



# ELECTRICAL DESIGN GROUP

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C3808a - KINGS CHRISTIAN COLLEGE - WALLOON STAGE 1 PROJECT 2 WAL01

C3808a-0001(B).xls

ELECTRICAL SERVICES CONTRACT DOCUMENT SCHEDULE

REVISION B - 20 JULY 2026

| ISSUING INFORMATION                                                                   |                  |    |    | DATE OF ISSUE |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------|------------------|----|----|---------------|--|--|--|--|--|--|--|
|                                                                                       | DAY              | 14 | 20 |               |  |  |  |  |  |  |  |
|                                                                                       | MONTH            | 07 | 07 |               |  |  |  |  |  |  |  |
|                                                                                       | YEAR             | 26 | 26 |               |  |  |  |  |  |  |  |
|                                                                                       | REASON FOR ISSUE | T  | T  |               |  |  |  |  |  |  |  |
| A = APPROVAL    C = CONSTRUCTION    N = COORDINATION    P = PRELIMINARY    T = TENDER |                  |    |    |               |  |  |  |  |  |  |  |

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| KINGS CHRISTIAN COLLEGE                                      |  |  |  | 1E               | 1E |  |  |  |  |  |  |
| RAW ENGINEERING                                              |  |  |  | 1E               | 1E |  |  |  |  |  |  |
|                                                              |  |  |  |                  |    |  |  |  |  |  |  |
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| P = PRINT    T = TRACING    D = DISC    E = EMAIL    F = FAX |  |  |  |                  |    |  |  |  |  |  |  |

| DOCUMENTS       |                                     | REVISION |   |  |  |  |  |  |  |  |  |
|-----------------|-------------------------------------|----------|---|--|--|--|--|--|--|--|--|
| C3808a-E01.dwg  | LEGEND & LOCATION PLAN              | A        | B |  |  |  |  |  |  |  |  |
| C3808a-E02.dwg  | NOTES                               | A        | B |  |  |  |  |  |  |  |  |
| C3808a-E03.dwg  | POWER SCHEMATIC                     | A        |   |  |  |  |  |  |  |  |  |
| C3808a-E04.dwg  | SITE SERVICES PLAN                  | A        | B |  |  |  |  |  |  |  |  |
| C3808a-EN01.dwg | ENERGEX CONDUITS                    | A        |   |  |  |  |  |  |  |  |  |
| C3808a-EN02.dwg | ENERGEX SUBSTATION SITE PLAN        | A        |   |  |  |  |  |  |  |  |  |
| C3808a-EN03.dwg | ENERGEX SUBSTATION DETAILS          | A        |   |  |  |  |  |  |  |  |  |
| C3808a-EN04.dwg | ENERGEX SUBSTATION STANDARD DETAILS | A        |   |  |  |  |  |  |  |  |  |
| C3808a-EN05.dwg | ENERGEX SUBSTATION STANDARD NOTES   | A        |   |  |  |  |  |  |  |  |  |
|                 |                                     |          |   |  |  |  |  |  |  |  |  |
|                 |                                     |          |   |  |  |  |  |  |  |  |  |
| C3808a-0001.xls | CONTRACT DOCUMENT SCHEDULE          | A        | B |  |  |  |  |  |  |  |  |
|                 |                                     |          |   |  |  |  |  |  |  |  |  |
|                 |                                     |          |   |  |  |  |  |  |  |  |  |
|                 |                                     |          |   |  |  |  |  |  |  |  |  |
|                 |                                     |          |   |  |  |  |  |  |  |  |  |

LEGEND

DB-M  DISTRIBUTION BOARD DB-M. REFER TO THE DB-M SCHEDULE AND NOTES.

DB-G  DISTRIBUTION BOARD DB-G. REFER TO THE DB-M SCHEDULE AND NOTES.

MSB  MAIN SWITCHBOARD (MSB). REFER TO THE POWER SCHEMATIC AND NOTES.

 NON-AUTO SWITCH.

 CIRCUIT BREAKER.

 FUSE.

 MECHANICAL INTERLOCK.

 QECM V4 AUTHORITY RETAIL METER.

 QECM V4 SOLAR PROTECTION CTs.

 PRIVATE MULT-FUNCTION DEMAND LOGGING METER.

 SURGE PROTECTION DEVICE.

 MANUAL TRANSFER SWITCH C/W STATUS OUTPUT RELAY.

 SOLAR PROTECTED SMART METER WIRELESS.

 SINGLE PHASE.

 THREE PHASE.

 SIGN CONNECTION. PROVIDE THE SIGN WITH A CONCEALED POWER SUPPLY COORDINATED ON SITE WITH THE SIGNAGE CONTRACTOR.

 DIGITAL SIGN. PROVIDE THE SIGN WITH A CONCEALED POWER SUPPLY COORDINATED ON SITE WITH THE SIGNAGE CONTRACTOR. PROVIDE THE DIGITAL SIGN WITH A 50 DIA POWER CONDUIT C/W SPARE DRAW WIRE FROM THE LOCAL POWER PIT AND A 32 DIA COMMUNICATIONS CONDUIT C/W SPARE DRAW WIRE FROM THE LOCAL COMMUNICATIONS PIT.

 GATE MOTOR. PROVIDE THE GATE MOTOR WITH A LOCKABLE IP 66 POWER SUPPLY COORDINATED ON SITE WITH THE GATE SUB CONTRACTOR. PROVIDE THE GATE MOTOR WITH A 32 DIA COMMUNICATIONS CONDUIT C/W SPARE DRAW WIRE FROM THE LOCAL COMMUNICATIONS PIT.

15A  15A IP66 POWER OUTLET. COORDINATE THE POSITION ON SITE WITH THE FIRE PUMP SUB CONTRACTOR.

 T: TELSTRA / NBN PIT. CONFIRM THE POSITION ON SITE WITH TELSTRA / THE NBN CO.

 C1: NBN TYPE 2 LEADIN PIT.

 C2: 600 x 600 x 500 DEEP PLASTIC COMMUNICATIONS PIT C/W A REINFORCED CONCRETE SURROUND AND A CLASS C STEEL LID WITH A SLIP RESISTANCE OF R10 SUBMIT DETAILS OF THE PIT, LID AND AN INSTALLATION SECTION FOR APPROVAL.

 C3: 450 x 450 x 500 DEEP PLASTIC COMMUNICATIONS PIT C/W A REINFORCED CONCRETE SURROUND AND A CLASS C STEEL LID WITH A SLIP RESISTANCE OF R10 SUBMIT DETAILS OF THE PIT, LID AND AN INSTALLATION SECTION FOR APPROVAL.

 P1: PROVIDE A REINFORCED MASONRY INSITU PIT / TRENCH BELOW MSB FOR THE FULL LENGTH OF THE MSB AS PER THE MSB SECTION DETAIL. PROVIDE AS PART OF THE ELECTRICAL WORKS THE SWITCHBOARD AND LID SUPPORT SYSTEM AND THE TRENCH LIDS. PROVIDE THE TRENCH LIDS AND STRUCTURAL SUPPORT SYSTEM AS HOT DIPPED GALVANISED STEEL. PROVIDE THE TRENCH LIDS WITH LIFTING HOLES CHECKER PLATE R10 ANTI SLIP PATTERNING WITH EACH PART NO HEAVIER THAN 20 kg. FIX THE LIDS IN PLACE SUCH THAT A TOOL IS REQUIRED TO REMOVE THEM. PROVIDE AS PART OF THE ELECTRICAL WORKS THE TRENCH WITH AN AUTOMATIC SUMP PUMP TO DRAIN TO THE STORMWATER SYSTEM. PROVIDE CABLE SUPPORTS WITHIN THE TRENCH TO ENSURE THAT THERE ARE NO CABLES WITHIN 50MM OF THE TRENCH FLOOR. SUBMIT DETAILS OF THE PIT, LID AND AN INSTALLATION SECTION FOR APPROVAL.

 P2: 1200 x 1200 x 1000 DEEP INSITU POWER PIT C/W A REINFORCED CONCRETE SURROUND AND A CLASS C STEEL LID WITH A SLIP RESISTANCE OF R10 SUBMIT DETAILS OF THE PIT, LID AND AN INSTALLATION SECTION FOR APPROVAL.

 P3: 600 x 600 x 700 DEEP PLASTIC POWER PIT C/W A REINFORCED CONCRETE SURROUND AND A CLASS C STEEL LID WITH A SLIP RESISTANCE OF R10 SUBMIT DETAILS OF THE PIT, LID AND AN INSTALLATION SECTION FOR APPROVAL.

 P4: 450 x 450 x 700 DEEP PLASTIC POWER PIT C/W A REINFORCED CONCRETE SURROUND AND A CLASS C STEEL LID WITH A SLIP RESISTANCE OF R10 SUBMIT DETAILS OF THE PIT, LID AND AN INSTALLATION SECTION FOR APPROVAL.

DISTRIBUTION BOARD DB-M SCHEDULE

| FAULT CURRENT:                                                                                                                                                                                                                                                                                                                                                                                     |    | 6kA            |                                   | MAIN SWITCH: |                    | INTEGRAL TO THE MSB |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------------|-----------------------------------|--------------|--------------------|---------------------|--|
| CHASSIS SIZE:                                                                                                                                                                                                                                                                                                                                                                                      |    | 48 POLES       |                                   |              |                    |                     |  |
| CHASSIS RATING:                                                                                                                                                                                                                                                                                                                                                                                    |    | 250A           |                                   |              |                    |                     |  |
| PHASES:                                                                                                                                                                                                                                                                                                                                                                                            |    | A              |                                   |              |                    |                     |  |
| PROVIDE THE DB WITH A FULL WIDTH EMPTY DIN RAIL TO ACCOMMODATE FUTURE CONTACTORS AND CONTROLS IN ADDITION TO THE CONTROLS PROVIDED AS PART OF THE INITIAL WORKS. DB-M IS INTEGRAL TO THE MSB. PROVIDE THE SUPPLY TO THE DB WITH 200A FAULT CURRENT LIMITING FUSES. PROVIDE THE DB WITH A PE CELL ON / OFF / AUTO BYPASS SELECTOR SWITCH AND THE TC WITH AN ON / OFF / AUTO BYPASS SELECTOR SWITCH. |    |                |                                   |              |                    |                     |  |
| CIRC                                                                                                                                                                                                                                                                                                                                                                                               | PH | CIRCUIT        | CONTROL                           | CABLE        | LOCATION           | CIRCUIT             |  |
|                                                                                                                                                                                                                                                                                                                                                                                                    |    | BREAKER (amps) | EQUIPMENT                         | SIZE ( mm2 ) |                    | USE                 |  |
| P1                                                                                                                                                                                                                                                                                                                                                                                                 | 3  | 63             | MCB                               | 4C+E 25      | VEHICLE ENTRY GATE | DB-G                |  |
| P2                                                                                                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO                              | 2.5          | MSB PIT            | SUMP PUMP           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                    |    |                |                                   |              |                    |                     |  |
| L1                                                                                                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO PE CELL ON<br>OFF AT DAWN    | 6.0          | CARPARK            | SECURITY LIGHTS     |  |
| L2                                                                                                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO PE CELL ON<br>TC OFF 11.00PM | 6.0          | CARPARK            | GENERAL LIGHTING    |  |
| L3                                                                                                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO PE CELL ON<br>TC OFF 11.00PM | 6.0          | CARPARK            | GENERAL LIGHTING    |  |
| L4                                                                                                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO PE CELL ON<br>TC OFF 11.00PM | 6.0          | CARPARK            | GENERAL LIGHTING    |  |
| L5                                                                                                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO PE CELL ON<br>TC OFF 11.00PM | 6.0          | CARPARK            | GENERAL LIGHTING    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                    |    |                |                                   |              |                    |                     |  |

LEGEND

L1  L1: 120W 4000K AREA LIGHT MOUNTED WITH A 15 DEGREE TILT ON A 9M HIGH TAPERED GALVANIZED POLE. PROVIDE A SPARE 32 DIA POWER CONDUIT AND A 32 DIA COMMUNICATIONS CONDUIT FROM EACH POLE TO THE LOCAL PIT C/W SPARE DRAW WIRE. FITTING TYPE: RAPID LED R10606.

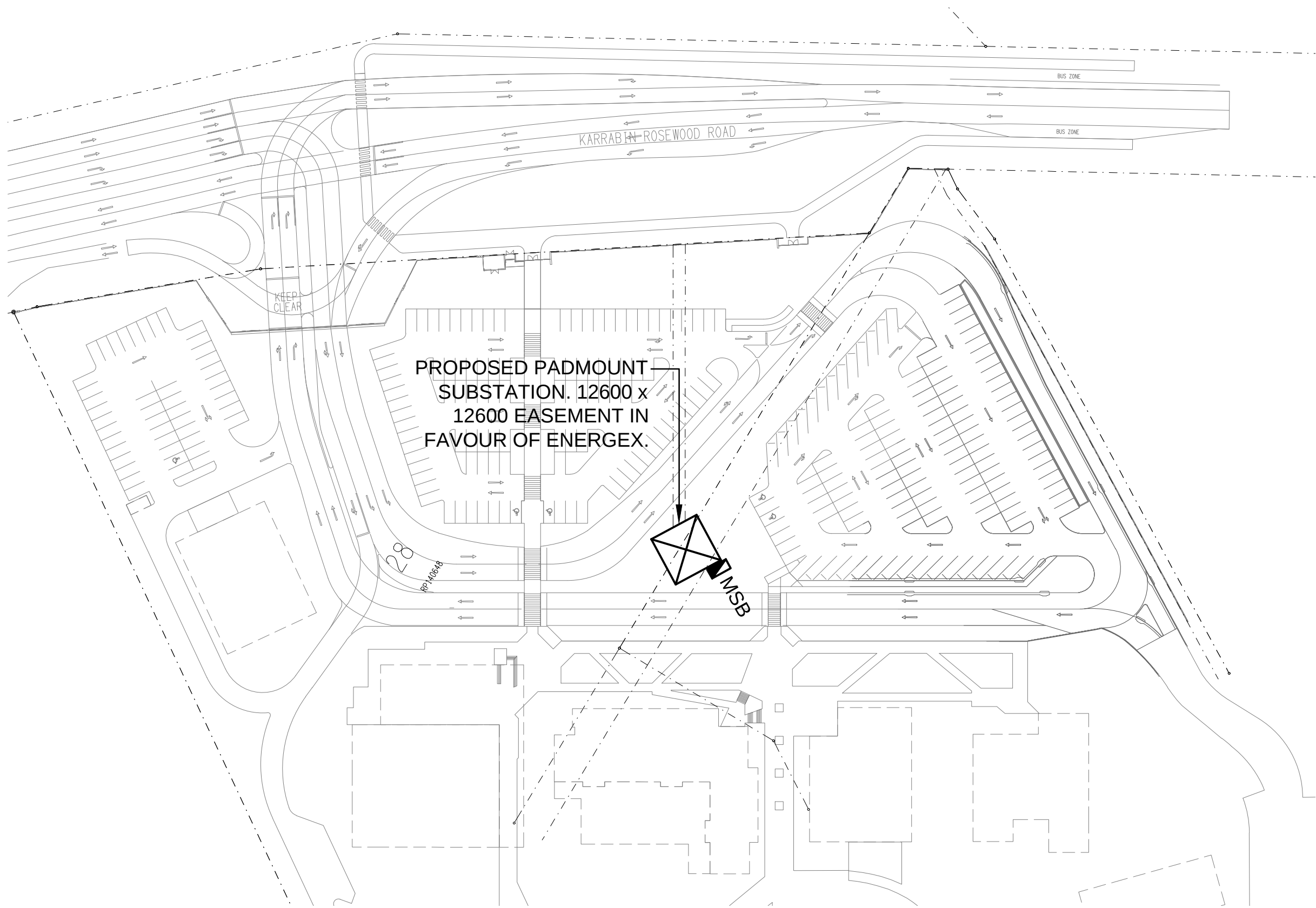
L2  L2: 120W 4000K AREA LIGHT MOUNTED WITH A 15 DEGREE TILT ON A 7.8M HIGH TAPERED GALVANIZED POLE ON A 1200 HIGH 600 DIA REINFORCED CONCRETE BOLLARD. PROVIDE A SPARE 32 DIA POWER CONDUIT AND A 32 DIA COMMUNICATIONS CONDUIT FROM EACH POLE TO THE LOCAL PIT C/W SPARE DRAW WIRE. FITTING TYPE: RAPID LED R01606.

 L3: 1200 LONG IP66 BATTEN C/W SENSOR AND NON-MAINTAINED EMERGENCY PACK.

L4  L4: 120W 4000K AREA LIGHT MOUNTED WITH A 15 DEGREE TILT ON A 9M HIGH TAPERED GALVANIZED POLE. PROVIDE A SPARE 32 DIA POWER CONDUIT AND A 32 DIA COMMUNICATIONS CONDUIT FROM EACH POLE TO THE LOCAL PIT C/W SPARE DRAW WIRE. FITTING TYPE: RAPID LED R10606.

DISTRIBUTION BOARD DB-G SCHEDULE

| FAULT CURRENT:                                                                                                                                                                                                                                                                                                     |    | 6kA            |                                   | MAIN SWITCH:   |                 | 100A NON AUTO LOAD BREAK |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------------|-----------------------------------|----------------|-----------------|--------------------------|--|
| CHASSIS SIZE:                                                                                                                                                                                                                                                                                                      |    | 36 POLES       |                                   | SUPPLIED FROM: |                 | MSB / DB-M               |  |
| CHASSIS RATING:                                                                                                                                                                                                                                                                                                    |    | 250A           |                                   | CABLE:         |                 | 4C+E 25                  |  |
| PHASES:                                                                                                                                                                                                                                                                                                            |    | A              |                                   |                |                 |                          |  |
| PROVIDE THE DB WITH A FULL WIDTH EMPTY DIN RAIL TO ACCOMMODATE FUTURE CONTACTORS AND CONTROLS IN ADDITION TO THE CONTROLS PROVIDED AS PART OF THE INITIAL WORKS. PROVIDE THE DB WITH AN AS2293 EMERGENCY LIGHTING CONTROL SYSTEM TO CONTROL THE ASSOCIATED EMERGENCY LIGHTS. PROVIDE THE DB WITH SURGE PROTECTION. |    |                |                                   |                |                 |                          |  |
| CIRC                                                                                                                                                                                                                                                                                                               | PH | CIRCUIT        | CONTROL                           | CABLE          | LOCATION        | CIRCUIT                  |  |
|                                                                                                                                                                                                                                                                                                                    |    | BREAKER (amps) | EQUIPMENT                         | SIZE ( mm2 )   |                 | USE                      |  |
| P1                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO                              | 2.5            | ENTRY           | GATE                     |  |
| P2                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO                              | 2.5            | ENTRY           | GATE                     |  |
| P3                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO                              | 2.5            | ENTRY           | DIGITAL SIGN             |  |
| P4                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO                              | 2.5            | BOOSTER CABINET | BOOSTER                  |  |
| P5                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO                              | 2.5            | BOOSTER CABINET | BOOSTER                  |  |
| P6                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO                              | 2.5            | BOOSTER CABINET | BOOSTER                  |  |
| P7                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO                              | 2.5            | BOOSTER CABINET | BOOSTER                  |  |
|                                                                                                                                                                                                                                                                                                                    |    |                |                                   |                |                 |                          |  |
| L1                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO PE CELL ON<br>OFF AT DAWN    | 4.0            | CARPARK         | SECURITY LIGHTS          |  |
| L2                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO PE CELL ON<br>TC OFF 11.00PM | 4.0            | CARPARK         | GENERAL LIGHTING         |  |
| L3                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCBO PE CELL ON<br>OFF AT DAWN    | 2.5            | ENTRY           | SIGN                     |  |
| L4                                                                                                                                                                                                                                                                                                                 | 1  | 20             | RCD                               | 2.5            | BOOSTER CABINET | BOOSTER CABINET LIGHTS   |  |
|                                                                                                                                                                                                                                                                                                                    |    |                |                                   |                |                 |                          |  |



LOCATION PLAN

STAGE 1 PROJECT 2 WORKS  
SCALE 1: 1000

|                                                                                                                                |                                                                                                       |                                                                                                                                                                                                                                                                             |                                                                                                                                |                                                                            |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|--|--|--|
| <div>ELECTRICAL DESIGN GROUP BRISBANE<br/>PTY LTD<br/>ACN 092 710 793</div> <div>TRADING AS:<br/>ELECTRICAL DESIGN GROUP</div> | <div>THE COPYRIGHT OF THIS DRAWING<br/>REMAINS THE PROPERTY OF THE<br/>ELECTRICAL DESIGN GROUP.</div> | <div><div><div></div><div>ELECTRICAL DESIGN GROUP</div></div><div>ELECTRICAL BUILDING SERVICES CONSULTANTS</div><div>BRISBANE GOLD COAST</div><div>P.O.Box 15, Sherwood Q.4075<br/>Phone: (07) 3278 4375<br/>Email: brisbane@edg.net.au<br/>Web: www.edg.net.au</div></div> | <div>PROJECT:<br/>KINGS CHRISTIAN COLLEGE<br/>WALLOON STAGE 1 PROJECT 2 WAL01</div> <div>KARRABIN ROSEWOOD ROAD, WALLOON</div> | <div>DRAWING:<br/>ELECTRICAL SERVICES<br/>LEGEND &amp; LOCATION PLAN</div> |  |  |  |
|                                                                                                                                | <div>USE FIGURED DIMENSIONS<br/>IN PREFERENCE TO SCALE.</div>                                         |                                                                                                                                                                                                                                                                             |                                                                                                                                |                                                                            |  |  |  |
|                                                                                                                                | <div>ALL DIMENSIONS TO BE<br/>VERIFIED ONSITE.</div>                                                  |                                                                                                                                                                                                                                                                             |                                                                                                                                |                                                                            |  |  |  |
|                                                                                                                                | <div>SCALE:<br/>1:1000</div> <div>AT A1</div>                                                         |                                                                                                                                                                                                                                                                             |                                                                                                                                |                                                                            |  |  |  |
|                                                                                                                                | <div>PROJECT NO:<br/>C3808a</div> <div>DRAWING NO:<br/>E01</div> <div>REVISION:<br/>B</div>           |                                                                                                                                                                                                                                                                             |                                                                                                                                |                                                                            |  |  |  |

NOTES

1. EXTENT OF WORKS

THE ELECTRICAL SERVICES SUB-CONTRACT INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

- SUPPLY AND INSTALLATION OF ALL COMPONENTS FORMING PART OF THE ELECTRICAL SERVICES.
- CO-ORDINATION.
- INSPECTIONS.
- TESTING AND COMMISSIONING.
- MAINTENANCE.
- CABLING, CABLE SUPPORT SYSTEMS AND ACCESS.
- UNDERGROUND PITS AND CONDUITS INCLUDING TRENCHING, BACKFILLING AND REINSTATEMENT.
- POWER DISTRIBUTION.
- LIGHTING.
- AS CONSTRUCTED DRAWINGS.
- ALL MINOR COMPONENTS AND INCIDENTAL WORKS NOT SPECIFICALLY REFERRED TO, HOWEVER NECESSARY TO COMPLETE THE ELECTRICAL SERVICES INSTALLATION SUCH THAT IT IS HANDED OVER COMPLETE, OPERATIONAL AND FIT FOR THE INTENDED USE.

SUPPLY ALL LABOUR, MATERIALS, EQUIPMENT, AND ALL OTHER ITEMS, WHETHER MENTIONED IN DETAIL OR NOT, REQUIRED FOR THE SATISFACTORY COMPLETION OF THE ELECTRICAL SERVICES INSTALLATION, LEAVING IN FULL WORKING ORDER TO THE SATISFACTION OF THE PROJECT MANAGER.

ACCEPT FULL RESPONSIBILITY FOR LIASING, ARRANGING AND CO-ORDINATION ALL WORKS THAT HAVE AN EFFECT ON OR WILL BE AFFECTED BY THE ELECTRICAL SERVICES.

2. WORKMANSHIP

ENSURE THAT THE WORK IS PERFORMED BY THE HOLDER OF A CURRENT ELECTRICAL SUB CONTRACTOR LICENSE. ENSURE THE INSTALLATION AND ALL COMPONENTS, FIXTURES, FITTINGS, OUTLETS AND CABLES ARE SUPPLIED AND INSTALLED TO A HIGH STANDARD THROUGHOUT, AND INSTALLED IN A NEAT AND TRADESMAN LIKE MANNER, TO THE CURRENT INDUSTRY STANDARDS. ENSURE ALL MATERIALS AND COMPONENTS OF A SIMILAR TYPE ARE OF THE SAME MANUFACTURER AND INSTALLED IN A UNIFORM MANNER.

IT IS THE ELECTRICAL SUB CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE INSTALLATION IS FIT FOR PURPOSE AND IS PROVIDED AS A COMPLETE WORKING INSTALLATION. IT IS THE ELECTRICAL SUB CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL COMPONENTS, FITTINGS, FIXTURES, SYSTEMS, PROGRAMMING ETC IRRESPECTIVE OF THE LEVEL DETAILED IN THE DOCUMENTS SUCH THAT THE INSTALLATION IS PROVIDED AS A COMPLETE WORKING INSTALLATION.

CONCEAL ALL WIRING AND CONDUITS. EXPOSED CABLING OR CONDUITS ARE GENERALLY NOT ACCEPTABLE. IT IS NOTED THAT CHASING AND REINSTATEMENT WILL BE REQUIRED. ENSURE ALL COMPONENTS, EQUIPMENT AND MATERIALS SUPPLIED ARE NEW, UNUSED, DESIGNED AND SELECTED TO ENSURE SATISFACTORY OPERATION UNDER VARYING ATMOSPHERIC, CLIMATIC, HUMID TROPICAL CONDITIONS WITHOUT DISTORTION AND DETERIORATION IN ANY PART AFFECTING EFFICIENCY AND RELIABILITY OF THE SYSTEMS. DESIGN AND SELECT ALL EQUIPMENT TO PROVIDE THE NECESSARY SAFETY TO HUMAN LIFE AND PROPERTY DURING OPERATION AND MAINTENANCE WITH PARTICULAR ATTENTION GIVEN TO ELECTRICAL SAFETY AND SEGREGATION PRECAUTIONS.

CHECK THE FINISHED PAINTWORK AROUND THE AREA OF EACH INSTALLATION AND TOUCH UP ALL DAMAGED PARTS AND FINISHES AFTER THE INSTALLATION OF THE ELECTRICAL SERVICES.

ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE BUILDER'S PROGRAM. ENSURE ALL FINAL LOCATIONS OF OUTLETS AND FITTINGS ARE CO-ORDINATED ONSITE WITH THE ARCHITECT AND ALL OTHER SERVICES, TO THE APPROVAL OF THE PROJECT MANAGER. ALLOW TO CO-ORDINATE THE FINAL LOCATION OF ALL EQUIPMENT, FITTINGS, & OUTLETS, SUCH THAT THEY ARE INSTALLED IN ACCORDANCE WITH THE AS3000 RESTRICTED ZONES, AND ARE NOT COVERED INAPPROPRIATELY.

ENSURE THAT ALL METAL SURFACES ARE SUITABLY PROTECTED AGAINST CORROSION, AND THAT ALL PLASTIC MATERIALS ARE UV STABILISED.

PROVIDE ALL MATERIALS AS NEW, AND OF THE HIGHEST CLASS AVAILABLE FOR THEIR RESPECTIVE TYPES. ENSURE ALL ASPECTS OF THE WORK ARE OF A HIGH STANDARD THROUGHOUT, AND INSTALLED IN A NEAT AND TRADESMAN LIKE MANNER, TO THE CURRENT INDUSTRY STANDARDS.

3. STANDARDS

IRRESPECTIVE OF INFORMATION CONTAINED IN THE ELECTRICAL SERVICES DOCUMENTS OR IN INSTRUCTIONS, IT IS THE ELECTRICAL SUB CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL ELECTRICAL SERVICES WORKS ARE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FOLLOWING. REFER ANY DISCREPANCIES BETWEEN THE REQUIREMENTS OF THE FOLLOWING AND/OR THE ELECTRICAL SERVICES DOCUMENTS AND INSTRUCTIONS TO THE ARCHITECT FOR CLARIFICATION PRIOR TO THE PLACING OF ORDERS, FABRICATION OR INSTALLATION OF THE ITEMS/METHODS IN DISCREPANCY.

- NCC BUILDING CODE OF AUSTRALIA.
- ELECTRICITY ACT.
- ELECTRICAL SAFETY ACT.
- ENERGEX REQUIREMENTS.
- THE QUEENSLAND ELECTRICITY CONNECTION MANUAL V4 (QECM).
- NATIONAL METERING INSTALLATION REGULATIONS (NMIR).
- AS/NZS3000.
- AS3008.

4. AUTHORITIES

ENSURE ALL OF THE ELECTRICAL SERVICES COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AUTHORITIES HAVING JURISDICTION OVER THE SITE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

- ACMA.
- LOCAL COUNCIL.
- LOCAL SUPPLY AUTHORITY.
- STATE GOVERNMENT DEPARTMENT OF ENVIRONMENT AND HERITAGE.
- QLD GOVERNMENT, DIVISION OF WORKPLACE, HEALTH AND SAFETY.
- QLD FIRE AND RESCUE AUTHORITY.

5. CABLES

UNLESS OTHERWISE SPECIFIED, INSTALL AND TERMINATE CABLES IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS. DETERMINE THE FINAL ROUTES TO SUIT THE BUILDING STRUCTURE AND SITE CONDITIONS. UNLESS NOTED OTHERWISE, PROVIDE ALL 240 VOLT POWER AND LIGHTING WIRING AS 2.5mm² TWIN & EARTH STRANDED COPPER CONDUCTORS, PVC INSULATED 0.6/1kV V75 GRADE TO AS3174, PROTECTED BY A 20 AMP CIRCUIT BREAKER. ALL CONDUIT AND FITTINGS TO BE RIGID UPVC TO AS2053, UNLESS NOTED OTHERWISE.

NOTES

6. POWER DISTRIBUTION

THE POWER DISTRIBUTION COMPONENT OF THIS CONTRACT INCLUDES THE PROVISION OF A NEW ON SITE ENERGEX PADMOUNT SUBSTATION, A MAIN SWITCHBOARD AND DISTRIBUTION BOARDS DB-M AND DB-G. ALL SWITCHGEAR, CIRCUITS AND OUTLETS ARE TO BE PROVIDED AS NECESSARY. THE SUBSTATION AND ALL ENERGEX CIVIL WORKS ARE TO BE PROVIDED AS PART OF THE ELECTRICAL SUBCONTRACT WORKS IN ACCORDANCE WITH THE ENERGEX AGREEMENT AND THE ENERGEX STANDARDS. SUBMIT AN EWR WITH ENERGEX AND COORDINATE ALL PAPERWORK WITH ENERGEX, THE CLIENT AND THE ELECTRICITY RETAILER TO HAVE THE SUPPLY CONNECTED.

THE ELECTRICAL COMPONENT OF THIS CONTRACT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING EXTENT OF WORK:

- POWER DISTRIBUTION.
- EARTHING.
- ENERGEX CIVIL WORKS.
- MAIN SWITCHBOARD (MSB).
- PIT 1 THE MSB TRENCH INCLUDING THE STRUCTURAL SUPPORTS, LID AND SUMP PUMP SYSTEM.
- PITS AND UNDERGROUND CONDUITS.
- NEW UNDERGROUND CONDUITS AND SUBMAINS FROM THE MSB TO DB-21.
- ENERGY MONITORING SYSTEM.
- DISTRIBUTION BOARDS DB-M AND DB-G.
- SUBMAINS FROM DB-M TO DB-G.
- PROVIDE AN INFRARED SCAN OF THE MSB AND DB-G AS PART OF THE WORKS ONE WEEK AFTER PRACTICAL COMPLETION.
- CIRCUITS.
- ISOLATORS AND OUTLETS.
- TESTING AND COMMISSIONING.
- SHOP DRAWINGS.

PROVIDE THE SITE MAIN SWITCHBOARD (MSB) AS FOLLOWS:

- REFER TO THE POWER SCHEMATIC.
- PLINTH MOUNTED FREE STANDING.
- QECM COMPLIANT RETAIL METERING. - IP66 (316 STAINLESS STEEL OR ALUMINIUM) POWDER COATED COLOURBOND SURF MIST ENCLOSURE.
- ENSURE THE MSB IS DESIGNED TO OPERATE IN DIRECT SUNLIGHT WITH AN AMBIENT TEMPERATURE OF 40 DEGREES.
- WHITE ESCUTCHEON.
- BOTTOM ENTRY CABLE ACCESS ONLY.
- SUN / RAIN HOOD.
- TEMPERATURE CONTROLLED ANTI CONDENSATION HEATERS IN EACH CUBICAL.
- DB-M AS PER THE DB-M SCHEDULE AND NOTES.
- DOORS ON ALL CUBICLES WITH 3 POINT 92268 KEY LOCKABLE HANDLES OTHER THAN THE METER CUBICAL DOOR WHICH IS TO HAVE AN ENERGEX PADLOCK.
- LIFT OFF HINGES ON ALL DOORS AND ESCUTCHEONS.
- 1/4 TURN LATCHES AND D HANDLES ON ALL ESCUTCHEONS.
- ALL SWITCHGEAR TO BE NHP/TERASAKI.
- SHOP DRAWINGS FOR APPROVAL.
- TWO ENERGEX PADLOCK KEYS AND TWO 92268 KEYS.
- OBTAIN APPROVAL FROM ENERGEX OF THE MSB SHOP DRAWINGS.
- PROVIDE A COPY OF THE ENERGEX APPROVAL OF THE MSB.
- PROVIDE THE MANUAL TRANSFER SWITCH WITH A STATUS OUTPUT RELAY TO ALLOW THE SOLAR TO BE ISOLATED WHEN THE TRANSFER SWITCH IS ON THE GENERATOR SUPPLY.

PROVIDE DISTRIBUTION BOARDS DB-G AS FOLLOWS:

- REFER TO THE DISTRIBUTION BOARD DB-G SCHEDULE.
- WALL MOUNTED.
- 92268 KEY LOCKABLE.
- IP66 (316 STAINLESS STEEL OR ALUMINIUM) POWDER COATED COLOURBOND SURF MIST ENCLOSURE.
- WHITE ESCUTCHEON.
- BOTTOM ENTRY CABLE ACCESS ONLY.
- CONNECT DB-G TO THE ADJACENT POWER PIT VIA SIX X 50 DIA POWER CONDUITS C/W SPARE DRAW WIRE IN EACH. - LIFT OFF HINGES ON ALL DOORS AND ESCUTCHEONS.
- 1/4 TURN LATCHES AND D HANDLES ON ALL ESCUTCHEONS.
- ALL SWITCHGEAR TO BE NHP/TERASAKI.
- PROVIDE SHOP DRAWINGS FOR APPROVAL.

7. CABLE ACCESS

PROVIDE ALL CABLE ACCESS NECESSARY TO COMPLETE THE ELECTRICAL INSTALLATION INCLUDING THOUGH NOT LIMITED TO:

- UNDERGROUND PITS AND CONDUITS.
- CABLE SUPPORT SYSTEM WITHIN PIT 1.
- ENERGEX FOOTPATH CONDUITS INSTALLED BY AN ENERGEX APPROVED CONTRACTOR AS A SUBCONTRACTOR TO THE ELECTRICAL SUB CONTRACT.
- ENERGEX LEADIN CONDUITS INSTALLED BY AN ENERGEX APPROVED CONTRACTOR AS A SUBCONTRACTOR TO THE ELECTRICAL SUB CONTRACT.
- CONSUMERS MAINS CONDUITS FROM THE LV CUBICAL IN THE ENERGEX PADMOUNT TO THE NEW MSB PIT1 COORDINATED WITH ENERGEX. - POWER RETICULATION AND DISTRIBUTION PITS AND CONDUITS.
- NBN LEADIN CONDUITS.
- COMMUNICATIONS RETICULATION AND DISTRIBUTION PITS AND CONDUITS.
- SHOP DRAWINGS.

PROVIDE PIT1 WITH THE FOLLOWING FEATURES.

- THE SAME LENGTH AS THE MSB.
- GALVANIZED STEEL STRUCTURE MECHANICALLY FIXED TO THE PIT WALLS TO SUPPORT THE FRONT OF THE NEW MAIN SWITCHBOARD AND THE PIT LIDS.
- AN AUTOMATIC SUMP PUMP THAT DRAINS TO STORM WATER.
- PROVIDE FIBREGLOSS SUPPORTS ON THE PIT FLOOR TO SUPPORT THE CABLING 50MM OFF THE PIT FLOOR.

PROVIDE ALL CONDUITS ENTERING A PIT WITH BELL MOUTHS OR CUT THE CONDUITS OFF FLUSH WITH THE PIT WALL AND FILE THE CONDUIT EDGES SUCH THAT THEY ARE ROUNDED WITH NO SHARP EDGES OR BURRS.

NOTES

8. LIGHTING

THE LIGHTING COMPONENT OF THE ELECTRICAL SERVICES SUB-CONTRACT INCLUDES ALL OF THE LIGHT FITTINGS, LAMPS AND ACCESSORIES. PROVIDE ALL NECESSARY ACCESSORIES TO FACILITATE THE COMPLETE LIGHTING INSTALLATION. THE LIGHTING COMPONENT OF THE ELECTRICAL SERVICES SUB-CONTRACT INCLUDES THOUGH IT IS NOT LIMITED TO THE FOLLOWING EXTENT OF WORK:

- LIGHT FITTINGS.
- EMERGENCY LIGHTING.
- EARTHING OF THE LIGHTING INSTALLATION.
- LIGHTING CONTROL.
- LIGHTING SUBCIRCUITS.
- TESTING AND COMMISSIONING.
- CARPARK LIGHTING POLES AND FOOTINGS.

ALL LIGHT SOURCES ARE TO BE SOLID STATE WITH AN AVERAGE LIFE OF 50,000 HOURS AND A MANUFACTURERS WARRANTY OF 5 YEARS

PROVIDE DB-G WITH A SINGLE POINT EMERGENCY LIGHTING SYSTEM THAT COMPLIES WITH THE LATEST ISSUE OF ALL PARTS AS2293 AND THE RELEVANT PARTS OF THE NCC BCA. INSTALL EMERGENCY LIGHT FITTINGS WITH THE LAMP SUPPLIED AND CONTROLLED WITH THE LOCAL GENERAL AREA LIGHTING WHEN THE MAINS SUPPLY IS AVAILABLE. WHEN THE MAINS SUPPLY IS NOT AVAILABLE THE LAMP IS TO BE SWITCHED ON, SUPPLIED BY THE EMERGENCY PACK. (THE LAMP IS ON WHEN TURNED ON WITH THE LOCAL GENERAL LIGHTING OR THE MAIN SUPPLY IS NOT AVAILABLE.)

9. LIGHT POLES

PROVIDE POLES WITH A TAMPER RESISTANT ACCESS PANEL WITHIN THE POLE BASE AND BASE PLATE TO INCORPORATE A MINIMUM OF FOUR HOLD DOWN BOLTS. PROVIDE POLES AND INSITU CONCRETE FOOTINGS DESIGNED SPECIFICALLY TO SUIT THE LOCAL CONDITIONS AND BE ABLE TO WITHSTAND WIND GUSTS OF 150KM/H. THE DESIGN OF THE POLE AND THE FOOTING IS TO BE UNDERTAKEN BY A RESISTED STRUCTURAL ENGINEER. PROVIDE A CERTIFICATE FROM THE STRUCTURAL ENGINEER INDICATING THE POLES AND FOOTINGS MEET THE SPECIFIED DESIGN CRITERIA. PROVIDE DETAILED DRAWINGS OF ALL POLES AND FOOTINGS FOR APPROVAL. PROVIDE A FUSED CONNECTION WITHIN EACH POLE LOCATED BEHIND THE POLE BASE ACCESS PANEL. CONNECT THE POLE TO THE ELECTRICAL EARTH VIA A LUG FIXED TO A STUD WELDED TO THE POLE LOCATED WITHIN THE POLE LOCATED BEHIND THE POLE BASE ACCESS PANEL. TRIM THE HOLD DOWN BOLTS SUCH THAT THEY DO NOT PROTRUDE MORE THAN 15MM ABOVE THE NUT. TREAT THE TRIMMED HOLD DOWN BOLT AGAINST CORROSION AND ENSURE IT DOES NOT CONTAIN SHARP EDGES THAT REPRESENT A HAZARD. ENSURE THE BASE PLATE IS BETWEEN 50 AND 100MM ABOVE THE FINISHED LANDSCAPE LEVEL. PROVIDE A NEAT SMOOTH FINISHED CONCRETE GROUT FILL UNDER THE BASE PLATE ENSURING ANY SPLATTER IS IMMEDIATELY WASHED OFF THE BASE PLATE AND POLE. EXTEND THE CONDUIT INTO THE POLE 50MM ABOVE THE BASE PLATE.

PROVIDE POLES THAT COMPLY WITH AS/NZS 1170.0 STRUCTURAL DESIGN ACTIONS PART 0: GENERAL PRINCIPLES - IMPORTANCE LEVEL 1 WITH A DESIGN WORKING LIFE OF 50 YEARS.

DESIGN THE POLES TO A WIND LOADING AS PER AS/NZS 1170.0 STRUCTURAL DESIGN ACTIONS PART 0: GENERAL PRINCIPLES. THE FRACTION OF CRITICAL DAMPING IS TO BE TAKEN AS 0.05 (ULTIMATE) AND 0.01 (SERVICEABILITY) FOR POLES WITH MORE THAN TWO- (2) OVERLAPS AND 0.02 (ULTIMATE) AND 0.005 (SERVICEABILITY) FOR ALL OTHERS. THE NATURAL FREQUENCY OF THE POLE IS TO BE CALCULATED CONSIDERING VARYING DIAMETERS AND THICKNESS OVER THE HEIGHT OF THE POLE AND USING A 1.1 SAFETY FACTOR FOR THE MASS AT THE TOP OF THE POLE. ENSURE POLE DEFLECTION AT SERVICEABILITY WIND SPEEDS HAVE A DEFLECTION LESS THAN 6.7%.

ENSURE ALL WELDS ARE BY A CONTINUOUS AUTOMATIC GAS SHIELDED ELECTRIC ARC PROCESS COMPLYING WITH THE RELEVANT PARTS OF AS/NZS 1554 STRUCTURAL STEEL WELDING. ENSURE THE LONGITUDINAL SEAM WELDS ON POLE SECTIONS CONFORMS TO GP STANDARDS WHILE BASEPLATE AND SPIGOT WELDS MUST CONFORM TO SP STANDARDS AS MENTIONED IN AS/NZS 1554. WELD SIZES ARE TO BE VERIFIED BY A QUALIFIED STRUCTURAL ENGINEER AND SPECIFIED IN THE ENGINEERING REPORT AND ON WORKSHOP DRAWINGS.

PROVIDE ALL POLES WITH A GALVANISED FOUNDATION BOLT ASSEMBLY COMPLETE WITH POSITIONING TEMPLATE AND TWO- (2) NUTS AND WASHERS PER BOLT PROVIDED TO SUIT THE POLE BASEPLATE. FOUNDATION BOLTS MUST BE MANUFACTURED FROM DEFORMED REINFORCING BARS WITH A NOMINAL YIELD STRESS OF 500 MPA. PROVIDE BOLTS THREADED IN ACCORDANCE WITH AS1275-1985 METRIC SCREW THREADS FOR FASTENERS AND FITTED WITH CLASS 5 NUTS IN ACCORDANCE WITH AS/NZS 1112 ISO METRIC HEXAGON NUTS. FOUNDATION BOLTS MUST BE TIED TO A SUITABLE REINFORCING CAGE. THE LENGTH OF EACH FOUNDATION BOLT MUST ALLOW FOR THE LENGTH OF THE THREAD ABOVE GROUND, A MINIMUM OF 100MM COVER AND A DEVELOPMENT LENGTH IN ACCORDANCE WITH AS3600-1994 CONCRETE STRUCTURES, TABLE 13.1.2.2(A). THE UNDERSIDE OF THE BASEPLATE IS TO BE GROUTED.

THE SECTION CAPACITY OF THE POLE IS TO BE ANALYSED OVER A MINIMUM OF 100 INCREMENTS ACCORDING TO AS4100 STEEL STRUCTURES AND AS/NZS 4600 COLD-FORMED STEEL STRUCTURES. LUMINARIES ARE TO BE ACCESSED BY EXTERNAL MACHINERY E.G. CHERRY PICKERS. LUMINAIRE CROSSARMS SHALL BE DESIGNED TO ENSURE EASY ACCESS OF FITTINGS FOR RE-LAMPING AND AIMING. CLIMBING RUNGS AND MAINTENANCE PLATFORMS ARE NOT REQUIRED.

THE POLE AND ALL STEEL ACCESSORIES ARE TO BE POWDER COATED BLACK HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AS/NZS 4680 HOT-DIP GALVANIZED (ZINC) COATINGS ON FABRICATED FERROUS ARTICLES.

THE POLES ARE TO BE SANDED AFTER GALVANIZING AND PREHEATED TO 220 C TO DRIVE OFF ANY TRAPPED GAS UNDER THE GALVANIZED SURFACE. A ZINC RICH PRIME COAT INTERPON POLYZING 660 OR EQUIVALENT SHALL BE APPLIED TO WITHIN 60mm AND 80mm WITHIN FOUR HOURS OF PREHEATING AND GREEN CURED TO 200 C FOR 3 MINUTES. PRIME COAT SHALL BE LIGHTLY SANDED BEFORE APPLICATION OF TOP COAT. COLOUR TOPCOAT SHALL BE A RIPPLE, HIGH BUILD FINISH TO WITHIN 50µm AND 70µm. ENSURE ALL MANUFACTURING TOLERANCES ARE IN ACCORDANCE WITH AS 1798 LIGHTING POLES AND BRACKET ARMS PREFERRED DIMENSIONS. IN PARTICULAR THE POLES SHALL BE CHECKED FOR COMPLIANCE WITH THE STRAIGHTNESS REQUIREMENTS OF THIS STANDARD: 0.3% OF HEIGHT.

ASSEMBLY AND ERECTION ARE TO BE CARRIED OUT ONLY BY QUALIFIED RIGGING PERSONNEL. GROUT THE UNDERSIDE OF ALL POLE BASEPLATES WITHIN SEVEN- (7) DAYS OF INSTALLING THE POLE.

NOTES

10. TENDER BREAKUP

PROVIDE THE ELECTRICAL SERVICES PRICE AS FOLLOWS:

PROJECT 1.

ALL WORKS EXCLUDING THOSE DETAILED BELOW UNDER PROJECT 2.

IN ADDITION TO PROVIDING A TOTAL FOR THE PROJECT 1 WORKS, PROVIDE THE FOLLOWING BREAKUP OF THE PROJECT 1 COSTS:

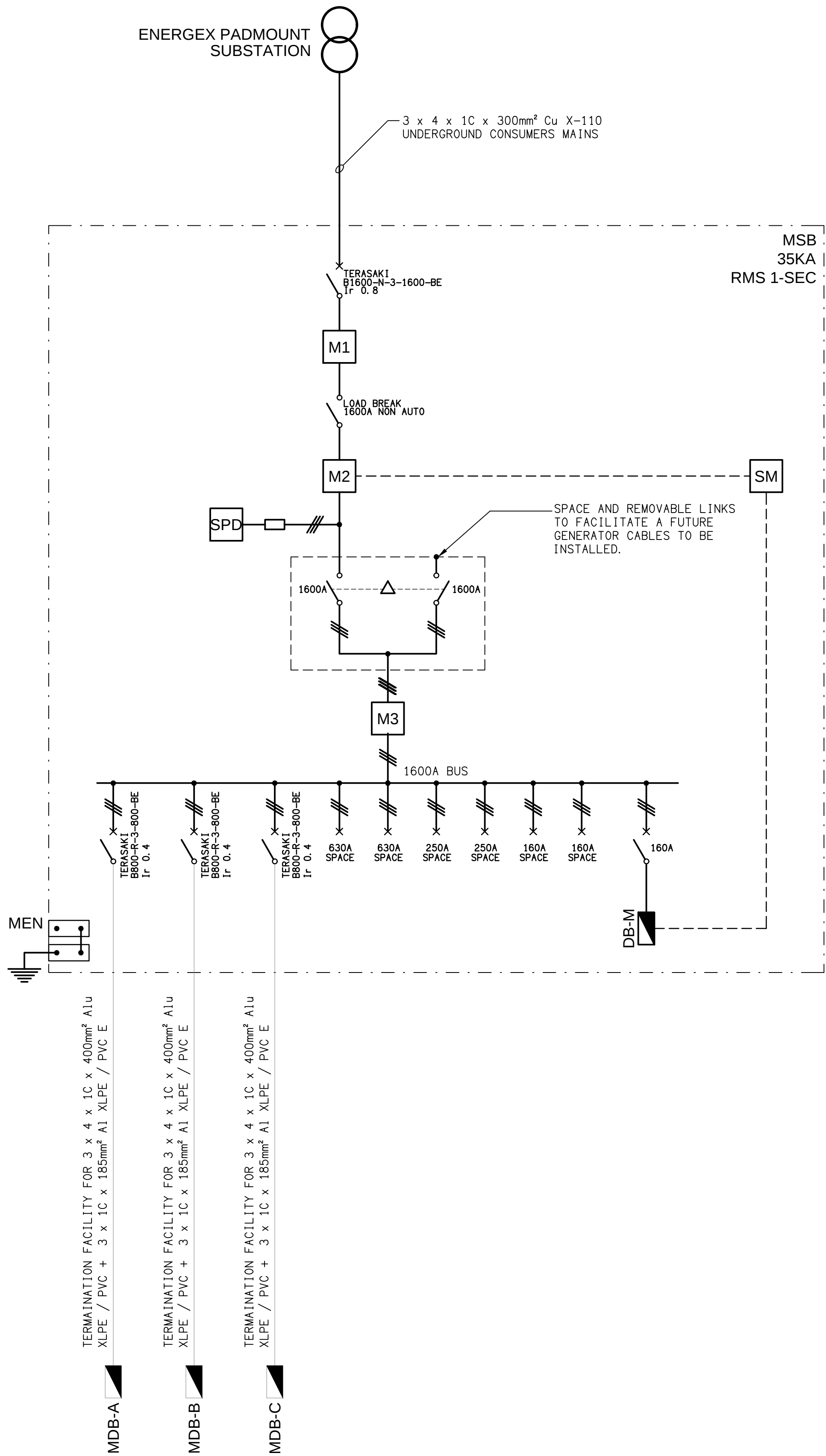
- ENERGEX FOOTPATH CONDUITS.
- ENERGEX LEADIN CONDUITS.
- REMAINING ENERGEX WORKS.
- CONSUMERS MAINS.
- MAIN SWITCHBOARD.
- REMAINING PROJECT 1 CONDUITS AND PITS.
- REMAINING PROJECT 1 COSTS.

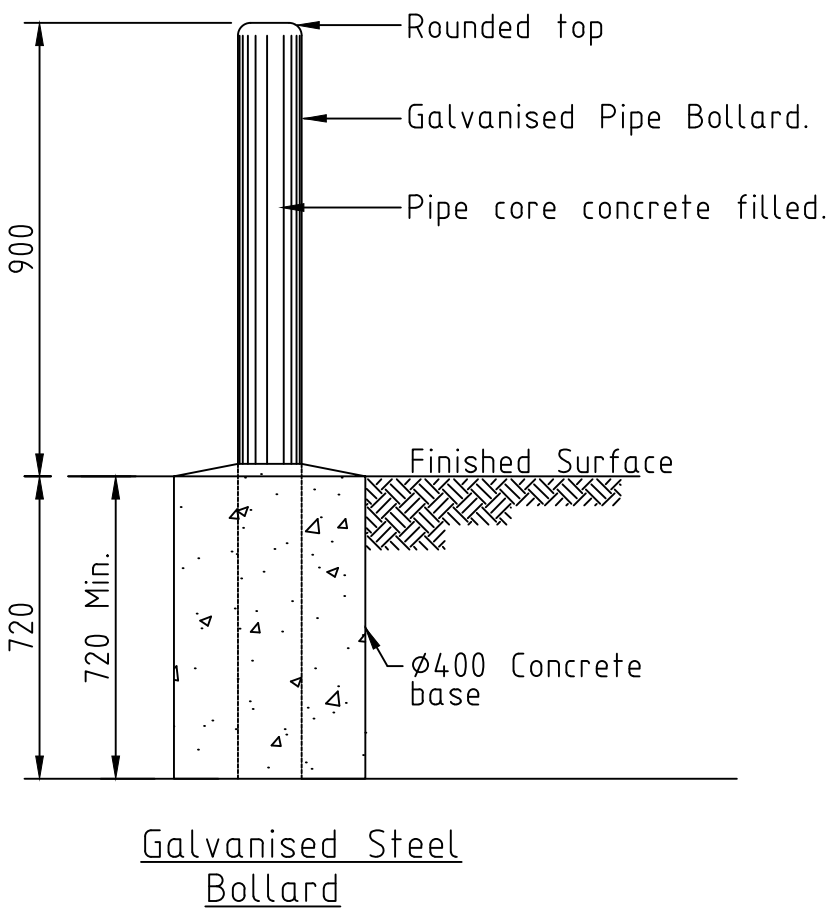
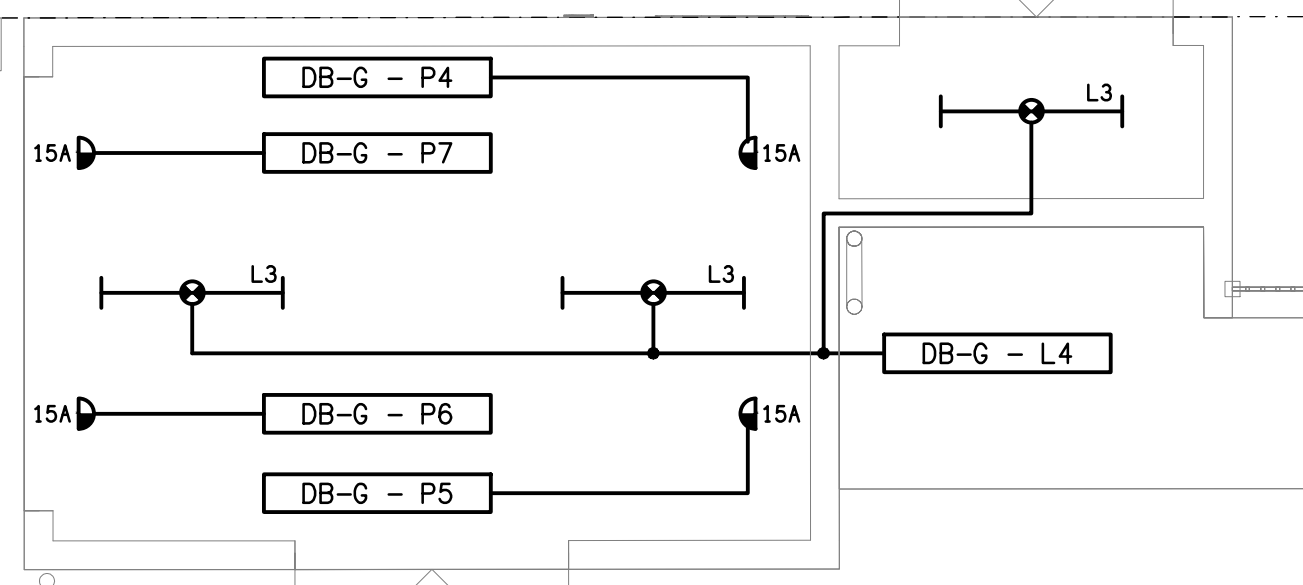
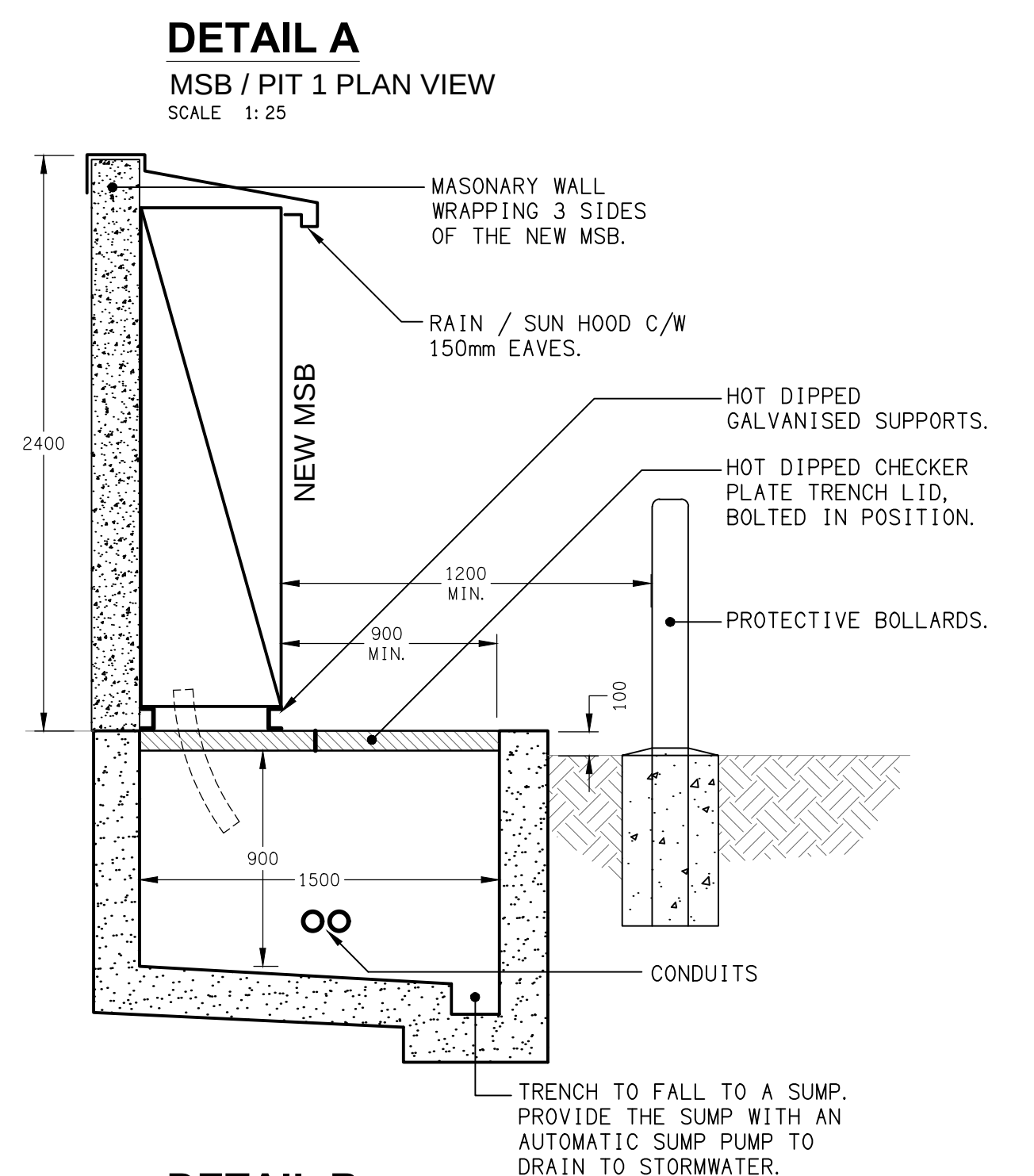
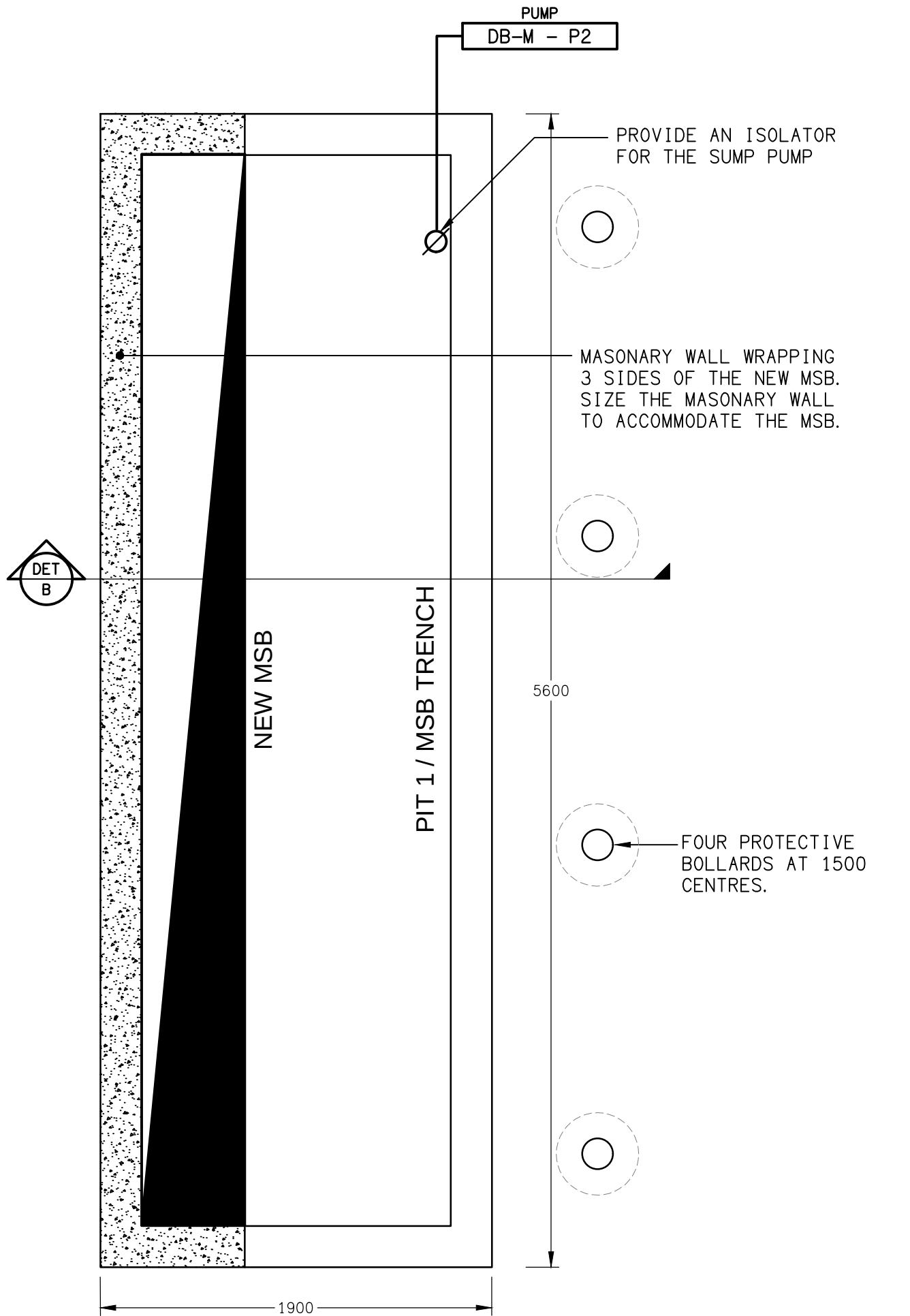
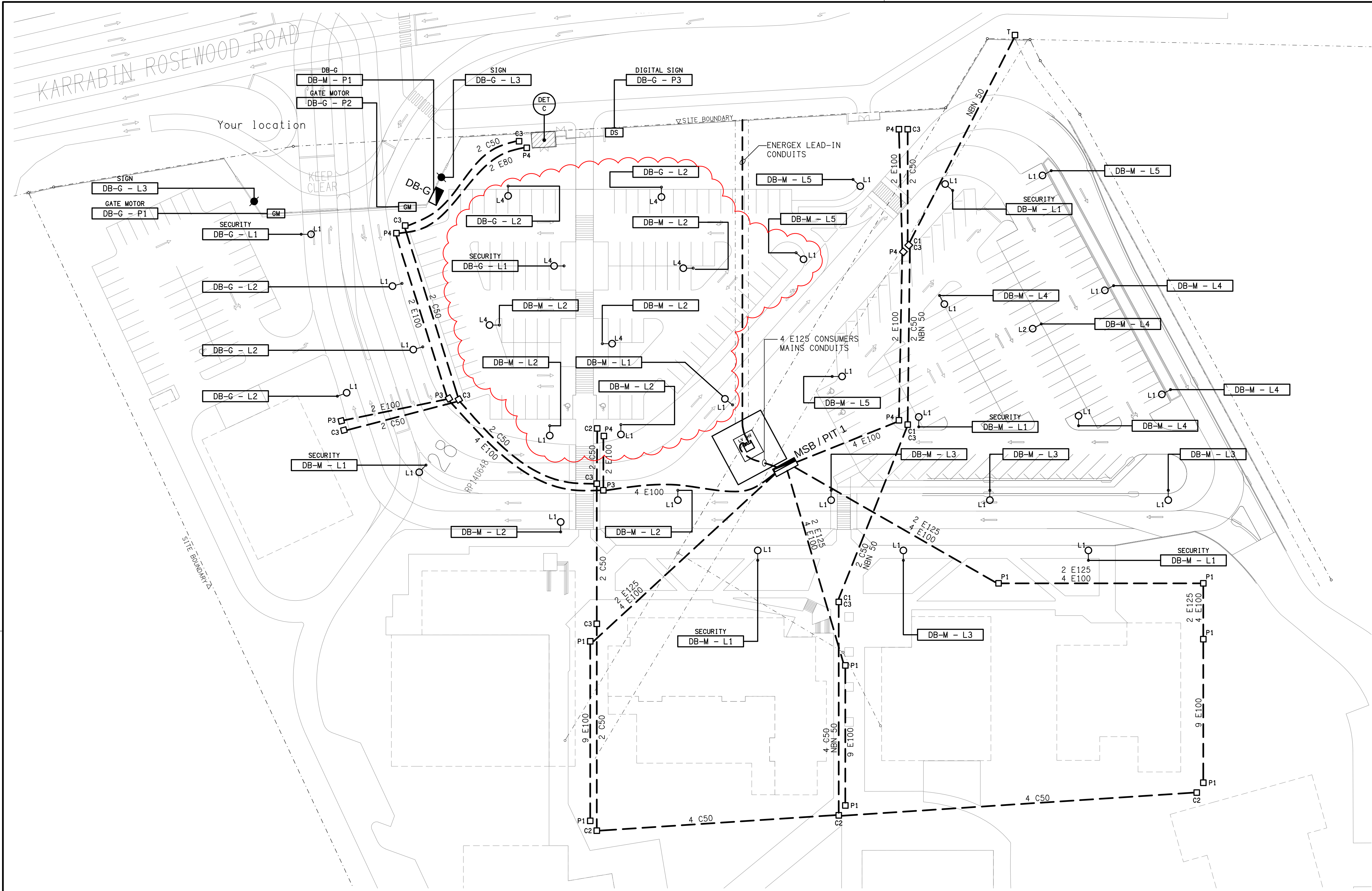
PROJECT 2:

PROVIDE THE FOLLOWING BREAKUP OF THE PROJECT 2 COSTS:

TYPE L1 AND L2 LIGHTS INCLUDING THE POLES, FOOTINGS, IMMEDIATE CONDUITS AND CIRCUITS.  
TYPE L4 LIGHTS INCLUDING THE POLES, FOOTINGS, IMMEDIATE CONDUITS AND CIRCUITS.

|                                                                                                                                |  |                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                             |                                                                                                                                |                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>ELECTRICAL DESIGN GROUP BRISBANE<br/>PTY LTD<br/>ACN 092 710 793</div> <div>TRADING AS:<br/>ELECTRICAL DESIGN GROUP</div> |  | <div>THE COPYRIGHT OF THIS DRAWING<br/>REMAINS THE PROPERTY OF THE<br/>ELECTRICAL DESIGN GROUP.</div> <div>USE FIGURED DIMENSIONS<br/>IN PREFERENCE TO SCALE.</div> <div>ALL DIMENSIONS TO BE<br/>VERIFIED ONSITE.</div> | <div><div><div></div><div>ELECTRICAL DESIGN GROUP</div></div><div>ELECTRICAL BUILDING SERVICES CONSULTANTS</div><div>BRISBANE GOLD COAST</div><div>P.O.Box 15, Sherwood Q.4075<br/>Phone: (07) 3278 4375<br/>Email: brisbane@edg.net.au<br/>Web: www.edg.net.au</div></div> | <div>PROJECT:<br/>KINGS CHRISTIAN COLLEGE<br/>WALLOON STAGE 1 PROJECT 2 WAL01</div> <div>KARRABIN ROSEWOOD ROAD, WALLOON</div> | <div><div>B TENDER</div><div>20/07/2026</div></div> <div><div>REV: DESCRIPTION: DATE:</div><div>DRAWING:<br/>ELECTRICAL SERVICES<br/>NOTES</div><div><div>SCALE:<br/>NOT TO SCALE AT A1</div><div><div>PROJECT NO:<br/>C3808a</div><div>DRAWING NO:<br/>E02</div><div>REVISION:<br/>B</div></div></div></div> |
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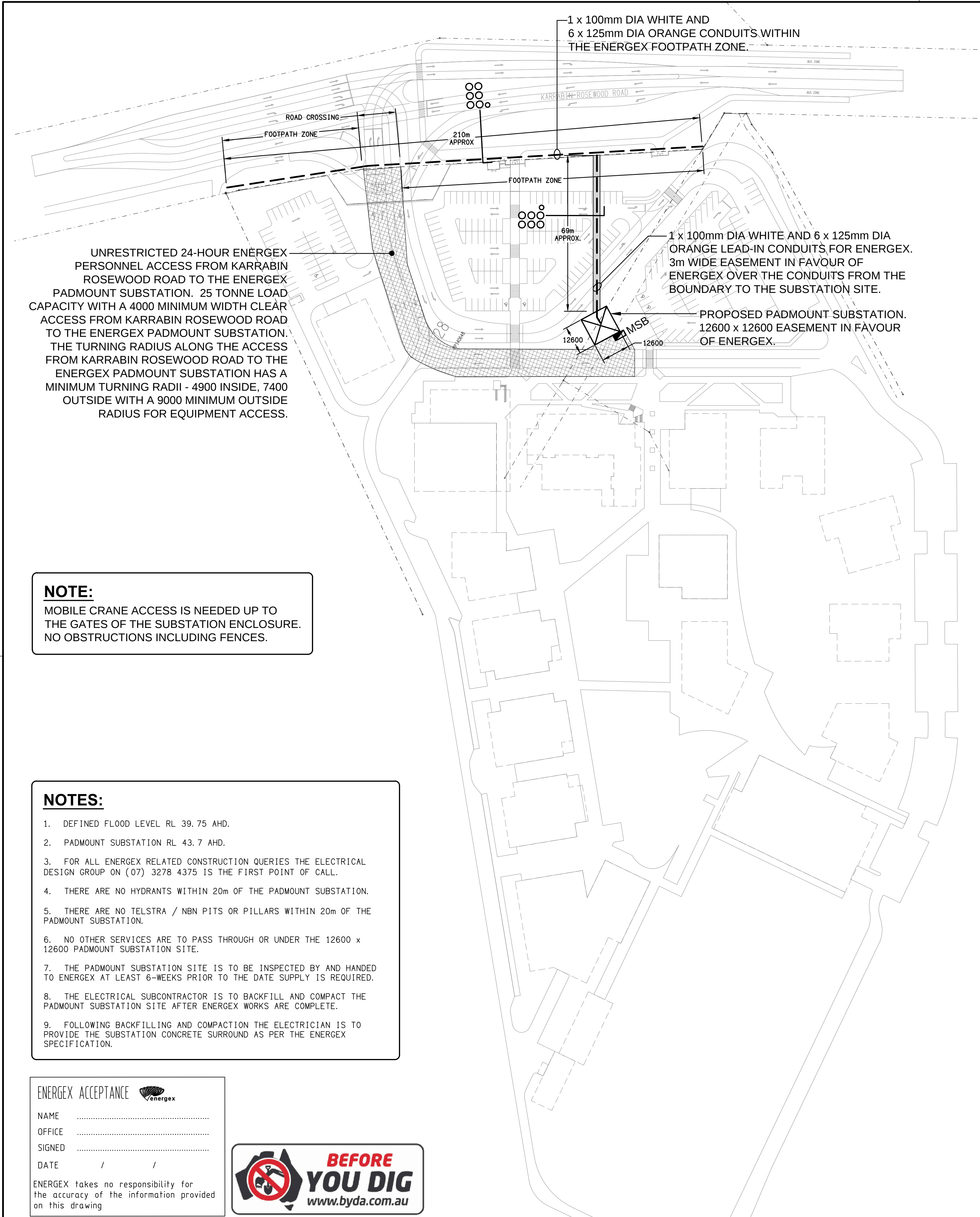
**Bollards Around Padmounts**

Bollards shall be installed where padmounts are installed in car parks or other areas where padmounts are likely to be impacted by vehicles. The following outlines the minimum requirement for the design / installation of bollards:-

- Shall be manufactured of 5.6mm thick gal steel (medium)
- Circular tube min 140mm OD filled with concrete and capped.
- Buried 720mm in 400 x 400 x 720(D) concrete pad
- Installed 900mm above ground at 1.5m centers.

**NOTES:**

1. All materials and construction shall be in accordance with Australian Standards.
2. All concrete shall be minimum grade F'c=25MPa.
3. Galvanised pipe bollards may be painted to match the trim of surrounding dwellings.
4. A bollard will not be required provided a barrier such as a block wall, armco barrier or other permanent structure protects the PMT from vehicle traffic and likely impacts.



**NOTE:**  
MOBILE CRANE ACCESS IS NEEDED UP TO THE GATES OF THE SUBSTATION ENCLOSURE. NO OBSTRUCTIONS INCLUDING FENCES.

- NOTES:**
1. DEFINED FLOOD LEVEL RL 39.75 AHD.
  2. PADMOUNT SUBSTATION RL 43.7 AHD.
  3. FOR ALL ENERGEX RELATED CONSTRUCTION QUERIES THE ELECTRICAL DESIGN GROUP ON (07) 3278 4375 IS THE FIRST POINT OF CALL.
  4. THERE ARE NO HYDRANTS WITHIN 20m OF THE PADMOUNT SUBSTATION.
  5. THERE ARE NO TELSTRA / NBN PITS OR PILLARS WITHIN 20m OF THE PADMOUNT SUBSTATION.
  6. NO OTHER SERVICES ARE TO PASS THROUGH OR UNDER THE 12600 x 12600 PADMOUNT SUBSTATION SITE.
  7. THE PADMOUNT SUBSTATION SITE IS TO BE INSPECTED BY AND HANDED TO ENERGEX AT LEAST 6-WEEKS PRIOR TO THE DATE SUPPLY IS REQUIRED.
  8. THE ELECTRICAL SUBCONTRACTOR IS TO BACKFILL AND COMPACT THE PADMOUNT SUBSTATION SITE AFTER ENERGEX WORKS ARE COMPLETE.
  9. FOLLOWING BACKFILLING AND COMPACTION THE ELECTRICIAN IS TO PROVIDE THE SUBSTATION CONCRETE SURROUND AS PER THE ENERGEX SPECIFICATION.

ENERGEX ACCEPTANCE



NAME .....  
OFFICE .....  
SIGNED .....  
DATE / /

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ACN 092 710 793  
TRADING AS:  
ELECTRICAL DESIGN GROUP

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USE FIGURED DIMENSIONS IN PREFERENCE TO SCALE.  
ALL DIMENSIONS TO BE VERIFIED ONSITE.

CULVERT INSPECTION REQUIRED BEFORE TRANSFORMER IS DELIVERED  
- 48 HOURS PRIOR NOTICE NEEDED.  
CONTACT \_\_\_\_\_ ON \_\_\_\_\_

TRANSFORMER WILL NOT BE ENERGISED UNTIL ALL REQUIREMENTS ARE MET.

**ELECTRICAL DESIGN GROUP**  
ELECTRICAL BUILDING SERVICES CONSULTANTS  
BRISBANE GOLD COAST

P.O. Box 15, Sherwood Q. 4075  
Phone: (07) 3278 4375  
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Web: www.edg.net.au

PROJECT:  
**KINGS CHRISTIAN COLLEGE  
WALLOON STAGE 1 PROJECT 2 WAL01**

KARRABIN ROSEWOOD ROAD, WALLOON

|                                                                                                              |  |
|--------------------------------------------------------------------------------------------------------------|--|
| <b>MATERIAL</b><br>STOCK CODE QTY<br>18584 1<br>Bollard 90/100mm Dia. Galv Pipe Guard 18584<br>Concrete Base |  |
| <b>ASSEMBLY 1350-1 - GALVANISED PIPE BOLLARD</b>                                                             |  |
| <b>MATERIAL</b><br>STOCK CODE QTY<br>06682 1<br>"E" Marker Plate 35mm Dia. Brass. 06682<br>Concrete Kerb     |  |
| <b>ASSEMBLY 1350-3 - "E" MARKER PLATE</b>                                                                    |  |
| <b>MATERIAL</b><br>STOCK CODE QTY<br>17383 1<br>Cable Marker Plate 17383<br>Concrete Footing                 |  |
| <b>ASSEMBLY 1350-2 - CABLE MARKER PLATE</b>                                                                  |  |
| <b>MATERIAL</b><br>STOCK CODE QTY<br>20251 1<br>Cable Marker Plate 20251<br>Concrete Kerb                    |  |
| <b>ASSEMBLY 1350-4 - RETRO-FIT CABLE MARKER PLATE</b>                                                        |  |
| <b>MATERIAL</b><br>STOCK CODE QTY<br>20890 1<br>"E" Marker Plate 35mm Dia. 20890<br>Concrete Kerb            |  |
| <b>ASSEMBLY 1350-5 - RETRO-FIT "E" MARKER PLATE</b>                                                          |  |

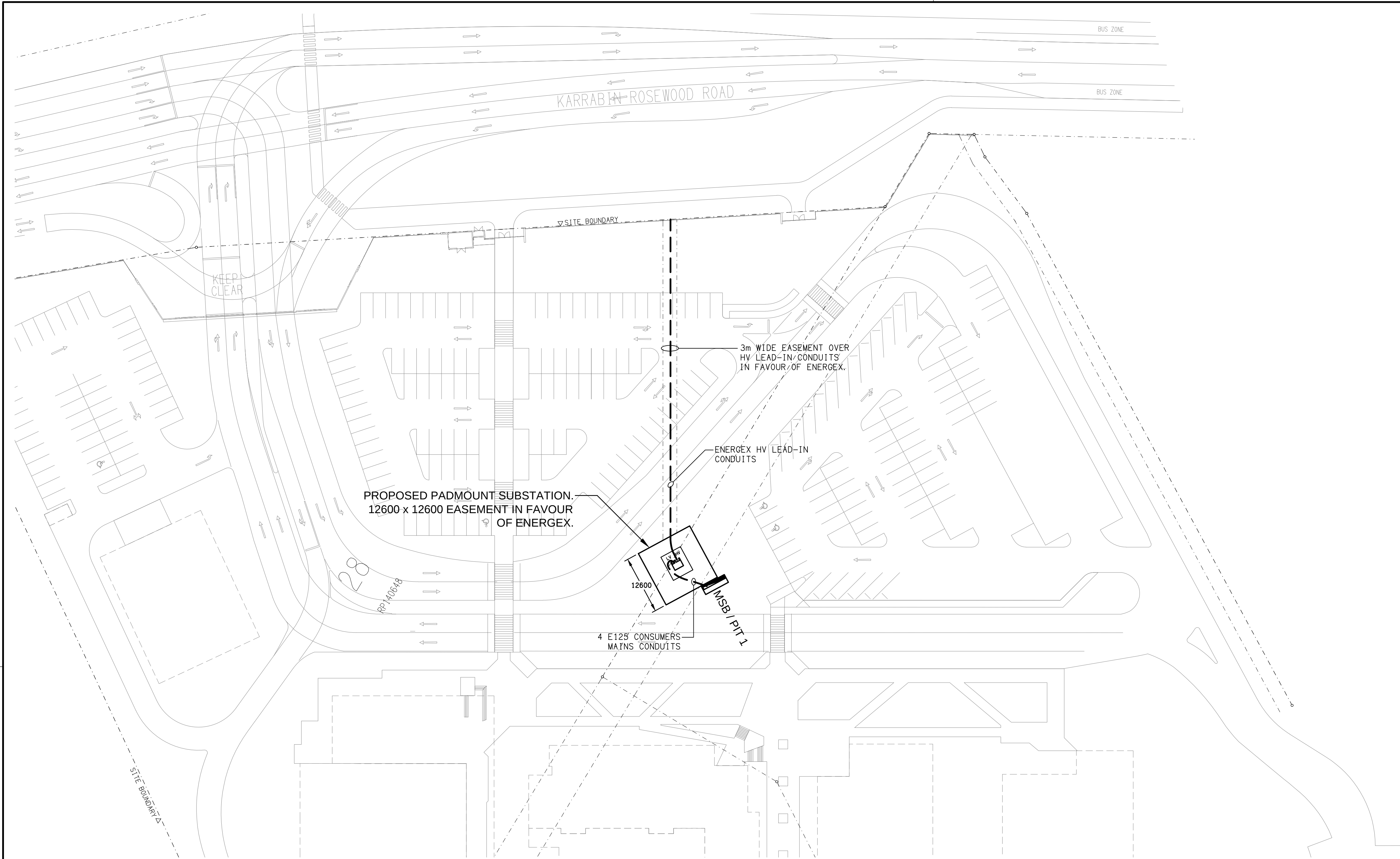
NOTE: Cable marker plate is 150 x 65mm Stainless Steel with two drilled holes as shown. Two 5-shaped stainless steel spikes 50 x 5mm are supplied with cable marker to secure plate to face of concrete kerb. Drill two 5mm  $\phi$  holes in concrete.

NOTE: Cable plate is 38mm Dia Stainless Steel with one drilled hole as shown. One 5-shaped stainless steel spike 50 x 5mm is supplied with cable marker to secure plate to face of concrete kerb. Drill one 5mm dia hole in concrete.

|                                                                         |  |                  |                          |
|-------------------------------------------------------------------------|--|------------------|--------------------------|
| UNDERGROUND DISTRIBUTION CONSTRUCTION MANUAL                            |  | APP'D R. ENGLISH | CAD                      |
| CIVIL WORKS CABLES MECHANICAL PROTECTION & IDENTIFICATION CABLE MARKERS |  | DATE 10/10/08    | 6229-A4 C                |
|                                                                         |  | REC'D            | SECTION SUB-SECT. C6 2.2 |
|                                                                         |  | CMD P. BARNEY    | SHT 1 OF 2               |
|                                                                         |  | DWN F. AMANPOOR  | FILE UCD-C6-2.2-1C.DWG   |

|      |              |            |
|------|--------------|------------|
| A    | TENDER       | 14/07/2026 |
| REV: | DESCRIPTION: | DATE:      |

|                                                                                     |                              |                            |                       |
|-------------------------------------------------------------------------------------|------------------------------|----------------------------|-----------------------|
| DRAWING:<br><b>ELECTRICAL SERVICES<br/>ENERGEX PADMOUNT SUBSTATION<br/>CONDUITS</b> | PROJECT NO:<br><b>C3808a</b> | DRAWING NO:<br><b>EN01</b> | REVISION:<br><b>A</b> |
| SCALE:<br>1:1000                                                                    | AT A1                        |                            |                       |



ENERGEX ACCEPTANCE 

NAME .....

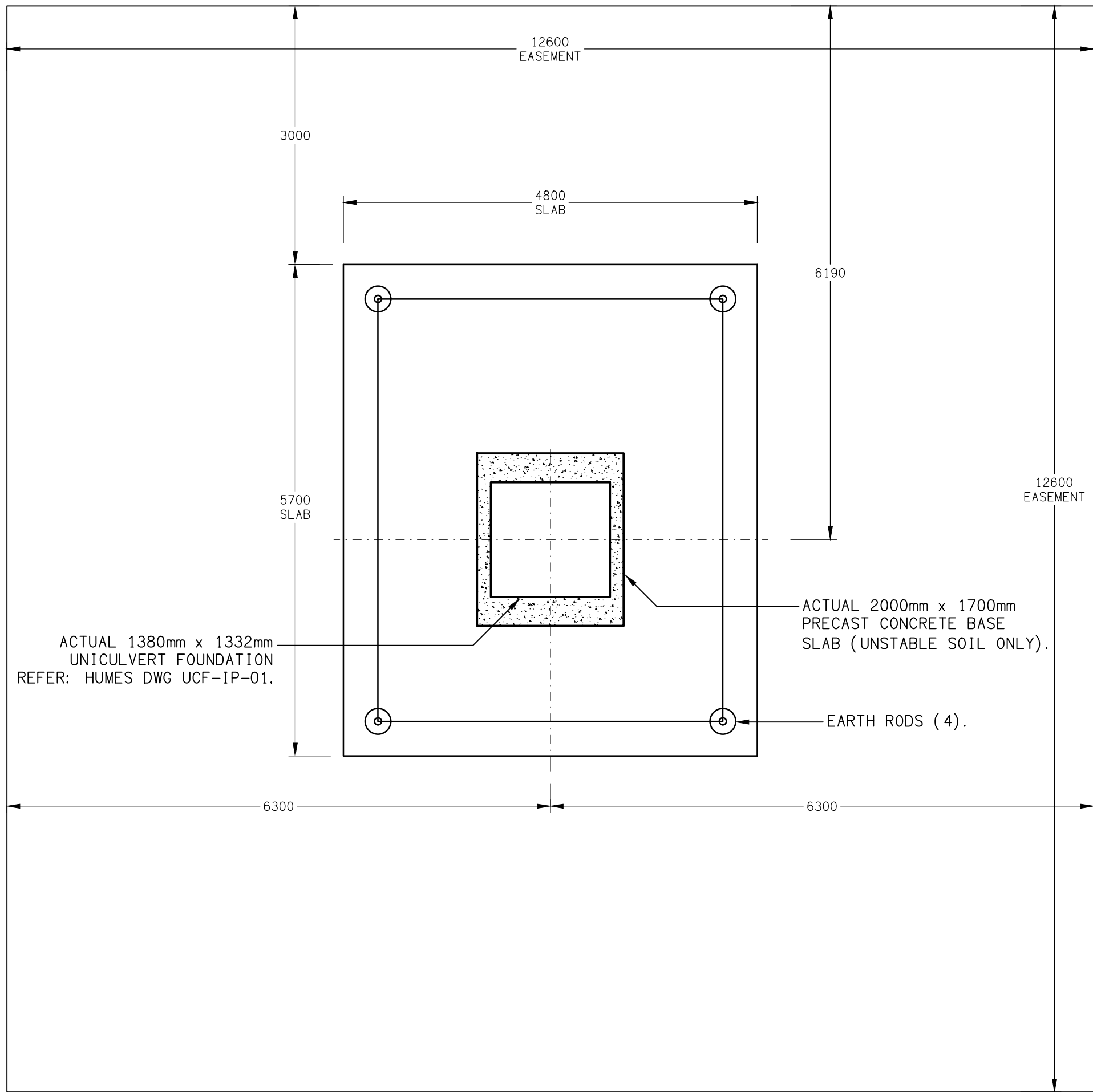
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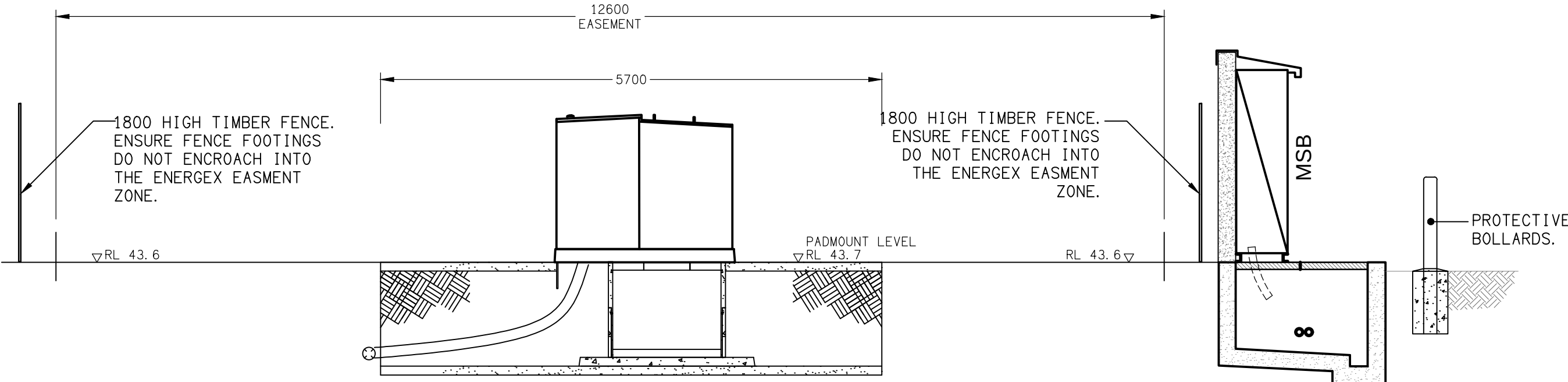
DATE / /

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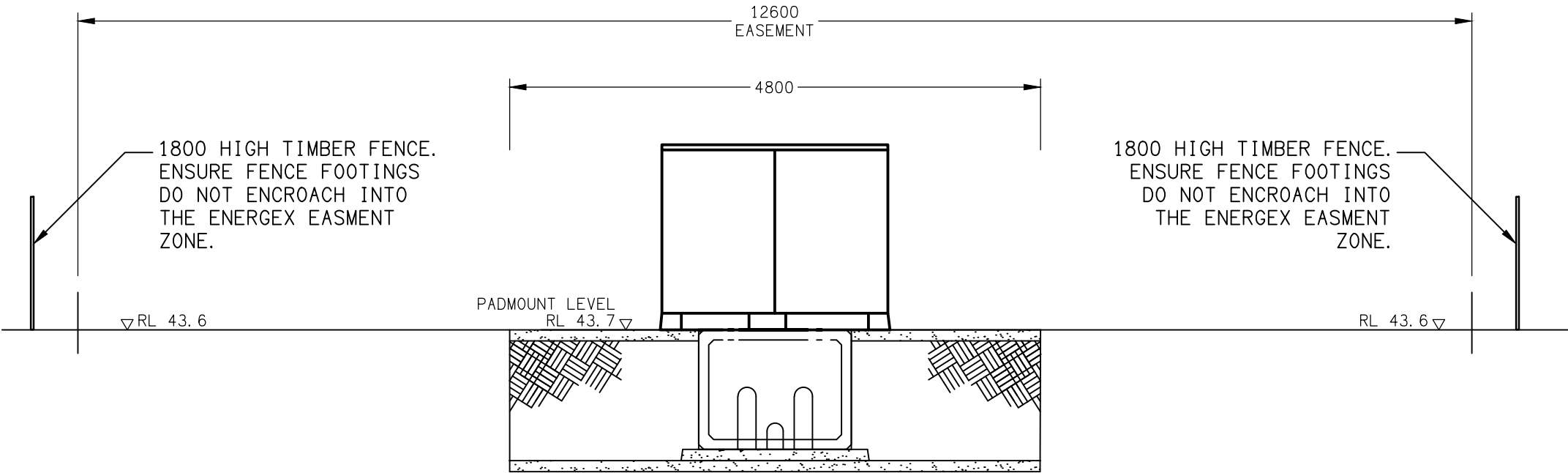
|                             |              |             |
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| A TENDER                    |              | 14/07/2026  |
| REV.                        | DESCRIPTION: | DATE:       |
| DRAWING:                    |              |             |
| ELECTRICAL SERVICES         |              |             |
| ENERGEX PADMOUNT SUBSTATION |              |             |
| SITE PLAN                   |              |             |
| SCALE:                      | PROJECT NO:  | DRAWING NO: |
| 1:500                       | C3808a       | EN02        |
| AT A1                       | REVISION:    | A           |



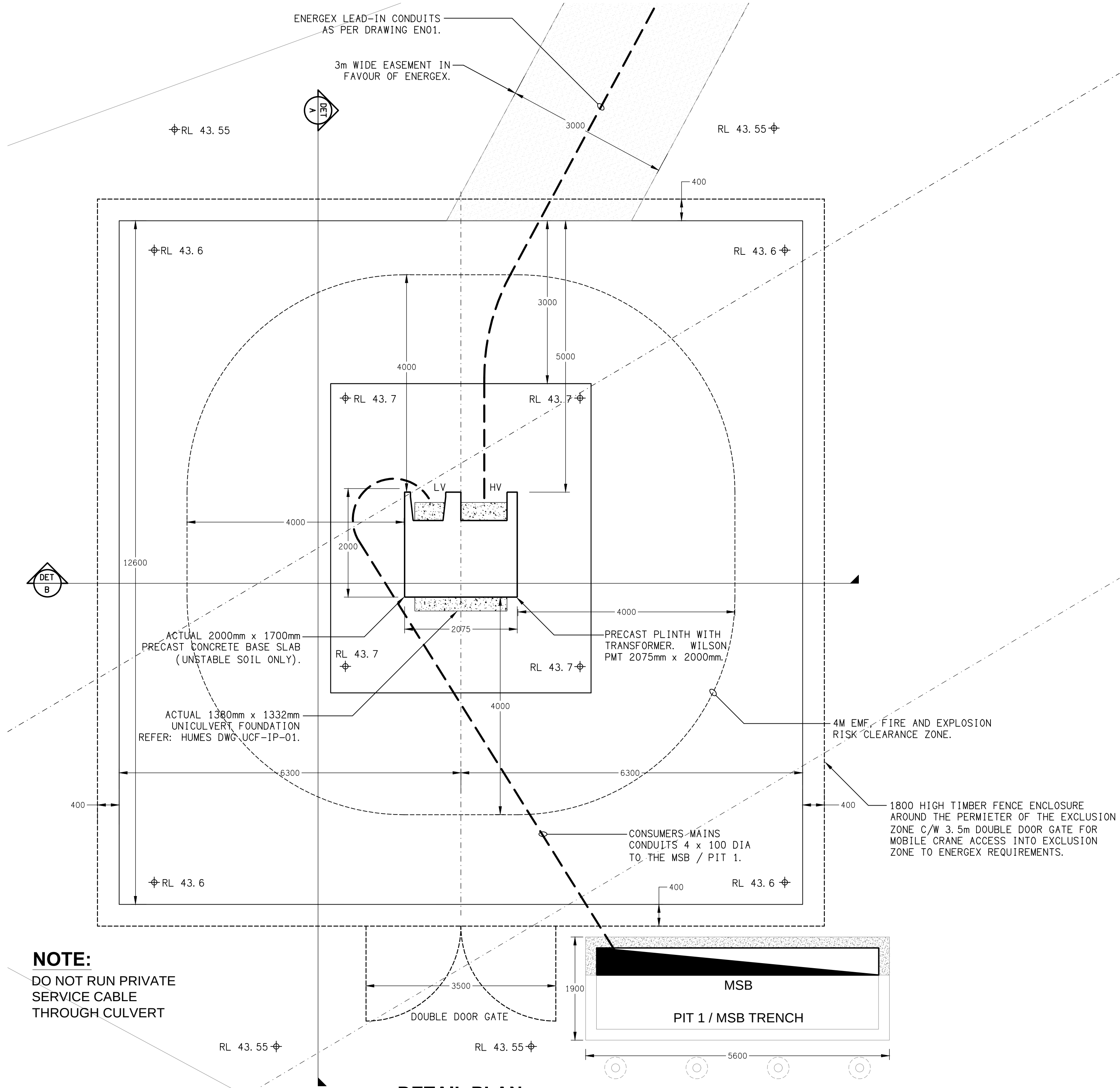
**DETAIL C**  
DEVELOPERS POSITION UNICULVERT & BASE SLAB  
SCALE 1: 50



**DETAIL A**  
PADMOUNT SECTION VIEW  
SCALE 1: 50



**DETAIL B**  
PADMOUNT SECTION VIEW  
SCALE 1: 50



**NOTE:**  
DO NOT RUN PRIVATE  
SERVICE CABLE  
THROUGH CULVERT

ENERGEX ACCEPTANCE 

NAME .....

OFFICE .....

SIGNED .....

DATE / /

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ELECTRICAL DESIGN GROUP

ELECTRICAL

BUILDING

SERVICES

CONSULTANTS

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Email: brisbane@edg.net.au

Web: www.edg.net.au

PROJECT:

KINGS CHRISTIAN COLLEGE

WALLOON STAGE 1 PROJECT 2 WAL01

KARRABIN ROSEWOOD ROAD, WALLOON

DRAWING:

ELECTRICAL SERVICES

ENERGEX PADMOUNT SUBSTATION

DETAILS

SCALE:

1:50

AT

A1

PROJECT NO:

C3808a

DRAWING NO:

EN03

REVISION:

A

ELECTRICAL DESIGN GROUP BRISBANE

PTY LTD

ACN 992 710 793

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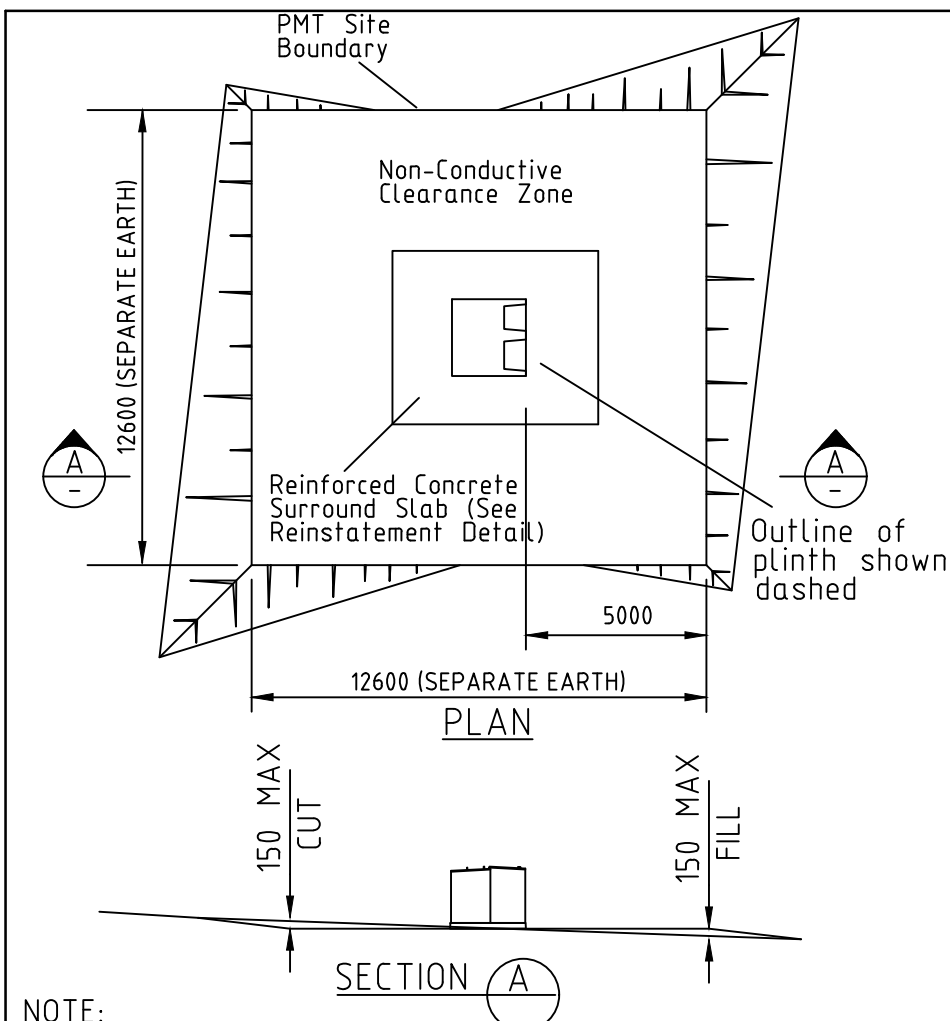
VERIFIED ONSITE.

CULVERT INSPECTION REQUIRED BEFORE TRANSFORMER IS DELIVERED

- 48 HOURS PRIOR NOTICE NEEDED.

CONTACT \_\_\_\_\_ on \_\_\_\_\_

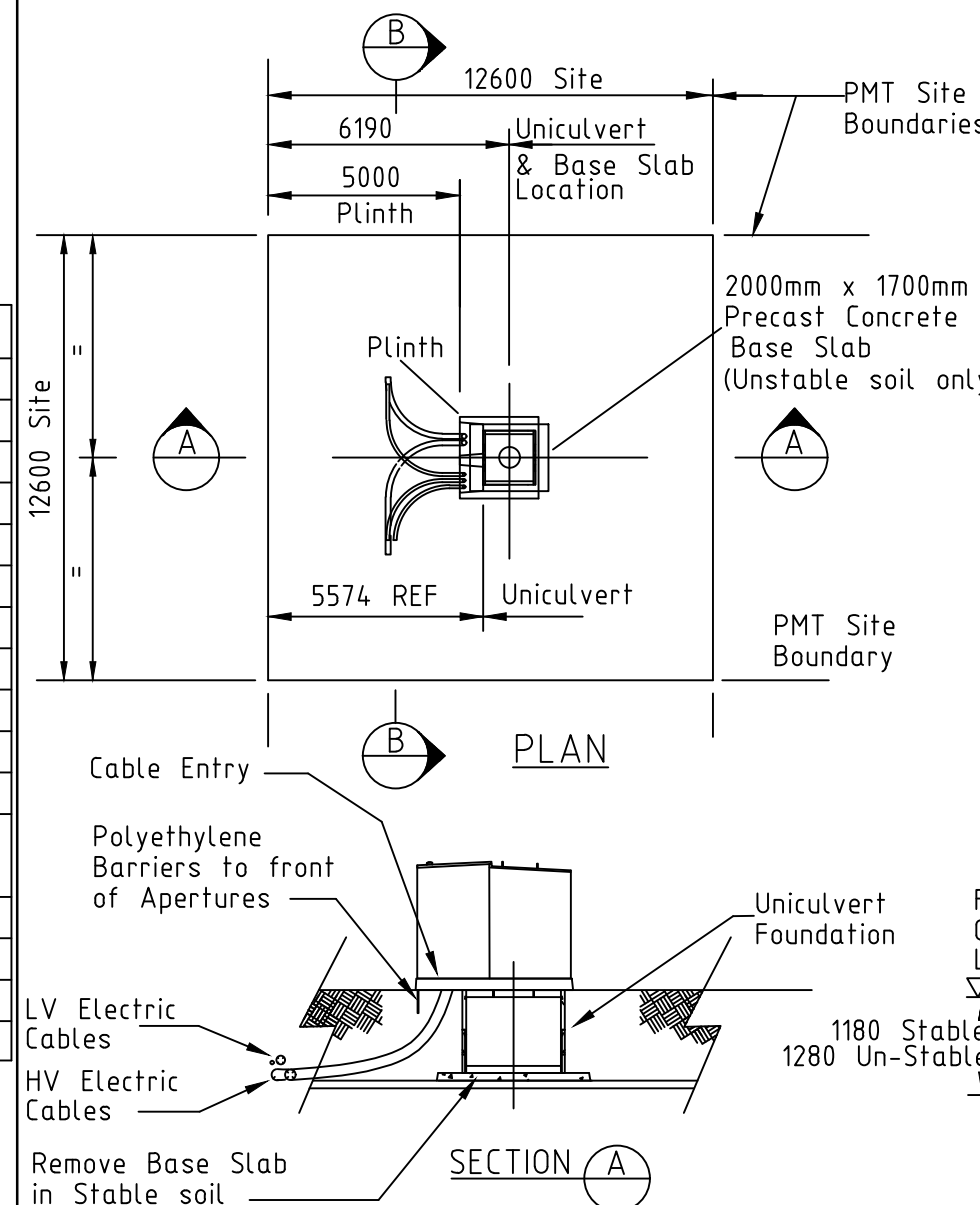
TRANSFORMER WILL NOT BE ENERGISED UNTIL ALL REQUIREMENTS ARE MET.



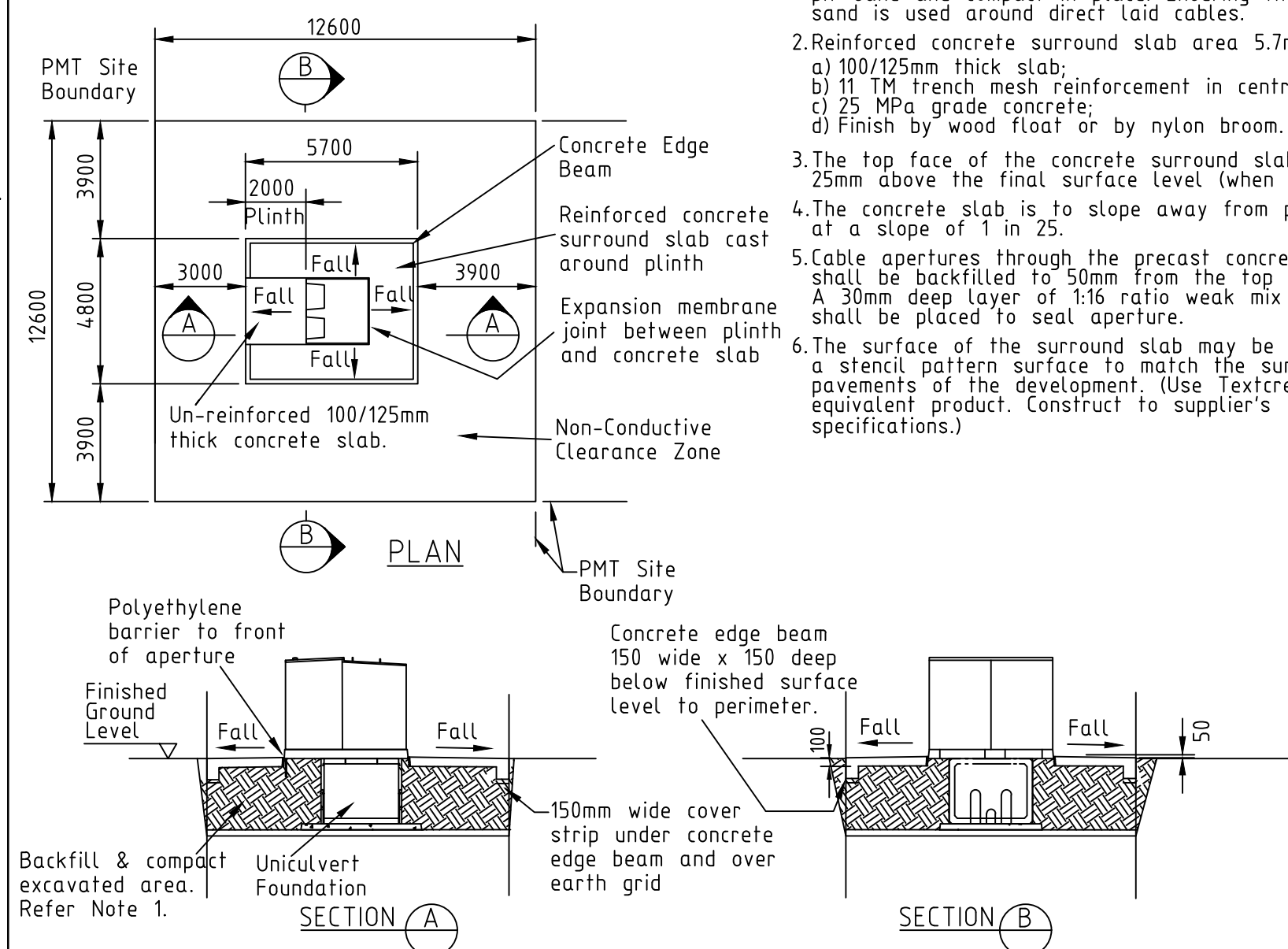
- NOTE:**
- ENERGEX's padmount clearance zone shall be levelled and surrounding area graded to ensure no water ponding.
  - No services other than the ENERGEX's electric cables shall pass through this substation site.
  - Clear access to the transformer shall be maintained for ENERGEX's personnel and heavy equipment.
  - After installation is complete the site surface is to be finished with a concrete slab.
  - Mature landscaping (including trees, sprinklers etc.) shall not encroach onto the substation site.
- SITE PREPARATION DETAIL**

| REQUIRED TASKS<br>CUSTOMER RESPONSIBILITIES           | DATE COMPLETED |    | CHECKED BY |
|-------------------------------------------------------|----------------|----|------------|
|                                                       | YES            | NO |            |
| 24 HOUR ACCESS PROVIDED.                              |                |    |            |
| PADMOUNTED SUBSTATION SITE IS LEVEL.                  |                |    |            |
| PADMOUNTED SUBSTATION SITE SIZE - 12.6M x 12.6M       |                |    |            |
| RETAINING WALLS (INCL. RPEQ APPROVAL IF REQUIRED).    |                |    |            |
| PADMOUNTED SUBSTATION SITE IS CLEAR OF ALL SERVICES.  |                |    |            |
| CORRECT FOUNDATION INSTALLED.                         |                |    |            |
| CONDUITS ARE INSTALLED (INCLUDING BUNGS & DRAW WIRES) |                |    |            |
| CONDUITS TRENCHES BACKFILLED & COMPACTED.             |                |    |            |
| FENCES INSTALLED.                                     |                |    |            |
| HAVE 2000mm DEDICATED CLEAR ZONE IN FRONT OF PLINTH.  |                |    |            |
| CUSTOMER RESPONSIBILITIES PRIOR TO COMMISSIONING      |                |    |            |
| SITE BACKFILLED & COMPACTED (INCLUDING UNDER PLINTH)  |                |    |            |
| BOUNDARY SURROUND & SITE SURFACE CONCRETED.           |                |    |            |
| AREA SUITABLY DRAINED (NO PONDING)                    |                |    |            |
| SITE CLEANED-UP NEATLY.                               |                |    |            |

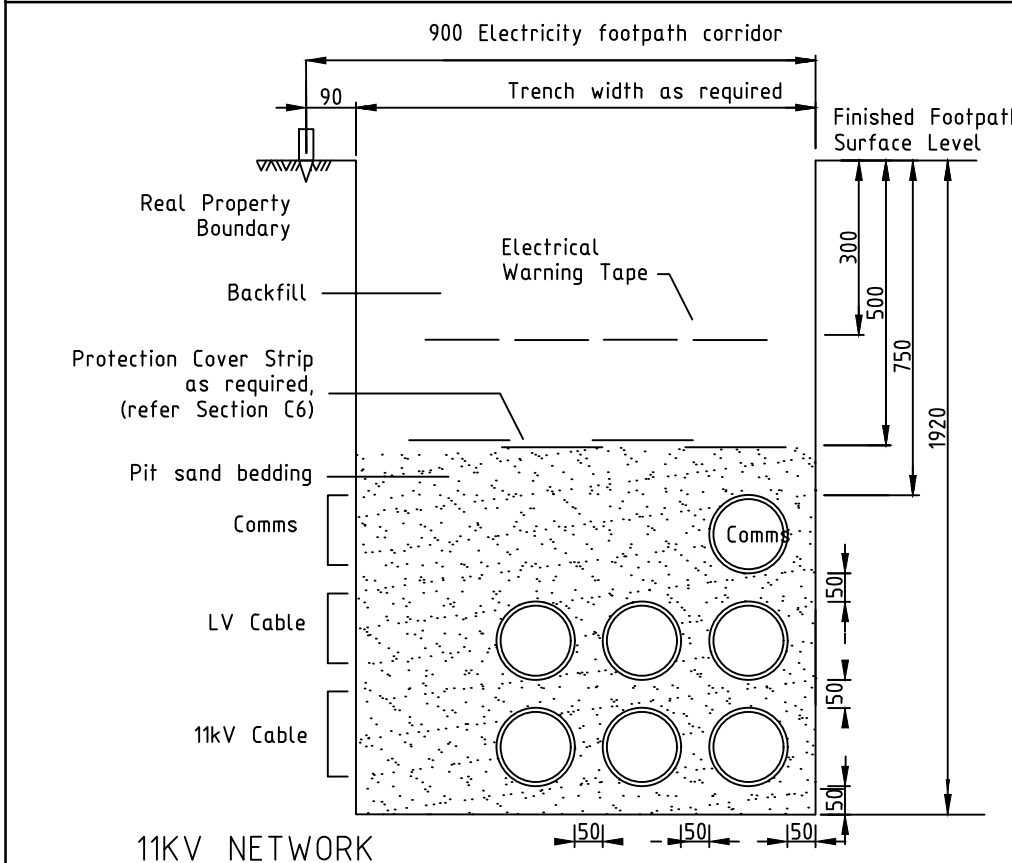
**NOTE:** x if applicable.



- NOTES:**
- Foundation design details are as follows:
    - Unstable soils are soft clay to sandy gravel with a soil strength 50 - 150 kPa. These soil types REQUIRE a base slab as shown.
    - Stable soils are very stiff clay to shale/rock with soil strength of 150kPa or higher. These soil types DO NOT REQUIRE a base slab.
  - Lift unilvert and base slab separately with 4 x 13t Reid Swiftlift lifting eyes.
  - Position top face of Unilvert at finished ground level.
  - Installed Unilvert shall be level.
  - If deep excavation is required under transformer cabinet and in front of foundation, plinth front edge shall be propped while excavation remains open.
  - Foundation Components:
    - 1 x Unilvert ( Stock Code 19959 )
    - 2 x End Walls ( Stock Code 19959 )
    - 1 x Base Slab ( Stock Code 19960 )
 Unilvert and End Walls come assembled with a Layer of Preformed Sealant to the perimeter of the Unilvert End and between the Mating Surfaces.
  - Only remove minimum Knockout Area required to pass Conduits (Max. Conduit 150mm Nom. Dia.) or Cables through unilvert void by tapping out Concrete.
  - Seal between conduits/cables and concrete end wall at knockout interface by grouting with high strength sand and cement grout after conduit installation to prevent entry of vermin and backfill ingress to unilvert void.
  - Excavate to property boundaries to facilitate installation of earth grid.
  - Consumers mains (where present) shall not cross HV mains or run back under transformer.



- NOTE:**
- Backfill excavated area with crusher dust/deco or pit sand and compact in place. Ensuring that only pit sand is used around direct laid cables.
  - Reinforced concrete surround slab area 5.7m x 4.8m:
    - a) 100/125mm thick slab;
    - b) 11 TM trench mesh reinforcement in centre of slab;
    - c) 25 MPa grade concrete;
    - d) Finish by wood float or by nylon broom.
  - The top face of the concrete surround slab shall be 25mm above the final surface level (when turf is laid).
  - The concrete slab is to slope away from plinth falling at a slope of 1 in 25.
  - Cable apertures through the precast concrete plinth shall be backfilled to 50mm from the top of plinth. A 30mm deep layer of 1:16 ratio weak mix concrete shall be placed to seal aperture.
  - The surface of the surround slab may be finished with a stencil pattern surface to match the surrounding pavements of the development. (Use Textcrete or equivalent product. Construct to supplier's specifications.)



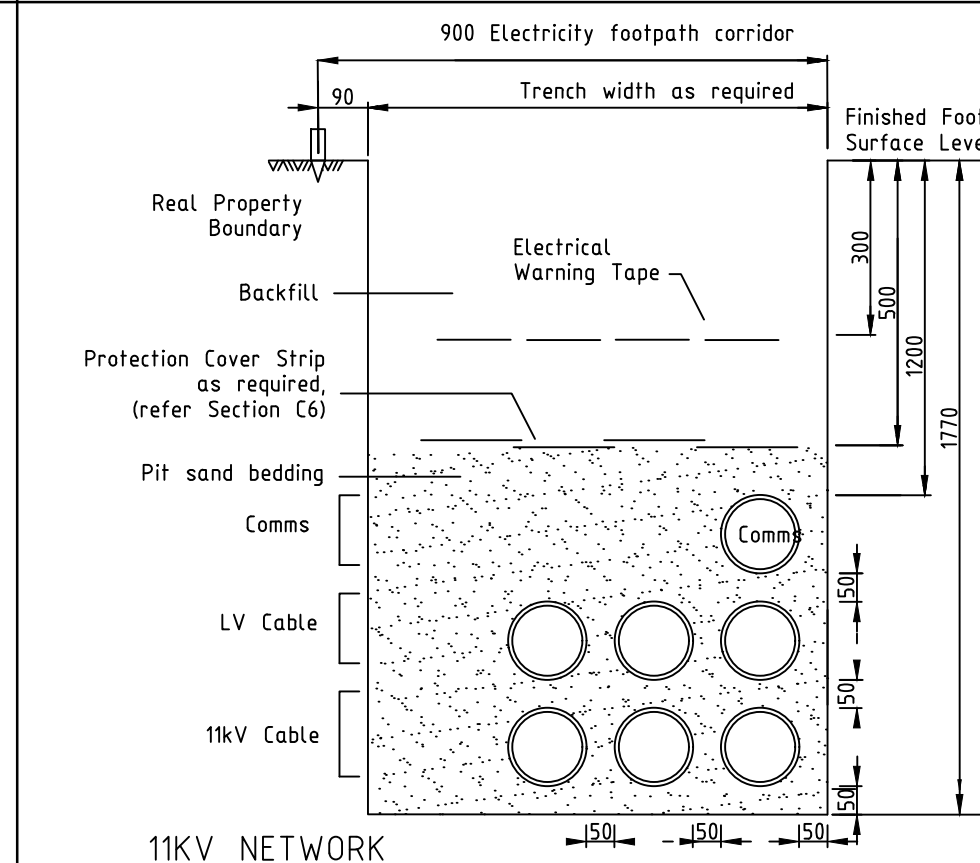
#### 11KV NETWORK

- Notes:**
- Energex Communication conduit to be 100mm white located top kerbside.
  - Power cable conduits to be 125mm orange, light duty.
  - Separation for conduits - 50mm minimum, up to 160mm desirable.
  - Increased cover required for road crossings.
  - Select Backfill and Pit sand bedding complying with ENERGEX UDCM Section C2
  - For de-rating factors for cables in duct bank, refer to the Plant Rating Manual

**TYPICAL CROSS SECTION - FOOTPATH ALONG KARRABIN ROSEWOOD ROAD**

#### NOTES

- CABLE CONDUIT SHALL BE OF THE FOLLOWING TYPE: LIGHT DUTY ELECTRICAL CONDUIT TO AS/NZS 2053. CONDUIT BENDS SHALL HAVE A MINIMUM RADIUS OF 1830mm.
- CONDUITS SHALL BE 125mm ORANGE FOR ELECTRICAL AND 100mm WHITE (LOCATED TOP KERBSIDE) AS SPECIFIED BY ENERGEX AND SHALL BE SUPPLIED AND INSTALLED BY THE DEVELOPER OR ENERGEX. CONDUITS SHALL BE SECURELY SEALED TO PREVENT INGRESS OF DIRT UNTIL CABLE INSTALLATION AND THEN RESEALED.
- EACH CONDUIT TO BE FITTED WITH A 6mm BRAID POLYPROPYLENE DRAW ROPE TO PULL IN HAULAGE ROPE. (MINIMUM BREAKING STRENGTH OF 1.0kN.)
- ENERGEX MAY NEED TO INSTALL AN EARTH WIRE AND EARTH RODS IN CONDUIT TRENCHES FROM THE SUBSTATION SITE.
- ELECTRICITY SUPPLY CONDUITS AND CABLES SHALL HAVE POLYMERIC CABLE PROTECTION COVER STRIPS PLACED 100mm ABOVE THE TOP CONDUIT FACE OF THE ELECTRICITY SUPPLY CONDUITS AND CABLES. CABLE PROTECTION COVER STRIP SHALL BE LAPPED WHEN PLACED TOGETHER; 100mm MINIMUM ALONG THE LONGITUDINAL AXIS; 40mm MINIMUM ALONG THE TRAVERSE AXIS AND SHALL EXTEND 40mm MINIMUM PAST THE EXTERNAL EDGES OF THE CONDUIT/CABLE BANK.
- POLYMERIC CABLE PROTECTION COVER SHALL BE A MINIMUM OF 5mm THICK AS DESCRIBED IN THE AUSTRALIAN STANDARD; AS4702 FPR POLYMERIC CABLE PROTECTION COVERS.
- REDUCED CONDUIT SEPARATION MAY BE ACCEPTED TO AVOID SPECIFIC OBSTACLES
- MIN. DEPTHS SHOWN ARE THOSE DEPTHS REQUIRED BY CODE OF PRACTICE, WORKS (MINOR ROADS) AND DMR (ARTERIAL ROADS).



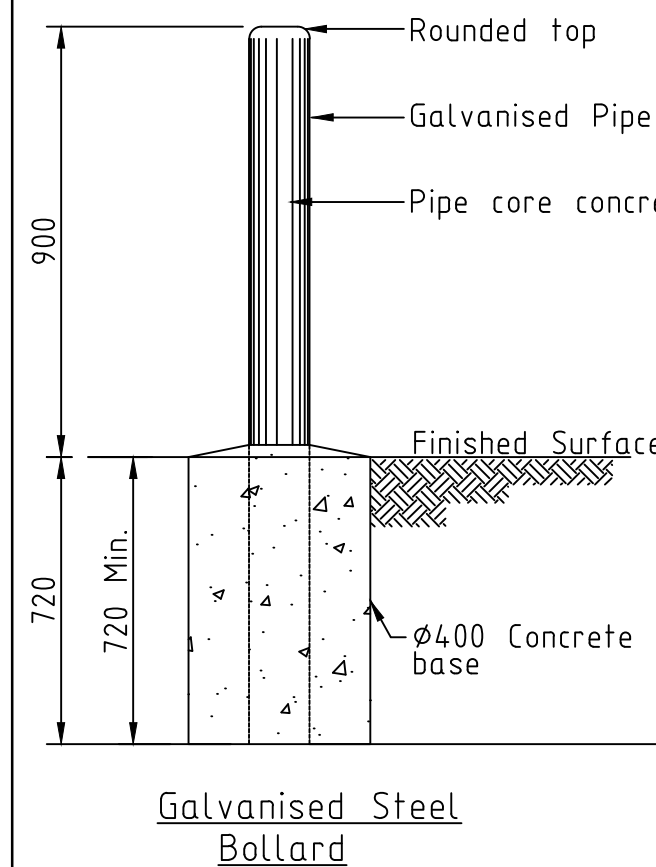
#### 11KV NETWORK

- Notes:**
- Energex Communication conduit to be 100mm white located top kerbside.
  - Power cable conduits to be 125mm orange, light duty.
  - Separation for conduits - 50mm minimum, up to 160mm desirable.
  - Increased cover required for road crossings.
  - Select Backfill and Pit sand bedding complying with ENERGEX UDCM Section C2
  - For de-rating factors for cables in duct bank, refer to the Plant Rating Manual

**TYPICAL CROSS SECTION - ROAD CROSSING**

#### NOTES

- CABLE CONDUIT SHALL BE OF THE FOLLOWING TYPE: LIGHT DUTY ELECTRICAL CONDUIT TO AS/NZS 2053. CONDUIT BENDS SHALL HAVE A MINIMUM RADIUS OF 1830mm.
- CONDUITS SHALL BE 125mm ORANGE FOR ELECTRICAL AND 100mm WHITE (LOCATED TOP KERBSIDE) AS SPECIFIED BY ENERGEX AND SHALL BE SUPPLIED AND INSTALLED BY THE DEVELOPER OR ENERGEX. CONDUITS SHALL BE SECURELY SEALED TO PREVENT INGRESS OF DIRT UNTIL CABLE INSTALLATION AND THEN RESEALED.
- EACH CONDUIT TO BE FITTED WITH A 6mm BRAID POLYPROPYLENE DRAW ROPE TO PULL IN HAULAGE ROPE. (MINIMUM BREAKING STRENGTH OF 1.0kN.)
- ENERGEX MAY NEED TO INSTALL AN EARTH WIRE AND EARTH RODS IN CONDUIT TRENCHES FROM THE SUBSTATION SITE.
- ELECTRICITY SUPPLY CONDUITS AND CABLES SHALL HAVE POLYMERIC CABLE PROTECTION COVER STRIPS PLACED 100mm ABOVE THE TOP CONDUIT FACE OF THE ELECTRICITY SUPPLY CONDUITS AND CABLES. CABLE PROTECTION COVER STRIP SHALL BE LAPPED WHEN PLACED TOGETHER; 100mm MINIMUM ALONG THE LONGITUDINAL AXIS; 40mm MINIMUM ALONG THE TRAVERSE AXIS AND SHALL EXTEND 40mm MINIMUM PAST THE EXTERNAL EDGES OF THE CONDUIT/CABLE BANK.
- POLYMERIC CABLE PROTECTION COVER SHALL BE A MINIMUM OF 5mm THICK AS DESCRIBED IN THE AUSTRALIAN STANDARD; AS4702 FPR POLYMERIC CABLE PROTECTION COVERS.
- REDUCED CONDUIT SEPARATION MAY BE ACCEPTED TO AVOID SPECIFIC OBSTACLES
- MIN. DEPTHS SHOWN ARE THOSE DEPTHS REQUIRED BY CODE OF PRACTICE, WORKS (MINOR ROADS) AND DMR (ARTERIAL ROADS).



#### Bollards Around Padmounts

Bollards shall be installed where padmounts are installed in car parks or other areas where padmounts are likely to be impacted by vehicles. The following outlines the minimum requirement for the design / installation of bollards: -

- Shall be manufactured of 5.6mm thick gal steel (medium)
- Circular tube min 140mm OD filled with concrete and capped.
- Buried 720mm in 400 x 400 x 720(D) concrete pad
- Installed 900mm above ground at 1.5m centers.

#### NOTES:

- All materials and construction shall be in accordance with Australian Standards.
- All concrete shall be minimum grade Fc=25MPa.
- Galvanised pipe bollards may be painted to match the trim of surrounding dwellings.
- A bollard will not be required provided a barrier such as a block wall, armco barrier or other permanent structure protects the PMT from vehicle traffic and likely impacts.

#### Note

**ENERGEX will not commission the transformer until the transformer site has been completed to ENERGEX specifications (including the concrete surround).**

**ENERGEX specifications for construction of the transformer site and installation of conduits on private property are available at the following web address.**

[https://swp.energex.com.au/service\\_providers/technical\\_docs/asp/technical\\_documents.asp](https://swp.energex.com.au/service_providers/technical_docs/asp/technical_documents.asp)

#### Underground Distribution Construction Manual Version 27

##### Section C1 - Conduits

##### Section C2 - Excavations & Reinstatements

##### Section C3 - Padmount Transformer Sites

#### Commercial and Industrial Substations Manual 00293 v12

##### Section 14 - Drawing 11040-A4-14-33 Sht 2

**The site contractor is to refer all substation construction queries to their electrical consultant.**

Cable conduit shall be of the following type; 125mm Dia UPVC Light Duty Rigid Pressure pipe to AS/NZS2053. Conduit bends shall have a Minimum radius of 1830mm.

The conduits shall be laid in a straight line with sealed joints. Should any deviation be required in conduit route, 1830mm radius bends shall be used. Bends shall not be greater than 30 degrees. Cable pits shall be used for greater deviations. Refer to ENERGEX Planner for details.

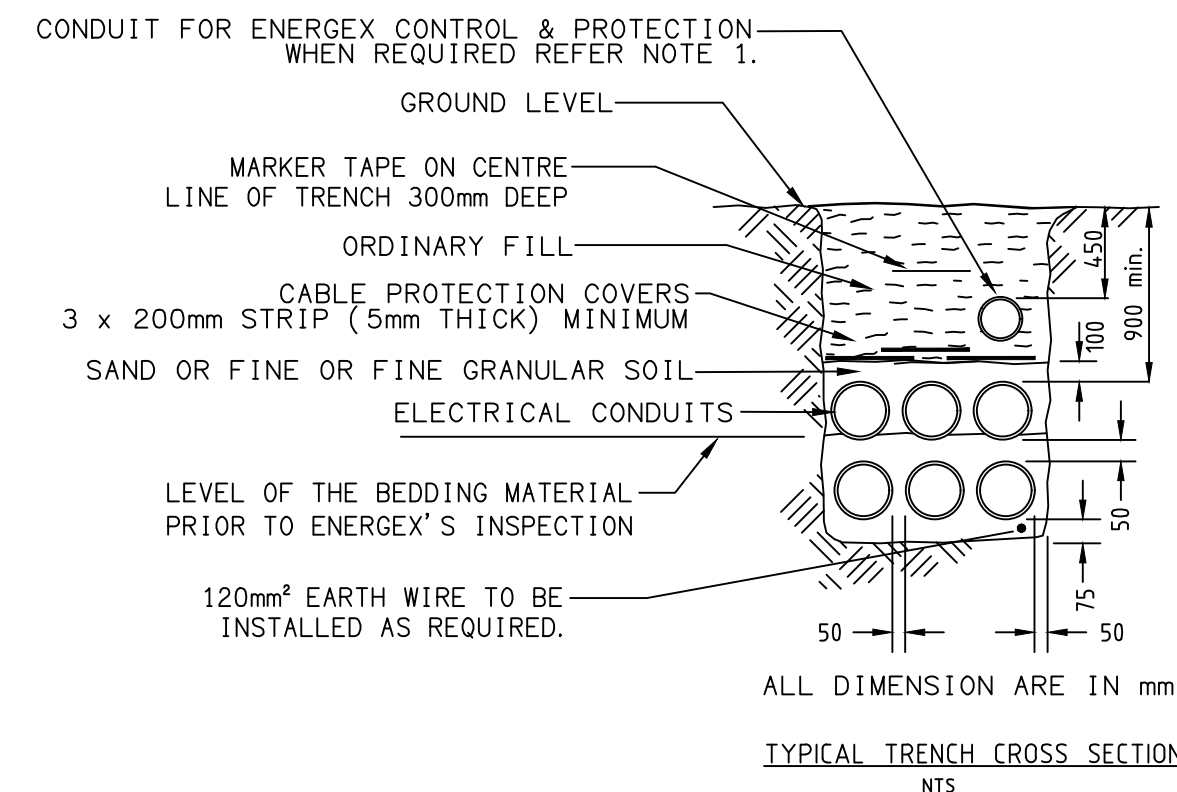
The conduits shall have 750mm minimum cover and shall be bedded on compacted sand or fine granular soil free of rocks. The socket ends of conduits shall finish 150mm beyond the R.P. alignment and shall have 750mm min cover below finished footpath level at the R.P. alignment. A bellmouth shall be provided where the conduits terminate in the substation wall or wall of a substation trench. A 2.5mm plastic coated steel draw wire or 6mm braided Polypropylene Rope "BORAL KA10850" shall be installed in each conduit (1kN min. breaking strength).

Because of the physical distortion likely in large groups of buried UPVC conduits, High Density conduits shall be used for groups of more than 6 conduits. Conduits shall be 125mm or 150mm as specified by ENERGEX and shall be supplied and installed by the developer. Conduits shall be securely sealed by builder to prevent ingress of dirt until cable installation by ENERGEX and then resealed by ENERGEX.

ENERGEX may need to install an earth wire and earth rods in conduit trenches from the substation site.

Electricity Supply Conduits and Cables shall have polymeric cable protection covers placed 100mm above the top conduit face of the electricity supply conduits and cables. Cable protection cover strips shall be lapped when placed together; 100mm minimum along the longitudinal axis, 40mm minimum along the traverse axis and shall extend 40mm minimum past the external edges of the conduit/cable bank.

Polymeric cable protection cover shall be a minimum of 5mm thick as described in Australian Standard; AS/NZS 4702 for Polymeric Cable Protection Covers.



- NOTE:**
- INSTALL A NEW COMMUNICATIONS CONDUIT OF MINIMUM SIZE, 100mm LD PVC WHITE CONDUIT,

**TYPICAL TRENCH CROSS SECTION FOR ENERGEX CONDUITS IN PRIVATE PROPERTY**

|                                                                                                                                |                                                                                                       |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                  |                                                                                                                                          |                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|                                                                                                                                | <div>USE FIGURED DIMENSIONS<br/>IN PREFERENCE TO SCALE.</div>                                         |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                  |                                                                                                                                          |                                                                                                                                                                                                                                                                     |
|                                                                                                                                | <div>ALL DIMENSIONS TO BE<br/>VERIFIED ONSITE.</div>                                                  |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                  |                                                                                                                                          |                                                                                                                                                                                                                                                                     |

ENERGEX SPECIFICATION

1.0 INTRODUCTION

This specification caters for padmounted transformer stations on customers premises fronting onto road reserve with a separate earthing arrangement.

Padmounted transformer foundations to be built according to site sketch and design standards contained in this document.

It is the responsibility of the customer's consultant to ensure that the information contained herein is passed on to the relevant contractors.

2.0 NEGOTIATIONS BETWEEN ENERGEX AND CUSTOMER

- 1. An application is made to ENERGEX giving information with regards to the size and type of load, site plans and drawings, and the location of the required supply.
- 2. If a substation is required, the substation site is agreed upon by ENERGEX and the customer.
- 3. ENERGEX accepts a site sketch detailing the substation construction details, specification, standard drawings (An RPEQ approved drawing may be required for structural plans).
- 4. ENERGEX prepares a Network Connection Contract with a request for payment (if required). Customer to accept Network Connection Contract and returns with any payment required.
- 5. Customer excavates PMT site, installs foundation and conduit trenches.
- 6. Customer leaves PMT site and conduit trench open for ENERGEX inspection as required..
- 7. ENERGEX inspects PMT site and conduit installation.
- 8. ENERGEX installs earthing and PMT cubicle
- 9. Customer installs their LV consumers mains
- 10. Customer reinstates PMT surface with concrete apron surround
- 11. ENERGEX energizes substation providing that:
  - a. Customer responsibilities are fulfilled.
  - b. All payments have been received (including storage fee if applicable).
  - c. ENERGEX has a signed Network Connection Contract.
  - d. ENERGEX easements secured (if required).

3.0 BUILDING GENERAL

3.1 Building Services:-

No services other than ENERGEX's electric lines and approved parts of the customer's electrical mains shall pass through or under the substation area.

3.2 Workmanship:-

Building work shall be completed in a neat tradesman like manner and shall be as detailed on the drawings.

3.3 Construction:-

All civil construction works must be undertaken in accordance with the requirements specified in ENERGEX Work Category Specification WCS61 "Underground Civil Construction".

The padmounted transformer site shall be prepared by the customer. An access area of 12600mm x 12600mm is required for cabling, earthing, installation and safe operation of apparatus. Proposed overhangs must be approved by Energex & be greater than 5.0m above padmount site.

The transformer site shall be above the local flood level (Q100/DFL which ever is higher) with the top of the concrete plinth 25mm above the finished yard level. Cable apertures through the precast concrete plinth shall be backfilled to 50mm from the top of plinth.

The concrete slab is to slope away from plinth falling at a slope of 1 in 25.

The transformer site shall be level ±25mm with a maximum cut and fill of ±150 mm and shall be concreted in accordance with ENERGEX Underground Distribution Construction Manual Sect C3.

Concrete filled 140mm OD 5.6mm thick galvanised steel pipes may be required outside the site for protection from vehicles in car parks, etc. Refer to ENERGEX Underground Distribution Construction Manual Section C3.

For a steep sloping site a retaining wall and guard rail will be required to be constructed by the customer. Refer to ENERGEX Underground Distribution Construction Manual.

4.0 ACCESS

4.1 Personnel:-

ENERGEX's staff shall have access to the substation at all times without having to enter security areas. The onus will be on the customer to maintain said access 24 hours a day, 7 days a week.

A minimum of 2.0 metres of clear access shall be provided in front of the substation cabinet. This will provide a safe working platform and access around the lockable doors when opened for emergency operations.

4.2 Heavy Equipment – Stable Ground Sites:-

Padmounted transformers are hauled by flat bed trucks and "Franna" style mobile cranes.

Any access or manoeuvring area which will be used for the purpose of off loading or loading transformers should be constructed to take a minimum loading of 31 tonnes in all weather conditions.

The headroom along the access route is required to be 5.0m with no obstructions over the crane manoeuvring area. The width of access required for reasonably straight routes should be increased on bends and in the manoeuvring area near the substation equipment access door required for the off loading of the transformer from the truck by the mobile

Any reinstatement which may be necessary in the event of damage to concrete slab, paving tiles or road surfaces etc. is the responsibility of the owner of the property.

5.0 CABLE CONDUITS

All conduits, associated fittings and bends shall comply with the requirements of AS/NZS 2053 as specified by ENERGEX and shall be supplied and installed by the developer. Conduits shall be securely sealed by builder to prevent ingress of dirt until cable installation by ENERGEX and then resealed by ENERGEX. All above ground conduits shall be U.V. stabalised.

Refer to ENERGEX Underground Distribution Construction Manual for details of conduit installation within the padmount transformer site.

Each conduit to be fitted with a 6mm braided polypropylene draw rope.

ENERGEX may need to install an earth wire and earth rods in conduit trenches from the substation site.

Polymeric cable protection cover shall be placed over all conduits and cables outside the electricity footpath alignment. To provide protection, electricity supply conduits and cables shall have polymetric cable protection covers placed 100mm above the top conduit face of the electricity supply conduits and cables. Cable protection covers shall be lapped when placed together; 100mm minimum along the logitudinal axis, 40mm minimum along the transverse axis and shall extend 40mm minimum past the external edges of the conduit/cable bank.

Polymeric cable protection cover shall be a minimum of 5mm thick as described in Australian Standard; AS/NZS 4702 for Polymeric Cable Protection Covers. The supply of polymeric cable protection covers and marked plastic warning tape shall be the responsibility of the developer and they shall be manufactured and supplied in accordance with the ENERGEX Underground Distribution Construction Manual Section C6.

6.0 EARTHING

An earthing system consisting of driven earth rods, a continuous earth ring around the substation connecting the rods and earthing tails connected to ENERGEX equipment and gates will be installed by ENERGEX. The earthing system may be required to be extended into cable trenches adjoining the transformer site.

The builder shall notify ENERGEX's works co-ordinator one week prior to trench and site foundation excavation to allow the installation of the earthing system and location of the earthing tails for equipment earthing.

7.0 CUSTOMER'S CABLES

Where supply is made available from the LV busbars of the transformer, the customer shall supply all connectors, stainless steel bolts, nuts, washers, cable cleats and supports and connect to the terminals as directed by ENERGEX.

Where supply is made available from a circuit of a low voltage distribution board, the customer shall supply all connectors, stainless steel bolts, nuts, washers and connect to the terminals as directed by ENERGEX.

Under no circumstances shall the customer cabling pass though or under the padmounted transformer culvert, nor the culvert end wall "knock-out" sections be removed.

8.0 UNDERGROUND CABLE PITS

Refer to ENERGEX Underground Distribution Construction Manual Section C5 for concrete pits.

9.0 EASEMENTS

The builder/developer is to provide Energex initially with a written undertaking that the easements will granted so that the project may proceed during the design process. Easement shall cover the HV cable route, substation site and remote earth grid area (if applicable). The ENERGEX newtwork will not be commissioned until all the required easements have been registered.

The developer/builder is required to grant the easements as noted on the Easement/Site Plans referred to by Energex in the Network Connection Contract prior to the supply being made available.

All costs associated with the registering, surveying, document perpetration etc shall be bourne by the builder/ developer.

The builder/developer shall Liaise with Energex's property department in relation to ensuring that all necessary documentation is completed. Contact Energex Property on propertyenquiries@energex.com.au including your project reference number.

- The following general details will apply:
- all documents shall be acceptable to the Department of Natural Resources
  - The grantee should be shown as "Energex Limited (ACN 078 849 055)"
  - refer to Memorandum No 708346714 for underground electricity (memorandum is registered with Natural Resources)

The builder/developer will forward the document to Energex for review and execution. Energex will then return the documents to the builder/developer for registration with The department of Natural Resources.

The builder/developer is to return a copy of the Registration Confirmation Statement to Energex.

All private services easements must be registered prior to supply being made available to the future development sites.

10.0 RETAINING WALLS / FENCES

Retaining walls shall be installed where a change in ground level of 300mm or more occurs within 2000mm of the substation clearance zone. Fences shall be installed for:

- Residential areas (Typically 1200mm high)
- Sloping sites (either front to back or left-right).

Fences and Retaining walls shall be constructed to ENERGEX standards to satisfy minimum clearance zones of common earth configurations. Refer to section C3-1 for retaining wall construction notes. Alternative designs to those provided in this manual will require a Civil Engineer's Certification.

Safety fences shall comply with the requirements of the Workplace Health and Safety Act, AS1657 and AS1926 and all amendments. Metal retaining wall fences shall be used in CMEN areas. (Refer UDCM C3.1 Sheet 6)

All retaining walls and safety fencing on private property shall be maintained by the owner at no cost to Energex.

All fencing materials shall be galvanised or finished in an equally durable manner. All chainwire and support wires shall be PVC coated and coloured black or green.

All elevated areas shall be provided with toe boards and infill type fencing.

11.0 ENERGEX COMMUNICATION CONDUIT

Conduit

ENERGEX communication conduit shall be white, Medium Duty (MD), UPVC to AS/NZS 2053, Energex Technical Specification TS270 and AS1345. Conduit couplings shall comply with all the above requirements.

Tracer/Draw Rope

The electricity communications conduit when installed shall be fitted with a continuous metallic tracer/draw rope suitable for passing an electricity current through to accurately identify the conduit.

Installation

ENERGEX communication conduit installation: 100mm conduit shall be located adjacent to the top Low Voltage conduits on the kerb side of the trench, between the LV conduits and any Public Lighting conduit.



ENERGEX ACCEPTANCE 

NAME .....

OFFICE .....

SIGNED .....

DATE / /

ENERGEX takes no responsibility for the accuracy of the information provided on this drawing

|                                                                   |  |                                                                                                                          |  |                                                                                                           |  |                                                                                  |  |
|-------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------|--|
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| TRADING AS:<br>ELECTRICAL DESIGN GROUP                            |  | USE FIGURED DIMENSIONS<br>IN PREFERENCE TO SCALE.                                                                        |  | ELECTRICAL DESIGN GROUP<br>ELECTRICAL BUILDING SERVICES CONSULTANTS<br>BRISBANE GOLD COAST                |  | DRAWING:<br>ELECTRICAL SERVICES<br>ENERGEX PADMOUNT SUBSTATION<br>STANDARD NOTES |  |
| ALL DIMENSIONS TO BE<br>VERIFIED ONSITE.                          |  | CULVERT INSPECTION REQUIRED BEFORE TRANSFORMER IS DELIVERED<br>- 48 HOURS PRIOR NOTICE NEEDED.<br>CONTACT _____ on _____ |  | P.O.Box 15, Sherwood Q.4075<br>Phone: (07) 3278 4375<br>Email: brisbane@edg.net.au<br>Web: www.edg.net.au |  | KARRABIN ROSEWOOD ROAD, WALLOON                                                  |  |
| TRANSFORMER WILL NOT BE ENERGISED UNTIL ALL REQUIREMENTS ARE MET. |  | DRAWING:<br>NOT TO SCALE AT A1                                                                                           |  | PROJECT NO:<br>C3808a                                                                                     |  | DRAWING NO:<br>EN05                                                              |  |
|                                                                   |  |                                                                                                                          |  |                                                                                                           |  | REVISION:<br>A                                                                   |  |