23 PATRICK COURT, WATERFORD WEST
8 LOT RESIDENTIAL SUBDIVISION
CIVIL WORKS

DRAWING INDEX

LOCALITY PLAN
SCALE 1:1000

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21

SCALE
1 : 1000 10 0 10 20 30 40 50m A1
1 : 2000 A3

COUNCIL
LOGAN CITY COUNCIL

APPROVED DAVID HOLSTEIN (RPEQ 17025)

FOR AND ON BEHALF OF CIVIL360 ENGINEERING PTY LTD.

CIVIL 360 ENGINEERING
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CLIENT: STRATEGIC DEVELOPMENTS

ASSOCIATED CONSULTANTS:

PROJECT: 23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: DRAWING INDEX & LOCALITY PLAN

PROJECT No.: 2020212

DRAWING No.: 000

REVISION: A

SAFETY IN DESIGN / RISK ASSESSMENT REGISTER

PROJECT:	23 PATRICK COURT, WATERFORD WEST
LOCATION:	23 PATRICK COURT, WATERFORD WEST
CIVIL360 PROJECT No.	2020212
PROJECT DESCRIPTION:	CIVIL OPERATIONAL WORKS PACKAGE
RISK REGISTER REVISION:	1
REVISION DATE:	27.05.21

CONSULTATION WITH PRINCIPAL: 27.05.21

RISK ID No.	PROJECT PHASE	ACTIVITY / ELEMENT	TYPE OF HAZARD	DESCRIPTION OF HAZARD	LIKELIHOOD	CONSEQUENCE	INITIAL RISK RATING	RISK MANAGER	TREATMENT OPTION/ CONTROL	LIKELIHOOD	CONSEQUENCE	RESIDUAL RISK RATING	COMMENT
1	DESIGN	STORMWATER SYSTEM	EXISTING CONNECTIONS	EXISTING PROPERTIES ARE CONNECTED TO THE STORMWATER SYSTEM	5	3	15	DESIGNER/ENGINEER	INCLUDE NOTES ON DRAWING TO ALERT CONTRACTOR OF CATCHMENTS AND POTENTIAL FLOWS	5	2	10	
2	DESIGN	STORMWATER SYSTEM	LEVELS BASED ON TRACE LOCATOR	SURVEY LEVELS NOT ACCURATE	4	4	16	DESIGNER/CONTRACTOR	POTHOLE SERVICES PRIOR TO COMMENCEMENT. NOTE ADDED ON DRAWING.	2	4	8	
3	DESIGN	SEWER RETICULATION	EXISTING CONNECTIONS	EXISTING PROPERTIES ARE CONENCTED TO THE SYSTEM	5	4	20	DESIGNER/ENGINEER	INCLUDE LIVE WORKS CONNECTION TABLE	5	3	15	
4	DEMOLITION	FENCES	UNCONTROLLED ACCESS TO SITE	ACCESS FROM NEIGHBOURING PROPERTIES INTO WORKS SITE	5	4	20	ALL PARTIES	INCLUDE NOTE ON DRAWING. TEMPORARY FENCE OR NEW FENCE MUST BE INSTALLED IMMEDIATELY AFTER REMOVAL OF EXISTING FENCES	1	4	4	
5	CONSTRUCTION	CLEARING	SNAKES	BITES FROM VENEMOUS AND NON-VENEMOUS SNAKES	3	5	15	CONTRACTOR	SPOTTER CATCHER TO BE ENGAGED, UNDERTAKE CLEARING IN ONE DIRECTION TO PROVIDE EGRESS FOR SNAKES TO WATERWAY. INCLUDE ON SITE INDUCTION	2	4	8	
6	CONSTRUCTION	ROADWORKS	TRAFFIC	WORKS NEAR ROAD	5	4	20	CONTRACTOR	TRAFFIC MANAGEMENT PLAN REQUIRED. ENSURE ALL CONSTRUCTION IS UNDERTAKEN IN ACCORDANCE WITH CONTRACTOR SWMS AND PROCEDURES	1	4	4	
7	CONSTRUCTION	ALL CIVIL WORKS	MOVING OBJECTS	MOBILE PLANT ACTIVE ON SITE DURING CONSTRUCTION	3	5	15	CONTRACTOR	CONTRACTOR TO UNDERTAKE WORK IN ACCORDANCE WITH THEIR SAFE WORK METHOD STATEMENT	1	5	5	
8	CONSTRUCTION	EARTHWORKS	STEEP GRADES	OVERTURNING OF PLANT	3	4	12	CONTRACTOR	CONTRACTOR TO UNDERTAKE WORK IN ACCORDANCE WITH THEIR SAFE WORK METHOD STATEMENT. ANSURE FENCING IS CONSTRUCTED ALONG ALL BOUNDARIES.	2	4	8	
9	CONSTRUCTION	EARTHWORKS	SLOPE STABILITY	EMBANKMENT COLLAPSE / LAND SLIP	3	4	12	CONTRACTOR	CONTRACTOR TO UNDERTAKE WORK IN ACCORDANCE WITH THEIR SAFE WORK METHOD STATEMENT	1	4	4	
10	CONSTRUCTION	SEWER RETICULATION	DEEP EXCAVATION / SLOPE STABILITY	DEEP EXCAVATION / STEEP BATTER FACE DURING CONSTRUCTION	3	3	9	CONTRACTOR	CONTRACTOR TO UNDERTAKE WORK IN ACCORDANCE WITH THEIR SAFE WORK METHOD STATEMENT, INCLUDING BENCHING AND/OR SHORING.	3	2	6	
11	CONSTRUCTION	SEWER RETICULATION	DEEP EXCAVATION / SLOPE STABILITY	DEEP EXCAVATION ADJACENT LOT 8	5	5	25	CONTRACTOR	CONTRACTOR TO UNDERTAKE WORK IN ACCORDANCE WITH THEIR SAFE WORK METHOD STATEMENT, INCLUDING BENCHING AND/OR SHORING.	3	2	6	
12	CONSTRUCTION	STORMWATER SYSTEM	CONFINED SPACES	WORKING WITHIN MANHOLES	5	4	20	CONTRACTOR	ENSURE CONFINED SPACE PERMIT IS IN PLACE AND UNDERAKE IN ACCORDANCE WITH PERMIT REQUIREMENTS AND CODE OF PRACTICE	5	2	10	
13	CONSTRUCTION	SEWER RETICULATION	CONFINED SPACES	WORKING WITHIN MANHOLES	5	4	20	CONTRACTOR	ENSURE CONFINED SPACE PERMIT IS IN PLACE AND UNDERAKE IN ACCORDANCE WITH PERMIT REQUIREMENTS AND CODE OF PRACTICE	5	2	10	
14	CONSTRUCTION	ALL CIVIL WORKS	WORKING NEAR LIVE SERVICES	WORKING NEAR LIVE SERVICES	4	5	20	CONTRACTOR	CONSULT DIAL BEFORE YOU DIG, ON-SITE INSPECTION PRIOR TO WORK COMMENCING. **DO NOT RELY ON SERVICE NOTED ON DESIGN DRAWINGS OR SURVEY**	1	5	5	
15	CONSTRUCTION	EARTHWORKS	WORKING AT HEIGHTS	>1m HIGH RETAINING WALL ADJACENT LOT 6 PRESENTS A LARGE VERTICAL DROP	4	4	16	CONTRACTOR	FALL PROTECTION REQUIRED DURING CONSTRUCTION. TEMPORARY OR PERMANENT FENCING TO BE INSTALLED WHEN WORKS ARE NOT OCURRING..	1	4	4	
16	MAINTENANCE	BUILDINGS	LIVE SERVICES	DAMAGE TO SERVICES DURING BUILDING WORKS.	4	4	16	DEVELOPER	PROVIDE AS-CONSTRUCTED DRAWINGS TO BUILDERS PRIOR TO COMMENCEMENT.	2	4	8	
17	REFURBISHMENT	NORMAL USE	NO ATYPICAL RISKS										
18	DEMOLITION	NORMAL USE	NO ATYPICAL RISKS										

LIKELIHOOD							
	ALMOST CERTAIN	5	5	10	15	20	25
	LIKELY	4	4	8	12	15	18
	POSSIBLE	3	3	6	9	12	15
	UNLIKELY	2	2	4	6	8	10
	RARE	1	1	2	3	4	5
			1	2	3	4	5
			INSIGNIFICANT	MINOR	MODERATE	MAJOR	SEVERE
			POTENTIAL CONSEQUENCES				

POTENTIAL CONSEQUENCES	SCORE
MINOR INJURY OR PHYSICAL DISCOMFORT OR SHORT TERM PSYCHOLOGICAL IMPACT	1
INJURY OR ILLNESS REQUIRING FIRST AID MEDICAL TREATMENT OR PSYCHOLOGICAL IMPACT REQUIRING SUPPORT	2
INJURY OR ILLNESS REQUIRING HOSPITAL ADMISSION AND/OR TEMPORARY IMPAIRMENT PSYCHOLOGICAL IMPACT REQUIRING MEDICAL TREATMENT	3
INJURY OR ILLNESS REQUIRING LONG TERM OR PERMANENT IMPAIRMENT OR RESULTING IN TEMPORARY IMPAIRMENT TO MULTIPLE PEOPLE	4
INJURY OR ILLNESS RESULTING IN FATALITY OR LONG TERM OR PERMANENT IMPAIRMENT TO MULTIPLE PEOPLE	5

LIKELIHOOD	SCORE
COULD HAPPEN, BUT PROBABLY NEVER WILL	1
NOT LIKELY TO OCCUR IN NORMAL CIRCUMSTANCES	2
MAY OCCUR SOME TIME	3
EXPECTED TO OCCUR AT SOME TIME	4
EXPECTED TO OCCUR REGULARLY	5

RISK RATING		
1-3	LOW	NO FURTHER ACTION IS REQUIRED UNLESS BENEFICIAL ACTION CAN BE READILY UNDERTAKEN
4-9	MEDIUM	CONTROL MEASURES SHOULD BE PUT IS PLACE TO REDUCE RISK UNLESS THERE IS LITTLE BENEFIT
10-16	HIGH	ALL REASONABLE AND PRACTICABLE CONTROLS MUST BE PUT IN PLACE PRIOR TO UNDERTAKING THIS ACTIVITY
17-25	VERY HIGH	ACTIVITY MUST NOT OCCUR UNTIL ADDITIONAL CONTROLS HAVE BEEN PUT IN PLACE TO REDUCE RISK TO AN ACCEPTABLE LEVEL.

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STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: SAFETY IN DESIGN RISK REGISTER

PROJECT No.: 2020212

DRAWING No.: 010

REVISION: A

GENERAL NOTES:

1. ALL CONTRACT DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE JOB SPECIFICATION AND RELEVANT AUTHORITY STANDARDS UNLESS DIRECTED OTHERWISE IN WRITING
2. ALL LEVELS ON THIS DRAWING ARE SET TO AHD (DERIVED) AND ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
3. ANLESS SPECIFIED OTHERWISE, ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS AND AUTHORITY METHODOLOGY, STANDARDS AND CONSTRUCTION SPECIFICATIONS.
4. PRIOR TO COMMENCING WORKS THE PRINCIPAL CONTRACTOR IS TO CONTACT THE PRINCIPALS SURVEYOR TO OBTAIN SURVEY CONTROL INFORMATION FOR THE WORKS. IN THE EVENT THAT CONTROL STATIONS HAVE BEEN DISTURBED DURING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE PRINCIPALS SURVEYOR TO REINSTATE CONTROL STATIONS AT THE CONTRACTORS COST.
5. PROVISION FOR TRAFFIC ON LOCAL ROADS IS TO BE IN ACCORDANCE WITH THE MANUAL OR UNIFORM TRAFFIC CONTROL DEVICES AND LOCAL AUTHORITY REQUIREMENTS.
6. EXISTING SERVICES SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY. THE CONTRACTOR SHALL TO TAKE ALL REASONABLE STEPS TO MAKE THEMSELVES FULLY AWARE OF EXACT LOCATIONS OF ALL EXISTING SERVICES PRIOR TO WORKS COMMENCING AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING SERVICES DURING CONSTRUCTION.
7. NATURAL SURFACE LEVELS SHOWN ON ANY DRAWINGS ARE GENERATED FROM 3D SURVEY INFORMATION AND ARE SUBJECT TO SITE INVESTIGATION. NOTWITHSTANDING, TOPSOIL AND EARTHWORKS QUANTITIES WILL BE CALCULATED IN ACCORDANCE WITH THE CONTRACT PROVISIONS. THE PRINCIPAL CONTRACTOR IS TO NOTIFY THE SUPERINTENDENT WHERE LEVELS ARE FOUND TO VARY SIGNIFICANTLY FROM LEVELS SHOWN ON THE DRAWINGS AND WILL MATERIALLY AFFECT QUANTITIES OR CURRENT DESIGN.
8. THE CONTRACTOR SHALL DELINEATE EXTENT OF WORKS AREAS AS DEFINED UNDER THIS CONTRACT OR AS DISCUSSED WITH THE PRINCIPAL, COUNCIL OR OTHER AUTHORITY. AT NO TIMES SHALL THE CONTRACTOR UNDERTAKE WORKS OUTSIDE THESE DEFINED WORKS AREAS OR ENTER ADJOINING PROPERTIES WITHOUT THE WRITTEN AUTHORISATION FROM THE SUPERINTENDENT.
9. CLEARING AND GRUBBING SHALL BE CARRIED OUT TO ALL SPECIFIED WORKS AREAS AND SHALL INCLUDE THE REMOVAL OF TREES (UNLESS IDENTIFIED FOR RETENTION), VEGETATION, FALLEN TIMBER, UNDERGROWTH, FENCES, AND ANY OTHER DEBRIS.
10. CLEARED VEGETATION SHALL BE MULCHED AND STOCKPILED FOR RE-USE AS DIRECTED BY THE SUPERINTENDENT.
11. ANY TREES OR VEGETATION OUTSIDE THE LIMIT OF WORKS THAT ARE TO BE REMOVED OR TRIMMED ARE TO BE IDENTIFIED BY THE CONTRACTOR. ANY WORK IS TO BE APPROVED BY THE SUPERINTENDENT IN WRITING.
12. ALL TOPSOIL STRIPPED FROM WORKS AREAS SHALL BE STOCKPILED FOR LATER RE-SPREADING ON ALLOTMENTS, FOOTPATHS, BATTERS AND CUT/FILL AREAS. REFER TO ESCMP FOR ADDITIONAL REQUIREMENTS FOR STOCKPILES.
13. NOTWITHSTANDING THE LIMITS OF CUTTING AND FILLING SHOWN ON THE DRAWINGS, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT DURING CONSTRUCTION. SIMILARLY, FINISHED SURFACE CONTOURS FOR ALLOTMENTS MAY BE ADJUSTED BY A WRITTEN DIRECTION OF THE SUPERINTENDENT DURING CONSTRUCTION.
14. THE CONTRACTOR SHALL INITIALLY EXCAVATE THE PAVEMENT BOX TO THE MINIMUM LEVELS SHOWN ON THE DRAWINGS. FOLLOWING RECEIPT OF GEOTECHNICAL SUBGRADE TESTING FROM THE PRINCIPAL CONTRACTOR, THE SUPERINTENDENT WILL PROVIDE A PAVEMENT DESIGN.
15. FINISHED ALLOTMENTS MAY BE VARIED BY A WRITTEN DIRECTION FROM THE SUPERINTENDENT DURING CONSTRUCTION. UPON COMPLETION OF INITIAL EARTHWORKS ON ALLOTMENTS, THE CONTRACTOR SHALL ARRANGE AN INSPECTION WITH THE SUPERINTENDENT PRIOR TO RE-SPREADING TOPSOIL
16. ALL SETTING OUT INFORMATION IS TO NOMINAL KERB LINE AND LEVELS ARE TO LIP OF CHANNEL OR FACE OF BARRIER KERB UNLESS NOTED OTHERWISE
17. SERVICE CONDUITS SHALL BE INSTALLED TO LOCAL AUTHORITY STANDARDS AT LOCATIONS DETERMINED BY THE RELEVANT APPROVALS. CONDUIT DRAWINGS WILL BE SUPPLIED BY THE SUPERINTENDENT DURING CONSTRUCTION.
18. THE PRINCIPAL CONTRACTOR SHALL COORDINATE THEIR WORK WITH OTHER CONTRACTORS (ELECTRICAL, TELECOMMUNICATIONS, GAS & LANDSCAPE ETC) TO ENSURE THE WORKS CONTINUE WITHOUT DISRUPTION AND NO CONFLICTS WITH OTHER SERVICES OCCURS.
19. ALL WORKS ARE TO MATCH NEATLY INTO EXISTING ROADS / PAVEMENTS, SERVICES AND SURFACE LEVELS TO THE SATISFACTION OF COUNCIL / RELEVANT AUTHORITY AND THE SUPERINTENDENT.
20. ANY WORKS CONSTRUCTED OUTSIDE SPECIFIED TOLERANCES WILL BE RECTIFIED AT THE PRINCIPAL CONTRACTORS EXPENSE. THIS MAY INCLUDE COSTS ASSOCIATED WITH SUBMITTING REVISED DRAWINGS FOR APPROVAL
21. ALL PERMITS AND APPROVALS REQUIRED FOR CONSTRUCTION SHALL BE OBTAINED BY THE CONTRACTOR AT THE CONTRACTORS EXPENSE UNLESS NOTED OTHERWISE WITHIN THE CONTRACT.
22. WHERE AN ALTERNATE MATERIAL OR METHOD (AS SPECIFIED) IS PROPOSED THE PRINCIPAL CONTRACTOR MUST PROVIDE DETAILS OF THE SUBSTITUTION AND ANY ANTICIPATED COST/ TIME VARIATION TO THE SUPERINTENDENT AND OBTAIN WRITTEN APPROVAL FROM THE SUPERINTENDENT PRIOR TO USING THE ALTERNATE MATERIAL OR METHOD.
23. THE PRINCIPAL CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND PROVISION OF, ANY TEMPORARY BRACING OR SUPPORTS, OR THE PROTECTION TO ANY EXISTING FENCING, PIPEWORK, CONDUITS, CULVERTS, OR ANY OTHER ABOVE, OR UNDERGROUND STRUCTURE OR FEATURE.
24. ALL TESTING SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. TESTING AUTHORITY IN ACCORDANCE WITH THE PROJECT SPECIFICATION.
25. DO NOT OBTAIN DIMENSIONS FROM SCALING. IF IN DOUBT ASK.

FIRE ANT BIOSECURITY

THIS DEVELOPMENT IS LOCATED WITHIN FIRE ANT BIOSECURITY ZONE 2. MOVEMENT OF MATERIAL SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF AGRICULTURE AND FISHERIES. REFER TO WEBSITE WWW.DAF.QLD.GOV.AU/FIREANTS

EARTHWORKS NOTES:

1. ALL EARTHWORKS TO BE CONSTRUCTED TO AUTHORITY STANDARDS AND SPECIFICATIONS
2. ALL LEVELS ON THIS DRAWING ARE SET TO AHD AND ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
3. CONSIDERATION SHALL BE GIVEN TO ADJACENT LANDOWNERS DURING THE CONSTRUCTION WORKS. NOTIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT PROVISIONS AND COUNCIL REQUIREMENTS.
4. DESIGN CONTOURS SHOWN ON THE DRAWING ARE FINISHED SURFACE LEVELS AND INCLUDE A 100mm ALLOWANCE FOR TOPSOIL (UNLESS NOTED OTHERWISE).
5. THE CONTRACTOR SHALL ALLOW FOR THE REMOVAL OF 100mm OF TOPSOIL FROM THE SPECIFIED WORKS AREAS AND STOCKPILE ON SITE. THIS IS AN AVERAGE DEPTH OVER THE WORKS AREA BASED ON GEOTECHNICAL INFORMATION PROVIDED.
6. ALL EARTHWORKS CONSTRUCTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER (RPEQ) FOR LEVEL 1 TESTING AND COMPACTION (AS 3798). THE PRINCIPAL CONTRACTOR SHALL PROVIDE TO THE SUPERINTENDENT A LEVEL 1 REPORT WITH ALL TEST RESULTS AND CERTIFICATIONS REQUIRED BY THE SPECIFICATIONS.
7. NOTWITHSTANDING THE LIMITS OF CUTTING AND FILLING SHOWN ON THE DRAWINGS, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT DURING CONSTRUCTION. SIMILARLY, FINISHED SURFACE CONTOURS FOR ALLOTMENTS MAY BE ADJUSTED BY A WRITTEN DIRECTION OF THE SUPERINTENDENT DURING CONSTRUCTION.
8. STABILITY OF ALL BATTERS ARE TO BE CERTIFIED BY A GEOTECHNICAL ENGINEER WITH A FACTOR OF SAFETY OF 1.5
9. ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE CONTRACTORS EROSION AND SEDIMENT CONTROL PLAN.
10. REFER TO EROSION AND SEDIMENT CONTROL NOTES WITHIN CIVIL360 EROSION & SEDIMENT CONTROL MANAGEMENT PLAN (ESCMP) DRAWINGS.
11. A MATERIALS QUALITY REPORT IS REQUIRED TO BE SUBMITTED TO THE SUPERINTENDENT FOR THEIR REVIEW AND WRITTEN ACCEPTANCE OF THE PROPOSED MATERIAL PRIOR TO IMPORT TO SITE.
12. THE PRINCIPAL CONTRACTOR IS TO ENSURE NO PONDING OCCURS DURING CONSTRUCTION AND WITHIN THE FINAL PROFILE. WHERE THE ALLOTMENT ULTIMATELY DRAINS TO AN INTER-ALLOTMENT FIELD INLET, A DIVERSION DRAIN OR BUND, SUFFICIENT TO DRAIN THE ENTIRE ALLOTMENT, MUST BE CONSTRUCTED TO DIVERT STORMWATER TO THAT PIT PRIOR TO BUILDING WORKS OCCURRING.
13. ALL BATTERS BETWEEN 1:4 AND 1:6 ARE TO BE FULLY TURFED. BATTERS BETWEEN 1:2 AND 1:4 ARE TO BE LANDSCAPED OR STABILISED BY OTHER METHODS APPROVED BY THE SUPERINTENDENT.
14. ALL UNSUITABLE, WASTE OR EXCESS MATERIAL MUST BE DISPOSED OF OFF SITE IN ACCORDANCE WITH COUNCIL AND OTHER AUTHORITY REQUIREMENTS.

DRAINAGE NOTES

1. WHERE A STORMWATER DRAINAGE CONNECTION IS REQUIRED TO BE MADE TO AN EXISTING PIT, STRUCTURE OR OUTLET, THE CONTRACTOR SHALL CONFIRM THE LEVEL PRIOR TO CONSTRUCTION AND ADVISE THE SUPERINTENDENT WHERE THE CONSTRUCTED LEVEL IS OUTSIDE TOLERANCE SO THAT THE DESIGN CAN BE CHECKED TO CONFIRM IT IS STILL ACCEPTABLE.
2. STORMWATER PIPE CLASSES HAVE BEEN DESIGNED FOR SERVICE LOADING ONLY. THE CONTRACTOR SHALL ASSESS THE SUITABILITY OF CONSTRUCTION EQUIPMENT USED ON SITE AND ANTICIPATED CONSTRUCTION LOADS. IF NECESSARY, THE PIPE CLASSES SHALL BE INCREASED TO COMPLY WITH AS3725-2007.
3. ALL STORMWATER DRAINAGE PIPES ARE TO BE SRCP CLASS '3' UNLESS NOTED OTHERWISE.
4. PIPE SUPPORT TYPE - HS3 WITHIN ROAD RESERVE AND H2 ELSEWHERE IN ACCORDANCE WITH IPWEA STANDARD DRAWING DS-030. ALL LINES WITHIN ROADWAY ARE TO HAVE CBR15 BACKFILL.
5. MINIMUM COVER FOR CONSTRUCTION LOADS TO BE IN ACCORDANCE WITH CPAA REQUIREMENTS. REFER BCC STANDARD DRAWINGS BSD-8001 AND BSD-8002 FOR DETAILS.
6. STORMWATER ACCESS CHAMBER 1050mm - 2100mm DIAMETER TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING DS-010.
7. MANHOLE FRAME, RISER AND COVER TO BE IN ACCORDANCE WITH IPWEA STANDARD DRAWINGS DS-015, DS-018, DS-019 AND DS-020.
8. ALL NON-STANDARD STRUCTURES TO BE DESIGNED AND CERTIFIED BY STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
9. FIELD INLETS TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEA STANDARD DRAWING DS-050.
10. STORMWATER GULLY PITS TO BE LIP IN LINE CONSTRUCTED IN ACCORDANCE WITH IPWEA STANDARD DRAWINGS DS-063, DS-062 AND DS-061.
11. THE LOCATION OF STORMWATER OUTLETS ARE INDICATIVE ONLY AND MUST BE VERIFIED ON SITE AND CONFIRMED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION OF DISCHARGE LINE AND OUTLET STRUCTURE
12. THE LEVELS SHOWN ON MANHOLES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL ENSURE MANHOLE COVERS AND SURROUNDS ARE INSTALLED IN ACCORDANCE WITH THE RELEVANT AUTHORITY REQUIREMENTS AND SUIT THE SLOPE AND LEVEL OF THE FINISHED SURFACE LEVEL AT THAT LOCATION UNLESS OTHERWISE DIRECTED BY THE SUPERINTENDENT
13. WHERE INTER-ALLOTMENT DRAINAGE HAS NOT BEEN PROVIDED TO AN ALLOTMENT, A ROOFWATER CONNECTION TO EACH ALLOTMENT SHALL BE PROVIDED VIA:
    - TWO APPROVED ROOFWATER KERB ADAPTORS 500mm FROM THE DOWNSTREAM PROPERTY BOUNDARY & 500mm OFFSET (UNLESS SHOWN OTHERWISE WITHIN THE CONTRACT DRAWINGS). WHERE THERE IS A CONCRETE FOOTPATH, A Ø100 uPVC SN10 SHALL BE INSTALLED FROM THE PROPERTY BOUNDARY TO THE ROOFWATER ADAPTOR AT 0.5% MINIMUM GRADE. ROOFWATER / STORMWATER DRAIN OUTLETS ARE NOT TO BE POSITIONED WITHIN 5 METRES UPSTREAM OF A GULLY PIT. REFER IPWEA STANDARD DRAWING R-081.
    - ONE Ø150 DIA ROOFWATER PIPE CONNECTED TO AN ADJACENT STORMWATER GULLY, FIELD INLET OR MANHOLE WITH A MINIMUM GRADE OF 1.0% .
14. ALL STORMWATER DRAINAGE MATERIALS AND BEDDING, JOINTING AND STEP IRONS SHALL BE IN ACCORDANCE WITH THE RELEVANT AUTHORITY STANDARD DRAWINGS, METHODS AND SPECIFICATIONS.
15. ANY WORKS CONSTRUCTED OUTSIDE OF SPECIFIED TOLERANCES ARE TO BE RECTIFIED AT THE CONTRACTORS EXPENSE (IF ORDERED).

CONCRETE NOTES

1. PRIOR TO PLACEMENT OF STEEL FOR THE CONCRETE DRIVEWAY, THE CONTRACTOR SHALL CONTACT THE SUPERINTENDENT TO OBSERVE THE SUBGRADE VIA PROOF ROLL.
2. THE CONCRETE DRIVEWAY TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEA STANDARD DRAWINGS RS-049, RS-050 AND RS-051 AS APPLICABLE.
3. THE CONTRACTOR IS TO ENSURE THAT ALL CONCRETE SURFACES ARE FREE DRAINING AND ADVISE THE SUPERINTENDENT WHERE GRADES FALL BELOW 0.5% AT ANY LOCATION.
4. THE CONTRACTOR SHALL OBTAIN ELECTRICAL, TELECOMMUNICATIONS AND OTHER SERVICE PROVIDERS DRAWINGS IN ORDER TO INSTALL CONDUITS UNDER THE DRIVEWAY PRIOR TO SUBGRADE PROOF ROLL.
5. CONCRETE TESTING SHALL BE CARRIED OUT BY A REGISTERED NATA TESTING LABORATORY, IN ACCORDANCE WITH AS3600 PROJECT ASSESSMENT
6. WHERE A CONCRETE TEST IS FOUND TO BE BELOW THE REQUIRED STRENGTH AT 28 DAYS, THE ENTIRE STRUCTURE, SLAB ETC RELATING TO THAT TEST SHALL BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE
7. WHERE CONCRETE WILL BE VISIBLE ON COMPLETION OF THE WORKS, THE CONTRACTOR IS TO CONFIRM THE CONCRETE COLOUR AND TEXTURE WITH THE SUPERINTENDENT FIVE (5) DAYS PRIOR TO PLACING ANY CONCRETE FOR THAT ITEM

RETAINING WALL NOTES:

1. RETAINING WALLS ARE TO BE DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS, CONTRACT DRAWINGS, COUNCIL APPROVALS AND CONTRACT SPECIFICATIONS. WALLS ARE TO BE DESIGNED FOR A MINIMUM DESIGN LIFE IN ACCORDANCE WITH AS 4678.
2. WALLS TO BE VERTICAL FACE TYPE TO A MAXIMUM HEIGHT OF 2.0m SINGLE TIER AND TWO TIER 3.0m. TYPE, FINISH AND COLOUR TO BE APPROVED BY SUPERINTENDENT.
3. THE WALLS MUST BE DESIGN TO INCLUDE ANY SURCHARGE LOADING REASONABLY EXPECTED AT THE LOCATION THAT THEY ARE BEING CONSTRUCTED.
4. THE PRINCIPAL CONTRACTOR IS TO PROVIDE A FORM 15 AND FORM 16 FOR ALL RETAINING WALLS DEFINED WITHIN THE BUILDING REGULATION AS ASSESSABLE. THE DESIGN, CONSTRUCTION SUPERVISION AND CERTIFICATIONS MUST BE UNDERTAKEN BY A SUITABLY QUALIFIED AND EXPERIENCED STRUCTURAL ENGINEER (RPEQ).
5. A GEOTECHNICAL ASSESSMENT BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER (RPEQ) IS REQUIRED FOR THE RETAINING WALL DESIGN.
6. RETAINING WALLS MUST NOT STRADDLE PROPERTY BOUNDARIES. PRIVATE WALLS MUST BE LOCATED WHOLLY WITHIN PRIVATE ALLOTMENTS. COUNCIL WALLS ARE TO BE LOCATED WHOLLY WITHIN COUNCIL PROPERTY (ROAD RESERVES OR PARKS) AS SHOWN ON THE DRAWINGS.
7. WALL ALIGNMENTS ARE TO BE PEGGED FOR INSPECTION BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION.
8. WALL BACKFILL MUST BE FREE DRAINING AND WALL SUBSOIL DRAINAGE PIPES MUST PROVIDE DISCHARGE FROM EACH INDIVIDUAL ALLOTMENT SECTION OF WALL TO THE NEAREST KERB OR DRAINAGE STRUCTURE, OR AS SPECIFIED WITHIN THE RELEVANT FORM 15.
9. CONTRACTOR TO PROVIDE & MAINTAIN SAFETY FENCE TO ALL WALLS GREATER THAN 1.0m IN HEIGHT.
10. A MINIMUM 600mm CLEARANCE IS TO BE MAINTAINED BETWEEN THE OUTSIDE OF THE BORED PIERS AND THE OUTSIDE OF ANY SEWER MAIN IN THE VICINITY OF THE RETAINING WALL.

SURVEY DATA

THE LOCATIONS AND LEVELS OF EXISTING SERVICES AND INFRASTRUCTURE SHOWN ON THIS PLAN ARE BASED ON USHER & COMPANY PLAN OF SITE DETAIL 10993 ISSUE C. THE CONTRACTOR IS TO CONFIRM LOCATION AND LEVELS OF EXISTING SERVICES PRIOR TO CONSTRUCTION.

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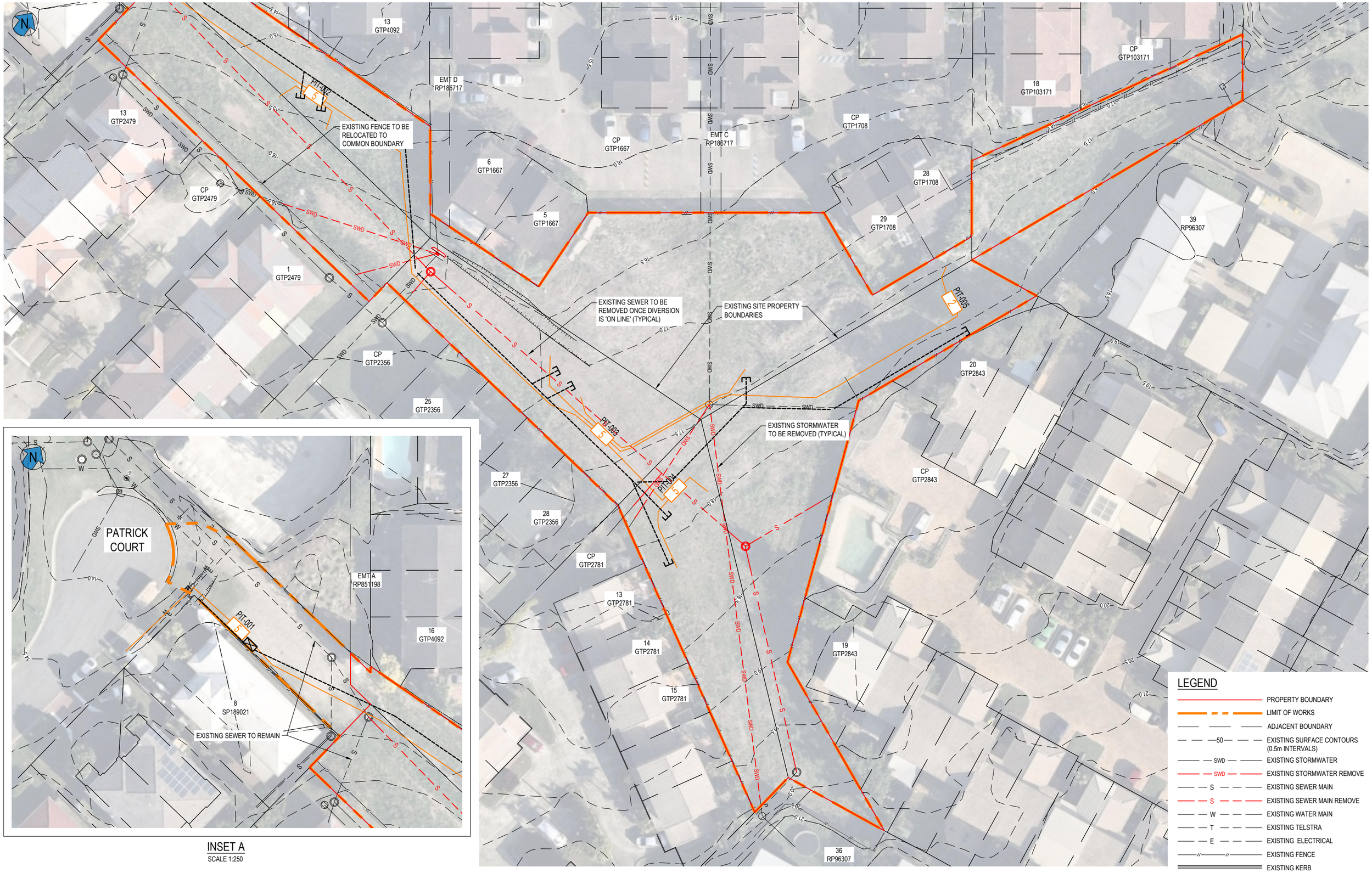
STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: GENERAL NOTES

PROJECT No.	DRAWING No.	REVISION
2020212	020	A



INSET A
SCALE 1:250

LEGEND

- PROPERTY BOUNDARY
- LIMIT OF WORKS
- ADJACENT BOUNDARY
- 50 — EXISTING SURFACE CONTOURS (0.5m INTERVALS)
- SWD — EXISTING STORMWATER
- SWD — EXISTING STORMWATER REMOVE
- S — EXISTING SEWER MAIN
- S — EXISTING SEWER MAIN REMOVE
- W — EXISTING WATER MAIN
- T — EXISTING TELSTRA
- E — EXISTING ELECTRICAL
- EXISTING FENCE
- EXISTING KERB

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21
B	ADDITIONAL CONNECTION FROM GTP2781 ADDED	DH	DH	02.09.21

SCALE
1 : 250 1 : 500 5 0 5 10m A1 A3

COUNCIL
LOGAN CITY COUNCIL

APPROVED DAVID HOLSTEIN (RPEQ 17025)

FOR AND ON BEHALF OF CIVIL360 ENGINEERING PTY LTD.

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CLIENT
STRATEGIC DEVELOPMENTS

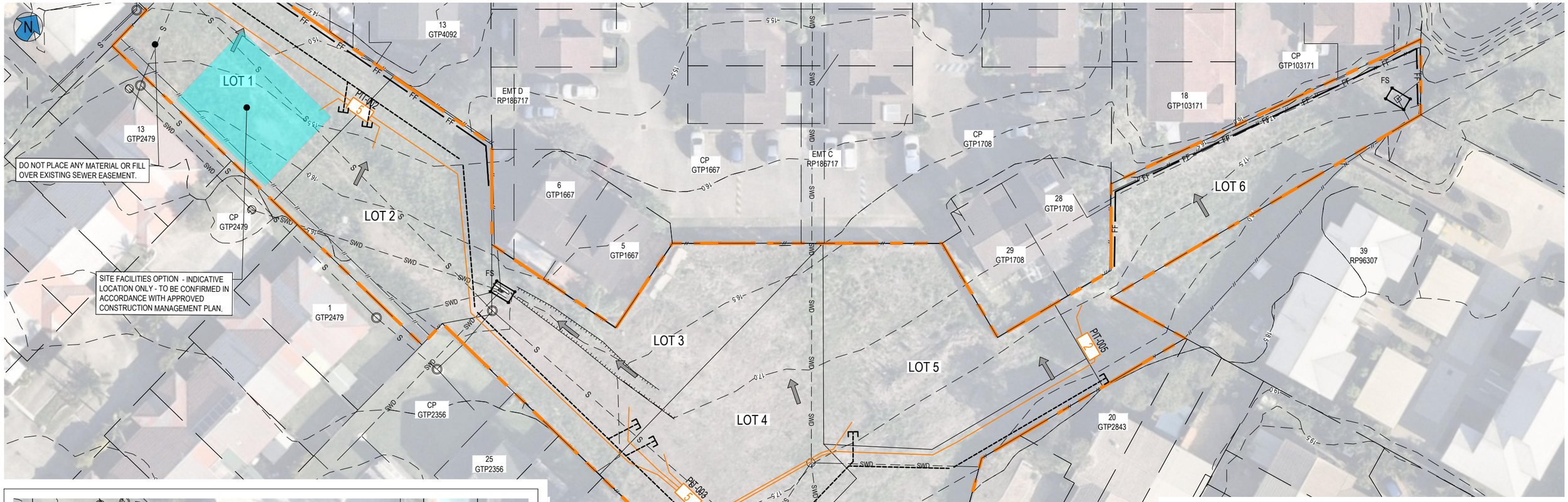
ASSOCIATED CONSULTANTS

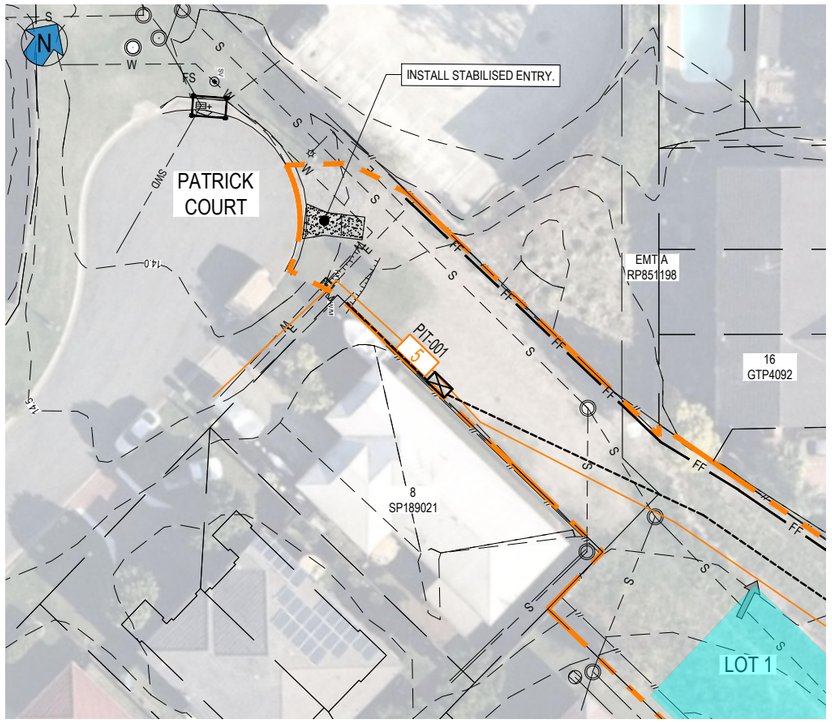
PROJECT
23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS
ISSUE FOR APPROVAL

DRAWING TITLE
EXISTING SITE LAYOUT PLAN

PROJECT No.	DRAWING No.	REVISION
2020212	030	B





INSET A
SCALE 1:250

NOTES: PHASE 1 WORKS

1. PHASE 1 EROSION AND SEDIMENT CONTROL WORKS HEREIN INVOLVE ALL ACTIVITIES REQUIRED TO BE INSTALLED BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
2. STABILISED SITE ACCESS AND SITE FACILITIES ARE TO BE PROVIDED PRIOR TO CONSTRUCTION.
3. ANY ADDITIONAL SITE ACCESS POINT(S), INCLUDING THROUGH PRIVATE PROPERTY, MUST BE AGREED IN WRITING AND VERIFIED WITH LOGAN CITY COUNCIL AND IN ACCORDANCE WITH ANY CONSTRUCTION MANAGEMENT PLAN.
4. SITE EXIT POINTS MUST BE APPROPRIATELY MANAGED TO MINIMISE THE RISK OF SEDIMENT BEING TRACKED ONTO SEALED, PUBLIC ROADWAYS. SHAKE DOWN GRID MAY BE REQUIRED WHERE ROCK IS INADEQUATE TO REMOVE MAJORITY OF SOIL FROM VEHICLES.
5. STORMWATER RUNOFF FROM ACCESS ROADS AND STABILISED ENTRY/EXIT POINTS MUST DRAIN TO AN APPROPRIATE SEDIMENT CONTROL DEVICE.
6. THE PHASE 1 WORKS INCLUDE:
   - INSTALL SILT FENCE, SITE COMPOUND AND STABILISED ENTRY
   - INSTALL SITE SECURITY FENCING IN ACCORDANCE WITH THE CONTRACTORS SAFETY MANAGEMENT PLAN
7. REFER TO DWG 2020212-130 FOR ADDITIONAL NOTES AND DETAILS.

LEGEND

- LIMIT OF WORKS
- DIRECTION OF OVERLAND FLOW
- EXISTING SURFACE CONTOUR (0.5m INTERVAL)
- SEDIMENT CONTROL - FILTER FENCE
- EROSION CONTROL - STABILISED ENTRY
- SEDIMENT CONTROL - GULLY PROTECTION - FILTER SOCK
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING TELSTRA
- EXISTING UNDERGROUND ELECTRICITY

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21
B	ADDITIONAL CONNECTION FROM GTP2781 ADDED	DH	DH	02.09.21

SCALE
1 : 250 5 0 5 10m A1
1 : 500 A3

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CLIENT: STRATEGIC DEVELOPMENTS

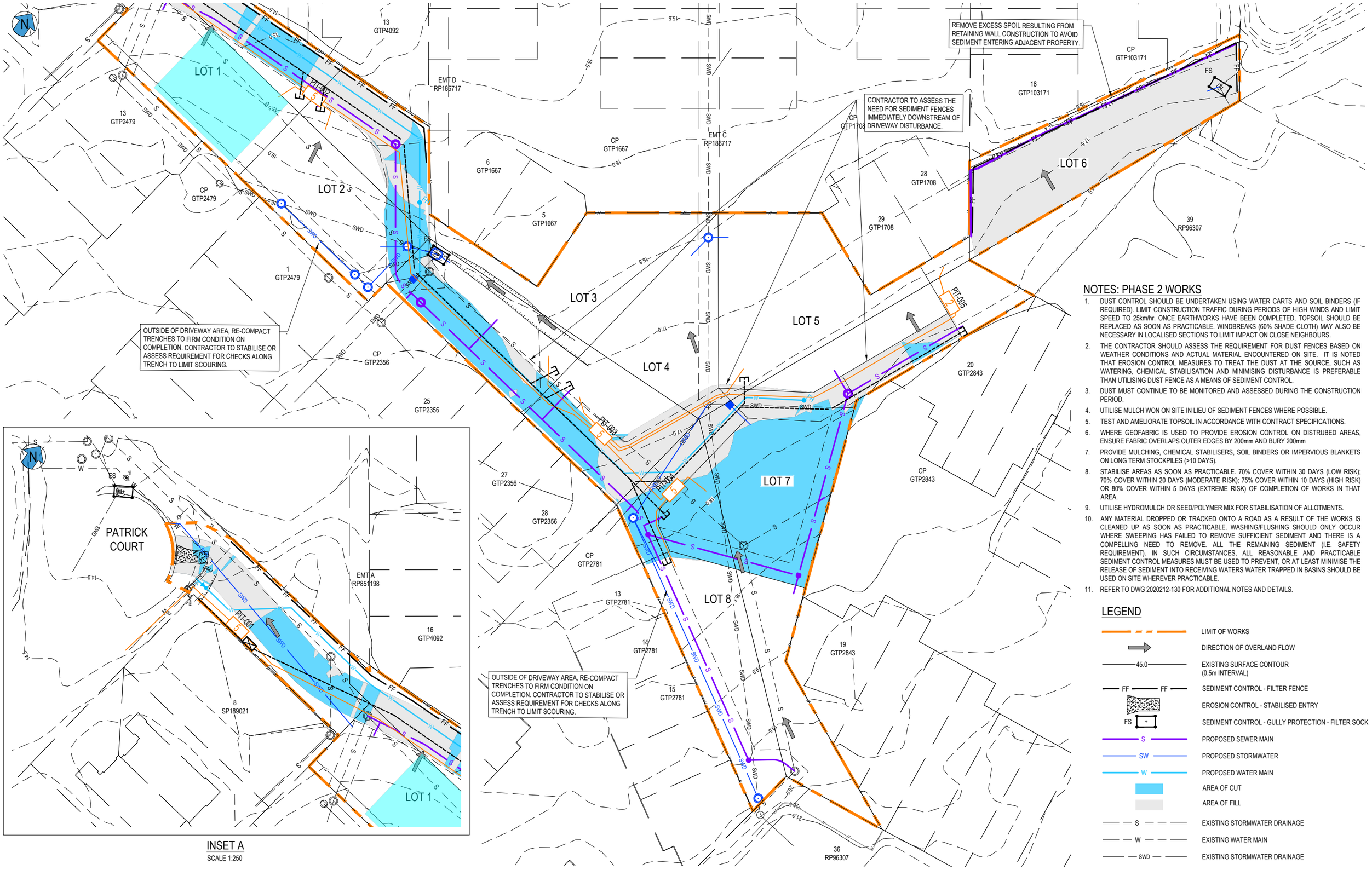
ASSOCIATED CONSULTANTS:

PROJECT: 23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN - PRE START PHASE

PROJECT No.	DRAWING No.	REVISION
2020212	110	B



INSET A
SCALE 1:250

NOTES: PHASE 2 WORKS

1. DUST CONTROL SHOULD BE UNDERTAKEN USING WATER CARTS AND SOIL BINDERS (IF REQUIRED). LIMIT CONSTRUCTION TRAFFIC DURING PERIODS OF HIGH WINDS AND LIMIT SPEED TO 25km/hr. ONCE EARTHWORKS HAVE BEEN COMPLETED, TOPSOIL SHOULD BE REPLACED AS SOON AS PRACTICABLE. WINDBREAKS (60% SHADE CLOTH) MAY ALSO BE NECESSARY IN LOCALISED SECTIONS TO LIMIT IMPACT ON CLOSE NEIGHBOURS.
2. THE CONTRACTOR SHOULD ASSESS THE REQUIREMENT FOR DUST FENCES BASED ON WEATHER CONDITIONS AND ACTUAL MATERIAL ENCOUNTERED ON SITE. IT IS NOTED THAT EROSION CONTROL MEASURES TO TREAT THE DUST AT THE SOURCE, SUCH AS WATERING, CHEMICAL STABILISATION AND MINIMISING DISTURBANCE IS PREFERABLE THAN UTILISING DUST FENCE AS A MEANS OF SEDIMENT CONTROL.
3. DUST MUST CONTINUE TO BE MONITORED AND ASSESSED DURING THE CONSTRUCTION PERIOD.
4. UTILISE MULCH WON ON SITE IN LIEU OF SEDIMENT FENCES WHERE POSSIBLE.
5. TEST AND AMELIORATE TOPSOIL IN ACCORDANCE WITH CONTRACT SPECIFICATIONS.
6. WHERE GEOFABRIC IS USED TO PROVIDE EROSION CONTROL ON DISTRUBED AREAS, ENSURE FABRIC OVERLAPS OUTER EDGES BY 200mm AND BURY 200mm
7. PROVIDE MULCHING, CHEMICAL STABILISERS, SOIL BINDERS OR IMPERVIOUS BLANKETS ON LONG TERM STOCKPILES (>10 DAYS).
8. STABILISE AREAS AS SOON AS PRACTICABLE. 70% COVER WITHIN 30 DAYS (LOW RISK); 70% COVER WITHIN 20 DAYS (MODERATE RISK); 75% COVER WITHIN 10 DAYS (HIGH RISK) OR 80% COVER WITHIN 5 DAYS (EXTREME RISK) OF COMPLETION OF WORKS IN THAT AREA.
9. UTILISE HYDROMULCH OR SEED/POLYMER MIX FOR STABILISATION OF ALLOTMENTS.
10. ANY MATERIAL DROPPED OR TRACKED ONTO A ROAD AS A RESULT OF THE WORKS IS CLEANED UP AS SOON AS PRACTICABLE. WASHING/FLUSHING SHOULD ONLY OCCUR WHERE SWEEPING HAS FAILED TO REMOVE SUFFICIENT SEDIMENT AND THERE IS A COMPELLING NEED TO REMOVE. ALL THE REMAINING SEDIMENT (I.E. SAFETY REQUIREMENT). IN SUCH CIRCUMSTANCES, ALL REASONABLE AND PRACTICABLE SEDIMENT CONTROL MEASURES MUST BE USED TO PREVENT, OR AT LEAST MINIMISE THE RELEASE OF SEDIMENT INTO RECEIVING WATERS WATER TRAPPED IN BASINS SHOULD BE USED ON SITE WHEREVER PRACTICABLE.
11. REFER TO DWG 2020212-130 FOR ADDITIONAL NOTES AND DETAILS.

LEGEND

- LIMIT OF WORKS
- DIRECTION OF OVERLAND FLOW
- 45.0 — EXISTING SURFACE CONTOUR (0.5m INTERVAL)
- FF — SEDIMENT CONTROL - FILTER FENCE
- EROSION CONTROL - STABILISED ENTRY
- FS — SEDIMENT CONTROL - GULLY PROTECTION - FILTER SOCK
- S — PROPOSED SEWER MAIN
- SW — PROPOSED STORMWATER
- W — PROPOSED WATER MAIN
- AREA OF CUT
- AREA OF FILL
- S — EXISTING STORMWATER DRAINAGE
- W — EXISTING WATER MAIN
- SWD — EXISTING STORMWATER DRAINAGE

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
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SCALE
1 : 250 5 0 5 10m A1
1 : 500 A3

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PROJECT
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STATUS
ISSUE FOR APPROVAL

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN - CONSTRUCTION PHASE

PROJECT No.	DRAWING No.	REVISION
2020212	120	B

GENERAL NOTES:

1. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MUST BE IMPLEMENTED AND A REVISED EROSION AND SEDIMENT CONTROL PLAN (ESCP) MUST BE SUBMITTED FOR APPROVAL IN THE EVENT THAT SITE CONDITIONS CHANGE SIGNIFICANTLY FROM THOSE CONSIDERED WITHIN THE ESCP.
2. IN CIRCUMSTANCES WHERE IT IS CONSIDERED NECESSARY TO PREPARE AN AMENDED EROSION AND SEDIMENT CONTROL PLAN (ESCP), AND WHERE THE DELIVERY OF SUCH AN AMENDED ESCP IS NOT IMMINENT, THEN ALL NECESSARY NEW OR MODIFIED EROSION AND SEDIMENT CONTROL WORKS MUST BE IN ACCORDANCE WITH THE *IECA BEST PRACTICE GUIDELINES*. UPON APPROVAL OF THE AMENDED ESCP, ALL WORKS MUST BE IMPLEMENTED IN ACCORDANCE WITH THE AMENDED PLAN.

DISPERSIVE SOILS

1. NO RESULTS WERE OBTAINED TO DETERMINE DISPERSIVE SOILS. WHERE DISPERSIVE SOILS ARE ENCOUNTERED DURING CONSTRUCTION THE CONTRACTOR MUST OBTAIN A REVISED K-FACTOR FROM THE GEOTECHNICAL ENGINEER.

SITE MONITORING:

1. THE CONTRACTOR WILL IMPLEMENT A MONITORING AND ASSESSMENT PROGRAM ON-SITE TO IDENTIFY, MEASURE, RECORD AND REPORT ON THE EFFECTIVENESS OF THE EROSION AND SEDIMENT CONTROL AND THE FULLNESS OF OF RELEASES.
2. THE CONTRACTOR SHALL IDENTIFY A DEDICATED PERSON TO UNDERTAKE THE MONITORING.
3. THE PROGRAM SHALL MONITOR ALL EVENT BASED RELEASES AND RELEASES CAUSED BY THE RAIN EVENTS.
4. ALL NON-COMPLIANCES SHALL BE REPORTED TO THE SUPERINTENDENT AND RELEVANT AUTHORITIES (AS APPLICABLE) WITHIN 48 HOURS IDENTIFICATION OF NON-COMPLIANCE.
5. WHERE RELEASE CRITERIA ARE EXCEEDED, THE CONTRACTOR WILL IMPLEMENT ADDITIONAL OR ALTERNATE CONTROLS TO ACHIEVE ENVIRONMENTAL OUTCOMES.

SITE MAINTENANCE:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING DRAINAGE CONTROL MEASURES, MUST BE MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES DURING THEIR OPERATIONAL LIVES.
2. ALL DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED:
   (i) AT LEAST DAILY (WHEN WORK IS OCCURRING ON-SITE);
   (ii) AT LEAST WEEKLY (WHEN WORK IS NOT OCCURRING ON-SITE);
   (iii) WITHIN 24 HOURS OF EXPECTED RAINFALL; AND
   (iv) WITHIN 18 HOURS OF A RAINFALL EVENT OF SUFFICIENT INTENSITY AND DURATION TO CAUSE RUNOFF ON-SITE).
3. WASHING/FLUSHING OF SEALED ROADWAYS MUST ONLY OCCUR WHERE SWEEPING HAS FAILED TO REMOVE SUFFICIENT SEDIMENT AND THERE IS A COMPELLING NEED TO REMOVE THE REMAINING SEDIMENT (E.G. FOR SAFETY REASONS). IN SUCH CIRCUMSTANCES, ALL REASONABLE AND PRACTICABLE SEDIMENT CONTROL MEASURES MUST BE USED TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT INTO RECEIVING WATERS. ONLY THOSE MEASURES THAT WILL NOT CAUSE SAFETY AND PROPERTY FLOODING ISSUES SHALL BE EMPLOYED. SEDIMENT REMOVED FROM ROADWAYS MUST BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
4. SEDIMENT REMOVED FROM SEDIMENT TRAPS AND PLACES OF SEDIMENT DEPOSITION MUST BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
5. MAINTENANCE MOWING OF ALL ROAD SHOULDERS, TABLE DRAINS, BATTERS AND OTHER SURFACES LIKELY TO EXPERIENCE ACCELERATED SOIL EROSION MUST AIM TO LEAVE THE GRASS LENGTH NO SHORTER THAN 50mm WHERE REASONABLE AND PRACTICABLE.
6. MAINTENANCE MOWING MUST BE DONE IN A MANNER THAT WILL NOT DAMAGE THE PROFILE OF FORMED, SOFT EDGES, SUCH AS THE CREST OF EARTH EMBANKMENTS.

1. ALL OFFICE FACILITIES AND OPERATIONAL ACTIVITIES MUST BE LOCATED SUCH THAT ANY LIQUID EFFLUENT (E.G. PROCESS WATER, WASH-DOWN WATER, EFFLUENT FROM EQUIPMENT CLEANING, OR PLANT WATERING), CAN BE TOTALLY CONTAINED AND TREATED WITHIN THE SITE.
2. THE CONSTRUCTION SCHEDULE MUST AIM TO MINIMISE THE DURATION THAT ANY AND ALL AREAS OF SOIL ARE EXPOSED TO THE EROSIVE EFFECTS OF WIND, RAIN AND SURFACE WATER.
3. LAND-DISTURBING ACTIVITIES MUST BE UNDERTAKEN IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) AND ASSOCIATED DEVELOPMENT CONDITIONS.
4. LAND-DISTURBING ACTIVITIES MUST BE UNDERTAKEN IN SUCH A MANNER THAT ALLOWS ALL REASONABLE AND PRACTICABLE MEASURES TO BE UNDERTAKEN TO:
   (i) ALLOW STORMWATER TO PASS THROUGH THE SITE IN A CONTROLLED MANNER AND AT NON-EROSIVE FLOW VELOCITIES UP TO THE SPECIFIED DESIGN STORM DISCHARGE;
   (ii) MINIMISE SOIL EROSION RESULTING FROM RAIN, WATER FLOW AND/OR WIND;
   (iii) MINIMISE ADVERSE EFFECTS OF SEDIMENT RUNOFF, INCLUDING SAFETY ISSUES;
   (iv) PREVENT, OR AT LEAST MINIMISE, ENVIRONMENTAL HARM RESULTING FROM WORK-RELATED SOIL EROSION AND SEDIMENT RUNOFF;
   (v) ENSURE THAT THE VALUE AND USE OF LAND/PROPERTIES ADJACENT TO THE DEVELOPMENT (INCLUDING ROADS) ARE NOT DIMINISHED AS A RESULT OF THE ADOPTED ESC MEASURES.
5. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST CONFORM TO THE STANDARDS AND SPECIFICATIONS CONTAINED IN:
   (i) THE DEVELOPMENT APPROVAL CONDITION ISSUED BY THE RELEVANT AUTHORITY; AND
   (ii) THE APPROVED ESCP AND SUPPORTING DOCUMENTATION; OR
   (ij) THE LATEST VERSION OF IECA BEST PRACTICE EROSION AND SEDIMENT CONTROL GUIDELINES IF THE STANDARDS AND SPECIFICATIONS ARE NOT CONTAINED IN THE APPROVED ESCP.
6. ADDITIONAL AND/OR ALTERNATIVE ESC MEASURES MUST BE IMPLEMENTED IN THE EVENT THAT SITE INSPECTIONS, THE SITE'S MONITORING AND MAINTENANCE PROGRAM, OR THE REGULATORY AUTHORITY, IDENTIFIES THAT UNACCEPTABLE OFF-SITE SEDIMENTATION IS OCCURRING AS A RESULT OF THE WORK ACTIVITIES.
7. LAND-DISTURBING ACTIVITIES MUST NOT CAUSE UNNECESSARY SOIL DISTURBANCE IF AN ALTERNATIVE CONSTRUCTION PROCESS IS AVAILABLE THAT ACHIEVES THE SAME OR EQUIVALENT OUTCOMES AT AN EQUIVALENT COST.
8. SEDIMENT (INCLUDING CLAY, SILT, SAND, GRAVEL, SOIL, MUD, CEMENT AND CERAMIC WASTE) DEPOSITED OFF THE SITE AS A DIRECT RESULT OF AN ON-SITE ACTIVITY, MUST BE COLLECTED AND THE AREA APPROPRIATELY CLEANED/REHABILITATED AS SOON AS REASONABLE AND PRACTICABLE, AND IN A MANNER THAT GIVES APPROPRIATE CONSIDERATION TO THE SAFETY AND ENVIRONMENTAL RISKS ASSOCIATED WITH THE SEDIMENT DEPOSITION.
9. WHEREVER REASONABLE AND PRACTICABLE, BRICK, TILE AND MASONRY CUTTING MUST BE CARRIED OUT ON A PERVIOUS SURFACE, SUCH AS GRASS, OR OPEN SOIL, OR IN SUCH A MANNER THAT ALL SEDIMENT-LADEN RUNOFF IS PREVENTED FROM DISCHARGING INTO A GUTTER, DRAIN, OR WATER BODY.
10. ADEQUATE WASTE COLLECTION BINS MUST BE PROVIDED ON-SITE AND MAINTAINED SUCH THAT POTENTIAL AND ACTUAL ENVIRONMENTAL HARM RESULTING FROM SUCH MATERIAL WASTE IS MINIMISED.
11. CONCRETE WASTE AND CHEMICAL PRODUCTS, INCLUDING PETROLEUM AND OIL-BASED PRODUCTS, MUST BE PREVENTED FROM ENTERING AN INTERNAL WATER BODY, OR AN EXTERNAL DRAIN, STORMWATER SYSTEM, OR WATER BODY.
12. ALL FLAMMABLE AND COMBUSTIBLE LIQUIDS, INCLUDING ALL LIQUID CHEMICALS IF SUCH CHEMICALS COULD POTENTIALLY BE WASHED OR DISCHARGED FROM THE SITE, ARE STORED AND HANDLED ON-SITE IN ACCORDANCE WITH RELEVANT STANDARDS SUCH AS AS1940 *THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS*.
13. TRENCHES NOT LOCATED WITHIN ROADWAYS MUST BE BACKFILLED, CAPPED WITH TOPSOIL, AND COMPACTED TO A LEVEL AT LEAST 75mm ABOVE ADJOINING GROUND LEVEL AND APPROPRIATELY STABILISED.
14. ALL STORMWATER, SEWER LINE AND OTHER SERVICE TRENCHES, NOT LOCATED WITHIN ROADWAYS, MUST BE MULCHED AND SEEDED, OTHER OTHERWISE APPROPRIATELY STABILISED WITHIN 7 DAYS AFTER BACKFILL.
15. NO MORE THAN 150m OF A STORMWATER, SEWER LINE OR OTHER SERVICE TRENCH MUST TO BE OPEN AT ANY ONE TIME.
16. SITE SPOIL MUST BE LAWFULLY DISPOSED OF IN A MANNER THAT DOES NOT RESULT IN ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.

EROSION CONTROL RECOMMENDATIONS

1. ENTRY AND EXIT POINTS, AND SITE FACILITIES (INCLUDING PARKING) MUST BE STABILISED AS EARLY AS POSSIBLE.
2. THE SITE HAS BEEN CLEARED PREVIOUSLY FOR THE CONSTRUCTION OF A RESIDENTIAL DWELLING. CLEARING OF TREES IS LIMITED.
3. STABILISE SOIL STOCKPILES AND UNFINISHED EARTHWORKS IF RAINFALL IS REASONABLY ANTICIPATED, AND WHERE DISTURBANCE IS EXPECTED TO BE SUSPENDED FOR A PERIOD EXCEEDING 20 DAYS DURING 'LOW - MEDIUM' EROSION RISK MONTHS AND 10 DAYS DURING 'HIGH' EROSION RISK MONTHS
4. STAGED CONSTRUCTION AND STABILISATION OF EARTH BATTERS (STEEPER THAN 1:6) IN MINIMUM 3m VERTICAL INCREMENTS WHEREVER REASONABLE AND PRACTICABLE.
5. RETAIN ANY MULCH (WON FROM TREE CLEARING) ON SITE FOR EROSION CONTROL DURING CONSTRUCTION (< 10% SLOPES).
6. STABILISE DISTURBED SOIL SURFACES WITH MINIMUM 75% COVER WITHIN 20 DAYS OF COMPLETION OF WORKS WITHIN ANY AREA OF THE WORK SITE. THIS CAN BE ACHIEVED USING MULCH IN ACCORDANCE WITH THE PREVIOUS DOT POINT. DURING CIVIL WORKS, THE CONTRACTOR MAY NEED TO USE POLYMER STABILISERS FOR THIS PURPOSE.
7. USE HEAVY MULCHING ON AREAS EXPECTED TO BE EXPOSED FOR LONG PERIODS OF TIME (>12 MONTHS). TYPES OF HEAVY MULCHING INCLUDE BARK OR WOODCHIP MULCH, COMPOST BLANKETS AND ROCK MULCH. POLYMER STABILISERS MAY ALSO BE USED WITH CAUTION.
8. WATER CARTS ARE TO BE UTILISED AS DUST CONTROL ON THIS SITE.
9. LOOSE ORGANIC MULCH MAY BE UTILISED ON SLOPES UP TO 1 IN 4 EXCEPT WHERE CONCENTRATED FLOWS ARE EXPECTED DOWN THE SLOPE. SLOPES STEEPER THAN 1 IN 4 WILL REQUIRE EROSION CONTROL BLANKETS (OR OTHER APPROVED EROSION CONTROL MEASURE) PRIOR TO REVEGETATION. UPSTREAM DIVERSION DRAINS OR BUNDS, LINED CHUTES OR SLOPE DRAINS SHOULD ALSO BE CONSIDERED WHERE RAIN IS IMMINENT TO REDUCE EROSION ON EXPOSED SLOPES.

DRAINAGE CONTROL RECOMMENDATIONS

1. IT IS RECOMMENDED THAT THE MAXIMUM SPACING OF DIRTY WATER CATCH DRAINS OR DIVERSION CHANNELS WITH BANKS FOR THIS PROJECT BE 20m.
2. WHERE SLOPES ARE PROTECTED BY SUITABLE EROSION CONTROL METHODS (SUCH AS EROSION CONTROL BLANKETS, BONDED FIBRE MATRIX OR A HYDROMULCH STABILISED WITH A NON RE-WETTABLE TACKIFIER), CATCH DRAINS (OR DIVERSION BANKS) CAN BE OMITTED.
3. WHERE DIRTY WATER CATCH DRAINS ARE NOT LINED, THE VELOCITY WITHIN THESE DRAINS IS TO BE LIMITED TO 0.5m/s USING CHECK DAMS. SAND BAG CHECK DAMS ARE APPROPRIATE IN DRAINS LESS THAN 500mm DEEP AND WHERE THE GRADIENT IS LESS THAN 10%.
4. DRAINAGE CONTROLS HAVE BEEN SIZED IN ACCORDANCE WITHE THE STATE PLANNING POLICY. TEMPORARY DRAINAGE STRUCTURES ARE EXPECTED TO HAVE DESIGN LIFE <12 MONTHS AND HAVE BEEN DESIGNED FOR 1 IN 2 YEAR ARI/39%AEP.

DISCHARGE LIMITS

TOTAL SUSPENDED SOLIDS (TSS) = 50mg/L AS A MAXIMUM CONCENTRATION
TUBIDITY (NTU) LESS THAN 10% ABOVE BACKGROUND
pH BETWEEN 6.5 AND 8.5 (EXCEPT WHERE RECEIVING WATERS LAY OUTSIDE THIS RANGE)

TSS RELEASE MAY EXCEED 50mg/L WHERE:

a. FURTHER SIGNIFICANT RAINFALL IS FORECAST TO OCCUR BEFORE THE TSS CONCENTRATION IS LIKELY TO BE REDUCED TO 50MG/L;
b. RELEASING A HIGHER CONCENTRATION OF TOTAL SUSPENDED SOLIDS WILL RESULT IN A BETTER ENVIRONMENTAL OUTCOME BY PROVIDING STORAGE FOR THE CAPTURE AND TREATMENT OF RUN-OFF FROM THE IMMINENT RAINFALL AND RUN-OFF;
c. ALL REASONABLE AND PRACTICABLE STEPS HAVE BEEN TAKEN TO TREAT THE WATER WITHIN BEST-PRACTICE TIME FRAMES;
d. FLOCCULENT HAS BEEN APPROPRIATELY APPLIED AND THE CONCENTRATION OF TSS IN THE CAPTURED WATER HAS ALREADY SIGNIFICANTLY DECREASED.

FOR ALL OTHER STORMWATER RELEASES, FLOWS AND DISCHARGES FROM THE SITE, THE RELEASE LIMITS PRESCRIBED ABOVE MUST NOT BE EXCEEDED UNLESS THE DEVELOPMENT IS IN FULL COMPLIANCE WITH THIS STANDARD

SOIL LOSS ESTIMATION - RUSLE

A = R.K.LS.C.P
R = 2453
K = 0.044 (CLAYEY SANDS)
LS = 0.31 (2% MAX SLOPE / 40m max)
C = 1.0 (CONSTRUCTION SITE)
P = 1.3 (COMPACTED AND SMOOTH)

A = 2453 x 0.044 x 0.31 x 1.0 x 1.3 = 57 t/Ha/yr
BASED ON ANNUAL SOIL LOSS AND AREA OF DISTURBANCE, TYPE III SEDIMENT CONTROLS ARE APPROPRIATE.
PRIORITY SHOULD BE GIVEN TO EROSION CONTROL (STABILISE FINISHED WORKS).

EROSION RISK

LOCATION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
MONTHLY RAINFALL 23 PARTICK STREET, WATERFORD WEST	s: -27.6792 e: 153.12	581	594	444	248	154	138	96	68	68	167	260	392	3209
		HIGH	HIGH	HIGH	MODERATE	MODERATE	MODERATE	LOW	LOW	LOW	MODERATE	MODERATE	HIGH	

EROSION CONTROL:

1. ALL EROSION CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH IECA BEST PRACTICE EROSION AND SEDIMENT CONTROL GUIDELINES
2. WHERE PRACTICABLE, MULCHED VEGETATION CAN BE UTILISED FOR EROSION CONTROL.
3. THE APPLICATION OF LIQUID-BASED DUST SUPPRESSION MEASURES MUST ENSURE THAT SEDIMENT-LADEN RUNOFF RESULTING FROM SUCH MEASURES DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD.
4. ALL TEMPORARY EARTH BANKS, FLOW DIVERSION SYSTEMS, AND EMBANKMENTS ASSOCIATED WITH CONSTRUCTED SEDIMENT BASINS MUST BE MACHINE-COMPACTED, SEEDED AND MULCHED FOR THE PURPOSE OF ESTABLISHING A TEMPORARY VEGETATIVE COVER WITHIN 10 DAYS AFTER GRADING.
5. THE CONSTRUCTION AND STABILISATION OF EARTH BATTERS STEEPER THAN 6:1 (H:V) MUST BE STAGED SUCH THAT NO MORE THAN 3 VERTICAL-METRES OF ANY BATTER IS EXPOSED TO RAINFALL AT ANY INSTANT.
6. SYNTHETIC REINFORCED EROSION CONTROL MATS AND BLANKETS MUST NOT BE PLACED WITHIN, OR ADJACENT TO, RIPARIAN ZONES AND WATERCOURSES IF SUCH MATERIALS ARE LIKELY TO CAUSE ENVIRONMENTAL HARM TO WILDLIFE OR WILDLIFE HABITATS.
7. A MINIMUM 60% GROUND COVER MUST BE ACHIEVED ON ALL NON-COMPLETED EARTHWORKS EXPOSED TO ACCELERATED SOIL EROSION IF FURTHER CONSTRUCTION ACTIVITIES OR SOIL DISTURBANCES ARE LIKELY TO BE SUSPENDED FOR MORE THAN 30 DAYS DURING THOSE MONTHS WHEN THE RISK RATING IS LESS THAN 'VERY LOW'; MINIMUM 70% COVER WITHIN 30 DAYS IF RISK RATING IS 'LOW'; MINIMUM 70% COVER WITHIN 20 DAYS IF RISK RATING IS 'MEDIUM'; MINIMUM 75% COVER WITHIN 10 DAYS IF RISK RATING IS 'HIGH'; AND MINIMUM 80% COVER WITHIN 5 DAYS IF RISK RATING IS 'EXTREME'.

SEDIMENT CONTROL:

1. ALL SEDIMENT CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH IECA BEST PRACTICE EROSION AND SEDIMENT CONTROL GUIDELINES
2. OPTIMUM BENEFIT MUST BE MADE OF EVERY OPPORTUNITY TO TRAP SEDIMENT WITHIN THE WORK SITE, AND AS CLOSE AS PRACTICABLE TO ITS SOURCE.
3. SEDIMENT TRAPS MUST BE INSTALLED AND OPERATED TO BOTH COLLECT AND RETAIN SEDIMENT.
4. THE POTENTIAL SAFETY RISK OF A PROPOSED SEDIMENT TRAP TO SITE WORKERS AND THE PUBLIC MUST BE GIVEN APPROPRIATE CONSIDERATION, ESPECIALLY THOSE DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS.
5. ALL REASONABLE AND PRACTICABLE MEASURES MUST BE TAKEN TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT FROM THE SITE.
6. SUITABLE ALL-WEATHER MAINTENANCE ACCESS MUST BE PROVIDED TO ALL SEDIMENT CONTROL DEVICES.
7. SEDIMENT CONTROL DEVICES MUST BE DE-SILTED AND MADE FULLY OPERATIONAL AS SOON AS REASONABLE AND PRACTICABLE AFTER A SEDIMENT-PRODUCING EVENT, WHETHER NATURAL OR ARTIFICIAL, IF THE DEVICE'S SEDIMENT RETENTION CAPACITY FALLS BELOW 75% OF ITS DESIGN RETENTION CAPACITY.
8. MATERIALS, WHETHER LIQUID OR SOLID, REMOVED FROM SEDIMENT CONTROL DEVICES DURING MAINTENANCE OR DECOMMISSIONING, MUST BE DISPOSED OF IN A MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.

DRAINAGE CONTROL:

1. ALL DRAINAGE CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH IECA BEST PRACTICE EROSION AND SEDIMENT CONTROL GUIDELINES
2. WHEREVER REASONABLE AND PRACTICABLE, STORMWATER RUNOFF ENTERING THE SITE FROM EXTERNAL AREAS, AND NON-SEDIMENT LADEN (CLEAN) STORMWATER RUNOFF ENTERING A WORK AREA OR AREA OF SOIL DISTURBANCE, MUST BE DIVERTED AROUND OR THROUGH THAT AREA IN A MANNER THAT MINIMISES SOIL EROSION AND THE CONTAMINATION OF THAT WATER FOR ALL DISCHARGES UP TO THE SPECIFIED DESIGN STORM DISCHARGE.
3. DURING THE CONSTRUCTION PERIOD, ALL REASONABLE AND PRACTICABLE MEASURES MUST BE IMPLEMENTED TO CONTROL FLOW VELOCITIES IN SUCH A MANNER THAN PREVENTS SOIL EROSION ALONG DRAINAGE PATHS AND AT THE ENTRANCE AND EXIT OF ALL DRAINS AND DRAINAGE PIPES DURING ALL STORMS UP TO THE RELEVANT DESIGN STORM DISCHARGE.
4. TO THE MAXIMUM DEGREE REASONABLE AND PRACTICABLE, ALL WATERS DISCHARGED DURING THE CONSTRUCTION PHASE MUST DISCHARGE ONTO STABLE LAND, IN A NON-EROSIVE MANNER, AND AT A LEGAL POINT OF DISCHARGE.
5. WHEREVER REASONABLE AND PRACTICABLE, "CLEAN" SURFACE WATERS MUST BE DIVERTED AWAY FROM SEDIMENT CONTROL DEVICES AND ANY UNTREATED, SEDIMENT-LADEN WATERS.
6. DURING THE CONSTRUCTION PERIOD, ROOF WATER MUST BE MANAGED IN A MANNER THAT MINIMISES SOIL EROSION THROUGHOUT THE SITE, AND SITE WETNESS WITHIN ACTIVE WORK AREAS.

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SCALE

COUNCIL: LOGAN CITY COUNCIL

APPROVED: DAVID HOLSTEIN (RPEQ 17025)

FOR AND ON BEHALF OF CIVIL360 ENGINEERING PTY LTD.

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23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN - NOTES

PROJECT No.: 2020212

DRAWING No.: 130

REVISION: A

PHASE 2: EARTHWORKS PHASE

1. DUST CONTROL SHOULD BE UNDERTAKEN USING WATER CARTS AND SOIL BINDERS (IF REQUIRED). LIMIT CONSTRUCTION TRAFFIC DURING PERIODS OF HIGH WINDS AND LIMIT SPEED TO 25km/hr. ONCE EARTHWORKS HAVE BEEN COMPLETED, TOPSOIL SHOULD BE REPLACED AS SOON AS PRACTICABLE. WINDBREAKS (60% SHADE CLOTH) MAY ALSO BE NECESSARY IN LOCALISED SECTIONS TO LIMIT IMPACT ON CLOSE NEIGHBOURS.
2. THE CONTRACTOR SHOULD ASSESS THE REQUIREMENT FOR DUST FENCES BASED ON WEATHER CONDITIONS AND ACTUAL MATERIAL ENCOUNTERED ON SITE. IT IS NOTED THAT EROSION CONTROL MEASURES TO TREAT THE DUST AT THE SOURCE, SUCH AS WATERING, CHEMICAL STABILISATION AND MINIMISING DISTURBANCE IS PREFERABLE THAN UTILISING DUST FENCE AS A MEANS OF SEDIMENT CONTROL.
3. DUST MUST CONTINUE TO BE MONITORED AND ASSESSED DURING THE CONSTRUCTION PERIOD.
4. UTILISE MULCH WON ON SITE IN LIEU OF SEDIMENT FENCES WHERE POSSIBLE.
5. TEST AND AMELIORATE TOPSOIL IN ACCORDANCE WITH CONTRACT SPECIFICATIONS.
6. WHERE GEOFABRIC IS USED TO PROVIDE EROSION CONTROL ON DISTRUBED AREAS, ENSURE FABRIC OVERLAPS OUTER EDGES BY 200mm AND BURY 200mm
7. PROVIDE MULCHING, CHEMICAL STABILISERS, SOIL BINDERS OR IMPERVIOUS BLANKETS ON LONG TERM STOCKPILES (>10 DAYS).
8. STABILISE AREAS AS SOON AS PRACTICABLE. 70% COVER WITHIN 30 DAYS (LOW RISK); 70% COVER WITHIN 20 DAYS (MODERATE RISK); 75% COVER WITHIN 10 DAYS (HIGH RISK) OR 80% COVER WITHIN 5 DAYS (EXTREME RISK) OF COMPLETION OF WORKS IN THAT AREA.
9. UTILISE HYDROMULCH OR SEED/POLYMER MIX FOR STABILISATION OF ALLOTMENTS.
10. ANY MATERIAL DROPPED OR TRACKED ONTO A ROAD AS A RESULT OF THE WORKS IS CLEANED UP AS SOON AS PRACTICABLE. WASHING/FLUSHING SHOULD ONLY OCCUR WHERE SWEEPING HAS FAILED TO REMOVE SUFFICIENT SEDIMENT AND THERE IS A COMPELLING NEED TO REMOVE. ALL THE REMAINING SEDIMENT (I.E. SAFETY REQUIREMENT). IN SUCH CIRCUMSTANCES, ALL REASONABLE AND PRACTICABLE SEDIMENT CONTROL MEASURES MUST BE USED TO PREVENT, OR AT LEAST MINIMISE THE RELEASE OF SEDIMENT INTO RECEIVING WATERS WATER TRAPPED IN BASINS SHOULD BE USED ON SITE WHEREVER PRACTICABLE.
11. REFER TO DWG 2020212-130 FOR ADDITIONAL NOTES AND DETAILS.

PHASE 3: INSTALLATION OF SERVICES

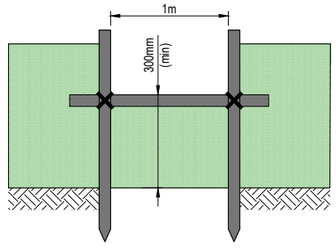
1. COORDINATE INSTALLATION OF SERVICES TO MINIMISE DURATION OF DISTURBANCE AND MINIMISE TIME TO STABILISATION. USE ON-SITE MULCH TO TEMPORARILY STABILISE TRENCHES WHERE POSSIBLE OUTSIDE OF ROAD VERGE.
2. BACKFILL TRENCHES TO A FIRM CONDITION IN ACCORDANCE WITH SPECIFICATIONS. OVER FILL TRENCHES TO ALLOW FOR SETTLEMENT OF SOILS. STABILISE TRENCHES AND DISTURBED AREAS (INCLUDING VERGES) WITHIN 7 DAYS OF BACKFILLING SERVICES.FOLLOWING STABILISATION OF DISTURBED AREAS AND INSTALLATION OF KERB AND CHANNEL, AND WITH AGREEMENT FROM LCC OFFICERS AND SUPERINTENDENT, THE SEDIMENT BASIN CAN BE DECOMMISSIONED. THE FULL EXTENT OF THE SEDIMENT TRAP CATCHMENT MUST BE ASSESSED PRIOR TO DECOMMISSIONING.
3. ANY SEDIMENT FENCES DOWNSTREAM OF BASINS SHOULD BE MAINTAINED UNTIL THESE AREAS ARE FULLY STABILISED.

PHASE 4: DRIVEWAY CONSTRUCTION

1. REFER TO DWG 2021092 ESCMP-002 FOR ADDITIONAL NOTES AND DETAILS.
2. USE GRAVEL SURFACE OR SOIL BINDERS TO PROTECT THE ROAD SURFACE WHEN HEAVY RAIN IS PREDICTED.
3. STABILISE EXPOSED SOIL SURFACES WITH A MINIMUM 75% COVER WITHIN 20 DAYS OF COMPLETION OF WORKS IN ANY AREA OF THE SITE (LOW TO MEDIUM EROSION RISK MONTHS) AND WITH A MINIMUM 75% COVER WITHIN 10 DAYS OF COMPLETION OF WORKS IN ANY AREA OF THE SITE (HIGH EROSION RISK MONTHS) USE GRAVEL SURFACE OR SOIL BINDERS TO PROTECT THE ROAD SURFACE WHEN HEAVY RAIN IS PREDICTED.
4. SAND BAGS MAY ALSO BE USED AS CHECK DAMS TO REDUCE VELOCITY ALONG THE ROAD INVERT. ENSURE THE CREST OF THE CHECK IS CURVED SO THAT FLOW FIRST SPILLS OVER THE CENTRE OF THE DAM. THE USE OF A FLAT CREST PROFILE MAY RESULT IN EROSION AROUND THE CHECKS. REFER TO DRAWING 004 FOR DETAILS OF CHECK DAMS.
5. CONSTRUCT DRIVEWAY AND CONCRETE WORKS
6. UTILISE FABRIC WRAP GULLY PROTECTION ON GULLYS WITHIN DRIVEWAY ONCE CONCRETE HAS BEEN COMPLETED AND UNTIL UPSTREAM CATCHMENT IS STABILISE. THIS MAY INCLUDE BUILDING PHASE.

SOIL AND STOCKPILE MANAGEMENT:

1. ALL REASONABLE AND PRACTICABLE MEASURES MUST BE TAKEN TO OBTAINED THE MAXIMUM BENEFIT FROM EXISTING TOPSOIL, INCLUDING:
   a. WHERE THE PROPOSED AREA OF SOIL DISTURBANCE DOES NOT EXCEED 2500m^2, AND THE TOPSOIL DOES NOT CONTAIN UNDESIRABLE WEED SEED, THE TOP 100mm OF SOIL LOCATED WITHIN AREAS OF PROPOSED SOIL DISTURBANCE (INCLUDING STOCKPILE AREAS) MUST BE STRIPPED AND STOCKPILED SEPARATELY FROM THE REMAINING SOIL.
   b. WHERE THE PROPOSED AREA OF SOIL DISTURBANCE EXCEEDS 2500m^2, AND THE TOPSOIL DOES NOT CONTAIN UNDESIRABLE WEED SEED, THE TOP 50mm OF SOIL MUST BE STRIPPED AND STOCKPILED SEPARATELY FROM THE REMAINING TOPSOIL, AND SPREAD AS A FINAL SURFACE SOIL.
   c. IN AREAS WHERE THE TOPSOIL CONTAINS UNDESIRABLE WEED SEED, THE AFFECTED SOIL MUST BE SUITABLY BURIED OR REMOVED FROM THE SITE.
2. STOCKPILES OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED, MUST BE:
   a. APPROPRIATELY PROTECTED FROM WIND, RAIN, CONCENTRATED SURFACE FLOW AND EXCESSIVE UP-SLOPE STORMWATER SURFACE FLOWS.
   b. LOCATED AT LEAST 2m FROM ANY HAZARDOUS AREA, RETAINED VEGETATION, OR CONCENTRATED DRAINAGE LINE.
   c. LOCATED UP-SLOPE OF AN APPROPRIATE SEDIMENT CONTROL SYSTEM.
   d. PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 28 DAYS.
   e. PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS DURING THOSE MONTHS THAT HAVE A HIGH EROSION RISK.
   f. PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 5 DAYS DURING THOSE MONTHS THAT HAVE A EXTREME EROSION RISK.
3. A SUITABLE FLOW DIVERSION SYSTEM MUST BE ESTABLISHED IMMEDIATELY UP-SLOPE OF A STOCKPILE OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED, IF THE UP-SLOPE CATCHMENT AREA DRAINING TO THE STOCKPILE EXCEEDS 1500m^2.
4. PROVIDE MULCHING, CHEMICAL STABILISERS, SOIL BINDERS OR IMPERVIOUS BLANKETS ON LONG TERM STOCKPILES (>10 DAYS)
5. TEST AND AMELIORATE TOPSOIL IN ACCORDANCE WITH SGS DISPERSIVE SOILS MANAGEMENT PLAN DATED 20 OCTOBER 2015 AND CONTRACT SPECIFICATIONS.



SPILL THROUGH WEIR

N.T.S

STABILISED ENTRY - VIBRATION GRID

MATERIALS

1. ROCK: WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, NOMINAL DIAMETER OF 50mm TO 75mm (SMALL DISTURBANCES) OR 100 TO 150mm (LARGE DISTURBANCES). ALL REASONABLE MEASURES MUST BE TAKEN TO OBTAIN ROCK OF NEAR UNIFORM SIZE.
2. FOOTPATH STABILISING AGGREGATE: 25 TO 50mm GRAVEL OR AGGREGATE.
3. GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION

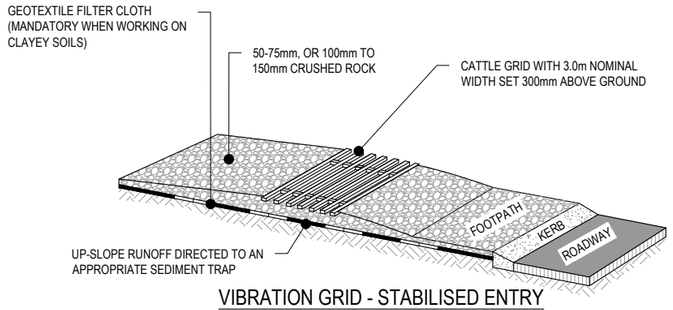
1. REFER TO APPROVED PLANS FOR LOCATION AND DIMENSIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. CLEAR THE LOCATION OF THE VIBRATION GRID, REMOVING STUMPS, ROOTS AND OTHER VEGETATION TO PROVIDE A FIRM FOUNDATION SO THAT THE ROCK IS NOT PRESSED INTO SOFT GROUND. CLEAR SUFFICIENT WIDTH TO ALLOW PASSAGE OF LARGE VEHICLES, BUT CLEAR ONLY THAT NECESSARY FOR THE EXIT. DO NOT CLEAR ADJACENT AREAS UNTIL THE REQUIRED EROSION AND SEDIMENT CONTROL DEVICES ARE IN PLACE.
3. GRADE THE LOCATION OF THE VIBRATION GRID SO THAT RUNOFF FROM THE UNIT WILL NOT FLOW INTO THE STREET, BUT WILL FLOW TOWARDS AN APPROPRIATE SEDIMENT-TRAPPING DEVICE.
4. ENSURE THAT THE INSTALLATION OF THE VIBRATION GRID INCLUDES ADEQUATE SEDIMENT STORAGE VOLUME UNDER THE GRID. WHERE NECESSARY, INSTALL SUITABLE PRECAST SEDIMENT COLLECTION CHAMBERS.
5. PLACE A ROCK PAD/RAMP FORMING A MINIMUM 200mm THICK LAYER OF CLEAN, OPEN-VOID ROCK OVER THE ROADWAY BETWEEN THE VIBRATION GRID AND THE SEALED STREET TO PREVENT TYRES FROM PICKING UP MORE SOIL AFTER THEY HAVE BEEN CLEANED.
6. THE TOTAL LENGTH OF THE VIBRATION GRIP AND ROCK RAMPS SHOULD BE AT LEAST 15m WHERE PRACTICABLE, AND AS WIDE AS THE FULL WIDTH OF THE ENTRY OR EXIT AND AT LEAST 3m. THE ROCK RAMP SHOULD COMMENCE AT THE EDGE OF THE OFF-SITE SEALED ROAD OR PAVEMENT.
7. FLARE THE END OF THE ROCK PAD WHERE IT MEETS THE PAVEMENT SO THAT THE WHEELS OF TURNING VEHICLES DO NOT TRAVEL OVER UNPROTECTED SOIL.
8. IF THE FOOTPATH IS OPEN TO PEDESTRIAN MOVEMENT, THEN COVER THE COARSE ROCK WITH FINE AGGREGATE OR GRAVEL, OR OTHERWISE TAKE WHATEVER MEASURES ARE NEEDED TO MAKE THE AREA SAFE

MAINTENANCE

1. INSPECT VIBRATION GRID PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER SIGNIFICANT RUNOFF-PRODUCING RAINFALL, OR OTHERWISE AT FORTNIGHTLY INTERVALS.
2. 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.
3. 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.
1. WHEN THE VOIDS BETWEEN THE ROCK BECOMES FILLED WITH MATERIAL AND THE EFFECTIVENESS OF THE ROCK RAMPS ARE 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.
2. ENSURE ANY ASSOCIATED DRAINAGE CONTROL MEASURES ARE MAINTAINED IN ACCORDANCE WITH THEIR DESIRED OPERATIONAL CONDITION.
3. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

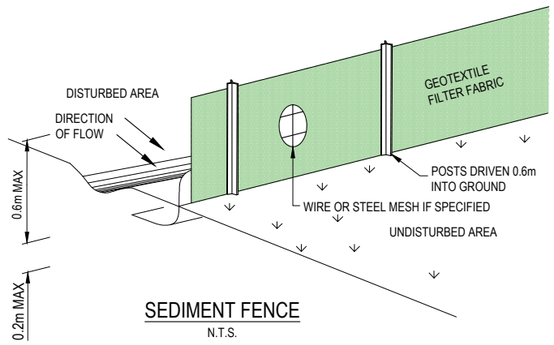
REMOVAL

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



VIBRATION GRID - STABILISED ENTRY

N.T.S.



SEDIMENT FENCE

N.T.S.

SEDIMENT FENCE NOTES:

MATERIALS

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

INSTALLATION

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

ADDITIONAL REQUIREMENTS FOR THE INSTALLATION OF A SPILL-THROUGH WEIR

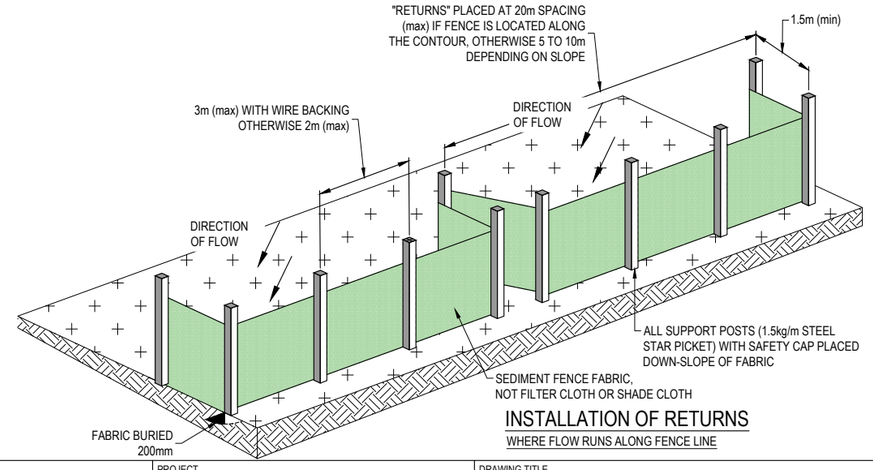
1. LOCATE THE SPILL-THROUGH WEIR SUCH THAT THE WEIR CREST WILL BE LOWER THAN THE GROUND LEVEL AT EACH END OF THE FENCE.
2. ENSURE THE CREST OF THE SPILL-THROUGH WEIR IS AT LEAST 300mm THE GROUND ELEVATION.
3. SECURELY TIE A HORIZONTAL CROSS MEMBER (WEIR) TO THE SUPPORT POSTS/STAKES EACH SIDE OF THE WEIR. CUT THE FABRIC DOWN THE SIDE OF EACH POST AND FOLD THE FABRIC OVER THE CROSS MEMBER AND APPROPRIATELY SECURE THE FABRIC.
4. 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

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

REMOVAL

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



INSTALLATION OF RETURNS

WHERE FLOW RUNS ALONG FENCE LINE

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21

SCALE

COUNCIL: LOGAN CITY COUNCIL

APPROVED: DAVID HOLSTEIN (RPEQ 17025)

FOR AND ON BEHALF OF CIVIL360 ENGINEERING PTY LTD.

CIVIL 360 ENGINEERING
PROJECT MANAGEMENT
CIVIL ENGINEERING
LAND DEVELOPMENT
0406 424 223 / 0423 593 058
info@civil360.com.au

CLIENT: STRATEGIC DEVELOPMENTS

ASSOCIATED CONSULTANTS

PROJECT: 23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN - DETAILS SHEET 1 OF 2

PROJECT No.	DRAWING No.	REVISION
2020212	140	A

FILTER SOCKS

MATERIALS

1. SOCKS: MINIMUM 200mm DIAMETER SYNTHETIC OR BIODEGRADABLE TUBES MANUFACTURED FROM NON-WOVEN OR COMPOSITE FABRIC SUITABLE FOR THE 'FILTRATION' OF COARSE SEDIMENTS.
2. FILL MATERIAL: STRAW, CANE MULCH, COMPOSTED MATERIAL, COARSE SAND, OR CLEAN AGGREGATE.

INSTALLATION

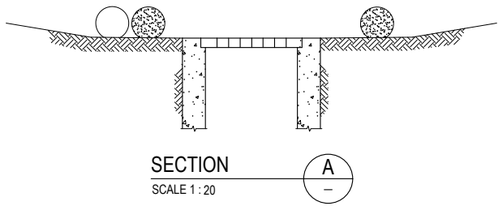
1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. ENSURE THE SOCKS ARE PLACED INDIVIDUALLY OR COLLECTIVELY (AS A SINGLE SEDIMENT TRAP) SUCH THAT:
   (I) LEAKAGE AROUND OR UNDER THE SOCKS IS MINIMISED;
   (II) ADJOINING SOCKS ARE TIGHTLY BUTTED OR OVERLAPPED AT LEAST 450mm;
   (III) THE SURFACE AREA OF POTENTIAL WATER PONDING UP-SLOPE OF EACH SEDIMENT TRAP IS MAXIMISED;
   (IV) TO THE MAXIMUM DEGREE PRACTICAL, ALL SEDIMENT-LADEN WATER WILL PASS THROUGH THE FORMED POND BEFORE FLOWING OVER THE DOWN-SLOPE END OF THE SEDIMENT TRAP.
3. WHEN PLACED ACROSS THE INVERT OF MINOR DRAINS, ENSURE THE SOCKS ARE PLACED SUCH THAT:
   (I) THE CREST OF THE DOWNSTREAM SOCK IS LEVEL WITH THE CHANNEL INVERT AT THE IMMEDIATE UPSTREAM SOCK (IF ANY);
   (II) EACH SOCK EXTENDS UP THE CHANNEL BANKS SUCH THAT THE CREST OF THE SOCK AT ITS LOWEST POINT IS LOWER THAN GROUND LEVEL AT EITHER END OF THE SOCK.
4. IF STAKES ARE REQUIRED TO ANCHOR THE SOCKS, THEIR SPACING DOES NOT EXCEEDING 1.2m OR SIX TIMES THE SOCK DIAMETER (WHICHEVER IS THE LESSER).

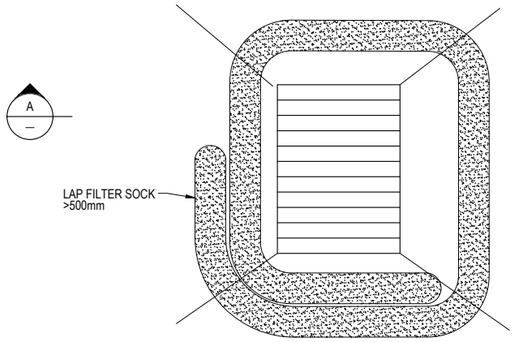
MAINTENANCE

1. INSPECT ALL FILTER SOCKS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER SIGNIFICANT RUNOFF PRODUCING STORMS OR OTHERWISE AT WEEKLY INTERVALS.
2. REPAIR OR REPLACE DAMAGED FILTER SOCKS.
3. THE BULK OF THE SEDIMENT COLLECTED BEHIND THE FILTER SOCKS SHOULD BE REMOVED BY SHOVEL AFTER EACH STORM EVENT.
4. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

REMOVAL

1. ALL SAND, SOIL, SEDIMENT OR MUD MUST BE PHYSICALLY REMOVED FROM SEALED SURFACES, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.
2. IF NECESSARY FOR SAFETY REASONS, THE SEALED SURFACE SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE SURFACE.
3. DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
4. ALL SYNTHETIC (PLASTIC) MESH OR OTHER NON READILY BIODEGRADABLE MATERIAL MUST BE REMOVED FROM THE SITE ONCE THE SLOPE OR DRAIN IS STABILISED, OR THE SOCKS HAVE DETERIORATED TO A POINT WHERE THEY ARE NO LONGER PROVIDING THEIR INTENDED DRAINAGE OR SEDIMENT CONTROL FUNCTION.





TEMPORARY STORMWATER INLET FILTER SOCK SEDIMENT BARRIER
N.T.S

GULLY PROTECTION

INSTALLATION

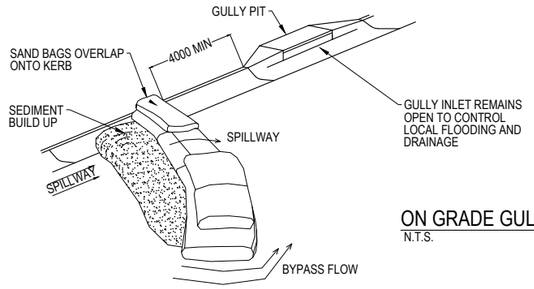
1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.
3. INSTALL SEDIMENT TRAP IN ACCORDANCE WITH STANDARD DRAWING SUPPLIED WITH THE APPROVED PLAN, OR AS DIRECTED BY THE SITE SUPERVISOR.
4. ENSURE THE SEDIMENT TRAP IS CONSTRUCTED UP-SLOPE OF AN ON-GRADE KERB INLET. THE SEDIMENT TRAP MUST NOT SURROUND THE KERB INLET UNLESS SPECIFICALLY DIRECTED BY THE SITE SUPERVISOR.
5. IF NECESSARY, INSTALL ADDITIONAL SEDIMENT TRAPS UP-SLOPE OF THE KERB INLET TO ADEQUATELY RETAIN THE EXPECTED QUANTITY OF SEDIMENT RUNOFF.
6. TAKE ALL NECESSARY MEASURE TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE.

MAINTENANCE

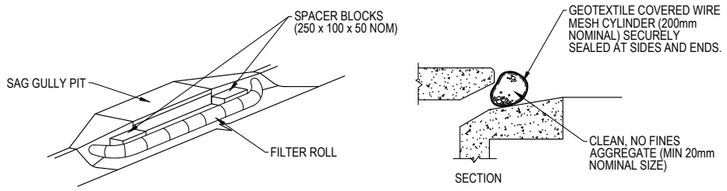
1. INSPECT ALL SEDIMENT TRAPS DAILY AND IMMEDIATELY AFTER RUNOFF-PRODUCING RAINFALL. MAKE REPAIRS AS NEEDED.
2. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
3. ENSURE SEDIMENT DOES NOT ENTER THE STORMWATER DRAIN DURING DE-SILTING OPERATIONS AND MAINTENANCE OF THE TRAP.
4. SEDIMENT ON THE ROAD MUST BE REMOVED IMMEDIATELY IF IT REPRESENTS A SAFETY HAZARD.

REMOVAL

1. WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILISED, REMOVE ALL MATERIALS INCLUDED DEPOSITED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.



ON GRADE GULLY PROTECTION
N.T.S.



SAG GULLY FILTER ROLL
N.T.S.

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21

SCALE

COUNCIL: LOGAN CITY COUNCIL

APPROVED: DAVID HOLSTEIN (RPEQ 17025)

FOR AND ON BEHALF OF CIVIL360 ENGINEERING PTY LTD.

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CLIENT: STRATEGIC DEVELOPMENTS

ASSOCIATED CONSULTANTS:

PROJECT: 23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN - DETAILS SHEET 2 OF 2

PROJECT No.: 2020212

DRAWING No.: 150

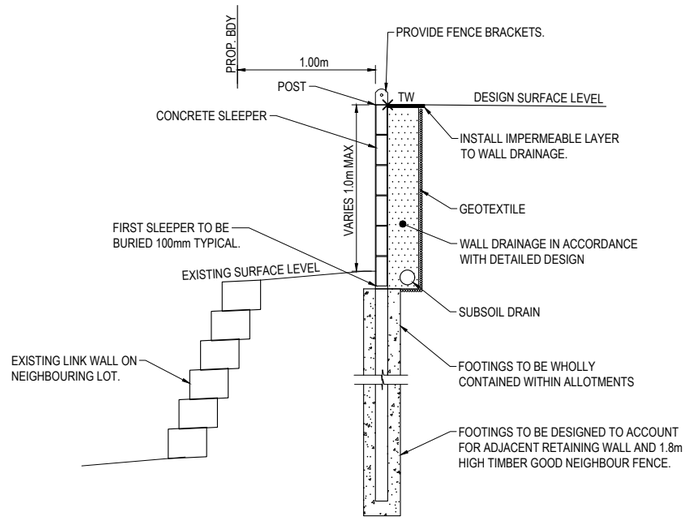
REVISION: A

LEGEND

18.0	DESIGN SURFACE CONTOURS
+ 17.95	FINISHED SURFACE LEVEL
60.0	EXISTING SURFACE CONTOURS
	RETAINING WALL
	LIMIT OF WORKS
	AREA OF CUT
	AREA OF FILL
SW	EXISTING STORMWATER DRAINAGE
S	EXISTING SEWER
W	EXISTING WATER
	EXISTING FENCE

NOTES:

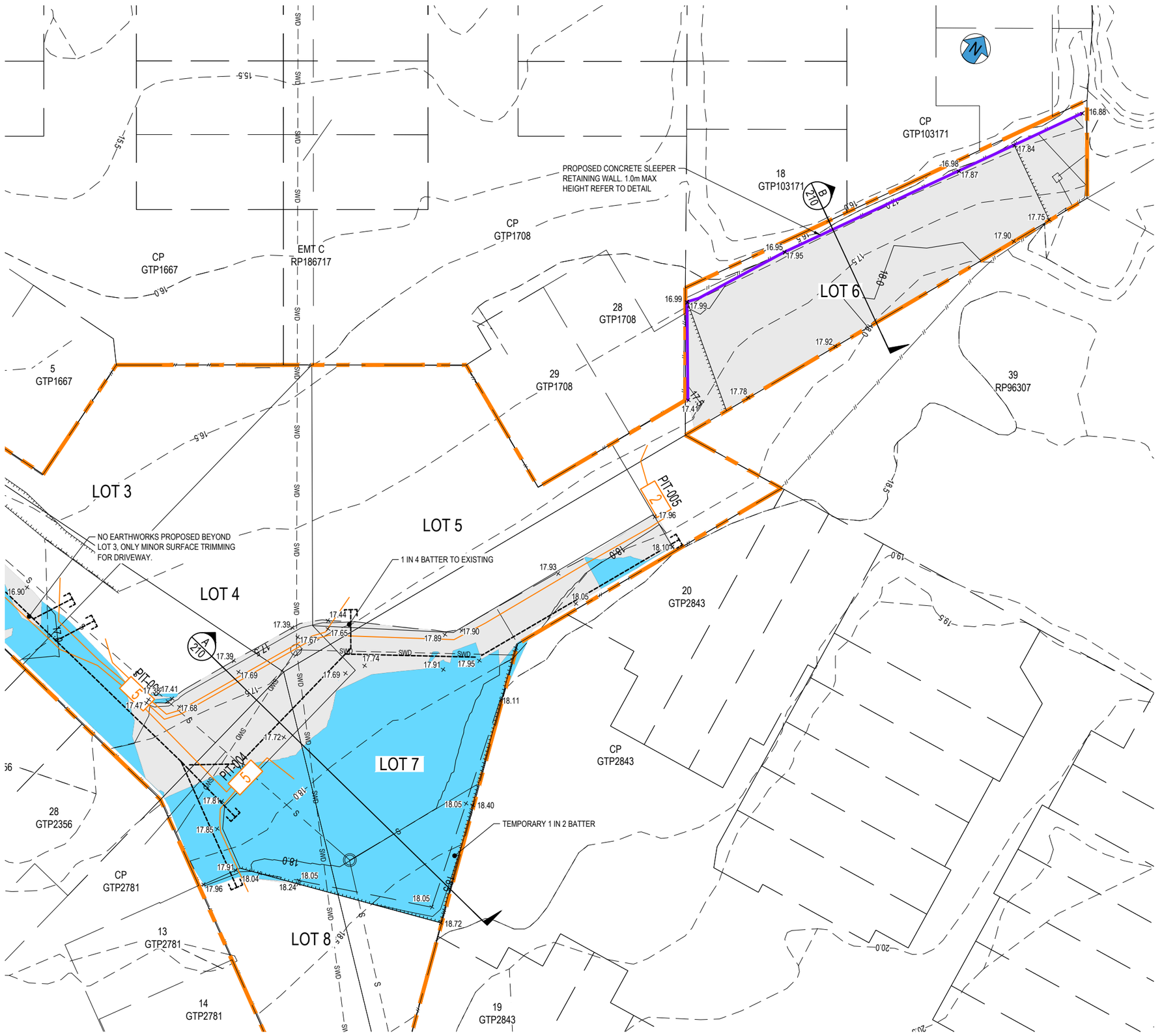
1. REFER TO DRAWING 020 FOR EARTHWORK NOTES
2. DESIGN CONTOURS SHOWN ON THE DRAWING ARE FINISHED SURFACE LEVELS.



LOT 6 CONCRETE SLEEPER RETAINING WALL

NTS

SLEEPER WALL DESIGN AND CONSTRUCTION TO BE CERTIFIED BY A STRUCTURAL ENGINEER. SUBSOIL DRAINS TO DISCHARGE TO DEDICATED KERB ADAPTOR OR STORMWATER STRUCTURES VIA SOLID uPVC.



REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21
B	ADDITIONAL CONNECTION FROM GTP2781 ADDED	DH	DH	02.09.21

SCALE
1 : 200 2 0 2 4 6 8 10m A1
1 : 400 A3

COUNCIL
LOGAN CITY COUNCIL

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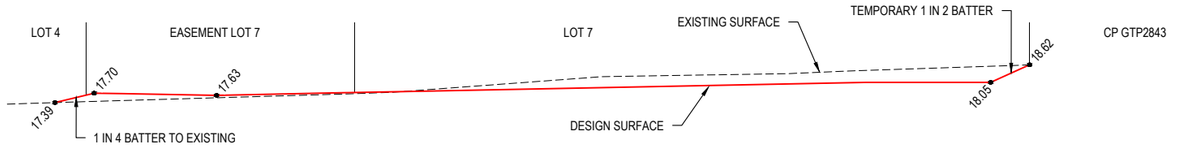
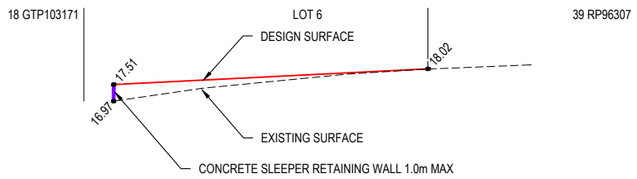
STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: EARTHWORKS PLAN

PROJECT No.	DRAWING No.	REVISION
2020212	200	B



SECTION A
SCALE 1:100 200



SECTION B
SCALE 1:100 200

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21

SCALE
1 : 100 1 0 1 2 3 4 5m A1
1 : 200 A3

COUNCIL
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CLIENT
STRATEGIC DEVELOPMENTS

ASSOCIATED CONSULTANTS

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23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS
ISSUE FOR APPROVAL

DRAWING TITLE
EARTHWORKS SECTIONS

PROJECT No.	DRAWING No.	REVISION
2020212	210	A

NOTE:

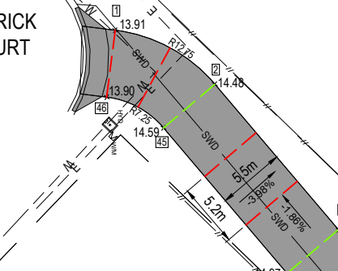
1. NOMINATED LEVELS ARE EDGE OF CONCRETE (UNLESS NOTED OTHERWISE) AND ARE EQUAL DISTANT.
2. ALL KERB RADII AND KERB SETOUT ARE TO EDGE OF CONCRETE
3. DRIVEWAY MIN 175mm THICK N32 CONCRETE WITH SL72 MESH 50 TOP COVER ON 100mm CBR 15 TYPE 2.5 MATERIAL.
4. VEHICLE CROSSING TYPE A IN ACCORDANCE WITH IPWEA STANDARD DRAWING RS-051.
5. BIN PADS 0.9m x 0.9m 125mm THICK N32 CONCRETE WITH SL72 MESH 50 TOP COVER.

LEGEND

- SW — PROPOSED STORMWATER
- PROPOSED DRIVEWAY 175mm
- PROPOSED BINPAD 125mm
- R10.27 — CURVE RADIUS TO EDGE
- ×14.48 — LIP LEVEL / SURFACE LEVEL
- ×[2] — SETOUT POINT
- CONCRETE SAW JOINT (SJ)
- CONCRETE EXPANSION JOINT (EJ)
- SW — EXISTING STORMWATER DRANAGE
- T — EXISTING TELSTRA
- S — EXISTING SEWER
- W — EXISTING WATER
- OE — EXISTING OVERHEAD ELECTRICITY
- EXISTING FENCE

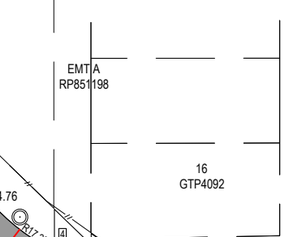
SETOUT POINTS

POINT	EASTING	NORTHING
01	511672.916	6938278.845
02	511682.100	6938279.827
03	511697.141	6938275.759
04	511704.328	6938275.375
05	511718.234	6938277.583
06	511719.431	6938277.676
07	511734.935	6938277.633
08	511750.440	6938277.589
09	511756.599	6938274.339
10	511763.488	6938264.322
11	511770.083	6938260.124
12	511786.484	6938257.389
13	511802.885	6938254.654
14	511805.828	6938256.201
15	511808.740	6938262.423
16	511811.652	6938268.645
17	511813.669	6938271.050
18	511823.644	6938277.218
19	511824.786	6938278.502
20	511829.525	6938288.676
21	511834.265	6938298.849
22	511837.437	6938297.371
23	511832.698	6938287.198
24	511827.958	6938277.024
25	511825.485	6938274.241
26	511818.779	6938270.095
27	511817.628	6938268.380
28	511816.164	6938259.602
29	511814.700	6938250.823
30	511815.862	6938248.279
31	511819.734	6938245.913
32	511817.908	6938242.927
33	511810.366	6938247.536
34	511808.938	6938248.069
35	511794.917	6938250.407
36	511780.852	6938252.753
37	511766.875	6938255.084
38	511760.280	6938259.281
39	511754.443	6938267.768
40	511746.231	6938272.101
41	511732.743	6938272.139
42	511719.255	6938272.176
43	511705.194	6938269.944
44	511695.708	6938270.450
45	511680.664	6938274.517
46	511675.442	6938273.959
47	511765.555	6938258.092
48	511802.432	6938251.942
49	511810.580	6938255.409
50	511814.997	6938269.323
51	511824.501	6938275.690



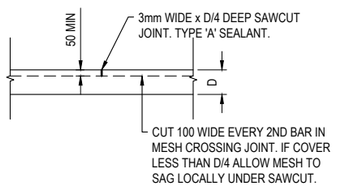
JOINT FILLING TYPE 'A'

NTS



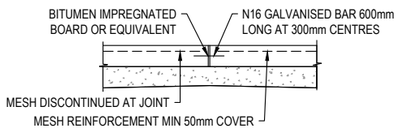
NARROW CORNER REINFORCEMENT

NTS



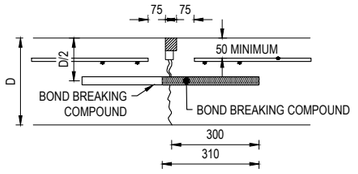
SAWCUT JOINT CONCRETE - S.J

NTS



EXPANSION JOINT DETAIL - E.J

NTS



DOWLLED JOINT- JOINTED REINFORCED PAVEMENT

NTS

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21
B	CONVEX MIRRORS NOTE ADDED	SO	AR	02.07.21

SCALE: 1 : 250 / 1 : 500 — 5 0 5 10m — A1 / A3

COUNCIL: LOGAN CITY COUNCIL

APPROVED: DAVID HOLSTEIN (RPEQ 17025)

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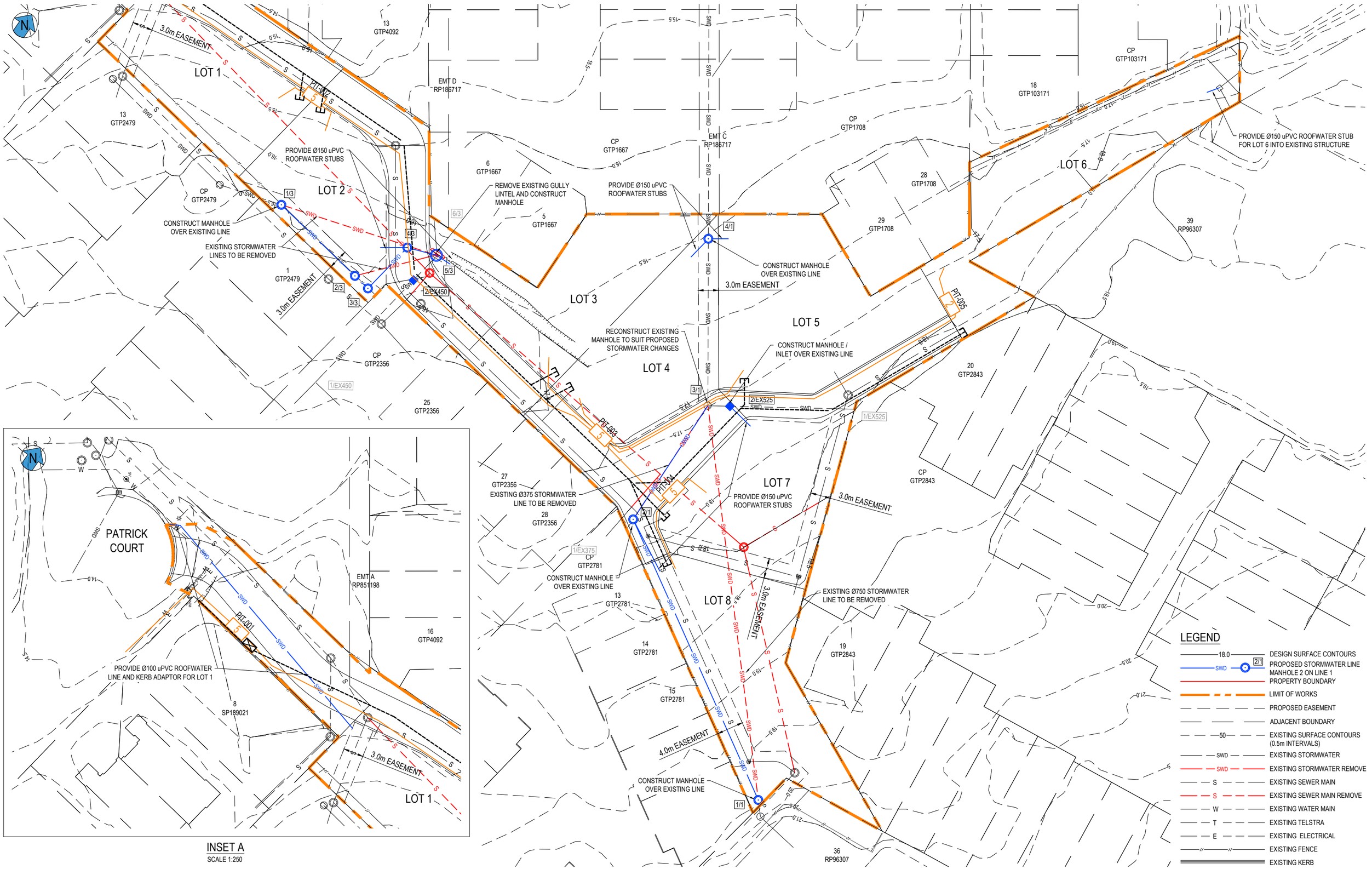
ASSOCIATED CONSULTANTS:

PROJECT: 23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: DRIVEWAY SETOUT PLAN

PROJECT No.	DRAWING No.	REVISION
2020212	300	B



INSET A
SCALE 1:250

LEGEND

- DESIGN SURFACE CONTOURS
- PROPOSED STORMWATER LINE
- MANHOLE 2 ON LINE 1
- PROPERTY BOUNDARY
- LIMIT OF WORKS
- PROPOSED EASEMENT
- ADJACENT BOUNDARY
- EXISTING SURFACE CONTOURS (0.5m INTERVALS)
- EXISTING STORMWATER
- EXISTING STORMWATER REMOVE
- EXISTING SEWER MAIN
- EXISTING SEWER MAIN REMOVE
- EXISTING WATER MAIN
- EXISTING TELSTRA
- EXISTING ELECTRICAL
- EXISTING FENCE
- EXISTING KERB

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21
B	ADDITIONAL CONNECTION FROM GTP2781 ADDED	DH	DH	02.09.21

SCALE: 1 : 250 / 1 : 500 — 5 0 5 10m — A1 / A3

COUNCIL: LOGAN CITY COUNCIL

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ASSOCIATED CONSULTANTS:

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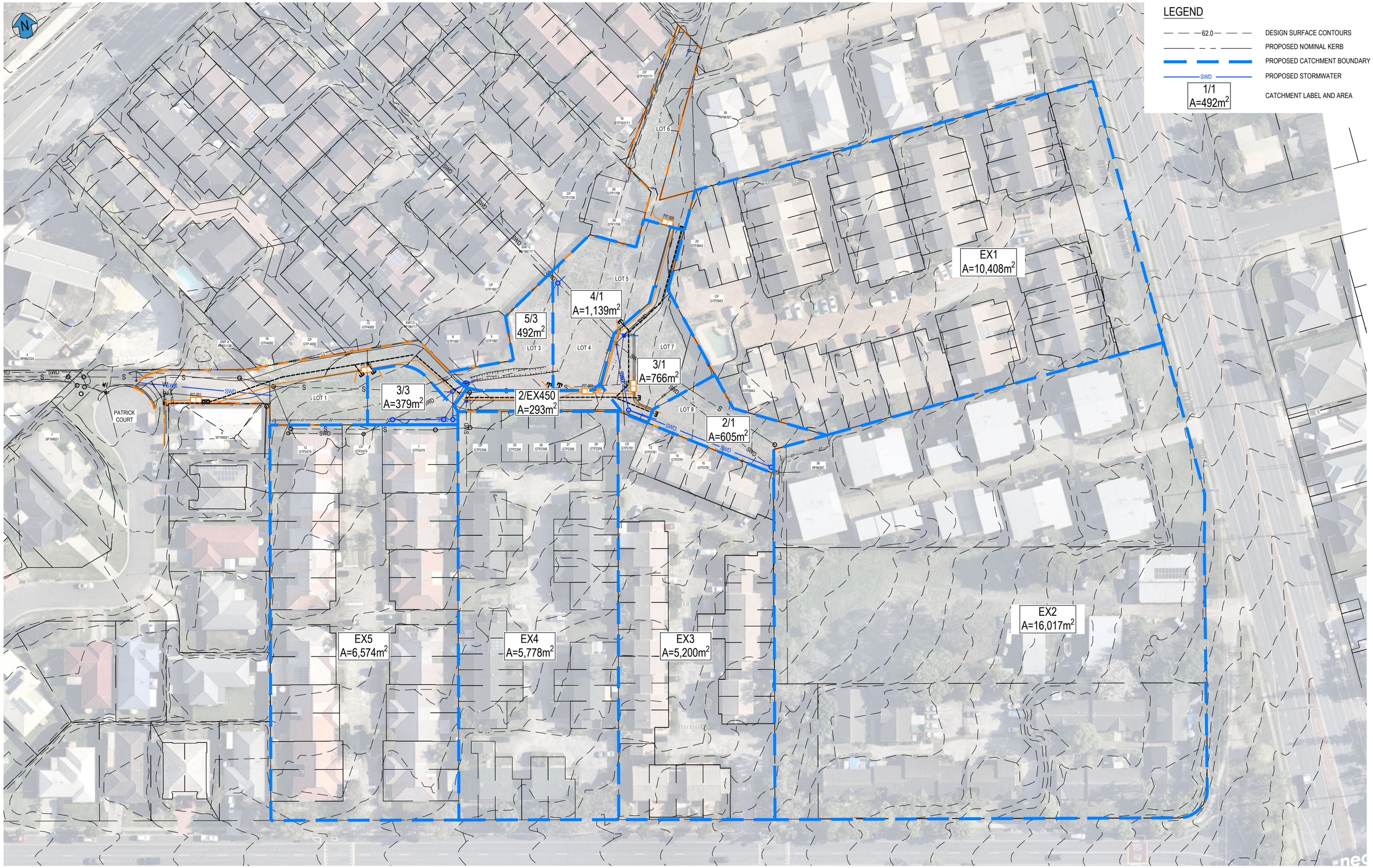
STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: STORMWATER DRAINAGE PLAN

PROJECT No.	DRAWING No.	REVISION
2020212	320	B



REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21

SCALE
1 : 500 5 0 5 10 15 20 25m A1
1 : 1000 A3

COUNCIL
LOGAN CITY COUNCIL

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ASSOCIATED CONSULTANTS

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STATUS
ISSUE FOR APPROVAL

DRAWING TITLE
STORMWATER CATCHMENT PLAN

PROJECT No.	DRAWING No.	REVISION
2020212	400	A

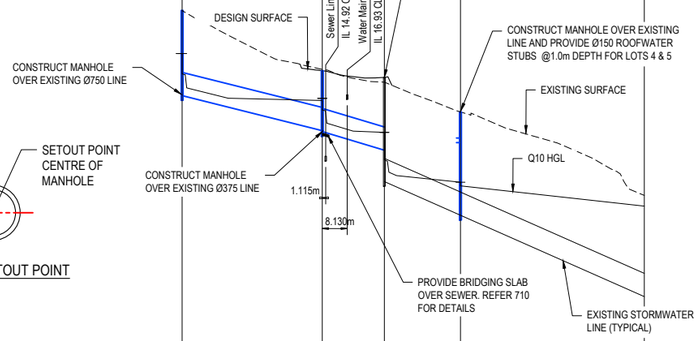
STRUCTURE NAME	1/1	2/1	3/1	4/1	5/1
STRUCTURE DESCRIPTION	STD IPWEA MANHOLE 1050mm DIAMETER OVER EXISTING LINE	STD IPWEA MANHOLE 1200mm DIAMETER OVER EXISTING LINE	EXISTING MANHOLE RECONSTRUCT AS REQUIRED	STD IPWEA MANHOLE 1200mm DIAMETER OVER EXISTING LINE	
PIPE SIZE (CLASS)	750(3)	750(3)	750(3)	750(3)	
PIPE GRADE % 1 IN	2.50 40.00	3.00 33.33	4.42 22.62	4.42 22.62	
PIPE LENGTH	45.724	20.240	24.834	59.978	
	DATUM RL 4.0				
HYDRAULIC GRADELINE	18.424	17.809	16.893	16.636	15.854	15.006	14.229	14.110	13.450
PIPE FLOW (Cumecs)		0.557		0.723		1.156		1.192	
PIPE CAPACITY AT GRADE (Cumecs)		1.797		1.969		2.389		2.389	
DEPTH TO INVERT	2.777		1.955	1.985	2.371	3.394	3.368	3.369	3.298
INVERT LEVEL	17.053		15.910	15.880	15.273	14.250	13.152	13.151	10.500
FINISHED SURFACE LEVEL	19.830		17.865		17.644		16.520		13.798
DISTANCE ALONG DRAINLINE	0.000		45.724		65.964		90.798		150.776
STRUCTURE LOCATION	E511851.684 N6938223.454		E511812.671 N6938247.300		E511812.253 N6938267.536		E511798.238 N6938288.038		E511764.369 N6938337.538
LINE	1								

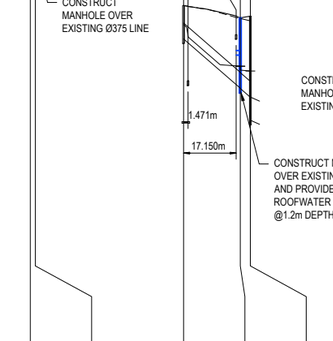
STRUCTURE NAME	1/EX375	2/1
STRUCTURE DESCRIPTION	END OF EXISTING LINE SURVEYED	
PIPE SIZE (CLASS)	375(2)	
PIPE GRADE % 1 IN	9.73 10.28	
PIPE LENGTH	1.645	
	-2.0	
HYDRAULIC GRADELINE	17.955	17.345	16.893	16.636
PIPE FLOW (Cumecs)		0.181		
PIPE CAPACITY AT GRADE (Cumecs)		0.546		
DEPTH TO INVERT	0.900		1.055	
INVERT LEVEL	16.970		16.810	
FINISHED SURFACE LEVEL	17.870		17.865	
DISTANCE ALONG DRAINLINE	0.000		1.645	
STRUCTURE LOCATION	E511812.708 N6938245.655		E511812.671 N6938247.300
LINE	EX375	

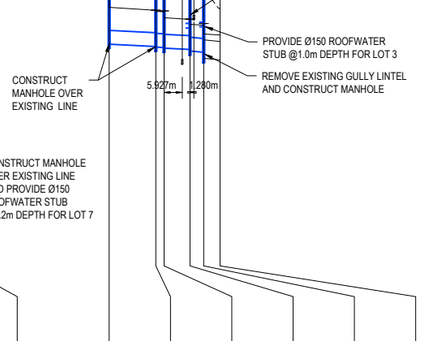
STRUCTURE NAME	1/EX525	2/EX525	3/1
STRUCTURE DESCRIPTION	END OF EXISTING LINE SURVEYED	600mm x 600mm INVERT GRATE FIELD INLET ON 1050mm DIAMETER MANHOLE OVER EXISTING LINE	
PIPE SIZE (CLASS)	525(3)	525(3)	
PIPE GRADE % 1 IN	8.67 11.53	8.67 11.53	
PIPE LENGTH	18.507	3.276	
HYDRAULIC GRADELINE	18.170	17.418	16.010	15.885	15.854	15.006
PIPE FLOW (Cumecs)		0.362		0.403		
PIPE CAPACITY AT GRADE (Cumecs)		1.221		1.221		
DEPTH TO INVERT	1.091		2.294	2.305	2.644	
INVERT LEVEL	16.900		15.295	15.284	15.000	
FINISHED SURFACE LEVEL	17.991		17.583		17.644	
DISTANCE ALONG DRAINLINE	0.000		18.507		21.783	
STRUCTURE LOCATION	E511830.491 N6938279.447		E511814.998 N6938269.324		E511812.253 N6938267.536
LINE	EX525		

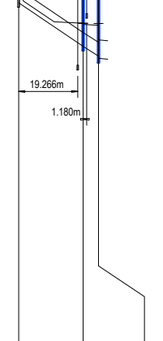
STRUCTURE NAME	1/3	2/3	3/3	4/3	5/3	6/3
STRUCTURE DESCRIPTION	STD IPWEA MANHOLE 1050mm DIAMETER	STD IPWEA MANHOLE 1050mm DIAMETER	STD IPWEA MANHOLE 1050mm DIAMETER	STD IPWEA MANHOLE 1050mm DIAMETER	STD IPWEA MANHOLE 1350mm DIAMETER	
PIPE SIZE (CLASS)	450(3)	450(3)	450(3)	450(3)	600(3)	
PIPE GRADE % 1 IN	0.50 200.00	0.50 200.00	0.50 200.00	1.00 100.00	1.00 100.00	
PIPE LENGTH	15.227	2.688	8.447	4.476	5.329	
	0.0					
HYDRAULIC GRADELINE	16.266	15.931	15.833	15.800	15.783	15.592	15.538	15.379	15.347	15.061	15.030
PIPE FLOW (Cumecs)		0.228		0.228		0.228		0.241	0.467		
PIPE CAPACITY AT GRADE (Cumecs)		0.201		0.201		0.201		0.285	0.614		
DEPTH TO INVERT	1.757		2.031	2.051	2.072	2.092	1.698	1.748	1.832	2.025	1.665
INVERT LEVEL	14.729		14.653	14.633	14.620	14.600	14.558	14.508	14.463	14.270	14.217
FINISHED SURFACE LEVEL	16.486		16.684		16.692		16.256		16.295		15.882
DISTANCE ALONG DRAINLINE	0.000		15.227		17.915		26.362		30.838		36.167
STRUCTURE LOCATION	E511742.990 N6938256.174		E511758.010 N6938253.669		E511760.661 N6938253.227		E511762.051 N6938261.559		E511766.263 N6938263.072		E511762.964 N6938267.257
LINE	3										

STRUCTURE NAME	1/EX450	2/EX450	5/3
STRUCTURE DESCRIPTION	END OF EXISTING LINE SURVEYED	600mm x 600mm INVERT GRATE FIELD INLET ON 1050mm DIAMETER MANHOLE OVER EXISTING LINE	
PIPE SIZE (CLASS)	450(3)	450(3)	
PIPE GRADE % 1 IN	6.76 14.79	6.34 15.77	
PIPE LENGTH	21.016	5.030	
HYDRAULIC GRADELINE	17.046	16.530	15.412	15.375	15.347	15.061
PIPE FLOW (Cumecs)		0.201		0.211		
PIPE CAPACITY AT GRADE (Cumecs)		0.741		0.717		
DEPTH TO INVERT	1.158		1.634	1.634	1.955	
INVERT LEVEL	16.080		14.659	14.659	14.340	
FINISHED SURFACE LEVEL	17.238		16.293		16.295	
DISTANCE ALONG DRAINLINE	0.000		21.016		26.046	
STRUCTURE LOCATION	E511762.133 N6938237.366		E511765.555 N6938258.092		E511766.263 N6938263.072
LINE	EX450		









REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21

SCALE
1 : 100 VERT. 1 0 1 2 3 4 5m A1
1 : 200 VERT. A3
1 : 1000 HORIZ. 10 0 10 20 30 40 50m A1
1 : 2000 HORIZ. A3

COUNCIL
LOGAN CITY COUNCIL

APPROVED DAVID HOLSTEIN (RPEQ 17025)

FOR AND ON BEHALF OF CIVIL360 ENGINEERING PTY LTD.

CIVIL 360 ENGINEERING
PROJECT MANAGEMENT
CIVIL ENGINEERING
LAND DEVELOPMENT
0406 424 223 / 0423 593 058
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CLIENT
STRATEGIC DEVELOPMENTS

ASSOCIATED CONSULTANTS

PROJECT
23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS
ISSUE FOR APPROVAL

DRAWING TITLE
STORMWATER LONGITUDINAL SECTIONS

PROJECT No.	DRAWING No.	REVISION
2020212	410	A

LOCATION					TIME			SUB-CATCHMENT RUNOFF						INLET DESIGN							DRAIN DESIGN													HEADLOSSES								PART FULL		DESIGN LEVELS						
						tc	I	C10	C	A	C*A	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T			V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp						
DESIGN AEP	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C * A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C * A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L * Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.G.L	UPSTREAM H.G.L	LAT. H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.
					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m	%	m	m	m/s						
10 100	1/1	1/1 to 2/1	EX1			12.00 12.00	149 220		0.84 1.00	1.602 1.602	1.345 1.602	1.345 1.602	557 979	557	0.00	0	101	557 (UNLOCKED	0 0)		12.00 12.00	149 220	1.345 1.602	979			557 (Pipe flow=	45.724 Grate flow)	2.50	750(3)	1.24 (4.00)	0.61		Qg 0.557 Qo 0.557 Do 750 CHRT 32: Vo2/2gDo 0.10 H/Do 0.00 Kg side flow 7.85 end flow 6.00	0.078	7.85	0.615			7.85	0.615	0.24	0.110	0.289 (0.214 1y	3.53 (3.01 1y	17.809 16.666	17.809 16.893	18.424		18.424	19.830	1/1
10 100	1/EX375	1/EX375 to 2/1	EX3			12.00 12.00	149 220		0.84 1.00	0.520 0.520	0.437 0.520	0.437 0.520	181 318	181	0.00	0	101	181 (UNLOCKED	0 0)		12.00 12.00	149 220	0.437 0.520	318			181 (Pipe flow=	1.645 Grate flow)	9.73	375(2)	1.64 (4.95)	0.02		Qg 0.181 Qo 0.181 Do 375 CHRT 32: Vo2/2gDo 0.37 H/Do 0.00 Kg side flow 4.45 end flow 3.80	0.137	4.45	0.610			4.45	0.610	1.07	0.018	0.149 (0.110 1y	4.44 (3.79 1y	17.345 17.185	17.345 16.959	17.955		17.955	17.870	1/EX375
10 100	2/1	2/1 to 3/1	EX1;EX3														24				12.61 12.61	146 215	1.782 2.122	1267			723 (Pipe flow=	20.240 Sum upstr atten flows)	3.00	750(3)	1.61 (4.39)	0.21		Qo 0.723 Do 750 Flow 1/EX375 made eqv grate flow Angle 58 Chart 45 S/Do 2.5 chartdeg Du/Do 1.00 K0 2.16 K0.5 1.81 Qu/Qo 0.75 Cg 0.57 K 1.96 S/Do 2.0 K0 2.47 K0.5 2.34 K 2.40 S/Do 1.5 K0 2.74 K0.5 2.80 K 2.78 Interp val for S/Do 1.49 Kw 2.79 CHART 44 S/Do 2.0 K0 1.99 K0.5 2.11 K 2.06 S/Do 1.5 K0 2.12 K0.5 2.17 K 2.15 Interp val for S/Do 1.49 Ku 2.15 K vals above for stepped pipes as grate flow grate flow decreased by 0.177 from 1/EX375 Routine 2.2 CHART 52 B 900 In line 1/EX375 Latrl 1/1 Determine Kl	0.132	1.95	0.257		Dl/Do 1.00 B/Do 1.20 Qu/Qo 0.25 Do/Du 2.00 Do/Dl 1.00 Kl 1.41 Ml 0.76 Kl-Kl*Ml= 1.07 Determine Ku K'u 1.61 Mu 0.76 Ku=K'u*Mu= 1.22 Kw=Ku= 1.22 Combined pipes in line case Join Pipes: 1/1 and 1/EX375 Vel1 1.605 Vel2 1.235 Eq Dia 833 Angle 136 Flow 0.723 CHART 50 Du/Do 1.11 alpha 0 K'w 0.05 Vu 1.33 WSE 0.09 Ku 0.67 Kw 0.70 Interpolated Ku= 1.03 Kw= 1.04 K vals step pipes as pipe flow Ku 1.03 Kw 1.04 Averaged Ku 1.95 Kw 2.47	2.47	0.327	0.40	0.082	0.317 (0.233 1y	4.05 (3.45 1y	16.636 16.029	16.636 15.854	16.893		16.963	17.865	2/1
10 100	1/EX525	1/EX525 to 2/EX525	EX1			12.00 12.00	149 220		0.84 1.00	1.041 1.041	0.874 1.041	0.874 1.041	362 636	362	0.00	0	101	362 (UNLOCKED	0 0)		12.00 12.00	149 220	0.874 1.041	636			362 (Pipe flow=	18.507 Grate flow)	8.67	525(3)	1.72 (5.79)	0.18		Qg 0.362 Qo 0.362 Do 525 CHRT 32: Vo2/2gDo 0.29 H/Do 0.00 Kg side flow 4.99 end flow 4.20	0.151	4.99	0.752			4.99	0.752	0.76	0.141	0.193 (0.143 1y	5.05 (4.30 1y	17.418 15.813	17.418 16.010	18.170		18.170	17.991	1/EX525
10 100	2/EX525	2/EX525 to 3/1	EX1;L7/L8			5.00 5.00	209 305		0.78 0.94	0.136 0.136	0.106 0.128	0.106 0.128	62 108	62 FLOW DEPTH 0.091 m	0.00	69	21S0.1	62 (UNLOCKED	0 0)		12.18 12.18	148 219	0.980 1.169	711			403 (Pipe flow=	3.276 Sum upstr atten flows)	8.67	525(3)	1.91 (5.79)	0.03		Qg 0.044 Qo 0.403 Do 525 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.11 K 0.54 S/Do 1.40 cor 0.13 Ku 0.67 Kw 0.67	0.186	0.67	0.125			0.67	0.125	0.94	0.031			15.802 15.518	15.885 15.854	16.010		16.010	17.589	2/EX525
10 100	3/1	3/1 to 4/1	EX1;EX3;EX1;L7/L8 3/1			5.00 5.00	209 305		0.80 1.00	0.136 0.136	0.109 0.136	0.109 0.136	63 115	63 FLOW WIDTH/DEPTH 0.083Dp m	0.00	69	21S0.1	63 (UNLOCKED	0 0)		12.82 12.82	145 214	2.871 3.427	2037			1156 (Pipe flow=	24.834 Sum upstr atten flows)	4.42	750(3)	2.58 (5.32)	0.16		Qg 0.044 Qo 1.156 Do 750 Flow 2/1 made eqv grate flow Flow 2/EX525 made eqv grate flow CHRT 32: Vo2/2gDo 0.45 H/Do 0.00 Kg side flow 4.06 end flow 3.56 K vals above for stepped pipes as grate flow grate flow decreased by 0.718 from 2/1 grate flow decreased by 0.395 from 2/EX525 Routine 2.10 CHART 49 High vel lat 2/EX525 Dhv 525 Qhv 0.395 Dhv/Dlv 0.7 Dhv/Do 0.70 Qhv/Qo 0.34 H 2.28	0.339	2.50	0.848		Low vel latrl 2/1 Dlv 750 Qlv 0.718 Dlv/Do 1.00 Qlv/Qo 0.62 L 0.42 H-L 1.86 Ku=Kw= 1.86 CHART 48 Du/Do 1.00 Qu/Qo 0.62 K 1.24 d/Do 2.0 chrt Qg/Qo 0.04 Kg 0.04 d/Do 1.5 chrt Qg/Qo 0.04 Kg 0.04 d/Do 1.00 Interp value Kg 0.03 Ku=Kw= 1.27 Interpolated Ku= 1.49 Kw= 1.49 K vals step pipes as pipe flow Ku 1.49 Kw 1.49 Averaged Ku 2.50 Kw 2.50	2.50	0.848	1.04	0.257	0.371 (0.269 1y	5.28 (4.52 1y	15.006 13.908	15.006 14.229	15.854		15.854	17.644	3/1
10 100	4/1	4/1 to 5/1	EX1;EX3;EX1;L7/L8 3/1;L4/L5			5.00 5.00	209 305		0.78 0.94	0.114 0.114	0.089 0.107	0.089 0.107	52 91	52 FLOW WIDTH/DEPTH 0.079Dp m	0.00	69	21S0.1	52 (UNLOCKED	0 0)		12.98 12.98	145 213	2.960 3.534	2091			1192 (Pipe flow=	59.978 Sum upstr atten flows)	4.42	750(3)	2.66 (5.32)	0.38		Qg 0.036 Qo 1.192 Do 750 CHART 33 Angle 0 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.03 K 0.29 S/Do 1.43 cor 0.04 Ku 0.33 Kw 0.33	0.361	0.33	0.119			0.33	0.119	1.10	0.660			13.907 11.256	14.110 13.450	14.229		14.229	16.520	4/1
10 100	1/3	1/3 to 2/3	EX5			12.00 12.00	149 220		0.84 1.00	0.657 0.657	0.552 0.657	0.552 0.657	228 402	228	0.00	0	101	228 (UNLOCKED	0 0)		12.00 12.00	149 220	0.552 0.657	402			228 (Pipe flow=	15.227 Grate flow)	0.50	450(3)	1.44 (1.27)	0.18		Qg 0.228 Qo 0.228 Do 450 CHRT 32: Vo2/2gDo 0.23 H/Do 1.67 Kg side flow 3.17 end flow 2.83	0.106	3.17	0.335			3.17	0.335	0.64	0.098			15.179 15.103	15.931 15.833	16.266		16.266	16.486	1/3
10 100	2/3	2/3 to 3/3	EX5														24				12.18 12.18	148 219	0.552 0.657	400			228 (Pipe flow=	2.688 Sum upstr atten flows)	0.50	450(3)	1.44 (1.27)	0.03		Qo 0.228 Do 450 CHART 50 Du/Do1.00 alpha 0 K'w 0.05 Vu 1.44 WSE 0.04 Ku 0.31 Kw 0.36	0.106	0.31	0.033			0.36	0.038	0.64	0.017			15.083 15.070	15.800 15.783	15.833		15.838	16.684	2/3
10 100	3/3	3/3 to 4/3	EX5														24				12.21 12.21	148 218	0.552 0.657	398			228 (Pipe flow=	8.447 Sum upstr atten flows)	0.50	450(3)	1.44 (1.27)	0.10		Qo 0.228 Do 450 CHART 50 Du/Do1.00 alpha 90 K'w 0.30 Vu 1.44 WSE 0.22 Ku 1.80 Kw 2.10	0.106	1.80	0.191			2.10	0.222	0.64	0.054			15.050 15.008	15.592 15.538	15.783		15.814	16.692	3/3
10 100	4/3	4/3 to 5/3	EX5;L2			5.00 5.00	209 305		0.78 0.94	0.038 0.038	0.030 0.036	0.030 0.036	17 30	17 FLOW WIDTH/DEPTH 0.028Dp m	0.00	69	21S.1	17 (UNLOCKED	0 0)		12.31 12.31	148 218	0.582 0.693	420			241 (Pipe flow=	4.476 Sum upstr atten flows)	1.00	450(3)	1.51 (1.79)	0.05		Qg 0.012 Qo 0.241 Do 450 Angle 61 Chart 43 S/Do 2.5 chartdeg Du/Do 1.00 K0 1.35 K0.5 1.93 Qu/Qo 0.95 Cg 0.13 K 1.43 S/Do 2.5 K0 1.35 K0.5 1.93 K 1.43 S/Do 2.0 K0 1.41 K0.5 2.25 K 1.52	0.116	1.37	0.159		Interp val for S/Do 2.31 Kw 1.46 CHART 42 S/Do 2.5 K0 1.25 K0.5 1.82 K 1.33 S/Do 2.0 K0 1.35 K0.5 2.10 K 1.45 Interp val for S/Do 2.31 Ku 1.37	1.46	0.170	0.71	0.032			14.958 14.913	15.379 15.347	15.538		15.549	16.256	4/3
10 100	1/EX450	1/EX450 to 2/EX450	EX4			12.00 12.00	149 220		0.84 1.00	0.578 0.578	0.485 0.578	0.485 0.578	201 353	201	0.00	0	101	201 (UNLOCKED	0 0)		12.00 12.00	149 220	0.485 0.578	353			201 (Pipe flow=	21.016 Grate flow)	6.76	450(3)	1.26 (4.66)	0.28		Qg 0.201 Qo 0.201 Do 450 CHRT 32: Vo2/2gDo 0.18 H/Do 0.00 Kg side flow 6.38 end flow 5.12	0.081	6.38	0.516			6.38	0.516	0.50	0.104	0.160 (0.119 1y	3.96 (3.36 1y	16.530 15.109	16.530 15.412	17.046		17.046	17.238	1/EX450
10 100	2/EX450	2/EX450 to 5/3	EX4;RD			5.00 5.00	209 305		0.95 1.00	0.029 0.029	0.028 0.029	0.028 0.029	16 25	16 FLOW DEPTH 0.026 m	0.00	69	21S.1	16 (UNLOCKED	0 0)		12.28 12.28	148 218	0.513 0.607	368			211 (Pipe flow=	5.030 Sum upstr atten flows)	6.34	450(3)	1.33 (4.51)	0.06		Qg 0.012 Qo 0.211 Do 450 CHART 33 Angle 1 S/Do 2.5 Du/Do 1.00 Qg/Qo 0.05 K 0.37 S/Do 1.67 cor 0.05 Ku 0.42 Kw 0.42	0.090	0.42	0.037			0.42	0.037	0.55	0.028			15.109 14.790	15.375 15.347	15.412		15.412	16.293	2/EX450
10 100	5/3	5/3 to 6/3	EX5;L2;EX4;RD;L3			5.00 5.00	209 305		0.78 0.94	0.049 0.049	0.038 0.046	0.038 0.046	22 39	22 FLOW WIDTH/DEPTH 0.036Dp m	0.00	69	21S0.1	22 (UNLOCKED	0 0)		12.36 12.36	148 217	1.133 1.346	811			467 (Pipe flow=	5.329 Sum upstr atten flows)	1.00	600(3)	1.65 (2.17)	0.05		Qg 0.016 Qo 0.467 Do 600 Routine 2.24 Join Pipes: 4/3 and 2/EX450 Vel1 1.514 Vel2 1.326 Eq Dia 635 Angle 259 Flow 0.452 Angle 79 Chart 47 S/Do 2.5 chartdeg Du/Do 1.06 K0 1.91 K0.5 2.05 Qu/Qo 0.97 Cg 0.09 K 1.92	0.139	2.06	0.286		S/Do 2.0 K0 2.42 K0.5 2.40 K 2.42 S/Do 1.5 K0 2.66 K0.5 2.54 K 2.65 Interp val for S/Do 1.89 Kw 2.47 CHART 46 S/Do 2.0 K0 2.06 K0.5 1.86 K 2.04 S/Do 1.5 K0 2.09 K0.5 2.31 K 2.11 Interp val for S/Do 1.89 Ku 2.06	2.47	0.343	0.58	0.031			14.870 14.817	15.061 15.030	15.347		15.404	16.295	5/3

CALCULATION TABLE

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21

SCALE

COUNCIL
LOGAN CITY COUNCIL

APPROVED DAVID HOLSTEIN (RPEQ 17025)

FOR AND ON BEHALF OF CIVIL360 ENGINEERING PTY LTD.

CIVIL 360 ENGINEERING
PROJECT MANAGEMENT
CIVIL ENGINEERING
LAND DEVELOPMENT
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CLIENT
STRATEGIC DEVELOPMENTS

ASSOCIATED CONSULTANTS

PROJECT
23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS
ISSUE FOR APPROVAL

DRAWING TITLE
STORMWATER CALCULATION TABLE

PROJECT No.	DRAWING No.	REVISION
2020212	420	A

LIVE SEWER WORKS TABLE

No.	DESCRIPTION	DIA SEWER	MH NO.	MH/MS TYPE	COVER TYPE	LOT NO.	F.S.L.	E.S.L.	I.L.	DEPTH TO INVERT
1(A)	CONTRACTOR LAY AWAY FROM MANHOLE INSTALLING ALL UPSTREAM SEWER. LEAVE 2.0m GAP.	150	1/S1	EX	D	1	14.88	14.88	12.73	2.13
1(B)	ONCE SEWER WORKS ARE SUCCESSFULLY ACCEPTED 'ON MAINTENANCE' LOGAN WATER TO MAKE FINAL CONNECTION, REMOVE EXISTING REDUNDANT CONNECTION AND MAKE GOOD									
2(A)	CONTRACTOR LAY AWAY FROM MANHOLE INSTALLING ALL DOWNSTREAM SEWER. LEAVE 2.0m GAP.	150	4/S2	EX	D	1	19.91	19.91	18.58	1.33
2(B)	ONCE SEWER WORKS ARE SUCCESSFULLY ACCEPTED 'ON MAINTENANCE' LOGAN WATER TO MAKE FINAL CONNECTION, REMOVE EXISTING REDUNDANT CONNECTION AND MAKE GOOD									

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EXISTING SEWER PROPERTY CONNECTION LINES TO REMAIN LIVE UNTIL SEWER ACCEPTED ON MAINTENANCE. WORKS TO BE CARRIED OUT BY A LICENCED PLUMBER UPON COUNCIL APPROVAL FOR A PLUMBING AND DRAINAGE APPLICATION

GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND SEWERAGE CODE SPECIFICATIONS AND STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. THE CONSTRUCTION OF THE SEWERAGE WORK SHOWN ON THIS DRAWING SHALL BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. SEWERAGE WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO THE SEQ SERVICE PROVIDER SEWERAGE SYSTEM.
4. ALL WORK ASSOCIATED WITH LIVE SEWERS OR MAINTENANCE HOLES SHALL BE CARRIED OUT BY THE SEQ SERVICE PROVIDER AT THE DEVELOPER'S COST.
5. ALL PIPES AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE "ACCEPTED PRODUCTS AND MATERIALS" LIST.
6. PROPERTY CONNECTIONS SHALL BE LOCATED WITHIN THE PROPERTY AS SHOWN IN THE DRAWINGS.
7. PROPERTY CONNECTION BRANCHES SHALL EXTEND INTO THE PROPERTY A MINIMUM OF 300mm AND A MAXIMUM OF 750mm.
8. WHERE PIPES ARE LAID IN FILL, THE FILLING SHALL BE CARRIED OUT IN LAYERS NOT EXCEEDING 300mm (LOOSE) IN DEPTH AND SHALL BE COMPACTED UNTIL THE COMPACTION IS NOT LESS THAN 95% OF THE MATERIALS MAXIMUM COMPACTION WHEN TESTED IN ACCORDANCE WITH A.S. 1289 (MODIFIED COMPACTION). TESTING SHALL BE CARRIED OUT AFTER EACH ALTERNATE LAYER. IN ALL SUCH CASES APPROVAL OF CONSTRUCTED SEWERS WILL NOT BE ISSUED BY THE SEQ SERVICE PROVIDER UNLESS CERTIFICATES ARE PRODUCED CERTIFYING THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.
9. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCING WORKS.
10. SEWERS SHALL BE DISUSED / ABANDONED IN ACCORDANCE WITH PROCEDURES SET OUT IN THE SEQ SEWER CODE.
11. BENCH MARK AND LEVELS TO AHD.
12. EXISTING ALLOTMENTS REQUIRING A PROPERTY CONNECTION FROM EXISTING SEWERS SHALL BE PROVIDED BY THE SEQ SERVICE PROVIDER AT THE DEVELOPERS COST.

LEGEND

- DESIGN SURFACE CONTOURS
- PROPOSED NOMINAL KERB LINE
- PROPOSED SEWERAGE MANHOLE 1 ON LINE 2
- PROPOSED WATER
- PROPOSED STORMWATER
- RETAINING WALL
- SERVICE EASEMENT
- EXISTING STORMWATER DRANAGE
- EXISTING STORMWATER REMOVE
- EXISTING SEWER MAIN
- EXISTING SEWER MAIN REMOVE
- EXISTING TELSTRA
- EXISTING SEWER
- EXISTING WATER

LOT 1 · LOT 2 · LOT 3 · LOT 4 · LOT 5 · LOT 6 · LOT 7 · LOT 8

LIVE CONNECTION 1
CONNECTION TO EXISTING SEWER MANHOLE BY LOGAN WATER. REFER TABLE

PLUMBING CONNECTION 1
CONNECTION TO EXISTING LIVE Ø150 HC

PLUMBING CONNECTION 2
CONNECTION TO EXISTING LIVE Ø150 HC

PLUMBING CONNECTION 3
CONNECTION TO EXISTING LIVE Ø150 HC

LIVE CONNECTION 2
CONNECTION TO EXISTING SEWER MANHOLE BY LOGAN WATER. REFER TABLE

SEWERAGE NOTES:

1. GENERAL ALIGNMENT OF SEWER PIPES SHALL BE (UNLESS NOTED OTHERWISE):
   1.75m OUTSIDE THE PROPERTY BOUNDARIES.
   2.30m OUTSIDE THE PROPERTY BOUNDARIES WHEN ADJACENT WATER RETICULATION PIPES.
   2.00m FROM REAR BOUNDARIES WHEN ADJACENT TO ROOFWATER DRAINAGE.
2. MINIMUM PIPE COVER SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND (SEQ) SEWERAGE CODE AS FOLLOWS:
   - PRIVATE PROPERTY NOT SUBJECT TO VEHICULAR LOADING 0.60m
   - PRIVATE PROPERTY SUBJECT TO VEHICULAR LOADING 0.75m
   - SEALED ROADS, FOOTWAYS, VERGES, INDUSTRIAL PROPERTY 0.90m
   - UNSEALED ROADS, ARTERIAL AND FUTURE ROADS 1.20m
3. ALL SEWER PIPES SHALL BE uPVC SN8 UNLESS SHOWN OTHERWISE.
4. TYPE P2 PRECAST MANHOLES WITH CONVERSION SLABS ARE PREFERRED, SUBJECT TO APPROVAL. REFER SEQ-SEW STD DWG SEQ-SEW-1300-1. CONSTRUCTION MAY INCLUDE A COMBINATION OF PRECAST AND IN-SITU MANHOLES TO SUIT APPLICATION.
5. EACH ALLOTMENT SHALL BE SERVICED BY A DN100 PVC DIAMETER PROPERTY CONNECTION. FOR ALLOTMENTS OTHER THAN SINGLE RESIDENTIAL, A DN150 PVC PROPERTY CONNECTION SHALL BE PROVIDED IN ACCORDANCE WITH CURRENT SEQ CODE STANDARDS.
6. WHERE SEWERS HAVE A GRADE OF 1 IN 20 OR STEEPER, BULKHEADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SEQ SEWER CODE TABLE 9.1 AND STD DWG SEQ-SEW-1206-1.
7. PIPE EMBEDMENT AND TRENCHFILL TO BE IN ACCORDANCE WITH SEQ SEWER CODE SEQ-SEW-1200 SERIES STANDARD DRAWINGS, TYPE 3 SUPPORT EMBEDMENT.
8. THE INVERT LEVELS SHOWN ON THE LONGITUDINAL SECTIONS ARE THE LEVELS CALCULATED AT THE CENTRES OF MANHOLES.
9. HOUSE CONNECTION JUNCTION CHAINAGES SHOWN ON THE LONGITUDINAL SECTIONS ARE MEASURED FROM THE DOWNSTREAM MANHOLE.
10. THE LEVELS ON MANHOLE COVERS SHOWN ON THE LONGITUDINAL SECTIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL FINISH MANHOLE COVERS AND SURROUNDS TO SUIT THE SLOPE AND LEVEL OF THE FINISHED SURFACE AT THAT LOCATION UNLESS OTHERWISE DIRECTED BY THE SUPERINTENDENT.
11. ALL SEWERS, HOUSE CONNECTIONS, MANHOLES AND BACKFILLING SHALL BE TESTED IN ACCORDANCE WITH SEQ CODE SEWER SPECIFICATIONS.
12. DETECTABLE MARKER TAPE TO BE INSTALLED ON ALL NON-METALLIC PIPELINES.
13. NO STEP IRONS OR LADDERS TO BE INSTALLED IN SEWER MANHOLES.
14. CCTV FOOTAGE TO THE REQUIREMENTS OF LOCAL AUTHORITY TO BE PROVIDED.
15. WHERE INTERNAL DROPS ARE CONSTRUCTED, PENETRATIONS INTO THE MANHOLE WALL IS TO BE CONSTRUCTED IN ACCORDANCE WITH SEQ WATER SERVICE PROVIDERS STD DWG SEQ-SEW-1303-1.
16. ANY WORKS CONSTRUCTED OUTSIDE OF SPECIFIED TOLERANCES SHALL BE RECTIFIED AT THE CONTRACTORS EXPENSE (IF ORDERED).

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21
B	LINE 2 STRUCTURE NUMBERING AMENDED	SO	DH	02.07.21
C	ADDITIONAL CONNECTION FROM GTP2781 ADDED	DH	DH	02.09.21
D	CONNECTION FROM GTP2356 AND MH 7/S1 AMENDED	DH	DH	09.09.21

SCALE
1 : 250 1 : 500 5 0 5 10m A1 A3

COUNCIL
LOGAN CITY COUNCIL

APPROVED DAVID HOLSTEIN (RPEQ 17025)

FOR AND ON BEHALF OF CIVIL360 ENGINEERING PTY LTD.

CIVIL 360 ENGINEERING
PROJECT MANAGEMENT
CIVIL ENGINEERING
LAND DEVELOPMENT
0406 424 223 / 0423 593 058
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CLIENT: STRATEGIC DEVELOPMENTS

ASSOCIATED CONSULTANTS

PROJECT: 23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

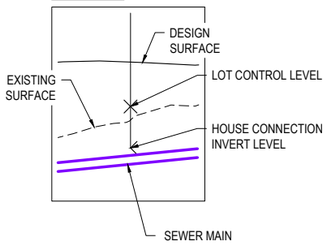
STATUS: ISSUE FOR APPROVAL

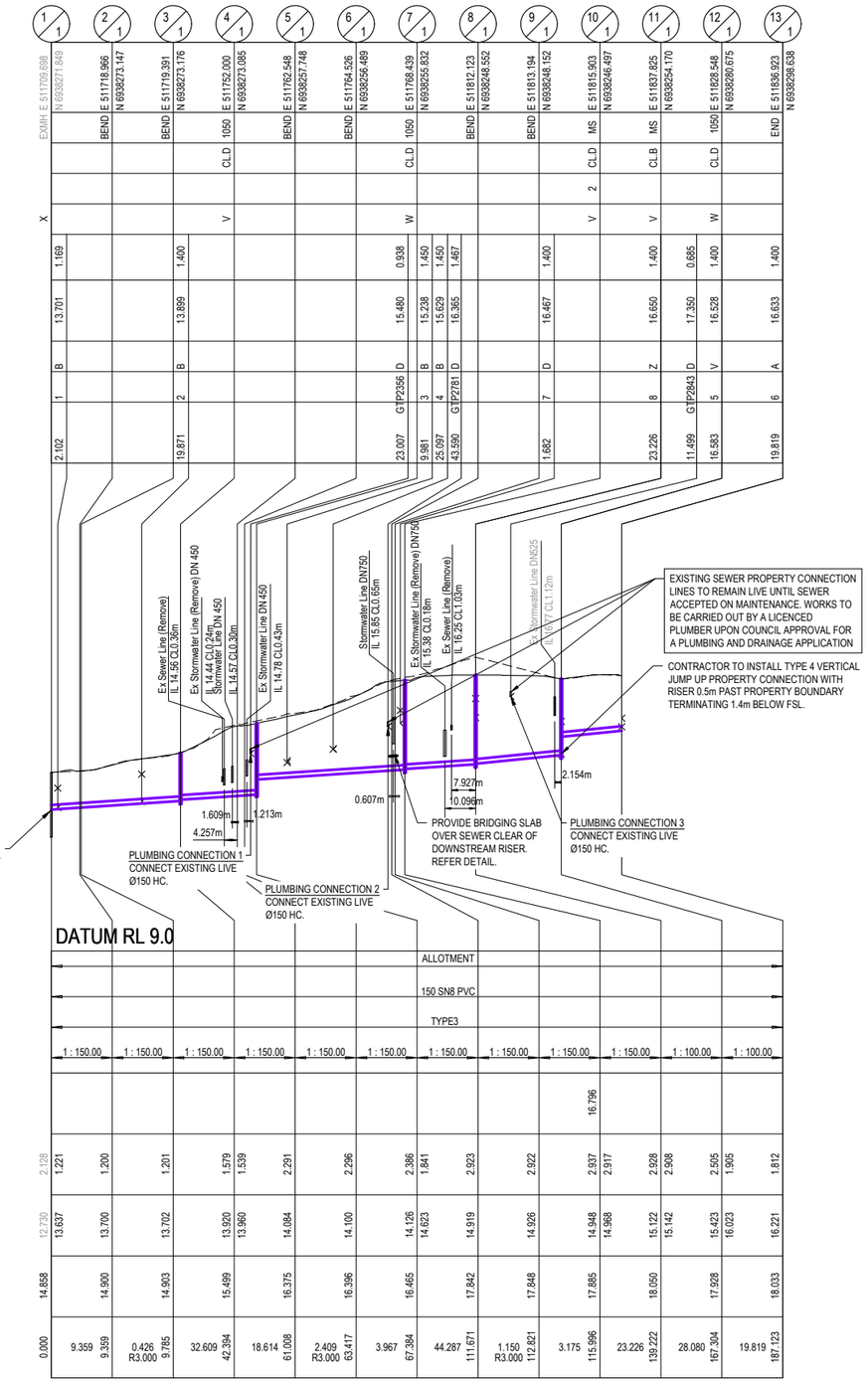
DRAWING TITLE: SEWERAGE RETICULATION PLAN

PROJECT No.	DRAWING No.	REVISION
2020212	700	D

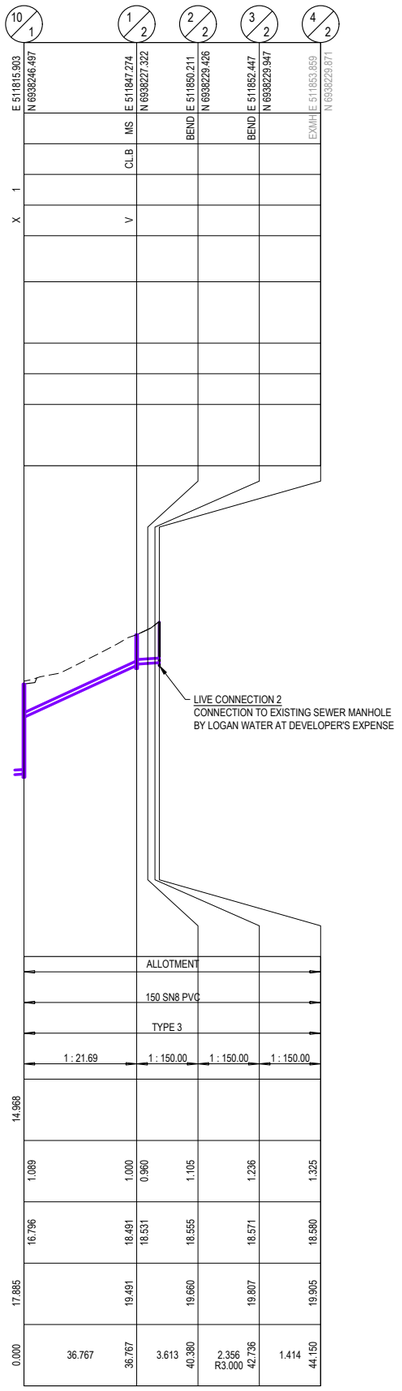
STRUCTURE NAME
SETOUT CO ORDINATES
MANHOLE TYPE
LID TYPE
JUNCTION LINE
DROP TYPE
DEPTH TO HC
HOUSE CONNECTION INVERT LEVEL
HC TYPE
HC LOT No
CH. FROM D/S MH

LEGEND





LINE 1



LINE 2

SEWER STRUCTURE COVER

B	NON-TRAFFICABLE COVER. REFER TO SEQ STD. DRGS SEQ-SEW-1308-8 TO SEQ-SEW-1308-11
D	TRAFFICABLE COVER. REFER TO SEQ STD. DRGS SEQ-SEW-1308-5 TO SEQ-SEW-1308-7

SEWER STRUCTURE TYPES

1050	1050mm DIA. MAINTENANCE STRUCTURE. REFER TO SEQ STD. DRGS SEW-1300-1, SEW-1307-1, SEW-1308-1
MS	MAINTENANCE SHAFT. TYPE 'J'-1 DN600 POOPIT REFER TO SEQ STD. DRG SEW-1314-1 & 1314-2
RE	RODDING END. REFER TO SEQ STD DRG. SEW-1314-1
END	RUBBER RING SEAL SCREWED CAP FITTING WELDED INTO SEWER PIPELINE.
BEND	IN-LINE 3.0m LONG RADIUS PVC SN8 FORMED BEND. REFER TO SEQ-SEW-1314-3
EXMH	EXISTING SEWER MANHOLE

SEWER STRUCTURE DROPS

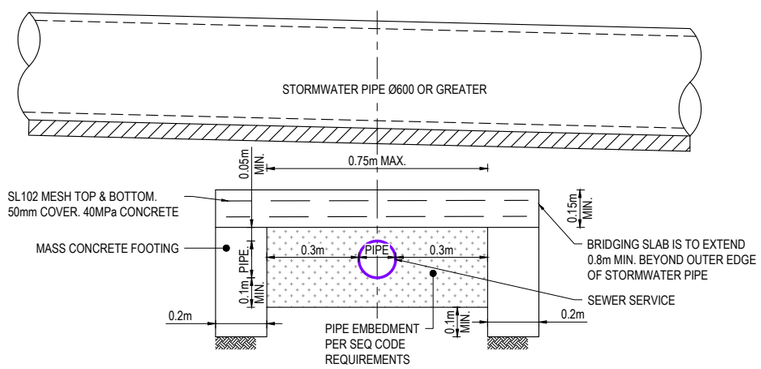
V	STRAIGHT THROUGH SEWER TYPE 'V'. REFER TO SEQ STD. DRG SEW-1303-1
W	OBLIQUE BACKDROP. REFER TO SEQ STD. DRG SEW-1303-1
X	INTERNAL BACKDROP TYPE 'X'. REFER TO SEQ STD. DRG SEW-1303-1
Y	EXTERNAL BACKDROP TYPE 'Y'. REFER TO SEQ STD. DRG SEW-1303-1
Z	INLET INTO MAINTENANCE SHAFT RISER (MIN 750mm ABOVE DSIL). REFER TO SEQ STD. DRG SEW-1314-1

SEWER PROPERTY CONNECTION TYPES

A	SEWERAGE HOUSE CONNECTION (STANDARD AND EXTENDED) TYPE 'A'. REFER TO SEQ STD. DRG SEW-1104-1
B	SEWERAGE HOUSE CONNECTION (SLOPED CONNECTION) TYPE 'B'. REFER TO SEQ STD. DRG SEW-1104-1
D	SEWERAGE HOUSE CONNECTION (VERTICAL RISER) TYPE 'D'. REFER TO SEQ STD. DRG SEW-1105-1
V	SEWERAGE HOUSE CONNECTION (STANDARD AND EXTENDED) TYPE 'V'. REFER TO SEQ STD. DRG SEW-1303-1
W	SEWERAGE HOUSE CONNECTION (SLOPED CONNECTION) TYPE 'W'. REFER TO SEQ STD. DRG SEW-1303-1
X	SEWERAGE HOUSE CONNECTION (INTERNAL VERTICAL RISER) TYPE 'X'. REFER TO SEQ STD. DRG SEW-1303-1
Z	INLET INTO MAINTENANCE SHAFT RISER (MIN 750mm ABOVE DSIL). REFER TO SEQ STD. DRG SEW-1314-1
JU	JUMP UP SEWERAGE HOUSE CONNECTION. REFER TO DETAIL.

NOTES:

1. HC LEVELS REFER TO IL AT END OF HC. NOTWITHSTANDING HC LEVELS DESIGNED, CONTRACTOR TO ENSURE HC I.O LEVEL IS LOCATED BETWEEN 600mm & 1500mm BELOW FSL.
2. PROVIDE TRENCHSTOPS AS PER SEQ WATER STD DWG SEW-1206-1



SEWER BRIDGING DETAIL

FOR Ø600mm MINIMUM STORMWATER CROSSING

N.T.S

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21
B	ADDITIONAL CONNECTION FROM GTP2781 ADDED	DH	DH	02.09.21
C	CONNECTION FROM GTP2356 AND MH 7/S1 AMENDED	DH	DH	09.09.21

SCALE
1 : 100 VERT. 1 0 1 2 3 4 5m A1
1 : 200 VERT. A3
1 : 1000 HORIZ. 10 0 10 20 30 40 50m A1
1 : 2000 HORIZ. A3

COUNCIL
LOGAN CITY COUNCIL

APPROVED DAVID HOLSTEIN (RPEQ 17025)

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ASSOCIATED CONSULTANTS

PROJECT: 23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

STATUS: ISSUE FOR APPROVAL

DRAWING TITLE: SEWERAGE LONGITUDINAL SECTIONS

PROJECT No.	DRAWING No.	REVISION
2020212	710	C

LEGEND

- PROPOSED Ø100 DICL WATER (V, FH, W)
- FIRE HYDRANT AND SLUICE VALVE
- PROPOSED WATER SERVICE (PRIVATE)
- PROPOSED WATER METER SERVICE PER SEQ-WAT-1110-1/2 INCLUDING BALL VALVE AND METER BOX (ONLY)
- PROPOSED SEWER (S)
- PROPOSED STORMWATER (SW)
- PROPOSED EASEMENT
- EXISTING STORMWATER DRANAGE (SW)
- EXISTING TELSTRA (T)
- EXISTING SEWER (S)
- EXISTING WATER (W)

MINIMUM COVER TO WATER MAINS

LOCATION	≤Ø200mm NB	≥Ø200mm NB
NON ROADWAY	600mm	1000mm
SEALED ROADS	600mm	1000mm
MAJOR ROADS/EMBANKMENT	750mm	1200mm
FREEWAYS	1200mm	1200mm

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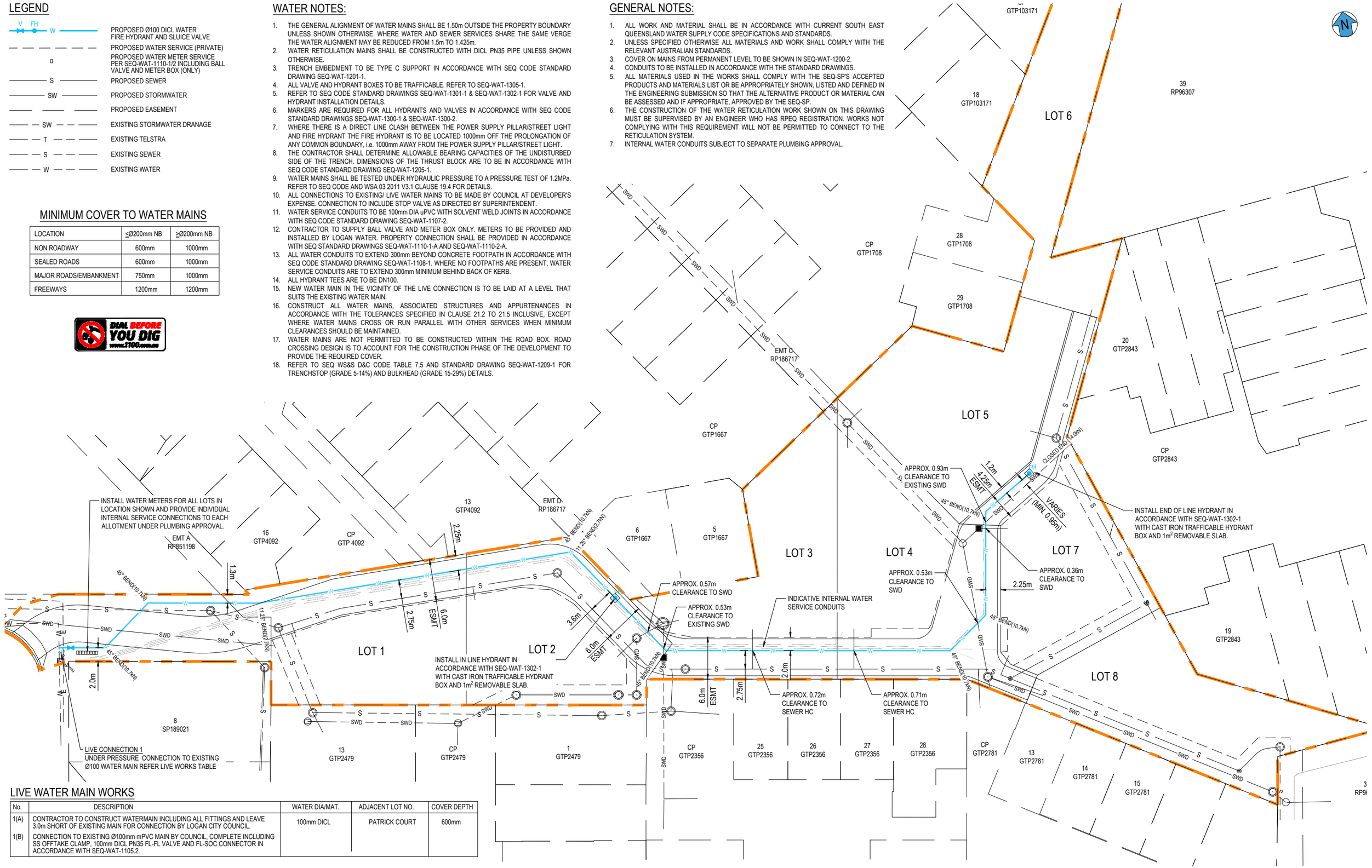
WATER NOTES:

1. THE GENERAL ALIGNMENT OF WATER MAINS SHALL BE 1.50m OUTSIDE THE PROPERTY BOUNDARY UNLESS SHOWN OTHERWISE. WHERE WATER AND SEWER SERVICES SHARE THE SAME VERGE THE WATER ALIGNMENT MAY BE REDUCED FROM 1.5m TO 1.425m.
2. WATER RETICULATION MAINS SHALL BE CONSTRUCTED WITH DICL PN35 PIPE UNLESS SHOWN OTHERWISE.
3. TRENCH EMBEDMENT TO BE TYPE C SUPPORT IN ACCORDANCE WITH SEQ CODE STANDARD DRAWING SEQ-WAT-1201-1.
4. ALL VALVE AND HYDRANT BOXES TO BE TRAFFICABLE. REFER TO SEQ-WAT-1305-1.
5. REFER TO SEQ CODE STANDARD DRAWINGS SEQ-WAT-1301-1 & SEQ-WAT-1302-1 FOR VALVE AND HYDRANT INSTALLATION DETAILS.
6. MARKERS ARE REQUIRED FOR ALL HYDRANTS AND VALVES IN ACCORDANCE WITH SEQ CODE STANDARD DRAWINGS SEQ-WAT-1300-1 & SEQ-WAT-1300-2.
7. WHERE THERE IS A DIRECT LINE CLASH BETWEEN THE POWER SUPPLY PILLAR/STREET LIGHT AND FIRE HYDRANT THE FIRE HYDRANT IS TO BE LOCATED 1000mm OFF THE PROLONGATION OF ANY COMMON BOUNDARY, i.e. 1000mm AWAY FROM THE POWER SUPPLY PILLAR/STREET LIGHT.
8. THE CONTRACTOR SHALL DETERMINE ALLOWABLE BEARING CAPACITIES OF THE UNDISTURBED SIDE OF THE TRENCH. DIMENSIONS OF THE THRUST BLOCK ARE TO BE IN ACCORDANCE WITH SEQ CODE STANDARD DRAWING SEQ-WAT-1205-1.
9. WATER MAINS SHALL BE TESTED UNDER HYDRAULIC PRESSURE TO A PRESSURE TEST OF 1.2MPa. REFER TO SEQ CODE AND WSA 03 2011 V3.1 CLAUSE 19.4 FOR DETAILS.
10. ALL CONNECTIONS TO EXISTING/ LIVE WATER MAINS TO BE MADE BY COUNCIL AT DEVELOPER'S EXPENSE. CONNECTION TO INCLUDE STOP VALVE AS DIRECTED BY SUPERINTENDENT.
11. WATER SERVICE CONDUITS TO BE 100mm DIA uPVC WITH SOLVENT WELD JOINTS IN ACCORDANCE WITH SEQ CODE STANDARD DRAWING SEQ-WAT-1107-2.
12. CONTRACTOR TO SUPPLY BALL VALVE AND METER BOX ONLY. METERS TO BE PROVIDED AND INSTALLED BY LOGAN WATER. PROPERTY CONNECTION SHALL BE PROVIDED IN ACCORDANCE WITH SEQ STANDARD DRAWINGS SEQ-WAT-1110-1-A AND SEQ-WAT-1110-2-A.
13. ALL WATER CONDUITS TO EXTEND 300mm BEYOND CONCRETE FOOTPATH IN ACCORDANCE WITH SEQ CODE STANDARD DRAWING SEQ-WAT-1108-1. WHERE NO FOOTPATHS ARE PRESENT, WATER SERVICE CONDUITS ARE TO EXTEND 300mm MINIMUM BEHIND BACK OF KERB.
14. ALL HYDRANT TEES ARE TO BE DN100.
15. NEW WATER MAIN IN THE VICINITY OF THE LIVE CONNECTION IS TO BE LAID AT A LEVEL THAT SUITS THE EXISTING WATER MAIN.
16. CONSTRUCT ALL WATER MAINS, ASSOCIATED STRUCTURES AND APPURTENANCES IN ACCORDANCE WITH THE TOLERANCES SPECIFIED IN CLAUSE 21.2 TO 21.5 INCLUSIVE, EXCEPT WHERE WATER MAINS CROSS OR RUN PARALLEL WITH OTHER SERVICES WHEN MINIMUM CLEARANCES SHOULD BE MAINTAINED.
17. WATER MAINS ARE NOT PERMITTED TO BE CONSTRUCTED WITHIN THE ROAD BOX. ROAD CROSSING DESIGN IS TO ACCOUNT FOR THE CONSTRUCTION PHASE OF THE DEVELOPMENT TO PROVIDE THE REQUIRED COVER.
18. REFER TO SEQ WS&S D&C CODE TABLE 7.5 AND STANDARD DRAWING SEQ-WAT-1209-1 FOR TRENCHSTOP (GRADE 5-14%) AND BULKHEAD (GRADE 15-29%) DETAILS.

GENERAL NOTES:

1. ALL WORK AND MATERIAL SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND WATER SUPPLY CODE SPECIFICATIONS AND STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. COVER ON MAINS FROM PERMANENT LEVEL TO BE SHOWN IN SEQ-WAT-1200-2.
4. CONDUITS TO BE INSTALLED IN ACCORDANCE WITH THE STANDARD DRAWINGS.
5. ALL MATERIALS USED IN THE WORKS SHALL COMPLY WITH THE SEQ-SP'S ACCEPTED PRODUCTS AND MATERIALS LIST OR BE APPROPRIATELY SHOWN, LISTED AND DEFINED IN THE ENGINEERING SUBMISSION SO THAT THE ALTERNATIVE PRODUCT OR MATERIAL CAN BE ASSESSED AND IF APPROPRIATE, APPROVED BY THE SEQ-SP.
6. THE CONSTRUCTION OF THE WATER RETICULATION WORK SHOWN ON THIS DRAWING MUST BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT TO THE RETICULATION SYSTEM.
7. INTERNAL WATER CONDUITS SUBJECT TO SEPARATE PLUMBING APPROVAL.



LIVE WATER MAIN WORKS

No.	DESCRIPTION	WATER DIA/MAT.	ADJACENT LOT NO.	COVER DEPTH
1(A)	CONTRACTOR TO CONSTRUCT WATERMAIN INCLUDING ALL FITTINGS AND LEAVE 3.0m SHORT OF EXISTING MAIN FOR CONNECTION BY LOGAN CITY COUNCIL.	100mm DICL	PATRICK COURT	600mm
1(B)	CONNECTION TO EXISTING Ø100mm mPVC MAIN BY COUNCIL, COMPLETE INCLUDING SS OFFTAKE CLAMP, 100mm DICL PN35 FL-FL VALVE AND FL-SOC CONNECTOR IN ACCORDANCE WITH SEQ-WAT-1105.2.			

REV	REVISION DESCRIPTION	DESIGN	DRAWN	DATE
A	ISSUE FOR APPROVAL	SO	AR	02.06.21
B	RESPONSE TO COUNCIL RFI	SO	SO	02.07.21
C	ADDITIONAL CONNECTION FROM GTP2781 ADDED	DH	DH	02.09.21

SCALE
1 : 250 5 0 5 10m A1
1 : 500 A3

COUNCIL: LOGAN CITY COUNCIL

APPROVED DAVID HOLSTEIN (RPEQ 17025)

FOR AND ON BEHALF OF CIVIL360 ENGINEERING PTY LTD.

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CLIENT: STRATEGIC DEVELOPMENTS

PROJECT: 23 PATRICK COURT
23 PATRICK COURT, WATERFORD WEST
LOTS 2 ON RP868324, 3 ON RP186717, 900 ON RP233953, 901 ON RP233970, 902 ON RP231480 & 239 ON SP195519

DRAWING TITLE: WATER RETICULATION PLAN

ASSOCIATED CONSULTANTS

STATUS: ISSUE FOR APPROVAL

PROJECT No.: 2020212

DRAWING No.: 800

REVISION: C