

DELEGATED REPORT**TO:** SENIOR PLANNER**FROM:** Planning Officer**FILE:** OPW/18/0006**DATE:** 10 July 2018**APPLICATION DETAILS**

APPLICATION		PREMISES	
FILE NO:	OPW/18/0006	ADDRESS:	Moondani Avenue & Allara Street, Mareeba
APPLICANT:	BTM & S Stankovich Pty Ltd	RPD:	Lot 200 on SP292105
LODGED BY:	BTM & S Stankovich Pty Ltd	AREA:	9.19 hectares
DATE LODGED:	18 May 2018	OWNER:	BTM & S Stankovich Pty Ltd
TYPE OF APPROVAL:	Development Permit		
PROPOSED DEVELOPMENT:	Operational Works for Roadworks, Stormwater, Water Infrastructure, Drainage, Earthworks, & Sewerage Infrastructure		
PLANNING SCHEME:	Mareeba Shire Council Planning Scheme 2016		
ZONE:	Low Density Residential zone		
LEVEL OF ASSESSMENT:	Code Assessment		

PREVIOUS APPLICATIONS & APPROVALS

RAL/18/0018

DESCRIPTION OF PROPOSED DEVELOPMENT

The development application seeks a Development Permit for Operation Works (Roadworks, Stormwater, Water Infrastructure, Drainage, Earthworks, & Sewerage Infrastructure)

ASSESSMENT**State Planning Policy**

Separate assessment against the State Planning Policy (SPP) is not required because the Mareeba Shire Council Planning Scheme appropriately integrates all relevant aspects of the SPP.

Relevant Development Codes

The following Development Codes are considered to be applicable to the assessment of the application:

6.2.6 Low density residential zone code

- 9.4.4 Reconfiguring a lot code
- 9.4.5 Works, services and infrastructure code

The application did not include a planning report and assessment against the planning scheme. An officer assessment has found that the application satisfies the relevant acceptable solutions (or probable solutions/performance criteria where no acceptable solution applies) of the relevant codes set out below.

Relevant Codes	Comments
Low density residential zone code	The application can be conditioned to comply with the relevant acceptable outcomes contained within the code.
Reconfiguring a lot code	The application can be conditioned to comply with the relevant acceptable outcomes contained within the code.
Works, services and infrastructure code	The application can be conditioned to comply with the relevant acceptable outcomes contained within the code.

Compliance with conditions of earlier related approval

RAL/18/0018 - Reconfiguring a Lot - Subdivision (1 into 25 Lots & balance area)

1. Development must be carried out substantially in accordance with the approved plans and the facts and circumstances of the use as submitted with the application, and subject to any alterations:
 - found necessary by the Council's delegated officer at the time of examination of the engineering plans or during construction of the development because of particular engineering requirements; and
 - to ensure compliance with the following conditions of approval.
2. Timing of Effect
 - 2.1 The conditions of the development permit must be complied with to the satisfaction of Council's delegated officer prior to the endorsement of the plan of survey of the development, except where specified otherwise in these conditions of approval.
3. General
 - 3.1 The applicant/developer is responsible for the cost of necessary alterations to existing public utility mains, services or installations required by works in relation to the proposed development or any works required by condition(s) of this approval.
 - 3.2 All payments or bonds required to be made to the Council pursuant to any condition of this approval or the Adopted Infrastructure Charges Notice must be made prior to the endorsement of the plan of survey and at the rate applicable at the time of payment.
 - 3.3 The developer must relocate (in accordance with FNQROC standards) any services such as water, sewer, drainage, telecommunications and electricity that are not wholly located within the lots that are being created/serviced where required by the relevant authority, unless approved by Council's delegated officer.

- 3.4 Where utilities (such as sewers on non-standard alignments) traverse lots to service another lot, easements must be created in favour of Council for access and maintenance purposes. The developer is to pay all costs (including Council's legal expenses) to prepare and register the easement documents.
- 3.5 All works must be designed, constructed and carried out in accordance with FNQROC Development Manual requirements (as amended) and to the satisfaction of Council's delegated officer.

3.6 Charges

All outstanding rates, charges, and expenses pertaining to the land are to be paid in full.

4 Infrastructure Services and Standards

4.1 Access

Access to each allotment must be constructed (from the edge of the road pavement to the property boundary of each lot) in accordance with the FNQROC Development Manual, to the satisfaction of Council's delegated officer.

The provision of roll-over kerb along the frontage of each allotment will satisfy this condition.

4.2 Stormwater Drainage

- (a) The applicant/developer must take all necessary steps to ensure a non-worsening effect on surrounding land as a consequence of the development.
- (b) Prior to works commencing the applicant must submit a Stormwater Management Plan and Report prepared and certified by a suitably qualified design engineer (RPEQ) that meets or exceeds the standards of design and construction set out in the Queensland Urban Drainage Manual (QUDM) and the FNQROC Development Manual to the satisfaction of Council's delegated officer.
- (c) Prior to works commencing the applicant must submit a Stormwater Quality Management Plan and Report prepared and certified by a suitably qualified design engineer (RPEQ) that meets or exceeds the standards of design and construction set out in the Urban Stormwater Quality Planning Guideline and the Queensland Water Quality Guideline to the satisfaction of Council's delegated officer.
- (d) The Stormwater Quality Management Plan must include an Erosion and Sediment Control Plan that meets or exceeds the Soil Erosion and Sedimentation Control Guidelines (Institute of Engineers Australia) to the satisfaction of Council's delegated officer.
- (e) The applicant/developer must construct the stormwater drainage infrastructure in accordance with the approved Stormwater Management Plan and/or Stormwater Quality Management Plan and Report.

- (f) Temporary drainage is to be provided and maintained during the construction phase of the development, discharged to a lawful point and not onto the construction site.
- (g) All stormwater channels through private property must be registered, with the easement for drainage purposes in favour of Council. All documentation leading to the registration of the easement must be completed at no cost to Council.
- (h) The proposed drainage area shall be dedicated for public use land/drainage purposes. All documentation leading to the dedication of this land must be completed at no cost to Council.
- (i) The applicant (at their cost) must video all stormwater lines and submit the video for inspection by Council's delegated officer prior to the development being taken "off maintenance" to ensure that no defects have occurred during the 12 month maintenance period.

4.3 Roadworks - Internal

- (a) Moondani Avenue and Allara Street are to be constructed to Access Street standard in accordance with the FNQROC Development Manual (as amended) to the satisfaction of Council's delegated officer.
- (b) Temporary turnaround areas, with a gravel surface, must be provided at the northern end of Moondani Avenue to allow traffic manoeuvring.

4.4 Water Supply

- (a) Where the existing reticulated water supply does not currently service the site or is not at an adequate capacity, the developer is required to extend or upgrade the reticulated water supply infrastructure to connect the site to Council's existing infrastructure at a point that has sufficient capacity to service the development in accordance with FNQROC Development Manual standards (as amended).
- (b) A water service connection must be provided to each proposed lot in accordance with FNQROC Development Manual standards (as amended) to the satisfaction of Council's delegated officer.

4.5 Sewerage Connection

The developer must connect the proposed development to Council's reticulated sewerage system in accordance with FNQROC Development Manual standards (as amended) to the satisfaction of Council's delegated officer.

Where sewerage connections are not available to the site, or where existing connections are not satisfactory for the proposed development, the developer is required to extend or upgrade the reticulated sewerage infrastructure to connect the site to Council's existing infrastructure at a point that has sufficient capacity to service the development in accordance with FNQROC Development Manual standards (as amended).

4.6 Electricity provision/supply

The applicant/developer must ensure that an appropriate level of electricity supply is provided to each allotment in accordance with FNQROC Development Manual standards (as amended) to the satisfaction of Council's delegated officer.

Written advice from an Electricity Service Provider is to be provided to Council indicating that an agreement has been made for the provision of **underground** power reticulation.

4.7 Telecommunications

The applicant/developer must enter into an agreement with a telecommunication carrier to provide telecommunication services to each allotment and arrange provision of necessary conduits and enveloping pipes.

4.8 Lighting

Street lighting must be provided to all roads in accordance with FNQROC Development requirements (as amended) and to the satisfaction of Council's delegated officer.

FNQROC Regional Development Manual

Drawings have been checked against the FNQROC Development Manual and are approved subject to the following amendments:

1. *Plan and location of landscaping mound to be submitted to Council for approval and review plantings as per Street Tree Master Plan. (Meet on site to discuss further).*
2. *Plan C27 (HCB). Sewer note 10 and 11 to amended to FNQROC standard drawing S3005 note 8.*
3. *Plan C31 (Water Reticulation), description note 7 and 8 eliminate " meter and dirt box" and in Water Reticulation notes, note 8, eliminate "Meter".*

REFERRALS

Internal Consultation

Manager Technical Services

OFFICER'S RECOMMENDATION

1. That in relation to this operational works development application:

APPLICATION		PREMISES	
APPLICANT:	BTM & S Stankovich Pty Ltd	ADDRESS:	Moondani Avenue & Allara Street, Mareeba
DATE LODGED	18 May 2018	RPD:	Lot 200 on SP292105
TYPE OF APPROVAL	Development Permit		
PROPOSED DEVELOPMENT	Operational Works for Roadworks, Stormwater, Water Infrastructure, Drainage, Earthworks, & Sewerage Infrastructure		

and in accordance with the Planning Act 2016, as amended, the applicant be notified that the application for operational works:

Approved subject to the following assessment manager conditions:

- (A) APPROVED DEVELOPMENT: Development Permit for Operational Works (Roadworks, Stormwater, Water Infrastructure, Drainage, Earthworks, & Sewerage Infrastructure) for Stage 10
- (B) APPROVED PLANS:

Plan/Document Number	Plan/Document Title	Prepared by	Dated
AP17-001-001-C01A	Cover Sheet	Benchmark Survey & Design	16/03/17
AP17-001-001-C02A	Site Plan (Sheet 1 of 2)	Benchmark Survey & Design	16/03/17
AP17-001-001-C03A	Site Plan (Sheet 2 of 2)	Benchmark Survey & Design	16/03/17
AP17-001-001-C04A	Layout Plan (Sheet 1 of 2)	Benchmark Survey & Design	16/03/17
AP17-001-001-C05A	Layout Plan (Sheet 2 of 2)	Benchmark Survey & Design	16/03/17
AP17-001-001-C06A	Typical Sections - All Roads and Main Drain	Benchmark Survey & Design	16/03/17
AP17-001-001-C07A	Intersection and Cul-De-Sac Details	Benchmark Survey & Design	16/03/17
AP17-001-001-C08A	Longitudinal Section - Dandaloo Close	Benchmark Survey & Design	16/03/17
AP17-001-001-C09A	Cross Sections - Dandaloo Close	Benchmark Survey & Design	16/03/17
AP17-001-001-C10A	Cross Sections - Dandaloo Close	Benchmark Survey & Design	16/03/17
AP17-001-001-C11A	Longitudinal Section - Moondani Avenue	Benchmark Survey & Design	16/03/17
AP17-001-001-C12A	Cross Sections - Moondani Avenue	Benchmark Survey & Design	16/03/17
AP17-001-001-C13A	Cross Sections - Moondani Avenue	Benchmark Survey & Design	16/03/17
AP17-001-001-C14A	Cross Sections - Moondani Avenue	Benchmark Survey & Design	16/03/17
AP17-001-001-C15A	Longitudinal Section - Allara Street	Benchmark Survey & Design	16/03/17
AP17-001-001-C16A	Cross Sections - Allara Street	Benchmark Survey & Design	16/03/17
AP17-001-001-C17A	Cross Sections - Allara Street	Benchmark Survey & Design	16/03/17
AP17-001-001-C18A	Cross Sections - Allara Street	Benchmark Survey & Design	16/03/17
AP17-001-001-C19A	Earthworks Plan (Sheet 1 of 2)	Benchmark Survey & Design	16/03/17
AP17-001-001-C20A	Earthworks Plan (Sheet 2 of 2)	Benchmark Survey & Design	16/03/17
AP17-001-001-C21A	Stormwater Drainage Layout Plan (Sheet 1 of 2)	Benchmark Survey & Design	16/03/17
AP17-001-001-C22A	Stormwater Drainage Layout Plan (Sheet 2 of 2)	Benchmark Survey & Design	16/03/17

AP17-001-001-C23A	Stormwater Drainage - Main Drain Sections	Benchmark Survey & Design	16/03/17
AP17-001-001-C24A	Stormwater Drainage - Longitudinal Sections	Benchmark Survey & Design	16/03/17
AP17-001-001-C25A	Stormwater Drainage - Calculations	Benchmark Survey & Design	16/03/17
AP17-001-001-C26A	Sewerage Reticulation Layout Plan (Sheet 1 of 2)	Benchmark Survey & Design	16/03/17
AP17-001-001-C27A	Sewerage Reticulation Layout Plan (Sheet 2 of 2)	Benchmark Survey & Design	16/03/17
AP17-001-001-C28A	Sewerage Longitudinal Section - Line 52	Benchmark Survey & Design	16/03/17
AP17-001-001-C29A	Sewerage Longitudinal Section - Line 57	Benchmark Survey & Design	16/03/17
AP17-001-001-C30A	Sewerage Longitudinal Section - Line 55, 56 & 58	Benchmark Survey & Design	16/03/17
AP17-001-001-C31A	Water Reticulation Layout Plan	Benchmark Survey & Design	16/03/17
AP17-001-001-C32A	Erosion and Sediment Control Plan	Benchmark Survey & Design	16/03/17
AP17-001-001-FIGURE01 A	Layout Plan Temporary Open Drain	Benchmark Survey & Design	18/03/18

(C) ASSESSMENT MANAGER'S CONDITIONS (COUNCIL)

(a) Amendments required to approved plans

- (i) A plan detailing the design and location of landscaping mound must be submitted to Council's delegated officer for approval prior to commencement of work on the landscaping mound.
- (ii) Plan AP17-001-001-C27A (HCB). Sewer note 10 and 11 must be amended to FNQROC standard drawing S3005 note 8.
- (iii) Plan AP17-001-001-C31A (Water Reticulation), in description note 7 and 8 delete " meter and dirt box" and in Water Reticulation notes, note 8, delete "Meter".

(b) General

- (i) All operational works must be designed and constructed in accordance with the procedures as set out in the FNQROC Development Manual.
- (ii) Development must be carried out substantially in accordance with the approved plans and the facts and circumstances of the use as submitted with the application, and subject to any alterations:
 - found necessary by the Council's Delegated Officer at the time of examination of the engineering plans or during construction of the development because of particular engineering requirements;
 - to ensure the works comply in all respects with the requirements and procedures of the FNQROC Development Manual and good engineering practice; and

- to ensure compliance with the following conditions of approval.

- (iii) Council's examination of the documents should not be taken to mean that the documents have been checked in detail and Council takes no responsibility for their accuracy. If during construction, inadequacies of the design are discovered, it is the responsibility of the Principal Consulting Engineer to resubmit amended plans to Council for approval and rectify works accordingly.

(c) Pre-start Meeting

- (i) In addition to the requirements of Clause CP1.07 and CP1.08 of the FNQROC Development Manual; after documentation has been approved by Council, a pre-start meeting is to be held on site prior to the commencement of work. Part 1 of the **attached** pre-start meeting pro-forma is to be completed and returned prior to the meeting including clause 1.u 'Request for Meeting' together with the prescribed Construction Monitoring Fee as set out in Council's Schedule of Fees.

(d) Inspections

- (i) Inspections are to be carried out as detailed in the FNQROC Manual unless advised otherwise at the pre-start meeting.

(e) Construction Security Bond and Defects Liability Bond

- (i) In addition to Clauses CP1.06 and CP1.20 of the FNQROC Development Manual; the Construction Security Bond and Defects Liability Bond shall each be a minimum of \$1000 and Bank Guarantees shall have no termination date.
- (ii) During the Defects Liability period, it is the responsibility of the developer to rectify any works found to be defective due to design faults and or found to exhibit faults attributed to the performance of the construction activities in terms of quality and conformance with design and specifications. The bond will be returned on satisfactory correction of any defective work and after expiration of the maintenance period. Failure to comply with a Council issued instruction to correct defective work may result in the call up of the bond to have the work completed.

(f) Hours of Work

- (i) Work involving the operation of construction plant and equipment of any description, shall only be carried out on site during the following times:
 - 7.00am to 6.00pm, Monday to Friday;
 - 7.00am to 1.00pm Saturdays;
 - No work is permitted on Sundays or Public Holidays.
- (ii) No variation to the above working hours is allowed unless otherwise agreed in writing by Council.

(g) Transportation of Soil

- (i) All soil transported to or from the site must be covered to prevent dust or spillage during transport. If soil is tracked or spilt onto the road pavement from works on the subject land, it must be removed no later than at the end of each

working day. Sediment must not enter Council's stormwater drainage network.

(D) RELEVANT PERIOD

When approval lapses if development not started (s.85)

- Two (2) years (starting the day the approval takes effect).

(E) OTHER NECESSARY DEVELOPMENT PERMITS AND/OR COMPLIANCE PERMITS

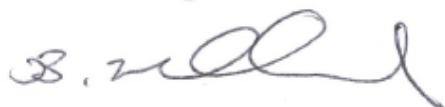
- Nil

DECISION BY DELEGATE

DECISION

Having considered the Planning Officer's report detailed above, I approve, as delegate of Council, the application subject to the conditions listed in the report.

Dated the *15TH* day of *JULY* 2018



BRIAN MILLARD
SENIOR PLANNER

MAREEBA SHIRE
AS A DELEGATE OF THE COUNCIL

AMAROO RESIDENTIAL SUBDIVISION STAGE 9 & 10 OPERATIONAL WORKS DRAWINGS



DRAWING INDEX

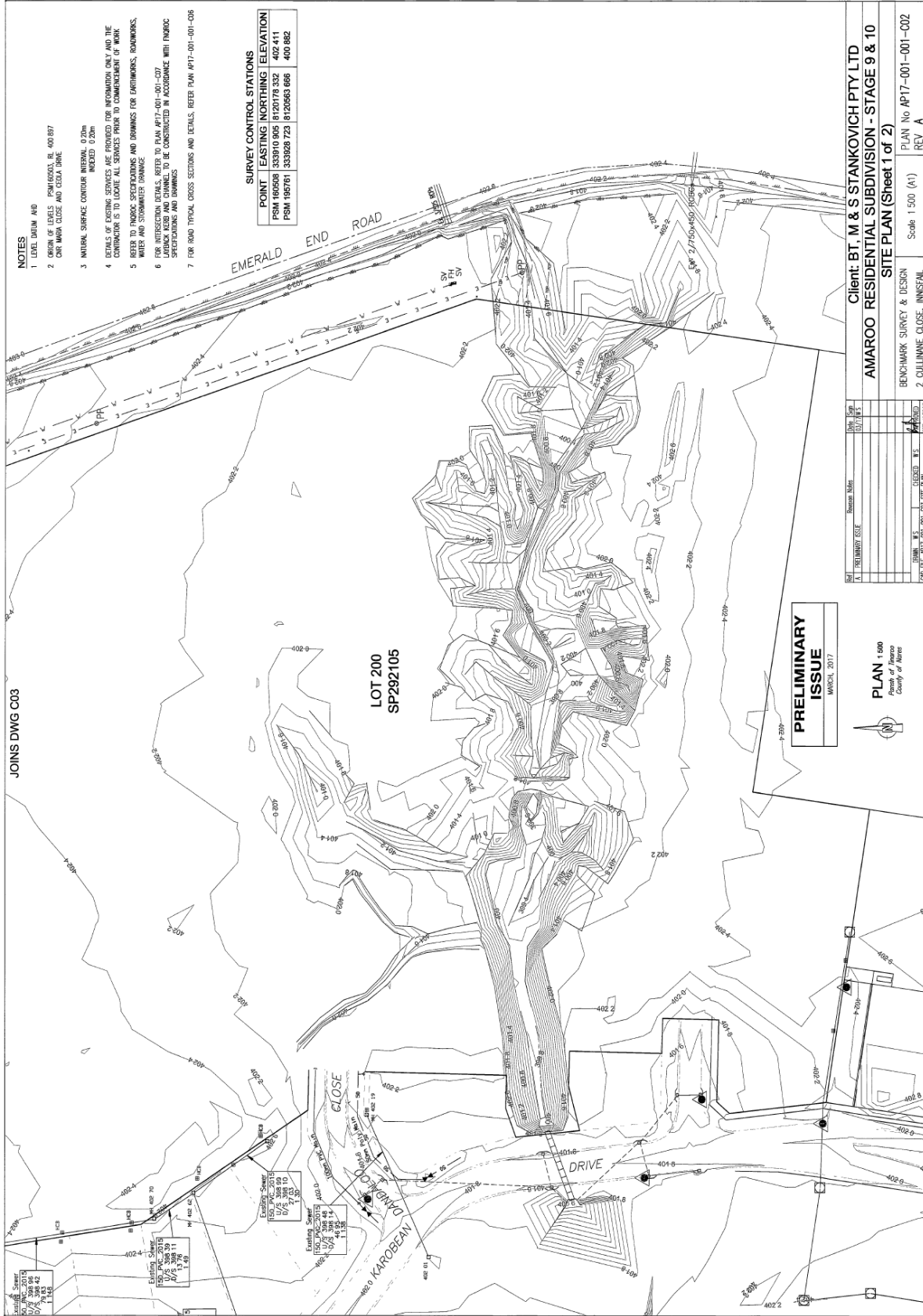
Drawing Number	Rev.	Date	Drawing Description
AP17-001-001-C01	A	16/03/17	COVER SHEET
AP17-001-001-C02	A	16/03/17	SITE PLAN (Sheet 1 of 2)
AP17-001-001-C03	A	16/03/17	SITE PLAN (Sheet 2 of 2)
AP17-001-001-C04	A	16/03/17	LAYOUT PLAN (Sheet 1 of 2)
AP17-001-001-C05	A	16/03/17	LAYOUT PLAN (Sheet 2 of 2)
AP17-001-001-C06	A	16/03/17	TYPICAL SECTIONS - ALL ROADS AND MAIN DRAIN
AP17-001-001-C07	A	16/03/17	INTERSECTION AND CUL-DE-SAC DETAILS
AP17-001-001-C08	A	16/03/17	LONGITUDINAL SECTION - DANDALOO CLOSE
AP17-001-001-C09	A	16/03/17	CROSS SECTIONS - DANDALOO CLOSE
AP17-001-001-C10	A	16/03/17	CROSS SECTIONS - DANDALOO CLOSE
AP17-001-001-C11	A	16/03/17	LONGITUDINAL SECTION - MOONDANI AVENUE
AP17-001-001-C12	A	16/03/17	CROSS SECTIONS - MOONDANI AVENUE
AP17-001-001-C13	A	16/03/17	CROSS SECTIONS - MOONDANI AVENUE
AP17-001-001-C14	A	16/03/17	CROSS SECTIONS - MOONDANI AVENUE
AP17-001-001-C15	A	16/03/17	LONGITUDINAL SECTION - ALLARA STREET
AP17-001-001-C16	A	16/03/17	CROSS SECTIONS - ALLARA STREET
AP17-001-001-C17	A	16/03/17	CROSS SECTIONS - ALLARA STREET
AP17-001-001-C18	A	16/03/17	CROSS SECTIONS - ALLARA STREET
AP17-001-001-C19	A	16/03/17	EARTHWORKS PLAN (Sheet 1 of 2)
AP17-001-001-C20	A	16/03/17	EARTHWORKS PLAN (Sheet 2 of 2)
AP17-001-001-C21	A	16/03/17	STORMWATER DRAINAGE LAYOUT PLAN (Sheet 1 of 2)
AP17-001-001-C22	A	16/03/17	STORMWATER DRAINAGE LAYOUT PLAN (Sheet 2 of 2)
AP17-001-001-C23	A	16/03/17	STORMWATER DRAINAGE - MAIN DRAIN SECTIONS
AP17-001-001-C24	A	16/03/17	STORMWATER DRAINAGE - LONGITUDINAL SECTIONS
AP17-001-001-C25	A	16/03/17	STORMWATER DRAINAGE - CALCULATIONS
AP17-001-001-C26	A	16/03/17	SEWERAGE RETICULATION LAYOUT PLAN (Sheet 1 of 2)
AP17-001-001-C27	A	16/03/17	SEWERAGE RETICULATION LAYOUT PLAN (Sheet 2 of 2)
AP17-001-001-C28	A	16/03/17	SEWERAGE LONGITUDINAL SECTION - LINE 52
AP17-001-001-C29	A	16/03/17	SEWERAGE LONGITUDINAL SECTION - LINE 57
AP17-001-001-C30	A	16/03/17	SEWERAGE LONGITUDINAL SECTION - LINE 55, 56 & 58
AP17-001-001-C31	A	16/03/17	WATER RETICULATION LAYOUT PLAN
AP17-001-001-C32	A	16/03/17	EROSION AND SEDIMENT CONTROL PLAN

FNQROC STANDARD DRAWINGS

Drawing Number	Rev.	Drawing Description
S1040	D	STREET NAME SIGNS
S1046	A	EXCAVATION, BEDDING AND BACKFILLING OF CONCRETE PIPES
S1054	A	WATER MAINS INSTALLATION - 150mm DIA. - 5000
S1055	A	GRAVEL KERB INLET PIT PIPE - 500
S1065	B	STORMWATER MANHOLES 1050 & 1500
S2000	B	VALVE BOX INSTALLATION
S2005	B	HYDRANT BOX INSTALLATION
S2010	B	KERBROAD MARKERS
S2015	C	THRUST BLOCK DETAILS
S2016	B	WATER RETICULATION BEDDING DETAILS
S2020	B	MAIN CONNECTION DETAILS
S3000	C	SEWERAGE MANHOLES
S3005	C	SEWERAGE MANHOLES CONNECTION BRANCHES
S3015	C	SEWERAGE MANHOLES BEDDING DETAILS
S4220	B	LANDSCAPE MOUNDING

**PRELIMINARY
ISSUE**
MARCH, 2017

Client: BT, M & S STANKOVICH PTY LTD	PLAN No: AP17-001-001-C01
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10	REV. A
COVER SHEET	N.T.S.
BENCHMARK SURVEY & DESIGN	
2 COLLINGWANE CLOSE, INNSFALL	



NOTES

1. LEVEL DATUM: AHD
2. ORIGIN OF LEVELS: PSMA/PSOL, RL 400 887
OR: MGA CLOSE AND CEGA LINK
3. NATURAL SURFACE CONTOUR INTERVAL: 0.20m
INDEXED: 0.20m
4. DETAILS OF EXISTING SERVICES ARE PROVIDED FOR INFORMATION ONLY AND THE CONTRACTOR IS TO LOCATE ALL SERVICES PRIOR TO COMMENCEMENT OF WORK.
5. REFER TO TPOBC SPECIFICATIONS AND DRAWINGS FOR EARTHWORKS, ROADWORKS, WATERS AND STORMWATER DRAINAGE.
6. FOR INTERSECTION DETAILS, REFER TO PLAN AP17-001-001-037.
7. FOR ROAD TYPICAL CROSS SECTIONS AND DETAILS, REFER PLAN AP17-001-001-036.

SURVEY CONTROL STATIONS

POINT	EASTING	NORTHING	ELEVATION
PSM 198209	3339210.946	8120174.332	402.411
PSM 198276	3338228.723	8120265.666	400.882

JOINS DWG C03

LOT 200
SP292105

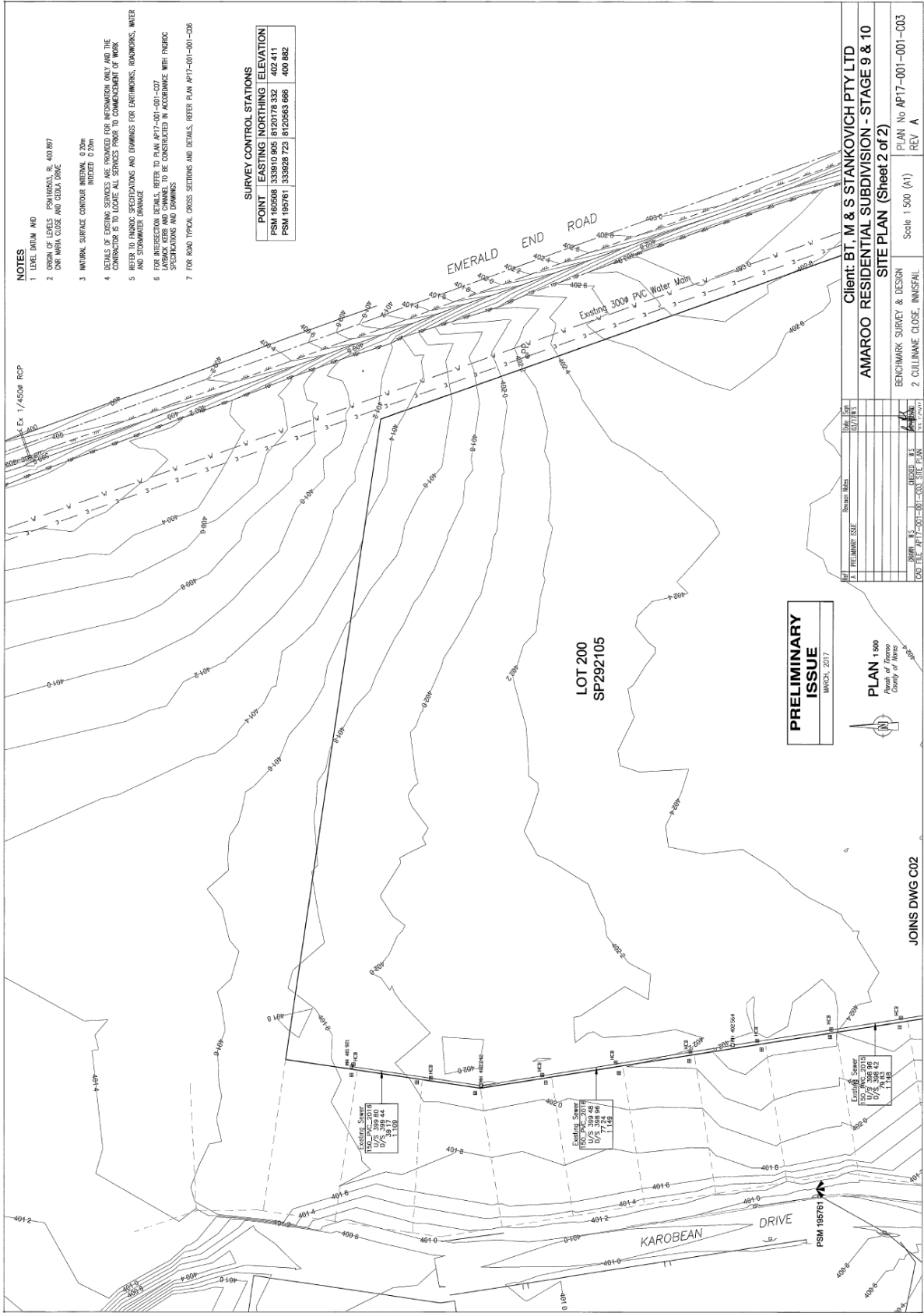
PRELIMINARY ISSUE
MARCH, 2017

PLAN 1:500
Parish of Invercauld
County of Invercauld

Client: BT, M & S STANKOVICH PTY LTD
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
SITE PLAN (Sheet 1 of 2)

NO.	DATE	BY	REVISION
1	17/03/2017	BT	ISSUE FOR PERMIT

BENCHMARK SURVEY & DESIGN
2 CULLINANE CLOSE, INNSFAL
Scale 1:500 (A1)
PLAN No AP17-001-001-002
REV A





DANDALOO CLOSE CONTROL LINE - SETOUT POINTS			
PT	CHAINAGE	EASTING	NORTHING
IP 1	0.000	334011.758	8120390.779
IP 2	48.177	3340062.211	8120398.187
IP 3	118.800	334128.813	8120418.472
IP 4	133.000	334140.862	8120417.400
IP 5	200.000	334207.144	8120407.624
IP 6	280.573	334263.112	8120398.389
IP 7	334.000	334263.112	8120398.389
IP 8	334.000	334263.112	8120398.389

MAIN DRAIN - MDDT SETOUT POINTS			
PT	CHAINAGE	EASTING	NORTHING
IP 1	0.000	334011.758	8120390.779
IP 2	48.177	3340062.211	8120398.187
IP 3	118.800	334128.813	8120418.472
IP 4	133.000	334140.862	8120417.400
IP 5	200.000	334207.144	8120407.624
IP 6	280.573	334263.112	8120398.389
IP 7	334.000	334263.112	8120398.389
IP 8	334.000	334263.112	8120398.389

SURVEY CONTROL STATIONS		
POINT	EASTING	NORTHING
PSM 162580	333910.908	8120178.332
PSM 162581	333928.723	8120560.686
PSM 162582	333928.723	8120560.686

- NOTES**
- LEVEL DATUM AHD
 - ORIGIN OF LEVELS: PSMA60003, RL 440.897
 - CNR MARIA CLOSE AND CEDIA DRIVE
 - EXISTING SURFACE CONTOUR INTERVAL: 0.20m
INDEXED: 0.20m
 - DESIGN SURFACE CONTOUR INTERVAL: 0.10m
INDEXED: 0.20m
 - REFER DWG C07 FOR INTERSECTION AND
CUL-DE-SAC DETAILS
 - LANDSCAPING PLAN TO BE SUBMITTED TO MARIBRA SHIRE
COUNCIL FOR APPROVAL PRIOR TO WORKS COMMENCING

- LEGEND**
- APPROVAL SIGNING NEED DRAWING C06 FOR PAVEMENT DETAILS
 - EXISTING CONTOURS WITH LABELS
 - DESIGN CONTOURS WITH LABELS
 - STREET SIGNS IN PLACE
 - REFER FENCROC STD DWG S1040
 - FALL OF LOTS/DIRECTION OF OVERLAND FLOWS
 - LANDSCAPING MOUND

Client: BT, M & S STANKOVICH PTY LTD

AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10

LAYOUT PLAN (Sheet 1 of 2)

BENCHMARK SURVEY & DESIGN
2 COLLINAIRE CLOSE, INNSFAL

Scale: 1:500 (A1)

PLAN No AP17-001-001-C04
REV A

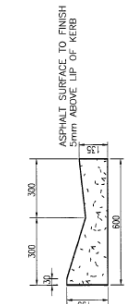
PRELIMINARY ISSUE
MARCH, 2017

PLAN 1:500
City of Maribra
County of Maribra



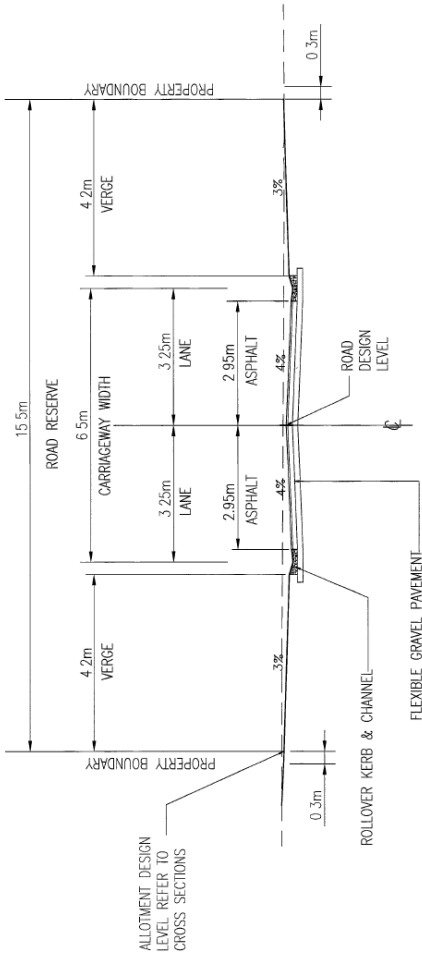
MOONBANI AVENUE SETOUT POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RADIUS
IP 1	0 000	334081.474	8120464.146	401.950	340°27'25.00"	
IP 2	20 000	334078.751	8120482.982	401.749	340°27'25.00"	
IP 3	40 000	334076.028	8120500.824	401.548	340°27'25.00"	
IP 4	60 000	334073.305	8120526.666	401.347	340°27'25.00"	
IP 5	80 000	334070.582	8120552.508	401.146	340°27'25.00"	
IP 6	100 000	334067.859	8120578.350	400.945	340°27'25.00"	
IP 7	120 000	334065.136	8120604.192	400.744	340°27'25.00"	
IP 8	140 000	334062.413	8120630.034	400.543	340°27'25.00"	
IP 9	160 000	334059.690	8120655.876	400.342	340°27'25.00"	
IP 10	180 000	334056.967	8120681.718	400.141	340°27'25.00"	
IP 11	200 000	334054.244	8120707.560	399.940	340°27'25.00"	
IP 12	220 000	334051.521	8120733.402	399.739	340°27'25.00"	
IP 13	240 000	334048.798	8120759.244	399.538	340°27'25.00"	
IP 14	260 000	334046.075	8120785.086	399.337	340°27'25.00"	
IP 15	280 000	334043.352	8120807.928	399.136	340°27'25.00"	
IP 16	300 000	334040.629	8120833.770	398.935	340°27'25.00"	
IP 17	320 000	334037.906	8120859.612	398.734	340°27'25.00"	
IP 18	340 000	334035.183	8120885.454	398.533	340°27'25.00"	
IP 19	360 000	334032.460	8120911.296	398.332	340°27'25.00"	
IP 20	380 000	334029.737	8120937.138	398.131	340°27'25.00"	
IP 21	400 000	334027.014	8120962.980	397.930	340°27'25.00"	
IP 22	420 000	334024.291	8120988.822	397.729	340°27'25.00"	
IP 23	440 000	334021.568	8121014.664	397.528	340°27'25.00"	
IP 24	460 000	334018.845	8121040.506	397.327	340°27'25.00"	
IP 25	480 000	334016.122	8121066.348	397.126	340°27'25.00"	
IP 26	500 000	334013.399	8121092.190	396.925	340°27'25.00"	
IP 27	520 000	334010.676	8121117.032	396.724	340°27'25.00"	
IP 28	540 000	334007.953	8121142.874	396.523	340°27'25.00"	
IP 29	560 000	334005.230	8121168.716	396.322	340°27'25.00"	
IP 30	580 000	334002.507	8121194.558	396.121	340°27'25.00"	
IP 31	600 000	333999.784	8121220.400	395.920	340°27'25.00"	
IP 32	620 000	333997.061	8121246.242	395.719	340°27'25.00"	
IP 33	640 000	333994.338	8121272.084	395.518	340°27'25.00"	
IP 34	660 000	333991.615	8121297.926	395.317	340°27'25.00"	
IP 35	680 000	333988.892	8121323.768	395.116	340°27'25.00"	
IP 36	700 000	333986.169	8121349.610	394.915	340°27'25.00"	
IP 37	720 000	333983.446	8121375.452	394.714	340°27'25.00"	
IP 38	740 000	333980.723	8121401.294	394.513	340°27'25.00"	
IP 39	760 000	333977.999	8121427.136	394.312	340°27'25.00"	
IP 40	780 000	333975.276	8121452.978	394.111	340°27'25.00"	
IP 41	800 000	333972.553	8121478.820	393.910	340°27'25.00"	
IP 42	820 000	333969.830	8121504.662	393.709	340°27'25.00"	
IP 43	840 000	333967.107	8121530.504	393.508	340°27'25.00"	
IP 44	860 000	333964.384	8121556.346	393.307	340°27'25.00"	
IP 45	880 000	333961.661	8121582.188	393.106	340°27'25.00"	
IP 46	900 000	333958.938	8121608.030	392.905	340°27'25.00"	
IP 47	920 000	333956.215	8121633.872	392.704	340°27'25.00"	
IP 48	940 000	333953.492	8121659.714	392.503	340°27'25.00"	
IP 49	960 000	333950.769	8121685.556	392.302	340°27'25.00"	
IP 50	980 000	333948.046	8121711.398	392.101	340°27'25.00"	
IP 51	1000 000	333945.323	8121737.240	391.900	340°27'25.00"	
IP 52	1020 000	333942.600	8121763.082	391.699	340°27'25.00"	
IP 53	1040 000	333939.877	8121788.924	391.498	340°27'25.00"	
IP 54	1060 000	333937.154	8121814.766	391.297	340°27'25.00"	
IP 55	1080 000	333934.431	8121840.608	391.096	340°27'25.00"	
IP 56	1100 000	333931.708	8121866.450	390.895	340°27'25.00"	
IP 57	1120 000	333928.985	8121892.292	390.694	340°27'25.00"	
IP 58	1140 000	333926.262	8121918.134	390.493	340°27'25.00"	
IP 59	1160 000	333923.539	8121943.976	390.292	340°27'25.00"	
IP 60	1180 000	333920.816	8121969.818	390.091	340°27'25.00"	
IP 61	1200 000	333918.093	8121995.660	389.890	340°27'25.00"	
IP 62	1220 000	333915.370	8122021.502	389.689	340°27'25.00"	
IP 63	1240 000	333912.647	8122047.344	389.488	340°27'25.00"	
IP 64	1260 000	333909.924	8122073.186	389.287	340°27'25.00"	
IP 65	1280 000	333907.201	8122099.028	389.086	340°27'25.00"	
IP 66	1300 000	333904.478	8122124.870	388.885	340°27'25.00"	
IP 67	1320 000	333901.755	8122150.712	388.684	340°27'25.00"	
IP 68	1340 000	333899.032	8122176.554	388.483	340°27'25.00"	
IP 69	1360 000	333896.309	8122202.396	388.282	340°27'25.00"	
IP 70	1380 000	333893.586	8122228.238	388.081	340°27'25.00"	
IP 71	1400 000	333890.863	8122254.080	387.880	340°27'25.00"	
IP 72	1420 000	333888.140	8122279.922	387.679	340°27'25.00"	
IP 73	1440 000	333885.417	8122305.764	387.478	340°27'25.00"	
IP 74	1460 000	333882.694	8122331.606	387.277	340°27'25.00"	
IP 75	1480 000	333879.971	8122357.448	387.076	340°27'25.00"	
IP 76	1500 000	333877.248	8122383.290	386.875	340°27'25.00"	
IP 77	1520 000	333874.525	8122409.132	386.674	340°27'25.00"	
IP 78	1540 000	333871.802	8122434.974	386.473	340°27'25.00"	
IP 79	1560 000	333869.079	8122460.816	386.272	340°27'25.00"	
IP 80	1580 000	333866.356	8122486.658	386.071	340°27'25.00"	
IP 81	1600 000	333863.633	8122512.500	385.870	340°27'25.00"	
IP 82	1620 000	333860.910	8122538.342	385.669	340°27'25.00"	
IP 83	1640 000	333858.187	8122564.184	385.468	340°27'25.00"	
IP 84	1660 000	333855.464	8122590.026	385.267	340°27'25.00"	
IP 85	1680 000	333852.741	8122615.868	385.066	340°27'25.00"	
IP 86	1700 000	333850.018	8122641.710	384.865	340°27'25.00"	
IP 87	1720 000	333847.295	8122667.552	384.664	340°27'25.00"	
IP 88	1740 000	333844.572	8122693.394	384.463	340°27'25.00"	
IP 89	1760 000	333841.849	8122719.236	384.262	340°27'25.00"	
IP 90	1780 000	333839.126	8122745.078	384.061	340°27'25.00"	
IP 91	1800 000	333836.403	8122770.920	383.860	340°27'25.00"	
IP 92	1820 000	333833.680	8122796.762	383.659	340°27'25.00"	
IP 93	1840 000	333830.957	8122822.604	383.458	340°27'25.00"	
IP 94	1860 000	333828.234	8122848.446	383.257	340°27'25.00"	
IP 95	1880 000	333825.511	8122874.288	383.056	340°27'25.00"	
IP 96	1900 000	333822.788	8122900.130	382.855	340°27'25.00"	
IP 97	1920 000	333820.065	8122925.972	382.654	340°27'25.00"	
IP 98	1940 000	333817.342	8122951.814	382.453	340°27'25.00"	
IP 99	1960 000	333814.619	8122977.656	382.252	340°27'25.00"	
IP 100	1980 000	333811.896	8123003.498	382.051	340°27'25.00"	
IP 101	2000 000	333809.173	8123029.340	381.850	340°27'25.00"	
IP 102	2020 000	333806.450	8123055.182	381.649	340°27'25.00"	
IP 103	2040 000	333803.727	8123081.024	381.448	340°27'25.00"	
IP 104	2060 000	333801.004	8123106.866	381.247	340°27'25.00"	
IP 105	2080 000	333798.281	8123132.708	381.046	340°27'25.00"	
IP 106	2100 000	333795.558	8123158.550	380.845	340°27'25.00"	
IP 107	2120 000	333792.835	8123184.392	380.644	340°27'25.00"	
IP 108	2140 000	333790.112	8123210.234	380.443	340°27'25.00"	
IP 109	2160 000	333787.389	8123236.076	380.242	340°27'25.00"	
IP 110	2180 000	333784.666	8123261.918	380.041	340°27'25.00"	
IP 111	2200 000	333781.943	8123287.760	379.840	340°27'25.00"	
IP 112	2220 000	333779.220	8123313.602	379.639	340°27'25.00"	
IP 113	2240 000	333776.497	8123339.444	379.438	340°27'25.00"	
IP 114	2260 000	333773.774	8123365.286	379.237	340°27'25.00"	
IP 115	2280 000	333771.051	8123391.128	379.036	340°27'25.00"	
IP 116	2300 000	333768.328	8123416.970	378.835	340°27'25.00"	
IP 117	2320 000	333765.605	8123442.812	378.634	340°27'25.00"	
IP 118	2340 000	333762.882	8123468.654	378.433	340°27'25.00"	
IP 119	2360 000	333760.159	8123494.496	378.232	340°27'25.00"	
IP 120	2380 000	333757.436	8123520.338	378.031	340°27'25.00"	
IP 121	2400 000	333754.713	8123546.180	377.830	340°27'25.00"	
IP 122	2420 000	333				



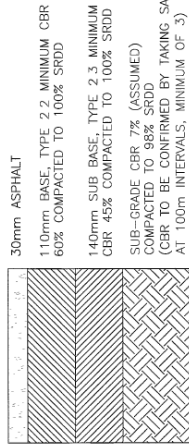
LAYBACK KERB AND CHANNEL

SCALE 1:10 (A1)



TYPICAL CROSS SECTION-ALL ROADS

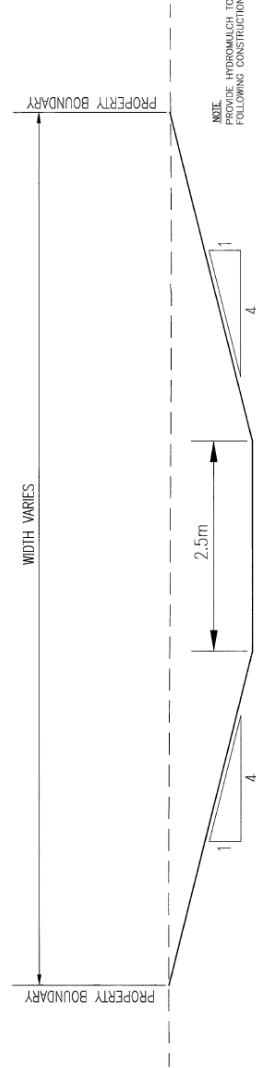
Scale 1:50 (A1)



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

PAVEMENT DETAIL

N.T.S.



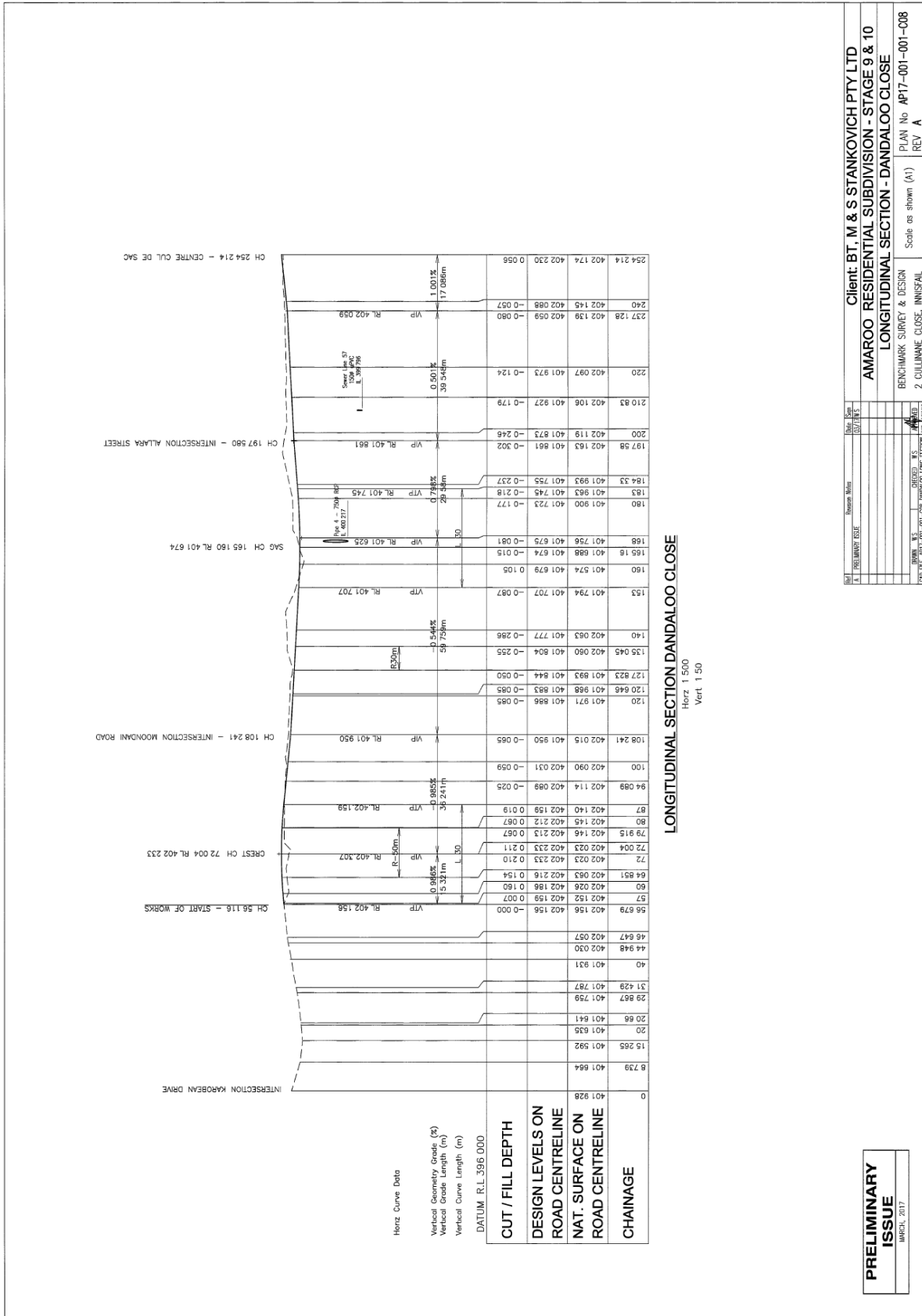
TYPICAL CROSS SECTION MAIN DRAIN - MD01

Scale 1:25 (A1)

NOTE: PROVIDE HYDROMULCH TO BATTERS FOLLOWING CONSTRUCTION IF REQUIRED

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MARCH, 2017

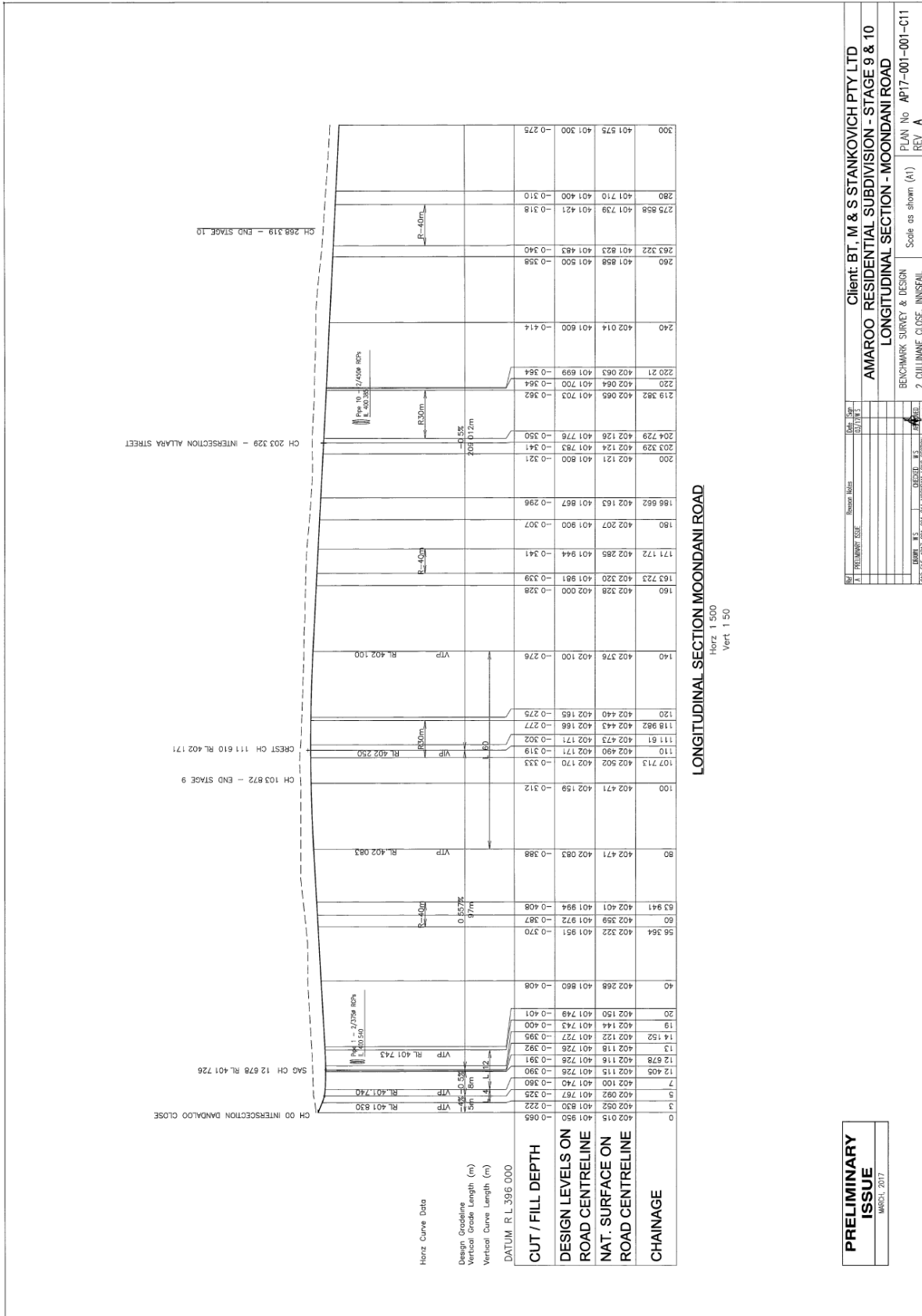
REV	DESCRIPTION	DATE	BY	CHECKED
01	PRELIMINARY ISSUE			
Client: BT, M & S STANKOVICH PTY LTD AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10 TYPICAL SECTIONS - ALL ROADS AND MAIN DRAIN BENCHMARK SURVEY & DESIGN 2 COLLINANE CLOSE, INNISFAIL Scale as shown (A1) PLAN No AP17-001-001-C06 REV A				



Client: BT, M & S STANKOVICH PTY LTD	Scale as shown (A1)
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10	Scale as shown (A1)
LONGITUDINAL SECTION - DANDALOO CLOSE	Scale as shown (A1)
BENCHMARK SURVEY & DESIGN	Scale as shown (A1)
2 CULLINANE CLOSE, INNISFAH	Scale as shown (A1)

PRELIMINARY ISSUE
 MARCH, 2017

Author	Checked	Drawn
Design	Reviewed	Client
Issue	Approved	Contract



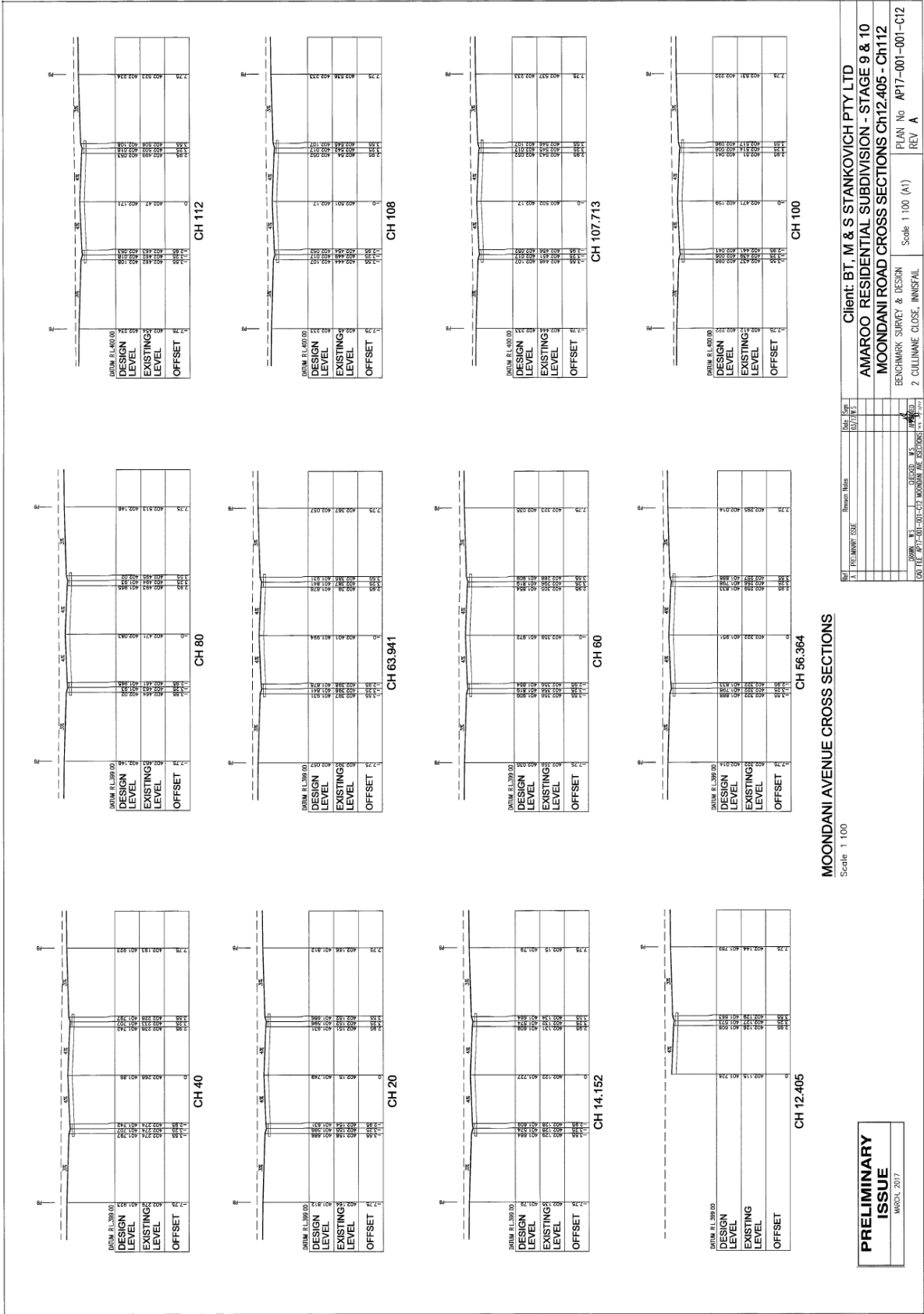
PRELIMINARY ISSUE
MAY 2017

Client: BT, M & S STANKOVICH PTY LTD
 AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
 LONGITUDINAL SECTION - MOONDANI ROAD
 BECHMARK SURVEY & DESIGN
 Scale as shown (A1)
 PLAN No AP17-001-001-C11
 REV A

LONGITUDINAL SECTION MOONDANI ROAD

Horz 1:500
Vert 1:50

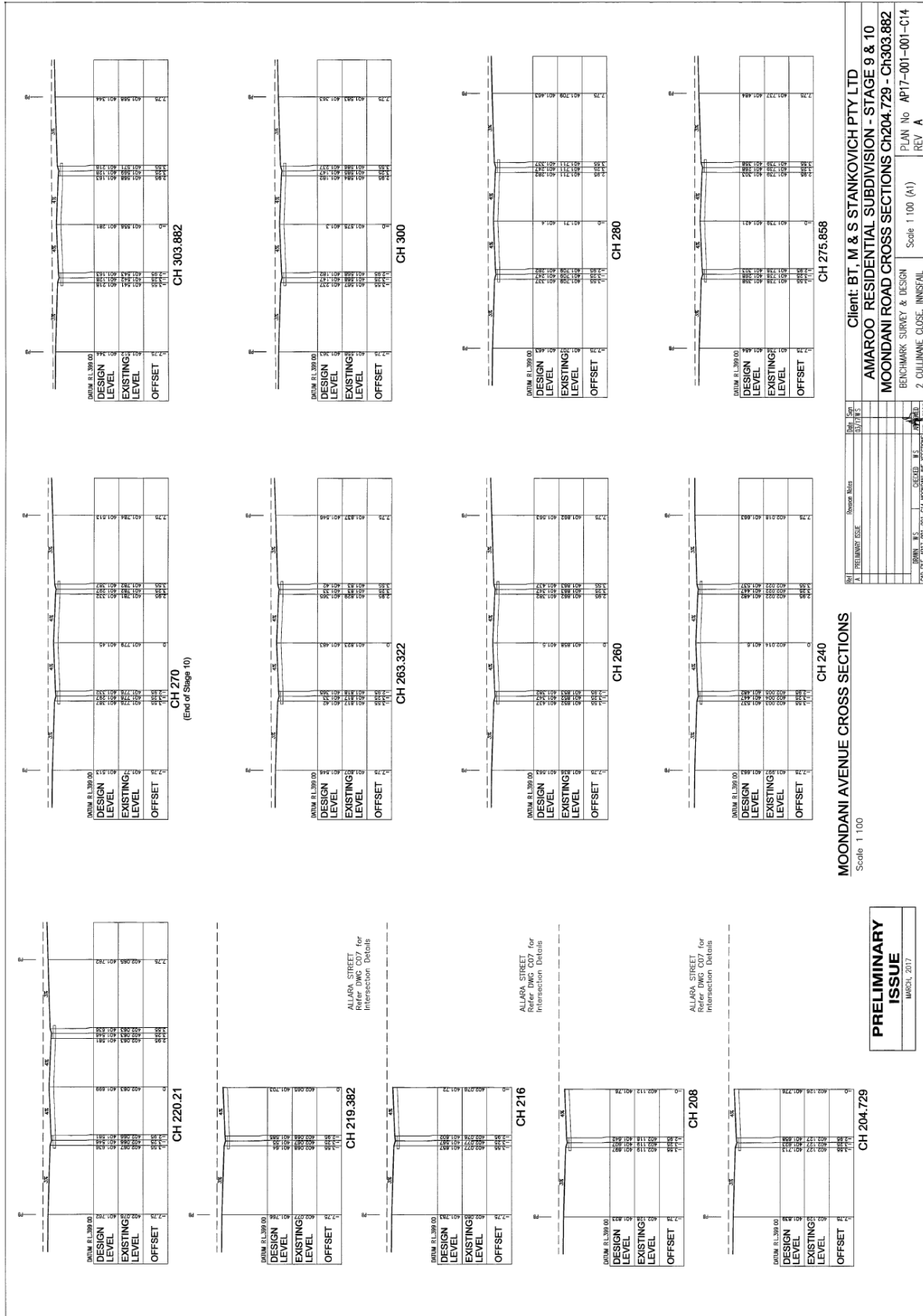
Horizontal Curve Data
 Design Grade Length (m)
 Vertical Curve Length (m)
 DATUM R.L. 396 000



MOONDANI AVENUE CROSS SECTIONS
Scale 1 100

Client: BT, M & S STANKOVICH PTY LTD	Scale: 1:100 (A1)
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10	PLAN No AP17-001-001-C12
MOONDANI ROAD CROSS SECTIONS Ch12.405 - Ch112	REV A
BENCHMARK SURVEY & DESIGN	Scale 1 100 (A1)
2 CULLINANE CLOSE, INNSFALL	

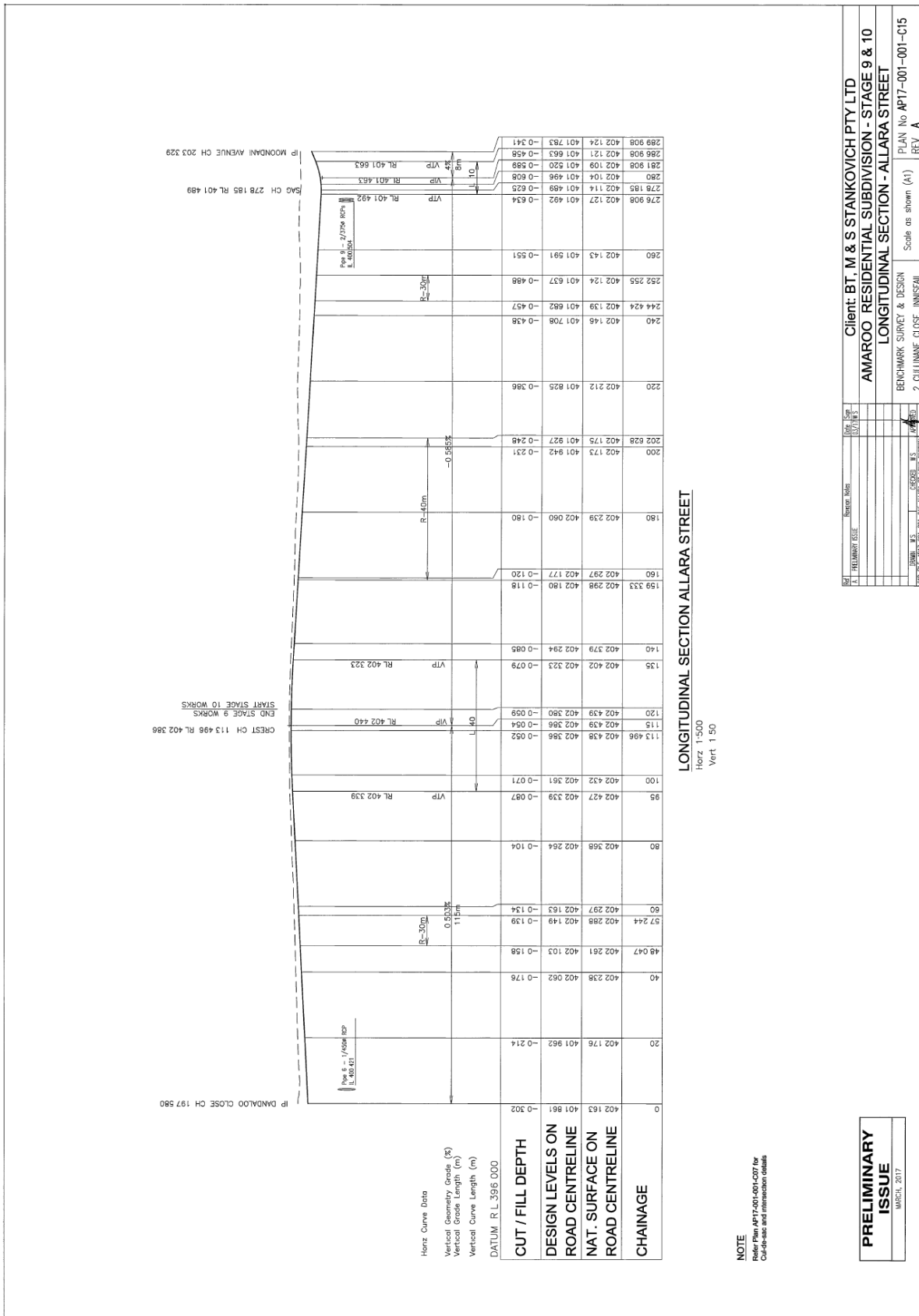
**PRELIMINARY
ISSUE**
MARCH, 2017



MOONDANI AVENUE CROSS SECTIONS
Scale 1:100

Client: **BT, M & S STANKOVICH PTY LTD**
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
MOONDANI ROAD CROSS SECTIONS CH204.729 - CH303.882
 BENCHMARK SURVEY & DESIGN
 Scale 1:100 (A1)
 PLAN No AP17-001-001-C14
 REV A
 2 COLLIMANE CLOSE, INNSFALL

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MARCH 2017



Client: BT, M & S STANKOVICH PTY LTD
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
LONGITUDINAL SECTION - ALLARA STREET

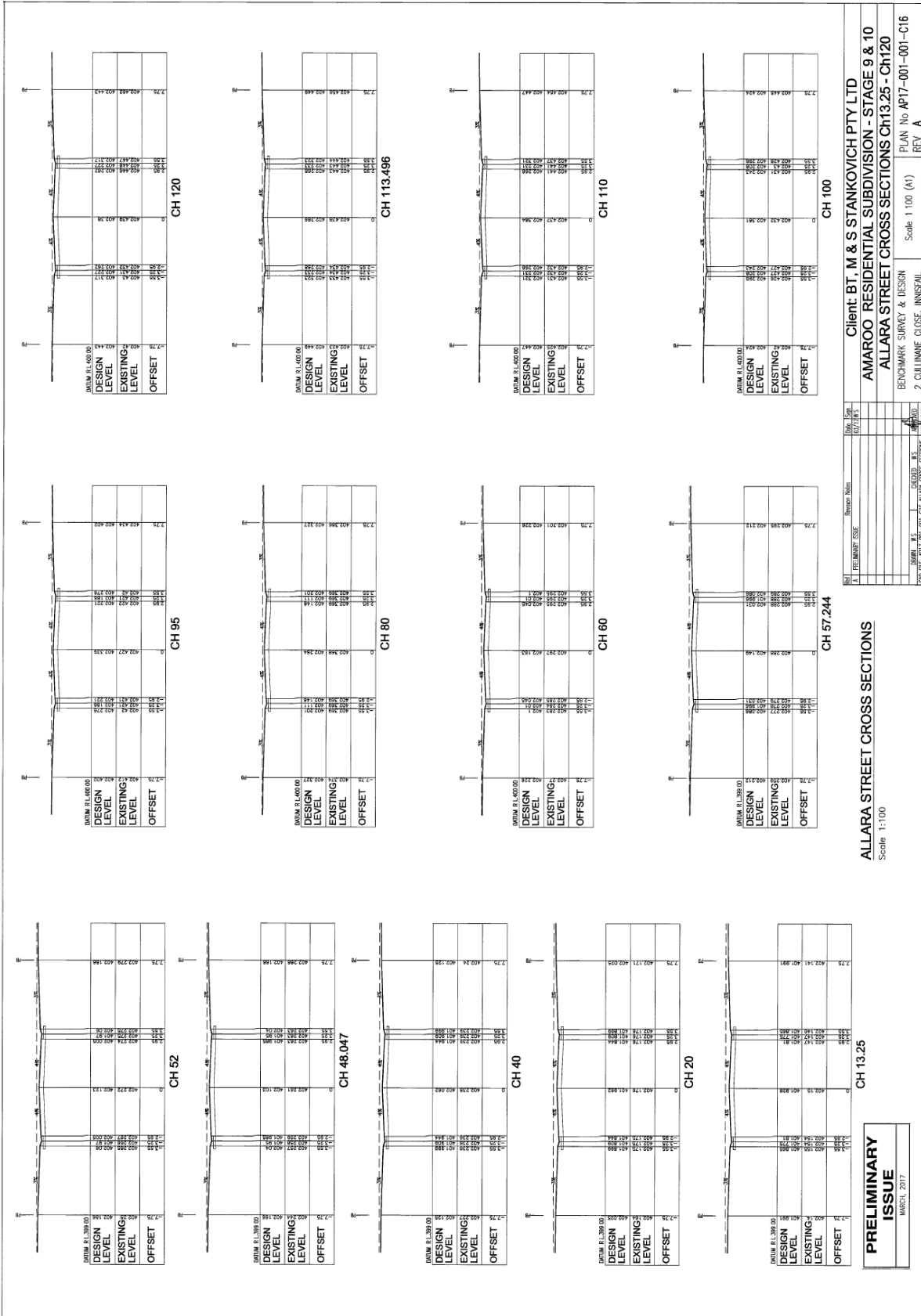
Scale as shown (A1)
 PLAN No AP17-001-001-C15
 REV A

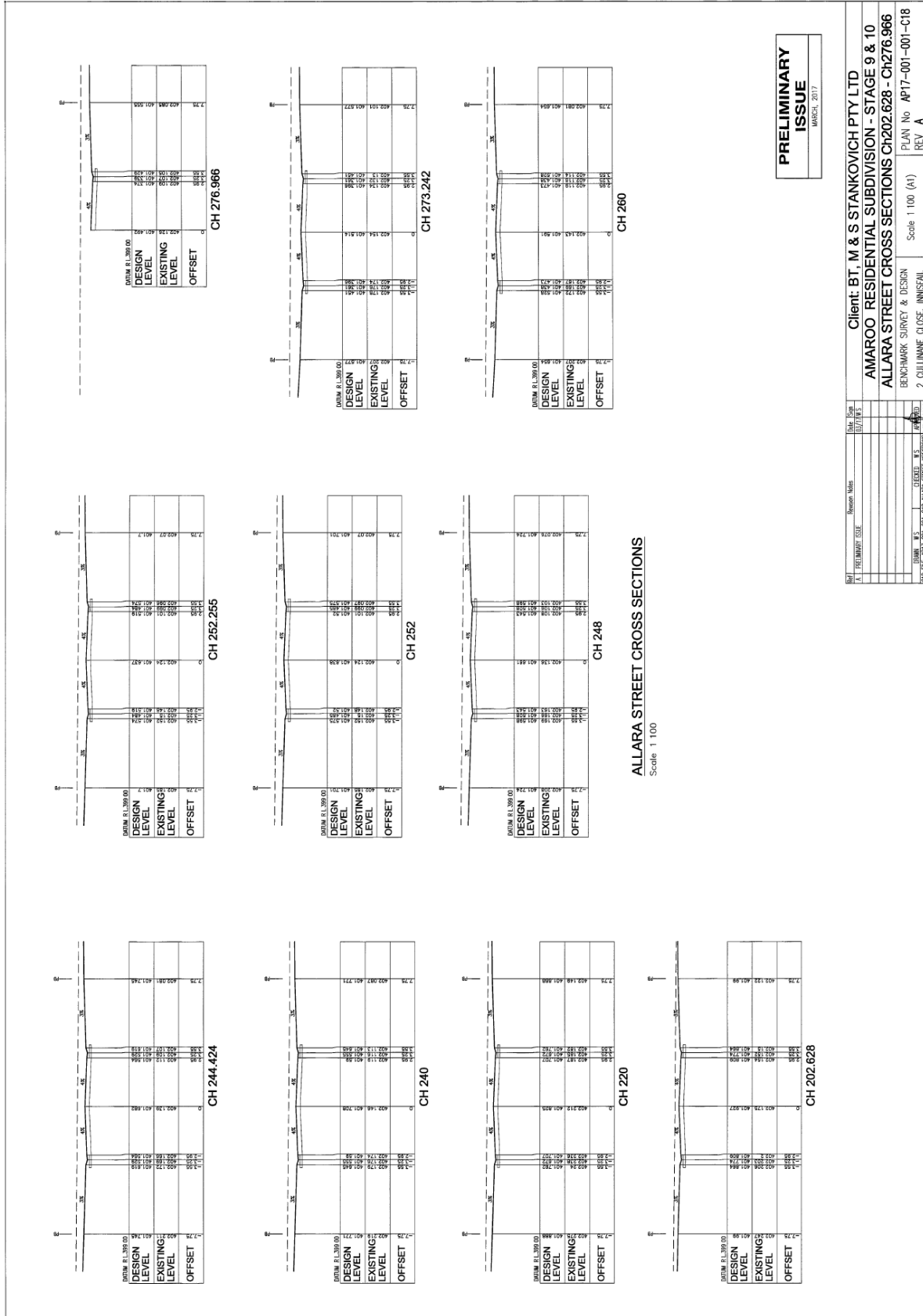
2 COLLINGWEE CLOSE, INNSFALL

DATE: 10/07/2018
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]

PRELIMINARY ISSUE
 MARCH 2017

NOTE
 Refer Plan AP17-001-C07 for Call-out-see and intersection details





**PRELIMINARY
ISSUE**
MARCH, 2017

DATE	REVISION	BY	CHECKED	APPROVED
Client: BT, M & S STANKOVICH PTY LTD AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10 ALLARA STREET CROSS SECTIONS CH202.628 - CH276.966 BENCHMARK SURVEY & DESIGN 2 CULLINANE CLOSE, INNSISPAAL Scale 1 100 (A1) PLAN No AP17-001-C18 REV A				



EARTHWORKS NOTES

- 1 ALL EARTHWORKS SHALL BE IN ACCORDANCE WITH AS/SPR 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS' AND FINROD STANDARD SPECIFICATIONS
- 2 EARTHWORKS TO BE LEVEL TWO CONTROLLED FILL. COMPACTION TESTING IS TO COMPLY WITH SECTION 5 OF 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS' UNLESS NOTED OTHERWISE. FILL LAYERS SHALL NOT EXCEED 200mm DEPTH AND COMPACTED TO 95% STANDARD COMPACTION. COMPACTION TESTS TO BE CARRIED OUT AT 17.5% TO 200mm ON 1 PER TONNE PER LAYER, WHICHEVER GIVES GREATER NUMBER OF TESTS
- 3 ALL DISTURBED AREAS ARE TO BE TOPSOILED AND DRILL SEEDED IN ACCORDANCE WITH THE FINROD STANDARD SPECIFICATIONS, WITH EXCEPTION OF BATTERS STEEPER THAN 1 IN 4 THAT ARE TO BE TOPSOILED AND HYDRAMULCHED
- 4 ALL CUT & FILL BATTERS ARE TO BE 1 IN 4 UNO
- 5 ALL SUPERSESSION MEASURES MUST BE UNDERPAVED TO ENSURE THAT DUST DOES NOT CAUSE A NUISANCE TO SURROUNDING AREAS AND RESIDENTS. SUCH MEASURES MUST BE SUBMITTED AS PART OF THE SEEDMENT CONTROL PLAN
- 6 IF ANY DUST OR MUD IS BLOTTED ONTO THE ROAD PAVEMENT FROM WORKS ON THE SUBJECT LAND, IT MUST BE PROPERLY CLEANED AWAY TO ELIMINATE MUD OR JUST INSURE NO LATER THAN AT THE END OF EACH WORKING DAY
- 7 ALLOTMENTS SHALL BE PROVIDED WITH A MINIMUM FINISHED SURFACE SLOPE OF 0.2%, TO FACILITATE DRAINAGE
- 8 ALL EARTHWORKS AND CUTTINGS MUST BE OUTSIDE THE ROAD RESERVE. THE TOE OF ANY CUT BATTER IS TO BE 300mm INSIDE THE PROPERTY BOUNDARY, THE TOP OF ANY FILL BATTER IS TO BE 300mm INSIDE THE PROPERTY BOUNDARY

GENERAL NOTES

- 1 LEVEL DATUM AND
- 2 DESIGN OF LAYOUTS FINROD/AS/SPR, R. 400/897 ONE METER ABOVE MEAN SEA LEVEL
- 3 DESIGN SURFACE CONTOUR INTERVAL 0.10m UNLESS NOTED OTHERWISE
- 4 DETAILS OF EXISTING SERVICES ARE PROVIDED FOR INFORMATION ONLY AND THE CONTRACTOR IS TO LOCATE ALL SERVICES PRIOR TO COMMENCEMENT OF WORK
- 5 REFER TO FINROD SPECIFICATIONS AND DRAWINGS FOR EARTHWORKS, ROADWORKS, WATER AND STORMWATER DRAINAGE
- 6 LANDSCAPING PLAN TO BE SUBMITTED TO MANUREWA SHIRE COUNCIL FOR APPROVAL PRIOR TO WORKS COMMENCING

LEGEND

- EARTHWORKS CUT AREA
- EARTHWORKS FILL AREA
- EARTHWORKS BOUNDARY
- DESIGN CONTOURS WITH LABELS
- DESIGN LEVEL
- EXISTING LEVEL
- FALL OF LOTS
- LANDSCAPING MOUND

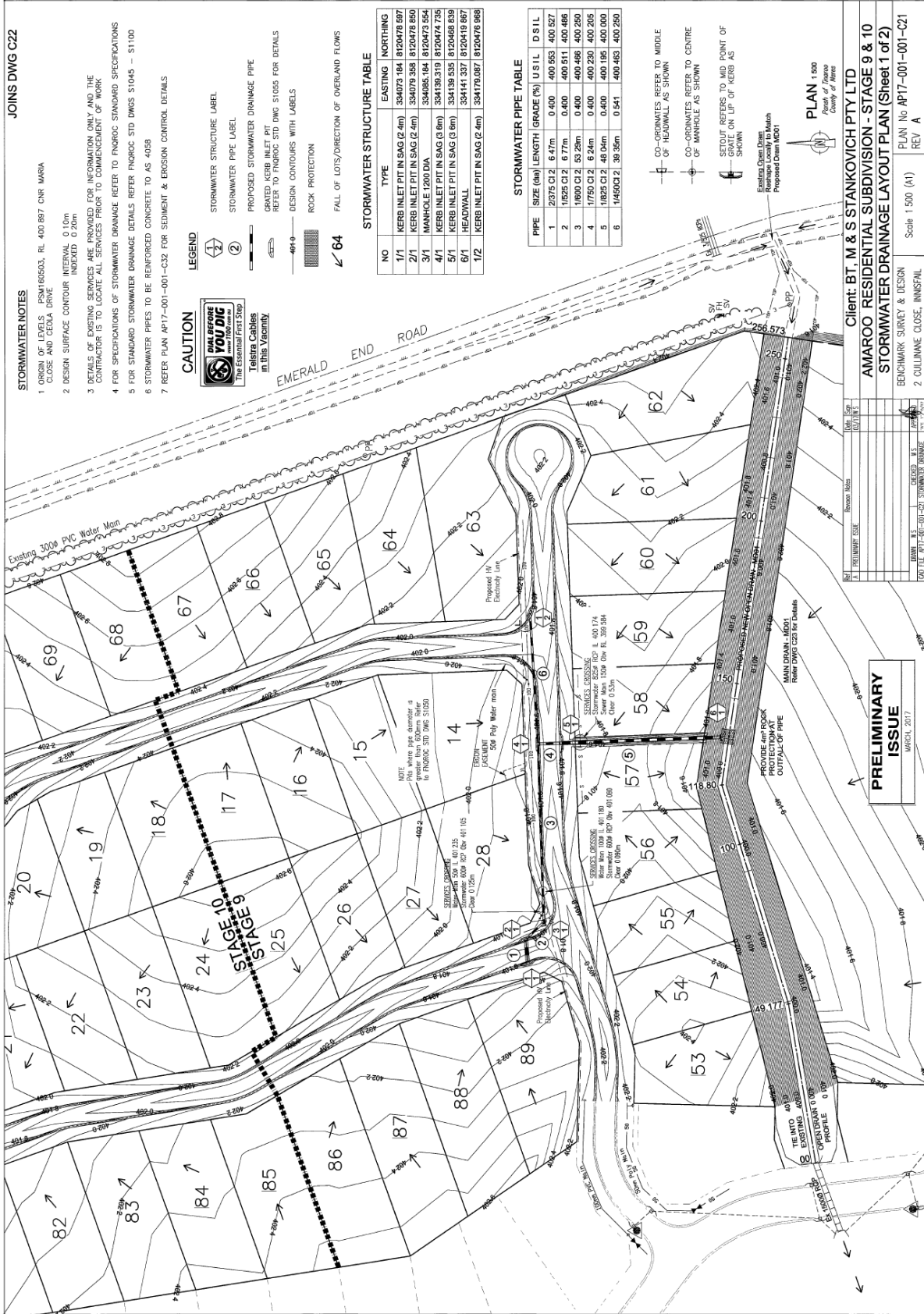
NO.	REVISION	DATE
1	PRELIMINARY ISSUE	MARCH 2017

Client: **BT, M & S STANKOVICH PTY LTD**
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
EARTHWORKS PLAN (Sheet 1 of 2)

BENCHMARK SURVEY & DESIGN
 2 COLLINGWEE CLOSE, INNISFAIRL
 Scale 1:500 (A1)
 PLAN No AP17-001-001-C19
 REV A

PRELIMINARY ISSUE
 MARCH 2017

PLAN 500
 Parish of Innes
 County of Renfrew



JOINS DWG C22

STORMWATER NOTES

- 1 DESIGN OF DETAILS FROM 66603, RL 400.897 ON: MARA CLOSE AND CEDIA DRIVE
- 2 DESIGN SURFACE CONTOUR INTERVAL 0.10m INDEXED 0.20m
- 3 DETAILS OF EXISTING SERVICES ARE PROVIDED FOR INFORMATION ONLY AND THE CONTRACTOR IS TO LOCATE ALL SERVICES PRIOR TO COMMENCEMENT OF WORK
- 4 FOR SPECIFICATIONS OF STORMWATER DRAINAGE REFER TO PNDRIC STANDARD SPECIFICATIONS
- 5 FOR STANDARD STORMWATER DRAINAGE DETAILS REFER PNDRIC STD DWGS S1045 - S1100
- 6 STORMWATER PIPES TO BE REINFORCED CONCRETE TO AS 4059
- 7 REFER PLAN AP17-001-C32 FOR SEDIMENT & EROSION CONTROL DETAILS



- LEGEND**
- ① STORMWATER STRUCTURE LABEL
 - ② STORMWATER PIPE LABEL
 - PROPOSED STORMWATER DRAINAGE PIPE
 - GRADED KERB INLET PIT REFER TO PNDRIC STD DWG S1085 FOR DETAILS
 - DESIGN CONTOURS WITH LABELS
 - ROCK PROTECTION
 - ↙ 64 FALL OF LOTS/DIRECTION OF OVERLAND FLOWS

STORMWATER STRUCTURE TABLE

NO	TYPE	EASTING	NORTHING
1/1	KERB INLET PIT IN SAG (2.4m)	334673.164	8120278.697
2/1	KERB INLET PIT IN SAG (2.4m)	334679.386	8120283.880
3/1	MANHOLE 1200 DIA	334685.764	8120293.554
4/1	KERB INLET PIT IN SAG (3.6m)	334739.219	8120287.735
5/1	KERB INLET PIT IN SAG (3.6m)	334739.595	8120268.839
6/1	HEADWALL	334741.337	8120249.867
1/2	KERB INLET PIT IN SAG (2.4m)	334719.987	81202476.988

STORMWATER PIPE TABLE

PIPE SIZE (dia)	LENGTH	GRADE (%)	U S I L	D S I L
1	2575 C12	6.47m	0.400	400.953 400.927
2	1825 C12	6.77m	0.400	400.511 400.486
3	1800 C12	53.25m	0.400	400.468 400.250
4	1750 C12	6.24m	0.400	400.230 400.205
5	1825 C12	48.04m	0.400	400.195 400.000
6	1450C12	39.35m	0.541	400.483 400.250

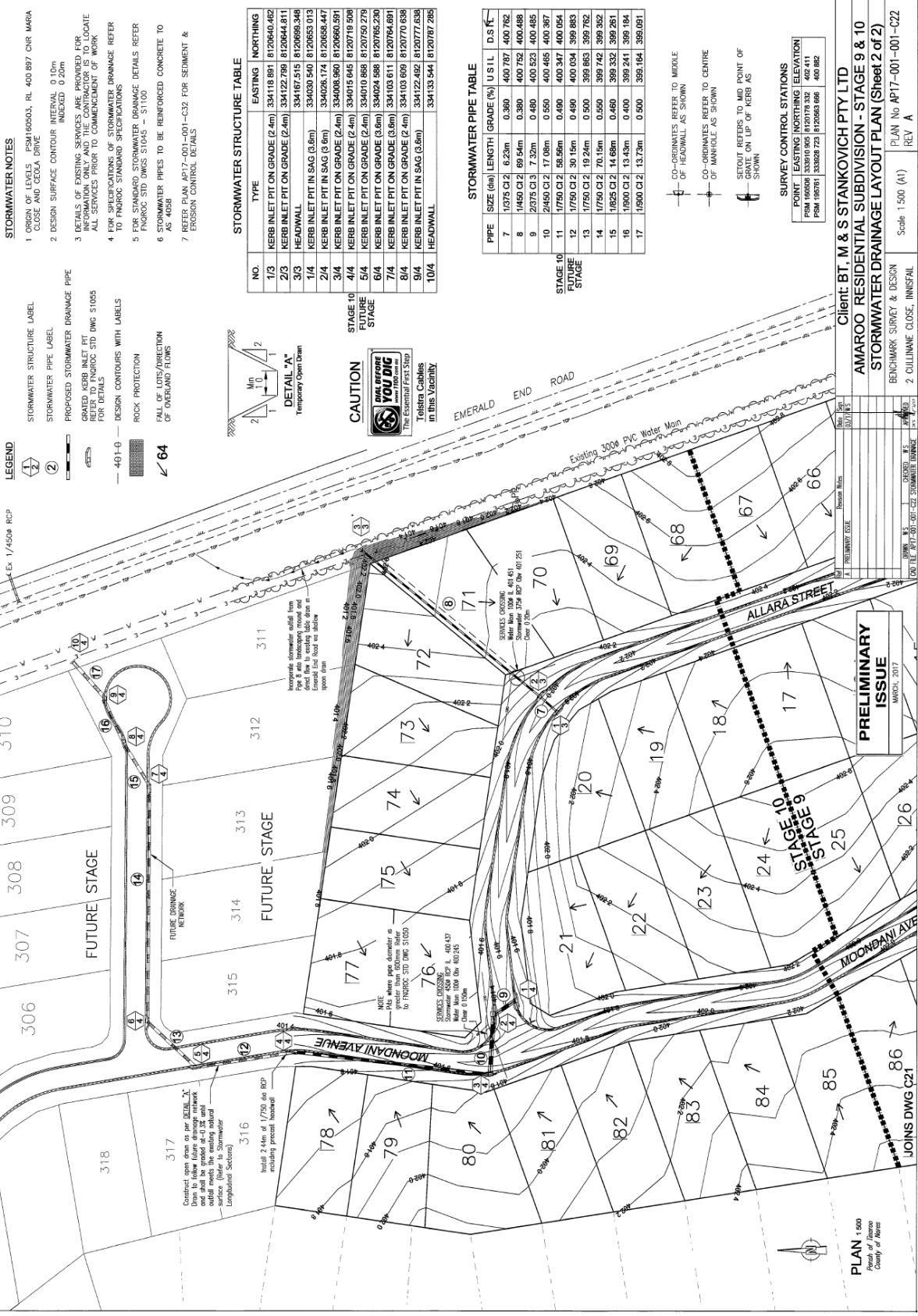
- CO-ORDINATES REFER TO MIDDLE OF HEADWALL AS SHOWN
- CO-ORDINATES REFER TO CENTRE OF MANHOLE AS SHOWN
- SETOUT REFERS TO MID POINT OF GRADE ON LIP OF KERB AS SHOWN



Client: **BT, M & S STANKOVICH PTY LTD**
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
STORMWATER DRAINAGE LAYOUT PLAN (Sheet 1 of 2)
 BENCHMARK SURVEY & DESIGN
 Scale 1:500 (A1)
 PLAN No AP17-001-001-C21
 REV A

PRELIMINARY ISSUE
 MARCH, 2017

NO	DATE	BY	CHKD	REV	DESCRIPTION
1	17/03/2017



STORMWATER NOTES

- ORIGIN OF LEVELS PSM 160603, RL 400 897 OUR MARIA CLOSE AND CECLA DRIVE
- DESIGN SURFACE CONTOUR INTERVAL 0.10m INDEXED 0.20m
- DETAILS OF EXISTING SERVICES ARE PROVIDED FOR INFORMATION ONLY AND THE CONTRACTOR IS TO LOCATE ALL SERVICES PRIOR TO COMMENCEMENT OF WORK
- FOR SPECIFICATIONS OF STORMWATER DRAINAGE REFER TO FINROD STANDARD SPECIFICATIONS
- FOR STANDARD STORMWATER DRAINAGE DETAILS REFER TO FINROD STD DWG S1050 - S1100
- STORMWATER PIPES TO BE REINFORCED CONCRETE TO AS 4056
- REFER PLAN AP17-001-001-C32 FOR SEDIMENT & EROSION CONTROL DETAILS

LEGEND

- STORMWATER STRUCTURE LABEL
- STORMWATER PIPE LABEL
- PROPOSED STORMWATER DRAINAGE PIPE
- GRADED KERB INLET PIT DWG S1055 FOR DETAILS
- DESIGN CONTOURS WITH LABELS
- ROCK PROTECTION
- FALL OF LOTS/DIRECTION OF OVERLAND FLOWS

STORMWATER STRUCTURE TABLE

NO.	TYPE	EASTING	NORTHING
1/3	KERB INLET PIT ON GRADE (2.4m)	334118.891	8120640.462
2/3	KERB INLET PIT ON GRADE (2.4m)	334122.799	8120644.811
3/3	HEADWALL	334167.515	8120689.348
1/4	KERB INLET PIT IN SAAG (3.6m)	334030.540	8120653.013
2/4	KERB INLET PIT IN SAAG (3.6m)	334026.174	8120658.447
3/4	KERB INLET PIT ON GRADE (2.4m)	334006.960	8120660.591
4/4	KERB INLET PIT ON GRADE (2.4m)	334015.645	8120719.008
5/4	KERB INLET PIT ON GRADE (2.4m)	334010.868	8120750.279
6/4	KERB INLET PIT ON GRADE (6.8m)	334024.588	8120765.230
7/4	KERB INLET PIT ON GRADE (6.8m)	334103.611	8120764.891
8/4	KERB INLET PIT ON GRADE (2.4m)	334103.639	8120770.638
9/4	KERB INLET PIT IN SAAG (3.6m)	334122.492	8120777.038
10/4	HEADWALL	334133.544	8120787.285

STORMWATER PIPE TABLE

PIPE SIZE (mm)	LENGTH (m)	GRADE (%)	U/S I.L.	D.S.T.
7	1375 C2	0.360	400 787	400 782
8	1450 C2	0.380	400 752	400 485
9	2375 C3	7.32m	400 523	400 485
10	2450 C2	17.08m	0.550	400 485
11	1750 C2	56.56m	0.400	400 347
12	1750 C2	30.15m	0.400	400 034
13	1750 C2	10.24m	0.500	399 863
14	1750 C2	70.15m	0.560	399 742
15	1825 C2	14.68m	0.460	399 332
16	1800 C2	13.43m	0.400	399 241
17	1950 C2	13.73m	0.500	399 194



SURVEY CONTROL STATIONS

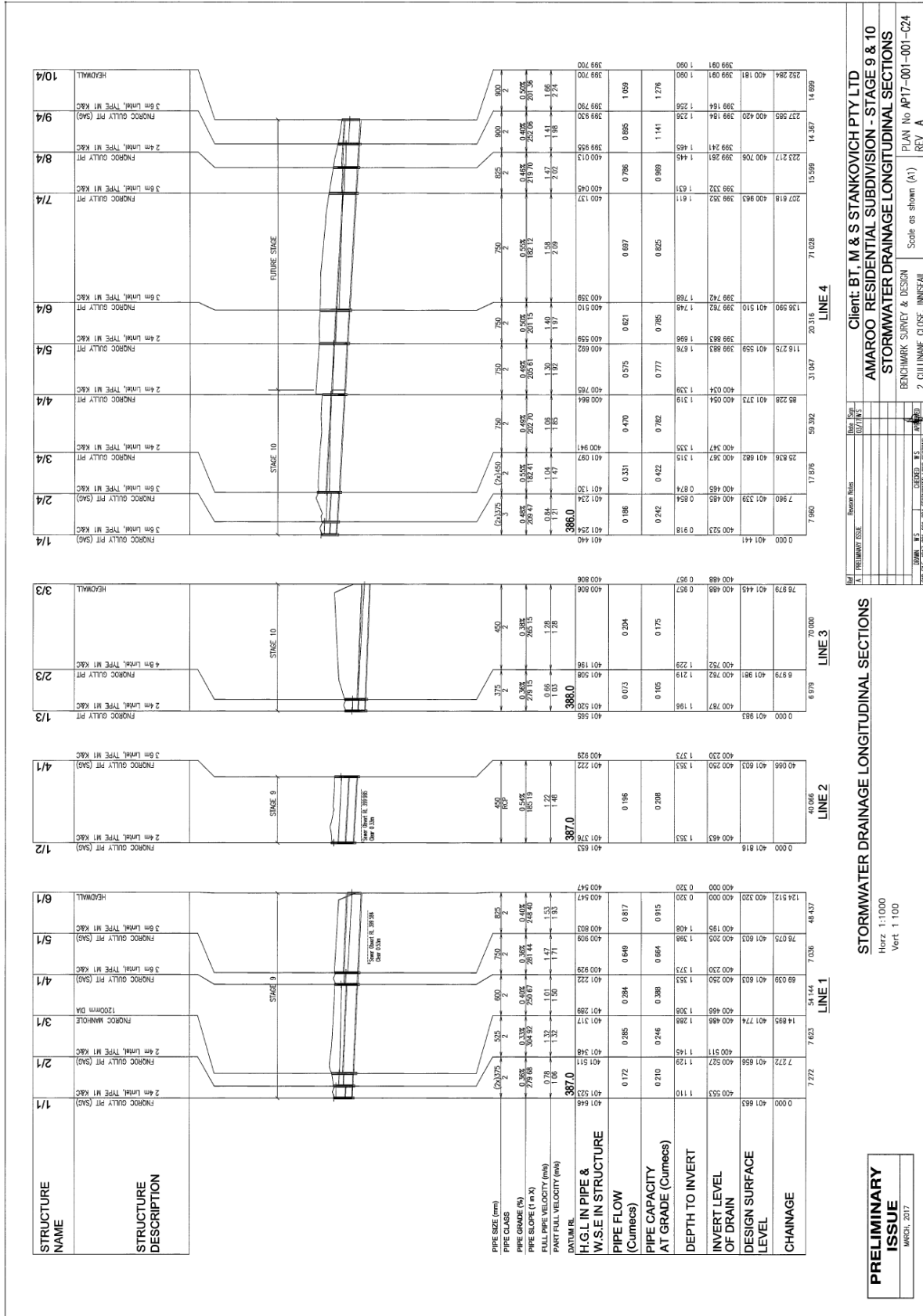
POINT	EASTING	NORTHING	ELEVATION
PSM 160608	333910.805	8120718.332	402.411
PSM 160676	333928.723	8120663.866	400.882

CO-ORDINATES REFER TO MIDDLE OF HEADWALL AS SHOWN
 CO-ORDINATES REFER TO CENTRE OF MANHOLE AS SHOWN
 SETOUT REFER TO INS POINT OF GRADE ON LIP OF KERB AS SHOWN

Client: **BT, M & S STANKOVICH PTY LTD**
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
STORMWATER DRAINAGE LAYOUT PLAN (Sheet 2 of 2)
 BENCHMARK SURVEY & DESIGN
 2 COLLINANE CLOSE, INNSFAL
 Scale: 1:500 (A1)
 PLAN No AP17-001-001-C22
 REV A

PRELIMINARY ISSUE
 MARCH, 2017

PLAN 1:500
 Parish of Marano
 County of Heron



STRUCTURE NAME	STRUCTURE DESCRIPTION	PIPE SIZE (mm)	PIPE CLASS	PIPE GRADE (%)	PIPE SLOPE (1 in X)	FULL PIPE VELOCITY (m/s)	PARTIAL PIPE VELOCITY (m/s)	DATUM RL	H.G.L. IN PIPE & W.S.E. IN STRUCTURE	PIPE FLOW (Cumecs)	PIPE CAPACITY AT GRADE (Cumecs)	DEPTH TO INVERT	INVERT LEVEL OF DRAIN	DESIGN SURFACE LEVEL	CHAINAGE
1/1	FNDRGC GULLY PIT (S&S)	2	2	0.30%	1:333	0.76	1.06	401.523	0.172	0.285	0.246	1.145	400.553	1110	401.663
2/1	FNDRGC GULLY PIT (S&S)	2	2	0.30%	1:333	0.76	1.06	401.511	0.210	0.246	1.145	400.511	1120	400.656	
3/1	FNDRGC MANHOLE	1200mm DIA	2	0.33%	1:304	0.78	1.06	401.288	0.285	0.284	1.306	400.466	1288	400.466	
4/1	FNDRGC GULLY PIT (S&S)	2	2	0.40%	1:250	0.91	1.21	401.222	0.284	0.388	1.523	400.230	1317	400.230	
5/1	FNDRGC GULLY PIT (S&S)	2	2	0.40%	1:250	0.91	1.21	400.803	0.840	0.664	1.408	400.185	1408	400.205	
6/1	HEADWALL	2	2	0.40%	1:250	0.91	1.21	400.547	0.817	0.915	1.408	400.000	1408	400.000	
1/2	FNDRGC GULLY PIT (S&S)	2	2	0.30%	1:333	0.76	1.06	401.378	0.186	0.208	1.353	400.463	1353	400.463	
4/1	FNDRGC GULLY PIT (S&S)	2	2	0.30%	1:333	0.76	1.06	401.222	0.186	0.208	1.353	400.230	1373	400.230	
1/3	FNDRGC GULLY PIT	2	2	0.30%	1:333	0.76	1.06	401.585	0.103	0.175	1.228	400.787	1198	400.787	
2/3	FNDRGC GULLY PIT	2	2	0.30%	1:333	0.76	1.06	401.508	0.103	0.175	1.228	400.752	1219	400.752	
3/3	HEADWALL	2	2	0.30%	1:333	0.76	1.06	400.806	0.204	0.175	1.228	400.468	1219	400.468	
1/4	FNDRGC GULLY PIT (S&S)	2	2	0.30%	1:333	0.76	1.06	401.234	0.186	0.242	1.353	400.485	0.874	400.485	
2/4	FNDRGC GULLY PIT (S&S)	2	2	0.30%	1:333	0.76	1.06	401.130	0.186	0.242	1.353	400.465	0.874	400.465	
3/4	FNDRGC GULLY PIT	2	2	0.30%	1:333	0.76	1.06	401.097	0.331	0.470	1.353	400.347	1353	400.347	
4/4	FNDRGC GULLY PIT	2	2	0.30%	1:333	0.76	1.06	400.864	0.470	0.762	1.319	400.054	1319	400.054	
5/4	FNDRGC GULLY PIT	2	2	0.30%	1:333	0.76	1.06	400.559	0.575	0.777	1.298	400.034	1328	400.034	
6/4	FNDRGC GULLY PIT	2	2	0.30%	1:333	0.76	1.06	400.510	0.621	0.765	1.298	400.034	1328	400.034	
7/4	FNDRGC GULLY PIT	2	2	0.30%	1:333	0.76	1.06	400.045	0.766	0.825	1.298	400.034	1328	400.034	
8/4	FNDRGC GULLY PIT	2	2	0.30%	1:333	0.76	1.06	400.013	0.869	0.869	1.298	400.034	1328	400.034	
9/4	FNDRGC GULLY PIT (S&S)	2	2	0.30%	1:333	0.76	1.06	399.920	0.869	1.141	1.298	399.920	1328	399.920	
10/4	HEADWALL	2	2	0.30%	1:333	0.76	1.06	399.700	1.009	1.276	1.298	399.920	1328	399.920	

PRELIMINARY ISSUE
MARCH, 2017

STORMWATER DRAINAGE LONGITUDINAL SECTIONS
Horz 1:1000
Vert 1:100

Client: BT, M & S STANKOVICH PTY LTD
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
STORMWATER DRAINAGE LONGITUDINAL SECTIONS
BENCHMARK SURVEY & DESIGN
2 CULLINANE CLOSE, INKISFAIL
Scale as shown (A1)
PLAN No AP17-001-001-C24
REV A

DATE: 17/03/2017
DRAWN BY: [Name]
CHECKED BY: [Name]
DATE: 17/03/2017



SEWER STRUCTURE SETOUT				
No	EASTING	NORTHING	LEVEL	DESCRIPTION
362	330652.346	8120517.899	Top RL 402.08	DN800 Expat Cl B'
462	330672.471	8120517.096	Top RL 402.04	DN800 Expat Cl B'
952	334112.495	8120503.330	Top RL 402.97	Manhole
952	334058.308	8120503.489	Top RL 402.81	DN800 Expat Cl B'
952	334070.001	8120503.892	Top RL 401.88	Manhole
952	334070.001	8120504.002	Top RL 401.88	Manhole
952	334054.951	8120504.227	Top RL 401.78	DN800 Expat Cl B'
1052	334057.716	8120504.177	Top RL 401.78	DEAD END
1156	334129.554	8120504.906	Top RL 402.15	DN800 Expat Cl B'
1656	334116.698	8120509.291	Top RL 402.15	DN800 Expat Cl B'
3657	334041.260	8120444.891	Top RL 402.37	DN800 Expat Cl B'
4657	334102.253	8120441.290	Top RL 401.94	DN800 Expat Cl B'
957	334179.499	8120443.896	Top RL 402.02	Manhole
957	334179.200	8120447.895	Top RL 402.23	DN800 Expat Cl B'
957	334179.200	8120447.895	Top RL 402.23	DN800 Expat Cl B'
1457	334134.090	8120442.495	Top RL 402.28	DN800 Expat Cl B'
1656	334207.234	8120444.900	Top RL 402.15	DN800 Expat Cl B'
2956	334229.513	8120447.741	Top RL 402.15	DEAD END

FNOROC DRAWINGS

S303C SEWERAGE MANHOLES
 S303C STANDING JOIST CONNECTION BRANCHES
 S303C BEADING AND TRUCKING DETAILS

LEGEND

— S — SURVEY MARK (1:50 9)
 — S — SURFACE MANHOLE LABEL AND TOP OF MANHOLE LEVEL
 — S — HOUSE CONNECTION BRANCH
 — S — DESIGN SURFACE CONTOURS & LABEL

NOTE
 REFERENCE DWG C27 FOR SEWERAGE RETICULATION NOTES

SURVEY CONTROL STATIONS

POINT	EASTING	NORTHING	ELEVATION
PSM 160506	333910.000	8120179.532	402.411
PSM 160507	333920.000	8120179.532	402.411
PSM 160508	333930.000	8120179.532	402.411

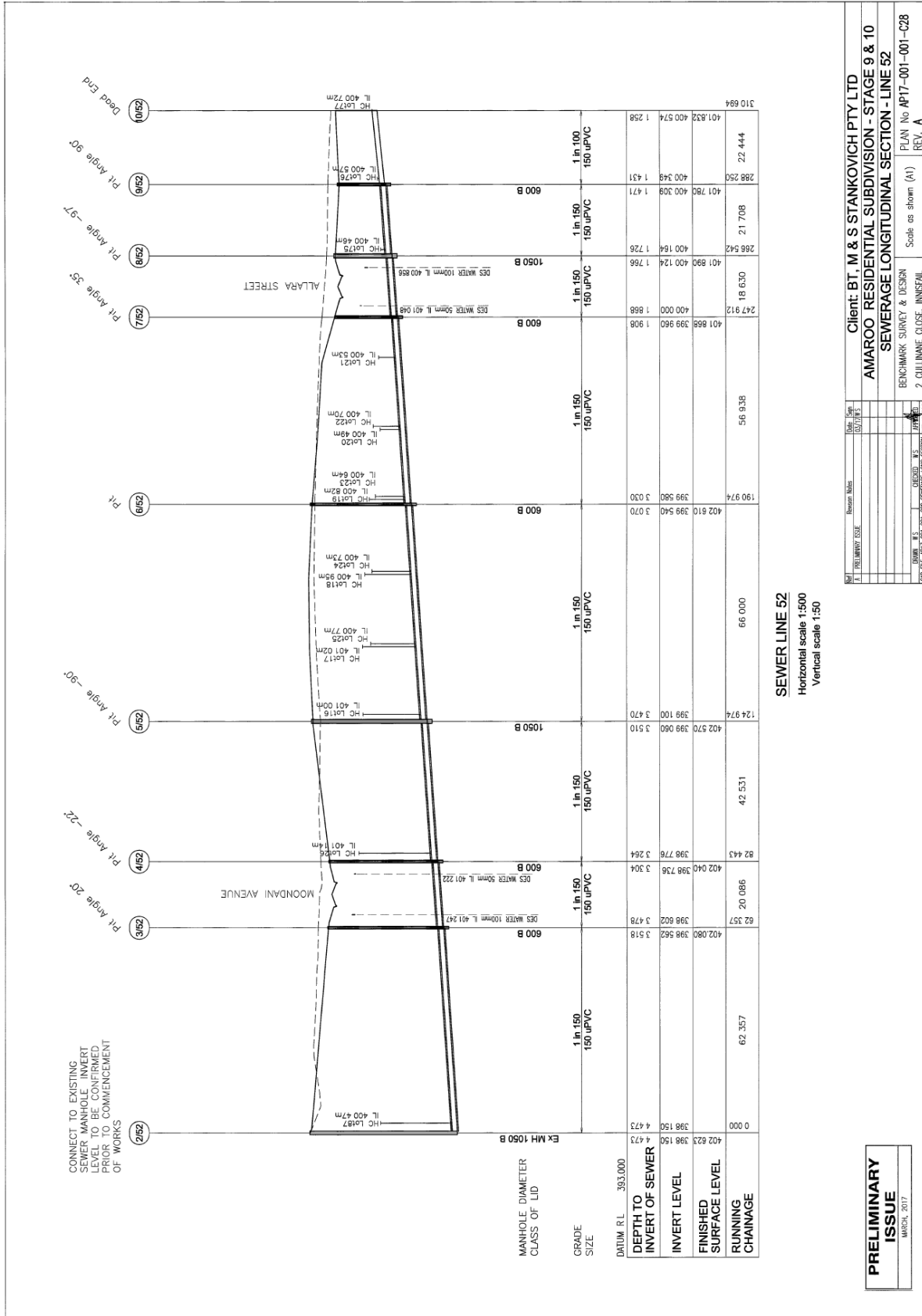
PRELIMINARY ISSUE
 MARCH, 2017

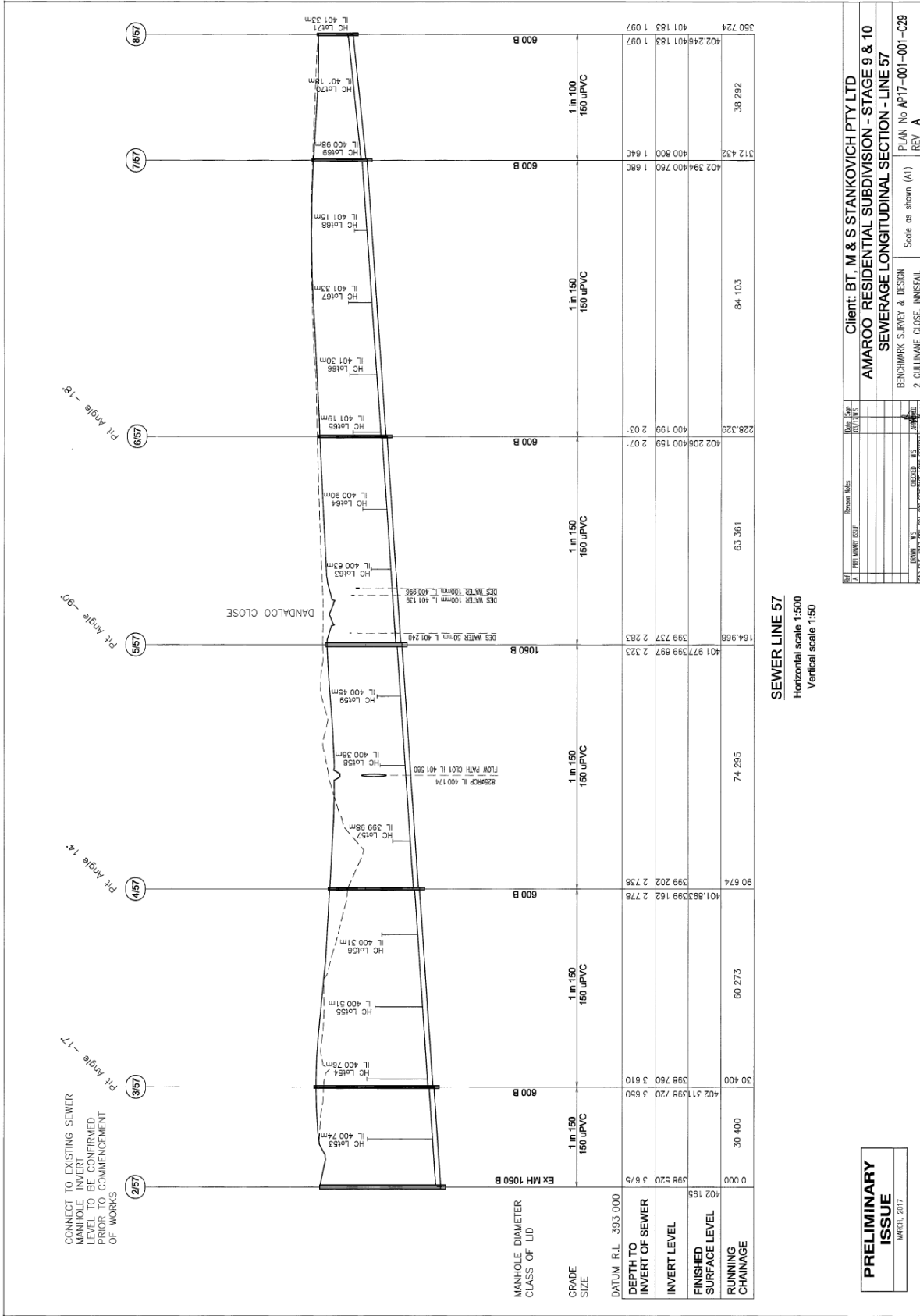
Client: **BT, M & S STANKOVICH PTY LTD**
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
SEWERAGE RETICULATION - LAYOUT PLAN (Sheet 1 of 2)

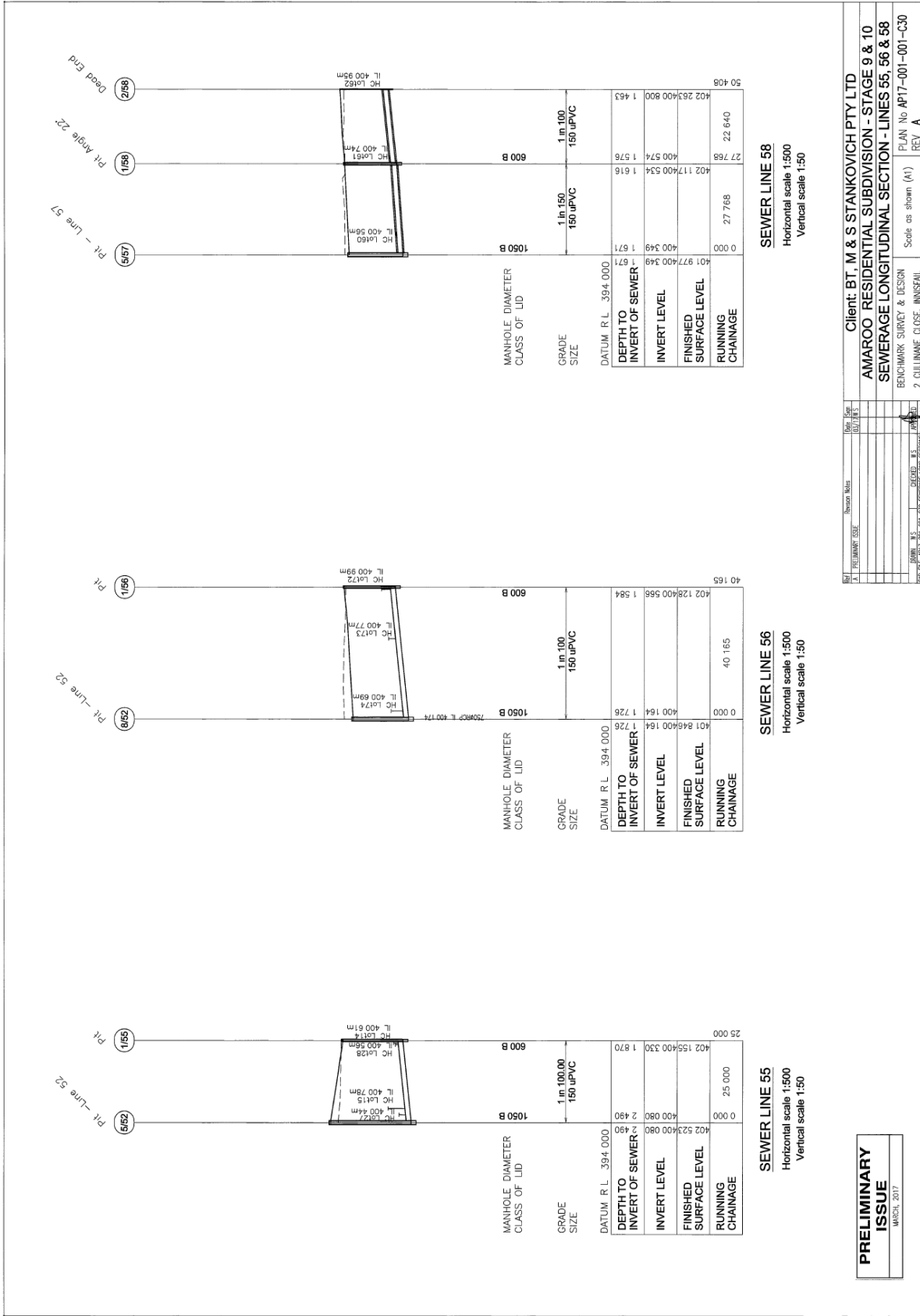
BENCHMARK SURVEY & DESIGN
 2 CULLINANE CLOSE, INNSFALLEN

Scale 1:500 (A1)
 PLAN No AP17-001-001-C26
 REV A









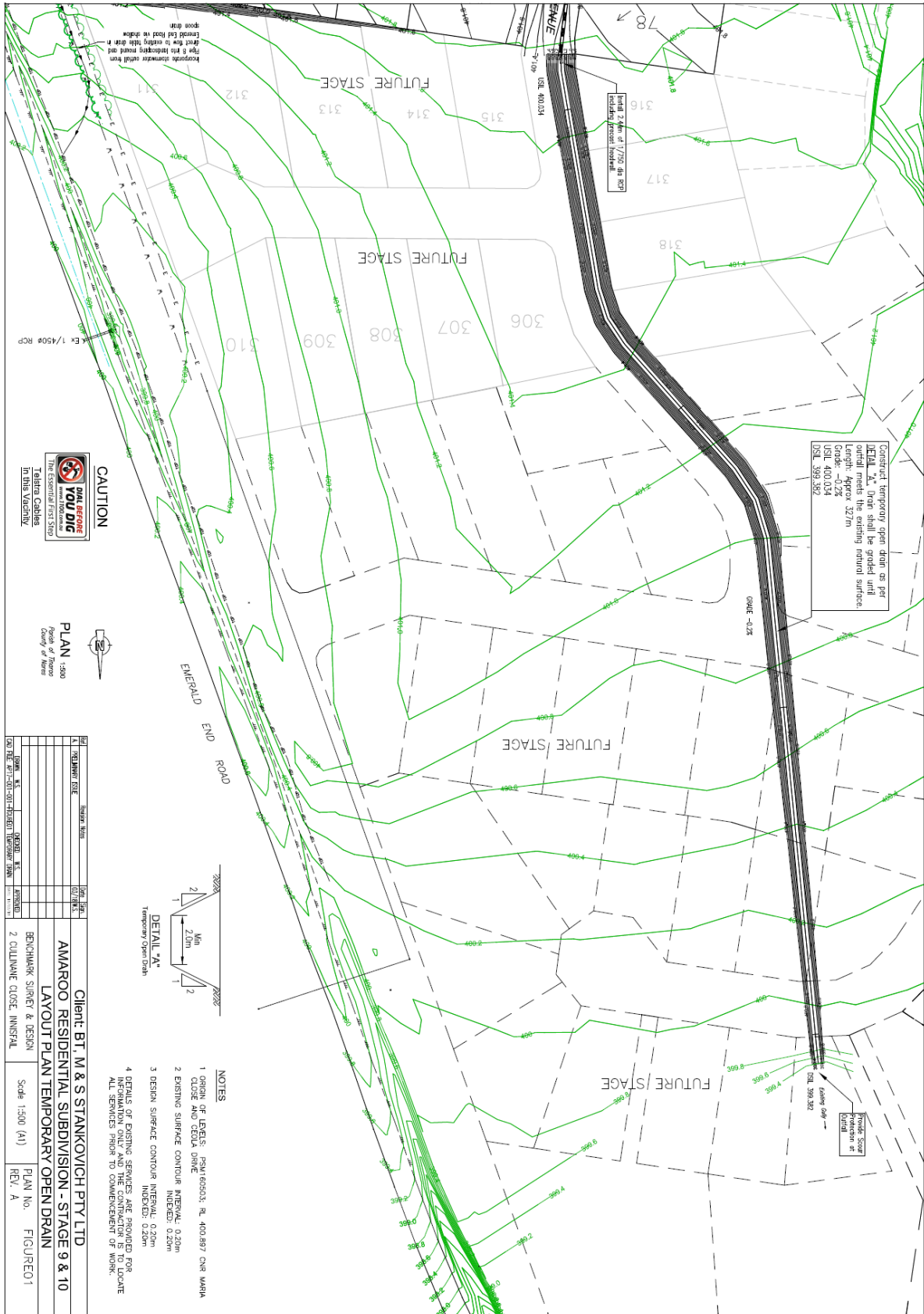
PRELIMINARY ISSUE
MAY 2017

DATE	DESCRIPTION	BY	CHKD
10/07/16	PRELIMINARY ISSUE	THOMAS MILES	10/07/16
10/07/16	REVISION	THOMAS MILES	10/07/16
10/07/16	REVISION	THOMAS MILES	10/07/16
10/07/16	REVISION	THOMAS MILES	10/07/16

Client: **BT, M & S STANKOVICH PTY LTD**
AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
SEWERAGE LONGITUDINAL SECTION - LINES 55, 56 & 58
 BENCHMARK SURVEY & DESIGN
 2 COLLINGWAVE CLOSE, INNSFAIL
 Scale as shown (A1)
 PLAN No AP17-001-001-C30
 REV A





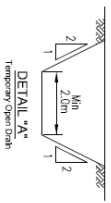


Contract temporary scan from as per
 DETAIL 'A' of this plan shall be applied
 outfall meets the existing natural surface.
 Length: Approx 327m
 Grade: -0.2%
 USL 400.034
 DSL 399.382

Profile Score
 Function at
 USL 399.382

CAUTION
 YOU DIG
 THE ESSENTIAL FIRST STEP
 TELLING COACHES
 IN THIS VARIANTS

PLAN - 500
 County of Huron



- NOTES**
- 1 ORIGIN OF LEVELS: PSAT160503, RL: 400.897 CNR WAPLA
 - 2 EXISTING SURFACE CONTOUR INTERVAL: 0.20m
 INDICED: 0.20m
 - 3 DESIGN SURFACE CONTOUR INTERVAL: 0.20m
 INDICED: 0.20m
 - 4 DETAILS OF EXISTING SERVICES ARE PROVIDED FOR
 INFORMATION ONLY AND THE CONTRACTOR IS TO LOCATE
 ALL SERVICES PRIOR TO COMMENCEMENT OF WORK.

NO.	REVISION	DATE	BY	CHKD.
1	ISSUED FOR PERMIT	07/17/24	MM	MM
2	FOR THE 2024-2025 THURSDAY TEMPORARY OPEN DRAIN	07/17/24	MM	MM

Client: BT M & S STANKOVICH PTY LTD
 AMAROO RESIDENTIAL SUBDIVISION - STAGE 9 & 10
 LAYOUT PLAN TEMPORARY OPEN DRAIN
 BENCHMARK SURVEY & DESIGN
 2 CULLIVANE CLOSE, INNISPAHL

Scale: 1:500 (A1)
 PLAN No. FIGURED01
 REV. A