

P: (07) 4151 8639

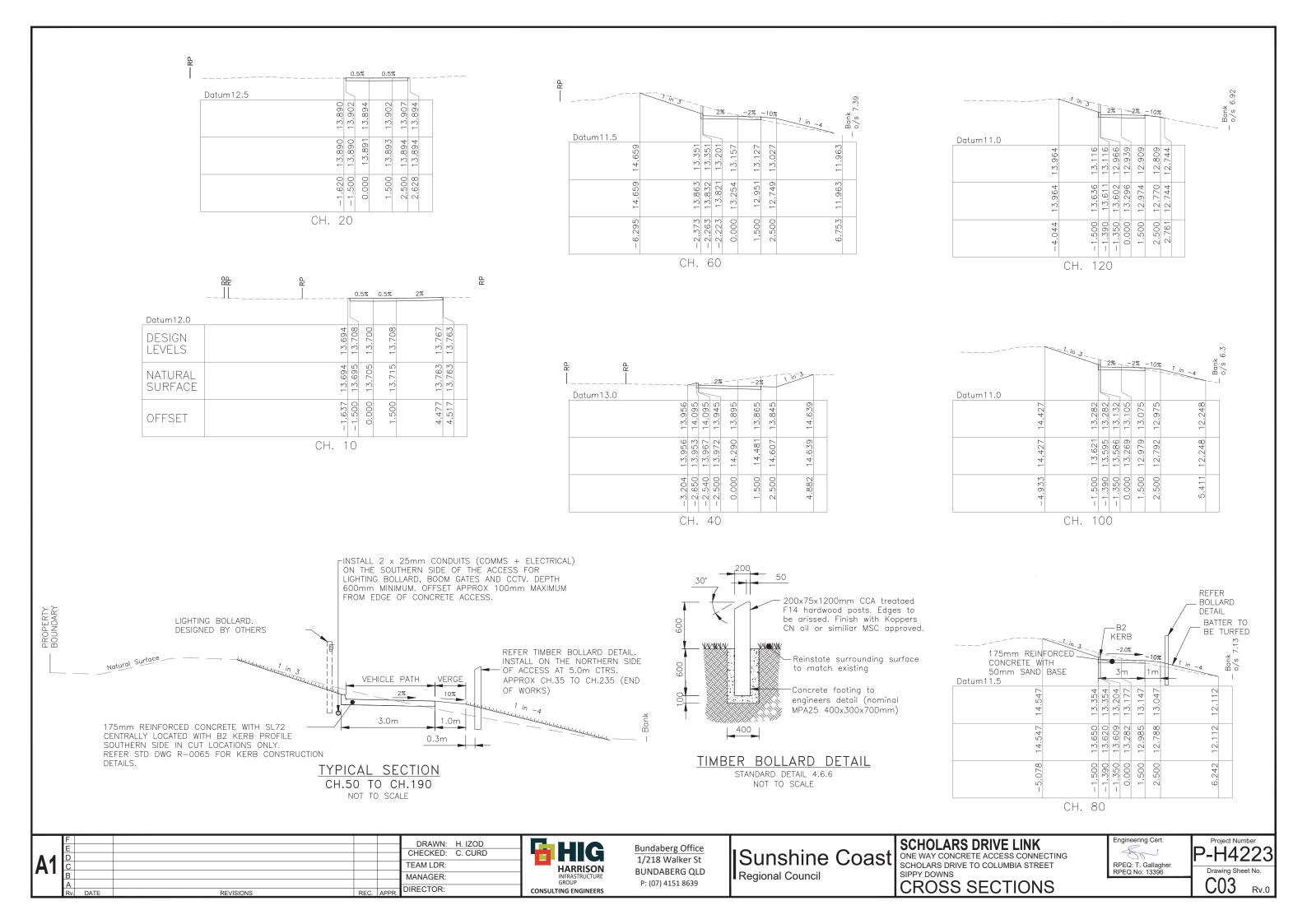
CONSULTING ENGINEERS

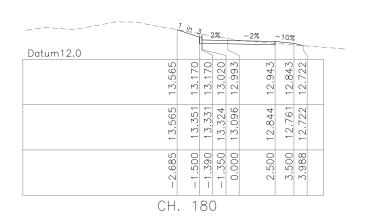
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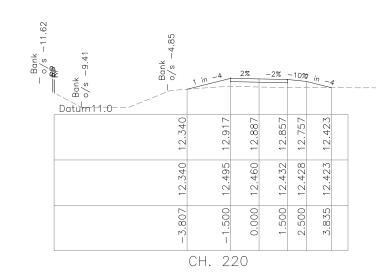
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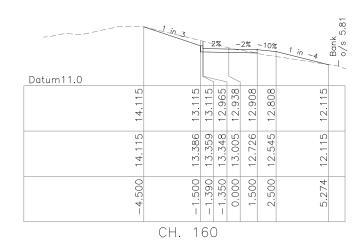
Drawing Sheet No.

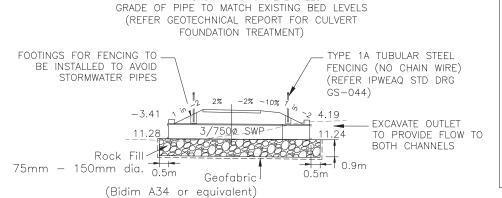
LONGITUDINAL SECTION



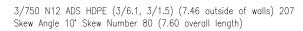


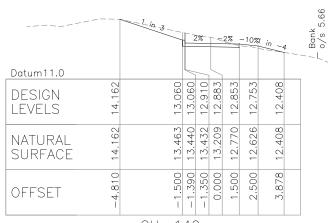


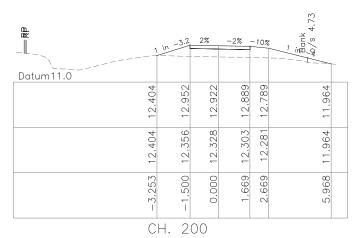




NEW 3/750¢ STORMWATER PIPE 7.60m LONG WITH CAST IN-SITU HEADWALLS





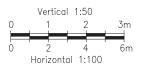


| DESCRIPTION | CH. | | | | |
|--------------------|---------|------------|-------------|--------|---------|
| | | X-COORD | Y-COORD | LEVEL | RADIUS |
| Intersection Point | 0.000 | 506304.277 | 7044379.978 | 13.433 | |
| Tangent-Curve | 0.168 | 506304.190 | 7044380.122 | 13.431 | 45.770 |
| Curve | 5.000 | 506301.919 | 7044384.385 | 13.366 | 45.770 |
| Curve | 10.000 | 506300.056 | 7044389.022 | 13.607 | 45.770 |
| Curve | 15.000 | 506298.709 | 7044393.834 | 13.820 | 45.770 |
| Curve | 20.000 | 506297.895 | 7044398.765 | 13.900 | 45.770 |
| Curve-Tangent | 20.680 | 506297.827 | 7044399.442 | 13.908 | 45.770 |
| Straight | 30.000 | 506296.951 | 7044408.720 | 14.022 | |
| Tangent-Curve | 33.106 | 506296.659 | 7044411.813 | 14.017 | -15.000 |
| Curve | 35.000 | 506296.363 | 7044413.682 | 13.989 | -15.000 |
| Curve | 40.000 | 506294.484 | 7044418.291 | 13.822 | -15.000 |
| Curve | 45.000 | 506291.201 | 7044422.031 | 13.612 | -15.000 |
| Curve | 50.000 | 506286.875 | 7044424.492 | 13.402 | -15.000 |
| Curve | 55.000 | 506281.982 | 7044425.401 | 13.226 | -15.000 |
| Curve-Tangent | 56.868 | 506280.117 | 7044425.317 | 13.188 | |
| Straight | 60.000 | 506277.003 | 7044424.982 | 13.156 | |
| Straight | 70.000 | 506267.061 | 7044423.910 | 13.166 | |
| Straight | 80.000 | 506257.118 | 7044422.838 | 13.177 | |
| Straight | 90.000 | 506247.176 | 7044421.766 | 13.177 | |
| Straight | 100.000 | 506237.234 | 7044420.694 | 13.105 | |
| Straight | 110.000 | 506227.291 | 7044419.622 | 13.022 | |
| Straight | 120.000 | 506217.349 | 7044418.550 | 12.939 | |
| Straight | 130.000 | 506207.407 | 7044417.478 | 12.855 | |
| Straight | 140.000 | 506197.464 | 7044416.406 | 12.883 | |
| Angle | 141.482 | 506195.991 | 7044416.247 | 12.887 | |
| Straight | 150.000 | 506187.500 | 7044415.569 | 12.911 | |
| Straight | 160.000 | 506177.531 | 7044414.773 | 12.939 | |
| Straight | 170.000 | 506167.563 | 7044413.977 | 12.968 | |
| Tangent-Curve | 173.685 | 506163.890 | 7044413.683 | 12.978 | 15.000 |
| Curve | 175.000 | 506162.576 | 7044413.636 | 12.982 | 15.000 |
| Curve | 180.000 | 506157.675 | 7044414.501 | 12.996 | 15.000 |
| Curve | 185.000 | 506153.327 | 7044416.922 | 13.010 | 15.000 |
| Curve | 190.000 | 506150.010 | 7044420.632 | 13.019 | 15.000 |
| Curve-Tangent | 191.686 | 506149.192 | 7044422.106 | 13.013 | 15.000 |
| Straight | 200.000 | 506145.572 | 7044429.590 | 12.904 | |
| Straight | 210.000 | 506141.219 | 7044438.593 | 12.799 | |
| Straight | 220.000 | 506136.865 | 7044447.596 | 12.899 | |
| Straight | 230.000 | 506132.512 | 7044456.598 | 13.011 | |
| Straight | 240.000 | 506128.158 | 7044465.601 | 12.806 | |
| | | | | | |

CONTROL LINE CLI SETOLIT

| | | | 1 in 3 | | 72 | 2%- | \ <. | 2% - | -10% | 1 in | ‡ | / / Bank / o/s 5.66 | |
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| Do | atum11.0 | | | | 5 | | 5 | | | | | | |
| | ESIGN EVELS | 14.162 | | 13.060 | 13.060 | 12.910 | 12.883 | 12.853 | 12.753 | 12.408 | | | |
| | ATURAL URFACE | 14.162 | | 13.463 | 13.440 | 13.432 | 13.209 | 12.770 | 12.626 | 12.408 | | | |
| 0 | FFSET | -4.810 | | -1.500 | -1.390 | -1.350 | 0.000 | 1.500 | 2.500 | 3.878 | | | |
| | | | CH. | 1 | 40 |) | | | | | | | |

| | -1 | in -3.2 | 2% | -2% | -10% | y w s |
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| | 2.404 | 12.952 | 12.922 | 12.889 | 12.789 | 1.964 |
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| | Rv. | DATE | REVISIONS | REC. | APPR. | DIRECTOR: |



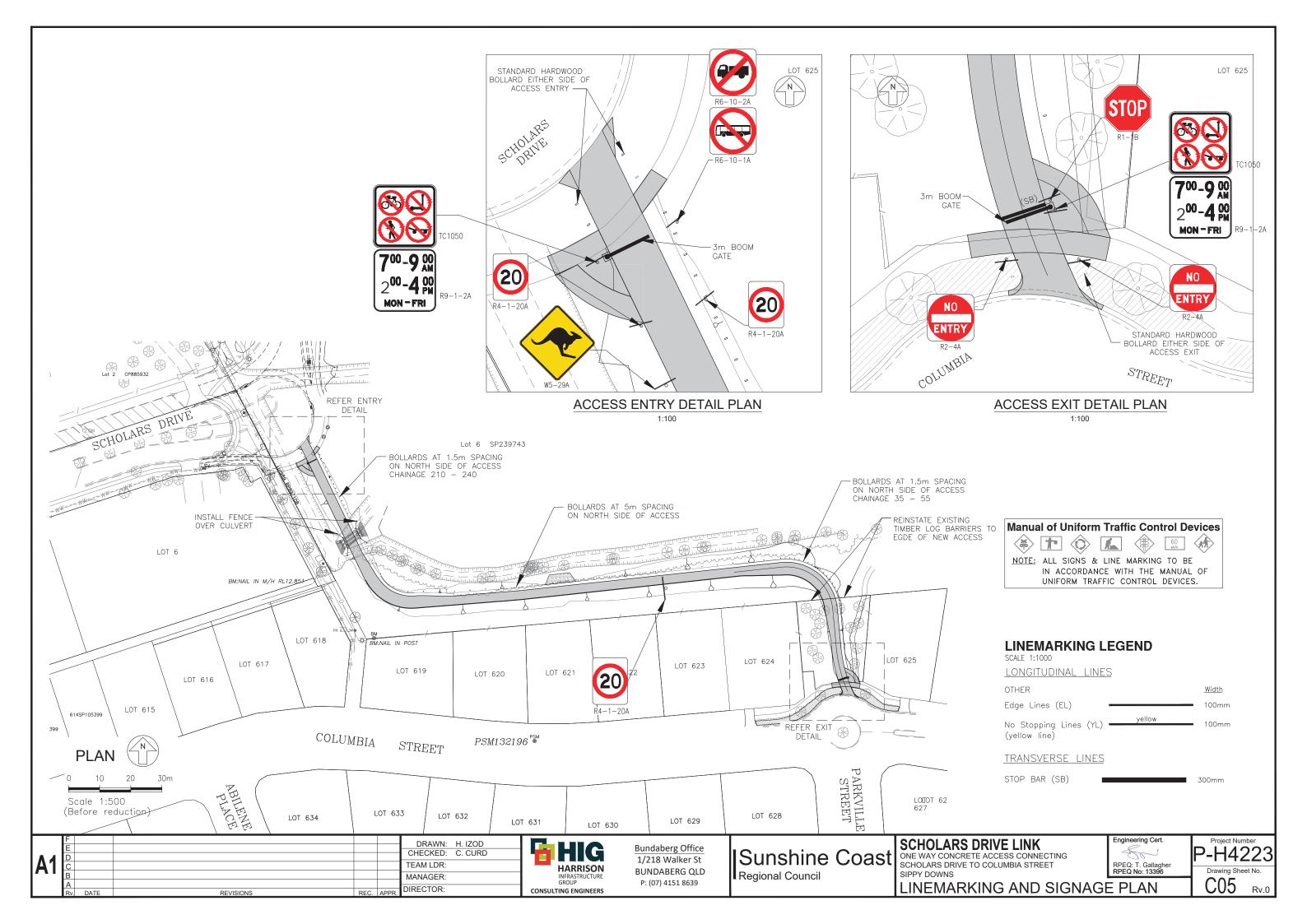
Bundaberg Office 1/218 Walker St **BUNDABERG QLD** P: (07) 4151 8639

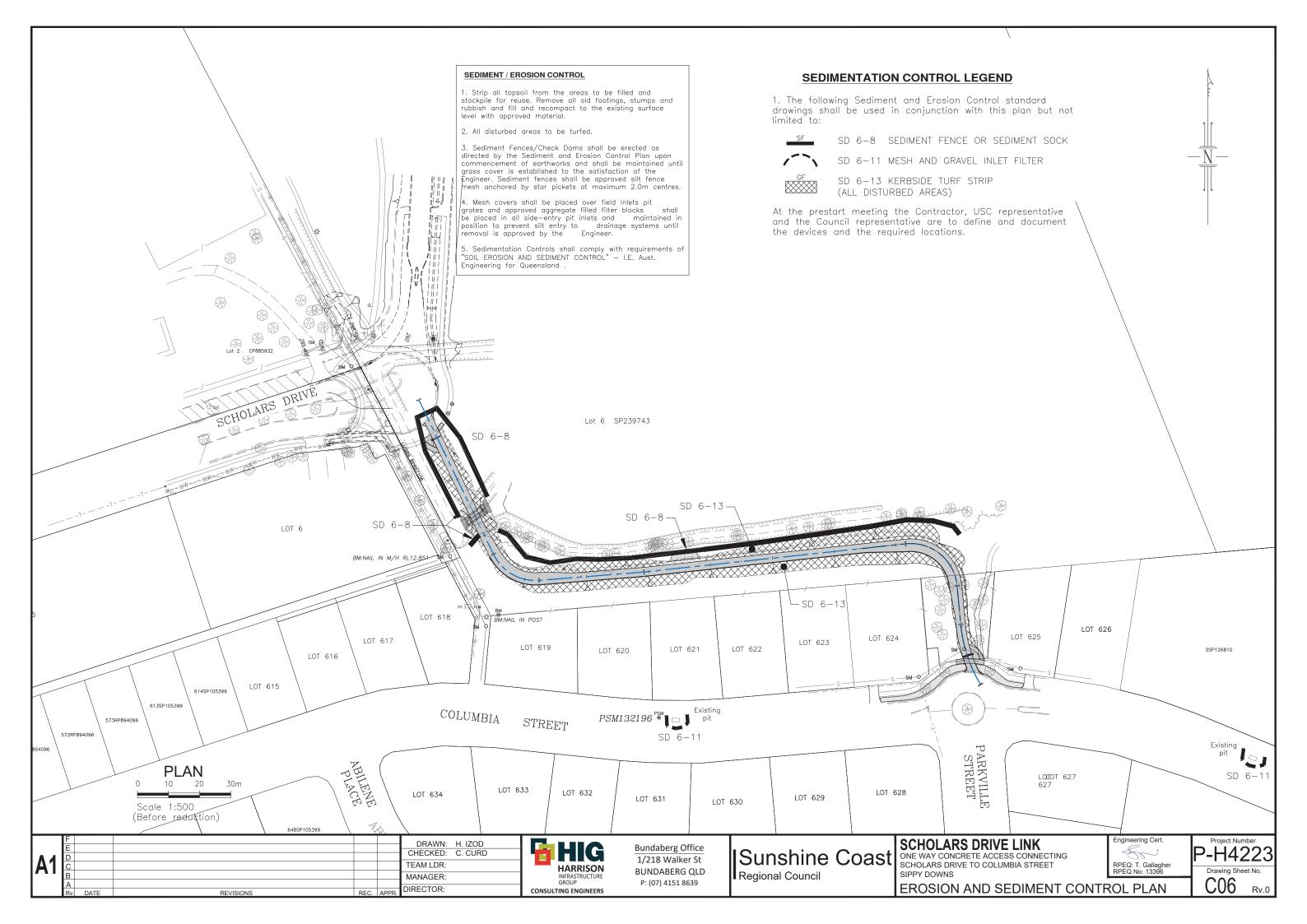
Sunshine Coast ONE WAY CONCRETE ACCESS CONNECTIONS SCHOLARS DRIVE TO COLUMBIA STREET SIPPY DOWNS **CROSS SECTIONS**

| SCHO | LARS | DRIV | E L | INK |
|---------|--------|-------------|-------|--------|
| ONE WAY | CONCRE | TE ACC | ESS (| CONNEC |

Engineering Cert. RPEQ: T. Gallagher RPEQ No: 13396

Project Number P-H4223 Drawing Sheet No. C04







ELECTRICAL SERVICES

DRAWING REGISTER

LUMINAIRE SCHEDULE

1100mm (H) v 165mm (DIA

| | DRAWING NUMBER | DRAWING TITLE |
|---|----------------|---|
| Γ | E001 | ELECTRICAL SERVICES - COVER SHEET |
| Г | E002 | ELECTRICAL SERVICES - DETAILS & SCHEMATICS |
| | E010 | ELECTRICAL SERVICES - LAYOUT PLAN - SHEET 1 OF 2 |
| Γ | E011 | ELECTRICAL SERVICES - LAYOUT PLAN - SHEET 2 OF 2 |
| | E020 | ELECTRICAL SERVICES - ISOLUX PLOT & CERTIFICATE OF COMPLIANCE |

WATTAGE (W)

LED

OUTPUT (Lm)

TEMP. (K)

3000

LEGEND

POWER

 \mathbf{X} MAIN SWITCHBOARD

ELECTRICAL CABLE PIT (TYPE P4 PLASTIC, LOAD CLASS B). PROVIDE RUBBLE DRAIN AND BELL MOUTHS FOR CONDUIT ENTRY, INSTALL TO MANUFACTURERS REQUIREMENTS. LID: COMPOSITE TO MATCH LOAD

REFER LUMINAIRE SCHEDULE BELOW

LED BOLLARD PATHWAY LUMINAIRE

BODY COLOUR SURGE PROTECTION

UNDERGROUND HDuPVC TELECOMMUNICATIONS CONDUIT (WHITE)
AND UNDERGROUND HDuPVC ELECTRICAL (ORANGE) IN SHARED
TRENCH. SIZE AND QTY AS INDICATED ON LAYOUT DRAWINGS COMMUNICATIONS CABLE PIT (TYPE P5 PLASTIC, LOAD CLASS B).

PROVIDE RUBBLE DRAIN AND BELL MOUTHS FOR CONDUIT ENTR' INSTALL TO MANUFACTURERS REQUIREMENTS. LID: COMPOSITE TO MATCH LOAD RATING.

DIRECT BURIED (ROOT MOUNTED) TO

WHOLE CURRENT RETAIL METER SURGE DIVERTER (REFER SLD FOR DETAILS CIRCUIT BREAKER ISOLATOR RCBO (UNLESS NOTED OTHERWISE) \Box FUSE CONTACTOR

THORLUX LIGHTING

SPECIFICATION NOTES

GENERAL CONDITIONS

CONTRACTOR WORKS SHALL COMPLY WITH ALL RELEVANT PROJECT BRIEFS AND REQUIREMENTS. THE ELECTRICAL SERVICES DOCUMENTATION SHALL BE READ IN CONJUNCTION WITH ALL OTHER PROJECT AND CONTRACT DOCUMENTATION. CO-ORDINATE ALL CONTRACTORS' WORK WITH OTHER TRADES AND BUILDERS

OR SHALL FULLY INFORM THEMSELVES OF ALL ASPECTS OF THE EXISTING INSTALLATION PRIOR TO TENDER AND COMMENCEMENT OF CONSTRUCTION, MANDATORY SITE INSPECTIONS SHALL BE ADVISED BY THE PRINCIPAL. DISCRETIONARY VISITS SHALL BE ARRANGED BY THE CONTRACTOR IN CONJUNCTION WITH THE PRINCIPAL OR THEIR REPRESENTATIVE.

CODES, RULES, PERMITS, FEES

ALL MATERIALS, SUPPLIES, AND ALL WORK INSTALLED UNDER THE CONTRACT SHALL COMPLY WITH LATEST APPROVED VERSIONS (INCLUDING REFERENCED STANDARDS) OF THE CODES, STANDARDS, RULES AND REGULATIONS OF RELEVANT STATUTORY AUTHORITIES INCLUDING, BUT NOT LIMITED TO:

- A. BUILDING CODE OF AUSTRALIA
- ELECTRICAL SAFETY ACT
 TELECOMMUNICATIONS ACT
 WORKPLACE HEALTH & SAFETY ACT E. ELECTRICAL SUPPLY AUTHORITY REGULATIONS
- . QLD ELECTRICITY CONNECTION MANUAL (QECM); AND QLD ELECTRICITY METERING MANUAL (QEMM) TELSTRA AND/OR NBN CO REGULATIONS
- QUEENSLAND FIRE AND EMERGENCY SERVICES (QFES) REGULATIONS AS/NZS 3000 ELECTRICAL INSTALLATIONS (WIRING RULES)
- . AS/NZS 61439 LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR AS/NZS 3008 ELECTRICAL INSTALLATIONS (SELECTION OF CABLES)
- . AS/NZS 3017 ELECTRICAL INSTALLATIONS (VERIFICATION GUIDELINES)

 1. AS 60529 DEGREES OF PROTECTION PROVIDED BY ENCLOSURES (IP CODE)

OBTAIN A COPY OF RELEVANT STANDARDS FOR REFERENCE AS REQUIRED PRIOR TO COMMENCEMENT OF

MAKE ALL APPLICATIONS AND PAY ALL FEES REQUIRED TO COMPLY WITH RELEVANT AUTHORITY REQUIREMENTS INCLUDING SELF-CERTIFICATION COSTS FOR ELECTRICAL INSPECTION.

ALL ELECTRICAL WORKS SHALL BE UNDERTAKEN BY LICENSED ELECTRICAL CONTRACTOR/S QUALIFIED AND EXPERIENCED IN THE TYPE OF WORK REQUIRED FOR THIS PROJECT. LICENCING AND QUALIFICATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE RELEVANT JURISDICTION WITHIN WHICH THE WORKS ARE BEING UNDERTAKEN.

ALL WORKMANSHIP AND MATERIALS SHALL BE PROVIDED TO THE SATISFACTION OF THE SUPERINTENDENT. ALL MATERIAL WILL BE NEW UNLESS OTHERWISE NOTED. ANY MATERIALS OR WORKMANSHIP WHICH ARE CONSIDERED INFERIOR OR NON-CONFORMING BY THE SUPERINTENDENT SHALL BE REPLACED AT THE CONTRACTOR'S COST

PROVIDE GUARANTEE/S FOR QUALITY AND WORKMANSHIP OF ALL WORK AND MATERIALS AGAINST DEFECTS, FOR A PERIOD OF TWELVE MONTHS FROM THE DATE OF ISSUE OF THE 'CERTIFICATE' OF PRACTICAL COMPLETION'. DURING THIS PERIOD, PROMPTLY REPLACE ALL DEFECTIVE EQUIPMENT, FIXTURES AND MATERIALS AT NO ADDITIONAL COST, REFER CONTRACT CONDITIONS FOR FURTHER DETAIL REGARDING DEFECTS LIABILITY AND

EXISTING SERVICES

ACCURATELY LOCATE AND IDENTIFY ALL RELEVANT EXISTING SERVICES (IN-GROUND OR OTHERWISE) IN THE VICINITY OF THE WORKS AREA, LIAISE WITH ALL RELEVANT SERVICE AUTHORITIES AS REQUIRED, DAMAGE TO EXISTING SERVICES SHALL BE RECTIFIED AT THE CONTRACTORS' EXPENSE.

THE LOCATION AND MOUNTING HEIGHTS OF THE SERVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. FINAL LOCATIONS, MOUNTING HEIGHTS AND CABLING PATHWAYS SHALL BE COORDINATED ON-SITE (WITH OTHER TRADE WORKS AND EXISTING BUILDING AND IN-GROUND ELEMENTS) FROM DIMENSIONED SETOUTS.

COORDINATE AND COOPERATE WITH ALL OTHER TRADE DISCIPLINES. NOTE THE FOLLOWING SPECIFIC

- A. BUILDERS WORKS: ENSURE ALL TRADE WORKS ARE COORDINATED WITH ASSOCIATED BUILDERS WORKS. B. BOOM GATES: COORDINATE FINAL RATING AND LOCATION OF BOOM GATES WITH COUNCIL NOMINATED BOOM GATE CONTRACTOR (SECURECOAST).
- B. CCTV POLES: COORDINATE FINAL RATING AND LOCATION OF GPOS FOR CCTV POLES WITH COUNCIL NOMINATED SECURITY CONTRACTOR (SECURCOM).

OBTAIN A SET OF ARCHITECTURAL, STRUCTURAL, CIVIL AND OTHER SERVICES DOCUMENTATION (AS APPLICABLE) FOR REVIEW AND COORDINATION PRIOR TO COMMENCEMENT OF CONSTRUCTION

PRIOR TO ORDERING OF MATERIALS AND COMMENCEMENT OF INSTALLATION WORKS, SUBMIT DETAILED SHOP DRAWINGS / TECHNICAL DATA / PRODUCT SAMPLES TO THE SUPERINTENDENT FOR REVIEW. ALLOW A MINIMUM OF 10 WORKING DAYS FOR RECEIPT OF COMMENTS.

WORKSHOP DRAWINGS ARE REQUIRED FOR THE FOLLOWING:

SCOPE OF WORK

THE SCOPE OF WORK INCLUDES THE SUPPLY, DELIVERY, COORDINATION, INSTALLATION, TESTING AND COMMISSIONING AND DEFECTS LIABILITY SUPPORT OF THE SYSTEMS AND EQUIPMENT AS SHOWN ON THE DRAWINGS SUPPLY ALL THE REQUIRED MATERIALS LINESS OTHERWISE SPECIFIED. THE SCOPE OF WORK INCLUDES BUT IS NOT NECESSARILY LIMITED TO THE FOLLOWING:

POWER SUPPLY AND DISTRIBUTION

- A UTILITY SUPPLY: PROVIDE NEW METERED CONNECTION FROM ENERGEX NETWORK PILLAR P148258.

 APPLICATION REFERENCE: CX22SCH0842322Q
 STATUS: NETWORK ENQUIRY COMPLETE; CONTRACTOR TO LODGE EWR
 MAIN SWITCHBOARD: PROVIDE MAIN SWITCHBOARD AS SPECIFIED. SWITCHBOARD SHALL BE DESIGNED AND CONSTRUCTED BY A SPECIALIST SWITCHBOARD MANUFACTURER AND BE FULLY COMPLIANT WITH ASNZS 3439 (OR AS/NZS 61439). AS/NZS 3000 AND THE OFCM/OFMM.
- OF AGINZS GINSG, RONZS SUBJECT YPE HANDLE AND LIFT OF PINTILE HINGES. ALL HARDWARE SHALL BE STAILLESS STEEL, PROVIDE CIRCUIT SCHEDULE HOLDER WITHIN DOOR, PROVIDE DUST/SMOKE SEALS AS REQUIRED TO SUIT THE HOMINATED IP RATING.

 COVERS/ESCUTCHEONS: PROVIDE HINGED (OR LIFT OFF) COVERS/ESCUTCHEON TO PREVENT CONTACT
- WITH LIVE PARTS WHEN SWITCHBOARD DOORS ARE OPEN, COVERS/ESCUTCHEONS SHALL BE REMOVABLE WITH THE PARTY SHIPLES SHIPLES THE STATE OF THE STATE OF
- LINKS, ACCESSORIES AND CABLING TO SUIT THE SPECIFIED RATING AND PERFORMANCE.
- C. METERING: PROVIDE METERING AS NOMINATED ON THE DRAWINGS AND AS FOLLOWS: RETAIL METERING: PROVIDE NEW DIRECT (WHOLE CURRENT) METERING TO THE REQUIREMENTS OF THE
- D. <u>SURGE DIVERSION ELEMENTS</u>: PROVIDE SURGE PROTECTION DEVICES (SPD) WHERE NOMINATED AND AS SPECIFIED, SPDs SHALL BE COMPLIANT WITH IEC 61643 AND TESTED/LISTED UNDER UL 1449, PROVIDE HIGH RUDTURNIGHRC FUSING UPSTREAM OF THE SPD (TO MANUFACTURER REQUIREMENTS). ALL SURGE DIVERTERS SHALL HAVE VISUAL INDICATORS AND VOLTAGE FREE CONTACTS.

 E SELECTURY: PROVIDE A FULLY GRADED SYSTEM COMPLYING WITH THE REQUIREMENTS OF ASIAZS 3000, INCLUDING COORDINATION WITH EXISTING UPSTREAM PROTECTION TO THE SUPPLY AUTHORITY POINT OF
- ENTRY. ENSURE ALL PROTECTION DEVICES ARE RATED SUCH THAT REQUIRED SELECTIVITY IS MAINTAINED THROUGHOUT THE DISTRIBUTION NETWORK
- FRAULT LEVEL: ENSURE EQUIPMENT AND PROTECTION DEVICES ARE RATED TO WITHSTAND THE PROSPECTIVE SHORT CIRCUIT CURRENT (FAULT CURRENT) AT EACH POINT IN THE NETWORK. THIS CAN BE ACHIEVED VIA SUITABLY RATED PROTECTION DEVICES OR ALTERNATIVELY THROUGH THE IMPLEMENTATION OF A CASCADED COMBINATION OF BREAKERS. IF A CASCADED SYSTEM IS PROPOSED, PROVIDE EVIDENCE FROM THE MANUFACTURER THAT THE PROPOSED COMBINATION OF DEVICES HAS BEEN TESTED FOR THIS APPLICATION MINIMUM FAULT CURRENT RATING OF MOBS SHALL BE 10kA

 G. RCD PROTECTION: PROVIDE RCD PROTECTION TO ALL POWER (AND LIGHTING) CIRCUITS IN ACCORDANCE WITH
- H. GENERAL POWER: SUPPLY, INSTALL AND CONNECT ALL NEW POWER OUTLETS AND ACCESSORIES AS
- INDICATED. COORDINATE FINAL LOCATION AND RATING WITH SPECIALIST EQUIPMENT INSTALLERS WHERE I. <u>CIRCUITING</u>: ADJUST THE CIRCUITING AS REFERENCED ON THE DRAWINGS AS REQUIRED TO COORDINATE WITH
- FINAL CABLING PATHWAYS AND SITE CONDITIONS, ENSURE OVERALL CIRCUIT LOADING DOES NOT EXCEED THE RATING OF THE CIRCUIT AND CABLING. J. <u>LABELLING</u>: ALL OUTLETS AND ACCESSORIES SHALL BE FITTED WITH DURABLE CIRCUIT IDENTIFICATION LABELS UNDER REMOVABLE FACEPLATES WHERE APPLICABLE). LABELS SHALL ONLY BE REMOVABLE WITH
- K. CIRCUIT SCHEDULE/S: PROVIDE TYPED CIRCUIT SCHEDULES AT EACH SWITCHBOARD SUPPLIED UNDER THE

CONTROL GEAR

INTEGRAL LED DRIVER (NON

GENERAL: PROVIDE LIGHTING AS INDICATED ON THE DRAWINGS.

IP66

IP RATING | IK RATING | DISTRIBUTION

IK10

- SCHERAL, PROVIDE EIGHT HIS AS INDICATED OF THE DRAWINGS.
 BLUMINAIRES: ALL LUMINAIRES SHALL CONFORM TO THE FOLLOWING:
 SUPPLIED COMPLETE WITH ALL REQUIRED CONTROL GEAR AND MOUNTING ACCESSORIES TO SUIT THE INTENDED APPLICATION AND MOUNTING LOCATION. PROVIDE ADDITIONAL MOUNTING SUPPORTS AS REQUIRED IF MOUNTING LOCATION DIFFERS FROM MANUFACTURER RECOMMENDATIONS.
- HAVE UNDERGONE NATA ACCREDITED TESTING AND HAVE LM-79, LM-80 AND TM-21 TEST REPORTS
- REGISTERED WITH ELECTRICAL REGULATORY AUTHORITIES COUNCIL (ERAC) AND PROVIDED WITH
- REGULATORY COMPLIANCE MARK (RCM). THIS INCLUDES CONTROL GEAR. INSTALLED TO MANUFACTURERS REQUIREMENTS, AND IN ACCORDANCE WITH RELEVANT STANDARDS/
- PROVIDED WITH SURGE PROTECTION.

 C. IP RATING: WIRE ALL IP RATED LUMINAIRES TO MATCH THE IP RATING INDICATED AND INSTALLED TO MANUFACTURER REQUIREMENTS. PROVIDE ALL REQUIRED MOUNTING/CABLING ACCESSORIES. WHERE APPLICABLE, PROVIDE MOUNTING SUPPORT WITHIN PITS TO ENSURE IN-PIT CONTROL GEAR IS NOT LOCATED
- APPLICABLE, PROVIDE MOUNTING SUPPORT WITHIN PITS TO ENSURE IN-PIT CONTROL GEAR IS NOT LOCATED AT THE BASE OF THE PIT.

 D. IK RATING: INSTALL LUMINAIRE TO MANUFACTURE REQUIREMENTS TO ENSURE THE IK RATING IS MAINTAINED THROUGH THE LUMINAIRE FIXING METHODOLOGY.

 E. ALTERNATE SELECTIONS: ALTERNATE LIGHT FITTINGS WILL NOT BE ACCEPTED WITHOUT WRITTEN APPROVAL FROM SUPERINTENDENT OR THEIR REPRESENTATIVE. IFWHEN PROPOSING ALTERNATIVES, PROVIDE ALL RELEVANT TECHNICAL DATA AND LIGHTING CALCULATIONS FOR REVIEW (IN ORDER FOR THE PRINCIPAL TO MAKE A DETERMINATION ON EQUALITY OF PERFORMANCE).

 5. PROPEROTECTIONS PROVIDE RCD PROTECTION TO ALL LIGHTING (AND POWER) CIRCUITS IN ACCORDANCE WITH
- F. RCD PROTECTION: PROVIDE RCD PROTECTION TO ALL LIGHTING (AND POWER) CIRCUITS IN ACCORDANCE WITH
- ASINCS SUM:

 A DIVING CONTROLS; LIGHTING CONTROLS SHALL BE AS DETAILED ON THE DRAWINGS. WHERE A
 PROPRIETARY CONTROL SYSTEM IS DOCUMENTED, THE CONTRACTOR SHALL LIAISE WITH RELEVANT
 REPRESENTATIVE/S OF THE SYSTEM PROVIDER TO REFINE AND FINALISE PRODUCT/ACCESSORY DETAILS. H. BOLLARD INSTALLATION: INSTALLATION OF BOLLARD LIGHTING TO BE ROOT MOUNTED ACCORDING TO MANUFACTURER RECOMMENDATIONS.

- REQUIRED TO ACHIEVE COMPLIANCE WITH THIS SPECIFICATION. CHECK CONDUIT ROUTES ON SITE FOR INTERFERENCE FROM EXISTING SERVICES AND FOR ACCURATE LENGTHS BEFORE ORDERING.
- B. DRAW WIRES: ALL CONDUITS PROVIDED SHALL BE PROVIDED WITH NYLON DRAW WIRES.

 C. MARKER TAPE: LAY AN APPROVED TYPE PVC MARKER TAPE COMPLIANT WITH ASINZS 2648.1 AND INSTALLED FOR THE FULL LENGTH OF CONDUIT RUNS AS FOLLOWS:
- GENERAL: DETECTABLE TYPE WITH INTEGRAL STAINLESS STEEL WIRE FLECTRICAL: TO COMPLY WITH AS/NZS 3000
- ELECTRICAL: TO COMPLET WITH ASSISSABLE ACCOUNTED WITH ASSISSABLE COMPLY WITH THE FOLLOWING:

 ALL EXCAVATION WORKS SHALL COMPLY WITH RELEVANT TREE PROTECTION REQUIREMENTS. REFER GENERAL CONDITIONS AND/OR LANDSCAPE DOCUMENTATION FOR REQUIREMENTS.
- CONFIRM ALL CONDUIT ROUTES ONSITE PRIOR TO COMMENCING EXCAVATION WORKS
- EXCAVATE TRENCHES SO THAT CONDUITS ARE NOT LESS THAN 500mm BELOW GROUND LEVEL
- TAKE CARE DURING EXCAVATION TO AVOID DAMAGE TO EXISTING UNDERGROUND INSTALLATIONS. ANY DAMAGE CAUSED SHALL BE MADE GOOD.

 CLEAR THE BOTTOM OF ALL ROCKS, STONES AND OTHER HARD/SHARP MATERIALS AND FILL TO A DEPTH OF
- 50mm WITH A LAYER OF SELECTED FILLING IN THE BOTTOM OF THE TRENCH. WHERE TRENCHES ARE LEET OPEN DURING CONSTRUCTION WORKS ENSURE THAT THEY ARE PROTECTED.
- BY BARRICADES OR IN SUCH A MANNER AS TO PREVENT THEM CREATING A HAZARD.

 UTILISE UNDER-BORING OR VACUUM EXCAVATION WHEN EXCAVATING IN AND AROUND ROOT ZONES.
- E. BACKFILL AND MAKE-GOOD: SHALL COMPLY WITH THE FOLLOWING:
- BACKFILL THE TRENCH ONLY AFTER THE SUPERINTENDENT HAS APPROVED THE LAID CONDUITS.
 MAKE GOOD EXISTING PAVING, KERBING AND LANDSCAPING TO THE SATISFACTION OF THE
- REMOVE ALL EXCESS EXCAVATED SPOIL.

- A. GENERAL: PROVIDE NEW CABLE PITS OF THE TYPE, SIZE AND RATING AS INDICATED ON THE DRAWINGS. B. ACCESSORIES: ALL PITS SHALL BE PROVIDED WITH THE FOLLOWING:
- SUITABLE BASE MATERIAL TO ENSURE PIT STABILISATION.
- SUITABLE DRAINAGE, INCLUDING GEOTEXTILE MESH FABRIC TO PREVENT THE INGRESS OF SILT MATERIAL
- SUITABLE CAULKING AROUND ALL CONDUIT ENTRY POINTS TO PREVENT THE INGRESS OF SILT AND WATER
 C. INSTALLATION: CABLE PITS INSTALLED IN TURFED AREAS SHALL BE PROVIDED WITH A 150mm CONCRETE

COLLAR FOR PROTECTION AGAINST MOWER DAMAGE AND EXPOSURE. ALL PITS SHALL BE INSTALLED TO

THORITIY PASSWAY I FI

- ROTECTIVE EARTHING: ENSURE ALL PROTECTIVE EARTHING IS INSTALLED IN ACCORDANCE WITH ASINZS 3000.
 EQUIPOTENTIAL BONDING: PROVIDE EQUIPOTENTIAL BONDING TO ALL RELEVANT CONDUCTIVE ELEMENTS IN ACCORDANCE WITH ASINZS 3000; INCLUDING (BUT NOT LIMITED TO) CONDUCTIVE PIPING (EG. WATER, GAS, OTHER), CONDUCTIVE CABLE SUPPORTS (EG. CABLE TRAY), STRUCTURAL METAL WORK AND CONDUCTIVE BUILDING MATERIALS, DAMP AREAS, TELECOMMUNICATIONS EARTHING SYSTEM/S. MINIMUM SIZE OF
- EQUIPOTENTIAL BONDING CONDUCTOR SHALL BE 4mm² (6mm² FOR TELECOMMUNICATIONS).

 TESTING: UNDERTAKE MANDATORY TESTING INCLUDING EARTH CONTINUITY, EFLI AND RCD TESTING TO VERIFY EARTHING SYSTEM COMPLIANCE.

TESTING AND COMMISSIONING

- A. <u>GENERAL</u>: CARRY OUT TESTING, OPERATING AND ADJUSTING THE SYSTEM AND EQUIPMENT, AND FOR FULLY INSTRUCTING THE SUPERINTENDENT OR THEIR REPRESENTATIVE IN THE OPERATION OF THE SYSTEM AND EQUIPMENT. PROVIDE FULL OPERATOR'S MANUAL.
- B. ELECTRICAL: CARRY OUT TESTING IN ACCORDANCE WITH AS/NZS 3000 CLAUSE 8.3 AND 8.33 MANDATORY TESTS
- B. <u>ELECTRICAL</u>, CARRY OUT TESTING IN ACCORDANCE WITH ASINCS SOUR CLAUSE 6.5 AND 6.53 MANUALITY TEST 8.3.10 OPERATION OF RCD'S.

 C. <u>LIGHTING</u>: TEST THE OPERATION OF ALL LUMINAIRE INSTALLED, TOGETHER WITH THE ASSOCIATED CONTROL STRATEGY. DEMONSTRATE THE FUNCTIONALITY OF THE CONTROL SYSTEM TO THE PRINCIPAL. ADJUST PROGRAMMABLE PARAMETERS AS REQUIRED TO SUIT THE PRINCIPALS REQUIREMENTS.
- D. TEST REPORTS: SUBMIT TEST REPORTS. PROVIDE THE SUPERINTENDENT WITH ALL TEST RESULTS, BOUND, FOR REVIEW. THE CERTIFICATE OF PRACTICAL COMPLETION WILL ONLY BE SIGNED AFTER THE COMPLETE
 TEST REPORTS HAVE BEEN REVIEWED.

AS-BUILT DRAWINGS AND MAINTENANCE MANUALS

- A S-BUILT DRAWNINGS: PROVIDE A FULL SET OF AS-BUILT DRAWINGS WITHIN 14 DAYS OF PRACTICAL
 COMPLETION. ENSURE DRAWINGS COMPREHENSIVELY REFLECT DETAILS OF ALL INSTALLED SYSTEMS AND
 COMPONENTS. PROVIDE DRAWINGS IN THE FOLLOWING FORMATS (ON DISK OR SIMILAR APPROVED MEDIA):
- HARD COPY TO BE INCLUDED IN THE O&M MANUALS
- PRINTABLE DOCUMENT FORMAT (PDF)
- AUTOCAD (LATEST VERSION)

 B. ADAC: PROVIDE AS CONSTRUCTED DATA IN ACCORDANCE WITH SCC ADAC DATA STANDARDS AND GUIDELINES. REFER SCC WEBSITE FOR FURTHER REQUIREMENTS:
- REFER SCC WESSITE FOR FORTHER REQUIREMENTS:
 https://www.sunshinecoast.gl.dog.vau/Development/Development-Tools-and-Guidelines/Infrastructure-Guidelines-and-Standards/As-Constructed-Data-Standards-and-Guidelines
 C. WARRANTIES; ENSURE THAT THE PRINCIPAL IS NAMED AS THE WARANTEE FOR ALL MANUFACTURER/SUPPLIER
 WARRANTIES EXTENDING BEYOND THE COMPLETION OF THE DEFECTS LABILITY PERIOD.
 D. OPERATING & MAINTENANCE MANUALS; INCLUDE THE FOLLOWING AS A MINIMUM:

 NAME, ADDRESS AND TELEPHONE NUMBERS OF THE MANUFACTURER AND SUPPLIER OF ITEMS OF
- FOUIPMENT INSTALLED, TOGETHER WITH CATALOGUE LIST NUMBERS, ALSO INCLUDE SUCH DETAILS FOR ALL CONSULTANTS AND CONTRACTORS INVOLVED IN THE DESIGN AND CONSTRUCTION PHASES. PRODUCT LITERATURE FOR THE SYSTEMS INSTALLED.

 MANUFACTURERS' OPERATIONAL AND SAFETY LITERATURE, AS APPROPRIATE.
- EMERGENCY MAINTENANCE PROCEDURES, INCLUDING TELEPHONE NUMBERS FOR EMERGENCY SERVICES. AND AFTER HOURS CONTACTS FOR SUPPLIERS AND CONTRACTORS AND PROCEDURES FOR FAULT FINDING
- STATUTORY CERTIFICATES OF COMPLIANCE FOR ALL ELECTRICAL AND COMMUNICATIONS WORK, COPIES OF MANUFACTURERS' WARRANTIES, CERTIFICATES FROM AUTHORITIES AND UTILITIES, PRODUCT CERTIFICATION, COPIES OF TEST CERTIFICATES, ETC.
- AS-BUILT DRAWINGS, SYSTEM SCHEMATICS, SHOP DRAWINGS ETC. TESTING AND COMMISSIONING RECORDS
- TRAINING AND OTHER HANDOVER MATERIAL AS APPLICABLE.
 CERTIFICATION: PROVIDE FORM 16 CERTIFICATION AS PART OF HANDOVER MATERIAL. CERTIFY THAT THE INSTALLATION COMPLIES WITH THE APPROVED DESIGN AND RELEVANT STANDARDS (EG. AS/NZS 3000).

SURVEYED DRAWN TENDER ISSUE CHECKED C.LITTLETON 14.02.22 REVISED PRELIMINARY ISSUE REVIEWED C.LITTLETON 29.10.21 PRELIMINARY ISSUE COORDINATOR C.LITTLETON DATE REVISIONS

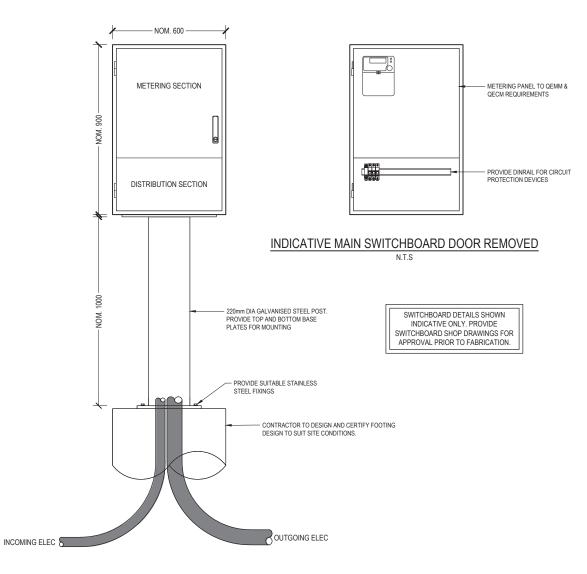
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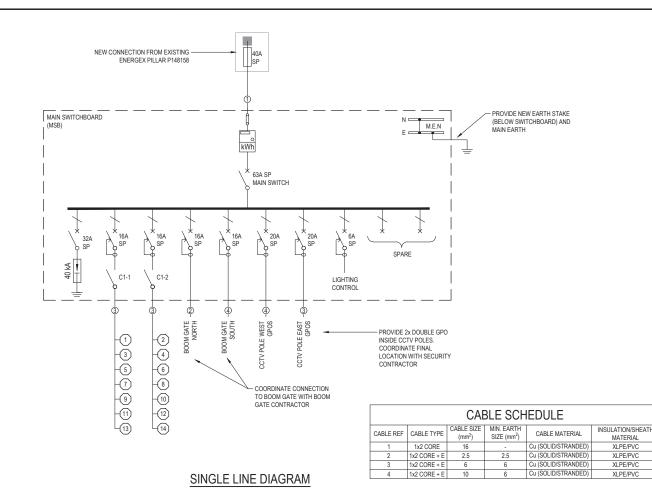
SCHOLARS DRIVE LINK LIGHTING, SIPPY DOWNS

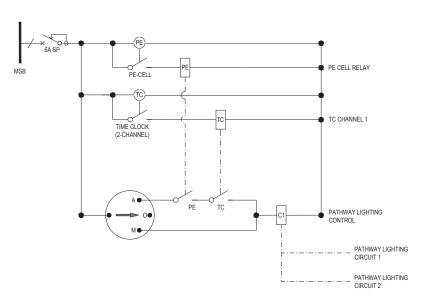
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INDICATIVE MAIN SWITCHBOARD POST MOUNTED





LIGHTING CONTROL SCHEMATIC

PROVIDE LABELLING TO ROTARY SWITCH ("PATHWAY LIGHTING") AND CONFIGURE TIME-CLOCK & PE SETTINGS DURING COMMISSIONING.

CONTROL NOTES

- LIGHTING CONTROL INTENT AS FOLLOWS:

 CONTROL CIRCUIT FOR STREETLIGHTING TO BE LOCATED IN RATE 3 SWITCHBOARD (TYPICAL).

 PROVIDE AUTO-OFF-MANUAL CONTROL SWITCH AND APPROPRIATE LABELLING.

 AUTOMATIC CONTROL BASED ON PE-CELL / 1-CHANNEL TIME CLOCK.
- . CONTROL FUNCTIONALITY AS FOLLOWS:
- "ON" AT DUSK (VIA PE CELL)
 "OFF" AT DAWN (VIA PE CELL) OR "OFF" AT PRE-SET TIME (VIA TIME CLOCK CHANNEL 1).
 CONFIRM TIME CLOCK SETTINGS DURING COMMISSIONING.

BOLLARDS SETOUT

| POLE ID | EASTINGS | NORTHINGS | SETBACK | LUMINAIRE |
|---------|------------|-------------|---------|-----------|
| 1 | 506128.096 | 7044457.231 | 0.7 | J1 |
| 2 | 506135.281 | 7044442.373 | 0.7 | J1 |
| 3 | 506142.467 | 7044427.520 | 0.7 | J1 |
| 4 | 506151.654 | 7044414.133 | 0.7 | J1 |
| 5 | 506167.584 | 7044411.771 | 0.7 | J1 |
| 6 | 506184.032 | 7044413.087 | 0.7 | J1 |
| 7 | 506200.469 | 7044414.522 | 0.7 | J1 |
| 8 | 506216.873 | 7044416.293 | 0.7 | J1 |
| 9 | 506233.278 | 7044418.060 | 0.7 | J1 |
| 10 | 506249.683 | 7044419.828 | 0.7 | J1 |
| 11 | 506266.088 | 7044421.599 | 0.7 | J1 |
| 12 | 506282.597 | 7044422.021 | 0.7 | J1 |
| 13 | 506293.009 | 7044413.300 | 0.7 | J1 |
| 14 | 506295.640 | 7044399.192 | 0.7 | J1 |
| | | | | |

NOTE: BOLLARDS COORDINATES SHOWN FOR REFERENCE ONLY. COORDINATE POLE SETOUT ON SITE TO ACHIEVE NOMINATED SETBACK FROM EDGE OF PATHWAY

| | | | | | | SURVEYED | | П |
|----------------|-----|----------|---------------------------|------|-------|-------------|-------------|---|
| | _ | | | | | DRAWN | B.GRANT | |
| 1 | 4 | 14.03.22 | TENDER ISSUE | C.L | C.L | Dietait | 5.0.0 | |
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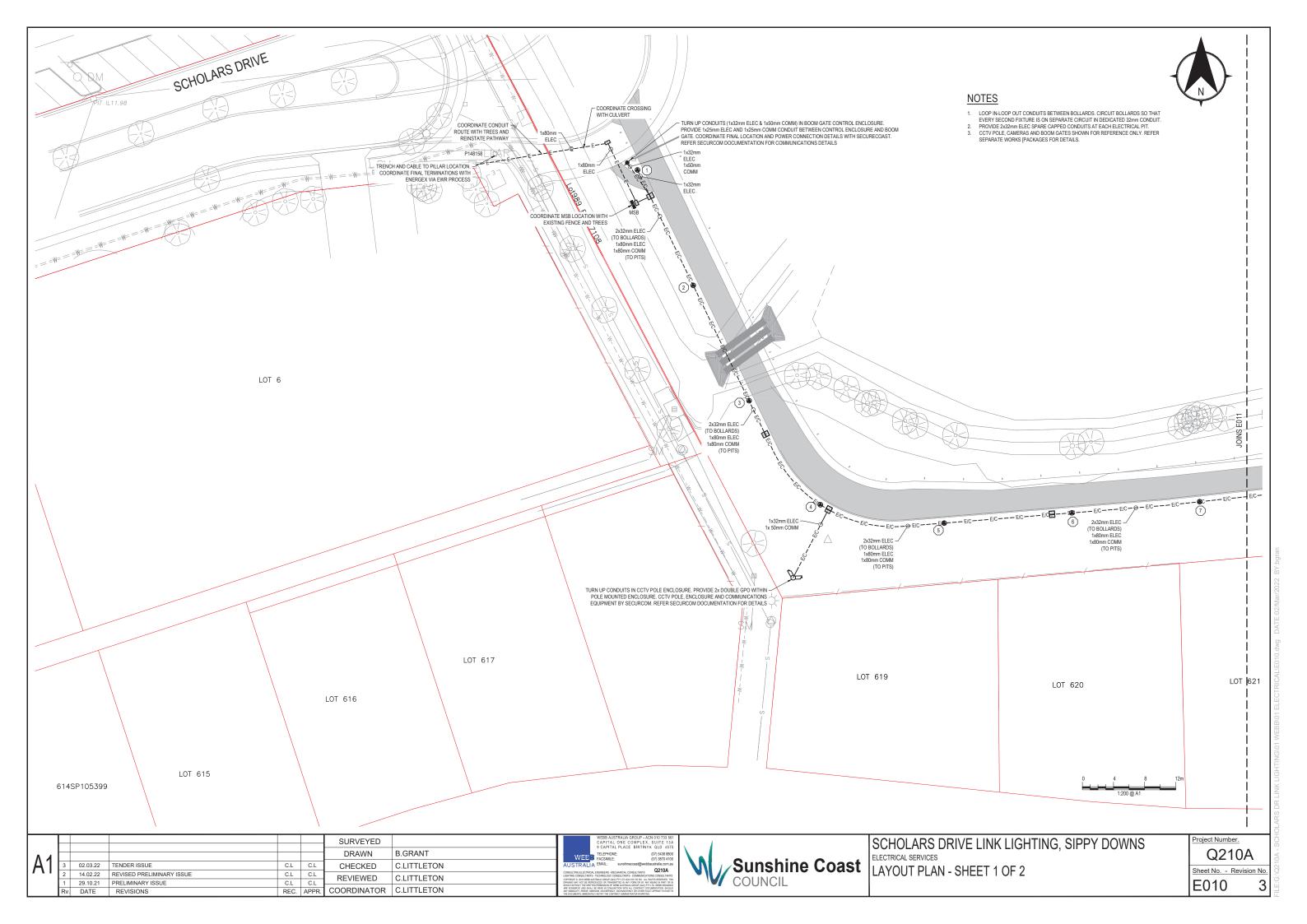


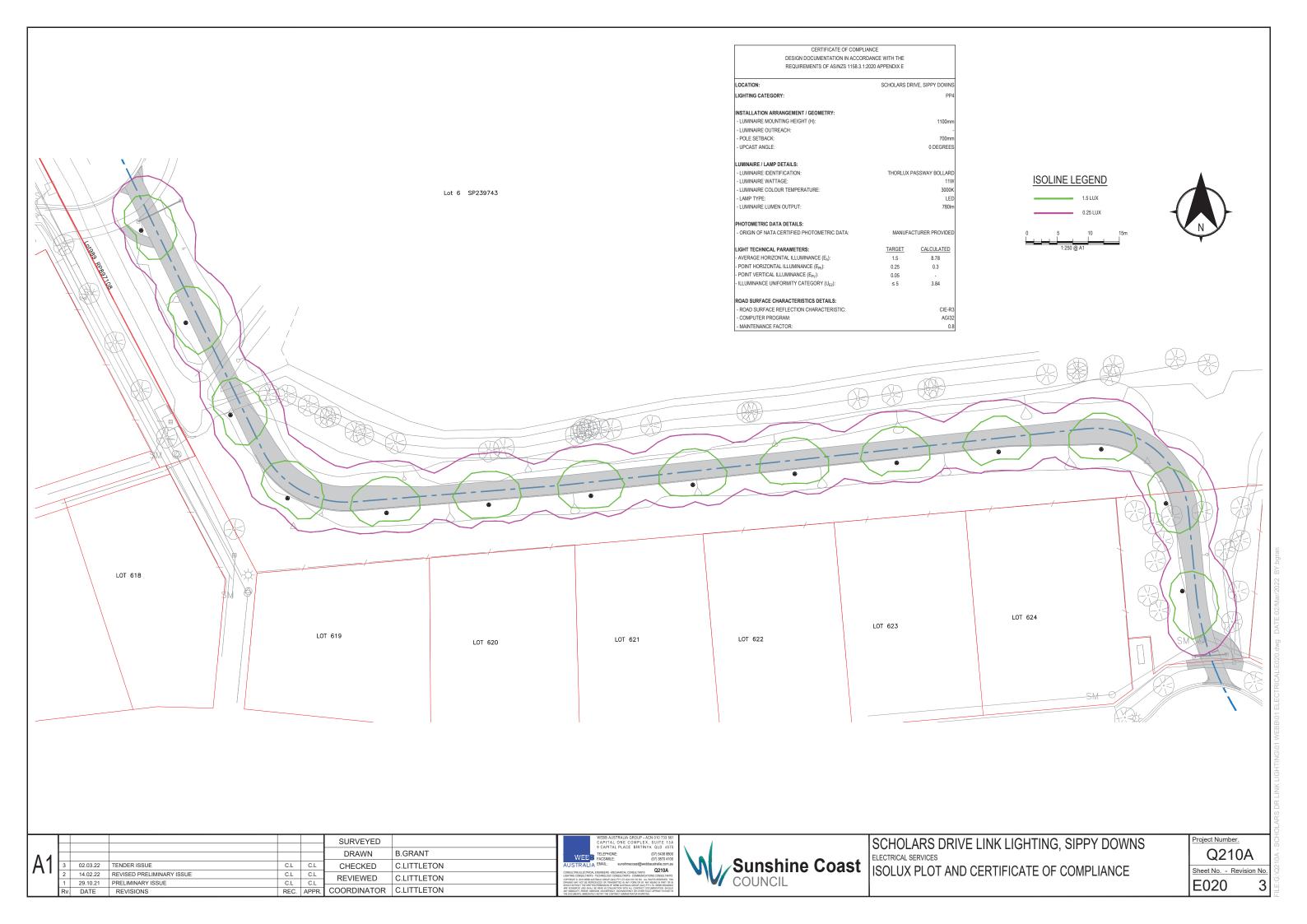


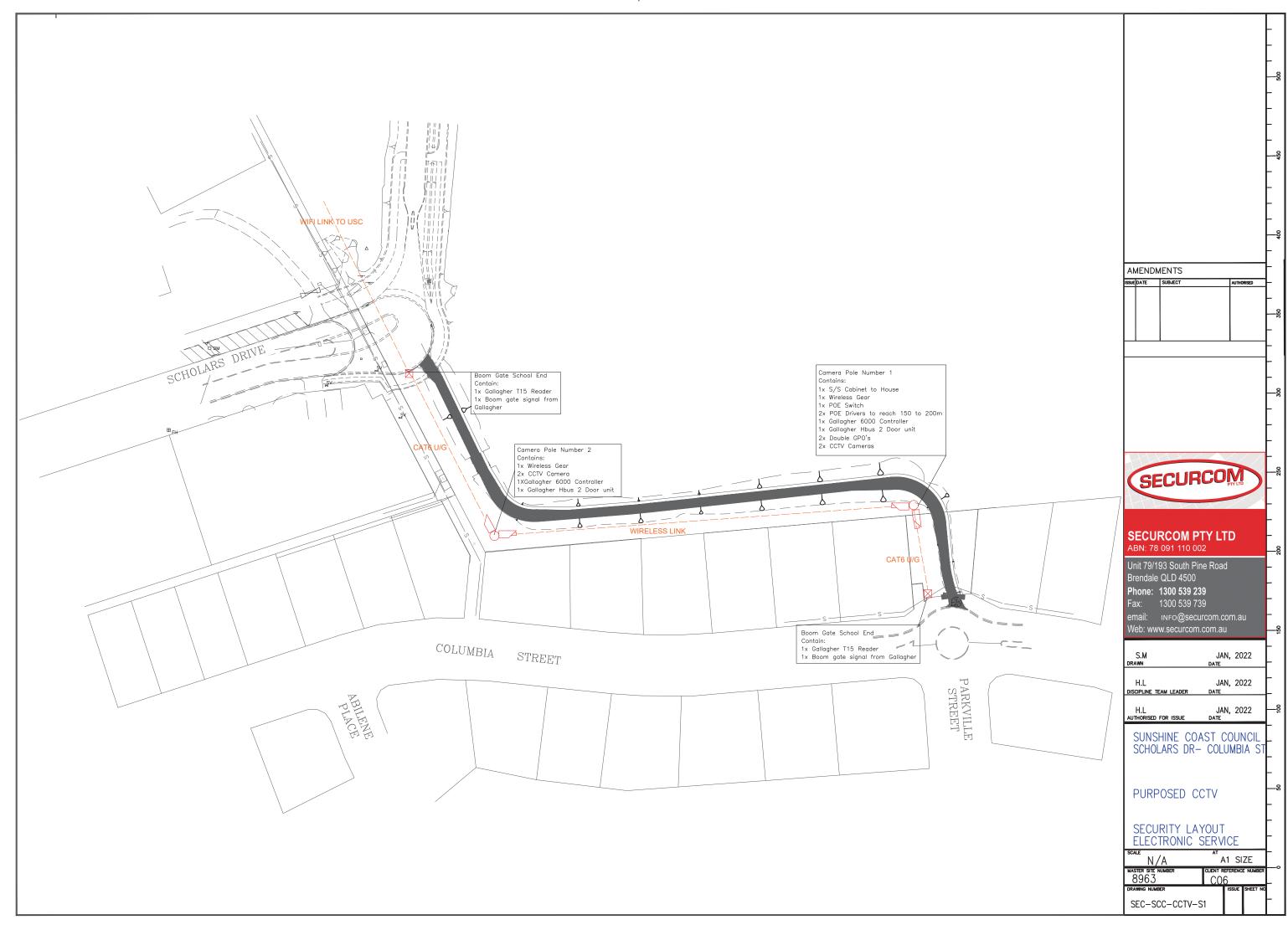
SCHOLARS DRIVE LINK LIGHTING, SIPPY DOWNS

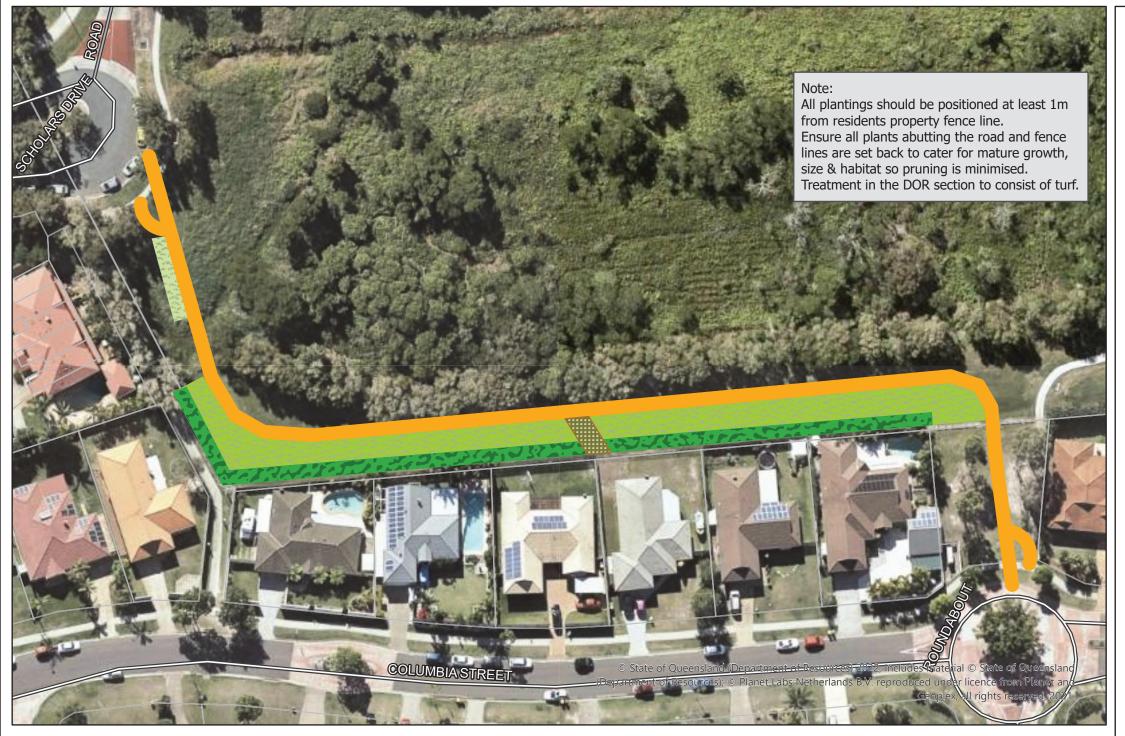
Project Number. Q210A

Sheet No. - Revision No. E002









Planting Plan Scholars Drive Link Project Sippy Downs

Whilst due care is taken to ensure accuracy, Native Foresters makes no warranty as to the accuracy, completeness or reliability of data or

information contained within this product. Appropriate advice should be sought prior to taking any action based on the data or information

contained within this product.

¹Meters

Road — Local — Private

Property boundaries

Rock pitching/ Sedge

planting

Layer

Sedge planting

Shrub/ groundcover Screening trees Shared roadway

Data sources: Qld Government, Sunshine Coast Council, Native Foresters. Date: 21/03/2022 Cartographer: Pru McIntyre. Version:





Planting Method

- 1. Site Preparation Weed removal where required
- 2. Plant local provenance, native tube stock according to Planting Plan and Species suggestions in Plant Schedule.
- 3. Spacings of 1.5 2 m between tree and shrub species and 0.5 m between groundcover species.
- 4. Heavy forest mulch 100mm in depth to be used to aid establishment and restrict weed growth.
- 5. Slow release fertiliser tablet to be used for each individual plant.
- 6. Water crystals to be used for each plant in areas of sandy substrate.
- 7. Scheduled maintenance over a 12 month period to ensure establishment of plants, replacement of dead plants and control of weed



Watering

- 1. Irrigation by water truck at time of planting
- 2. Regularly check moisture levels and maintain watering during dry

Planting Schedule

Shrub/ Groundcover species

Westringia fruticosa Melaleuca sp. cultivar Grevillea sp. cultivar

Carissa macrocarpa Lomandra confertifolia/longifolia

Ficinia nodosa

Dianella brevipedunculatus

Hakea actites Melastoma malabathricum

Pultanea villosa Hovea acutifolia Baeckea imbricata

Leptospermum petersonii/ polygalifolium

Coastal rosemary

"claret tops/ captain cook"

"orange marmalade/robin gordon/honeygem'

Natal plum

Spiny-headed/ Pale mat rush

Knobby club-rush Short-flowered flax lily Wallum hakea Blue tongue

Hairy bush-pea Purple pea bush Spindly baeckea

Lemon-scented tea tree/ Wild may

Screening species

Pittosporum revolutum Sannantha bidwillii Acacia podalyriifolia/ fimbriata Persoonia iogyna Petalostigma pubescens Banksia aemula Dodonaea triquetra

Forest pittosporum North coast twiggy myrtle Silver/ Brisbane wattle

Tall geebung Ouinine bush Wallum banksia Forest hop bush

Recommended total tube stock: 1,500

Screening area - 600m2 @ 1 tree/3m2 = 200 tubes

Shrub/ groundcover area - 1,000m2 @ 1 plant/m2 = 1,000 tubes

Sedge areas - 100m2 @ 3 plants/m2 = 300 tubes

Indicative species suggestions. Placement based on soil and moisture conditions following construction work, under advice of Regeneration Contractor. Plantings to be in accordance with the Planting (Landscape) section of the Landscape Infrastructure Manual (LIM).