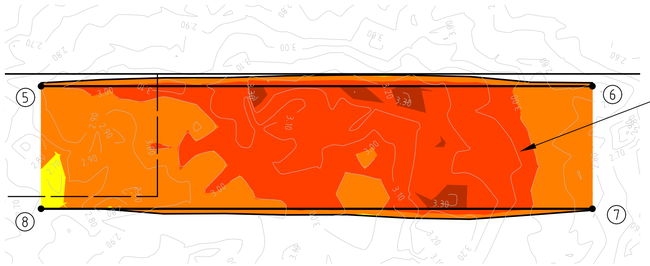
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Revision: C

XREFs: XR-Q184103-CI-BASE; XR-Q184103-DSGN-CNTRS; XR-Q184103-SURV; XR-Q184103-CI-EWRKS; XR-Q184103-CI-GRADE STRINGS; XR-Q184103-CI-Q100 BNDY; XR-Q184103-EXST-CNTRS
CAD File: C:\Users\mary.doza\Documents_C DRIVE-JOBS\PORT DOUGLAS_Acad\Q184103-CI-1100.dwg

DATE PLOTTED: 1 April 2020 11:47 AM BY: MARY DOZA



DRAIN REQUIRES EXCAVATION TO IL 2.75m FOR Q100 FLOW AS PER FLOOD IMPACT ASSESSMENT.

EXISTING DRAIN CUTOUT
SCALE 1:500m

NOTE

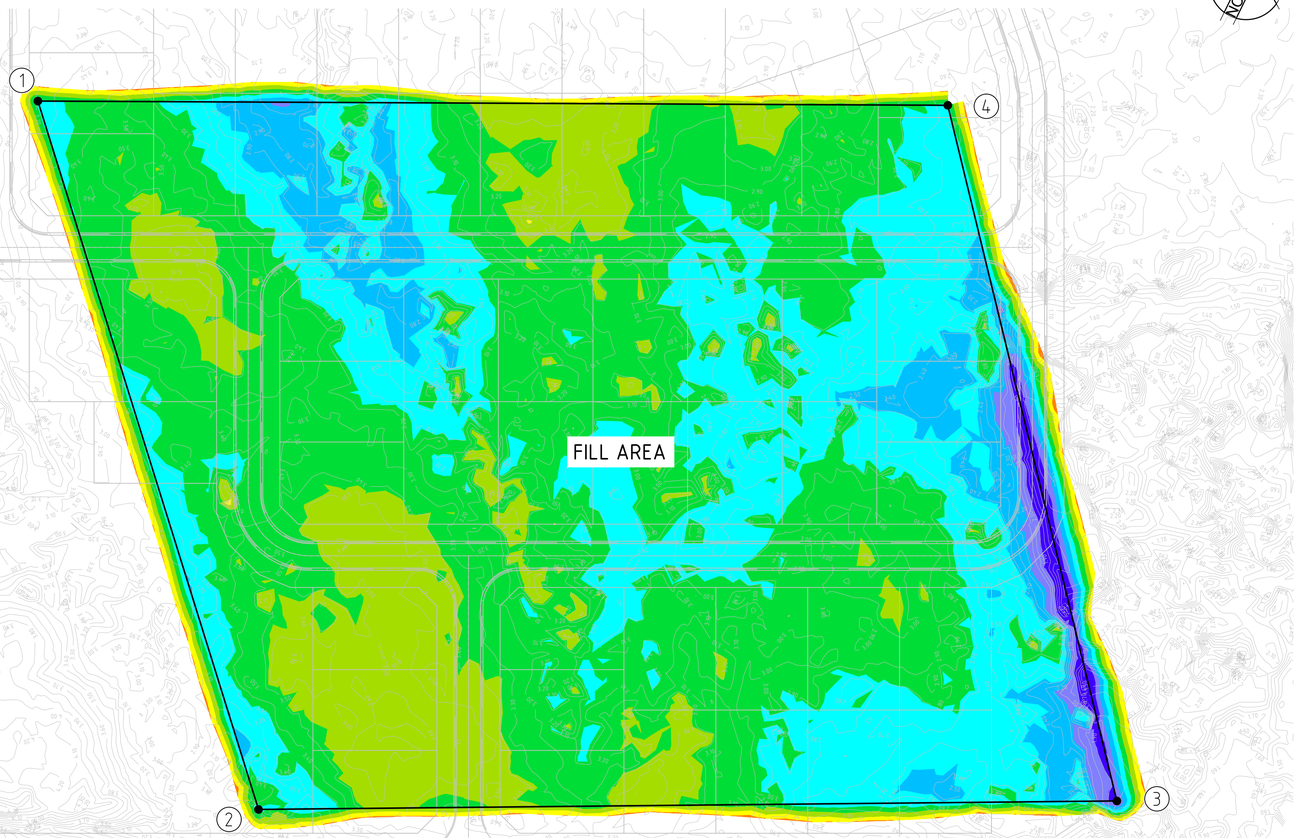
VOLUMES NOMINATED ARE PRELIMINARY ONLY & REFLECT THE DIFFERENCES BETWEEN EXISTING & FINISHED SURFACES.

VOLUMES (ESTIMATED)

FILL AREA 1 = 27,915m^3
CUT VOLUMES NOT PRESENTED FOR FILL AREA.
NO CUT REQUIRED.
RETAIN EXISTING LEVELS WHERE CUT IS NOMINATED.

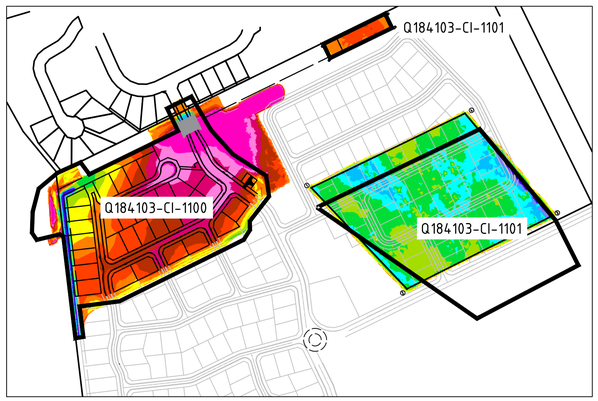
NORTH

SETOUT POINTS			
PT No.	EASTING	NORTHING	RL.
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2	337339.566	8170403.104	4.100
3	337527.407	8170497.397	3.400
4	337415.333	8170632.135	3.400
5	337230.598	8170722.293	2.750
6	337311.429	8170761.872	2.750
7	337320.224	8170743.909	2.750
8	337239.393	8170704.331	2.750



CUT AND FILL LEGEND

CUT > 1.5m	FILL 0m - 0.25m
CUT 1.5m - 1.25m	FILL 0.25m - 0.5m
CUT 1.25m - 1.0m	FILL 0.5m - 0.75m
CUT 1.0m - 0.75m	FILL 0.75m - 1.0m
CUT 0.75m - 0.5m	FILL 1.0m - 1.25m
CUT 0.5m - 0.25m	FILL 1.25m - 1.5m
CUT 0.25m - 0m	FILL > 1.5m



KEY MAP
SCALE 1:4000m

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C	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
B	22.10.2019	EXCESS FILL AREA REVISED	MS	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

0 10 20 30 40 50m
SCALE 1:500 @A1

0 15 30 45 60 75m
SCALE 1:750 @A1

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Drawn	JJ	Date 10.10.2019
Checked	MS	Date 10.10.2019
Designed	JJ	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: EXCESS CUT STOCKPILING PLAN

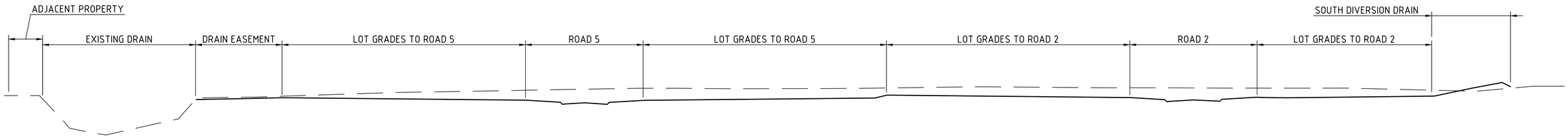
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

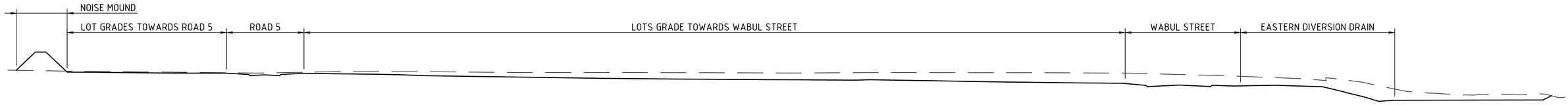
Drawing Number: Q184103-CI-1101
Revision: C

XREFs: XR-Q184103-CI-BASE; XR-Q184103-CI-EWRKS FILL; XR-Q184103-EXST-CNTRS
CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1101.dwg

DATE PLOTTED: 1 April 2020 11:47 AM BY: MARY DOZA



SECTION 1 / 1102
SCALE 1:250m



SECTION 2 / 1102
SCALE 1:400m



LOCALITY PLAN
SCALE 1:2000m

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

0 5 10 15 20 25m
SCALE 1:250 @A1

0 10 20 30 40m
SCALE 1:400 @A1

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Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: SITE CROSS SECTIONS

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1102

Revision: B

XREFs: XR-Q184103-CI-BASE
CAD File: C:\Users\mary.doza\Documents_C DRIVE-JOBS\PORT DOUGLAS_Acad\Q184103-CI-1102.dwg

DATE PLOTTED: 1 April 2020 11:47 AM BY: MARY DOZA

WABUL STREET

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	337027.151	8170672.714	3.801	153°54'44.48"			
TC	112.977	337076.833	8170571.247	3.846	153°54'44.48"			
IP 2	123.680	337081.630	8170561.449	3.910		R = -45.000	21.405	27°15'14.83"
CT	134.383	337090.381	8170554.936	3.874	126°39'29.65"			
TC	205.077	337147.093	8170512.729	4.014	126°39'29.65"			

ROAD 2

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	337113.187	8170537.963	3.895	216°39'29.65"			
TC	4.9.020	337083.920	8170498.639	3.925	216°39'29.65"			
IP 2	57.344	337078.854	8170491.832	3.966		R = 35.000	16.648	27°15'11.83"
CT	65.668	337071.234	8170488.101	4.020	243°54'41.48"			
TC	195.817	336954.346	8170430.867	4.576	243°54'41.48"			
IP 3	205.074	336944.786	8170426.187	4.610		R = -15.000	18.514	70°43'00.00"
CT	214.330	336946.048	8170415.618	4.645	173°11'41.48"			
TC	225.459	336947.366	8170404.568	4.684	173°11'41.48"			
IP 4	230.507	336947.970	8170399.507	4.702		R = -30.000	10.097	19°17'00.00"
CT	235.555	336950.211	8170394.930	4.719	153°54'41.48"			

ROAD 3

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	337074.354	8170489.831		148°04'11.98"			
TC	9.427	337079.340	8170481.830	3.973	148°04'11.98"			
IP 2	10.957	337080.149	8170480.531	3.969		R = 30.000	3.059	5°50'29.50"
CT	12.486	337080.822	8170479.156	3.965	153°54'41.48"			
TC	93.299	337116.360	8170406.577	4.270	153°54'41.48"			

ROAD 4

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	0.000	337008.526	8170457.396	4.335	153°54'41.48"
IP 2	102.285	337053.506	8170365.532	4.473	153°54'41.48"

ROAD 5

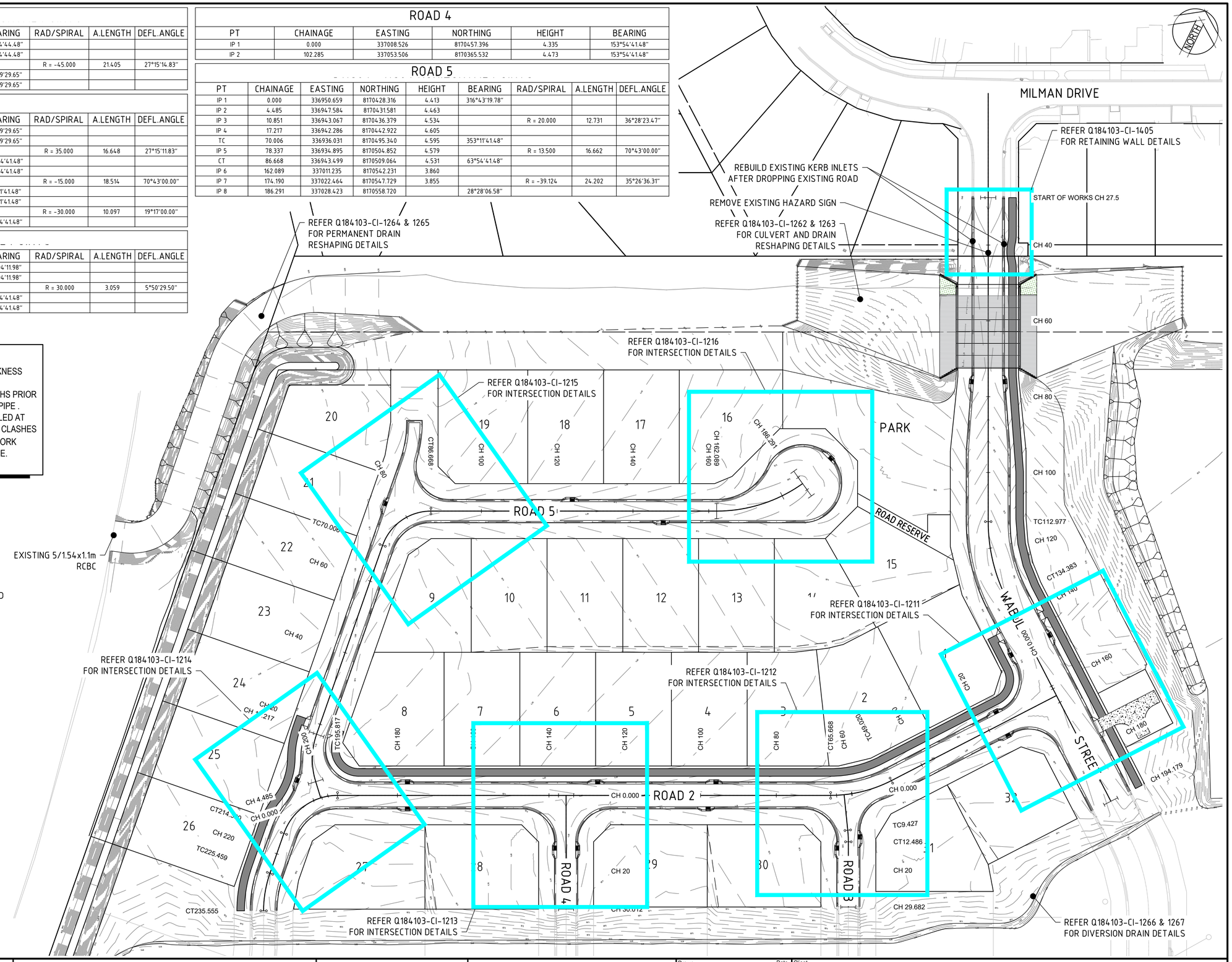
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	336950.659	8170428.316	4.413	316°43'19.78"			
IP 2	4.485	336947.584	8170431.581	4.463				
IP 3	10.851	336943.067	8170436.379	4.534		R = 20.000	12.731	36°28'23.47"
IP 4	17.217	336942.286	8170442.922	4.605				
TC	70.006	336936.031	8170495.340	4.595	353°11'41.48"			
IP 5	78.337	336934.895	8170504.852	4.579		R = 13.500	16.662	70°43'00.00"
CT	86.668	336943.499	8170509.064	4.531	63°54'41.48"			
IP 6	162.089	337011.235	8170542.231	3.860				
IP 7	174.190	337022.464	8170547.729	3.855		R = -39.124	24.202	35°26'36.31"
IP 8	186.291	337028.423	8170558.720		28°28'06.58"			

NOTES

1. AT INTERSECTIONS, CUL-DE-SACS AND ROUNDABOUTS, THE THICKNESS OF AC SURFACE SHALL INCREASE TO 50mm
2. DN100 PVC PIPES ARE TO BE PLACED UNDERNEATH THE FOOTPATHS PRIOR TO POUR OF THE FOOTPATHS TO SERVICE FUTURE HOUSE DOWNPIPE . DISCHARGES TO KERB. TWO (2) PIPES PER LOT ARE TO BE INSTALLED AT SUITABLE LOCATIONS FOR THE BUILDERS AND TO AVOID SERVICE CLASHES
3. SAWCUT AC SEAL & STRIP BACK TO BASE COURSE ALONG ROADWORK INTERFACE WITH EXISTING INCLUDING CROWN WHERE APPLICABLE. TIE IN NEATLY AND EVENLY TO EXISTING.

LEGEND

- 3.50 — FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- TOP OF BATTER
- LAYBACK KERB (REFER FNQROC STD DWD 1000 FOR DETAILS)
- 2.0m WIDE FOOTPATH (REFER FNQROC STD DWG S1035 FOR DETAILS)



Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 10 20 30 40 50m
SCALE 1:500 @A1

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	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: ROADWORKS PLAN

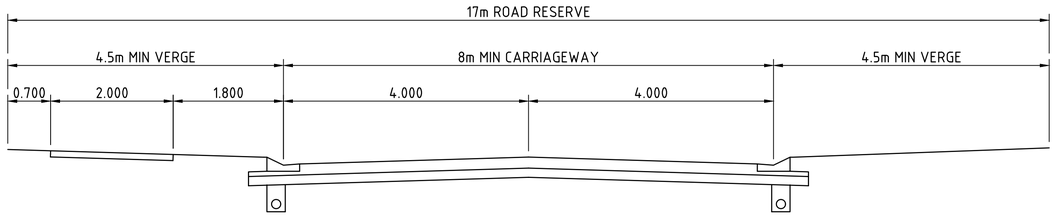
Status: FOR APPROVAL
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Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1200
Revision: B

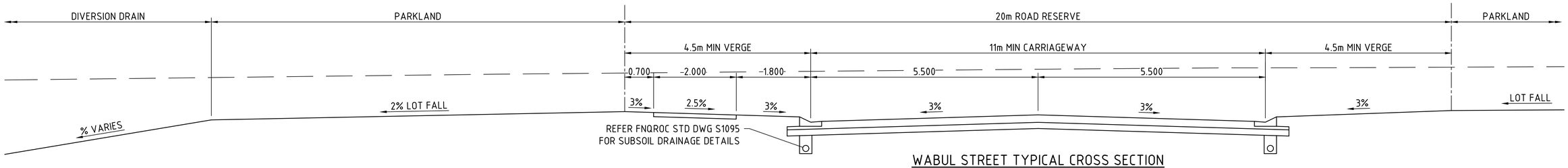
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CAD File: C:\Users\mary.doza\Documents_C DRIVE_JOBS\PORT DOUGLAS_Acad\Q184103-CI-1200.dwg

DATE PLOTTED: 1 April 2020 11:47 AM BY: MARY DOZA



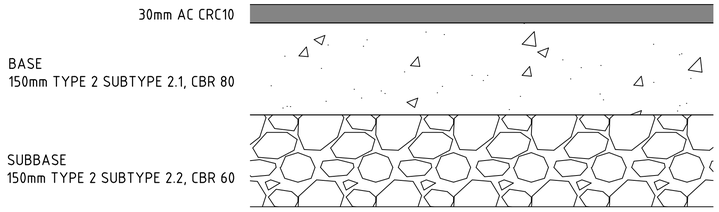
WABUL STREET TYPICAL CROSS SECTION

CH 27.5 - CH 74.426
TRANSITION IN CARRIAGEWAY WIDTH FROM CH 74.426 - CH 86.95 (8m WIDTH TO 11m WIDTH)
SCALE 1:50m



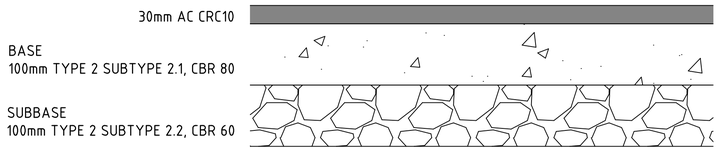
WABUL STREET TYPICAL CROSS SECTION

CH 86.95 - CH 194.5
SCALE 1:50m



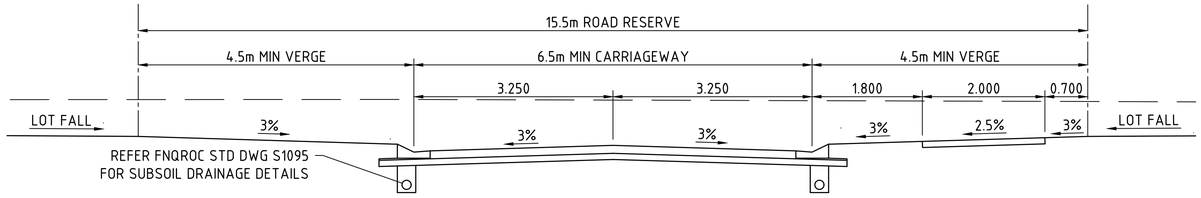
WABUL STREET PAVEMENT DESIGN

BASED ON CBR = 8



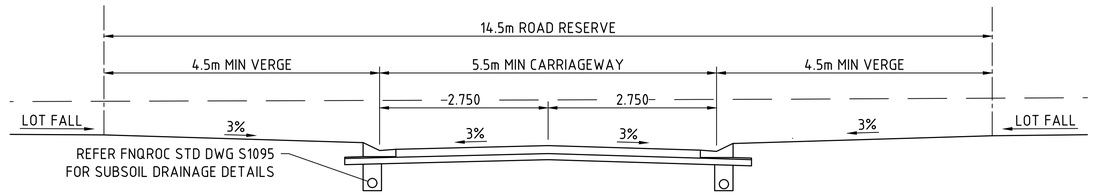
ROAD 2, 3, 4 & 5 PAVEMENT DESIGN

BASED ON CBR = 8



ROAD 2 TYPICAL CROSS SECTION

CH 14.5 - CH 235.555
SCALE 1:50m



ROAD 3 TYPICAL CROSS SECTION

CH 12.486 - CH 29.682

ROAD 4 TYPICAL CROSS SECTION

CH 12.25 - CH 30.012

ROAD 5 TYPICAL CROSS SECTION

CH 17.217 - CH 162.089

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 3 4 5m
SCALE 1:50 @A1

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Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD
Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE
Title: ROADWORKS - TYPICAL CROSS SECTIONS

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

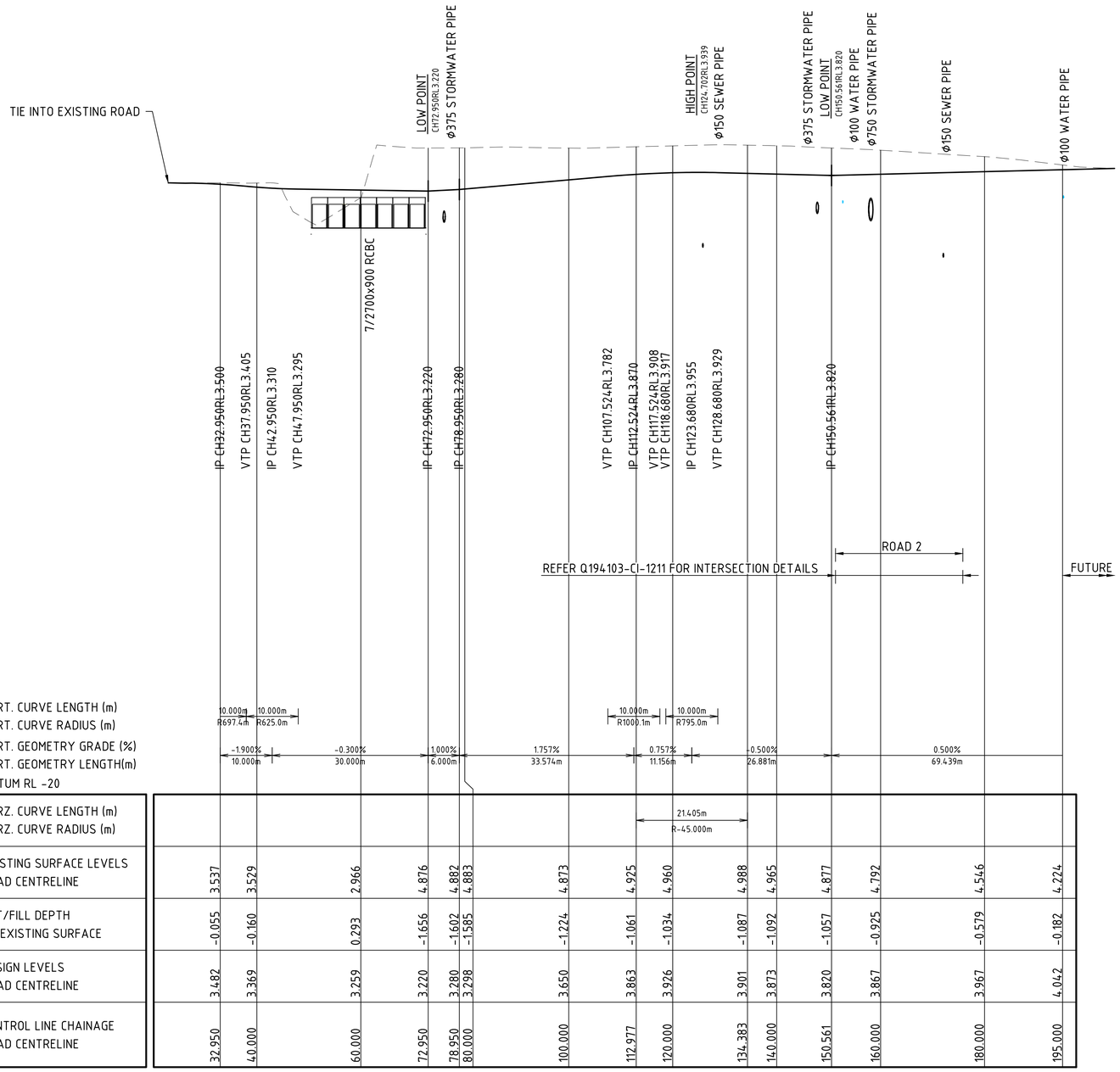
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AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1201
Revision: B

XREFs:
CAD File: C:\Users\mary.doza\Documents_C DRIVE_JOBS\PORT DOUGLAS_Asset\Q184103-CI-1201.dwg

DATE PLOTTED: 1 April 2020 11:47 AM BY : MARY DOZA

XREF's: XR-Q184103-CI-LS-WABUL01; XR-Q184103-CI-XS-WABUL1; XR-Q184103-CI-LS-RS0301; XR-Q184103-CI-LS-ROAD 201; XR-Q184103-CI-XS-ROAD 21; XR-Q184103-CI-LS-RA0401; XR-Q184103-CI-XS-RS041; XR-Q184103-CI-LS-RS0201; XR-Q184103-
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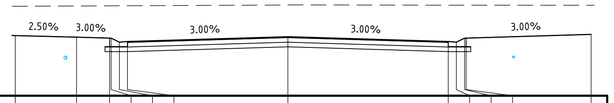
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XREFs: XR-Q184103-CI-LS-WABUL01; XR-Q184103-CI-XS-WABUL1; XR-Q184103-CI-LS-ROAD 201; XR-Q184103-CI-XS-ROAD 21; XR-Q184103-CI-LS-RS0201; XR-Q184103-CI-LS-RA0401; XR-Q184103-CI-XS-RS041; XR-Q184103-CI-LS-RS0201; XR-Q184103-CI-XS-RS021; XR-Q184103-CI-LS-RS0301; XR-Q184103-CI-LS-RS0301; XR-Q184103-CI-XS-RS031

CAD File: C:\Users\mary.doza\Documents_C DRIVE_\JOBS\PORT DOUGLAS_Acad\Q184103-CI-1202-1210.dwg

WABUL STREET
X = 337080.400
Y = 8170565.206

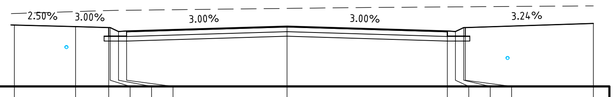


Datum 2.00

DESIGN HEIGHT	3.961		3.911	3.878	3.878	3.748	3.768	3.926	3.768	3.748	3.878	3.878	4.001
EXISTING SURFACE	4.919		4.928	4.933	4.933	4.934	4.936	4.960	4.955	4.954	4.954	4.954	4.951
OFFSETS	-8.900		-6.900	-5.820	-5.770	-5.500	-5.235	0.000	5.235	5.500	5.770	5.820	9.900

CHAINAGE 120.000

WABUL STREET
X = 337126.976
Y = 8170527.701

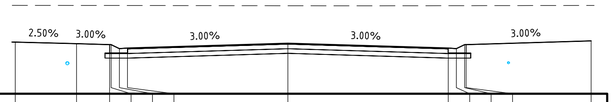


Datum 2.00

DESIGN HEIGHT	4.002	3.952	3.920	3.920	3.790	3.810	3.967	3.810	3.790	3.920	3.920	4.055
EXISTING SURFACE	4.378	4.442	4.477	4.479	4.482	4.485	4.546	4.594	4.596	4.598	4.598	4.627
OFFSETS	-8.900	-6.900	-5.820	-5.770	-5.500	-5.235	0.000	5.235	5.500	5.770	5.820	10.000

CHAINAGE 180.000

WABUL STREET
X = 337071.126
Y = 8170582.902

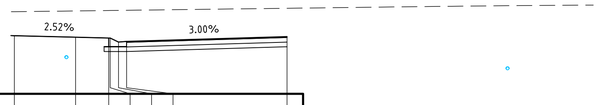


Datum 2.00

DESIGN HEIGHT	3.685		3.635	3.603	3.603	3.473	3.493	3.650	3.493	3.473	3.603	3.603	3.725
EXISTING SURFACE	4.885		4.883	4.881	4.881	4.881	4.880	4.873	4.875	4.875	4.876	4.876	4.882
OFFSETS	-8.900		-6.900	-5.820	-5.770	-5.500	-5.235	0.000	5.235	5.500	5.770	5.820	9.900

CHAINAGE 100.000

WABUL STREET
X = 337110.932
Y = 8170539.641

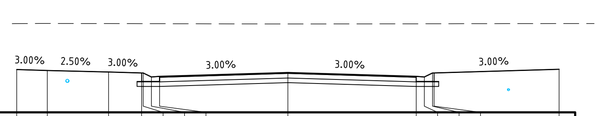


Datum 2.00

DESIGN HEIGHT	3.898	3.847	3.820	3.820	3.690	3.710	3.867
EXISTING SURFACE	4.680	4.706	4.719	4.720	4.723	4.726	4.792
OFFSETS	-8.900	-6.900	-5.820	-5.770	-5.500	-5.235	0.000

CHAINAGE 160.000

WABUL STREET
X = 337062.331
Y = 8170600.865

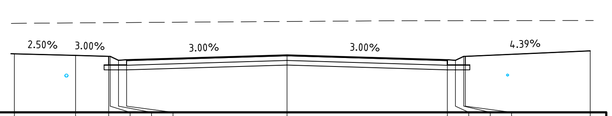


Datum 2.00

DESIGN HEIGHT	3.395	3.365		3.315	3.283	3.283	3.153	3.173	3.298	3.173	3.153	3.283	3.283	3.405
EXISTING SURFACE	4.894	4.900		4.896	4.893	4.893	4.893	4.892	4.883	4.889	4.890	4.890	4.890	4.896
OFFSETS	-8.854	-7.854		-5.854	-4.774	-4.724	-4.454	-4.189	0.000	4.189	4.454	4.724	4.774	8.854

CHAINAGE 80.000

WABUL STREET
X = 337094.888
Y = 8170551.582

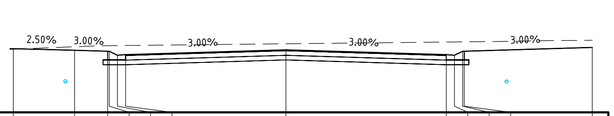


Datum 2.00

DESIGN HEIGHT	3.908	3.858	3.826	3.826	3.696	3.716	3.873	3.716	3.696	3.826	3.826	4.005
EXISTING SURFACE	4.903	4.918	4.925	4.926	4.928	4.929	4.965	4.991	4.991	4.991	4.991	4.996
OFFSETS	-8.900	-6.900	-5.820	-5.770	-5.500	-5.235	0.000	5.235	5.500	5.770	5.820	9.899

CHAINAGE 140.000

WABUL STREET
X = 337138.608
Y = 8170519.044



Datum 2.00

DESIGN HEIGHT	4.075	4.025	3.993	3.993	3.863	3.883	4.040	3.883	3.863	3.993	3.993	4.118
EXISTING SURFACE	4.059	4.140	4.174	4.175	4.177	4.180	4.236	4.293	4.296	4.298	4.299	4.350
OFFSETS	-8.900	-6.900	-5.820	-5.770	-5.500	-5.235	0.000	5.235	5.500	5.770	5.820	10.000

CHAINAGE 194.500

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

SCALE 1:100 — 0 1 2 4 6 8 10m — @A1

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Checked	MS	Date 10.10.2019
Designed	MC	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: WABUL STREET CROSS SECTIONS

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

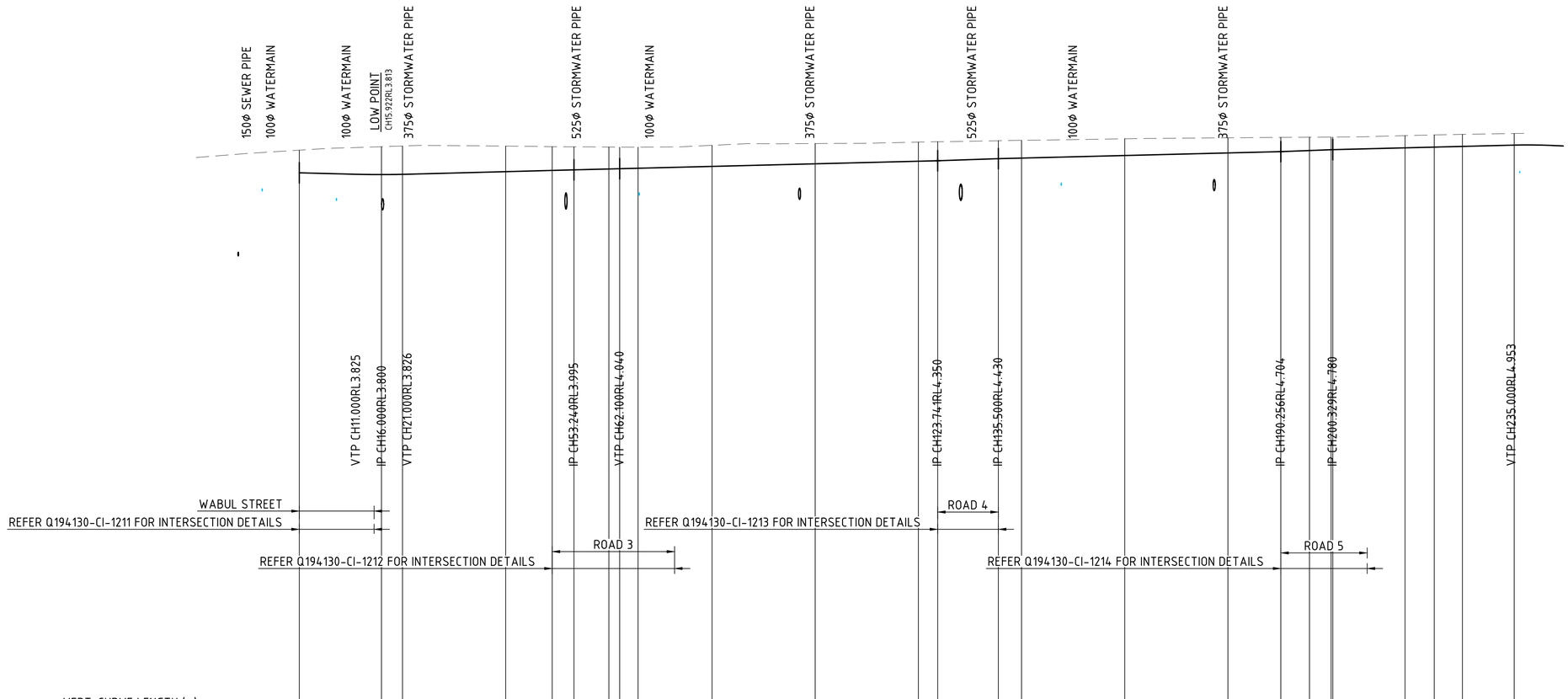
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AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1203

Revision: B

DATE PLOTTED: 1 April 2020 11:47 AM BY : MARY DOZA

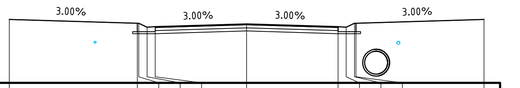
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CAD File: C:\Users\mary.dozat\Documents_C DRIVE JOBS\PORT DOUGLAS_Asad\Q184103-CI-1202-1210.dwg



| | | |

DATE PLOTTED: 1 April 2020 11:47 AM BY: MARY DOZA

ROAD 2
X = 337089.305
Y = 8170505.875

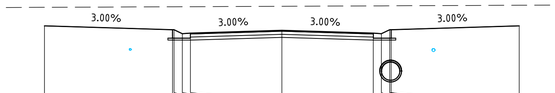


Datum 2.00

DESIGN HEIGHT	4.072		3.946	3.946	3.816	3.836		3.926		3.836	3.816	3.946	3.946	4.072
EXISTING SURFACE	4.796		4.862	4.862	4.867	4.871		4.918		4.964	4.967	4.970	4.970	5.015
OFFSETS	-7.750		-3.570	-3.520	-3.250	-2.985		0.000		2.985	3.250	3.520	3.570	7.750

CHAINAGE 40.000

ROAD 2
X = 337040.400
Y = 8170473.003

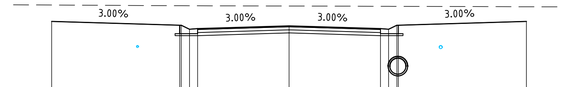


Datum 2.00

DESIGN HEIGHT	4.376		4.251	4.251	4.121	4.141		4.231		4.141	4.121	4.251	4.251	4.376
EXISTING SURFACE	4.982		4.999	5.000	5.001	5.002		5.016		5.029	5.030	5.031	5.032	5.050
OFFSETS	-7.750		-3.570	-3.520	-3.250	-2.985		0.000		2.985	3.250	3.520	3.570	7.750

CHAINAGE 100.000

ROAD 2
X = 336986.513
Y = 8170446.618

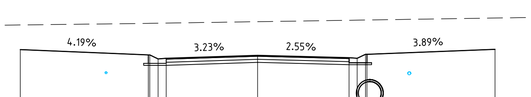


Datum 2.00

DESIGN HEIGHT	4.698		4.573	4.573	4.443	4.463		4.552		4.463	4.443	4.573	4.573	4.698
EXISTING SURFACE	5.232		5.210	5.209	5.209	5.208		5.201		5.191	5.191	5.190	5.190	5.177
OFFSETS	-7.750		-3.570	-3.520	-3.250	-2.985		0.000		2.985	3.250	3.520	3.570	7.750

CHAINAGE 160.000

ROAD 2
X = 337101.246
Y = 8170521.919

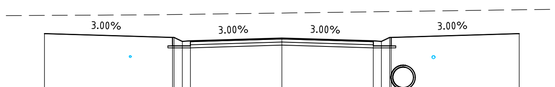


Datum 2.00

DESIGN HEIGHT	4.010		3.835	3.835	3.705	3.725		3.821		3.745	3.725	3.855	3.855	4.018
EXISTING SURFACE	4.814		4.865	4.866	4.870	4.874		4.920		4.966	4.971	4.975	4.975	5.040
OFFSETS	-7.750		-3.570	-3.520	-3.250	-2.985		0.000		2.985	3.250	3.520	3.570	7.750

CHAINAGE 20.000

ROAD 2
X = 337058.362
Y = 8170481.799

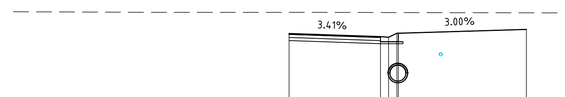


Datum 2.00

DESIGN HEIGHT	4.276		4.150	4.150	4.020	4.040		4.130		4.040	4.020	4.150	4.150	4.276
EXISTING SURFACE	4.870		4.898	4.898	4.902	4.906		4.947		4.988	4.992	4.995	4.996	5.054
OFFSETS	-7.750		-3.570	-3.520	-3.250	-2.985		0.000		2.985	3.250	3.520	3.570	7.750

CHAINAGE 80.000

ROAD 2
X = 337004.475
Y = 8170455.413

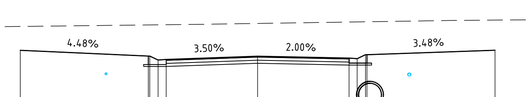


Datum 2.00

DESIGN HEIGHT			4.452							4.351	4.331	4.461	4.461	4.586
EXISTING SURFACE			5.142							5.138	5.137	5.137	5.137	5.128
OFFSETS			0.000							2.985	3.250	3.520	3.570	7.750

CHAINAGE 140.000

ROAD 2
X = 337104.530
Y = 8170526.331

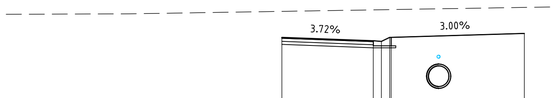


Datum 2.00

DESIGN HEIGHT	4.007		3.819	3.819	3.689	3.709		3.814		3.754	3.734	3.864	3.864	4.010
EXISTING SURFACE	4.785		4.835	4.836	4.839	4.842		4.884		4.930	4.934	4.938	4.939	4.994
OFFSETS	-7.750		-3.570	-3.520	-3.250	-2.985		0.000		2.985	3.250	3.520	3.570	7.750

CHAINAGE 14.500

ROAD 2
X = 337076.101
Y = 8170490.994

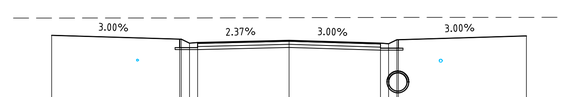


Datum 0.00

DESIGN HEIGHT						4.029		3.918	3.898	4.028	4.028			4.159
EXISTING SURFACE						4.878		4.926	4.931	4.935	4.936			5.007
OFFSETS						0.000		2.985	3.250	3.520	3.570			7.917

CHAINAGE 60.000

ROAD 2
X = 337022.438
Y = 8170464.208



Datum 2.00

DESIGN HEIGHT	4.496		4.370	4.370	4.240	4.260		4.331		4.242	4.222	4.352	4.352	4.477
EXISTING SURFACE	5.060		5.062	5.062	5.063	5.063		5.071		5.079	5.080	5.081	5.081	5.083
OFFSETS	-7.750		-3.570	-3.520	-3.250	-2.985		0.000		2.985	3.250	3.520	3.570	7.750

CHAINAGE 120.000

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

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Checked	MS	Date 10.10.2019
Designed	MC	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: ROAD 2 CROSS SECTIONS
SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1205
Revision: B

XREFs: XR-Q184103-CI-LS-WABUL01; XR-Q184103-CI-XS-WABUL1; XR-Q184103-CI-LS-ROAD 201; XR-Q184103-CI-XS-ROAD 21; XR-Q184103-CI-LS-RA0401; XR-Q184103-CI-XS-RS041; XR-Q184103-CI-LS-RS0201; XR-Q184103-CI-XS-RS021; XR-Q184103-CI-LS-RS0301; XR-Q184103-CI-XS-RS031
CAD File: C:\Users\mary.dozza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1202-1210.dwg

ROAD 2
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Y = 8170409.988

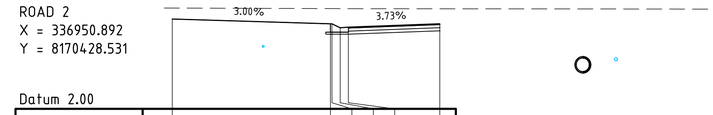


Datum 4.00

DESIGN HEIGHT	5.024	4.899	4.899	4.769	4.789	4.878	4.789	4.769	4.899	4.899	5.024
EXISTING SURFACE	5.336	5.337	5.337	5.337	5.338	5.350	5.360	5.361	5.362	5.362	5.376
OFFSETS	-7.750	-3.570	-3.520	-3.250	-2.985	0.000	2.985	3.250	3.520	3.570	7.750

CHAINAGE 220.000

ROAD 2
X = 336950.892
Y = 8170428.531

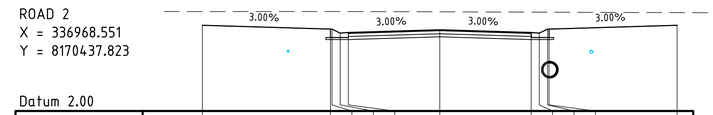


Datum 2.00

DESIGN HEIGHT	4.931	4.776	4.776	4.646	4.666	4.778
EXISTING SURFACE	5.289	5.272	5.272	5.271	5.270	5.266
OFFSETS	-8.732	-3.570	-3.520	-3.250	-2.985	0.000

CHAINAGE 200.000

ROAD 2
X = 336968.551
Y = 8170437.823



Datum 2.00

DESIGN HEIGHT	4.798	4.673	4.673	4.543	4.563	4.652	4.563	4.543	4.673	4.673	4.798
EXISTING SURFACE	5.246	5.248	5.248	5.248	5.247	5.238	5.228	5.227	5.226	5.226	5.212
OFFSETS	-7.750	-3.570	-3.520	-3.250	-2.985	0.000	2.985	3.250	3.520	3.570	7.750

CHAINAGE 180.000

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

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Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: ROAD 2 CROSS SECTIONS
SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

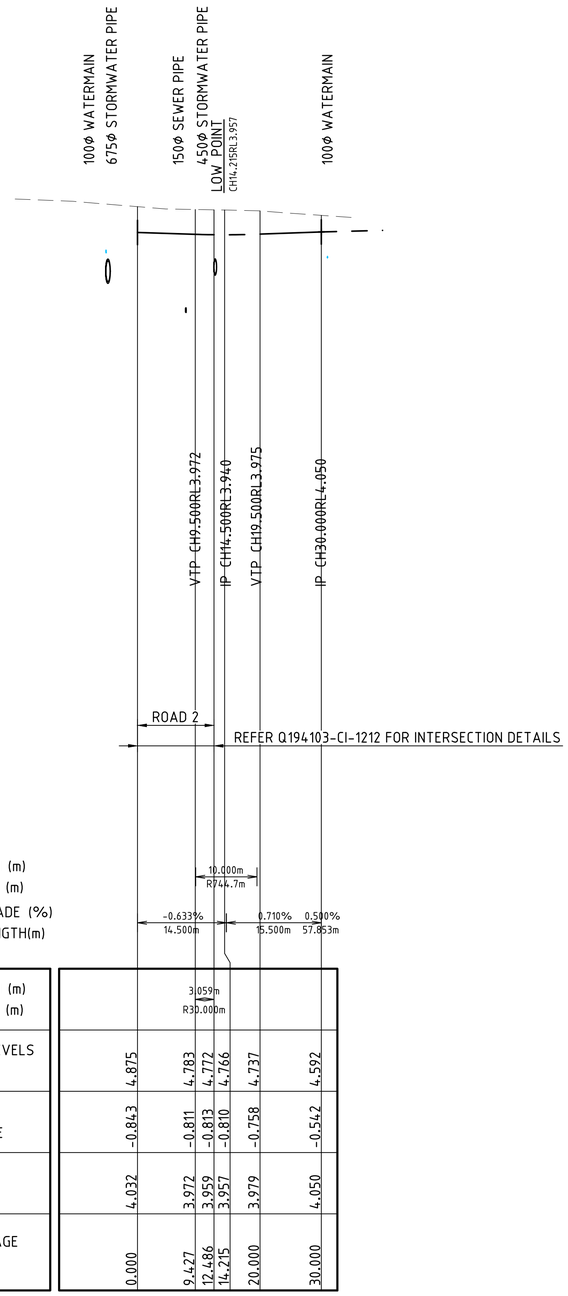
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Revision: B

DATE PLOTTED: 1 April 2020 11:47 AM BY : MARY DOZA
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DATE PLOTTED: 1 April 2020 11:47 AM BY : MARY DOZA

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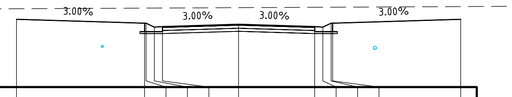
CAD File: C:\Users\mary.doza\Documents_C DRIVE_JOBS\PORT DOUGLAS_Acad\Q184103-CI-1202-1210.dwg



VERT. CURVE LENGTH (m)					10.000m						
VERT. CURVE RADIUS (m)					R744.7m						
VERT. GEOMETRY GRADE (%)			-0.633%				0.710%		0.500%		
VERT. GEOMETRY LENGTH(m)			14.500m				15.500m		57.853m		
DATUM RL -20											
HORZ. CURVE LENGTH (m)					3.059m						
HORZ. CURVE RADIUS (m)					R30.000m						
EXISTING SURFACE LEVELS ROAD CENTRELINE	4.875			4.783	4.772	4.766		4.737			4.592
CUT/FILL DEPTH TO EXISTING SURFACE	-0.843			-0.811	-0.813	-0.810		-0.758			-0.542
DESIGN LEVELS ROAD CENTRELINE	4.032			3.972	3.959	3.957		3.979			4.050
CONTROL LINE CHAINAGE ROAD CENTRELINE	0.000			9.427	12.486	14.215		20.000			30.000

ROAD 3
SCALE: H 1:500
V 1:100

ROAD 3
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Y = 8170463.427

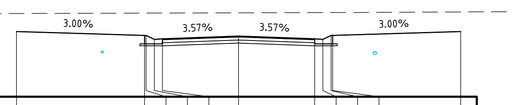


Datum 2.00

DESIGN HEIGHT	4.211			4.085	4.085	3.955	3.975	4.050		3.975	3.955	4.085	4.085		4.211
EXISTING SURFACE	4.556			4.577	4.577	4.578	4.580	4.592		4.604	4.605	4.606	4.607		4.627
OFFSETS	-7.250			-3.070	-3.020	-2.750	-2.485	0.000		2.485	2.750	3.020	3.070		7.250

CHAINAGE 30.000

ROAD 3
X = 337084.127
Y = 8170472.408



Datum 2.00

DESIGN HEIGHT	4.126			4.000	4.000	3.870	3.890	3.979		3.890	3.870	4.000	4.000		4.126
EXISTING SURFACE	4.715			4.728	4.728	4.729	4.730	4.737		4.745	4.746	4.746	4.747		4.766
OFFSETS	-7.250			-3.070	-3.020	-2.750	-2.485	0.000		2.485	2.750	3.020	3.070		7.250

CHAINAGE 20.000

ROAD 3
X = 337080.822
Y = 8170479.156



Datum 2.00

DESIGN HEIGHT	4.095			3.969	3.969	3.839	3.859	3.959		3.859	3.839	3.969	3.969		4.095
EXISTING SURFACE	4.753			4.766	4.766	4.767	4.768	4.772		4.775	4.775	4.775	4.775		4.780
OFFSETS	-7.250			-3.070	-3.020	-2.750	-2.485	0.000		2.485	2.750	3.020	3.070		7.250

CHAINAGE 12.486

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

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SCALE 1:100 @A1

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SCALE 1:500 @A1

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Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: ROAD 3 LONGITUDINAL SECTION & CROSS SECTIONS

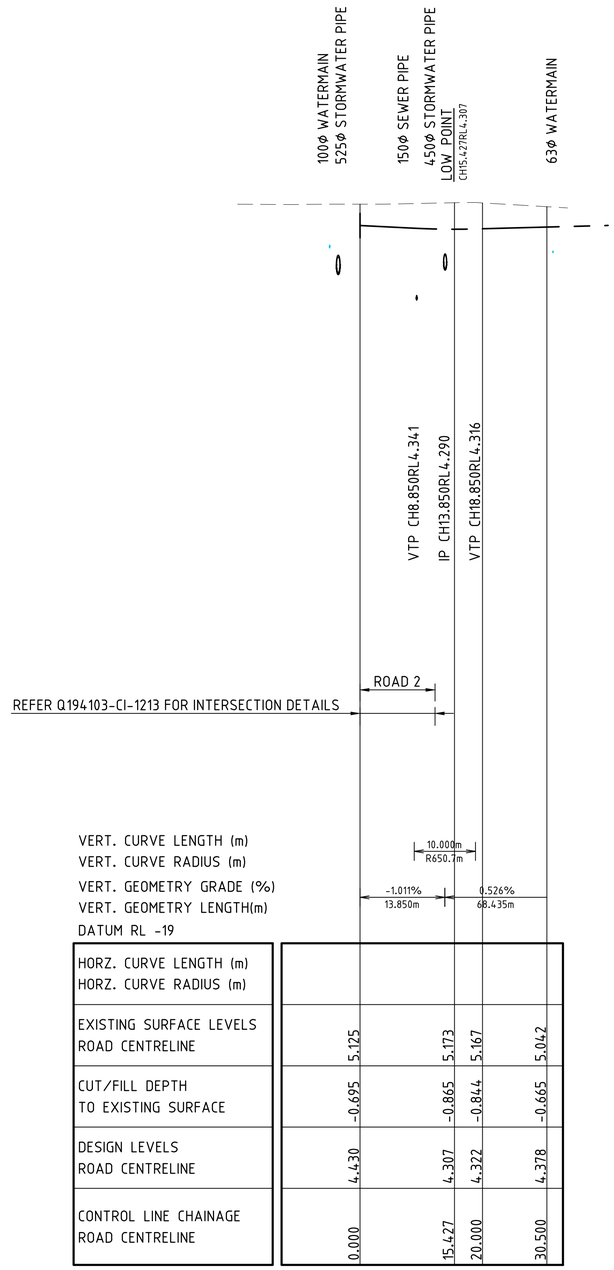
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1207

Revision: B

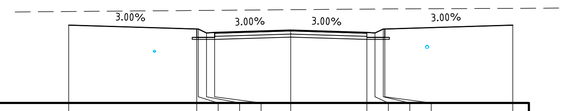
DATE PLOTTED: 1 April 2020 11:47 AM BY : MARY DOZA



HORZ. CURVE LENGTH (m)					
HORZ. CURVE RADIUS (m)					
EXISTING SURFACE LEVELS ROAD CENTRELINE	5.125	5.173	5.167	5.042	
CUT/FILL DEPTH TO EXISTING SURFACE	-0.695	-0.865	-0.844	-0.665	
DESIGN LEVELS ROAD CENTRELINE	4.430	4.307	4.322	4.378	
CONTROL LINE CHAINAGE ROAD CENTRELINE	0.000	15.427	20.000	30.500	

ROAD 4
SCALE: H 1:500
V 1:100

ROAD 4
X = 337021.938
Y = 8170430.004

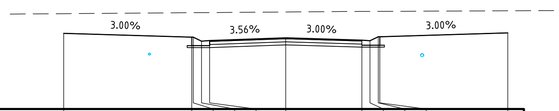


Datum 2.00

DESIGN HEIGHT	4.538	4.413	4.413	4.283	4.303	4.378	4.303	4.283	4.413	4.413	4.538
EXISTING SURFACE	4.984	5.018	5.018	5.020	5.022	5.042	5.063	5.065	5.067	5.067	5.086
OFFSETS	-7.250	-3.070	-3.020	-2.750	-2.485	0.000	2.485	2.750	3.020	3.070	7.250

CHAINAGE 30.500

ROAD 4
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Y = 8170439.434

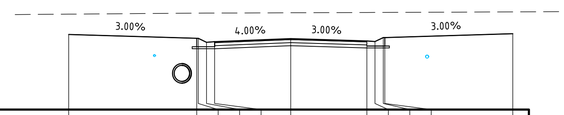


Datum 2.00

DESIGN HEIGHT	4.469	4.344	4.344	4.214	4.234	4.322	4.248	4.228	4.358	4.358	4.483
EXISTING SURFACE	5.111	5.143	5.144	5.146	5.148	5.167	5.184	5.185	5.186	5.187	5.205
OFFSETS	-7.250	-3.070	-3.020	-2.750	-2.485	0.000	2.485	2.750	3.020	3.070	7.250

CHAINAGE 20.000

ROAD 4
X = 337013.913
Y = 8170446.394



Datum 2.00

DESIGN HEIGHT	4.451	4.326	4.326	4.196	4.216	4.315	4.241	4.221	4.351	4.351	4.476
EXISTING SURFACE	5.115	5.148	5.148	5.149	5.150	5.160	5.169	5.170	5.171	5.171	5.189
OFFSETS	-7.250	-3.070	-3.020	-2.750	-2.485	0.000	2.485	2.750	3.020	3.070	7.250

CHAINAGE 12.250

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 4 6 8 10m
SCALE 1:100 @A1

0 10 20 30 40 50m
SCALE 1:500 @A1

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Drawn	JJ	Date 10.10.2019
Checked	MS	Date 10.10.2019
Designed	MC	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: ROAD 4 LONGITUDINAL SECTION & CROSS SECTIONS

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

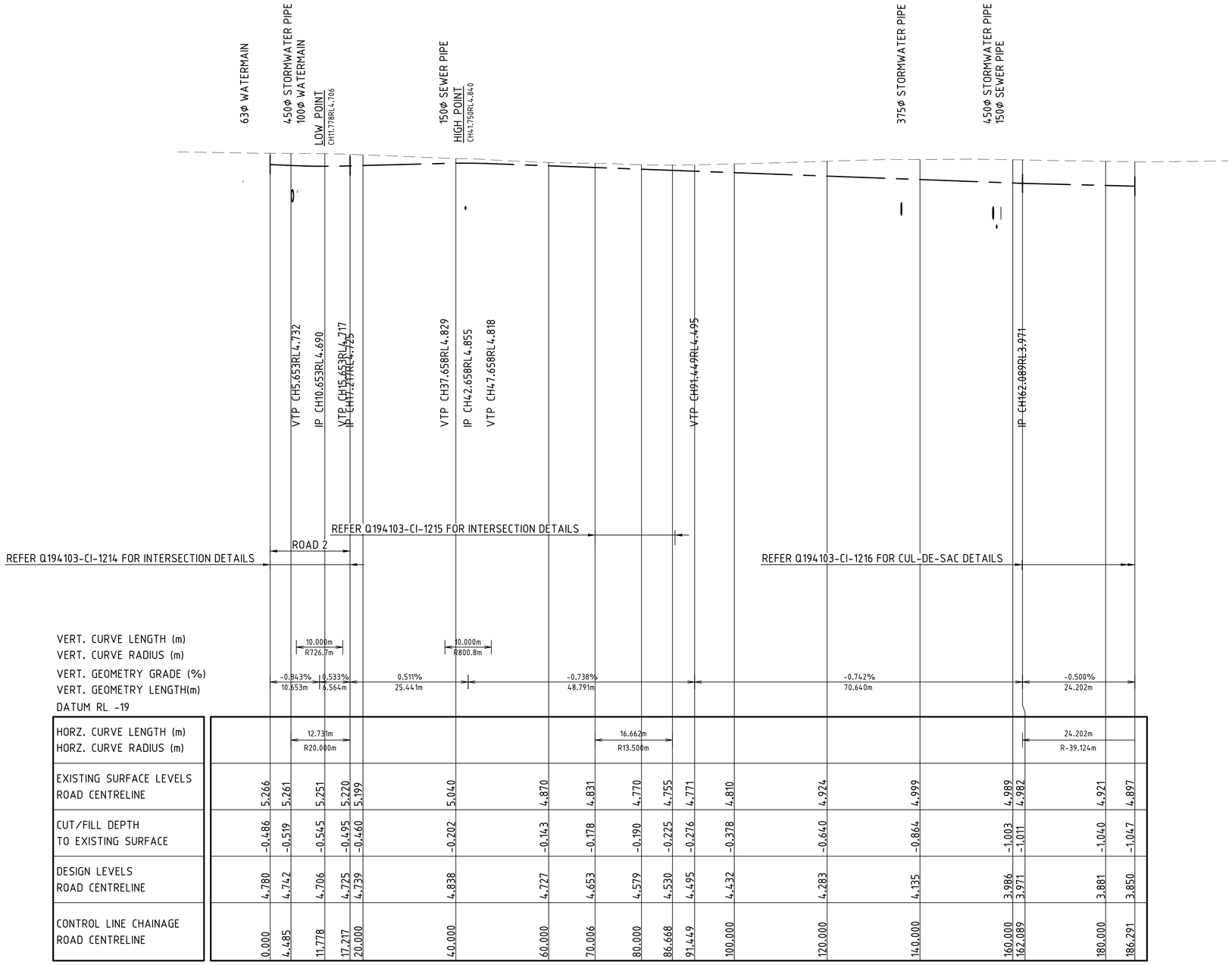
Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1208
Revision: B

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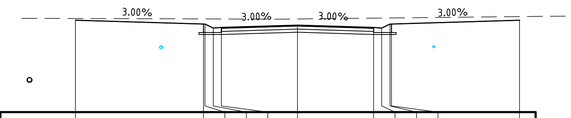
DATE PLOTTED: 1 April 2020 11:47 AM BY : MARY DOZA

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CAD File: C:\Users\mary.doza\Documents_C DRIVE_JOBS\PORT DOUGLAS_Acad\Q184103-CI-1202-1210.dwg



ROAD 5
SCALE: H 1:500
V 1:100

ROAD 5
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Y = 8170465.545

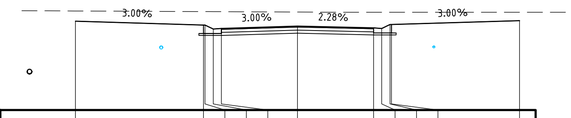


Datum 2.00

DESIGN HEIGHT	4.999		4.873	4.873	4.743	4.763	4.838		4.763	4.743	4.873	4.873		4.999
EXISTING SURFACE	5.054		5.042	5.041	5.041	5.040	5.040		5.066	5.069	5.072	5.072		5.117
OFFSETS	-7.250		-3.070	-3.020	-2.750	-2.485	0.000		2.485	2.750	3.020	3.070		7.250

CHAINAGE 40.000

ROAD 5
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Y = 8170445.686

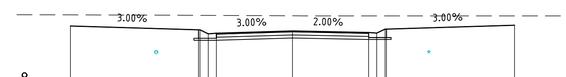


Datum 2.00

DESIGN HEIGHT	4.900		4.775	4.775	4.645	4.665	4.739		4.683	4.663	4.793	4.793		4.918
EXISTING SURFACE	5.234		5.214	5.214	5.212	5.211	5.199		5.193	5.193	5.193	5.193		5.194
OFFSETS	-7.250		-3.070	-3.020	-2.750	-2.485	0.000		2.485	2.750	3.020	3.070		7.250

CHAINAGE 20.000

ROAD 5
X = 336942.286
Y = 8170442.922



Datum 2.00

DESIGN HEIGHT	4.886		4.760	4.760	4.630	4.650	4.725		4.675	4.655	4.785	4.785		4.911
EXISTING SURFACE	5.249		5.234	5.234	5.233	5.232	5.220		5.216	5.216	5.216	5.216		5.216
OFFSETS	-7.250		-3.070	-3.020	-2.750	-2.485	0.000		2.485	2.750	3.020	3.070		7.250

CHAINAGE 17.217

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 4 6 8 10m
SCALE 1:100 @A1

0 10 20 30 40 50m
SCALE 1:500 @A1

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	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: ROAD 5 LONGITUDINAL SECTION

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1209

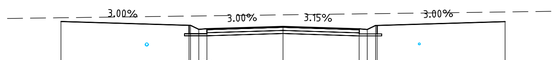
Revision: B

DATE PLOTTED: 1 April 2020 11:47 AM BY : MARY DOZA

XREFs: XR-Q184103-CI-LS-WABUL01 ; XR-Q184103-CI-XS-WABUL1 ; XR-Q184103-CI-LS-ROAD 201 ; XR-Q184103-CI-XS-ROAD 21 ; XR-Q184103-CI-LS-RA0401 ; XR-Q184103-CI-XS-RS041 ; XR-Q184103-CI-LS-RS0201 ; XR-Q184103-CI-LS-RS0201 ; XR-Q184103-CI-XS-RS021 ; XR-Q184103-CI-LS-RS0301 ; XR-Q184103-CI-XS-RS031

CAD File: C:\Users\mary.dozal\Documents_C DRIVE_JOBS\PORT DOUGLAS_Acad\Q184103-CI-1202-1210.dwg

ROAD 5
X = 336955.472
Y = 8170514.927

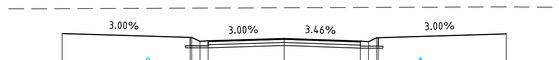


Datum 2.00

DESIGN HEIGHT	4.592	4.467	4.467	4.337	4.357	4.432	4.353	4.333	4.463	4.589
EXISTING SURFACE	4.715	4.770	4.771	4.774	4.778	4.810	4.842	4.846	4.849	4.850	4.904
OFFSETS	-7.250	-3.070	-3.020	-2.750	-2.485	0.000	2.485	2.750	3.020	3.070	7.250

CHAINAGE 100.000

ROAD 5
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Y = 8170541.312

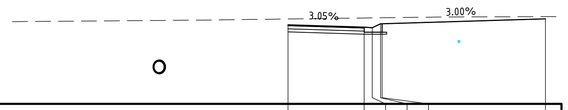


Datum 2.00

DESIGN HEIGHT	4.147	4.022	4.022	3.892	3.912	3.986	3.900	3.880	4.010	4.010	4.136
EXISTING SURFACE	4.958	4.977	4.977	4.978	4.980	4.989	4.999	5.000	5.001	5.001	5.015
OFFSETS	-7.250	-3.070	-3.020	-2.750	-2.485	0.000	2.485	2.750	3.020	3.070	7.250

CHAINAGE 160.000

ROAD 5
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Y = 8170504.800

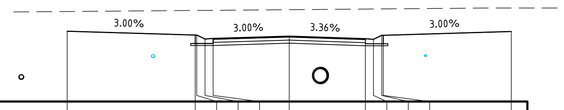


Datum 2.00

DESIGN HEIGHT	4.579	4.504	4.484	4.614	4.614	4.774
EXISTING SURFACE	4.770	4.802	4.806	4.809	4.810	4.847
OFFSETS	0.000	2.485	2.750	3.020	3.070	8.402

CHAINAGE 80.000

ROAD 5
X = 336991.397
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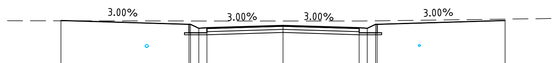


Datum 2.00

DESIGN HEIGHT	4.296	4.170	4.170	4.040	4.060	4.135	4.051	4.031	4.161	4.161	4.287
EXISTING SURFACE	4.939	4.973	4.974	4.976	4.978	4.999	5.019	5.021	5.023	5.024	5.053
OFFSETS	-7.250	-3.070	-3.020	-2.750	-2.485	0.000	2.485	2.750	3.020	3.070	7.250

CHAINAGE 140.000

ROAD 5
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Y = 8170485.404

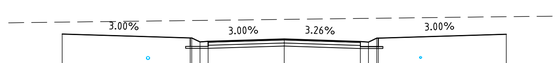


Datum 2.00

DESIGN HEIGHT	4.888	4.762	4.762	4.632	4.652	4.727	4.652	4.632	4.762	4.762	4.888
EXISTING SURFACE	4.877	4.871	4.871	4.871	4.870	4.870	4.870	4.872	4.876	4.877	4.932
OFFSETS	-7.250	-3.070	-3.020	-2.750	-2.485	0.000	2.485	2.750	3.020	3.070	7.250

CHAINAGE 60.000

ROAD 5
X = 336973.434
Y = 8170523.722



Datum 2.00

DESIGN HEIGHT	4.444	4.319	4.319	4.189	4.209	4.283	4.202	4.182	4.312	4.312	4.438
EXISTING SURFACE	4.835	4.886	4.886	4.890	4.893	4.924	4.954	4.957	4.961	4.961	5.011
OFFSETS	-7.250	-3.070	-3.020	-2.750	-2.485	0.000	2.485	2.750	3.020	3.070	7.250

CHAINAGE 120.000

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 4 6 8 10m
SCALE 1:100 @A1

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Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: ROAD 5 CROSS SECTIONS

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1210

Revision: B

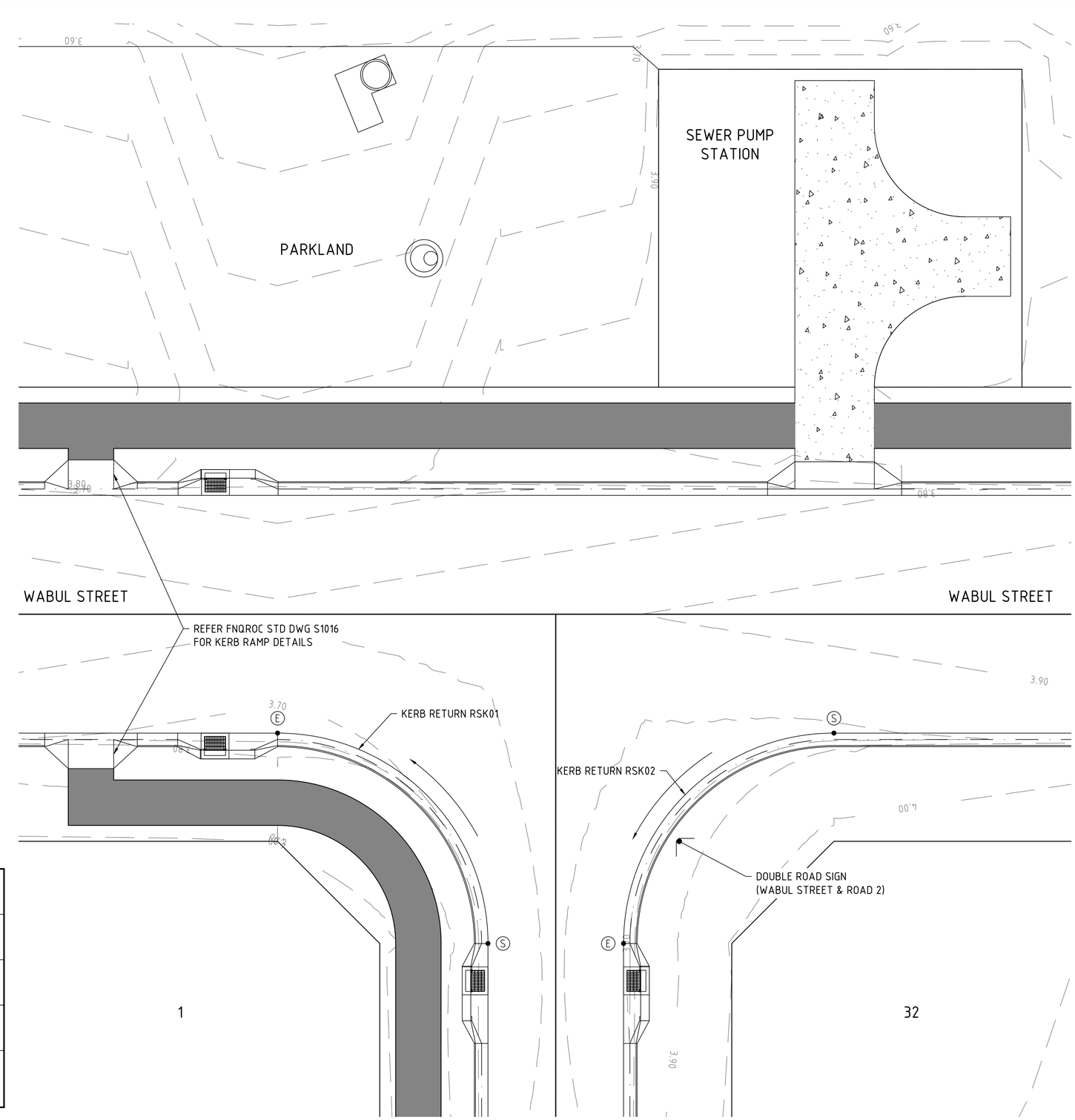
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DATE PLOTTED: 2 April 2020 11:30 AM BY: MARY DOZA
CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1211-1216.dwg

LEGEND

- SIGNS (REFER NOTES)
- ① SETOUT POINT
- 3.50 FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- LAYBACK KERB & CHANNEL (REFER FNQROC STD. DWG S1000F)
- KERB RAMP (REFER FNQROC STD. DWG S1016C)
- KERB INLET PITS – SIZES TO BE CONFIRMED. (REFER FNQROC STD. DWG S1050B & 1055D)

RSK01 HORIZONTAL POINTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	337102.135	8170528.113	3.754	36°39'29.65"			
IP 2	7.277	337107.667	8170535.546	3.709		R = -9.265	14.553	90°00'00.00"
E	14.553	337100.234	8170541.077	3.663	306°39'29.65"			

RSK02 HORIZONTAL POINTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	337119.889	8170526.450	3.785	306°39'29.65"			
IP 2	7.277	337112.456	8170531.981	3.747		R = -9.265	14.553	90°00'00.00"
E	14.553	337106.924	8170524.549	3.709	216°39'29.65"			



VERT. CURVE LENGTH (m) -0.625%
VERT. CURVE RADIUS (m) 14.573m
VERT. GEOMETRY GRADE (%)
VERT. GEOMETRY LENGTH(m)

Datum 0

HORZ. CURVE LENGTH (m) / HORZ. CURVE RADIUS (m)	14.553m R-9.265m								
EXISTING SURFACE LEVELS ROAD CENTRELINE		4.930	4.918	4.916	4.908	4.909	4.918		
CUT / FILL DEPTH TO EXISTING SURFACE		1.176	1.180	1.193	1.200	1.216	1.241		
DESIGN LEVELS ROAD CENTRELINE		3.754	3.739	3.723	3.708	3.692	3.677	3.663	
CONTROL LINE CHAINAGES ROAD CENTRELINE	-0.010	0.000	2.462	4.925	7.387	9.849	12.311	14.563	

KERB RETURN RSK01

VERT. CURVE LENGTH (m) -0.523%
VERT. CURVE RADIUS (m) 14.563m
VERT. GEOMETRY GRADE (%)
VERT. GEOMETRY LENGTH(m)

Datum 0

HORZ. CURVE LENGTH (m) / HORZ. CURVE RADIUS (m)	14.553m R-9.265m								
EXISTING SURFACE LEVELS ROAD CENTRELINE		4.666	4.701	4.741	4.777	4.805	4.827		
CUT / FILL DEPTH TO EXISTING SURFACE		0.880	0.928	0.982	1.030	1.071	1.106		
DESIGN LEVELS ROAD CENTRELINE		3.785	3.773	3.760	3.747	3.734	3.721	3.709	
CONTROL LINE CHAINAGES ROAD CENTRELINE	0.000	2.462	4.925	7.387	9.849	12.311	14.563		

KERB RETURN RSK02

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 4 6 8 10m
SCALE 1:100 PLAN @A1
H: 0 5 10 15 20 25m
V: 0 1 2 3 4 5m
SCALE: H:1:250 V:1:50

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Drawn	JJ	Date 10.10.2019
Checked	MS	Date 10.10.2019
Designed	MC	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: INTERSECTION PLAN
SHEET 1 OF 6

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1211
Revision: B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-DSGN-CNTRS; XR-Q184103-CI-LS-RSK01; XR-Q184103-CI-LS-RSK02; XR-Q184103-CI-LS-RSK03; XR-Q184103-CI-LS-RSK04; XR-Q184103-CI-LS-RSK05; XR-Q184103-CI-LS-RSK06; XR-Q184103-CI-LS-RSK07; XR-Q184103-CI-LS-RSK08; XR-Q184103-CI-LS-RSK09; XR-Q184103-CI-LS-RSK10; XR-Q184103-CI-LS-RSK11; XR-Q184103-CI-KR-TABLE
DATE PLOTTED: 2 April 2020 11:30 AM BY: MARY DOZA
CAD File: C:\Users\mary.doza\Documents_C DRIVE_JOBS\PORT DOUGLAS_Asset\Q184103-CI-1211-1216.dwg

LEGEND

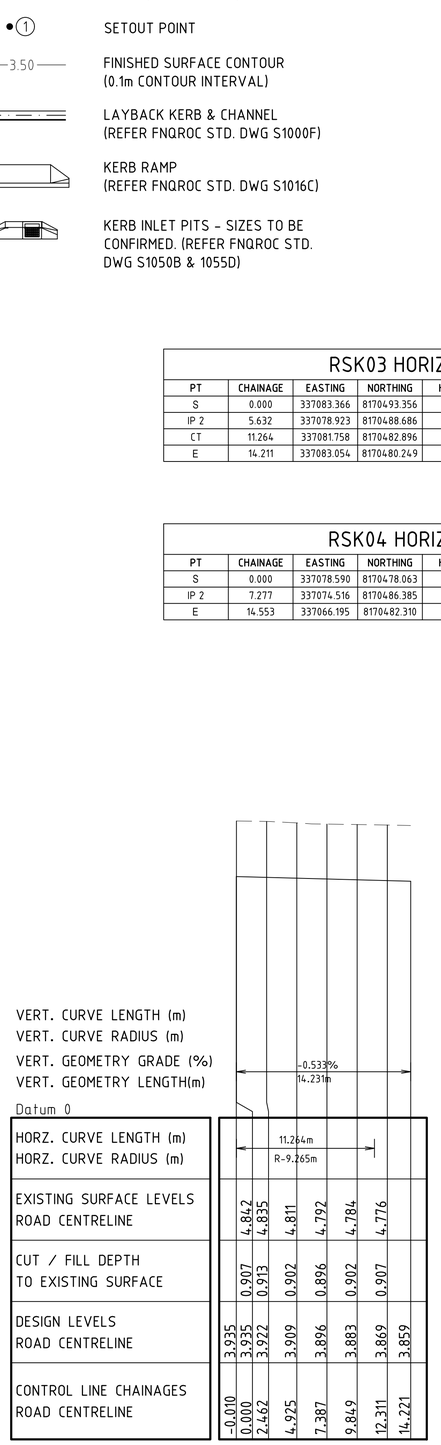
- SIGNS (REFER NOTES)
- ① SETOUT POINT
- 3.50 FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- LAYBACK KERB & CHANNEL (REFER FNQROC STD. DWG S1000F)
- KERB RAMP (REFER FNQROC STD. DWG S1016C)
- KERB INLET PITS – SIZES TO BE CONFIRMED. (REFER FNQROC STD. DWG S1050B & 1055D)

RSK03 HORIZONTAL POINTS

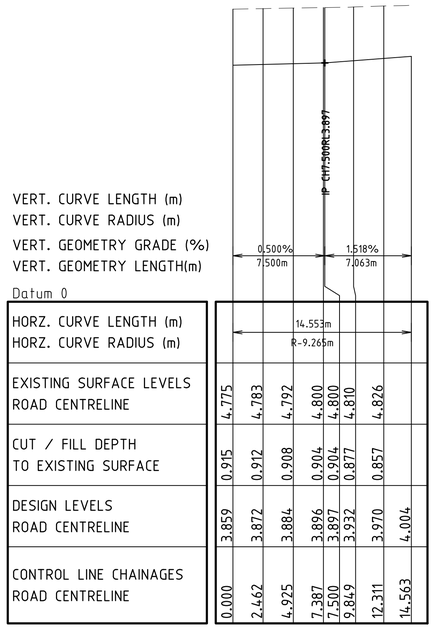
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	337083.366	8170493.356	3.935	223°33'59.10"			
IP 2	5.632	337078.923	8170488.686	3.905		R = -9.265	11.264	69°39'17.62"
CT	11.264	337081.758	8170482.896	3.875	153°54'41.48"			
E	14.211	337083.054	8170480.249	3.859	153°54'41.48"			

RSK04 HORIZONTAL POINTS

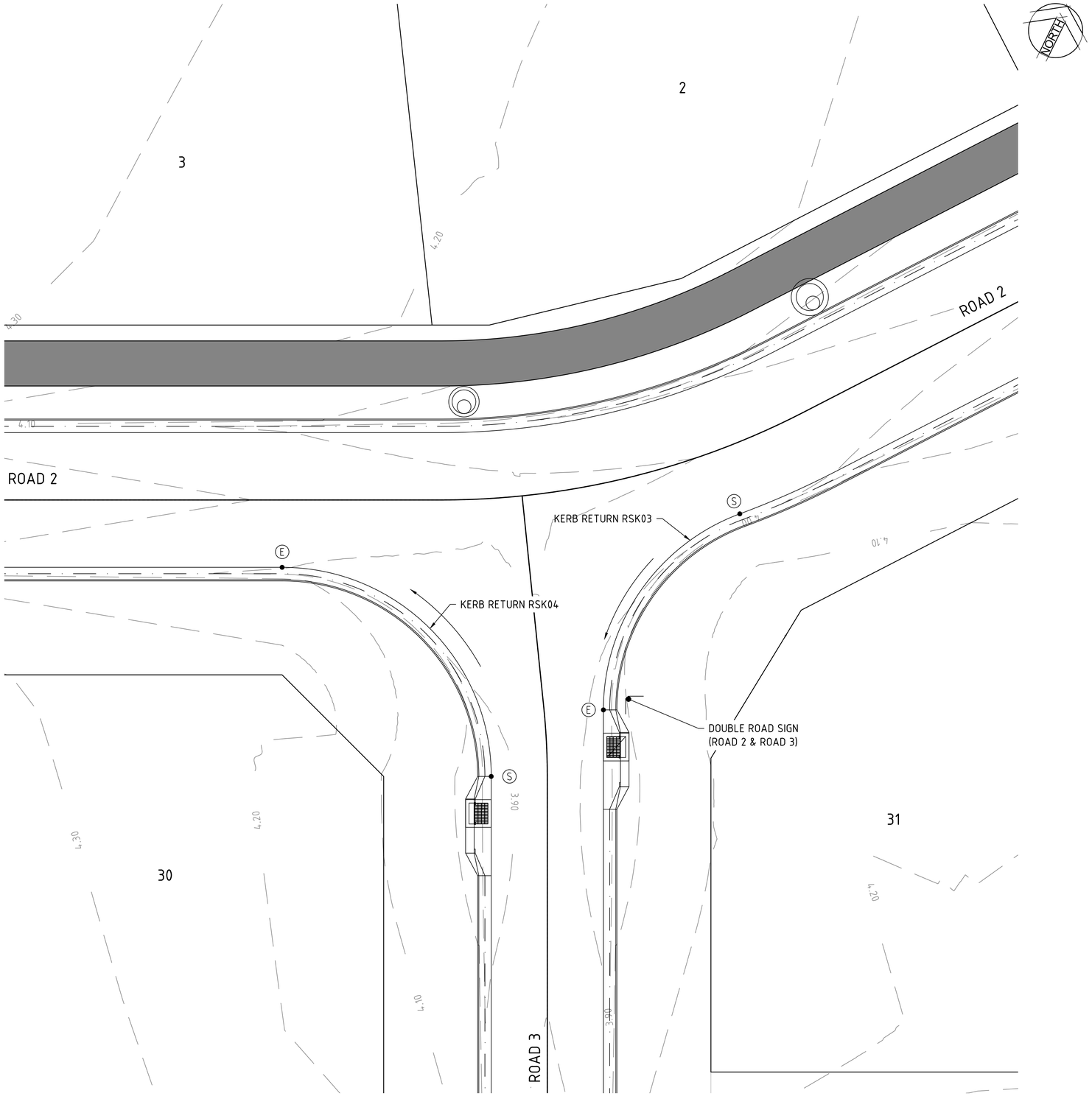
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	337078.590	8170478.063	3.859	333°54'41.48"			
IP 2	7.277	337074.516	8170486.385	3.896		R = -9.265	14.553	90°00'00.00"
E	14.553	337066.195	8170482.310	4.004	243°54'41.48"			



KERB RETURN RSK03



KERB RETURN RSK04



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B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 4 6 8 10m
SCALE 1:100 PLAN @A1

H: 0 5 10 15 20 25m
V: 0 1 2 3 4 5m
SCALE: H:1:250 V:1:50

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Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: INTERSECTION PLAN
SHEET 2 OF 6

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1212

Revision: B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-DSGN-CNTRS; XR-Q184103-CI-LS-RSK01; XR-Q184103-CI-LS-RSK02; XR-Q184103-CI-LS-RSK03; XR-Q184103-CI-LS-RSK04; XR-Q184103-CI-LS-RSK05; XR-Q184103-CI-LS-RSK06; XR-Q184103-CI-LS-RSK07; XR-Q184103-CI-LS-RSK08; XR-Q184103-CI-LS-RSK09; XR-Q184103-CI-LS-RSK10; XR-Q184103-CI-LS-RSK11; XR-Q184103-CI-KR-TABLE
DATE PLOTTED: 2 April 2020 11:30 AM BY: MARY DOZA
CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1211-1216.dwg

LEGEND

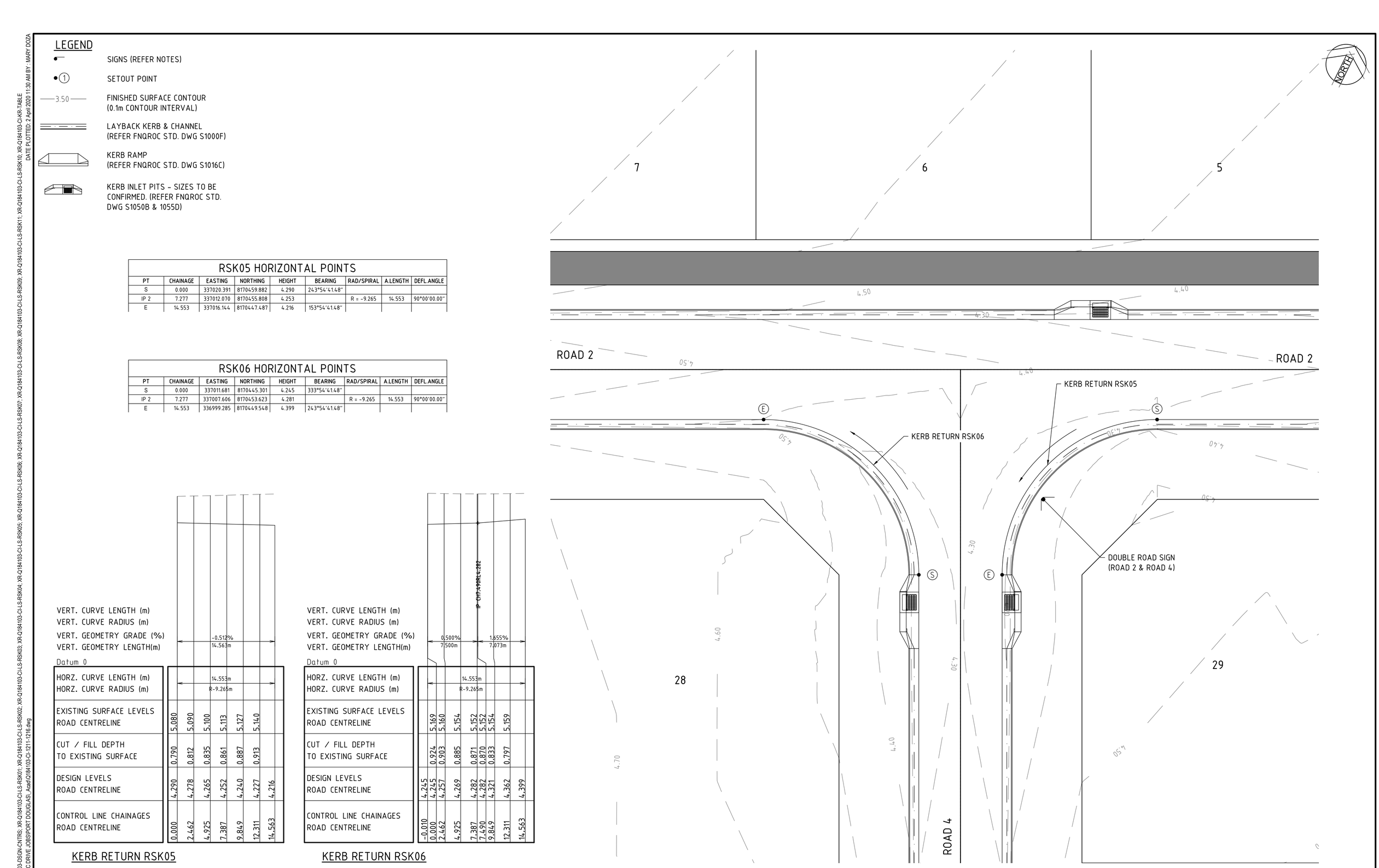
- SIGNS (REFER NOTES)
- (1) SETOUT POINT
- 3.50 FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- LAYBACK KERB & CHANNEL (REFER FNQROC STD. DWG S1000F)
- KERB RAMP (REFER FNQROC STD. DWG S1016C)
- KERB INLET PITS – SIZES TO BE CONFIRMED. (REFER FNQROC STD. DWG S1050B & 1055D)

RSK05 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	337020.391	8170459.882	4.290	243°54'41.48"			
IP 2	7.277	337012.070	8170455.808	4.253		R = -9.265	14.553	90°00'00.00"
E	14.553	337016.144	8170447.487	4.216	153°54'41.48"			

RSK06 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	337011.681	8170445.301	4.245	333°54'41.48"			
IP 2	7.277	337007.606	8170453.623	4.281		R = -9.265	14.553	90°00'00.00"
E	14.553	336999.285	8170449.548	4.399	243°54'41.48"			



VERT. CURVE LENGTH (m)
VERT. CURVE RADIUS (m)
VERT. GEOMETRY GRADE (%) -0.512%
VERT. GEOMETRY LENGTH(m) 14.563m
Datum 0

HORZ. CURVE LENGTH (m) / HORZ. CURVE RADIUS (m)							
			14.553m / R-9.265m				
EXISTING SURFACE LEVELS ROAD CENTRELINE	5.080	5.090	5.100	5.113	5.127	5.140	
CUT / FILL DEPTH TO EXISTING SURFACE	0.790	0.812	0.835	0.861	0.887	0.913	
DESIGN LEVELS ROAD CENTRELINE	4.290	4.278	4.265	4.252	4.240	4.227	4.216
CONTROL LINE CHAINAGES ROAD CENTRELINE	0.000	2.462	4.925	7.387	9.849	12.311	14.563

KERB RETURN RSK05

VERT. CURVE LENGTH (m)
VERT. CURVE RADIUS (m)
VERT. GEOMETRY GRADE (%) 0.500% 1.655%
VERT. GEOMETRY LENGTH(m) 7.500m 7.073m
Datum 0
IP CH7.490RL4.282

HORZ. CURVE LENGTH (m) / HORZ. CURVE RADIUS (m)							
			14.553m / R-9.265m				
EXISTING SURFACE LEVELS ROAD CENTRELINE	5.169	5.160	5.154	5.152	5.152	5.154	
CUT / FILL DEPTH TO EXISTING SURFACE	0.924	0.903	0.885	0.871	0.870	0.833	0.797
DESIGN LEVELS ROAD CENTRELINE	4.245	4.257	4.269	4.282	4.282	4.321	4.362	4.399
CONTROL LINE CHAINAGES ROAD CENTRELINE	-0.010	0.000	2.462	4.925	7.387	7.490	9.849	12.311	14.563

KERB RETURN RSK06

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B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 4 6 8 10m
SCALE 1:100 PLAN @A1
H: 0 5 10 15 20 25m
V: 0 1 2 3 4 5m
SCALE: H:1:250 V:1:50

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Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD
Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE
Title: INTERSECTION PLAN
SHEET 3 OF 6

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1213
Revision: B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-DSGN-CNTRS; XR-Q184103-CI-LS-RSK01; XR-Q184103-CI-LS-RSK02; XR-Q184103-CI-LS-RSK03; XR-Q184103-CI-LS-RSK04; XR-Q184103-CI-LS-RSK05; XR-Q184103-CI-LS-RSK06; XR-Q184103-CI-LS-RSK07; XR-Q184103-CI-LS-RSK08; XR-Q184103-CI-LS-RSK09; XR-Q184103-CI-LS-RSK10; XR-Q184103-CI-LS-RSK11; XR-Q184103-CI-KR-TABLE
DATE PLOTTED: 2 April 2020 11:30 AM BY: MARY DOZA
CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1211-1216.dwg

LEGEND

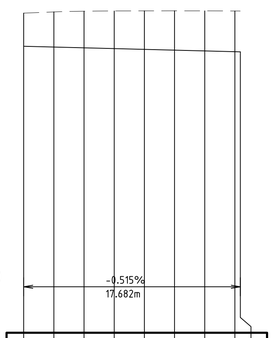
- SIGNS (REFER NOTES)
- ① SETOUT POINT
- 3.50 FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- LAYBACK KERB & CHANNEL (REFER FNQROC STD. DWG S1000F)
- KERB RAMP (REFER FNQROC STD. DWG S1016C)
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RSK07 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	336944.753	8170443.217	4.675	173°11'41.48"			
IP 2	8.836	336946.300	8170430.252	4.630		R = -9.265	17.672	109°17'00.00"
E	17.672	336958.027	8170435.994	4.584	63°54'41.48"			

RSK08 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	336943.084	8170415.264	4.761	353°11'41.48"			
IP 2	3.689	336942.643	8170418.961	4.717		R = 22.485	7.379	18°48'10.07"
CC	7.379	336943.416	8170422.603	4.674	11°59'51.54"			
IP 3	14.029	336944.851	8170429.352	4.596		R = -20.265	13.301	37°36'20.13"
CC	20.680	336941.868	8170435.574	4.613	334°23'31.41"			
IP 4	24.369	336940.259	8170438.931	4.632		R = 22.485	7.379	18°48'10.07"
E	28.059	336939.818	8170442.628	4.650	353°11'41.48"			

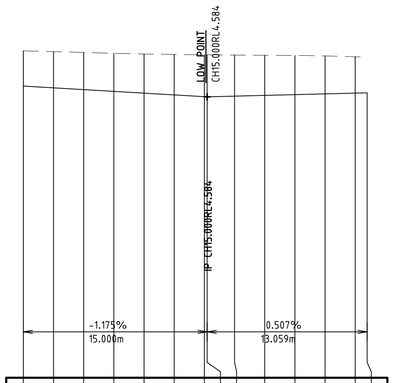


VERT. CURVE LENGTH (m) — -0.515% — 17.682m
VERT. CURVE RADIUS (m)
VERT. GEOMETRY GRADE (%)
VERT. GEOMETRY LENGTH(m)

Datum 0

HORZ. CURVE LENGTH (m)						17.672m											
HORZ. CURVE RADIUS (m)						R-9.265m											
EXISTING SURFACE LEVELS ROAD CENTRELINE	5.216	5.235	5.247	5.251	5.253	5.253	5.253	5.251									
CUT / FILL DEPTH TO EXISTING SURFACE	0.540	0.573	0.597	0.614	0.628	0.641	0.653	0.664									
DESIGN LEVELS ROAD CENTRELINE	4.675	4.663	4.650	4.637	4.625	4.612	4.599	4.586	4.584								
CONTROL LINE CHAINAGES ROAD CENTRELINE	0.000	2.462	4.925	7.387	9.849	12.311	14.774	17.236	17.682								

KERB RETURN RSK07

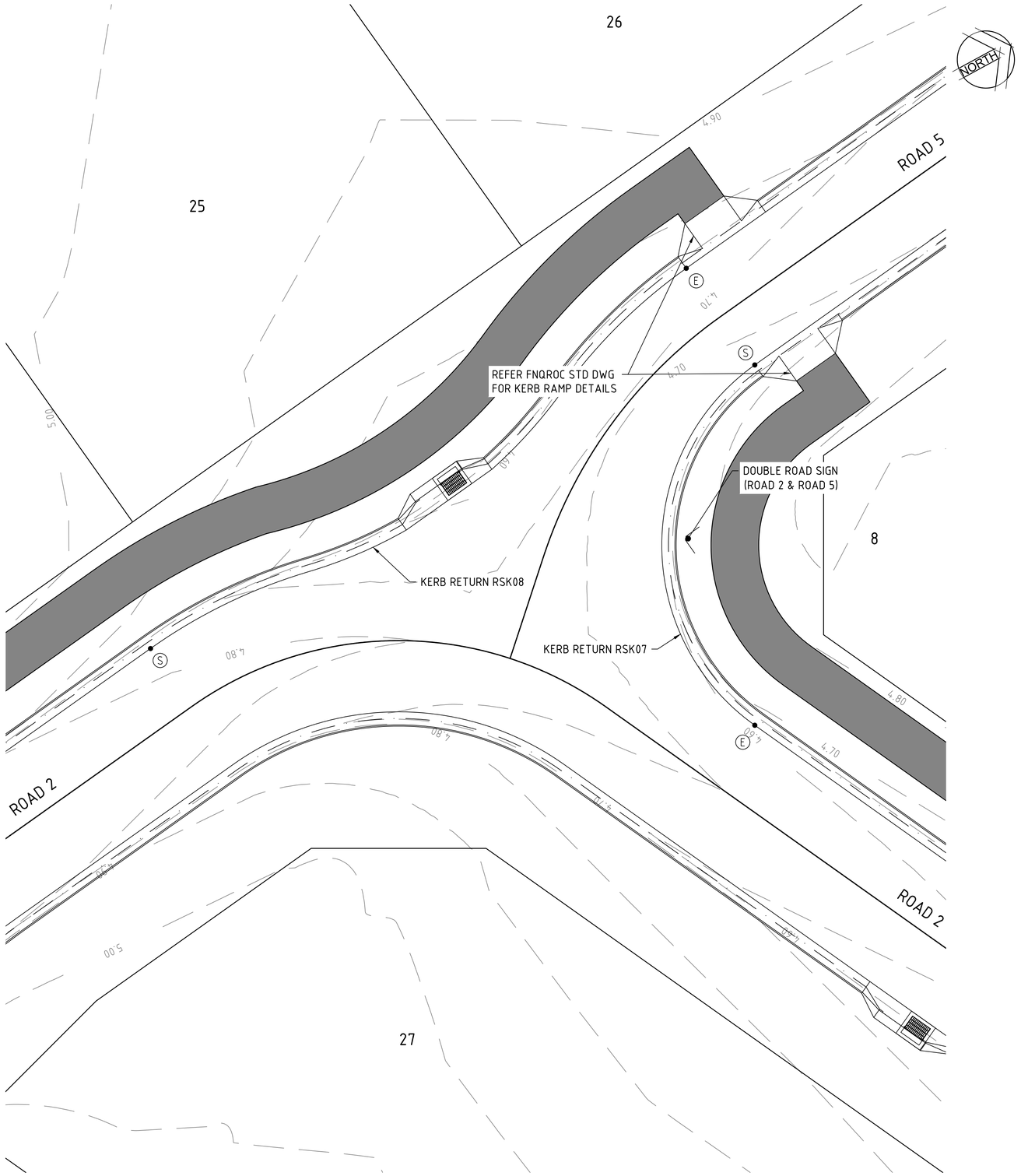


VERT. CURVE LENGTH (m) — -1.175% — 15.000m — 0.507% — 13.059m
VERT. CURVE RADIUS (m)
VERT. GEOMETRY GRADE (%)
VERT. GEOMETRY LENGTH(m)

Datum 0

HORZ. CURVE LENGTH (m)						7.379m				13.301m						7.379m	
HORZ. CURVE RADIUS (m)						R22.485m				R-20.265m						R22.485m	
EXISTING SURFACE LEVELS ROAD CENTRELINE	5.335	5.322	5.309	5.295	5.284	5.277	5.271	5.270	5.266	5.263	5.260	5.252	5.239				
CUT / FILL DEPTH TO EXISTING SURFACE	0.574	0.591	0.606	0.622	0.639	0.661	0.684	0.686	0.671	0.655	0.639	0.619	0.593				
DESIGN LEVELS ROAD CENTRELINE	4.761	4.732	4.703	4.674	4.645	4.616	4.587	4.584	4.596	4.608	4.621	4.633	4.645	4.650			
CONTROL LINE CHAINAGES ROAD CENTRELINE	0.000	2.462	4.925	7.387	9.849	12.311	14.774	15.000	17.236	19.698	22.161	24.623	27.085	28.059			

KERB RETURN RSK08



Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
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0 1 2 4 6 8 10m
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H: 0 5 10 15 20 25m
V: 0 1 2 3 4 5m
SCALE: H:1:250 V:1:50

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Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: INTERSECTION PLAN
SHEET 4 OF 6

Status: FOR APPROVAL
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Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1214
Revision: B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-DSGN-CNTRS; XR-Q184103-CI-LS-RSK01; XR-Q184103-CI-LS-RSK02; XR-Q184103-CI-LS-RSK03; XR-Q184103-CI-LS-RSK04; XR-Q184103-CI-LS-RSK05; XR-Q184103-CI-LS-RSK06; XR-Q184103-CI-LS-RSK07; XR-Q184103-CI-LS-RSK08; XR-Q184103-CI-LS-RSK09; XR-Q184103-CI-LS-RSK10; XR-Q184103-CI-LS-RSK11; XR-Q184103-CI-KR-TABLE
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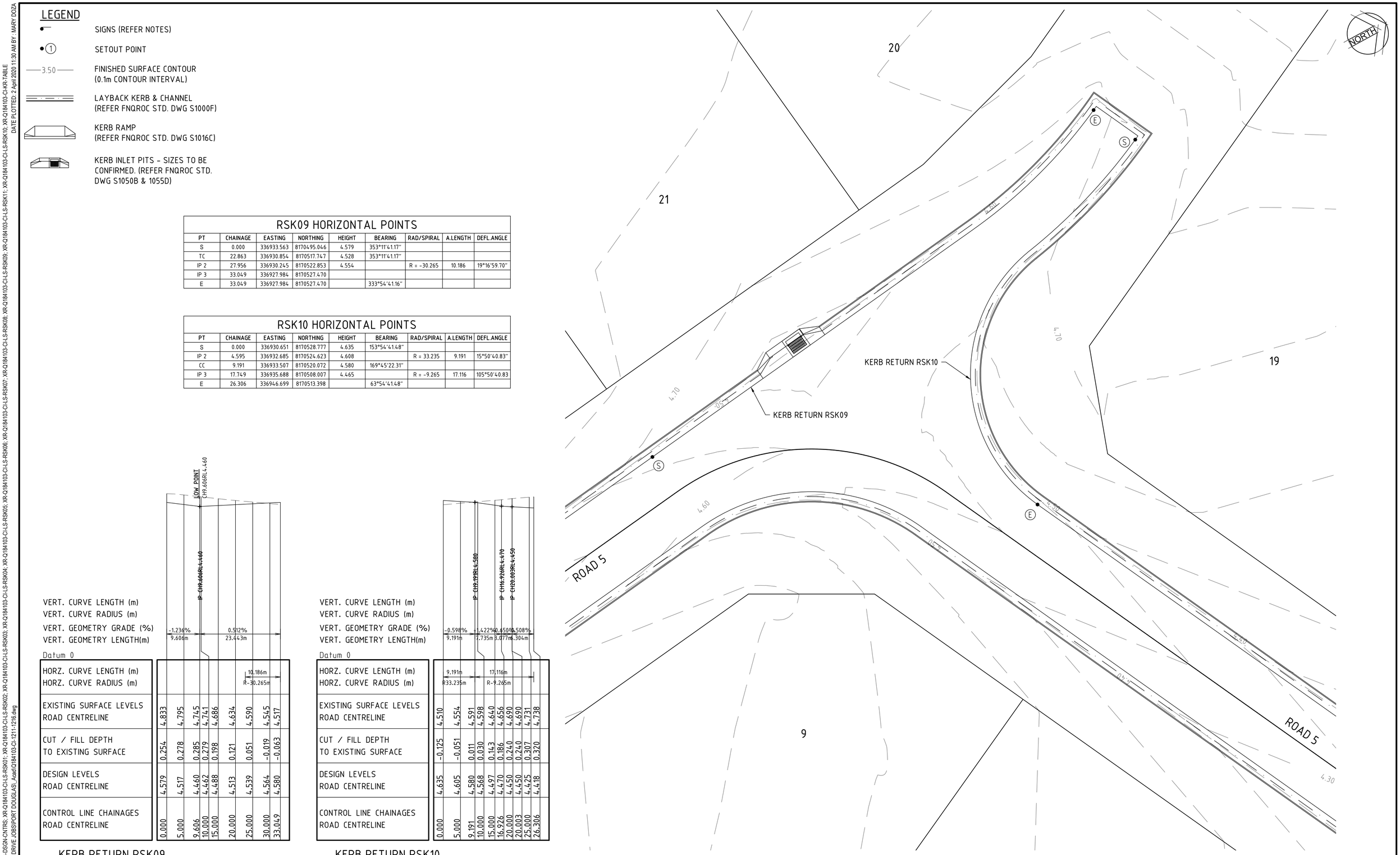
- SIGNS (REFER NOTES)
- ① SETOUT POINT
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RSK09 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	336933.563	8170495.046	4.579	353°11'41.17"			
TC	22.863	336930.854	8170517.747	4.528	353°11'41.17"			
IP 2	27.956	336930.245	8170522.853	4.554		R = -30.265	10.186	19°16'59.70"
IP 3	33.049	336927.984	8170527.470					
E	33.049	336927.984	8170527.470		333°54'41.16"			

RSK10 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	336930.651	8170528.777	4.635	153°54'41.48"			
IP 2	4.595	336932.685	8170524.623	4.608		R = 33.235	9.191	15°50'40.83"
CC	9.191	336933.507	8170520.072	4.580	169°45'22.31"			
IP 3	17.749	336935.688	8170508.007	4.465		R = -9.265	17.116	105°50'40.83
E	26.306	336946.699	8170513.398		63°54'41.48"			



KERB RETURN RSK09

KERB RETURN RSK10

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SCALE 1:100 PLAN @A1
0 1 2 4 6 8 10m
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SCALE: H:1:250 V:1:50

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Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE
Title: INTERSECTION PLAN
SHEET 5 OF 6

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1215
Revision: B

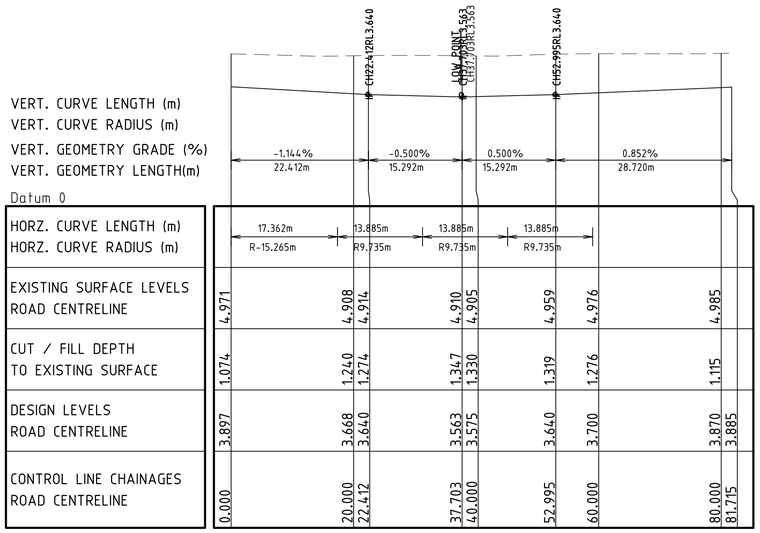
XREFs: XR-Q184103-CI-BASE; XR-Q184103-DSGN-CNTRS; XR-Q184103-CI-LS-RSK01; XR-Q184103-CI-LS-RSK02; XR-Q184103-CI-LS-RSK03; XR-Q184103-CI-LS-RSK04; XR-Q184103-CI-LS-RSK05; XR-Q184103-CI-LS-RSK06; XR-Q184103-CI-LS-RSK07; XR-Q184103-CI-LS-RSK08; XR-Q184103-CI-LS-RSK09; XR-Q184103-CI-LS-RSK10; XR-Q184103-CI-LS-RSK11; XR-Q184103-CI-KR-TABLE
DATE PLOTTED: 2 April 2020 11:31 AM BY: MARY DOZA
CAD File: C:\Users\mary.doza\Documents\ C DRIVE_JOBS\PORT DOUGLAS\ Acad\Q184103-CI-1211-1216.dwg

LEGEND

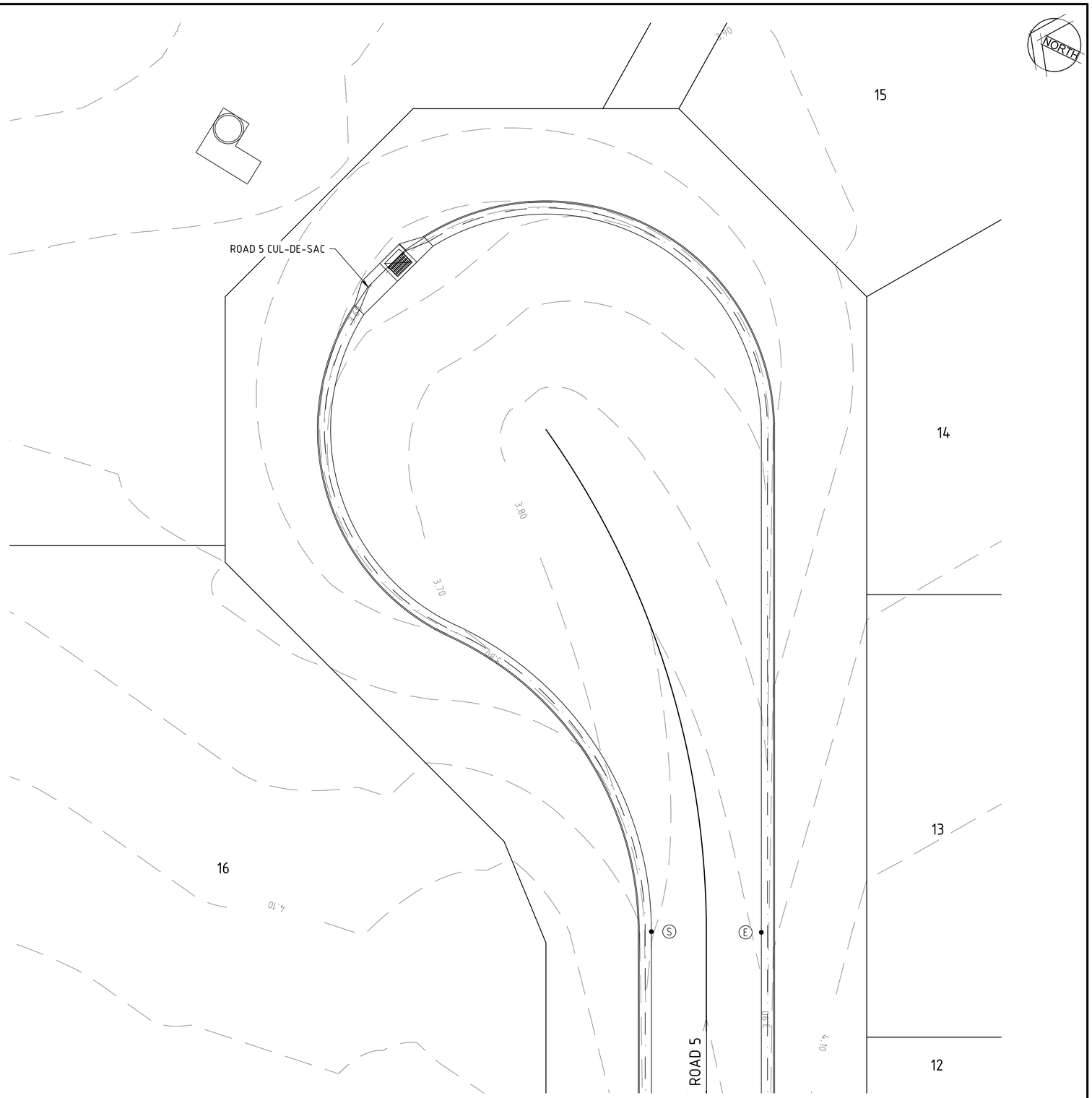
- SIGNS (REFER NOTES)
- SETOUT POINT
- 3.50 — FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- LAYBACK KERB & CHANNEL (REFER FNQROC STD. DWG S1000F)
- KERB RAMP (REFER FNQROC STD. DWG S1016C)
- KERB INLET PITS – SIZES TO BE CONFIRMED. (REFER FNQROC STD. DWG S1050B & 1055D)

RSK11 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
S	0.000	337010.142	8170544.463	3.897	63°54'41.48"			
IP 2	8.681	337018.904	8170548.753	3.797		R = -15.265	17.362	65°09'55.49
CC	17.362	337018.691	8170558.507	3.698	358°44'45.99"			
IP 3	24.304	337018.506	8170566.926	3.631		R = 9.735	13.885	81°43'18.50"
CC	31.247	337026.811	8170568.320	3.596	80°28'04.49"			
IP 4	38.189	337035.116	8170569.715	3.566		R = 9.735	13.885	81°43'18.50"
CC	45.132	337037.692	8170561.697	3.601	162°11'22.98"			
IP 5	52.075	337040.268	8170553.680	3.635		R = 9.735	13.885	81°43'18.50"
CT	59.017	337032.704	8170549.977	3.691	243°54'41.48"			
E	81.705	337012.328	8170539.999	3.885	243°54'41.48"			



KERB RETURN RSK11



Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 4 6 8 10m
SCALE 1:100 PLAN @A1

H: 0 5 10 15 20 25m
V: 0 1 2 3 4 5m
SCALE: H:1:250 V:1:50

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		Date
Drawn	JJ	10.10.2019
Checked	MS	10.10.2019
Designed	MC	10.10.2019
Verified	MS	10.10.2019
Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: INTERSECTION PLAN
SHEET 6 OF 6

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1216

Revision: B

DATE PLOTTED: 1 April 2020 11:48 AM BY: MARY DOZA

XREFs: XR-Q184103-CI-BASE; XR-Q184103-CI-GRADE STRINGS; XR-Q184103-SURV
CAD File: C:\Users\mary.doza\Documents_C DRIVE_JOBS\PORT DOUGLAS_Acad\Q184103-CI-1250.dwg

LEGEND

- LOT BOUNDARY
- FUTURE LOT BOUNDARY
- STORMWATER DRAINAGE PIPE

NORTH

REFER Q194103-CI-1264 & 1265
FOR DRAIN RESHAPING DETAILS

REFER Q194103-CI-1262 & 1263
FOR DRAIN RESHAPING DETAILS

7/2.7x0.9 RCBC
REFER Q194103-CI-1262 & 1263
FOR CULVERT DETAILS

SHAPE OUTLET AND ROCK LINE

OUTLET THROUGH
WINGWALL

PARK

ROAD 5

ROAD 2

ROAD 3

ROAD 4

ROAD RESERVE

WABUL

STREET

CAPTAIN COOK HIGHWAY

5/1.54x1.1 EXISTING RCBC CULVERTS

SEWER PUMP STATION

REFER Q184103-CI-1266 & 1267
FOR DIVERSION DRAIN DETAILS

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
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SCALE 1:500 @A1

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Designed	MC	Date 10.10.2019
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Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: STORMWATER LAYOUT PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1250

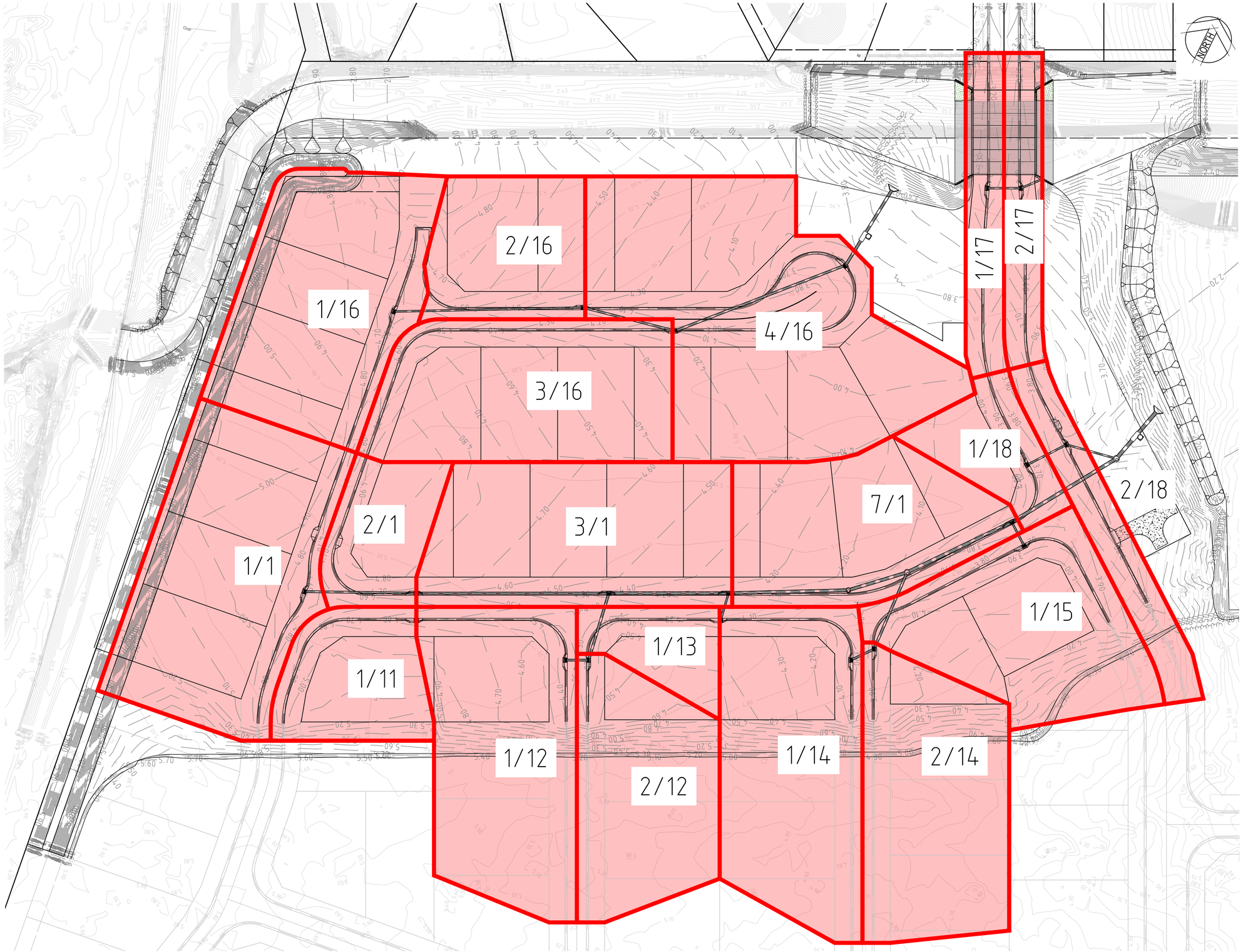
Revision: B

DATE PLOTTED: 2 April 2020 10:36 AM BY: MARY DOZA

CATCHMENT AREAS	
CATCHMENT	AREA (Ha)
1/16	0.307
2/16	0.149
3/16	0.283
4/16	0.489
1/17	0.084
2/17	0.082
1/1	0.359
2/1	0.089
1/11	0.126
3/1	0.296
1/12	0.297
1/13	0.071
2/12	0.218
7/1	0.242
1/18	0.087
1/14	0.301
2/14	0.266
2/18	0.097
1/15	0.256

LEGEND:

- CATCHMENT BOUNDARY
- CATCHMENT AREA
- 1/3 CATCHMENT NUMBER
- 3.50 DESIGN CONTOURS
- 3.50 EXISTING CONTOURS



Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
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0 10 20 30 40 50m

SCALE 1:500 @A1

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Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: STORMWATER CATCHMENT PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1251

Revision: B

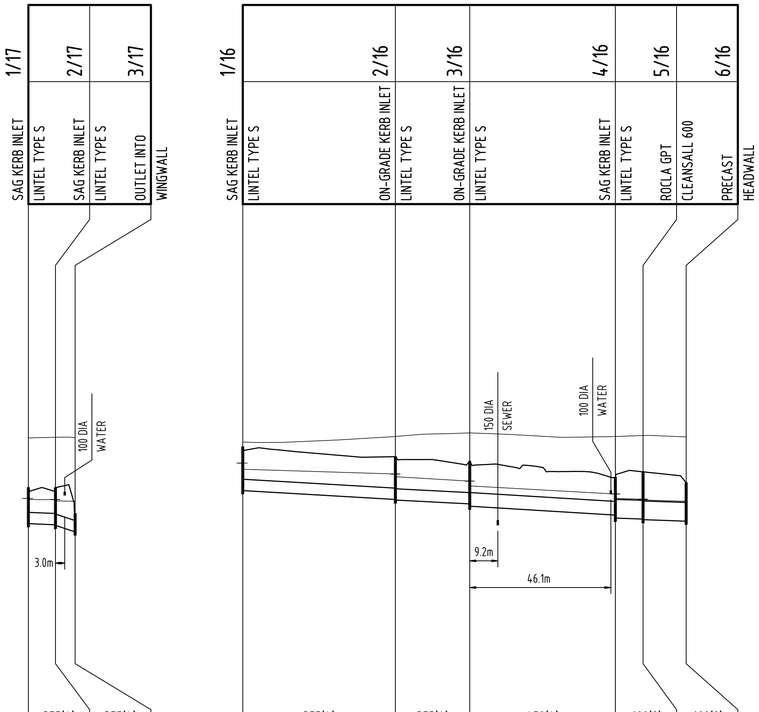
XREFs: XR-Q184103-CI-BASE; XR-Q184103-SURV; XR-Q184103-DSGN-CNTRS; XR-Q184103-EXST-CNTRS
CAD File: C:\Users\mary.doza\Documents_C DRIVE_\JOBS\PORT DOUGLAS_Acad\Q184103-CI-1251.dwg

DATE PLOTTED: 1 April 2020 11:49 AM BY: MARY DOZA

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DATE PLOTTED: 1 April 2020 11:49 AM BY: MARY DOZA

STRUCTURE NAME	1/17	2/17	3/17	1/16	2/16	3/16	4/16	5/16	6/16
STRUCTURE DESCRIPTION	SAG KERB INLET LINTEL TYPE S	SAG KERB INLET LINTEL TYPE S	OUTLET INTO WINGWALL	SAG KERB INLET LINTEL TYPE S	ON-GRADE KERB INLET LINTEL TYPE S	ON-GRADE KERB INLET LINTEL TYPE S	SAG KERB INLET LINTEL TYPE S	ROCLA GPT CLEANSALL 600	PRECAST HEADWALL



PIPE SIZEmm (Class)		375(4)	375(4)		375(4)	375(4)	450(4)	600(2)	600(2)
PIPE GRADE %		0.41%	3.32%		0.58%	0.52%	0.61%	0.34%	0.35%
PIPE SLOPE 1 in X		245.78	30.12		171.80	194.16	163.93	291.52	281.72
FULL PIPE FLOW VELOCITY (m/s)		0.35	0.68		0.87	1.21	1.33	1.22	1.22
PART FULL FLOW VELOCITY (m/s)									
DATUM RL -9.0									
WATER LEVEL IN STRUCTURE	2.893		2.853	2.800	4.046		3.692	3.458	3.036	2.871	2.800
HYDRAULIC GRADE LEVEL	2.893	2.857	2.853	2.812	2.800	4.046	3.845	3.692	3.602	3.458	3.302	3.036	2.895	2.867	2.843	2.800
PIPE FLOW (Cumecs)		0.037		0.072			0.093		0.129		0.207		0.357		0.357	
DEPTH TO INVERT		1.174	1.210	1.230	0.600		1.425	1.396	1.416	1.387	1.462	1.232	1.331	1.542	1.562	1.256
INVERT LEVEL OF DRAIN		2.069	2.033	2.013	1.800		3.150	2.860	2.840	2.715	2.640	2.350	2.251	2.220	2.200	2.150
DESIGN SURFACE LEVEL	3.243		3.243		2.400	4.575		4.256		4.102		3.582		3.762		3.406
STRUCTURE SETOUT	E 337056.609 N 8170602.490	E 337064.556 N 8170606.381		E 337068.750 N 8170611.237		E 336931.738 N 8170505.553		E 336976.064 N 8170528.303	E 336999.820 N 8170533.271			E 337032.256 N 8170568.028	E 337033.169 N 8170577.019		E 337034.528 N 8170591.039	
RUNNING CHAINAGE	0.000	8.848 8.848	6.416 15.264			0.000	49.823	49.823 74.093	24.270		47.541	121.634	9.037 130.671		14.086 144.757	

LINE 17 16

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
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Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: STORMWATER LONGITUDINAL SECTIONS
SHEET 2 OF 2

Status: FOR APPROVAL
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Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1253

Revision: B

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DATE PLOTTED: 1 April 2020 11:49 AM BY: MARY DOZA

LOCATION				TIME									SUB-CATCHMENT RUNOFF					INLET DESIGN						DRAIN DESIGN															HEADLOSSES												
												tc	I	C	A	C×A	+CA	Q				Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T		V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf					
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LENGTH OVERLAND	SLOPE OVERLAND	ROUGHNESS OVERLAND	TIME OVERLAND	LENGTH GUTTER	SLOPE GUTTER	TIME GUTTER	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C x A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	PIPE CAPACITY (HYDRAULIC)	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 STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	OBVERT LEVELS	DRAIN SECTION H.G.L	W.S.E.	SURFACE OR K&C TOP OF KERB	STRUCTURE No.
yrs				m	%		mins	m	%	min	min	mm/h		ha	ha	ha	l/s	l/s	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	L/s	m/s	min		m		m		m		m	%	m	m	m	m	m	
5 100	1/1	1/1 to 2/1	1/1								15.00 15.00	139 221	0.78 0.98	0.359 0.359	0.280 0.351	0.280 0.351	108 216	108 FLOW WIDTH/DEPTH 1.529m	245	SAG KERB INLET LINTEL TYPE S	108	0		15.00 15.00	139 221	0.280 0.351	215	1595	107 (Pipe flow= Grate flow)	108	29.207	0.40	375(4)	106	1.01 (0.99)	0.48	Qg 0.108 Qo 0.108 Do 375 CHRT 32: Vo2/2gDo 0.14 H/Do 1.36 Kg side flow 3.96 end flow 3.32	0.052	3.96	0.206			3.96	0.206	0.41	0.121	3.708 3.591	4.209 4.088	4.415	4.700	1/1
5 100	1/11	1/11 to 2/1	1/11								15.00 15.00	139 221	0.78 0.98	0.126 0.126	0.099 0.124	0.099 0.124	38 76	38 FLOW WIDTH/DEPTH 2.107m DOWNSTREAM 0.635m	83	ON-GRADE KERB INLET LINTEL TYPE S	34	4	1/12	15.00 15.00	139 221	0.099 0.124	76	104.7	42 (Pipe flow= Grate flow)	34	7.105	0.70	375(4)	141	0.32 (1.32)	0.12	Qg 0.034 Qo 0.034 Do 375 CHRT 32: Vo2/2gDo 0.01 H/Do 1.31 Kg side flow 5.26 end flow 3.96	0.005	5.26	0.027			5.26	0.027	0.04	0.003	3.609 3.559	4.091 4.088	4.118	4.660	1/11
5 100	2/1	2/1 to 3/1	1/1;1/11;2/1								15.00 15.00	139 221	0.78 0.98	0.099 0.099	0.077 0.097	0.077 0.097	30 60	30 FLOW WIDTH/DEPTH 2.051m DOWNSTREAM 0.941m	0	ON-GRADE KERB INLET LINTEL TYPE S	28	2	3/1	15.48 15.48	137 218	0.456 0.572	346	180	179 (Pipe flow= Sum upstr atten flows)	168	50.200	0.35	450(4)	164	1.08 (1.05)	0.77	Qg 0.028 Qo 0.168 Do 450 Routine 2.1 CHART 4.8 Du/Do 0.83 Qu/Qo 0.64 K 0.85 d/Do 2.0 chrt Qg/Qo 0.16 Kg 0.19 d/Do 1.5 chrt Qg/Qo 0.16 Kg 0.21 d/Do 1.98 Interp value Kg 0.19 Ku=Kw= 1.04 Combined pipes in line case Join Pipes:	0.059	1.04	0.062		1/1 and 1/11 Vel1 0.964 Vel2 0.303 Eq Dia 470 Angle 159 Flow 0.140 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.04 Qg/Qo 0.16 K 0.71 S/Do 2.08 cor 0.06 Ku 0.77 Kw 4.77 Interpolated Ku= 1.04 Kw= 1.04	1.04	0.062	0.37	0.184	3.592 3.416	4.026 3.842	4.088	4.660	2/1
5 100	1/12	1/12 to 2/12	1/12								15.00 15.00	139 221	0.78 0.98	0.261 0.261	0.203 0.255	0.203 0.255	78 157	82 FLOW WIDTH/DEPTH 0.970m	245	SAG KERB INLET LINTEL TYPE S	82	0		15.00 15.00	139 221	0.203 0.255	157	1830	75 (Pipe flow= Grate flow)	82	6.105	0.41	450(4)	177	0.53 (1.14)	0.10	Qg 0.082 Qo 0.082 Do 450 CHRT 32: Vo2/2gDo 0.03 H/Do 1.19 Kg side flow 5.39 end flow 4.09	0.014	5.39	0.078			5.39	0.078	0.09	0.005	3.425 3.400	3.953 3.948	4.031	4.345	1/12
5 100	2/12	2/12 to 3/1	1/12;2/12								15.00 15.00	139 221	0.78 0.98	0.179 0.179	0.140 0.176	0.140 0.176	54 108	54 FLOW WIDTH/DEPTH 1.912m DOWNSTREAM 0.760m	96	ON-GRADE KERB INLET LINTEL TYPE S	45	9	1/13	15.10 15.10	139 220	0.343 0.431	263	1422	136 (Pipe flow= Sum upstr atten flows)	127	18.235	0.35	450(4)	164	0.82 (1.05)	0.30	Qg 0.045 Qo 0.127 Do 450 Angle 73 Chart 4.5 S/Do 2.5 chartdeg Du/Do 1.00 K0 2.16 K0.5 1.81 Qu/Qo 0.65 Cg 0.78 K 1.89 S/Do 2.5 K0 2.16 K0.5 1.81 K 1.89 S/Do 2.0 K0 2.47 K0.5 2.34 K 2.37	0.034	1.98	0.068		Interp val for S/Do 2.29 Kw 2.10 CHART 44 S/Do 2.5 K0 2.16 K0.5 1.81 K 1.89 S/Do 2.0 K0 1.99 K0.5 2.11 K 2.09 Interp val for S/Do 2.29 Ku 1.98	2.10	0.072	0.21	0.038	3.380 3.316	3.880 3.842	3.952	4.322	2/12
5 100	3/1	3/1 to 4/1	1/1;1/11;2/1;1/12;2/12;3/1								15.00 15.00	139 221	0.78 0.98	0.173 0.173	0.135 0.169	0.135 0.169	52 104	54 FLOW WIDTH/DEPTH 1.750m DOWNSTREAM 0.706m	177	ON-GRADE KERB INLET LINTEL TYPE S	44	10	4/1	16.25 16.25	134 213	0.934 1.172	693	2093	355 (Pipe flow= Sum upstream flows)	339	31.225	0.32	600(4)	344	1.21 (1.23)	0.43	Qg 0.044 Qo 0.339 Do 600 Routine 2.1 CHART 4.8 Du/Do 0.75 Qu/Qo 0.49 K 1.12 d/Do 2.0 chrt Qg/Qo 0.13 Kg 0.10 d/Do 1.5 chrt Qg/Qo 0.13 Kg 0.11 d/Do 1.57 Interp value Kg 0.11 Ku=Kw= 1.23 Combined pipes in line case Join Pipes:	0.075	1.13	0.084		2/1 and 2/12 Vel1 1.054 Vel2 0.799 Eq Dia 630 Angle 148 Flow 0.295 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.05 Qg/Qo 0.13 K 0.60 S/Do 1.66 cor 0.11 Ku 0.71 Kw 0.71 Interpolated Ku= 1.13 Kw= 1.13	1.13	0.084	0.31	0.098	3.418 3.317	3.758 3.660	3.842	4.388	3/1
5 100	1/13	1/13 to 4/1	1/13								15.00 15.00	139 221	0.78 0.98	0.071 0.071	0.056 0.070	0.056 0.070	22 43	31 FLOW WIDTH/DEPTH 1.585m DOWNSTREAM 0.373m	125	ON-GRADE KERB INLET LINTEL TYPE S	28	3	1/14	15.00 15.00	139 221	0.056 0.070	43	1579	15 (Pipe flow= Grate flow)	28	7.405	0.41	375(4)	107	0.26 (1.00)	0.12	Qg 0.028 Qo 0.028 Do 375 CHRT 32: Vo2/2gDo 0.01 H/Do 1.07 Kg side flow 6.17 end flow 4.48	0.003	6.17	0.021			6.17	0.021	0.03	0.002	3.266 3.236	3.662 3.660	3.683	4.241	1/13
5 100	4/1	4/1 to 5/1	1/1;1/11;2/1;1/12;2/12;3/1;1/13;4/1								15.00 15.00	139 221	0.78 0.98	0.117 0.117	0.091 0.115	0.091 0.115	35 70	45 FLOW WIDTH/DEPTH 1.760m DOWNSTREAM 0.584m	96	ON-GRADE KERB INLET LINTEL TYPE S	39	6	7/1	16.68 16.68	133 211	1.081 1.357	795	1422	394 (Pipe flow= part area minor flow)	401	31.242	0.33	600(4)	346	1.43 (1.24)	0.36	Qg 0.039 Qo 0.401 Do 600 Routine 2.2 CHART 4.8 Du/Do 1.00 Qu/Qo 0.84 K 0.68 d/Do 2.0 chrt Qg/Qo 0.10 Kg 0.10 d/Do 1.5 chrt Qg/Qo 0.10 Kg 0.09 d/Do 1.48 Interp value Kg 0.09 Ku=Kw= 0.77 Combined pipes in line case Join Pipes:	0.104	0.73	0.076		1/13 and 3/1 Vel1 1.188 Vel2 0.243 Eq Dia 642 Angle 176 Flow 0.363 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.07 Qg/Qo 0.10 K 0.50 S/Do 1.58 cor 0.09 Ku 0.59 Kw 0.59 Interpolated Ku= 0.73 Kw= 0.73	0.73	0.076	0.44	0.137	3.297 3.195	3.584 3.447	3.660	4.231	4/1
5 100	5/1	5/1 to 6/1	1/1;1/11;2/1;1/12;2/12;3/1;1/13;4/1																	STANDARD 1050 DIA MANHOLE				17.04 17.04	132 209	1.081 1.357	788	2093	386 (Pipe flow= Sum upstr atten flows)	401	16.010	0.32	675(2)	498	1.09 (1.35)	0.24	Qo 0.401 Do 675 CHART 50 Du/Do0.89 alpha 15 K'w 0.20 Vu 1.42 WSE 0.03 Ku 0.08 Kw 0.42	0.061	0.08	0.005			0.42	0.025	0.21	0.034	3.208 3.156	3.442 3.408	3.467	4.074	5/1
5 100	1/14	1/14 to 2/14	1/14								15.00 15.00	139 221	0.78 0.98	0.264 0.264	0.206 0.258	0.206 0.258	80 159	83 FLOW WIDTH/DEPTH 0.985m	245	SAG KERB INLET LINTEL TYPE S	83	0	2/14	15.00 15.00	139 221	0.206 0.258	158	1830	75 (Pipe flow= Grate flow)	83	6.779	0.44	375(4)	112	0.78 (1.04)	0.11	Qg 0.083 Qo 0.083 Do 375 CHRT 32: Vo2/2gDo 0.08 H/Do 1.46 Kg side flow 4.18 end flow 3.40	0.031	4.18	0.129			4.18	0.129	0.24	0.017	3.019 2.989	3.557 3.540	3.686	3.970	1/14
5 100	2/14	2/14 to 6/1	1/14;2/14								15.00 15.00	139 221	0.78 0.98	0.209 0.209	0.163 0.205	0.163 0.205	63 126	63 FLOW WIDTH/DEPTH 2.051m DOWNSTREAM 0.941m	96	ON-GRADE KERB INLET LINTEL TYPE S	50	13	1/15	15.11 15.11	139 220	0.369 0.463	283	1422	150 (Pipe flow= Sum upstr atten flows)	133	21.704	0.41	450(4)	178	0.86 (1.14)	0.36	Qg 0.050 Qo 0.133 Do 450 Angle 41 Chart 4.1 S/Do 2.5 chartdeg Du/Do 0.83 K0 2.57 K0.5 2.22 Qu/Qo 0.62 Cg 0.81 K 2.28 S/Do 2.5 K0 2.57 K0.5 2.22 K 2.28 S/Do 2.0 K0 2.74 K0.5 2.52 K 2.56	0.038	2.16	0.082		Interp val for S/Do 2.26 Kw 2.42 CHART 40 S/Do 2.5 K0 2.12 K0.5 2.10 K 2.11 S/Do 2.0 K0 2.19 K0.5 2.23 K 2.22 Interp val for S/Do 2.26 Ku 2.16	2.42	0.091	0.23	0.050	2.990 2.900	3.458 3.408	3.549	3.976	2/14
5 100	6/1	6/1 to 7/1	1/1;1/11;2/1;1/12;2/12;3/1;1/13;4;1;1/14;2/14																	STANDARD 1200 DIA MANHOLE				17.28 17.28	131 208	1.450 1.820	1052	2093	520 (Pipe flow= part area minor flow)	532	30.300	0.30	750(4)	610	1.20 (1.38)	0.42	Qo 0.532 Do 750 Routine 2.2 Combined pipes in line case Join Pipes: 2/14 and 5/1 Vel1 1.113 Vel2 0.788	0.073	0.64	0.047			0.66	0.049	0.23	0.069	3.146 3.055	3.361 3.292	3.410	4.005	6/1
5 100	1/15	1/15 to 7/1	1/15								15.00 15.00	139 221	0.78 0.98	0.256 0.256	0.200 0.251	0.200 0.251	77 154	90 FLOW WIDTH/DEPTH 1.200m	245	SAG KERB INLET LINTEL TYPE S	90	0		15.00 15.00	139 221	0.200 0.251	154	2093	64 (Pipe flow= Grate flow)	90	7.105	0.56	375(4)	126	0.84 (1.18)	0.12	Qg 0.090 Qo 0.090 Do 375 CHRT 32: Vo2/2gDo 0.10 H/Do 1.23 Kg side flow 4.55 end flow 3.61	0.036	4.55	0.164			4.55	0.164	0.29	0.020	2.859 2.819	3.312 3.292	3.476	3.821	1/15
5 100	7/1	7/1 to 8/1	1/1;1/11;2/1;1/12;2/12;3/1;1/13;4/1;1/14;2/14;1/15;7/1								15.00 15.00	139 221	0.78 0.98	0.249 0.249	0.194 0.244	0.194 0.244	75 150	81 FLOW WIDTH/DEPTH 2.107m DOWNSTREAM 1.063m	177	ON-GRADE KERB INLET LINTEL TYPE S	61	20	1/18	17.70 17.70	130 206	1.844 2.315	1325	2093	653 (Pipe flow= part area minor flow)	671	31.894	0.30	750(4)	610	1.52 (1.38)	0.35	Qg 0.059 Qo 0.671 Do 750 Routine 2.2 CHART 4.8 Du/Do 1.00 Qu/Qo 0.79 K 0.82 d/Do 2.0 chrt Qg/Qo 0.09 Kg 0.09 d/Do 1.5 chrt Qg/Qo 0.09 Kg 0.08 d/Do 1.20 Interp value Kg 0.08 Ku=Kw= 0.90 Combined pipes in line case Join Pipes:	0.118	0.88	0.104		1/15 and 6/1 Vel1 1.195 Vel2 0.762 Eq Dia 828 Angle 172 Flow 0.612 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.10 Qg/Qo 0.09 K 0.48 S/Do 1.30 cor 0.12 Ku 0.60 Kw 0.60 Interpolated Ku= 0.88 Kw= 0.88	0.88	0.104	0.36	0.116	3.035 2.939	3.188 3.072	3.292	3.858	7/1
5 100	1/18	1/18 to 2/18	1/18								15.00 15.00	139 221	0.78 0.98	0.086 0.086	0.067 0.085	0.067 0.085	26 52	46 FLOW WIDTH/DEPTH 0.400m	245	SAG KERB INLET LINTEL TYPE S	46	0		15.00 15.00	139 221	0.067 0.085	52	2624	6 (Pipe flow= Grate flow)	46	11.605	0.65	375(4)	135	0.43 (1.26)	0.19	Qg 0.046 Qo 0.046 Do 375 CHRT 32: Vo2/2gDo 0.03 H/Do 0.96 Kg side flow 6.31 end flow 4.63	0.009	6.31	0.059			6.31	0.059	0.08	0.009	2.784 2.709	3.139 3.130	3.198	3.787	1/18

CALCULATIONS TABLE

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

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Drawn	JJ	Date 10.10.2019
Checked	MS	Date 10.10.2019
Designed	MC	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: STORMWATER CALCULATION TABLES
SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1260

Revision: B

XREFs:
CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1260-1261.dwg

DATE PLOTTED: 1 April 2020 11:49 AM BY : MARY DOZA

LOCATION				TIME									SUB-CATCHMENT RUNOFF					INLET DESIGN						DRAIN DESIGN												HEADLOSSES											
											tc	I	C	A	C×A	+CA	Q				Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T		V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf					
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LENGTH OVERLAND	SLOPE OVERLAND	ROUGHNESS OVERLAND	TIME OVERLAND	LENGTH GUTTER	SLOPE GUTTER	TIME GUTTER	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C x A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C x A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	PIPE CAPACITY (HYDRAULIC)	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 STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L x Sf)	OBVERT LEVELS	DRAIN SECTION H.G.L	W.S.E.	SURFACE OR K&C TOP OF KERB	STRUCTURE No.
yrs				m	%		mins	m	%	min	min	mm/h		ha	ha	ha	l/s	l/s	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	L/s	m/s	min		m		m						m	m	m	m	
5 100	2/18	2/18 to 8/1	1/18;2/18								5.00 5.00	204 329	0.78 0.98	0.097 0.097	0.076 0.095	0.076 0.095	4.3 87 FLOW	43	245 WIDTH/DEPTH 0.350Wd m	SAG KERB INLET LINTEL TYPE S	43	0		15.19 15.19	138 219	0.143 0.180	110	2624	35 (Pipe flow=	75 Sum upstr atten flows)	13.482	0.52	375(2)	132	0.66 (1.16)	0.22	Qo 0.029 Qo 0.075 Do 375 CHART 37 Angle 43 Case 2 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.39 K 1.47 S/Do 2.13 cor 0.12 Ku 1.59 Kw 1.59	0.022	1.59	0.035			1.59	0.035	0.17	0.023	2.701 2.631	3.095 3.072	3.130	3.787	2/18
5 100	8/1	8/1 to 9/1	1/1;1/11;2/1;1/12;2/12;3/1;1/13;4/1;1/14;2/14;1/15;7/1;1/18;2/18																	STANDARD 1200 DIA MANHOLE				18.05 18.05	129 204	1.987 2.495	1414	2624	678 (Pipe flow=	736 Sum upstr atten flows)	7.601	0.30	750(2)	639	1.61 (1.40)	0.08	Qo 0.736 Do 750 Routine 2.24 Join Pipes: 2/18 and 7/1 Vel1 0.633 Vel2 1.508	0.132	0.79	0.104	Eq Dia 81 CHART 50 K'w 0.22 Ku 0.79	Angle 203 Du/Do1.08 Vu 1.42 WSE 0.13 Kw 0.96	0.96 Flow 0.736 alpha 23	0.126	0.40	0.031	2.931 2.908	2.968 2.937	3.094	3.805	8/1
5 100	9/1	9/1 to 10/1	1/1;1/11;2/1;1/12;2/12;3/1;1/13;4/1;1/14;2/14;1/15;7/1;1/18;2/18																	ROCLA GPT CLEANSALL 600				18.13 18.13	129 203	1.987 2.495	1407	2624	671 (Pipe flow=	736 Sum upstr atten flows)	8.481	0.31	750(2)	643	1.61 (1.41)	0.09	Qo 0.736 Do 750 CHART 50 Du/Do1.00 alpha 0 K'w 0.05 Vu 1.67 WSE 0.05 Ku 0.31 Kw 0.36	0.132	0.31	0.041			0.36	0.048	0.40	0.034	2.888 2.862	2.896 2.862	2.944	3.655	9/1
5 100	1/17	1/17 to 2/17	1/17								5.00 5.00	204 329	0.78 0.98	0.084 0.084	0.066 0.082	0.066 0.082	37 75 FLOW	37 WIDTH/DEPTH 0.250Wd m	245	SAG KERB INLET LINTEL TYPE S	37	0		5.00 5.00	204 329	0.066 0.082	75	2386	38 (Pipe flow=	37 Grate flow)	8.848	0.41	375(4)	107	0.35 (1.00)	0.15	Qg 0.037 Qo 0.037 Do 375 CHRT 32: Vo2/2gDo 0.02 H/Do 1.14 Kg side flow 5.79 end flow 4.30	0.006	5.79	0.036			5.79	0.036	0.05	0.004	2.438 2.402	2.857 2.853	2.893	3.243	1/17
5 100	2/17	2/17 to 3/17	1/17;2/17								5.00 5.00	204 329	0.78 0.98	0.082 0.082	0.064 0.080	0.064 0.080	36 73 FLOW	36 WIDTH/DEPTH 0.233Wd m	245	SAG KERB INLET LINTEL TYPE S	36	0		5.15 5.15	202 326	0.130 0.162	147	2386	74 (Pipe flow=	72 Sum upstr atten flows)	6.416	3.32	375(4)	306	0.68 (2.86)	0.11	Qg 0.036 Qo 0.072 Do 375 CHART 34 Angle 23 Case 3 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.49 K 1.65 S/Do 2.28 cor 0.09 Ku 1.74 Kw 1.74	0.024	1.74	0.041			1.74	0.041	0.19	0.012	2.382 2.169	2.812 2.800	2.853	3.243	2/17
5 100	1/16	1/16 to 2/16	1/16								15.00 15.00	139 221	0.78 0.98	0.307 0.307	0.240 0.301	0.240 0.301	93 185 FLOW	93 WIDTH/DEPTH 1.136Wd m	245	SAG KERB INLET LINTEL TYPE S	93	0	2/16	15.00 15.00	139 221	0.240 0.301	185	1830	92 (Pipe flow=	93 Grate flow)	49.823	0.58	375(4)	128	0.87 (1.20)	0.83	Qg 0.093 Qo 0.093 Do 375 CHRT 32: Vo2/2gDo 0.10 H/Do 0.88 Kg side flow 5.21 end flow 4.12	0.039	5.21	0.201			5.21	0.201	0.31	0.153	3.519 3.229	3.845 3.692	4.046	4.575	1/16
5 100	2/16	2/16 to 3/16	1/16;2/16								15.00 15.00	139 221	0.78 0.98	0.149 0.149	0.117 0.146	0.117 0.146	45 90 FLOW	45 WIDTH/DEPTH 1.575Wd m DOWNSTREAM 0.493m	1210N	GRADE KERB INLET LINTEL TYPE S	39	6	4/16	15.83 15.83	136 216	0.357 0.447	268	1798	139 (Pipe flow=	129 Sum upstr atten flows)	24.270	0.52	375(4)	120	1.21 (1.13)	0.33	Qg 0.038 Qo 0.129 Do 375 CHART 34 Angle 15 Case 3 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.30 K 1.17 S/Do 2.31 cor 0.04 Ku 1.21 Kw 1.21	0.075	1.21	0.090			1.21	0.090	0.59	0.144	3.209 3.084	3.602 3.458	3.692	4.256	2/16
5 100	3/16	3/16 to 4/16	1/16;2/16;3/16								15.00 15.00	139 221	0.78 0.98	0.283 0.283	0.221 0.278	0.221 0.278	85 170 FLOW	117 +CrnFL -32 WIDTH/DEPTH 2.432Wd m DOWNSTREAM 1.414m	1210N	GRADE KERB INLET LINTEL TYPE S	81	36 -32	4/16 Crn 4/16	16.16 16.16	135 214	0.578 0.725	431	1798	224 (Pipe flow=	207 Sum upstr atten flows)	47.541	0.61	450(4)	216	1.33 (1.39)	0.60	Qg 0.079 Qo 0.207 Do 450 CHART 37 Angle 35 Case 3 S/Do 2.5 Du/Do 0.83 Qg/Qo 0.38 K 1.49 S/Do 1.84 cor 0.24 Ku 1.73 Kw 1.73	0.090	1.73	0.156			1.73	0.156	0.56	0.266	3.085 2.795	3.302 3.036	3.458	4.102	3/16
5 100	4/16	4/16 to 5/16	1/16;2/16;3/16;4/16								15.00 15.00	139 221	0.78 0.98	0.489 0.489	0.381 0.479	0.381 0.479	147 294 FLOW	157 WIDTH/DEPTH 2.135Wd m	245	SAG KERB INLET LINTEL TYPE S	157	0		16.76 16.76	133 210	0.959 1.204	702	1422	345 (Pipe flow=	357 part area minor flow)	9.037	0.34	600(2)	377	1.22 (1.29)	0.12	Qg 0.153 Qo 0.357 Do 600 CHART 37 Angle 37 Case 2 S/Do 2.5 Du/Do 0.75 Qg/Qo 0.43 K 1.26 S/Do 1.28 cor 0.60 Ku 1.86 Kw 1.86	0.076	1.86	0.141			1.86	0.141	0.31	0.028	2.862 2.831	2.895 2.867	3.036	3.582	4/16
5 100	5/16	5/16 to 6/16	1/16;2/16;3/16;4/16																	ROCLA GPT CLEANSALL 600				16.88 16.88	132 210	0.959 1.204	702	1830	345 (Pipe flow=	357 part area minor flow)	14.086	0.35	600(2)	384	1.22 (1.31)	0.19	Qo 0.357 Do 600 CHART 50 Du/Do1.00 alpha 0 K'w 0.05 Vu 1.26 WSE 0.03 Ku 0.31 Kw 0.36	0.076	0.31	0.024			0.36	0.028	0.31	0.043	2.811 2.761	2.843 2.800	2.871	3.762	5/16

CALCULATIONS TABLE

XREFs:
CAD File: C:\Users\mary.doza\Documents\ C DRIVE (JOBS)PORT DOUGLAS\ Acad\Q184103-CI-1260-1261.dwg

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

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Drawn	JJ	Date 10.10.2019
Checked	MS	Date 10.10.2019
Designed	MC	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: STORMWATER CALCULATION TABLES
SHEET 2 OF 2

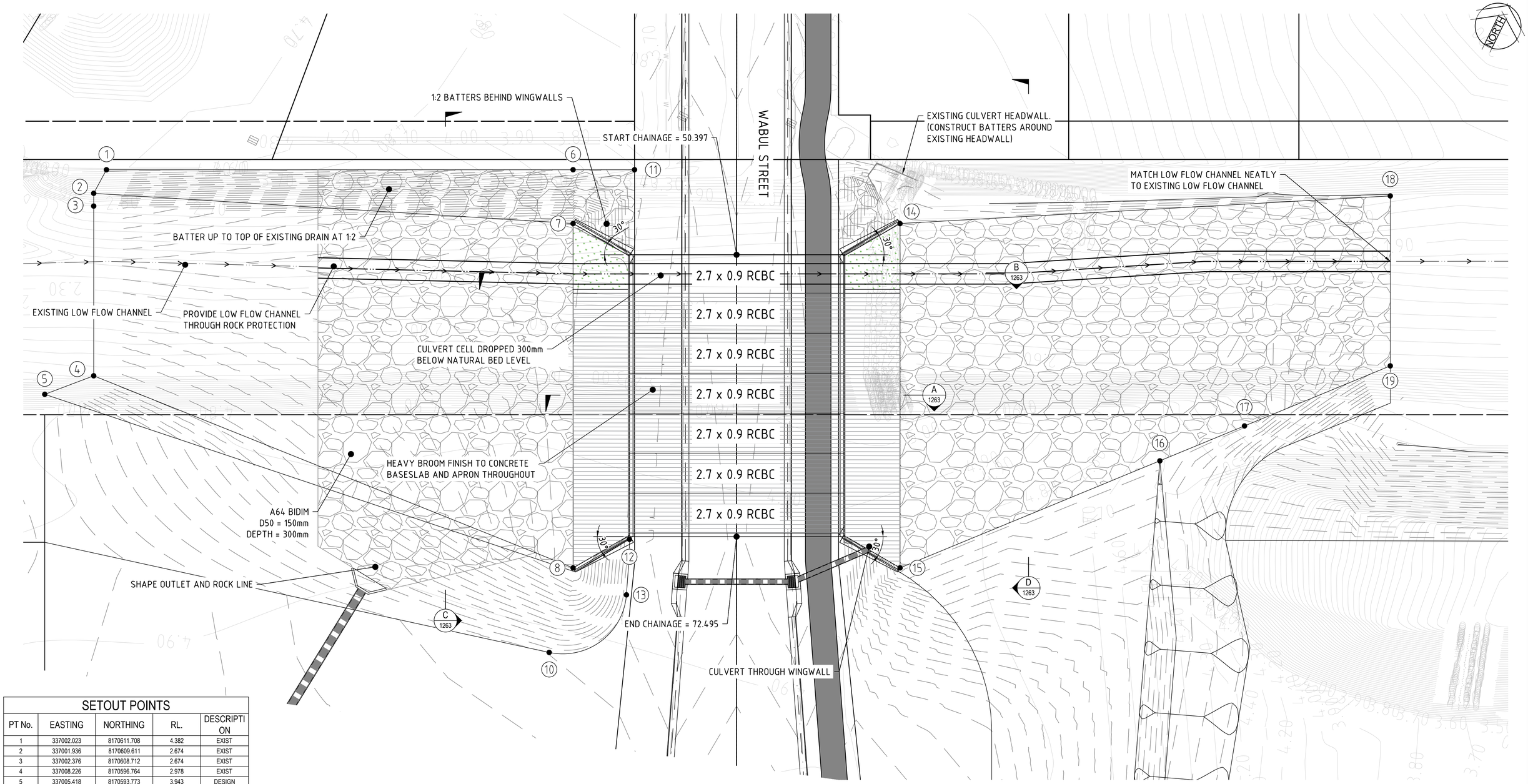
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1261

Revision: B

DATE PLOTTED: 1 April 2020 11:49 AM BY: MARY DOZA



SETOUT POINTS

PT No.	EASTING	NORTHING	RL.	DESCRIPTION
1	337002.023	8170611.708	4.382	EXIST
2	337001.936	8170609.611	2.674	EXIST
3	337002.376	8170608.712	2.674	EXIST
4	337008.226	8170596.764	2.978	EXIST
5	337005.418	8170593.773	3.943	DESIGN
6	337034.875	8170627.795	3.824	DESIGN
7	337036.729	8170624.009	1.800	EXIST
8	337048.598	8170599.769	1.800	DESIGN
10	337049.831	8170592.994	3.497	DESIGN
11	337039.201	8170629.913	3.430	DESIGN
12	337051.579	8170603.723	3.341	DESIGN
13	337053.282	8170599.708	3.374	DESIGN
14	337059.747	8170635.277	1.800	DESIGN
15	337071.619	8170611.041	1.800	DESIGN
16	337086.222	8170627.529	1.783	DESIGN
17	337090.976	8170632.905	1.775	DESIGN
18	337093.311	8170654.123	2.204	EXIST
19	337099.169	8170642.159	2.578	EXIST

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 4 6 8 10m
SCALE 1:100 @A1

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		Date
Drawn	JJ	10.10.2019
Checked	MS	10.10.2019
Designed	MC	10.10.2019
Verified	MS	10.10.2019
Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: CULVERT LAYOUT PLAN

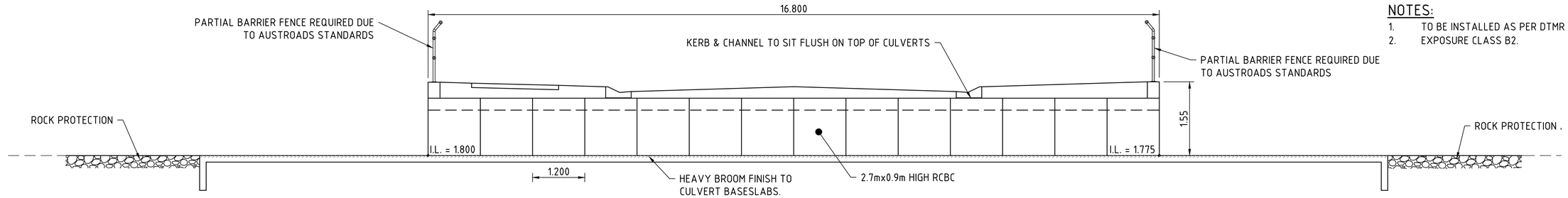
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1262
Revision: B

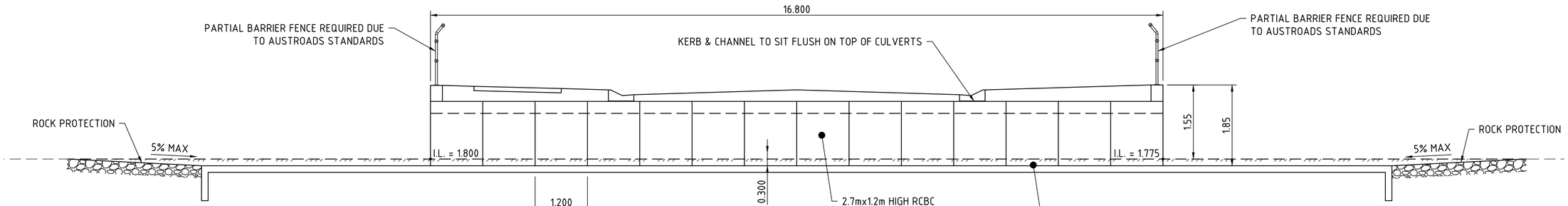
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CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1262-1263.dwg

DATE PLOTTED: 1 April 2020 11:49 AM BY: MARY DOZA

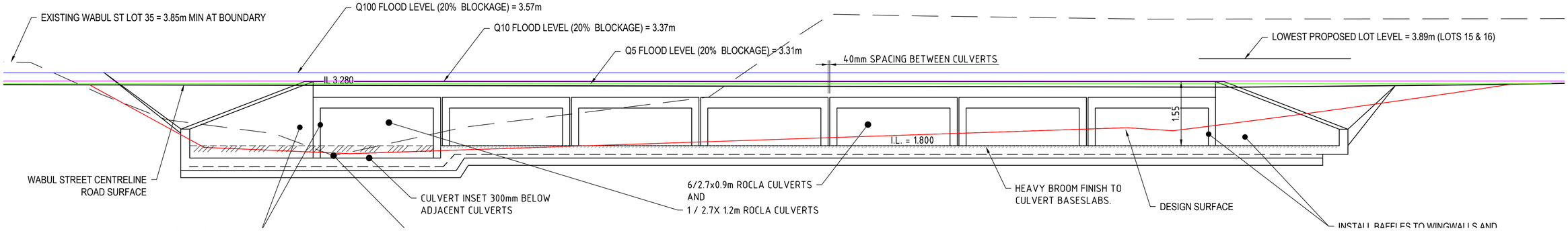


SECTION A
SCALE 1:50m
1262

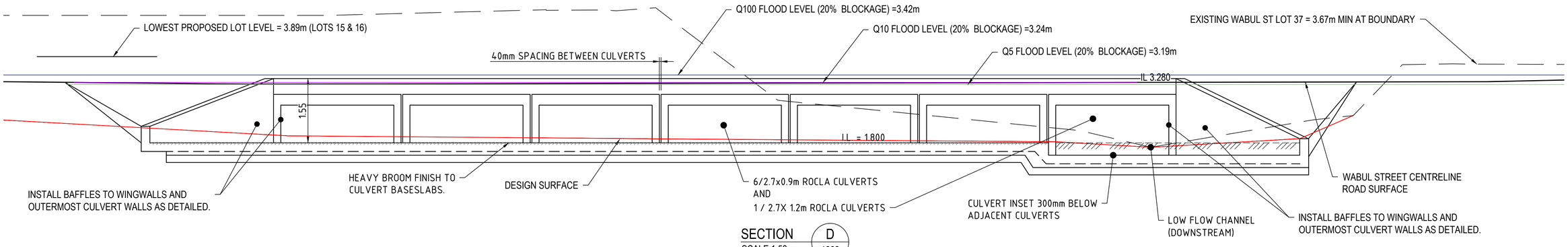
NOTES:
1. TO BE INSTALLED AS PER DTMR STANDARD DRAWING 1250.
2. EXPOSURE CLASS B2.



SECTION B
SCALE 1:50m
1262



SECTION C
SCALE 1:50m
1262



SECTION D
SCALE 1:50m
1262

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
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0 1 2 3 4 5m
SCALE 1:50 @A1

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Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: CULVERT SECTION PLAN

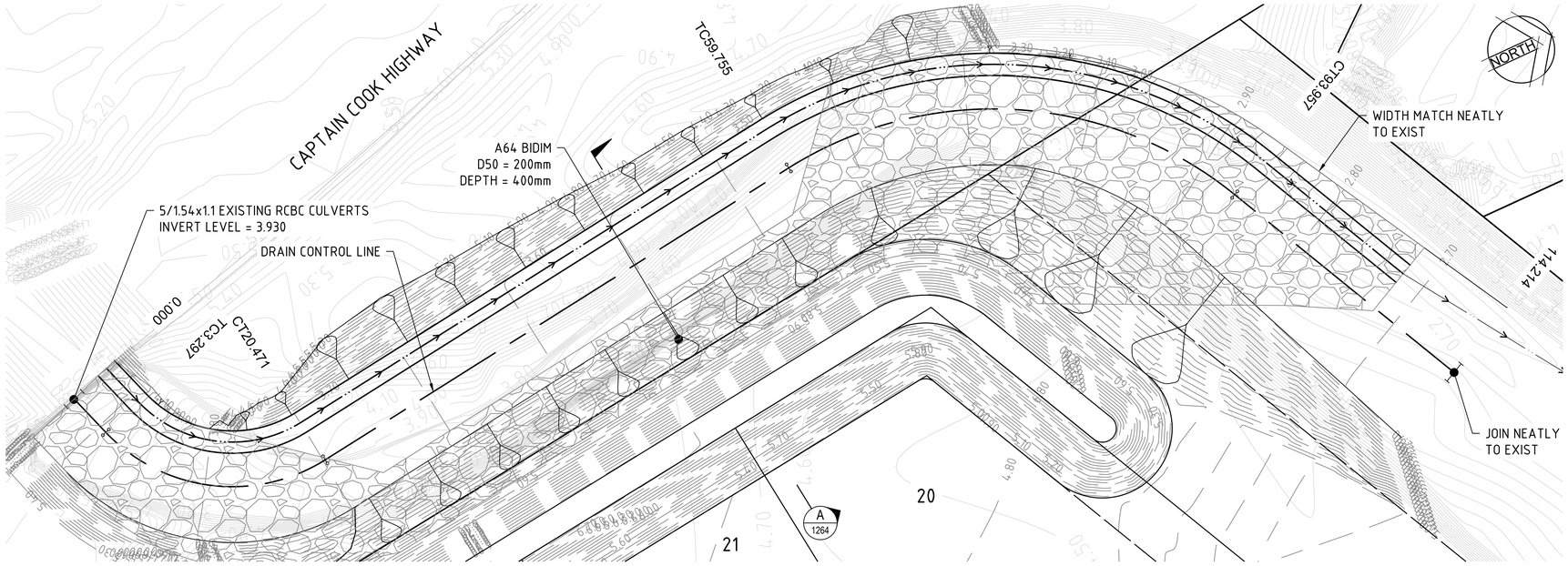
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

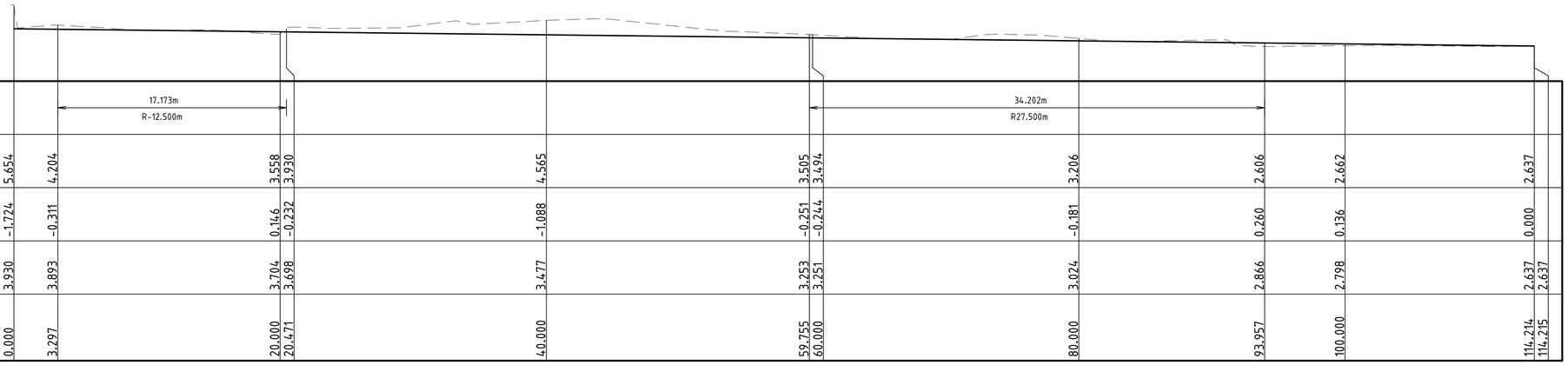
Drawing Number: Q184103-CI-1263
Revision: B

XREF's: XR-Q184103-CI-BASE; XR-Q184103-SURV; XR-Q184103-DSGN-CNTRS; XR-Q184103-CI-CL; XR-Q184103-EXST-CNTRS
CAD File: C:\Users\mary.dozal\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1262-1263.dwg

DATE PLOTTED: 1 April 2020 11:50 AM BY: MARY DOZA



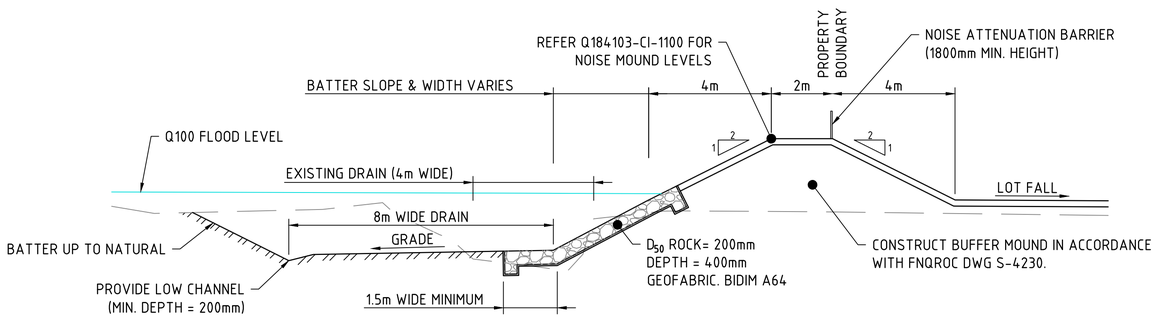
DRAIN LAYOUT PLAN
SCALE 1:200m



WABUL STREET
SCALE: H 1:200
V 1:200

DRAIN CONTROL LINE

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	336871.085	8170466.294	3.930	71°22'04.62"			
TC	3.297	336874.209	8170467.348	3.893	71°22'04.62"			
IP 2	11.884	336883.924	8170470.623	3.795		R = -12.500	17.173	78°43'00.00"
CT	20.471	336882.613	8170480.791	3.698	352°39'04.62"			
TC	59.755	336877.588	8170519.753	3.253	352°39'04.62"			
IP 3	76.856	336875.067	8170539.301	3.060		R = 27.500	34.202	71°15'36.94"
CT	93.957	336892.769	8170547.969	2.866	63°54'41.56"			
IP 4	114.214	336910.962	8170556.877	2.637	63°54'41.56"			



SECTION A
SCALE 1:100m
1264

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 1 2 3 4 5m
SCALE 1:50 @A1

H: 0 5 10 15 20m
V: 0 5 10 15 20m
SCALE: H:1:200 V:1:200 @A1

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		Date
Drawn	JJ	10.10.2019
Checked	MS	10.10.2019
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Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: DRAIN DESIGN
SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1264
Revision: B

XREF's: XR-Q184103-CI-BASE; XR-Q184103-SURV; XR-Q184103-DSGN-CNTRS; XR-Q184103-CI-LS-DRAIN1; XR-Q184103-CI-XS-DRAIN1; XR-Q184103-EXST-CNTRS
CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1264-1265.dwg

DATE PLOTTED: 1 April 2020 11:50 AM BY: MARY DOZA

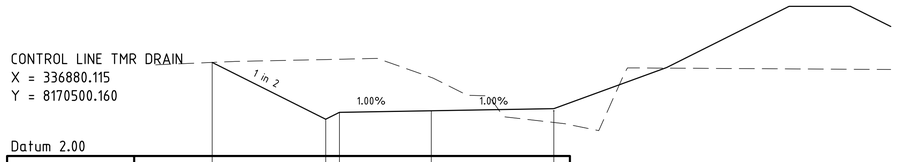
CONTROL LINE TMR DRAIN
X = 336910.962
Y = 8170556.877



Datum 2.00				
DESIGN HEIGHT				
EXISTING SURFACE	2.647	2.637	2.899	4.432
OFFSETS	-6.020	0.000	6.000	9.590

CHAINAGE 114.214

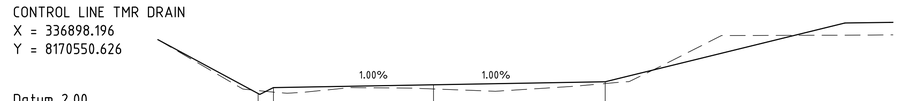
CONTROL LINE TMR DRAIN
X = 336880.115
Y = 8170500.160



Datum 2.00					
DESIGN HEIGHT	5.055	3.247	3.447	3.477	3.517
EXISTING SURFACE	5.055	5.138	5.138	4.565	3.095
OFFSETS	-7.155	-3.500	-3.000	0.000	4.000

CHAINAGE 40.000

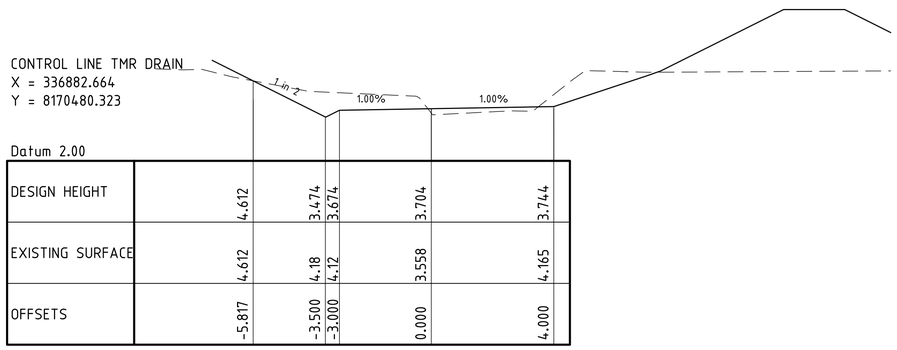
CONTROL LINE TMR DRAIN
X = 336898.196
Y = 8170550.626



Datum 2.00				
DESIGN HEIGHT	2.540	2.740	2.798	2.850
EXISTING SURFACE	2.572	2.558	2.662	2.806
OFFSETS	-5.726	-5.226	0.000	5.226

CHAINAGE 100.000

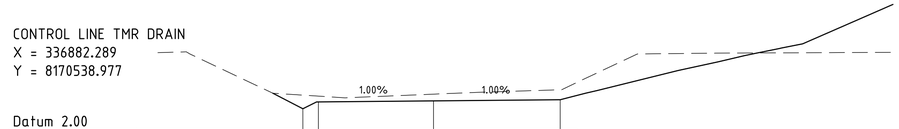
CONTROL LINE TMR DRAIN
X = 336882.664
Y = 8170480.323



Datum 2.00					
DESIGN HEIGHT	4.612	3.474	3.674	3.704	3.744
EXISTING SURFACE	4.612	4.18	4.12	3.558	4.165
OFFSETS	-5.817	-3.500	-3.000	0.000	4.000

CHAINAGE 20.000

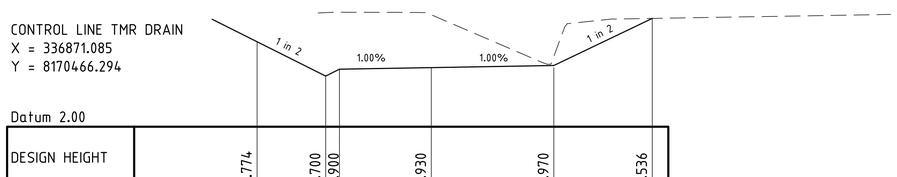
CONTROL LINE TMR DRAIN
X = 336882.289
Y = 8170538.977



Datum 2.00				
DESIGN HEIGHT	2.97	2.99	3.024	3.068
EXISTING SURFACE	3.186	3.165	3.206	3.349
OFFSETS	-4.250	-3.750	0.000	4.136

CHAINAGE 80.000

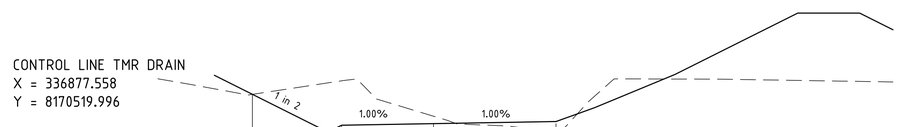
CONTROL LINE TMR DRAIN
X = 336871.085
Y = 8170466.294



Datum 2.00					
DESIGN HEIGHT	4.774	3.700	3.900	3.930	3.970	5.536
EXISTING SURFACE				5.654	4.294	5.536
OFFSETS	-5.688	-3.500	-3.000	0.000	4.000	7.212

CHAINAGE 0.000

CONTROL LINE TMR DRAIN
X = 336877.558
Y = 8170519.996



Datum 2.00					
DESIGN HEIGHT	4.207	3.021	3.221	3.251	3.291
EXISTING SURFACE	4.207	4.388	4.498	3.494	2.960
OFFSETS	-5.913	-3.500	-3.000	0.000	4.000

CHAINAGE 60.000

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
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0 1 2 4 6 8 10m
SCALE 1:100 @A1

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Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD
Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE
Title: DRAIN DESIGN
SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

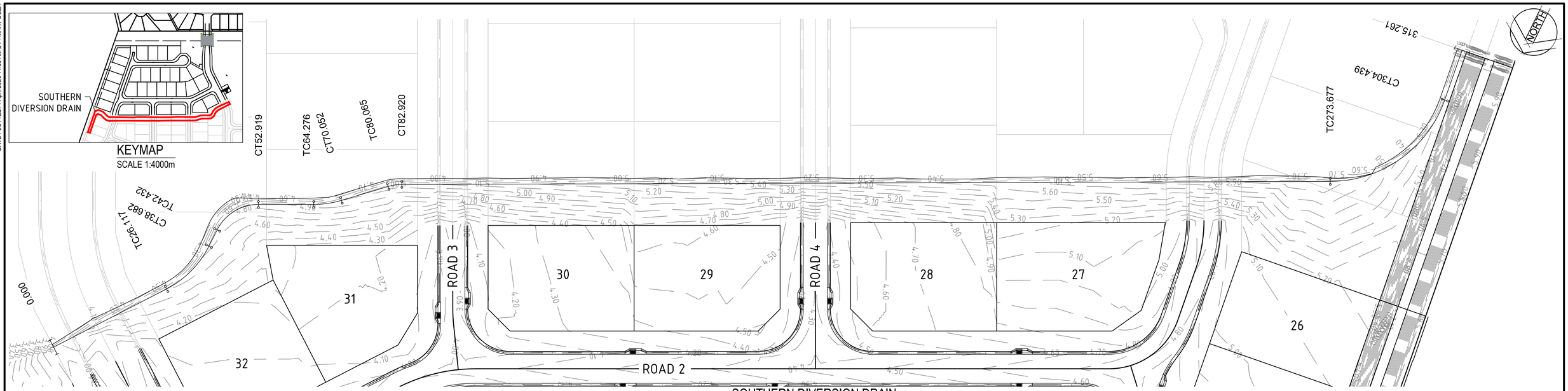
Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1265
Revision: B

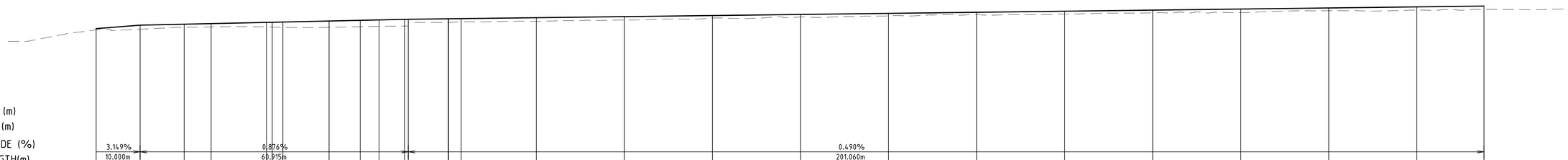
XREFs: XR-Q184103-CI-BASE; XR-Q184103-SURV; XR-Q184103-DSGN-CNTRS; XR-Q184103-CI-LS-DRAIN1; XR-Q184103-CI-XS-DRAIN1; XR-Q184103-EXST-CNTRS
CAD File: C:\Users\mary.doza\Documents\ C:\DRIVE_JOBS\PORT DOUGLAS\ Acad\Q184103-CI-1264-1265.dwg

DATE PLOTTED: 1 April 2020 11:50 AM BY : MARY DOZA

KEYMAP
SCALE 1:4000m

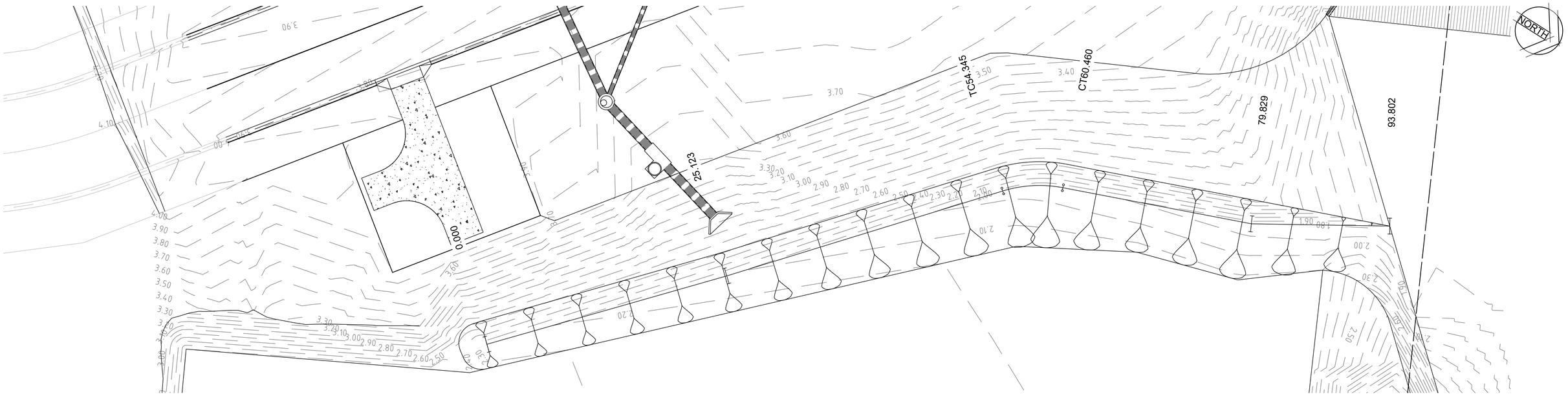


SOUTHERN DIVERSION DRAIN
SCALE 1:400m

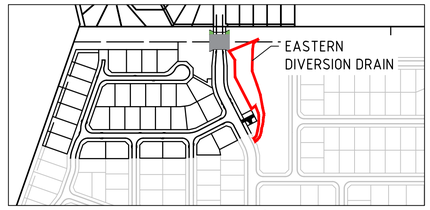


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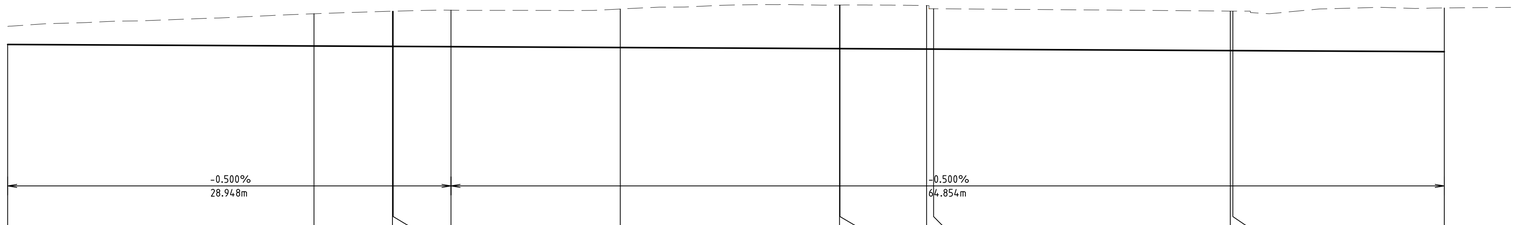
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EASTERN DIVERSION DRAIN
SCALE 1:200m

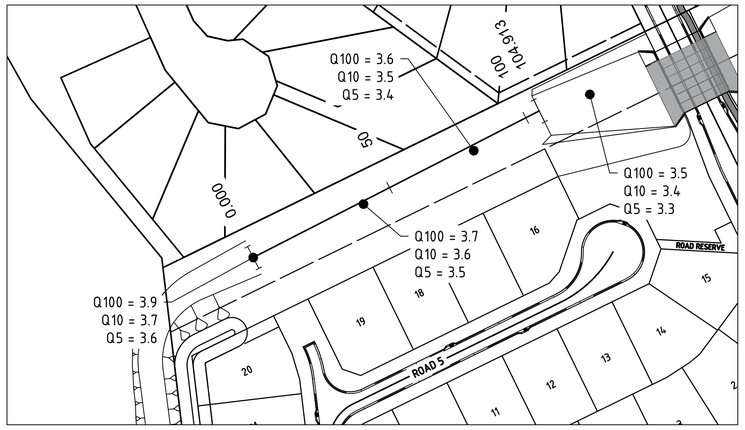


KEYMAP
SCALE 1:4000m



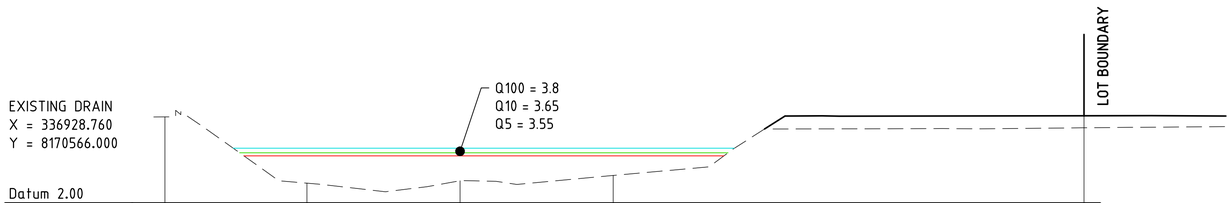
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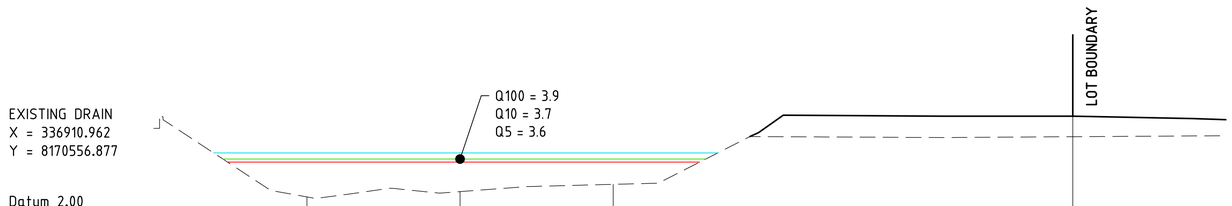
LOCALITY PLAN
SCALE 1:1000m

LEGEND:
- Q100 FLOOD LEVEL
- Q10 FLOOD LEVEL
- Q5 FLOOD LEVEL



DESIGN HEIGHT	4.822	2.659	2.737	2.911	4.858
EXISTING SURFACE	4.822	2.659	2.737	2.911	4.465
OFFSETS	-9.635	-5.000	0.000	5.000	20.370

CHAINAGE 20.000



DESIGN HEIGHT	2.464	2.637	2.875	5.100
EXISTING SURFACE	2.464	2.637	2.875	4.429
OFFSETS	-5.000	0.000	5.000	20.003

CHAINAGE 0.000

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B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
A		FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 20 40 60 80 100m
SCALE 1:1000 @A1

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Approved MB RPEQ No. 10801 Date

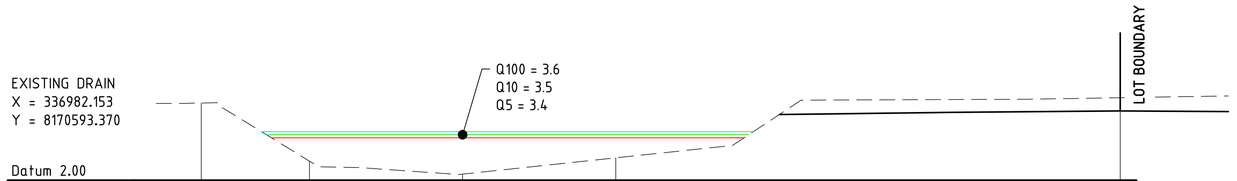
Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD
Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE
Title: EXISTING DRAIN
CROSS SECTIONS
SHEET 1 OF 3
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum AHD | Scale AS SHOWN | Size A1
Drawing Number Q184103-CI-1268 | Revision B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-CI-XS-EXISTING DRAIN1; XR-Q184103-CI-NORTH DRAIN CL
CAD File: C:\Users\mary.doza\Documents_C DRIVE_JOBS\PORT DOUGLAS_Acad\Q184103-CI-1268-1270.dwg

DATE PLOTTED: 1 April 2020 11:50 AM BY : MARY DOZA

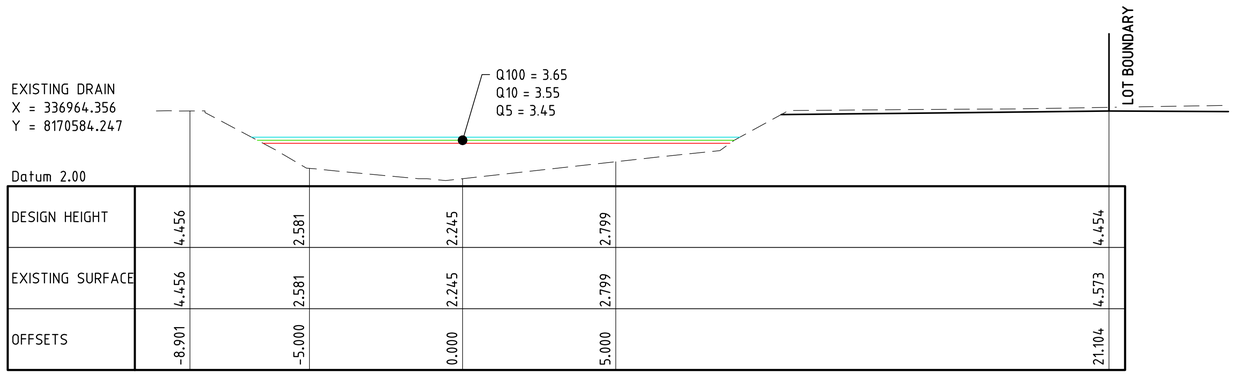
LEGEND:

- Q100 FLOOD LEVEL
- Q10 FLOOD LEVEL
- Q5 FLOOD LEVEL



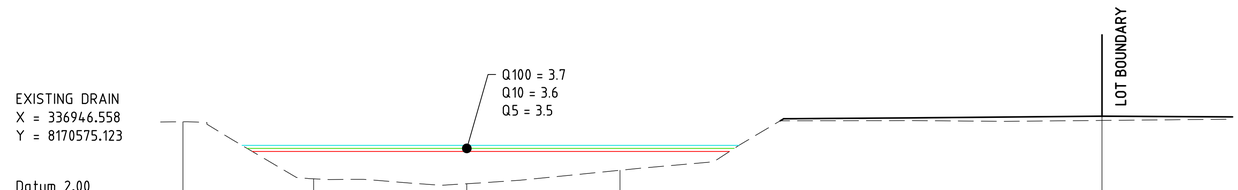
DESIGN HEIGHT	4.526	2.630	2.205	2.737		4.269
EXISTING SURFACE	4.526	2.630	2.205	2.737		4.700
OFFSETS	-8.534	-5.000	0.000	5.000		21.471

CHAINAGE 80.000



DESIGN HEIGHT	4.456	2.581	2.245	2.799		4.454
EXISTING SURFACE	4.456	2.581	2.245	2.799		4.573
OFFSETS	-8.901	-5.000	0.000	5.000		21.104

CHAINAGE 60.000



DESIGN HEIGHT	4.422	2.559	2.399	2.838		4.603
EXISTING SURFACE	4.422	2.559	2.399	2.838		4.465
OFFSETS	-9.268	-5.000	0.000	5.000		20.737

CHAINAGE 40.000

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
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0 20 40 60 80 100m

SCALE 1:1000 @A1

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Designed	MC	Date
Verified	MS	Date
Approved	RPEQ No. 10801	Date
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: EXISTING DRAIN
CROSS SECTIONS
SHEET 2 OF 3

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1269

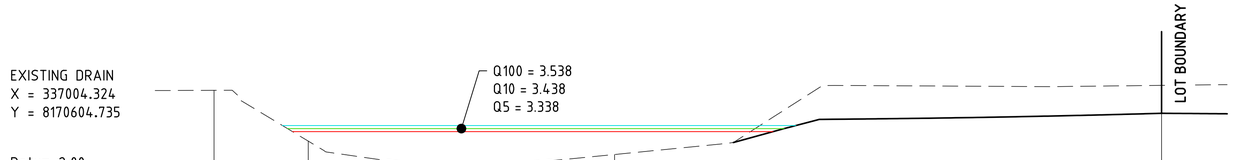
Revision: B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-CI-XS-EXISTING DRAIN1; XR-Q184103-CI-NORTH DRAIN CL
CAD File: C:\Users\mary.dozat\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1268-1270.dwg

DATE PLOTTED: 1 April 2020 11:50 AM BY : MARY DOZA

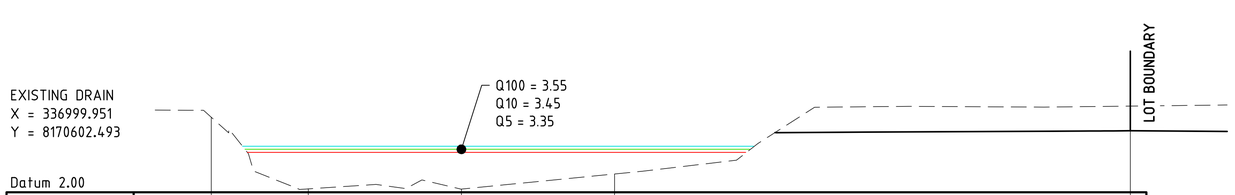
LEGEND:

- Q100 FLOOD LEVEL
- Q10 FLOOD LEVEL
- Q5 FLOOD LEVEL



DESIGN HEIGHT	4.683	3.025	2.093	2.588	3.933	
EXISTING SURFACE	4.683	3.025	2.093	2.588	4.844	
OFFSETS	-8.077	-5.000	0.000	5.000	22.858	

CHAINAGE 104.913



DESIGN HEIGHT	4.451	2.112	2.105	2.598	4.009	
EXISTING SURFACE	4.451	2.112	2.105	2.598	4.813	
OFFSETS	-8.167	-5.000	0.000	5.000	21.838	

CHAINAGE 100.000

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB
A		FOR OPERATIONAL WORKS APPROVAL	MC	MS	MB

0 20 40 60 80 100m

SCALE 1:1000 @A1

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Designed	MC	Date
Verified	MS	Date
Approved	RPEQ No. 10801	Date
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: EXISTING DRAIN
CROSS SECTIONS
SHEET 3 OF 3

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

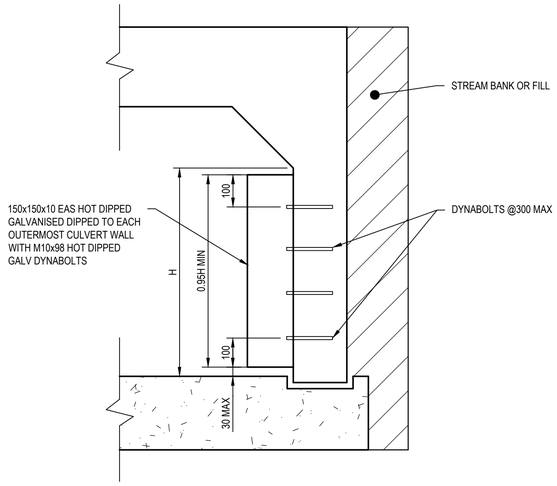
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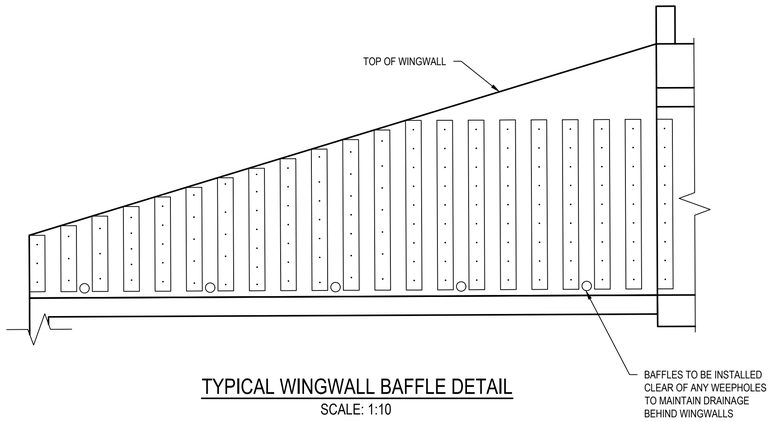
Revision: B

XREF's: XR-Q184103-CI-BASE; XR-Q184103-CI-XS-EXISTING DRAIN1; XR-Q184103-CI-NORTH DRAIN CL
CAD File: C:\Users\mary.doza\Documents\ C DRIVE-JOBS\PORT DOUGLAS\ Acad\Q184103-CI-1268-1270.dwg

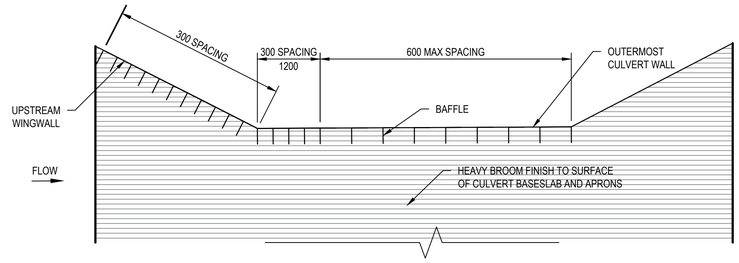
DATE PLOTTED: 3 April 2020 3:28 PM BY : MAURICE SHEEHAN



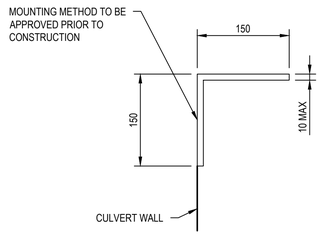
FISH PASSAGE BAFFLES
SCALE: 1:10



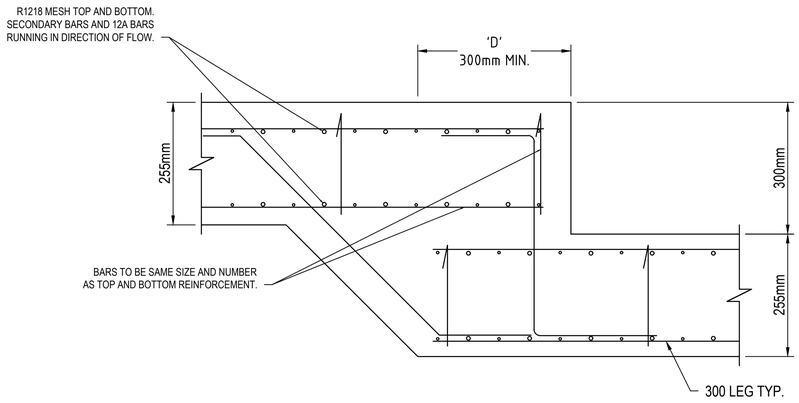
TYPICAL WINGWALL BAFFLE DETAIL
SCALE: 1:10



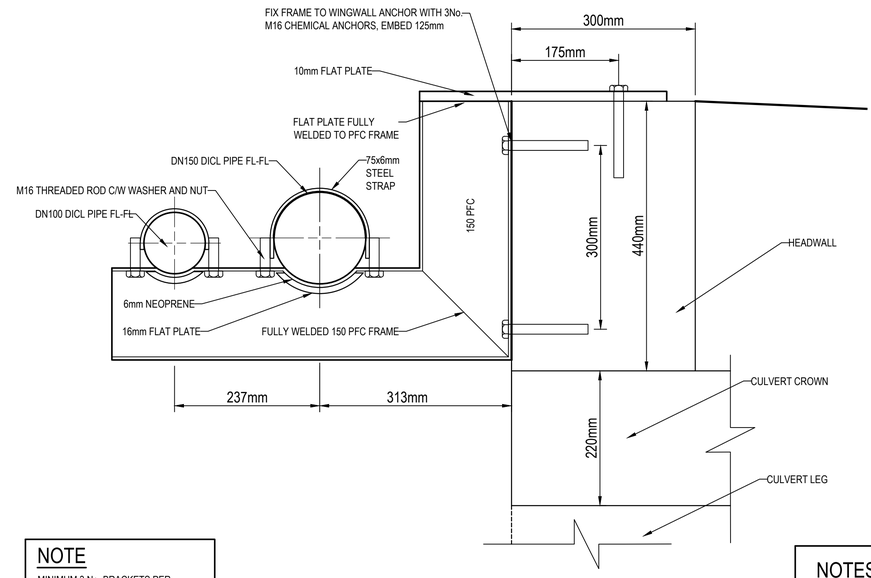
CULVERT ROUGHENING TREATMENT
SCALE: 1:10



BAFFLE TYPICAL SECTION
SCALE: 1:5



STEPPED CULVERT DETAIL
SCALE: 1:10



NOTE
MINIMUM 3 No. BRACKETS PER 5.35m DICL LENGTH LOCATED MAX 1.00m BEHIND FLANGE

WATERMAIN ALONG BRIDGE DETAIL
SCALE 1:5

NOTES
1. CONCRETE APRONS AND BASE OF OUTER CULVERT CELLS TO BE ROUGHENED WITH CONCRETE PAVERS.
2. CULVERT BASE AND APRONS TO BE THOROUGHLY CLEANED AND DRIED PRIOR TO APPLICATION OF HAND PLACED PAVERS TREATMENT.
3. FINAL LAYOUT TO BE APPROVED ON SITE BY THE ADMINISTRATOR.

STEELWORK NOTES
1. ALL STEELWORK SHALL CONFORM TO AS 4100, STEEL STRUCTURES.
2. FABRICATION SHALL BE CARRIED OUT BY WELDERS WHO ARE QUALIFIED IN ACCORDANCE WITH THE REQUIREMENTS OF AS/NZS 1554.
3. ALL STEELWORK SHALL BE BLAST CLEANED TO CLASS 2½ AS SPECIFIED IN AS 1627.4
4. SHOP DRAWINGS, IF REQUIRED SHALL BE SUBMITTED BEFORE COMMENCEMENT OF FABRICATION.
5. ALL BAFFLE PLATES SHALL BE PRE DRILLED AND HOT DIPPED GALVANIZED AND PASSIVATED IN 0.2% SODIUM DICHROMATE SOLUTION.
6. DRILL HOLES TO ALLOW FOR GALVANIZING PROCESS.

Rev.	Date	Description	Des.	Verif.	Appd.
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Approved	RPEQ No. 10801	Date
	MB	

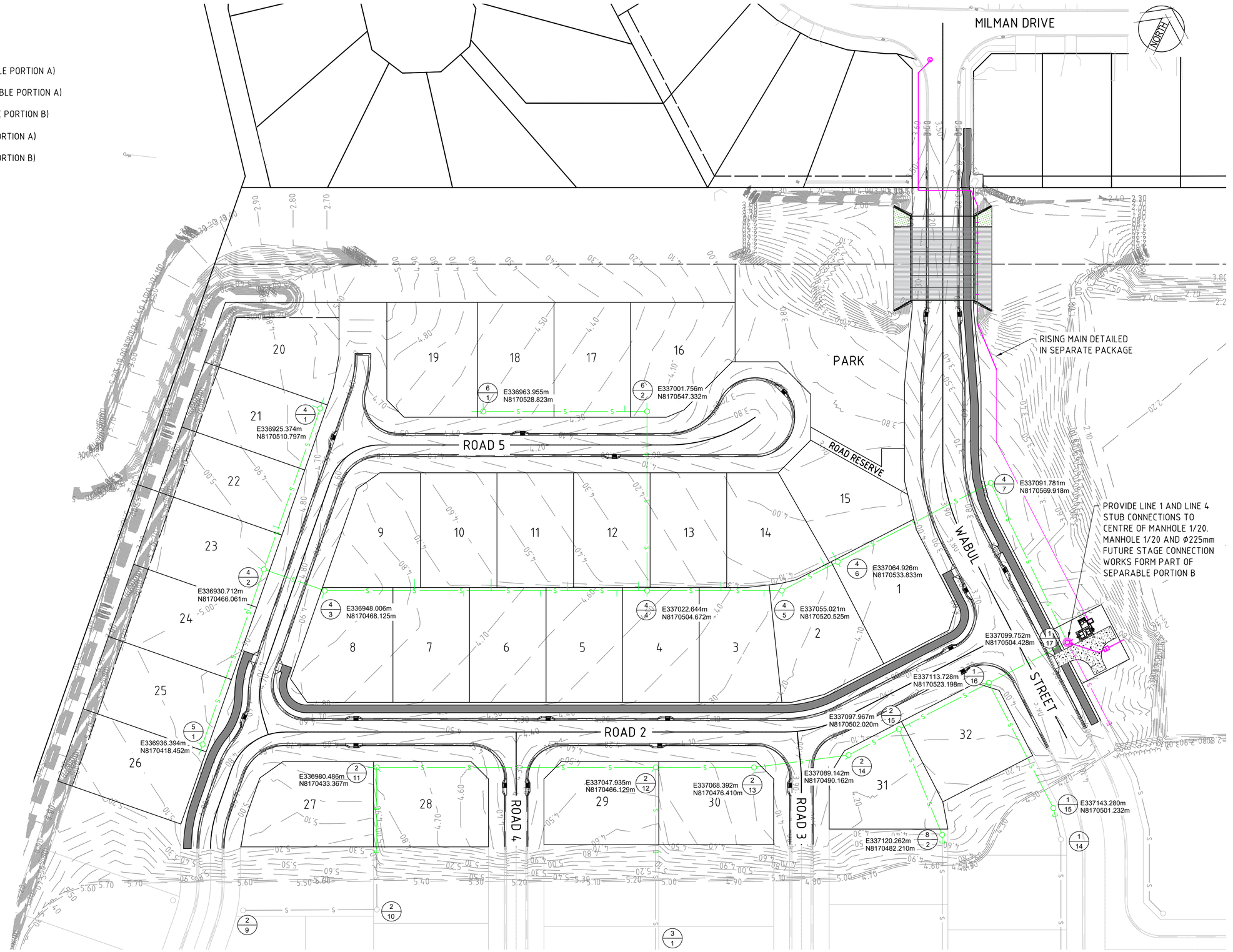
Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD
Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B SUBDIVISION OF LOT 2 ON SR431 CAPTAIN COOK HIGHWAY, CRAIGLIE
Title: CULVERT DETAILS PLAN
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: AHD | Scale: AS SHOWN | Size: A1
Drawing Number: Q184103-CI-1271 | Revision: B

XREFs:
CAD File: Q:\Projects\North Queensland\Cairns Based Projects\Q184103 - Port Douglas Estate Subdivision\005 - Civil Engineering\Design_CAD & Models_Acad\Q184103-CI-1271.dwg

DATE PLOTTED: 6 April 2020 9:54 AM BY : MAURICE SHEEHAN

LEGEND

- 8/1 — MANHOLE NUMBER/SEWER LINE NUMBER
- NEW SEWER AND MANHOLE – (SEPARABLE PORTION A)
- HOUSE CONNECTIONS (HCB'S) – (SEPARABLE PORTION A)
- NEW SEWER AND ENDCAP – (SEPARABLE PORTION B)
- NEW SEWER MANHOLE – (SEPARABLE PORTION A)
- NEW SEWER MANHOLE – (SEPARABLE PORTION B)
- END CAP SEWER
- 3.50 — FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)



Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

0 10 20 30 40 50m
SCALE 1:500 @A1

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Checked	MS	10.10.2019
Designed	JJ	10.10.2019
Verified	MS	10.10.2019
Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: SEWER LAYOUT PLAN

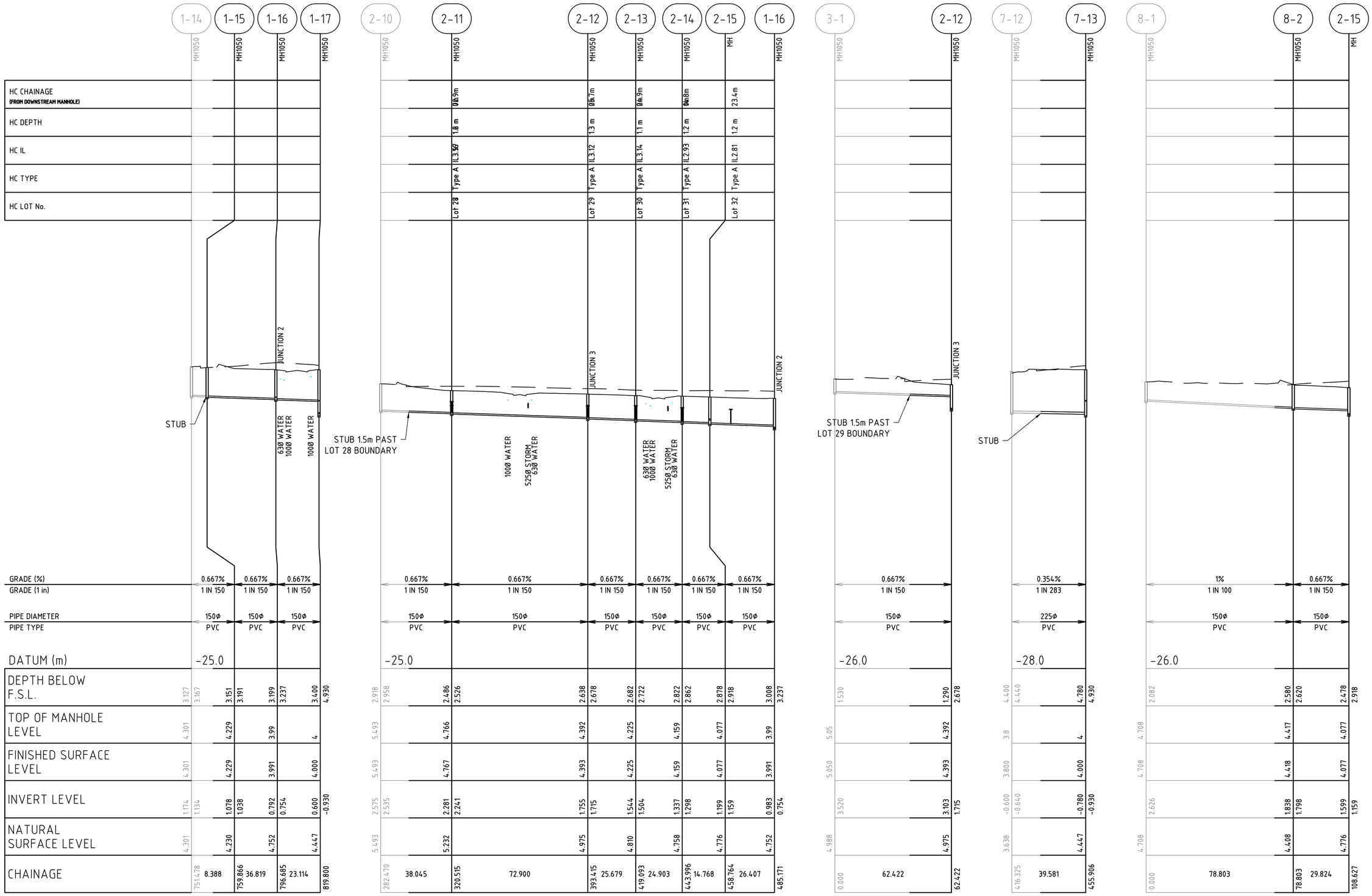
Status: FOR APPROVAL
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Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1300
Revision: B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-SURV; XR-Q184103-DSGN-CNTRS; XR-Q184103-EXST-CNTRS
CAD File: Q:\Projects\North Queensland\Cairns Based Projects\Q184103 - Port Douglas Estate Subdivision\005 - Civil Engineering\Design_CAD & Models_Acad\Q184103-CI-1300.dwg

DATE PLOTTED: 1 April 2020 11:51 AM BY: MARY DOZA



Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
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Checked	MS	Date 10.10.2019
Designed	JJ	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: SEWER LONGITUDINAL SECTIONS
SHEET 1 OF 2

Status: FOR APPROVAL
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Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1301

Revision: B

XREFs:
CAD File: C:\Users\mary.dozat\Documents\L C DRIVE_JOBS\PORT DOUGLAS_Acad\Q184103-CI-1301-1302.dwg

DATE PLOTTED: 1 April 2020 11:51 AM BY : MARY DOZA

	4-1		4-2		4-3			4-4		4-5		4-6		4-7		4-8
	MH1050		MH1050		MH1050			MH1050		MH1050		MH1050		MH1050		MH1050
HC CHAINAGE (FROM DOWNSTREAM MANHOLE)	44.5m		11.5m		8.8m 8.2m		60.8m	47.9m	40.7m	28m	20.7m	7.9m 3.2m	18.2m	15.9m	4.5m 0.4m	3.4m 0.6m	
HC DEPTH	1.2 m		1.4 m		1.5 m 1.9 m		1.4 m	1.6 m	1.6 m	1.5 m	1.6 m	1.5 m 1.7 m	1.8 m	1.8 m	1.5 m 1.8 m	1.5 m 1.6 m	
HC IL	IL3.58		IL3.55		IL3.47 IL3.14		IL3.42	IL3.23	IL3.18	IL3.15	IL3.00	IL3.05 IL2.96	IL2.64	IL2.85 IL2.53		IL2.66 IL2.68	
HC TYPE	Type A1		Type A		Type A1 Type E		Type E2	Type E1	Type E2	Type E1	Type E2	Type E1 Type E2	Type E2	Type E1 Type E		Type E2 Type E2	
HC LOT No.	Lot 20		Lot 22		Lot 23 Lot 8		Lot 9	Lot 7	Lot 10	Lot 6	Lot 11	Lot 5 Lot 12	Lot 13	Lot 3 Lot 2		Lot 14 Lot 15	
GRADE (%)	1%		0.667%		0.667%					0.667%		0.667%		0.667%		0.667%	
GRADE (1 in)	1 IN 100.00		1 IN 150		1 IN 150					1 IN 150		1 IN 150		1 IN 150		1 IN 150	
PIPE DIAMETER	150ø		150ø		150ø					150ø		150ø		150ø		150ø	
PIPE TYPE	PVC		PVC		PVC					PVC		PVC		PVC		PVC	
DATUM (m)	-27.0																
DEPTH BELOW F.S.L.	1.309	2.016	2.111	2.217	2.257				2.352	2.830	2.829	2.869	2.863	2.903	2.990	3.060	3.402 4.930
TOP OF MANHOLE LEVEL	4.738	5.001	4.995						4.529	4.294		4.178		3.965		4	
FINISHED SURFACE LEVEL	4.739	5.001	4.995						4.529	4.294		4.178		3.965		4.000	
INVERT LEVEL	3.430	2.985	2.890	2.778	2.738				2.177	1.699	1.465	1.425	1.316	1.276	0.976	0.906	0.598 -0.930
NATURAL SURFACE LEVEL	4.664	5.040	5.116						5.058	5.069		5.015		4.916		4.447	
CHAINAGE	0.000	44.527	44.527	16.800	61.327		84.214			145.541	35.179	180.720	16.420	197.140	44.982	242.122	46.217 288.339

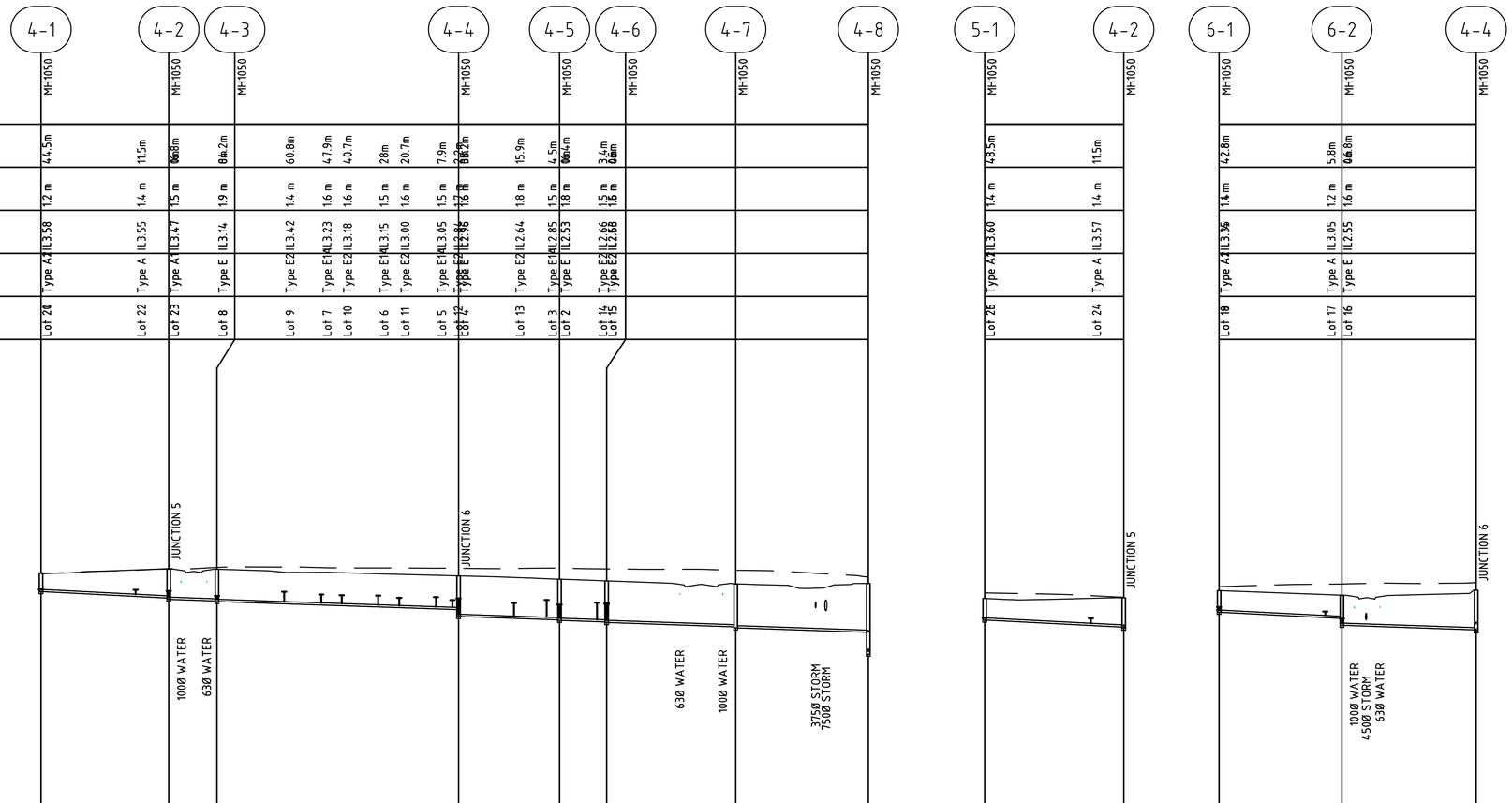
4

	5-1		4-2	
	MH1050		MH1050	
HC CHAINAGE (FROM DOWNSTREAM MANHOLE)	48.5m		11.5m	
HC DEPTH	1.4 m		1.4 m	
HC IL	IL3.60		IL3.57	
HC TYPE	Type A1		Type A	
HC LOT No.	Lot 26		Lot 24	
GRADE (%)	1%			
GRADE (1 in)	1 IN 100.00			
PIPE DIAMETER	150ø			
PIPE TYPE	PVC			
DATUM (m)	-25.0			
DEPTH BELOW F.S.L.	1.515	2.041		2.111
TOP OF MANHOLE LEVEL	4.96	5.001		
FINISHED SURFACE LEVEL	4.960	5.001		
INVERT LEVEL	3.445	2.960		2.890
NATURAL SURFACE LEVEL	5.341	5.040		
CHAINAGE	0.000	48.473		48.473

5

	6-1		6-2		4-4
	MH1050		MH1050		MH1050
HC CHAINAGE (FROM DOWNSTREAM MANHOLE)	42.8m		5.8m	0.6m	
HC DEPTH	1.4 m		1.2 m	1.6 m	
HC IL	IL3.46		IL3.05	IL2.55	
HC TYPE	Type A1		Type A	Type E	
HC LOT No.	Lot 18		Lot 17	Lot 16	
GRADE (%)	1%		0.667%		
GRADE (1 in)	1 IN 100.00		1 IN 150		
PIPE DIAMETER	150ø		150ø		
PIPE TYPE	PVC		PVC		
DATUM (m)	-26.0				
DEPTH BELOW F.S.L.	1.506	1.617	2.099		2.760 2.830
TOP OF MANHOLE LEVEL	4.498	4.18		4.529	
FINISHED SURFACE LEVEL	4.498	4.181		4.529	
INVERT LEVEL	2.992	2.564	2.082	1.769	1.699
NATURAL SURFACE LEVEL	4.776	4.957		5.058	
CHAINAGE	0.000	42.789	42.789	46.800	89.589

6



Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
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SCALE 1:100 @A1

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Checked	MS	10.10.2019
Designed	JJ	10.10.2019
Verified	MS	10.10.2019
Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: SEWER LONGITUDINAL SECTIONS
SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1302

Revision: B

XREFs:
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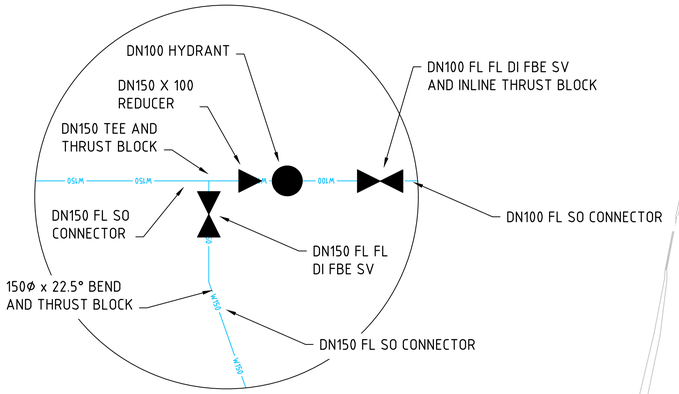
DATE PLOTTED: 2 April 2020 11:31 AM BY : MARY DOZA

NOTES

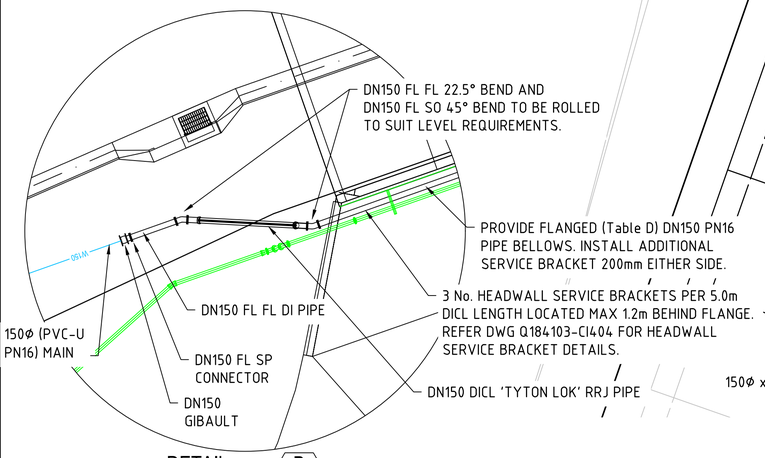
1. LOCATION OF EXISTING WATER MAIN TO BE LOCATED USING GROUND PENETRATING RADAR PRIOR TO EXCAVATION. ALIGNMENT SHOWN PLOTTED FROM COUNCIL RECORD.
2. WHERE POSSIBLE, HYDRANTS ARE TO BE LOCATED IN LINE WITH ALLOTMENT BOUNDARIES.
3. EXISTING HYDRANTS OR VALVES SHALL BE PROVIDED WITH NEW COVER BOXES AND SURROUNDS AS PER FNQROC STD. DWGS. S2000 AND S2005.
4. WHERE VALVE SURROUNDS ARE TO BE SET IN CONCRETE, A COMPRESSIBLE LAYER IS TO BE PROVIDED TO ALLOW FOR MAINTENANCE
5. LOWER WATER MAIN UNDER ROAD TO AVOID SUBGRADE IMPROVEMENT IF APPLICABLE.
6. REFER FNQROC STANDARD DRAWING S2016 FOR TRENCH WIDTH & BEDDING DETAILS.
7. THRUST BLOCKS REQUIRED AT ALL SOCKETS, BENDS AND DEAD ENDS. THRUST BLOCKS TO BE PLACED AND CONSTRUCTED IN ACCORDANCE WITH SEQ WATER REQUIREMENTS.

LEGEND

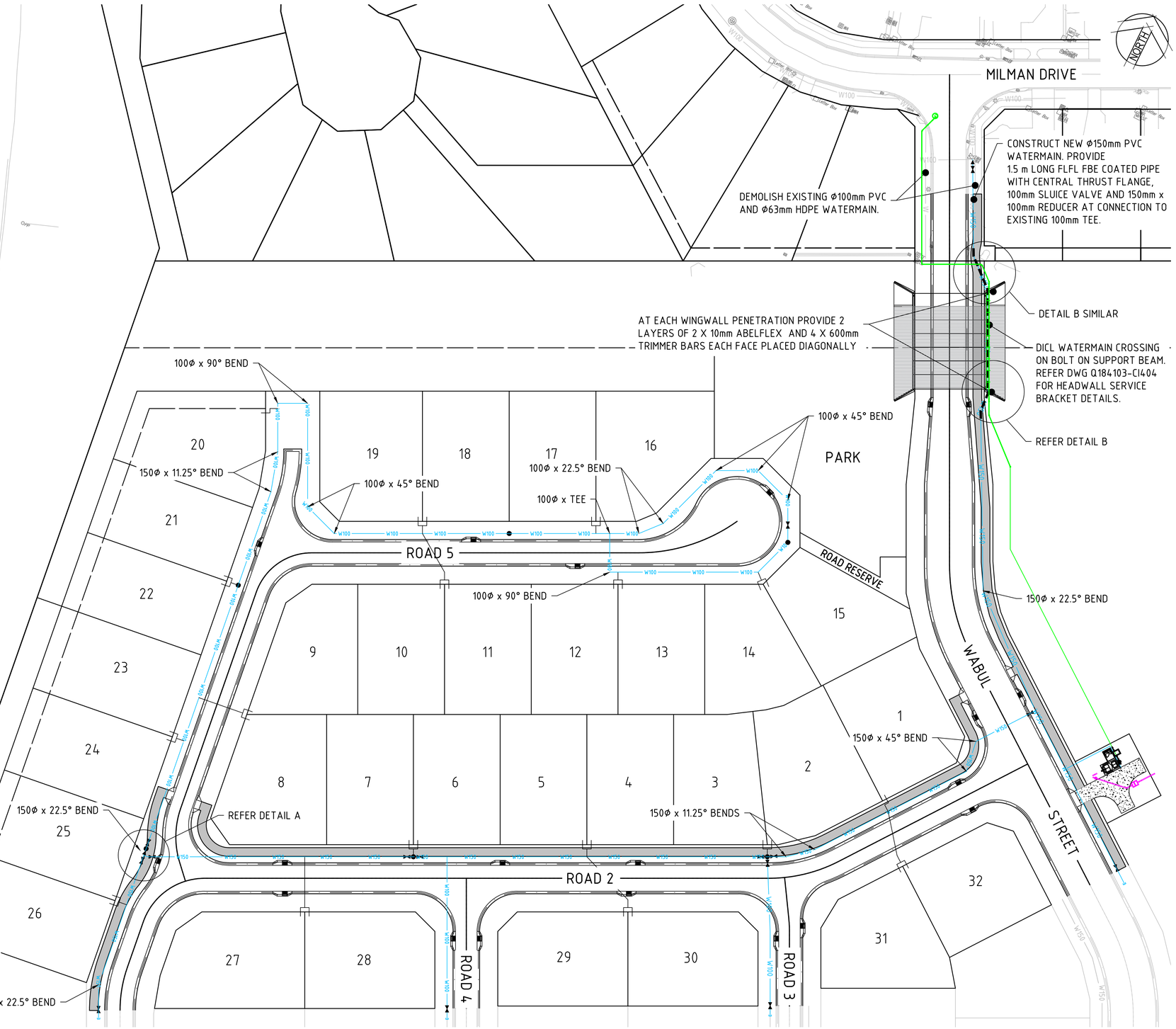
- W — 63Ø WATERMAIN (HDPE PN16)
- W100 — 100Ø WATERMAIN (PVC-U PN16)
- W150 — 150Ø WATERMAIN (PVC-U PN16)
- W150 — 150Ø WATERMAIN (DICL)
- FIRE HYDRANT
- SLUICE VALVE
- REDUCER
- END CAP
- HOUSE CONNECTION (REFER FNNQROC STD DWG 2038)



DETAIL A — SCALE 1:30m — 1350



DETAIL B — SCALE 1:100m — 1350



Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

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SCALE 1:500 @A1

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		Date
Drawn	JJ	10.10.2019
Checked	MS	10.10.2019
Designed	JJ	10.10.2019
Verified	MS	10.10.2019
Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: WATER LAYOUT PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1350
Revision: B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-SURV
CAD File: C:\Users\mary.dozza\Documents_C DRIVE-JOBS\PORT DOUGLAS_Acad\Q184103-CI-1350.dwg

DATE PLOTTED: 1 April 2020 11:51 AM BY: MARY DOZA

DUST CONTROL

1. TOPSOIL STOCKPILES ARE TO BE WATERED AND LIGHTLY COMPACTED TO ENSURE MINIMAL DUST DISTURBANCE PRIOR TO RESPREADING.
2. SITE TO BE KEEP MOIST AT ALL TIMES TO ENSURE DUST CONTROL.
3. UNCOMPLETED WORKS ARE TO BE WATERED AND ROLLED AT THE END OF EACH WORKING DAY TO ENSURE A FIRM SEALED SURFACE TO CONTROL DUST.
4. HYDROSEEDING IS REQUIRED TO BE MAINTAINED THROUGH THE REMAINDER OF THE CONSTRUCTION PERIOD TO ENSURE DUST AND EROSION CONTROL.
5. ALL OPEN DRAINS TO BE FULLY TURFED IMMEDIATELY UPON COMPLETION.

SEDIMENT CONTROL

1. CONTROL WILL BE VIA THE INSTALLATION OF SILT FENCING, CATCH DRAINS, HAYBALE BARRIERS AND SEDIMENT PONDS.
2. TOPSOIL STOCK-PILES ARE TO BE LOCATED IN AREAS CLEAR OF SERVICING, WATERCOURSES, ROAD AND DRAINAGE WORKS AND PROVIDED WITH SILT FENCING ON THEIR DOWNSTREAM SIDE.
3. DURING THE PROJECTS CONSTRUCTION, ALL PITS ARE TO BE BLOCKED OFF AT THE SURFACE AND RUNOFF FLOWS ARE TO BE DIRECTED TO THE SEDIMENT PONDS WHERE CONTAMINATED WATERS CAN BE TREATED UNTIL THE SURROUNDING LANDSCAPE HAS BEEN STABLISIED TO THE SATISFACTION OF THE SITE SUPERINTENDENT. ONLY ON THE COMPLETION OF WORKS ARE THE SEDIMENT PONDS ARE TO BE REMOVED,
4. REFER TO IPWEAQ STD DWG No. D-0040 AND D-0041 FOR FURTHER DETAILS.
5. ALL BATTERS TO BE STABILISED WITHIN 10 DAYS OF COMPLETION OF BULK EARTHWORKS (eg. HYDROMULCHING, TURFING etc.).
6. SURROUNDING CARRIAGEWAYS TO BE KEPT CLEAN OF ANY MATERIAL CARRIED ONTO ROADWAY BY CONSTRUCTION VEHCILES FROM SITE.

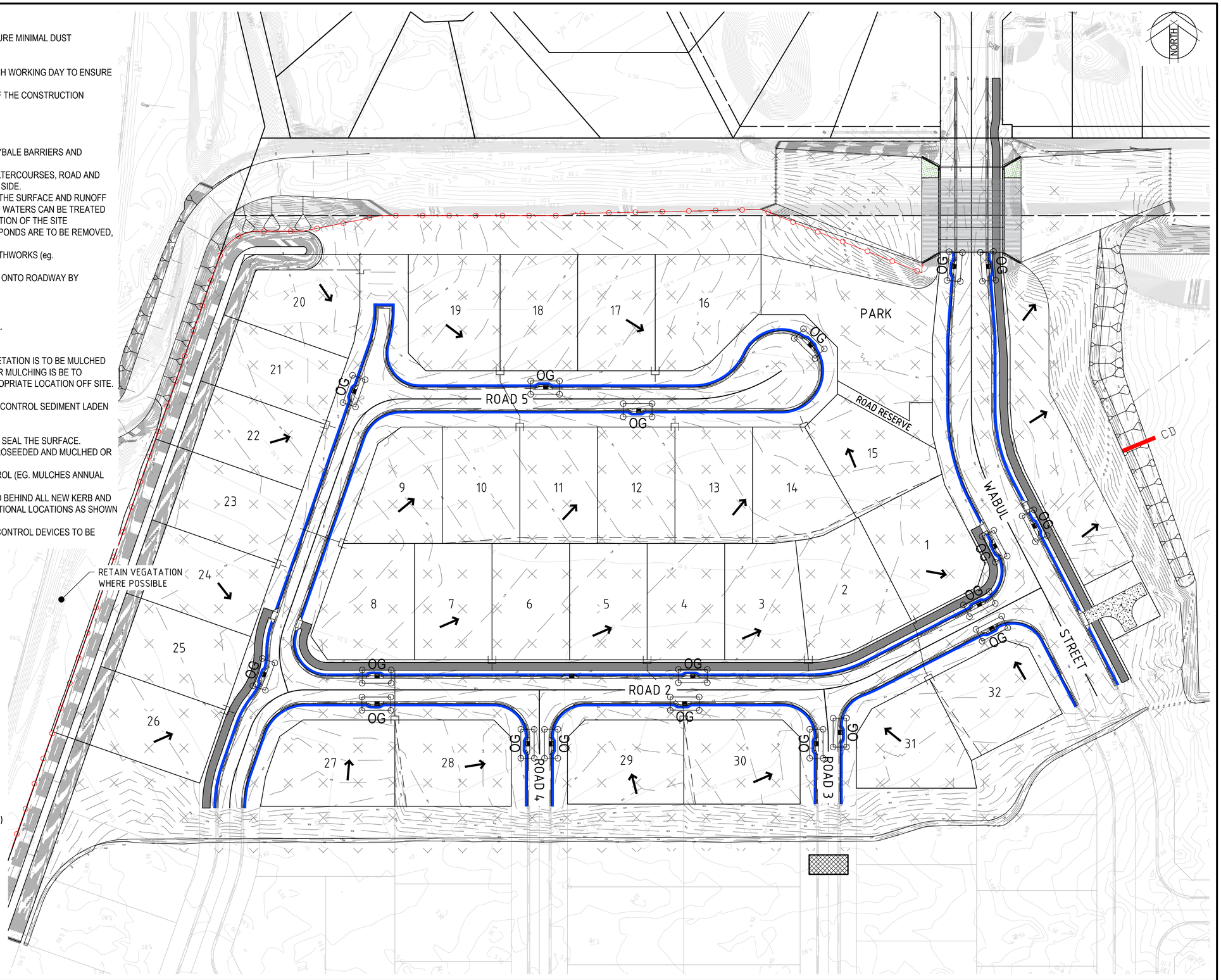
PHASING OF WORKS

1. INSTALL TRUCK SHAKER RAMP AND WASHDOWN AT ENTRY TO NEW WORK AREA.
2. INSTALL ALL BARRIER AND SILT FENCING.
3. INSTALL ALL CATCH DRAINS AND DIVERSION BANKS.
4. CARRY OUT CLEANING FROM ALL DRIVE AND SITE REGRADING AREAS. ALL VEGETATION IS TO BE MULCHED AND STOCKPILED FOR LATER USE. ONLY RUBBISH AND TIMBER UNSUITABLE FOR MULCHING IS BE TO STOCKPILED FOR LATER USE. ONLY MULCHING IS BE DISPOSED OF TO AN APPROPRIATE LOCATION OFF SITE.
5. STRIP SITE AND STOCKPILE TOPSOIL.
6. FORM SEDIMENT BASINS AND EXCAVATE DIVERSION DRAINS TO THE BASINS TO CONTROL SEDIMENT LADEN FLOWS IF REQURED.
7. UNDERTAKE SITE WORKS, COMPACT AND REVEGETATE DISTURBED AREAS.
8. UNCOMPLETED EARTHWORKS ARE TO BE ROLLED AT THE END OF EACH DAY TO SEAL THE SURFACE.
9. AS EARTHWORKS ARE COMPLETED THOSE AREAS ARE TO BE TOPSOILED, HYDROSEEDED AND MUCLHED OR PAVED IMMEDIATELY ON COMPLETION OF WORKS IN THAT AREA.
10. IN AREAS WHERE WORKS BY WET SEASON RAINS, TEMPORARY EROSION CONTROL (EG. MULCHES ANNUAL ETC.) ARE TO BE INSTALLED.
11. ON COMPLETION OF REGRADING STRIPS OF TURF 0.8m WIDE ARE TO BE PLACED BEHIND ALL NEW KERB AND GUTTER IN EACH ROAD, TOP AND BOTTOM OF ALL BATTER SLOPES AND IN ADDITIONAL LOCATIONS AS SHOWN ON THE PLAN OR AS DIRECTED BY THE SITE SUPERVISOR.
12. ONLY AT THE COMPLETION AND STABLISATION OF AREAS UPSTREAM ARE ANY CONTROL DEVICES TO BE REMOVED.

NOTE:
REFER IPWEAQ STANDARD DRAWINGS D-0040 AND D-0041 FOR TYPICAL DETAILS

LEGEND

- 3.50 — NATURAL SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- 3.50 — FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- TOP OF BATTER
- OG — SEDIMENT TRAP
- 0.6m WIDE TURF STRIPS
- PROPOSED AREA OF CLEAR AND STRIP
- CD — ROCK CHECK DAM (EVERY 50m OF DIVERSION DRAINS)
- LOT FLOW PATH
- SEDIMENT FENCE
- ENTRY / EXIT PAD



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B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
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SCALE 1:500 @A1

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Checked	MS	Date 10.10.2019
Designed	JJ	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD
Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE
Title: EROSION AND SEDIMENT CONTROL STRATEGY

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: Q184103-CI-1400
Revision: B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-SURV; XR-Q184103-DSGN-CNTRS; XR-Q184103-CI-GRADE STRINGS; XR-Q184103-EXST-CNTRS
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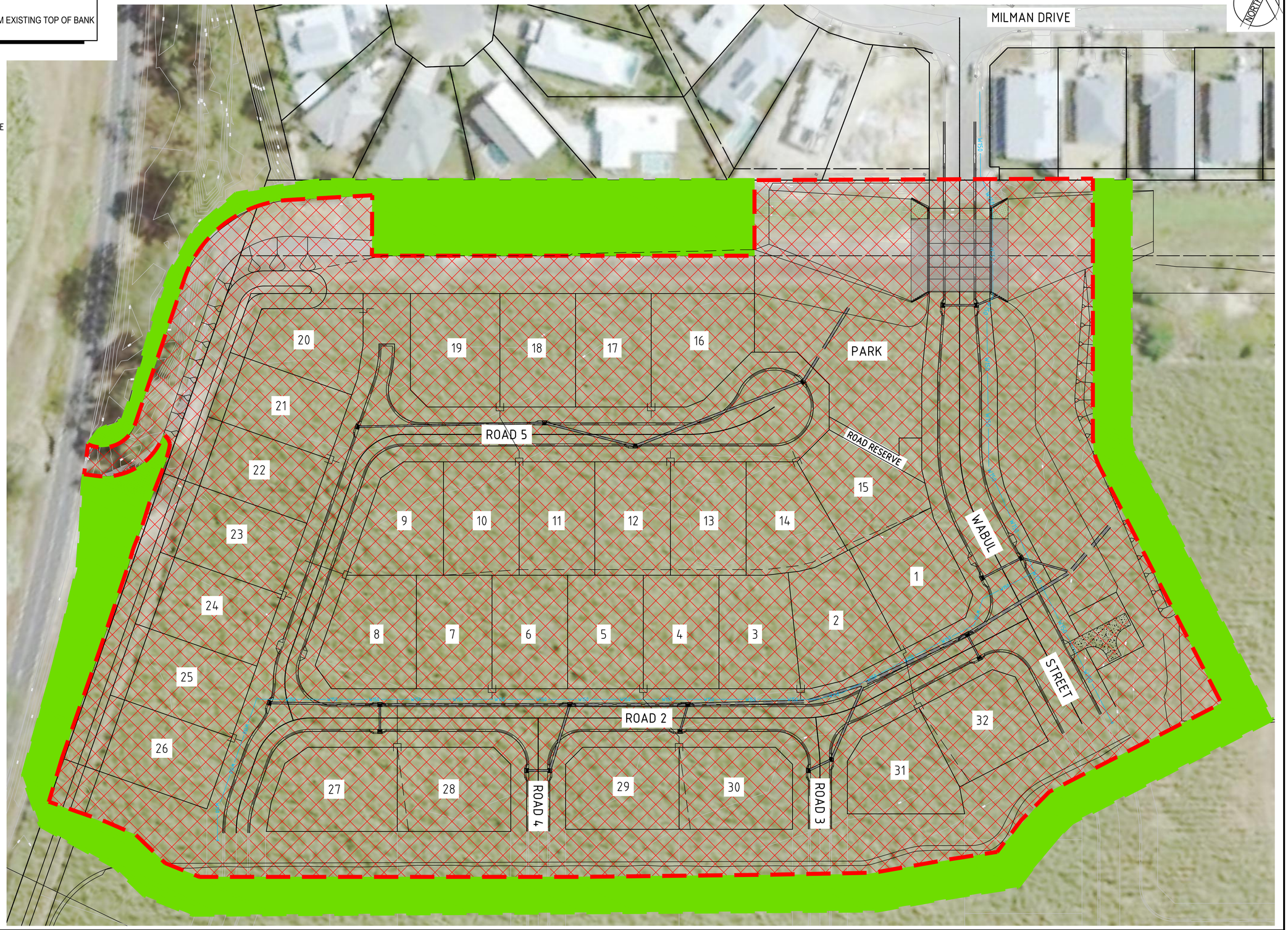
DATE PLOTTED: 1 April 2020 11:51 AM BY: MARY DOZA

NOTES

1. INTERFACE WITH EXISTING SURFACE 1m BACK FROM EXISTING TOP OF BANK

LEGEND:

- 3.50 — EXISTING CONTOURS
- TOP OF BATTER
- AREAS OF VEGETATION TO BE CLEARED
- AREA OF VEGETATION TO BE RETAINED WHERE POSSIBLE



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A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

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Checked	MS	Date 10.10.2019
Designed	JJ	Date 10.10.2019
Verified	MS	Date 10.10.2019
Approved	RPEQ No. 10801	Date 10.10.2019
	MB	

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: VEGETATION MANAGEMENT PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

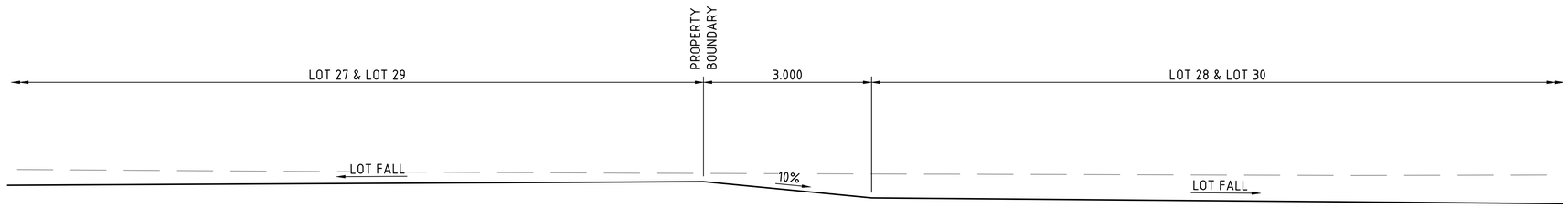
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Drawing Number: Q184103-CI-1401

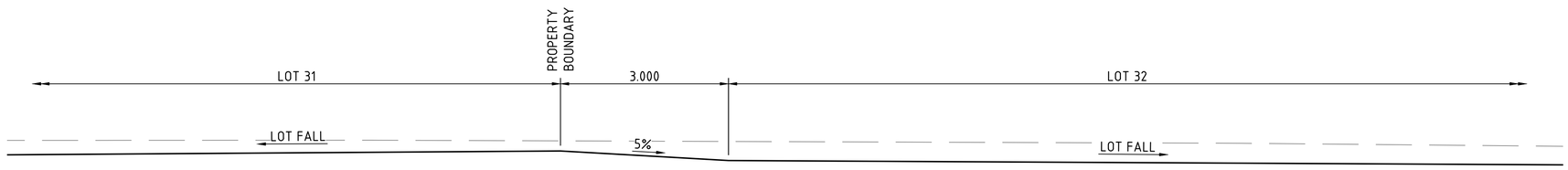
Revision: B

XREFs: XR-Q184103-CI-BASE; XR-Q184103-SURV; XR-Q184103-CI-GRADE STRINGS; GOOGLE EARTH
CAD File: C:\Users\mary.doza\Documents_C DRIVE_\JOBS\PORT DOUGLAS_Acad\Q184103-CI-1401.dwg

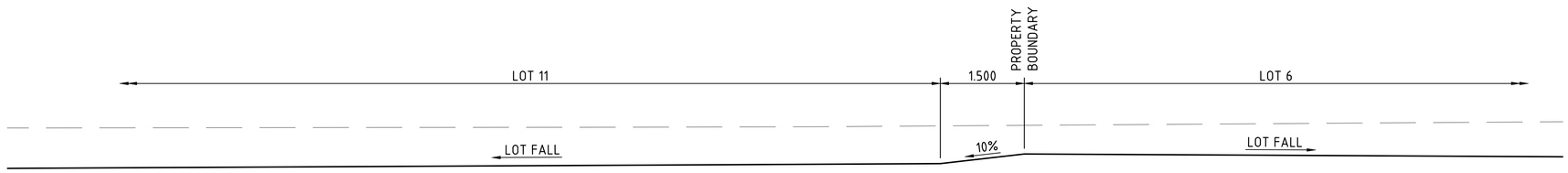
DATE PLOTTED: 1 April 2020 11:51 AM BY: MARY DOZA



SECTION A
SCALE 1:50m
1100



SECTION B
SCALE 1:50m
1100



SECTION C
SCALE 1:50m
1100

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
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SCALE 1:50 @A1

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Checked	MS	10.10.2019
Designed	JJ	10.10.2019
Verified	MS	10.10.2019
Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: MISCELLANEOUS DETAILS PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1402

Revision: B

XREFs:
CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1402.dwg

DATE PLOTTED: 6 April 2020 10:17 AM BY : MAURICE SHEEHAN

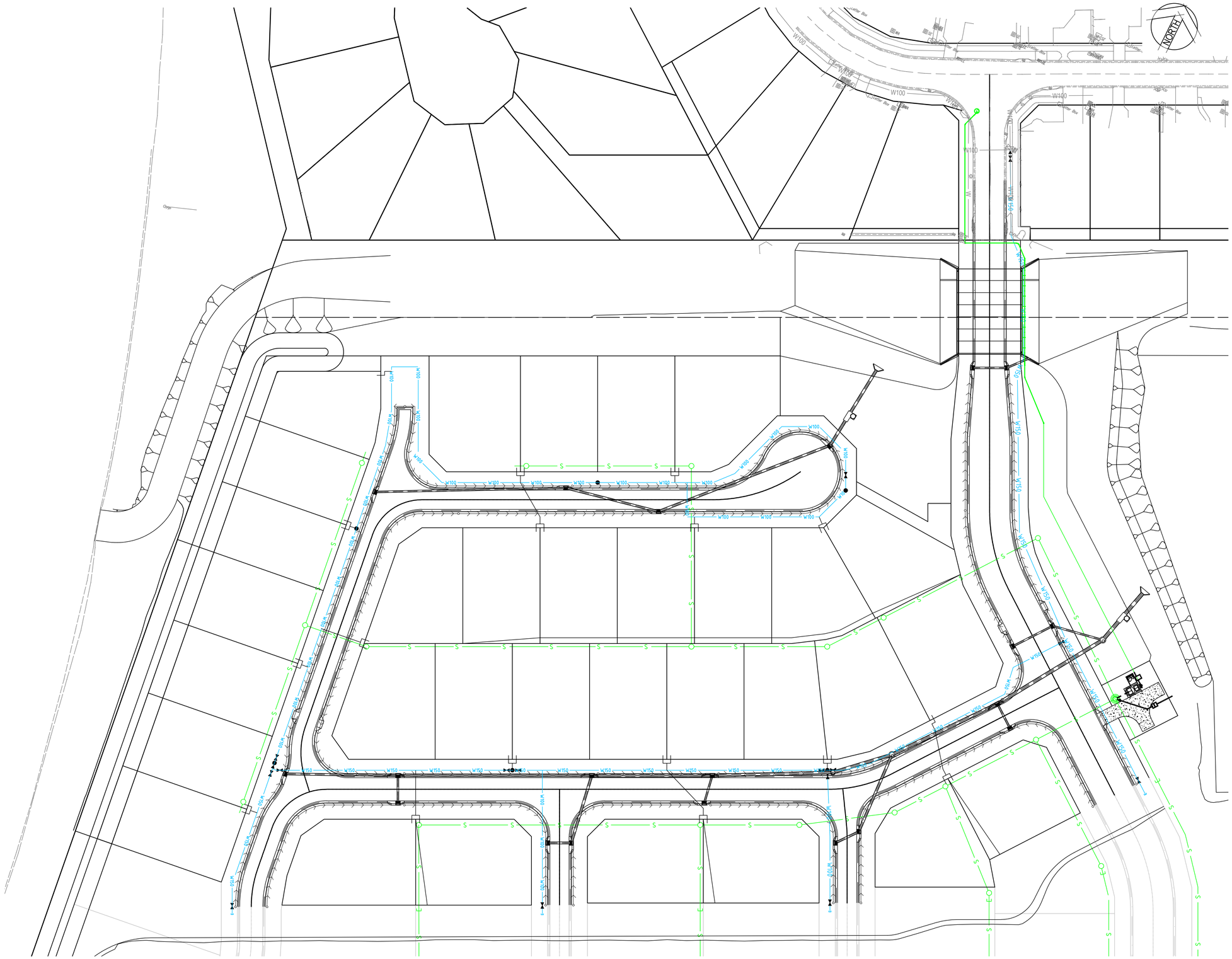
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CAD File: Q:\Projects\North Queensland\Cairns Based Projects\Q184103 - Port Douglas Estate Subdivision\005 - Civil Engineering\Design_CAD & Models_Acad\Q184103-CI-1403.dwg

NOTE

*** - CONTRACTOR TO LIASE WITH SPA AND ELECTRICAL CONTRACTOR TO ENSURE ADEQUATE CLEARANCE BETWEEN SERVICES

LEGEND

- 3.50 — FINISHED SURFACE CONTOUR (0.1m CONTOUR INTERVAL)
- TOP OF BATTER
- LAYBACK KERB & CHANNEL (REFER FNQROC STD. DWG S1000F)
- KERB RAMP (REFER FNQROC STD. DWG S1016C)
- KERB INLET PITS (REFER FNQROC STD. DWG S1050B & 1055D)
- S — S — NEW SEWER AND MANHOLE
- S — S — HOUSE CONNECTIONS (HCB'S)
- NEW SEWER MANHOLE
- END CAP SEWER
- W100 — 100Ø WATERMAIN
- W150 — 150Ø WATERMAIN
- FIRE HYDRANT
- VALVE
- END CAP WATER
- WATER SERVICE
- SUBSOIL DRAINS
- STORMWATER SYSTEM



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B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

0 10 20 30 40 50m
SCALE 1:500 @A1

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Checked	MS	10.10.2019
Designed	JJ	10.10.2019
Verified	MS	10.10.2019
Approved	RPEQ No. 10801	
	MB	10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: COMBINED SERVICES PLAN

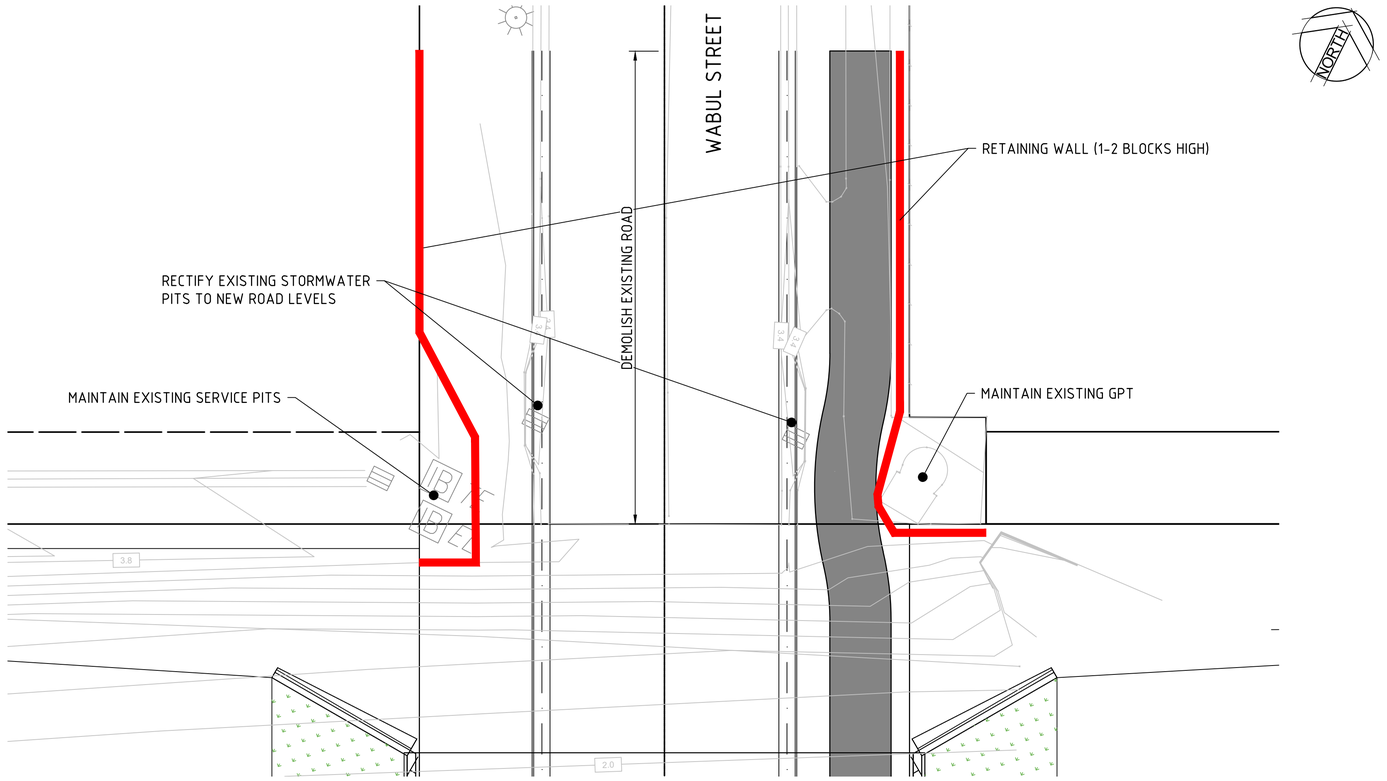
Status: FOR APPROVAL
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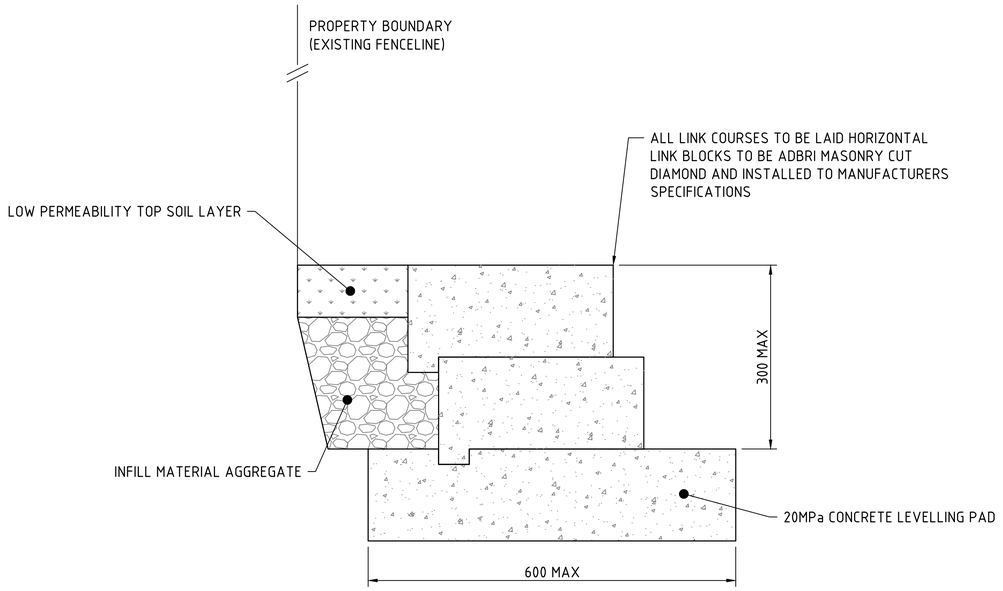
Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1403

Revision: B

DATE PLOTTED: 1 April 2020 11:52 AM BY: MARY DOZA





TYPICAL RETAINING WALL DETAIL

Rev.	Date	Description	Des.	Verif.	Appd.
B	01.04.2020	REISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB
A	10.10.2019	FOR OPERATIONAL WORKS APPROVAL	JJ	MS	MB

0 1 2 4 6 8 10m

SCALE 1:100 @A1

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Verified	MS	Date 10.10.2019
Approved	MB	RPEQ No. 10801 Date 10.10.2019

Client: PORT DOUGLAS LAND DEVELOPMENTS PTY LTD

Project: PORT DOUGLAS ESTATE - STAGE 1A & 1B
SUBDIVISION OF LOT 2 ON SR431
CAPTAIN COOK HIGHWAY, CRAIGLIE

Title: RETAINING WALL DETAILS PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: Q184103-CI-1404

Revision: B

XREF's: XR-Q184103-CI-BASE; XR-Q184103-SURV
CAD File: C:\Users\mary.doza\Documents_C DRIVE JOBS\PORT DOUGLAS_Acad\Q184103-CI-1404.dwg

north

MASTER PLAN

PORT DOUGLAS ESTATE
CAPTAIN COOK HIGHWAY
CRAIGLIE



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This plan is conceptual and for discussion purposes only. All areas, dimensions and land uses are preliminary, subject to investigation, survey, engineering, and Local Authority and Agency approvals.

PRELIMINARY ONLY

Date: 13th February 2020 | Scale: 1 : 1500 @ A1 | Drawn: MC | Job No.: Q184103 | Plan No.: Q184103-MP01 E