

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.
- AS BUILT DRAWINGS.
- OPERATION AND MAINTENANCE MANUAL.
- CABLING, CABLE SUPPORT SYSTEMS AND ACCESS.
- POWER DISTRIBUTION.
- LIGHTING.
- COMMUNICATIONS CABLING.
- 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.

PRIOR TO COMMENCING WORK CONSULT THE SCHOOL MANAGEMENT FOR ANY HAZARDOUS MATERIAL AND OR ASBESTOS REGISTERS AS WELL AS UNDERTAKE A THOROUGH INSPECTION OF THE SITE TO IDENTIFY ANY POTENTIAL HAZARDOUS MATERIALS, ASBESTOS AND HEALTH OR SAFETY RISKS. ADVISE THE CONTRACTOR OF ANY POTENTIAL HAZARDOUS MATERIALS, ASBESTOS AND HEALTH OR SAFETY RISKS IF IDENTIFIED AND DO NOT COMMENCE WORK UNTIL AN APPROPRIATE MANAGEMENT PLAN HAS BEEN DEVELOPED AND AGREED TO BY ALL PARTIES

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 OF ALL WORKS THAT HAVE AN EFFECT ON OR WILL BE AFFECTED BY THE ELECTRICAL SERVICES.

2. WORKMANSHIP

ENSURE THAT THE ELECTRICAL WORK IS PERFORMED BY THE HOLDER OF A CURRENT ELECTRICAL SUB CONTRACTOR LICENSE AND THE SERVICES COVERED BY THE ACMA IS PERFORMED BY THE HOLDER OF THE APPROPRIATE CURRENT ACMA 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.

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) AND THE NATIONAL ELECTRICITY METERING STANDARDS (NEM).
- AS/NZS3000.
- AS3008.
- LOCAL BRIGADE.
- WORKPLACE HEALTH AND SAFETY ACT.
- TELECOMMUNICATIONS ACT.
- ACMA REQUIREMENTS.

3. 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.
- ENERGEX.
- STATE GOVERNMENT DEPARTMENT OF ENVIRONMENT AND HERITAGE.
- QLD GOVERNMENT, DIVISION OF WORKPLACE, HEALTH AND SAFETY.
- QLD FIRE AND EMERGENCY SERVICES.

NOTES

4. 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.

5. POWER DISTRIBUTION

IN ADDITION TO THE WORKS ASSOCIATED WITH THE BUILDING THE POWER DISTRIBUTION COMPONENT OF THE ELECTRICAL SERVICES SUB-CONTRACT INCLUDES ESTABLISHING AN ON SITE ENERGEX PADMOUNT SUBSTATION.

ENSURE THE NEW ENERGEX SUPPLY ARE COMPLETE AT LEAST TWO MONTHS PRIOR TO PRACTICAL COMPLETION FOR COMMISSIONING. ARRANGE WITH THE BUILDER FOR THE SUBSTATION STRUCTURE TO BE COMPLETE AT LEAST SIX WEEKS PRIOR TO THE INSTALLATION OF THE ENERGEX TRANSFORMER. ARRANGE WITH ENERGEX TO HAVE A 2000 AMP SUPPLY PROVIDED TO THE SITE. PROVIDE CONSUMERS MAINS FROM THE SUBSTATION TO THE MAIN SWITCHBOARD.

PROVIDE THE SITE MAIN SWITCHBOARD (MSB) AS FOLLOWS:

- PLINTH MOUNTED.
- NATIONAL ELECTRICITY MARKET (NEM) COMPLIANT RETAIL METERING.
- PROVIDE A COPY OF THE ENERGEX APPROVAL OF THE MSB.
- IP66 FORM 2A
- 316 STAINLESS STEEL OR ALUMINIUM ENCLOSURE, DOORS AND ESCUTCHEONS.
- CUSTOM COLOUR POWDER COATED ENCLOSURE AND DOORS WITH THE ARCHITECT NOMINATING THE COLOUR.
- POWDER COATED GLOSS WHITE ESCUTCHEONS.
- ENSURE THE MSB IS DESIGNED TO OPERATE IN DIRECT SUNLIGHT WITH AN AMBIENT TEMPERATURE OF 45 DEGREES.
- DOORS ON ALL CUBICLES WITH 3 POINT 92268 KEY LOCKABLE FLUSH 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 SCHNEIDER OR NHP/ TERASAKI.
- PROVIDE SHOP DRAWINGS FOR APPROVAL.
- ALL COMPONENTS ARE TO BE LABELLED WITH NON-STICK LABELS.
- ENERGEX PADLOCK ON THE METER CUBICAL.
- TWO ENERGEX PADLOCK KEYS AND TWO 92268 KEYS.

PROVIDE THE DISTRIBUTION BOARD AS FOLLOWS:

- WALL MOUNTED.
- IP44 FORM 1.
- LIGHT GREY ENCLOSURE WHITE ESCUTCHEON.
- 3 POINT 92268 KEY LOCKABLE FLUSH HANDLES ON ALL DOORS.
- LIFT OFF HINGES ON ALL DOORS AND ESCUTCHEONS.
- 1/4 TURN LATCHES AND D HANDLES ON ALL ESCUTCHEONS.
- ALL SWITCHGEAR TO BE SCHNEIDER OR NHP/ TERASAKI.
- PROVIDE SHOP DRAWINGS FOR APPROVAL.
- 25% SPARE POLES AT PRACTICAL COMPLETION.
- ALL COMPONENTS ARE TO BE LABELLED WITH NON-STICK LABELS.

ENSURE ALL THREE PHASE CIRCUITS ARE PROVIDED WITH CORRECT PHASE ROTATION.

ENSURE ALL OUTLETS AND ISOLATORS ARE POSITIONED SUCH THAT THEY ARE NOT COVERED BY THE EQUIPMENT. THE FINAL POSITION OF ALL OUTLETS AND ISOLATORS ARE TO BE CONFIRMED ON SITE BY THE TENANTS REPRESENTATIVE.

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

- POWER DISTRIBUTION.
- ENERGEX NEGOTIATIONS AND APPLICATION.
- ENERGEX PADMOUNT SUBSTATION.
- RETAIL METERING.
- CONSUMERS MAINS.
- MAIN SWITCHBOARD.
- SUBMAINS.
- DISTRIBUTION BOARD.
- PV SYSTEM INCLUDING THE ENERGEX APPLICATION.
- CABLE ACCESS WAYS.
- CIRCUITS.
- ISOLATORS AND OUTLETS.
- TESTING AND COMMISSIONING.
- THERMOSCAN THE MSB AND THE DISTRIBUTION BOARD ONE WEEK AFTER PRACTICAL COMPLETION.
- PROVIDE A CHART RECORDING OF THE MAINS CURRENT, VOLTAGE, FREQUENCY FOR THE FIRST 14 DAYS FOLLOWING PRACTICAL COMPLETION AND SUBMIT THE THERMOSCAN CHART RECORDING AND FOR APPROVAL.
- PROVIDE A 33KW SOLAR PHOTOVOLTAIC SYSTEM IN ACCORDANCE WITH AS 5033 WITH THE PV INSTALLATION UNDERTAKEN BY AN ACCREDITED INSTALLER MEMBER OF THE CLEAN ENERGY COUNCIL.

PROVIDE PV PANELS WITH AN EFFICIENCY IN EXCESS OF 20% AND A MANUFACTURERS 15-YEAR PRODUCT WARRANTY AND A PERFORMANCE WARRANTY GUARANTYING 80% OF THE PANELS RATED OUTPUT AFTER 25 YEARS. PROVIDE AN INVERTER THAT HAS A WI FI INTERNET CONNECTION, A LOSS OF LESS THAN 5% AND A MANUFACTURERS PRODUCT WARRANTY OF 5 YEARS. PROVIDE THE PV SYSTEM DC AND AC CABLING THAT HAS A LESS THAN COMBINED LOSS LESS THAN 3%. PROVIDE SHOP DRAWINGS AND TECHNICAL DETAILS OF THE PV SYSTEM INCLUDING ALL COMPONENTS AND THE PV PANEL LAYOUT FOR APPROVAL.

NOTES

6. LIGHTING

THE LIGHTING COMPONENT OF THE ELECTRICAL SERVICES SUB-CONTRACT INCLUDES ALL OF THE INTERNAL AND EXTERNAL 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 THROUGH IT IS NOT LIMITED TO THE FOLLOWING EXTENT OF WORK:

- INTERNAL AND EXTERNAL LIGHTING.
- EMERGENCY AND EXIT LIGHTING.
- EARTHING OF THE LIGHTING INSTALLATION.
- LIGHTING CONTROL.
- LIGHTING SUBCIRCUITS.
- TESTING AND COMMISSIONING.

PROVIDE 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 NOMINATED AS MAINTAINED WITH THE LAMP PERMANENTLY ON SUPPLIED VIA AN UNSWITCHED ACTIVE MAINS SUPPLY WHEN THE MAINS SUPPLY IS AVAILABLE. WHEN THE MAINS SUPPLY IS NOT AVAILABLE, THE LAMP IS TO REMAIN ON SUPPLIED BY THE EMERGENCY PACK. SINGLE LAMP MAINTAINED EMERGENCY LIGHTS ARE NOT SWITCHED WITH THE LOCAL GENERAL AREA LIGHTING. (THE LAMP IS ALWAYS ON.)

INSTALL EMERGENCY LIGHT FITTINGS NOMINATED AS NON-MAINTAINED AS FOLLOWS:

- IF THE FITTING IS NOT BEING SWITCHED, THE LAMP IS TO REMAIN OFF 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. UNSWITCHED SINGLE LAMP NON-MAINTAINED EMERGENCY LIGHTS ARE NOT SWITCHED WITH THE LOCAL GENERAL AREA LIGHTING. (THE LAMP IS ON ONLY WHEN THE MAINS SUPPLY IS NOT AVAILABLE.)
- IF THE FITTING IS BEING SWITCHED, THE LAMP IS TO BE 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.)

7. COMMUNICATIONS CABLING

THE COMMUNICATIONS CABLING COMPONENT OF THIS CONTRACT INCLUDES THE PROVISION OF A NEW NBN SERVICE TO THE SITE WITH AN EXTERNAL PCD AND NBN NTD ADJACENT THE COMMUNICATIONS RACK. ARRANGE FOR THE NBN SERVICES TO BE INSTALLED INCLUDING ALL CABLE ACCESS WAYS AND DOCUMENTATION IN ACCORDANCE WITH THE NBN REQUIREMENTS. PROVIDE CONCEALED CAT 6 TIE CABLING FROM THE NTD TOT EH COMMUNICATIONS RACK.

PROVIDE A COMMUNICATIONS RACK AND CAT 6 OUTLETS CABLED TO PATCH PANELS WITHIN THE COMMUNICATIONS RACK. IN ADDITION TO THE COMMUNICATIONS OUTLETS SHOWN ON THE DRAWINGS ALLOW AN ADDITIONAL 24 COMMUNICATIONS OUTLETS WITH THE POSITIONS NOMINATED BY THE OPERATOR PRIOR TO ROUGHIN FOR CCTV ETC.

PROVIDE THE COMMUNICATIONS CABLING COMPONENT OF THIS CONTRACT AS A COMMSCOPE OR MOLEX CAT 6 INSTALLATION WITH A 15 YEAR MANUFACTURERS PERFORMANCE WARRANTY. THE COMMUNICATIONS CABLING COMPONENT OF THIS CONTRACT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING EXTENT OF WORK:

- NBN APPLICATION AND LEADIN SERVICES.
- NBN CABLE ACCESS WAYS INCLUDING THE PCD AND NTD.
- COMMUNICATIONS RACK.
- PATCH PANELS.
- CAT 6 COMMUNICATIONS OUTLETS AND CABLING.
- CABLE ACCESS WAYS.
- TESTING AND COMMISSIONING.

8. ABBREVIATIONS

A	- AMP CURRENT RATING
AB	- MOUNT ABOVE BENCH.
AFFL	- ABOVE FINISHED FLOOR LEVEL.
BB	- MOUNT BELOW BENCH.
BH	- MOUNT ON BULKHEAD.
CEIL	- MOUNT ON CEILING.
CS	- MOUNT WITHIN CEILING SPACE.
C/W	- COMPLETE WITH.
DR	- DRYER.
DW	- DISHWASHER.
HWS	- HOT WATER SYSTEM.
MCB	- MINIATURE CIRCUIT BREAKER.
MCCB	- MOLDED CASE CIRCUIT BREAKER.
MDB	- MAIN DISTRIBUTION BOARD.
MEN	- MULTIPLE EARTH NEUTRAL LINK.
MSB	- MAIN SWITCHBOARD.
MSSB	- MECHANICAL SERVICES SWITCHBOARD.
MW	- MICROWAVE.
N	- NEON / LED INDICATOR WHEN ON.
NTS	- NOT TO SCALE.
OV	- OVEN.
RCBO	- CIRCUIT PROTECTED VIA A 30ma RESIDUAL CURRENT DEVICE INTEGRAL TO THE CIRCUIT BREAKER.
REF	- REFRIGERATOR.
UNO	- UNLESS NOTED OTHERWISE.
WM	- WASHING MACHINE.
WP	- WEATHERPROOF TO IP56 UNO.
500	- NUMBER DENOTES MOUNTING HEIGHT AFFL.

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DRAWING:	ELECTRICAL SERVICES NOTES		
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PROJECT:

LLEWELLYN MOTORS SPRINGFIELD - LOT 32

LOT 32 AUGUSTA PARKWAY, AUGUSTINE HEIGHTS