

13 May 2024

Mareeba Shire Council
65 Rankin Street
PO Box 154
Mareeba QLD 4880

Attention: Carl Ewin

Dear Carl,

**Response to Pre-Request for Information
2-4 Quill Street, Mareeba (OPW/21/0006)**

Thank you for giving us the opportunity to respond to the Request for Information prior to it being formally issued. Please see below for our responses [in blue](#).

Quill Street Cul-de-sac

1. For the works proposed within the Quill Street road reserve, provide the following information:
 - a. Clarify the linework included on the drawings for works at the end of Quill Street. The linework appears to include a kerb inlet pit, additional driveway crossover to the west and a section of concrete behind the kerb. [Plan work will be supplied at the RFI, further detailing the crossover kerb and driveway. The indicated kerb inlet pit at the Quill Street Cul-de-sac head will be removed from the plan and replaced with a kerb outlet to an overland flow, which represents the existing conditions. Please see amended drawing 160-001-C105-Rev B.](#)
 - b. Provide amended drawings showing the existing and finished surface contours at 100 mm intervals to enable an assessment of the finished surface proposed at the Quill Street cul-de-sac and the driveway segment within the road reserve. [Please see amended drawing 160-001-C105-Rev B which shows the existing and design contours at 100mm intervals.](#)
 - c. For the proposed driveway to Building Pad 1, provide confirmation on the driveway grade within the Quill Street Road reserve (noting 5% desirable maximum verge grade). The designer is also requested to check the change in grade from the proposed driveway crossover and confirm if any transition segment is required for this change in grade. [Access to the second building pad will be at the discretion of the property owner and will dependant on it's intended use. A primary driveway has been provided to the main building pad.](#)
 - d. Provide an indicative grading for the driveway to Proposed Building Pad 2 to demonstrate that a compliant driveway can be achieved to the building pad. The applicant is requested to provide a verge grading plan to demonstrate the current works will not impede future formalisation of the Quill Street verge. [. Access to the second building pad will be at the discretion of the property owner and will be dependant on its intended use.](#)

Advice Note: The previous RAL Condition 4.2 required a 1-metre concrete backing strip for Quill Street to extend the cul-de-sac radius. The previous Operational Works design included



driveway crossovers and a kerb inlet pit encroaching into the backing strip. Council was seeking amendments to that (GHD) design prior to this new submission.

The applicant is advised that any future reconfiguration of the land is expected to require verge regrading for the northern end of Quill Street to accommodate the necessary additional on-street infrastructure, including ERGON pillar, trafficable footpath, and bin hardstands.

The applicant is requested to consider the implication of the future road verge improvement and demonstrate that current works are consistent with the future road/verge upgrade. A maximum 5% verge grade should be adopted for any grading options considered.

Our client is currently only considering the single driveway which will access the building pad no 1. Any future developments for the site will ensure the verge upgrades and infrastructure will accommodate council requests at that time.

Existing Power Pole

2. The location of existing power pole stay wire at the northern end of Quill Street must be shown on the Engineering Drawings to demonstrate that the proposed driveway and on-street works do not impact on this existing infrastructure.

Alternatively, provide confirmation of the arrangements with ERGON Energy for removal or relocation of this infrastructure and confirm the timing for the infrastructure to be relocated in the event that ERGON needs to decommission this infrastructure prior to works commencing.

An amended plan will be issued with the RFI response which will show an adjusted driveway alignment to create a buffer with the stay wire.

Demolition of existing fence(s)

3. The note(s) on the demolition plan regarding removing fences must be amended to include wording requiring a minimum of two (2) weeks' notice to the property owner and tenant (if applicable) prior to the removal of fences.

The notes must specify that temporary exclusion fencing is to be provided to ensure no unauthorised access to the worksite.

The standard of the replacement fence must be agreed between the parties. The agreement between the parties is to be forwarded to Council prior to the works commencing on this element.

Please see amended drawing 160-001-C102-Rev B which shows the amended note indicating two weeks notice to be given to the property owner and tenant.

Stormwater Easement

4. The drawings must be amended to show the location and extents of the existing drainage easement through the property.

No filling or retaining wall works for the building envelopes are to intrude into the drainage easement.

Advice Note: An approximate overlay of the easement from Queensland Globe data set appears to show the southern part of Building Pad 1 and a significant portion of the eastern batter to Building pad 1 encroaching into the easement.

The southern corridor of the new drainage easement has been redirected and contained within the new drainage alignment. The previous drainage easement would have been created with the natural surface of the undeveloped land using the existing flow path and land profile. The engineered profile shows the Q100 will be contained within the 3.0m wide easement of the new alignment. See sketch drawing 160-001-SK09 rev 1.



5. The drawings must identify any proposed changes to the drainage easement to reflect the proposed additional drains nominated for construction under this application.

Advice Note: Changes to the easements (if proposed) would need an approval for Reconfiguring a Lot.

All private infrastructure in the drainage easement (driveways/culverts/drain lining) will be the responsibility of the lot owner.

The new alignment of the easement has been shown on sketch drawing 160-001-SK09 rev 1.

External flow paths

6. Provide advice on the locations where overland stormwater flow currently enters the development site and the additional drainage measures and treatments required to control and convey these existing flow entry points into the new drainage elements proposed on site. In particular; any treatments of batters at concentrated flow points into the site.

The advice must include amended drawings to show the contour information and identify the locations of current points of stormwater runoff into the site relative to proposed drainage infrastructure. Details are to be provide for the locations and extent of treatments to the drain lining and batters to accept concentrated run-off.

In addition, the assessment should consider runoff entering Quill Street from Hastie Street at the kerb return, and whether these flows change the design.

Advice Note: Flow paths appear to enter the site at the following locations:

- at the northwest corner,
- at two points along Lot 5 rear boundary,
- near the southern end of the catch drain (chainage 0m to 10m),
- across the southern boundary, and
- from Quill Street.

A batter chute will be included on the updated plans with the RFI for surface water coming off lot 5 RP716383. The other ingress to the lot is from Lot 1 RP729541 which has a 600Ø entering the new concrete table drain.

Catchment plan 160-001-SK08 submitted with the Stormwater Management Plan, shows external catchments and contours which contribute to the site. (see attached 160-001-SK08 for details). Overland flow coming down Hastie Street will be collected by the Side entry pit located at the corner of Quill and Hastie Street.

Drainage

7. The Applicant is requested to update the signed Revision A drawings to include the details and dimensions of the proposed Rock Lined Drain.

Advice Note: The unsigned drawing set includes the drain detail, however, the detail is not included on the signed drawing set.

Drawing 160-001-C07 - Rev B has been amended to include the Rock Lined Drain detail.

8. Confirm the data source for the 1% AEP flood level shown on the cross section on Drawing C106. Amend the drawings to include the level value (RL) determined for the 1%AEP (Q100) water surface on the drawing C106.

The Q100 level for the backflow of the Barron River of RL395.593 was supplied by council. The RL achieved for the stream flow Q100 RL 393.357 is based on our calculations of contributing catchments and a flow height of 597mm above the invert level.



If the flood level shown does not represent Barron River flooding, provide advice on the immunity of the driveway from a Barron River flood event. (That is; what frequency/occurrence event overtops the driveway).

Advice Note; The inundation extent shown on SK07 in Appendix C of the design report appears to differ from water level shown on Drawing C106. The applicant is requested to clarify the different flood levels/extents.

9. With respect to the section shown on drawing C108, confirm where the capacities of the catch drain were assessed and clarify whether sections consider the highest flow and flattest drain combination.

Our calculations of the level shown on the detail on Dwg C108 are contained within the Stormwater Management Plan located in Appendix E. It is based on a 1% grade and a combination of the contributing catchments.

10. The designer is to amend the drawings to provide concrete lining for all catch drains. The drawings must provide details of concrete lining, including but not limited to; location, lining thickness, lining extent/height within drain cross section, reinforcement details, jointing. The requirement for drain lining also applies to the proposed drain beside the driveway shown on drawing C106 given the driveway longitudinal grade is approximately 16%.

Advice Note: The sections of the Building Pad 1 Catch Drain are at 8.5% longitudinal grade, and flows discharge direct to the Barron River. On this basis, Council Officers advise that an unlined drain is not considered an acceptable design solution to ensure stable, erosion free and low maintenance outcomes for a drain at the toe of steep high earth batters. This item seeks the designer to provide details of concrete lining for all drains to address these concerns.

The drawings will be amended at RFI to include concrete lined drains where the grades are greater than 1% and velocities will be higher.

11. Provide additional detail for the interface between the Building Pad 1 Catch Drain and the upstream end of the Rock Lined Drainage channel. The applicant is also requested to confirm the interface details at the downstream end of the rock lined drain. Details of the interfacing are to be included on a localised detail/site grading plan.

Advice Note: Design levels on Drawing C108 suggest there is a drop of approximately 0.5 m from the Catch Drain into the upstream end of the Rock Lined Drain. Additional detail is required to confirm the treatment of the two drains at this interface. At the downstream end of the Rock Lined Drain, existing surface contours are not provided on the general layout plan or the grading plan.

I agree the height difference should be the same, however the difference is 70mm. The connection of the grass lined drain into the rock lined drain will be arranged on site. Extra rock will be included in the transition. A detail will be included on the plans at RFI stage.

12. The applicant is requested to provide updated drawings, including a sealed driveway for the full extent and scour protection measures for the portion of the driveway expected to overtop during rainfall events.

Advice Note: The proposal is for a gravel driveway between Quill Street and proposed Building Pad 1. The proposed unsealed gravel driveway is not supported noting that it passes through a drainage reserve, is design to overtop and also has longitudinal grades approaching 16%.



The driveway will be sealed with a primer coat plus 2 coat sprayed bitumen seal (16mm 10mm) for the full length. The overland flow will be contained within the 2x450 RCP. If a blockage occurs, the road at the culvert will overflow a design of 300mm.

13. The applicant is to confirm the proposed batter slopes adjacent Building Pads 1 and 2, including the western batters into the Catch Drain. The batter slopes are to be labelled on the drawings.

Advice Note: The cross section on Drawing C108 suggests the batter slopes of 16% minimum or one vertical in six horizontal (1v in 6h), but does not include a maximum batter slope. Measuring the distance between contours suggests batter slopes may be as steep as 1v in 1.5h (66%). Batters of this height and slope will require certification as to stability by a Geotechnical Engineer.

A geotechnical engineer will be engaged prior to excavation to determine batter suitability and advice. Crossfalls will be included on plans at RFI submission.

Geotechnical Advice

14. Provide geotechnical advice on the stability of the proposed batter slopes, noting the external stormwater flows overtopping the batters and the presence of site drainage at the toe of the batters.

A geotechnical engineer will be engaged prior to excavation to determine batter suitability and advice. A geotechnical investigation and report will be prepared and submitted to council.

15. Geotechnical design parameters are to be included for the ground surface preparation and any keying in of fill batters.

See 14 above.

16. The geotechnical report must also address the stability of the adjacent land following excavation of the western and northern batters below the existing developed lots.

Advice Note: This review indicated that Building Pad 1 western batters exceed 3m and have batter slopes of 1v in 1.5h. FNQROC D2.11 requires that all batters higher than 1.5m and/or steeper than 1 in 2 require certification as to stability by a Geotechnical Engineer.

See 14 above.

Sewerage

17. Provide a section through the Building Pad 2 fill platform and earth batter at the point closest to the sewer line. The section is to demonstrate the zone of influence for the sewer and confirm that the engineering solutions proposed ensure that the existing sewer main is not impacted by the new works. The details must also demonstrate that future maintenance of the sewer is not constrained by the new earthworks proposed.

That is; the sewer main must be able to be excavated in future without any special engineering solutions to prop or stabilise the proposed batter. If this cannot be achieved the design must be revised to achieve this sewer maintenance outcome.

The depth of excavation under the new battered surface to the sewer is 1.535m. No special engineering solutions should be required to excavate to this.

18. The design drawings must be updated to reflect the earthworks and proposes filling over or within the zone of influence for the existing sewer reticulation. The drawing is to include suitable information on the depth of the sewer at the location of the filling and must nominate limits on compaction equipment and compaction techniques in the vicinity of the existing sewer



reticulation. Amended drawings including sections and additional notation to address the above requirements are to be provided to enable further assessment of the application.

An E2 connection is indicated on Sewer plan C109. The depth at this point is 1.15m below surface level.

19. The applicant is to detail the proposed method of “cutting in” the new property connection branch to the existing sewer. This must be specified clearly so that the method can be considered by Council’s sewerage officers and appropriate conditions applied to the work scope.

An E2 connection is indicated on Sewer plan C109. The depth at this point is 1.15m below surface level. Both pads can achieve control at this level.

20. Provide confirmation that the proposed property connection branch location and level will allow internal property sewerage to service Building Pad 1 across the drainage channel. Per FNQROC D7.14 Clause 8, the property connection should be located 1m past the easement boundary. All property connections should be finished a minimum of 1m clear of any infrastructure.

Confirmation of the sewer connection across the drain will be provided at RFI submission.

21. The proposed alignment and levels including clearance below the drain must be provided to complete the assessment. The design must achieve 450mm minimum cover to the bottom of the rock lining. If this cannot be achieved the house connection branch must be nominated to have additional protection in the form of concrete encasement or be constructed in ductile iron.

Confirmation of the sewer connection across the drain will be provided at RFI submission.

Water Connection

22. Provide advice on how the water connection will be achieved to Building Pad 1 including the crossing of the proposed Rock Lined Drain.

The water main connection will be aligned along the driveway.

Advice Note: Any further development on the land to create additional lots will require the construction of a complete loop for the watermain on Quill Street to avoid a dead end in the line.

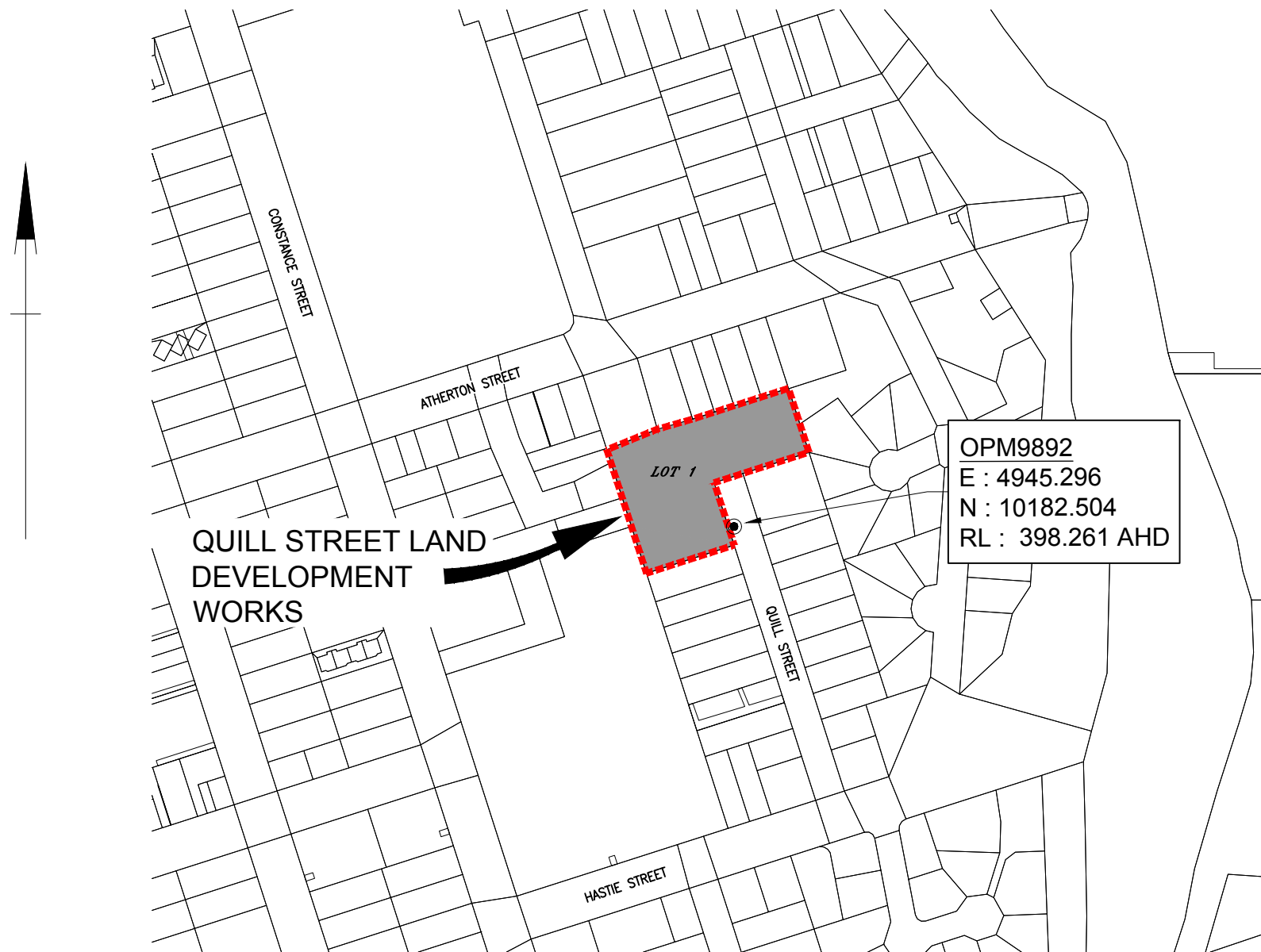
Should you have any queries please don’t hesitate to contact the undersigned.

Yours faithfully

Mark Freeman
Senior Civil Designer

CONMAT PTY LTD

QUILL STREET LAND DEVELOPMENT

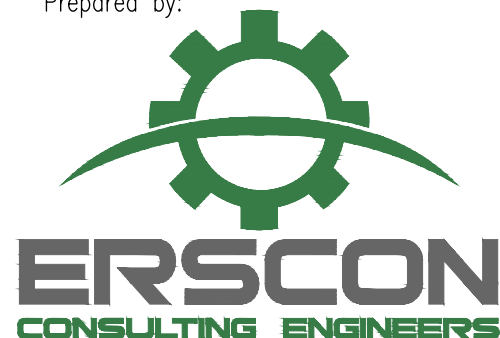


PROJECT DRAWINGS LIST

160-001-C100	COVER SHEET, LOCALITY PLAN AND DRAWINGS LIST
160-001-C101	GENERAL NOTES
160-001-C102	CLEARING PLAN
160-001-C103	GENERAL LAYOUT PLAN
160-001-C104	GRADING PLAN
160-001-C105	DRIVEWAY PLAN
160-001-C106	DRIVEWAY LONGITUDINAL SECTION AND DETAIL
160-001-C107	ROCK LINED DRAIN LONGITUDINAL SECTION AND DETAIL
160-001-C108	REAR CATCH DRAIN LONGITUDINAL SECTION AND DETAIL
160-001-C109	SEWER RETICULATION PLAN
160-001-C110	EROSION AND SEDIMENT CONTROL PLAN
160-001-C111	EROSION AND SEDIMENT CONTROL DETAILS

Client:

Prepared by:



APPROVED FOR
CONSTRUCTION

GENERAL NOTES:

1. LEVEL DATUM : AHD
2. ORIGIN OF LEVELS:

NUMBER	EASTING	NORTHING	RL	LOCATION
OPM9892	4945.296	10182.504	398.261	QUILL STREET, MAREEBA

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

EARTHWORKS NOTES:

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

CONCRETE NOTES:

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

DRAINAGE NOTES:

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

EROSION AND SEDIMENT CONTROL NOTES:

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

SEWER NOTES:

1. ALL SEWER WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT FNQROC DEVELOPMENT MANUAL SPECIFICATION – S6 'SEWERAGE RETICULATION'.
2. ALL NEW SEWER MAINS AND MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH FNQROC STD DRAWINGS 3000 AND S3015.
3. ALL SEWER MANHOLE COVERS SHALL BE CIRCULAR UNLESS NOTED OTHERWISE. COVERS SHALL BE TYPE B INSIDE PROPERTIES AND TYPE C ELSEWHERE.
4. ALL SEWER MANHOLE COVER LEVELS TO BE 50mm ABOVE FINISHED SURFACE LEVEL UNLESS NOTED OTHERWISE.
5. ALL HOUSE CONNECTION BRANCHES TO NEW SEWER MAINS TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT DRAWINGS AND FNQROC STD DRAWING S3005. BRANCHES SHALL BE CLEARLY MARKED IN ACCORDANCE WITH THE SPECIFICATION.
6. COUNCIL MUST BE CONTACTED TO PERFORM ANY DIRECT CONNECTION TO LIVE SEWER MAINS. THE CONTRACTOR SHALL LODGE WITH COUNCIL THE APPROPRIATE APPLICATION FORMS AND FEES FOR THESE WORKS TO BE COMPLETED. IT MAY BE POSSIBLE FOR SOME WORKS TO BE PERFORMED BY THE CONTRACTOR UNDER SPECIAL CIRCUMSTANCES AND SUBJECT TO APPROPRIATE CONDITIONS AGREED TO WITH COUNCIL.
7. THE CONTRACTOR SHALL CARRY OUT A CCTV INSPECTION THROUGH ALL SEWERS WITHIN THE DEVELOPMENT BOTH PRIOR TO COMMENCING WORKS AND ALSO ON COMPLETION OF CONSTRUCTION ACTIVITY ON THE SITE. THE FOOTAGE TO THE SUPERINTENDENT FOR ASSESSMENT. ANY SECTIONS OF SEWER CONSIDERED TO BE DAMAGED DURING CONSTRUCTION SHALL BE RECTIFIED TO THE SATISFACTION OF COUNCIL.

WATER NOTES:

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

LANDSCAPING NOTES:

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

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NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	03/04/23	INITIAL ISSUE		



CLIENT

SCALE

NTS

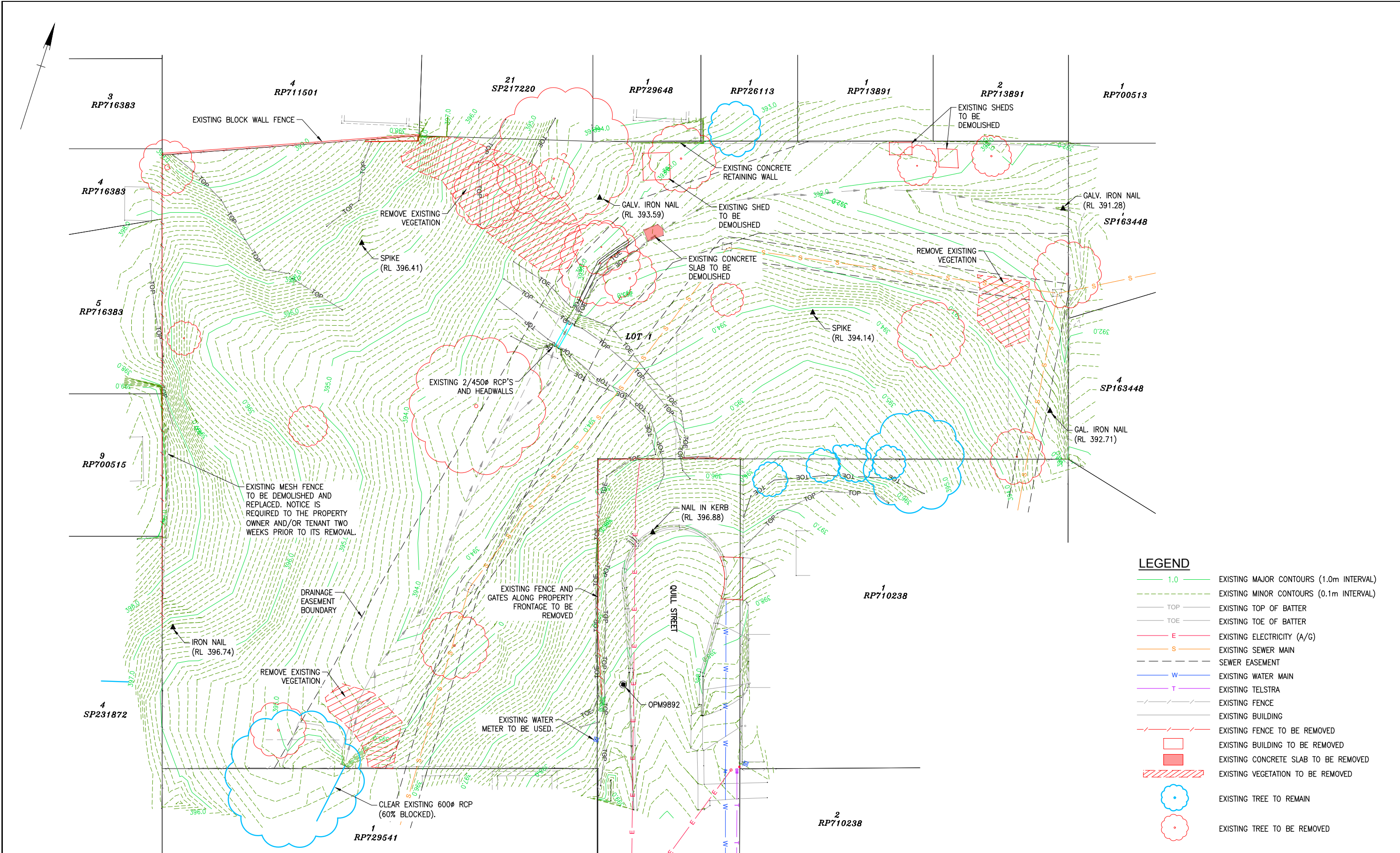
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CIVIL SIGNOFF APPROVAL			
DATE: 15/04/24 RPEQ: 5085			

PROJECT REF		CONMAT PTY LTD	
		QUILL STREET LAND DEVELOPMENT	
DRAWING REF		GENERAL NOTES	
DRAWING NO	160-001-C101	SIZE	A3
		REVISION	A

APPROVED FOR CONSTRUCTION

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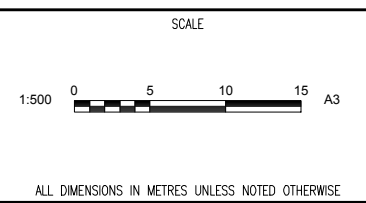
LEGEND	
	1.0 EXISTING MAJOR CONTOURS (1.0m INTERVAL)
	EXISTING MINOR CONTOURS (0.1m INTERVAL)
	TOP EXISTING TOP OF BATTER
	TOE EXISTING TOE OF BATTER
	EXISTING ELECTRICITY (A/G)
	EXISTING SEWER MAIN
	SEWER EASEMENT
	EXISTING WATER MAIN
	EXISTING TELSTRA
	EXISTING FENCE
	EXISTING BUILDING
	EXISTING FENCE TO BE REMOVED
	EXISTING BUILDING TO BE REMOVED
	EXISTING CONCRETE SLAB TO BE REMOVED
	EXISTING VEGETATION TO BE REMOVED
	EXISTING TREE TO REMAIN
	EXISTING TREE TO BE REMOVED

NOTES

- REFER DWG. 160-001-C101 FOR STANDARD NOTES

APPROVED FOR CONSTRUCTION

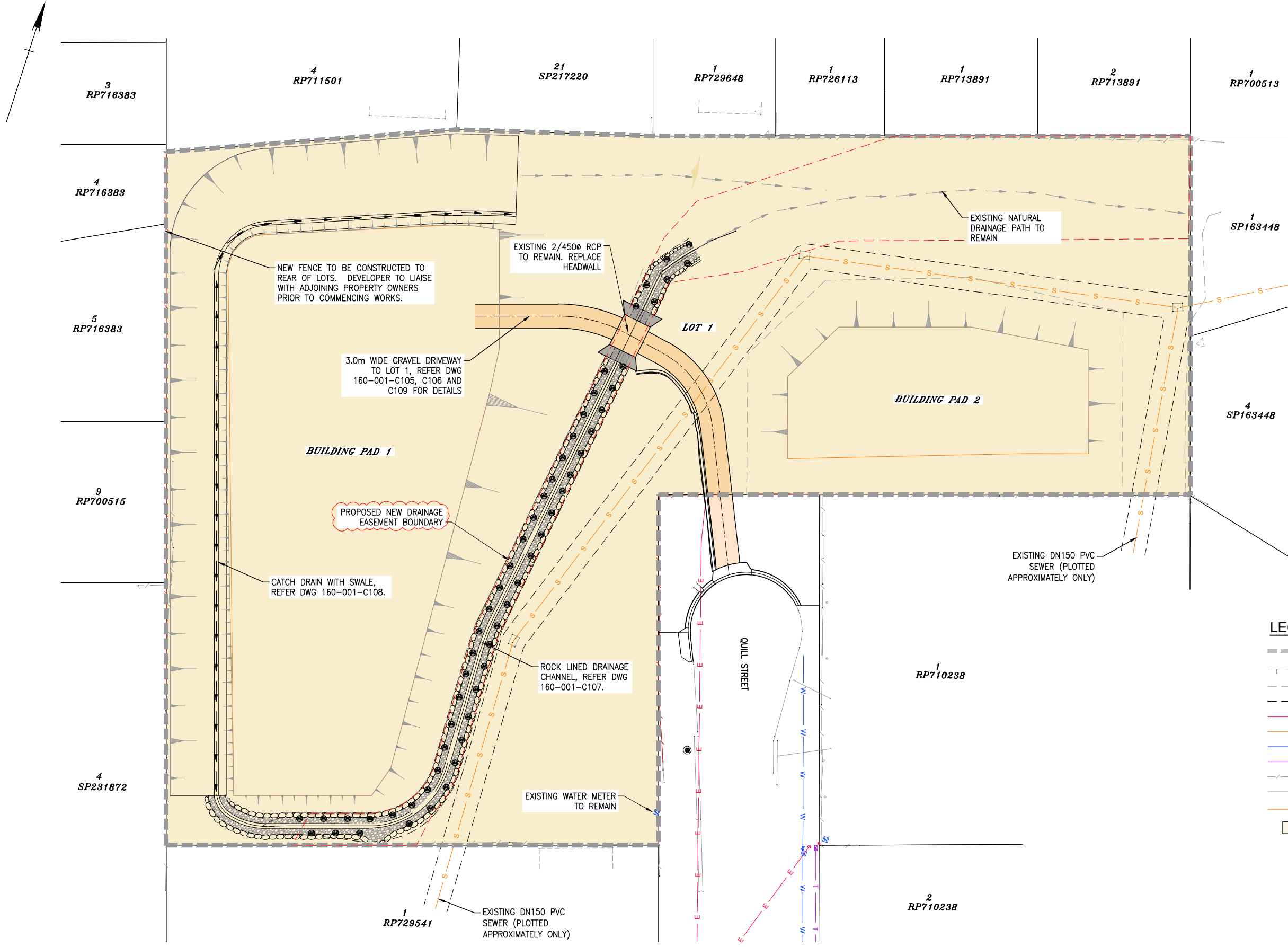
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A	03/04/24	INITIAL ISSUE		



DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF
CIVIL SIGNOFF APPROVAL			
		DATE: 15/04/24 RPEQ: 5085	

PROJECT REF	CONMAT PTY LTD		
	QUILL STREET LAND DEVELOPMENT		
DRAWING REF	CLEARING PLAN		
DRAWING NO	160-001-C102	SIZE	A3
		REVISION	B

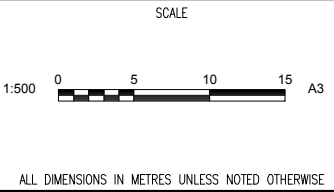
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LEGEND	
	STAGE BOUNDARY
	PROPOSED TOP OF BATTER
	PROPOSED BOTTOM OF BATTER
	EXISTING SEWER EASEMENT
	EXISTING ELECTRICITY (A/G)
	EXISTING SEWER MAIN
	EXISTING WATER MAIN
	EXISTING TELSTRA
	EXISTING FENCE
	EXISTING BUILDING
	PAD BOUNDARY
	WORKS AREA

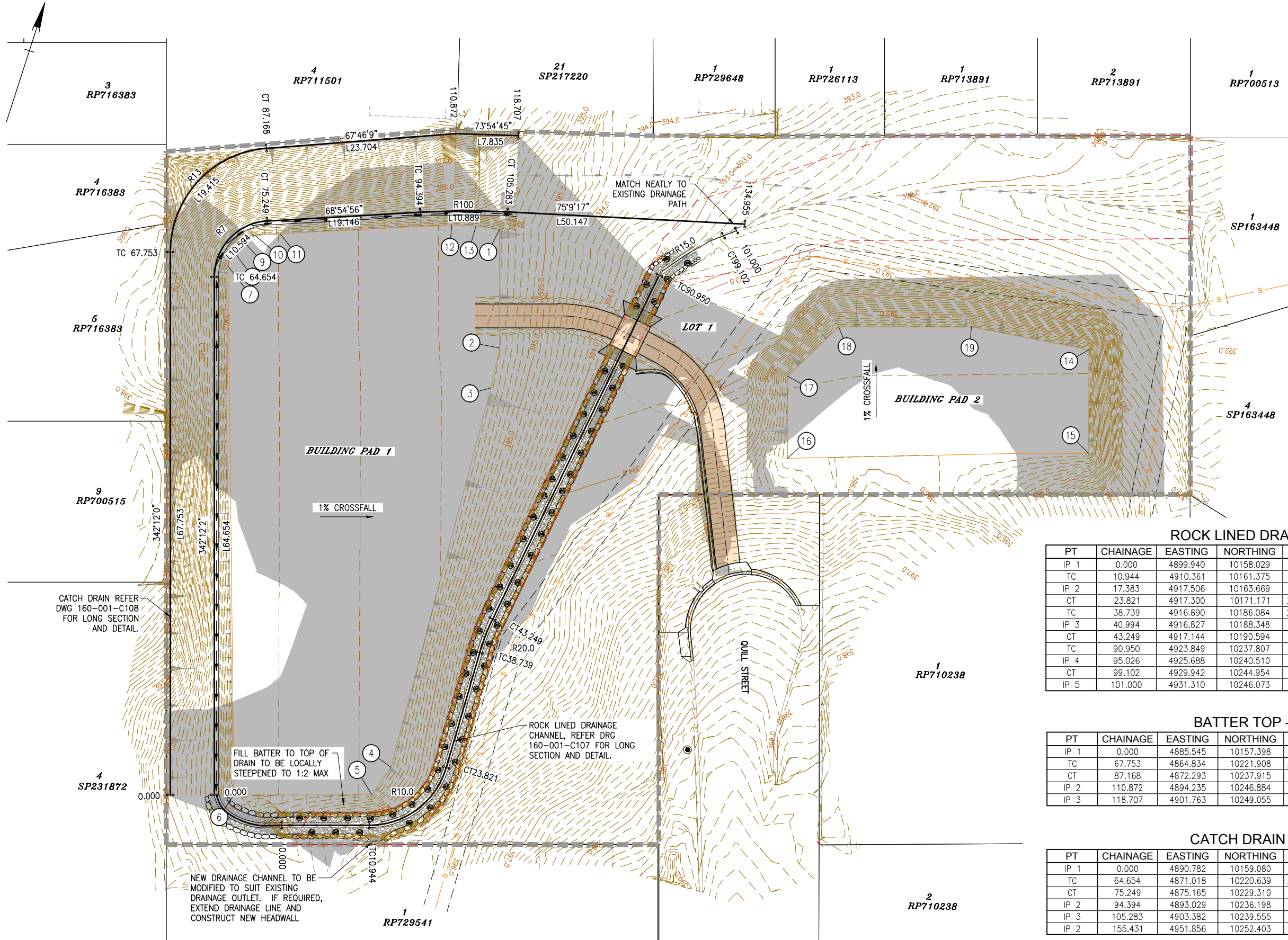
APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
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A	03/04/24	INITIAL ISSUE		



DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF
CIVIL SIGNOFF APPROVAL			
DATE: 15/04/24 RPEQ: 5085			

PROJECT REF	CONMAT PTY LTD		
	QUILL STREET LAND DEVELOPMENT		
DRAWING REF	GENERAL LAYOUT PLAN		
DRAWING NO	160-001-C103	SIZE	A3
		REVISION	B



LEGEND

- 1.0 PROPOSED MAJOR CONTOURS (1.0m INTERVAL)
- 0.1m PROPOSED MINOR CONTOURS (0.1m INTERVAL)
- PAD BOUNDARY
- PROPOSED TOP OF BATTER
- PROPOSED BOTTOM OF BATTER
- S EXISTING SEWER MAIN
- SEWER EASEMENT
- PROPOSED FILL

PAD SETOUT

POINT NUMBER	EASTING	NORTHING	HEIGHT
1	4903.079	10237.163	395.624
2	4907.599	10223.085	395.624
3	4908.123	10218.001	395.639
4	4910.710	10169.102	395.760
5	4909.473	10165.081	395.784
6	4893.069	10159.875	395.956
7	4872.232	10222.442	395.964
8	4872.321	10224.414	395.959
9	4873.084	10225.948	395.948
10	4874.286	10227.121	395.930
11	4877.179	10228.286	395.910
12	4897.243	10235.899	395.712
13	4900.155	10236.678	395.652
14	4977.753	10245.366	395.770
15	4981.675	10233.038	395.900
16	4946.039	10220.952	395.900
17	4942.936	10230.709	395.780
18	4947.128	10238.517	395.740
19	4962.896	10243.590	395.740

ROCK LINED DRAIN - CONTROL LINE

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	4899.940	10158.029	72°12'00.00"			
TC	10.944	4910.361	10161.375	72°12'00.00"			
IP 2	17.383	4917.506	10163.669		-10	12.876	73°46'35.22"
CT	23.821	4917.300	10171.171	358°25'24.78"			
TC	38.739	4916.890	10186.084	358°25'24.78"			
IP 3	40.994	4916.827	10188.348		20	4.510	12°55'08.29"
CT	43.249	4917.144	10190.594	11°20'33.07"			
TC	90.950	4923.849	10237.807	11°20'33.07"			
IP 4	95.026	4925.688	10240.510		15	8.153	31°08'25.05"
CT	99.102	4929.942	10244.954	42°28'58.12"			
IP 5	101.000	4931.310	10246.073	42°28'58.12"			

BATTER TOP - CONTROL LINE

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	4885.545	10157.398				
TC	67.753	4864.834	10221.908	342°11'59.95"	13	19.415	85°34'09"
CT	87.168	4872.293	10237.915	67°46'09.17"			
IP 2	110.872	4894.235	10246.884	67°46'09.17"			6°08'36"
IP 3	118.707	4901.763	10249.055	73°54'45.16"			

CATCH DRAIN - CONTROL LINE

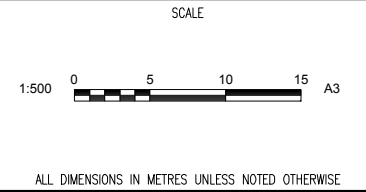
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	4890.782	10159.080			64.654	
TC	64.654	4871.018	10220.639	342°12'01.66"	7	10.594	86°42'55"
CT	75.249	4875.165	10229.310	68°54'56.20"	7	19.146	
IP 2	94.394	4893.029	10236.198	68°54'56.20"	100	10.889	6°14'21"
IP 3	105.283	4903.382	10239.555	75°09'17.28"	100	50.147	
IP 2	155.431	4951.856	10252.403	75°09'17.28"			

APPROVED FOR CONSTRUCTION

PLOT DATE: 17/05/2024 9:53:37 AM FILE LOCATION: 160-001-C104 GRADING PLAN.dwg

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	03/04/24	INITIAL ISSUE		



CLIENT

SCALE

DRAWN MG DESIGNED MG

DRAWN APPROVED MF DESIGN APPROVED MF

CIVIL SIGNOFF APPROVAL

John Martin

DATE: 15/04/24 RPEG: 5085

PROJECT REF

CONMAT PTY LTD

QUILL STREET LAND DEVELOPMENT

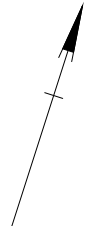
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DRAWING NO

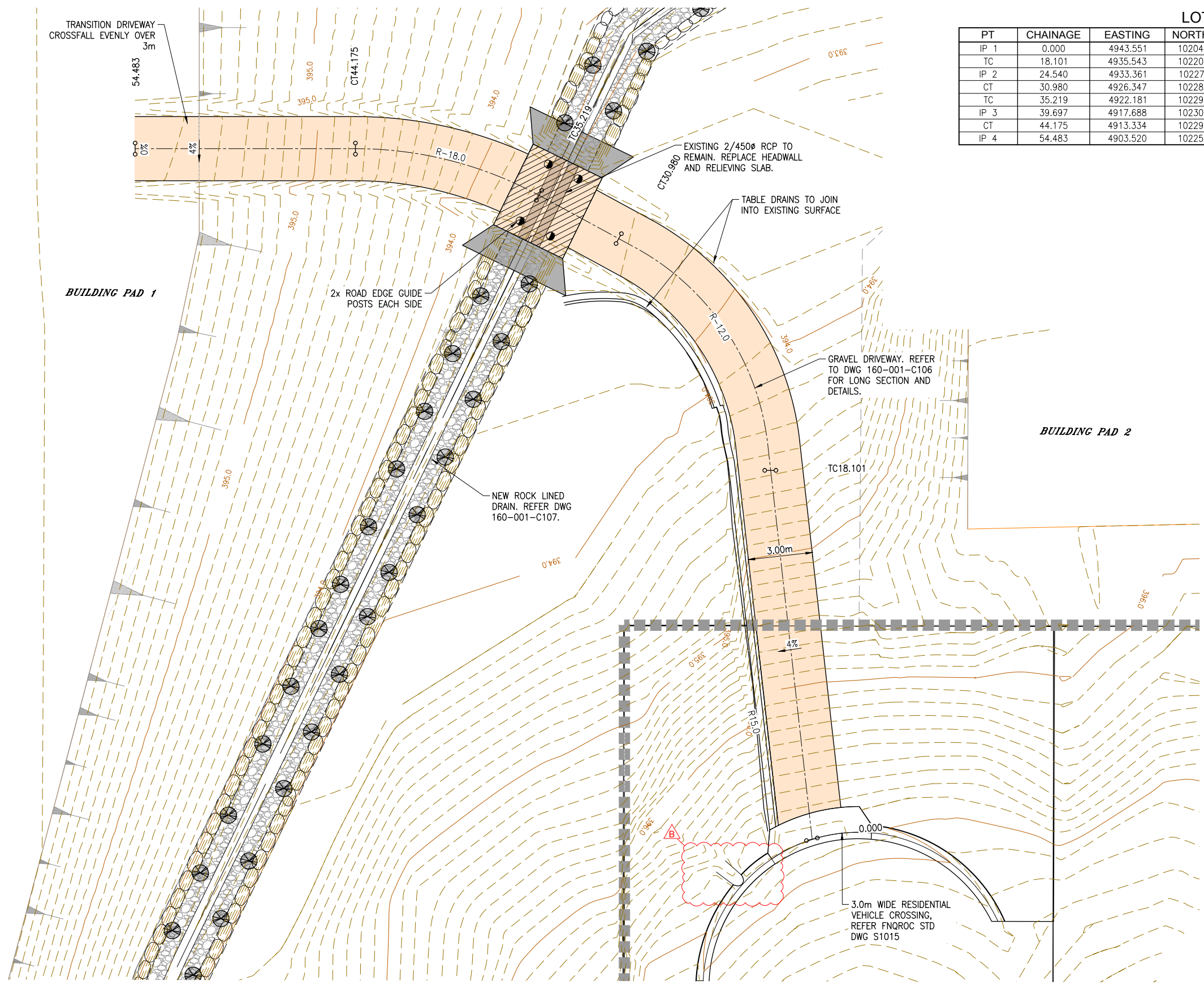
160-001-C104

SIZE A3 REVISION A



LOT 1 DRIVEWAY

PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	4943.551	10204.914	312°02'53.90"			
TC	18.101	4935.543	10220.765	342°12'00.00"			
IP 2	24.540	4933.361	10227.561		R = -12.000	12.879	61°29'32.69"
CT	30.980	4926.347	10228.888	280°42'27.31"			
TC	35.219	4922.181	10229.675	280°42'27.31"			
IP 3	39.697	4917.688	10230.525		R = -18.000	8.956	28°30'27.31"
CT	44.175	4913.334	10229.127	252°12'00.00"			
IP 4	54.483	4903.520	10225.976	252°12'00.00"			



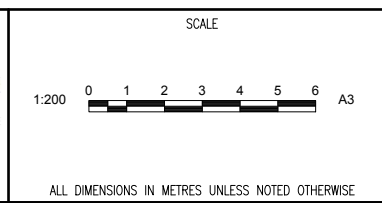
LEGEND

- STAGE BOUNDARY
- PROPOSED MAJOR CONTOURS (1.0m INTERVAL)
- PROPOSED MINOR CONTOURS (0.1m INTERVAL)
- EXISTING FENCE
- EXISTING BUILDING
- PAD BOUNDARY
- NEW HANDRAIL
- EXISTING SEWER MAIN
- NEW GRAVEL DRIVEWAY
- EXISTING CONCRETE SPANNING SLAB
- PROPOSED GUIDE POSTS

APPROVED FOR CONSTRUCTION

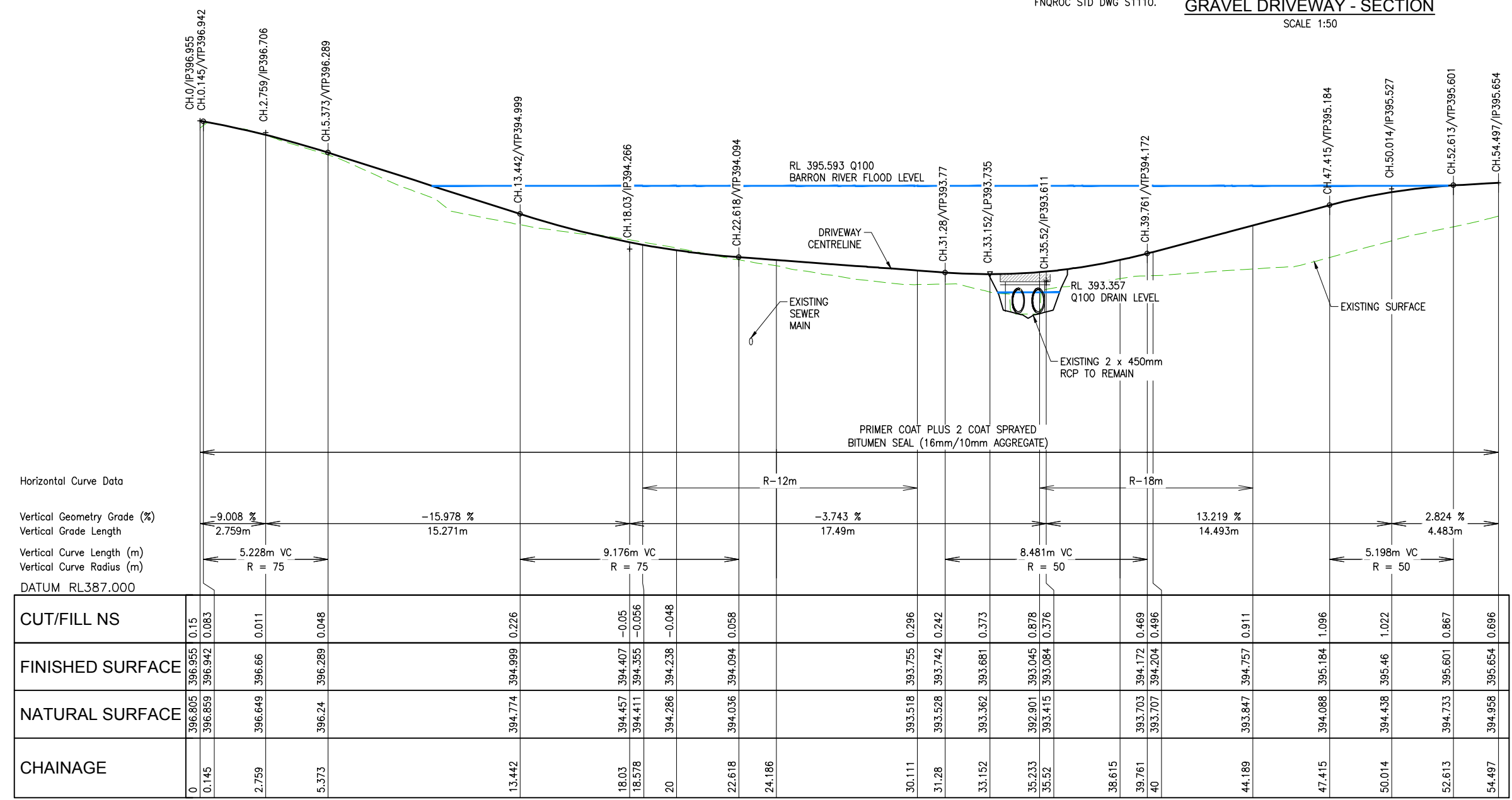
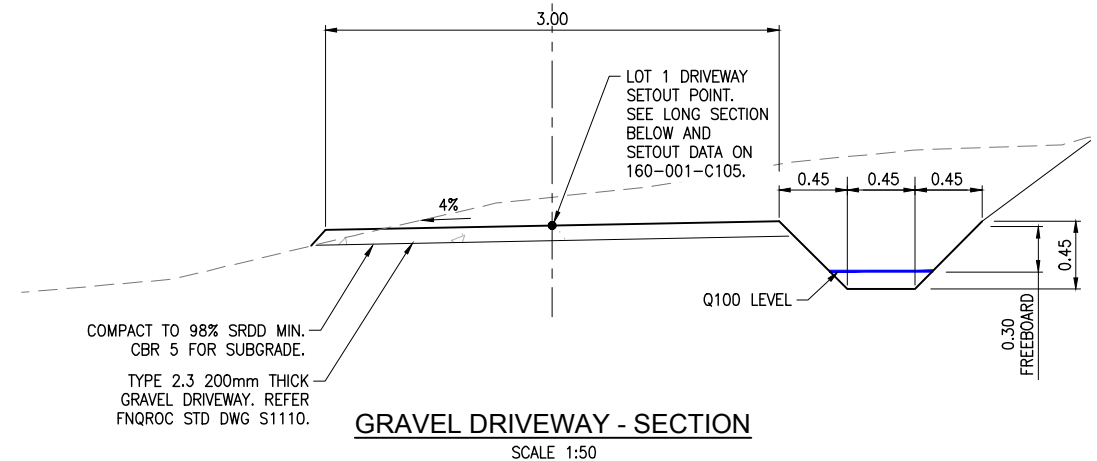
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A	03/04/24	INITIAL ISSUE		



DRAWN	MG	DESIGNED	MG
DRAWN APPROVED	MF	DESIGN APPROVED	MF
CIVIL SIGNOFF APPROVAL			
DATE: 15/04/24 RPEQ:5085			

PROJECT REF	CONMAT PTY LTD		
	QUILL STREET LAND DEVELOPMENT		
DRAWING REF	DRIVEWAY PLAN		
DRAWING NO	160-001-C105	SIZE	A3
		REVISION	B



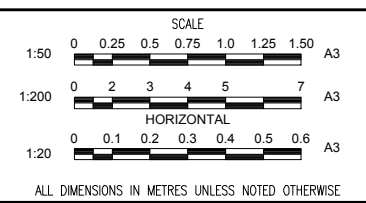
LOT 1 DRIVEWAY - LONGITUDINAL SECTION

SCALE 1:200 HORIZONTAL
1:20 VERTICAL

APPROVED FOR CONSTRUCTION

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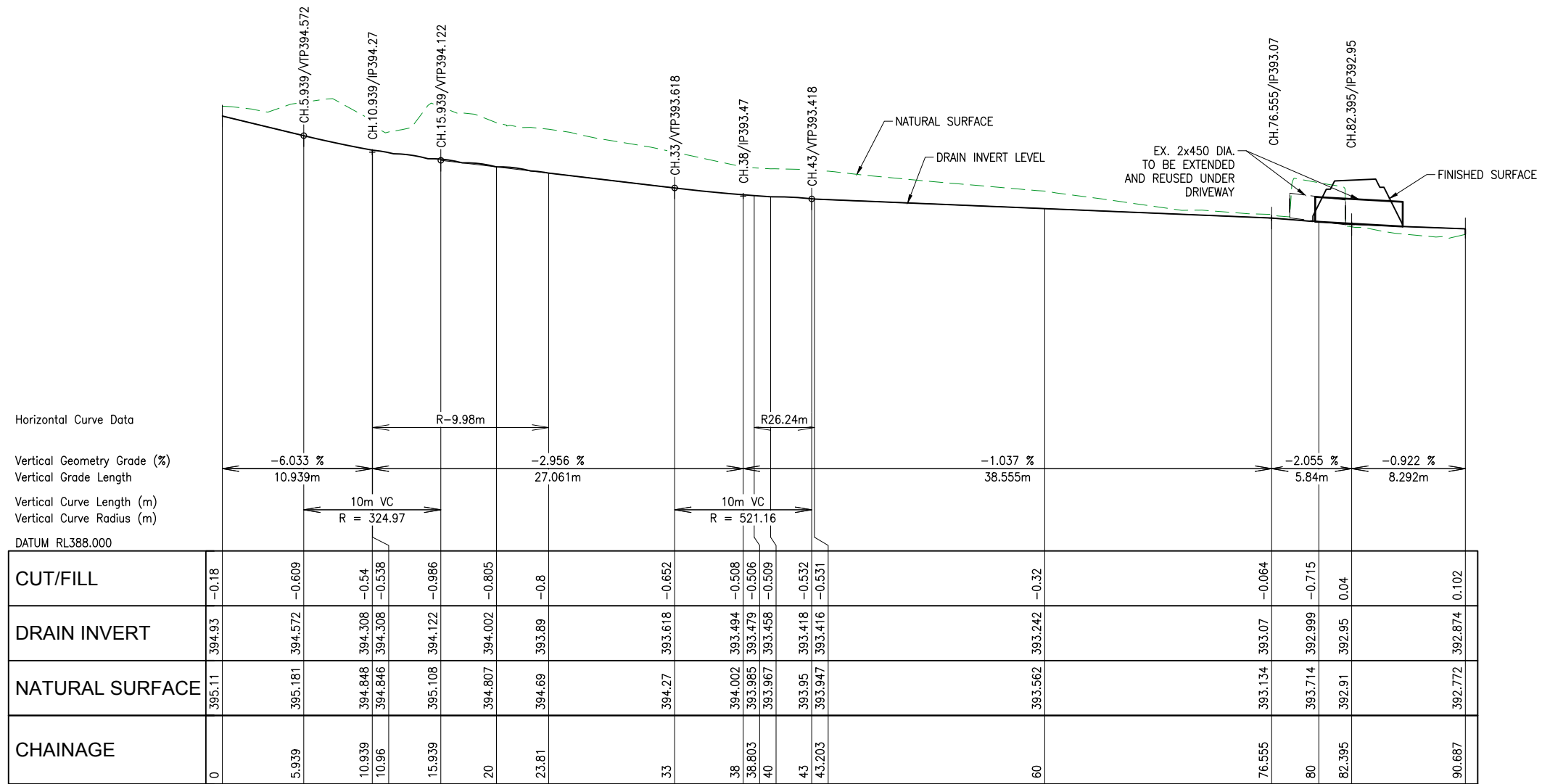
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A	03/04/24	INITIAL ISSUE		



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CIVIL SIGNOFF APPROVAL		<i>John M...</i>	
DATE: 15/04/24 RPEQ: 5085			

PROJECT REF	CONMAT PTY LTD		
	QUILL STREET LAND DEVELOPMENT		
DRAWING REF	DRIVEWAY		
	LONGITUDINAL SECTION AND DETAIL		
DRAWING NO	160-001-C106	SIZE	A3
REVISION			B

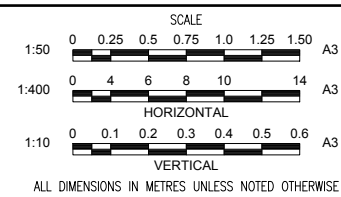
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ROCK LINED DRAIN - LONGITUDINAL SECTION

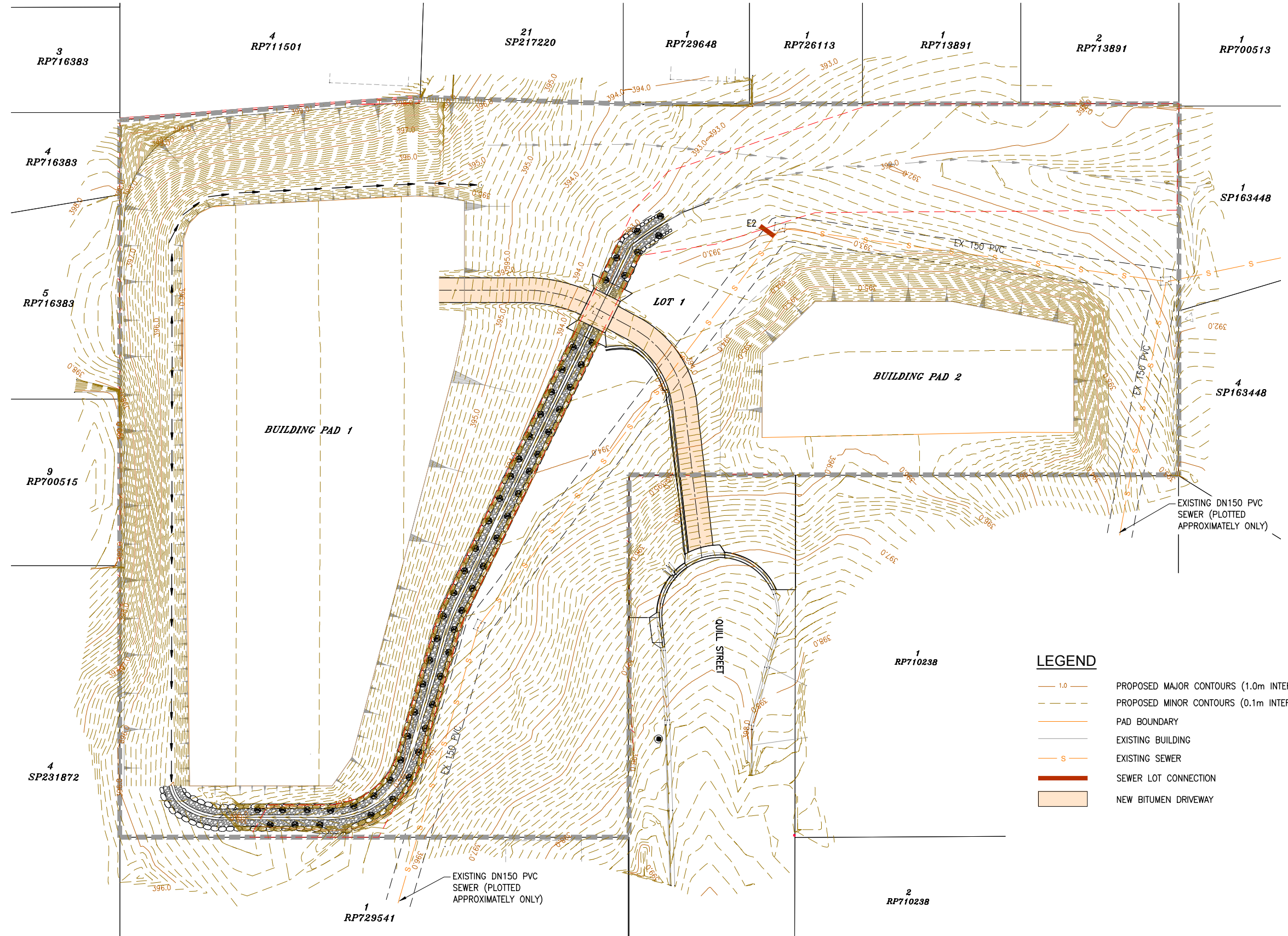
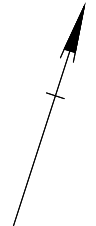
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NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	03/04/24	INITIAL ISSUE		



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CIVIL SIGNOFF APPROVAL			
 DATE: 15/04/24 RPEQ:5085			

PROJECT REF		CONMAT PTY LTD	
DRAWING REF		QUILL STREET LAND DEVELOPMENT	
DRAWING NO		ROCK LINED DRAIN	
SIZE		LONGITUDINAL SECTION AND DETAIL (SHEET 1 OF 2)	
REVISION		160-001-C107	
DATE		A3	
RPEQ		A	



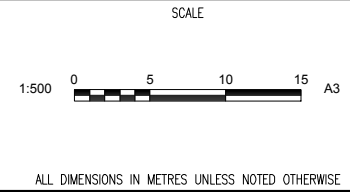
LEGEND

	PROPOSED MAJOR CONTOURS (1.0m INTERVAL)
	PROPOSED MINOR CONTOURS (0.1m INTERVAL)
	PAD BOUNDARY
	EXISTING BUILDING
	EXISTING SEWER
	SEWER LOT CONNECTION
	NEW BITUMEN DRIVEWAY

APPROVED FOR CONSTRUCTION

PLOT DATE: 17/05/2024 10:00:38 AM
 FILE LOCATION: X:\160 Conmat\001 Quill St Subdivision\Drawings\160-001-C109 SEWER RETICULATION PLAN.dwg

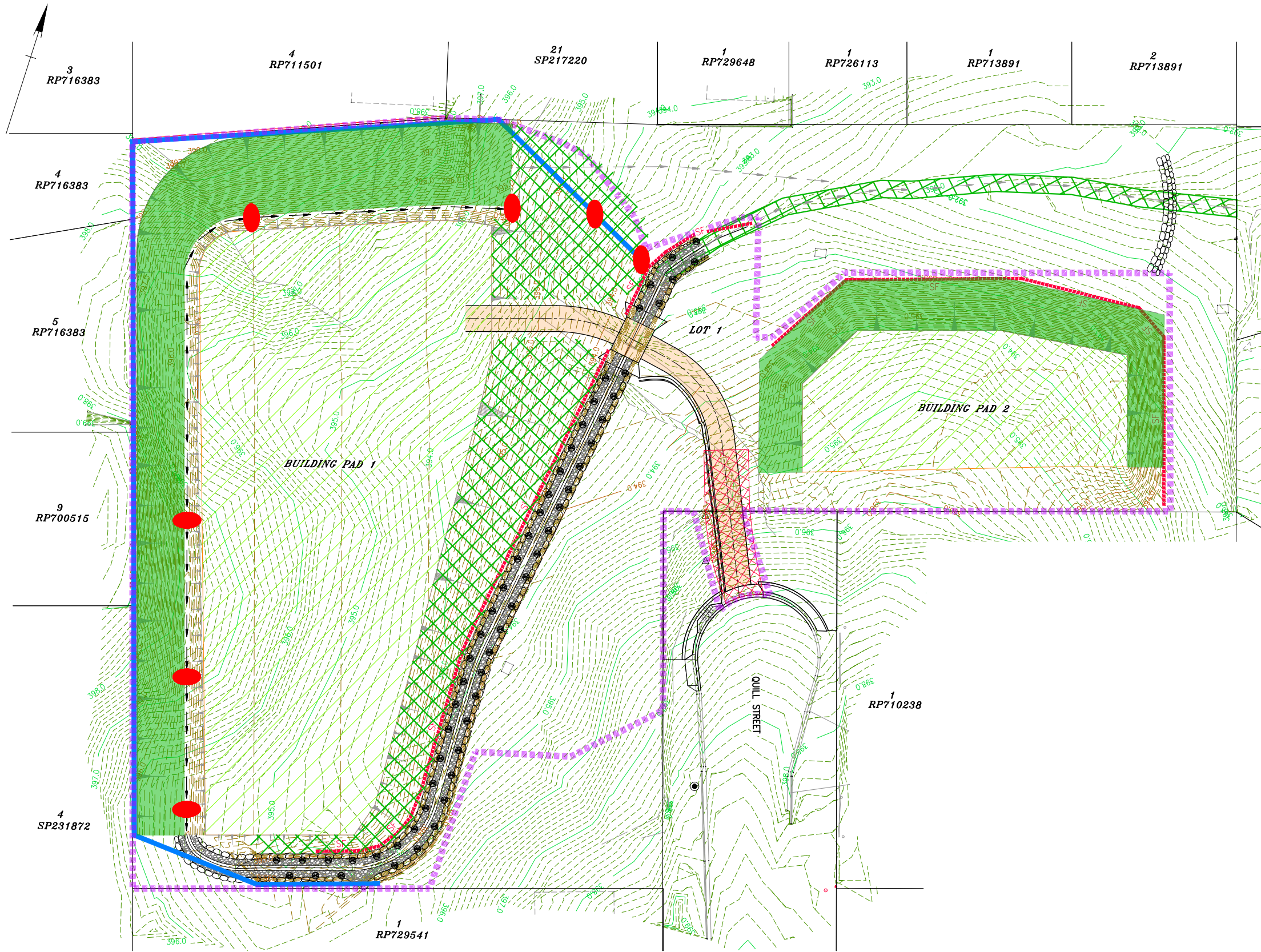
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A	03/04/24	INITIAL ISSUE		



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CIVIL SIGNOFF APPROVAL	
 DATE: 15/04/24 RPEQ: 5085	

PROJECT REF:	CONMAT PTY LTD	
	QUILL STREET LAND DEVELOPMENT	
DRAWING REF:	SEWER RETICULATION PLAN	
DRAWING NO:	160-001-C109	SIZE: A3
		REVISION: B

PLOT DATE: 16/04/2024 1:37:50 PM
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LEGEND

- 1.0 PROPOSED MAJOR CONTOURS (1.0m INTERVAL)
- - - PROPOSED MINOR CONTOURS (0.1m INTERVAL)
- 1.0 EXISTING MAJOR CONTOURS (1.0m INTERVAL)
- - - EXISTING MINOR CONTOURS (0.1m INTERVAL)
- EXTENT OF DISTURBANCE
- CLEAN WATER DIVERSION BUND
- TEMPORARY CONSTRUCTION ENTRY / EXIT
- TURF
- HYDROMULCH
- DRILL SEED/GRASS
- SF SEDIMENT FENCING
- ROCK FILTER DAM
- CHECK DAM

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
A	03/04/24	INITIAL ISSUE		



SCALE

1:500

0 5 10 15 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

DRAWN MG	DESIGNED MG
DRAWN APPROVED MF	DESIGN APPROVED MF
CIVIL SIGNOFF APPROVAL	
DATE: 15/04/24 RPEQ: 5085	

PROJECT REF	CONMAT PTY LTD	
	QUILL STREET LAND DEVELOPMENT	
DRAWING REF	EROSION AND SEDIMENT CONTROL PLAN	
DRAWING NO	160-001-C110	SIZE A3 REVISION A

SEDIMENT FENCE

MATERIAL

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

FABRIC REINFORCEMENT:

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

SUPPORT POSTS/STAKES:

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

INSTALLATION

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

ADDITIONAL REQUIREMENTS FOR THE INSTALLATION OF SPILL-THROUGH WEIR

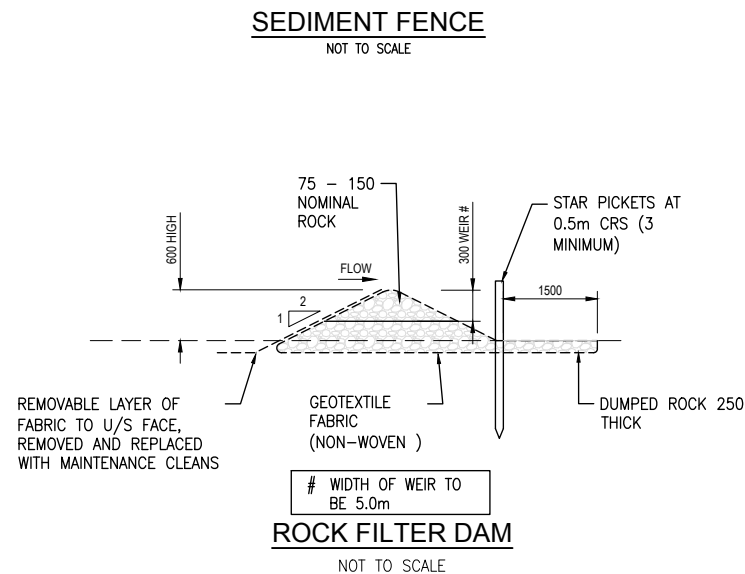
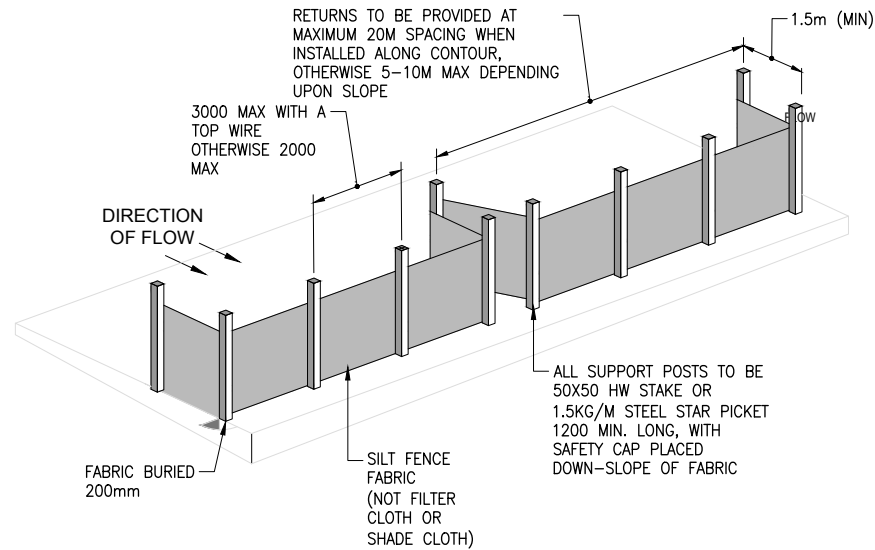
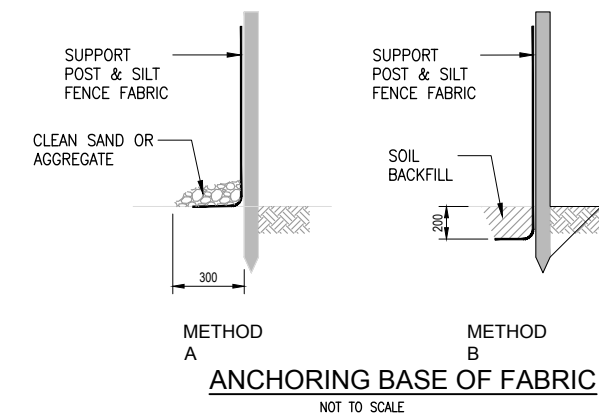
- LOCATE THE SPILL-THROUGH WEIR SUCH THAT THE WEIR CREST WILL BE LOWER THAN THE GROUND LEVEL AT EACH END OF THE FENCE.
- ENSURE THE CREST OF THE SPILL-THROUGH WEIR IS AT LEAST 300mm THE GROUND ELEVATION.
- SECURELY TIE A HORIZONTAL CROSS MEMBER (WEIR) TO THE SUPPORT POSTS/STAKES EACH SIDE OF THE WEIR.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

MAINTENANCE

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

REMOVAL

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



MATERIALS

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

GEOTEXTILE FABRIC:

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

INSTALLATION

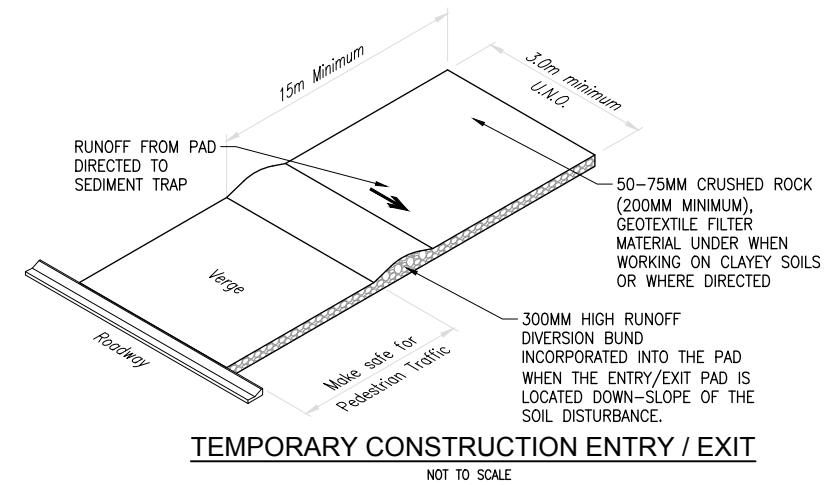
- REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
- PRIOR TO PLACEMENT OF THE FILTER DAM, ENSURE THE TYPE AND SIZE OF EACH CHECK DAMS WILL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

MAINTENANCE

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

REMOVAL

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



MATERIAL

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

FOOTPATH STABILISING AGGREGATE:

25 TO 50mm GRAVEL OR AGGREGATE.

GEOTEXTILE FABRIC:

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

INSTALLATION

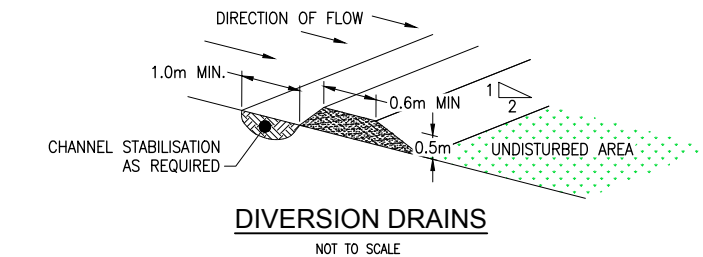
- REFER TO APPROVED PLANS FOR LOCATION AND DIMENSIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
- CLEAR THE LOCATION OF THE ROCK PAD, REMOVING STUMPS, ROOTS AND OTHER VEGETATION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

MAINTENANCE

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

REMOVAL

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



MAINTENANCE

- SHOULD BE CHECKED WEEKLY
- EXCESSIVE SEDIMENT SHOULD BE REMOVED TO AVOID PONDING
- REPAIR ANY SLUMPS OR DAMAGE

SPACING

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

$$\text{MAXIMUM SPACING} \approx 48 [\text{LOG}(H)] - 25 \text{ METRES}$$

$$\approx 71 - 48 [\text{LOG}(\% \text{ SLOPE})] \text{ METRES}$$
 WHERE: H IS THE HORIZONTAL SLOPE COMPONENT AS DEFINED BY $H(H):1(V)$ AND $(\% \text{ SLOPE}) = \frac{100}{H}$

APPROVED FOR CONSTRUCTION

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DATE: 15/04/24 RPEQ: 5085			

PROJECT REF	CONMAT PTY LTD		
	QUILL STREET LAND DEVELOPMENT		
DRAWING REF	EROSION AND SEDIMENT CONTROL DETAILS		
DRAWING NO	160-001-C111	SIZE	A3
		REVISION	A

P05-F-DD01 Document Transmittal

Project: **Quill Street Subdivision**

Attention: **Sam Wakeford**

Company: **Mareeba Shire Council**

From: **Mark Freeman**



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		Date of Issue											
Day	16	17											
Month	04	05											
Year	24	24											

Dwg/Doc Number	Dwg/Doc Title	Revision											
160-001-C100	Cover Sheet, Locality Plan and Drawing List	A	A										
160-001-C101	General Notes	A	A										
160-001-C102	Clearing Plan	A	B										
160-001-C103	General Layout Plan	A	B										
160-001-C104	Grading Plan	A	A										
160-001-C105	Driveway Plan	A	B										
160-001-C106	Driveway Longitudinal Section	A	B										
160-001-C107	Drain Longitudinal Section (Sheet 1 of 2)	A	A										
160-001-C108	Drain Longitudinal Section (Sheet 2 of 2)	A	A										
160-001-C109	Sewer Reticulation Plan	A	B										
160-001-C110	Erosion and Sediment Control Plan	A	A										
160-001-C111	Erosion and Sediment Control Notes	A	A										
160-001-R001	Operational Works Application	B											
160-001-R002	Stormwater Management Plan	A											
160-001-SK09	Drainage Easement		A										
160-001-SK10	Sewer Depth - Zone of Influence		A										

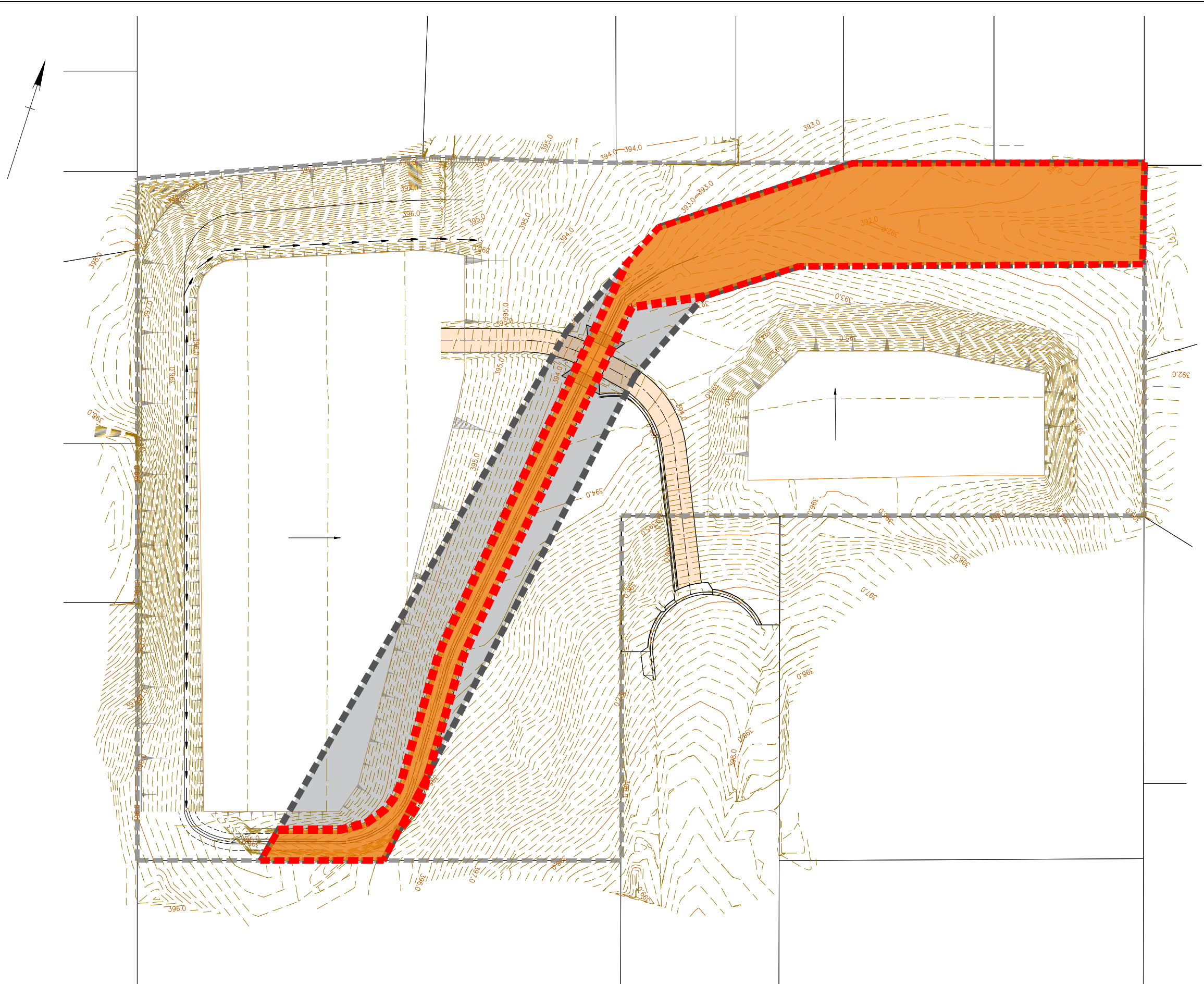
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Mareeba Shire Council	Carl Ewin	1	1										
Mareeba Shire Council	Italo Armenti	1	1										
ConMat	Roy Lavis	1											
ConMat	Steven Lavis	1											
Tyrone Corp	Peter McNamee	1											

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P - Preliminary	C - Constructon Issue	FI - For Information	A	A										

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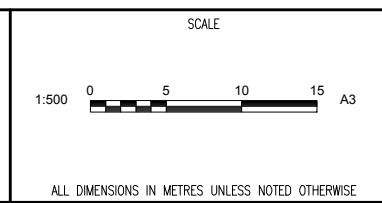
- 1.0 PROPOSED MAJOR CONTOURS (1.0m INTERVAL)
- - - PROPOSED MINOR CONTOURS (0.1m INTERVAL)
- PAD BOUNDARY
- PROPOSED TOP OF BATTER
- PROPOSED BOTTOM OF BATTER
- s EXISTING SEWER MAIN
- SEWER EASEMENT
- PROPOSED FILL
- EXISTING DRAINAGE EASEMENT
- NEW DRAINAGE EASEMENT. 3.0m WIDE NOMINAL

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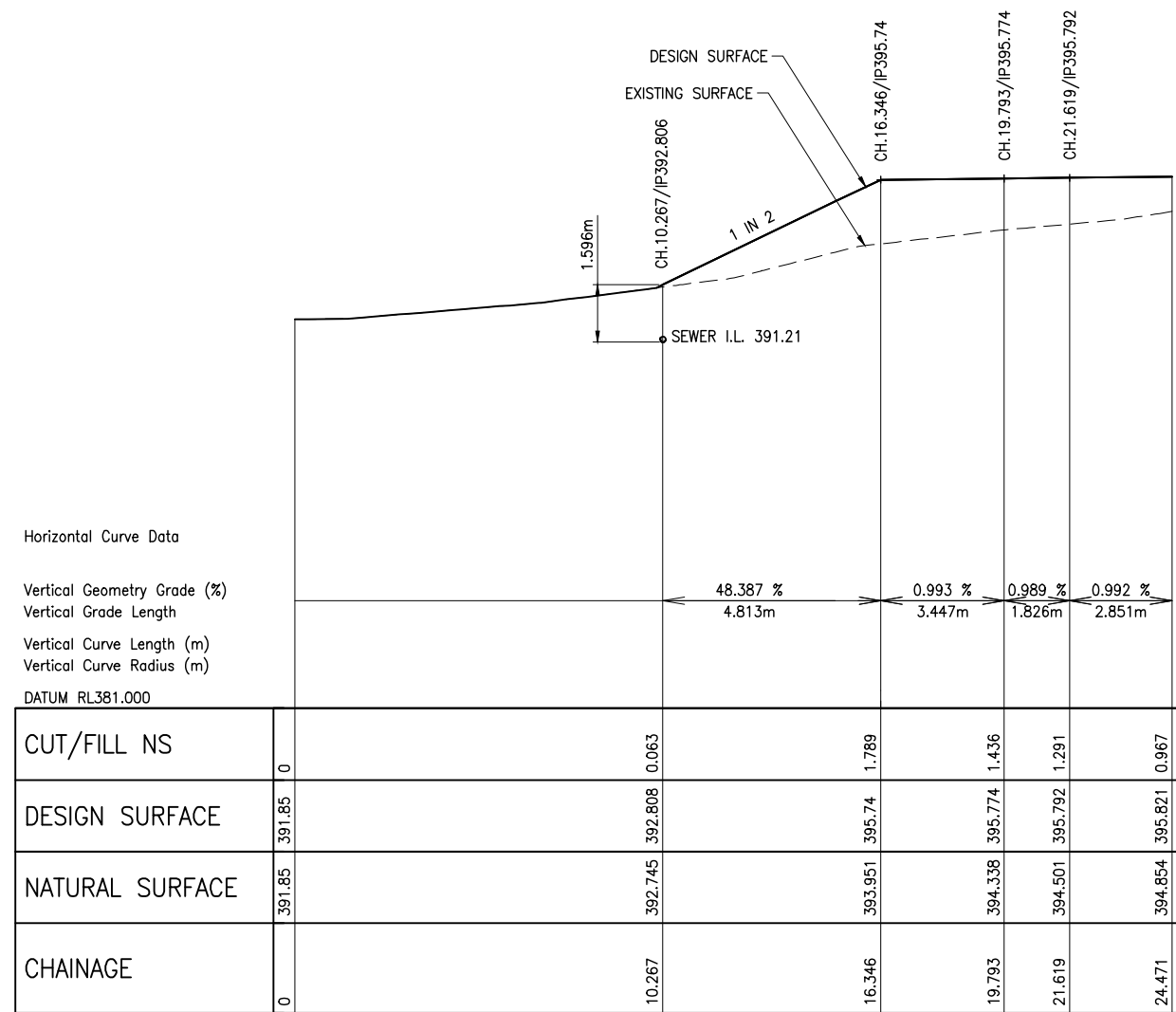
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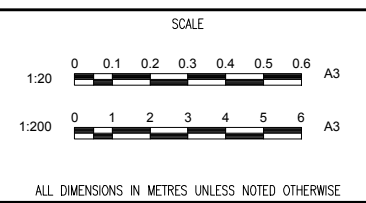
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SEWER AND BATTER LOCATION
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160-001-SK010		ZONE OF INFLUENCE	
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