SCOPE OF WORKS:

EXISTING EQUIPMENT

1. OBTAIN THE DETAILS OF EXISTING UNDERGROUND SERVICES USING "DIAL BEFORE YOU DIG" PRIOR TO ANY EXCAVATIONS. AVOID CLASHES WITH THOSE SERVICES.
2. CO-ORDINATE, ARRANGE AND PAY THE ASSOCIATED CHARGES TO EVO ENERGY FOR DISCONNECTION AND RECONNECTION OF THE POWER SUPPLY TO STREET LIGHTING TO CARRY OUT THE PROPOSED WORK.
3. TRACE THE EXISTING UNDERGROUND STREET LIGHTING CABLES. CABLE LOCATIONS SHOWN ARE INDICATIVE ONLY. ALL REDUNDANT CABLING SHALL BE REMOVED OR SHOWN AS ABANDONED ON THE FINAL WORK AS EXECUTED DOCUMENTATION.
4. REMOVE THE EXISTING STREET LIGHTING COLUMNS AND LUMINAIRES AS SHOWN ON THE DRAWINGS.

NEW LUMINAIRES

5. SUPPLY AND INSTALL NEW LIGHTING LUMINAIRES AS SHOWN ON THE DRAWINGS.
6. PROVIDE THE PEDESTRIAN CROSSING LIGHTING AS SHOWN ON THE DRAWINGS.
7. THE AIMING DRAWING SHOWS THE LOCATION FOR THE LUMINAIRE TO BE AIMED AT IN ORDER TO MEET THE REQUIREMENTS OF AS/NZS 1158.4. ADJUST THE LUMINAIRE ON SITE TO AIM AT THE POINT SHOWN.
8. PROVIDE EACH LUMINAIRE WITH A DIMMABLE DALI CONTROLLER.
9. PROVIDE EACH LUMINAIRE WITH A 7-PIN NEMA PE BASE AND PE CELL.
10. PROVIDE EACH LUMINAIRE WITH A PE CELL. CONFIRM FINAL REQUIREMENTS WITH TCCS PRIOR TO PURCHASE.
11. ALL LUMINAIRES TO MEET TRANSPORT CANBERRA & CITY SERVICES (TCCS) SPECIFICATION.

NEW LIGHTING COLUMNS

12. SUPPLY AND INSTALL NEW LIGHTING COLUMNS AT LOCATIONS SHOWN ON THE DRAWINGS.
13. MOUNT ALL COLUMNS FOR TRUE VERTICAL ALIGNMENT (±0.5 DEGREES).
    - 13.1. FOR DIRECT BURIED COLUMNS THE POLE SHALL BE ALIGNED IN THE GROUND PRIOR TO BACKFILLING.
    - 13.2. FOR BASE MOUNTED COLUMNS THE POLE SHALL BE MOUNTED ON THE CONCRETE PLINTHS/PILES BY MEANS OF LEVELLING NUTS UNDER THE MOUNTING BASE AND THEN SECURED TIGHTLY IN PLACE WITH THE NUTS ON TOP OF THE BASE. ENSURE THAT MOVEMENT DUE TO THE WEIGHT OF THE OUTREACH ARM IS CONSIDERED AND ALLOWED FOR WHILE STANDING THE POLE.
14. ALL COLUMNS SHALL BE LOCATED AS SHOWN ON THE LAYOUT PLANS. IN GENERAL THESE LOCATIONS MEET THE FOLLOWING CRITERIA, ANY CONTRADICTIONS SHALL BE RAISED WITH THE SUPERINTENDENT:
    - 14.1. MINIMUM 1.0m SET BACK FROM THE KERB, SHOULDER OR EDGE OF PAVEMENT.
    - 14.2. WHERE THE ROAD SHOULDER OR CYCLE LANE WIDTH IS REDUCED (LESS THAN 2m) THE COLUMN SETBACK SHALL BE INCREASED TO ACHIEVE A CLEARANCE OF 3m FROM THE EDGE OF TRAFFIC.
    - 14.3. WHERE LOCATED WITHIN THE ROAD MEDIAN THE COLUMN SHALL BE LOCATED IN THE CENTRE OF THE MEDIAN. WHERE THE MEDIAN WIDTH IS LESS THAN 4m, ADVISE THE SUPERINTENDENT AS CLEARANCE FROM TRAFFIC IS INSUFFICIENT.
    - 14.4. COLUMNS SHALL BE A MINIMUM OF 1m FROM THE EDGE OF A PATH OR DRIVEWAY.
    - 14.5. COMBINED COLUMN LOCATIONS SHALL BE CO-ORDINATED WITH THE TRAFFIC SIGNAL CONTRACTOR.
    - 14.6. COLUMNS LOCATED BEHIND A GUARD RAIL OR WIRE ROPE BARRIER SHALL BE LOCATED OUTSIDE THE DEFLECTION ZONE. WHERE THIS IS NOT POSSIBLE DUE TO SITE CONSTRAINTS, CO-ORDINATE THE BARRIER DESIGN WITH THE CIVIL TRADE TO REDUCE THE DEFLECTION ZONE AT THE COLUMN LOCATION.
    - 14.7. COLUMNS SHALL BE A MINIMUM OF 0.6 TIMES THE HEIGHT AWAY FROM OVERHEAD LINES (EG 12m COLUMN MUST BE 7.2m FROM OVERHEAD LINES, 9m COLUMN MUST BE 5.4m FROM OVERHEAD LINES).
15. WHERE COLUMNS CANNOT BE LOCATED AS SHOWN ON THE DRAWINGS DUE TO SITE RESTRICTIONS, THE COLUMN LOCATION CAN BE ADJUSTED BY A MAXIMUM OF 10% OF THE COLUMN SPACING WITHIN THAT AREA (IN ACCORDANCE WITH AS/NZS 1158.1.1 CLAUSE 3.1.2, AND EXCLUDING COLUMNS WITH PEDESTRIAN CROSSING LIGHTING LUMINAIRES). WHERE A COLUMN LOCATION IS REQUIRED TO BE ADJUSTED BY MORE THAN THIS AMOUNT PRIOR APPROVAL SHALL BE OBTAINED BY THE SUPERINTENDENT.
16. PURCHASE COLUMN NUMBER PLATES FROM TCCS AND INSTALL THEM ON THE COLUMNS. PAY ALL ASSOCIATED COSTS. CO-ORDINATE WITH THE CIVIL TRADE TO ENSURE THAT NO ASSET NUMBERS ARE OBSCURED BY ROAD SIGNS.
17. PROVIDE TCCS COLUMN IDENTIFICATION PLATES AS PER DRAWING DS12-01-23.
18. PROVIDE EARTHING OF THE COLUMN ACCESS PANEL, ENSURE THAT THE CABLE HAS SUFFICIENT LENGTH TO LOWER TO COVER PLATE TO THE GROUND.
19. END MOUNT THE LUMINAIRE ONTO THE SPIGOT ON THE COLUMN. LOCK THE LUMINAIRE INTO POSITION AND WEATHER PROOF THE POINT OF ENTRY OF THE SPIGOT. PROVIDE SPIGOT ADAPTERS AS REQUIRED.

NEW CONTROL CUBICLES

20. PROVIDE NEW STREET LIGHTING CUBICLES AS SHOWN, TO TCCS REQUIREMENTS. THE NEW STREET LIGHTING CONTROL CUBICLE SHALL:
    - 20.1. HAVE PROVISION FOR A FUTRE PE CELL VIA A 7 PIN NEAM BASE AND ASSOCIATED EQUIPMENT FOR CONTROL OF THE GENERAL STREET LIGHTING CIRCUITS.
    - 20.2. INCLUDE THE INSTALLATION OF METERING EQUIPMENT.
21. PROVIDE ALL TRENCHING AND CONDUITING FOR THE NEW CUBICLE.
22. PROVIDE A PLINTH FOR THE CONTROL CUBICLE, TO TCCS REQUIREMENTS.
23. CABLING AND CONDUITING FROM THE EVO ENERGY NETWORK TO THE CONTROL CUBICLE SHALL BE PROVIDED AS PART OF THE CIVIL PACKAGE, CO-ORDINATE THE WORKS.
24. PROVIDE ASSET NUMBER PLATES FOR THE CUBICLES.

NEW ELECTRICAL INFRASTRUCTURE

25. PROVIDE ALL TRENCHING, BACKFILLING OR BORING FOR THE INSTALLATION OF CONDUITS. IT IS IMPORTANT TO NOTE THAT THERE ARE MANY EXISTING INGROUND SERVICES THROUGHOUT THIS PROJECT, PRIMARILY AT THE INTERSECTIONS. REFER TO THE UTILITY PLANS AND EXERCISE CAUTION WHILE UNDERTAKING ALL INGROUND WORKS.
26. ENSURE THAT APPROPRIATE PROTECTIONS ARE PROVIDED FOR OPEN TRENCHES AND PITS. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY TRAFFIC MANAGEMENT PLANS AS REQUIRED TO UNDERTAKE THE WORKS. PAY ALL ASSOCIATED FEES FOR APPROVALS AND EQUIPMENT.
27. PROVIDE NEW 1x4c/16mm² Cu XLPE /PVC CABLES TO ALL NEW AND EXISTING STREET LIGHTING COLUMNS, UNLESS SHOWN OTHERWISE.
28. PROVIDE NEW 1x2c/16mm² Cu XLPE /PVC CABLES TO ALL NEW AND EXISTING PATHWAY LIGHTING COLUMNS OR UNDERPASS LUMINAIRES, UNLESS SHOWN OTHERWISE.
29. PROVIDE NEW 1x4c/16mm² + 6mm² EARTH Cu XLPE /PVC CABLES FROM THE TRAFFIC SIGNAL CONTROL CUBICLES TO THE COMBINED LIGHTING COLUMNS. THE STREET LIGHTING SUPPLY SHALL BE A SEPARATE CIRCUIT AND CIRCUIT BREAKER TO THE TRAFFIC SIGNAL CIRCUIT. CONDUIT FOR THE STREET LIGHTING CABLE SHALL BE PROVIDED BY THE TRAFFIC SIGNAL CONTRACTOR, REFER TO THE CIVIL DRAWINGS FOR DETAILS AND CO-ORDINATE THE WORKS. THE STREET LIGHTING CABLING SHALL BE CLEARLY IDENTIFIED AS THE STREET LIGHTING CIRCUIT. CO-ORDINATE ALL WORKS WITH THE TRAFFIC SIGNAL CONTRACTOR.
30. PROVIDE ALL INGROUND CONDUITING AS SHOWN ON THE DRAWINGS. CO-ORDINATE ALL INGROUND WORKS WITH OTHER TRADES, IN PARTICULAR STORMWATER AND DRAINAGE.
31. PROVIDE CONDUITING AS REQUIRED FOR ALL CABLE RETICULATION THROUGH BARRIERS.
32. PROVIDE SURFACE STEEL CONDUIT AT BRIDGES AND UNDERPASSES AS SHOWN ON THE DRAWINGS OR WHERE CONDUITING CANNOT BE CONCEALED WITHIN THE GROUND OR STRUCTURE.
33. THE REQUIREMENTS FOR ALL CABLING IS AS FOLLOWS:
    - 33.1. ALL CABLING IS TO BE DOUBLE INSULATED.
    - 33.2. FOR THREE PHASE CIRCUITS, TERMINATE ALTERNATE PHASES IN EACH SUCCESSIVE COLUMN. BALANCE THE LOAD ACROSS THE THREE PHASES.
    - 33.3. ALL UNDERGROUND CABLING SHALL BE INSTALLED IN 50mmØ HDUPVC ORANGE CONDUITS, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
    - 33.4. CONDUITS ARE TYPICALLY TO BE INSTALLED AT A SETBACK 300mm GREATER THAN THE STREET LIGHTING COLUMNS UNLESS NOTED OTHERWISE. PROVIDE END CAPS AS SHOWN AND AS REQUIRED.
    - 33.5. THE CONTRACTOR MAY USE EXISTING STREET LIGHTING CABLE ON APPROVAL FROM THE SUPERINTENDENT AND PROVIDING IT MEETS THE REQUIREMENTS OUTLINED ABOVE. CABLE JOINTS SHALL NOT BE ACCEPTED.
    - 33.6. CO-ORDINATE THE INSTALLATION WITH OTHER INGROUND SERVICES.
34. PROVIDE ADDITIONAL CABLING AND CONDUITING TO MODIFY AND EXTEND EXISTING CIRCUITS AS SHOWN ON THE DRAWINGS. DO NOT PROVIDE ANY CABLE JOINT. WHERE THE REVISED CABLE IS LONGER THAN THE EXISTING, PROVIDE A NEW CABLE.

GENERAL

35. PRIOR TO UNDERTAKING ANY WORKS, LIAISE WITH TCCS TO ADVISE OF THE PROJECT AND THE EXPECTED PROGRAM OF WORKS. AN INITIAL SITE VISIT WITH TCCS MAY BE REQUIRED AT TCCS' REQUEST.
36. ANY ALTERNATIVE EQUIPMENT PROPOSED BY THE CONTRACTOR SHALL BE APPROVED BY THE SUPERINTENDENT PRIOR TO UNDERTAKING ANY WORKS OR ORDERING ANY EQUIPMENT. WHERE AN ALTERNATIVE ITEM IS PROPOSED BY THE CONTRACTOR, THE CONTRACTOR SHALL UNDERTAKE AND PROVIDE EVIDENCE OF ALL CALCULATIONS AND SIMULATIONS TO ENSURE COMPLIANCE WITH AUSTRALIAN AND TCCS STANDARDS. THE CONTRACTOR SHALL ALSO PROVIDE PHYSICAL SAMPLES, TECHNICAL DOCUMENTATION AND DRAWINGS OF THE PROPOSED EQUIPMENT.
37. ENSURE THAT THE EXISTING STREET LIGHTING IS OPERATIONAL DURING THE CONSTRUCTION PERIOD. ANY REQUIRED OUTAGES SHALL BE APPROVED IN WRITING BY ROADS ACT.
38. THE CONTRACTOR SHALL PREPARE A PROGRAM FOR ALL PROPOSED POWER OUTAGES FOR THE WORKS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LIAISON WITH EVO ENERGY REGARDING THE ISOLATION OF SUPPLY TO THE WORKS SITE AND SHALL AGREE THE PROGRAM OF ISOLATION WITH EVO ENERGY A MINIMUM OF TWO WEEKS PRIOR TO THE COMMENCEMENT OF FIELD WORKS.
39. MAINTAIN THE EXISTING STREET LIGHTING AT NIGHT DURING THE CONSTRUCTION PERIOD AND CHANGE OVER PERIOD. REFER TO CIVIL DRAWINGS FOR STAGING AND TRAFFIC MANAGEMENT. ALTERNATELY, PROVIDE TEMPORARY LIGHTING. ALL TEMPORARY LIGHTING SHALL BE APPROVED BY THE SUPERINTENDENT.
40. ALL WORKS SHALL BE CARRIED OUT TO CONFORM WITH THE FOLLOWING STANDARDS:
    - 40.1. TCCS MUNICIPAL INFRASTRUCTURE TECHNICAL SPECIFICATION (MITS) 12 PUBLIC LIGHTING.
    - 40.2. TCCS MUNICIPAL INFRASTRUCTURE DESIGN STANDARD (MIS) 14 PUBLIC LIGHTING.
    - 40.3. AS/NZS 3000 - WIRING RULES.
    - 40.4. AS/NZS 3017 - ELECTRICAL INSTALLATIONS - VERIFICATION GUIDELINES.
    - 40.5. ACTPLA ELECTRICAL NOTE 2
    - 40.6. EVO ENERGY REQUIREMENTS.
    - 40.7. AS/NZS 1158 (SET)
41. ENSURE THAT APPROPRIATE PROTECTIONS ARE PROVIDED FOR OPEN TRENCHES AND PITS.
42. ENSURE THAT APPROPRIATE MEASURES AND SAFETY PRECAUTIONS ARE TAKEN WHILE WORKING AT HIGH LEVELS.
43. FOLLOW THE CORRECT SAFETY PROCEDURES AND RULES ON SITE AS ADVISED BY THE SUPERINTENDENT.
44. COMPLY WITH THE REQUIREMENTS OF NATIONAL STANDARD FOR CONSTRUCTION WORK (NOHSC: 1016) AND NATIONAL CODE OF PRACTICE FOR THE CONSTRUCTION INDUSTRY.
45. CO-ORDINATE THE WORK WITH EVO ENERGY AND THE CIVIL CONTRACTOR.
46. SPECIAL ATTENTION IS MADE TO ELECTRICAL NOTE 2 BY ACTPLA. PROVIDE MEN POINTS AND EARTH CONNECTIONS AS SPECIFIED IN THE NOTE.
47. TEST THE INSTALLATION AS REQUIRED BY AS/NZS 3000 AND AS/NZS 3017 AT THE COMPLETION OF THE INSTALLATION.
48. PROVISION OF A CERTIFICATE OF ELECTRICAL SAFETY (CES) FORM TO THE ELECTRICAL INSPECTOR FOR EACH OF THE FOLLOWING, AS A MINIMUM. PAY ALL ASSOCIATED COSTS FOR EACH CES REQUIRED.
    - 48.1. NEW STREET LIGHTING CONTROL CUBICLES.
    - 48.2. ALL STREET LIGHTS SUPPLIED FROM A CONTROL CUBICLE.
    - 48.3. ALL STREET LIGHTS SUPPLIED FROM AN ALTERNATIVE SOURCE (MINIPILLAR ETC) WITH INTEGRAL PE CELL OPERATION.
    - 48.4. ALL STREET LIGHTS WHICH HAVE BEEN REPAIRED, REPLACED OR ALTERED.
49. PROVIDE A COPY OF ALL TESTS UNDERTAKEN ON THE PROJECT (IN ACCORDANCE WITH AS/NZS 3000 AND AS/NZS 3017) TO TCCS FOR THEIR RECORDS.
50. PROVIDE WORK AS EXECUTED (WAE) IN ACCORDANCE WITH COMMUNITY AND INFRASTRUCTURE SERVICES NETWORK QUALITY SYSTEM REF No. 08 REQUIREMENTS FOR WORKS AS EXECUTED QUALITY RECORDS.
51. PROVIDE A COPY OF THE WAE DRAWINGS TO TCCS.
52. PROVIDE TECHNICAL DETAILS AND OPERATIONS MANUALS, TO TCCS, FOR ALL ITEMS WHICH ARE NOT PART OF TCCS STANDARD ITEMS. THIS INCLUDES (BUT IS NOT LIMITED TO) THE FOLLOWING:
    - 52.1. NON-STANDARD LUMINAIRES,
    - 52.2. NON-STANDARD COLUMNS.
53. ONCE THE OPERATIONAL ACCEPTANCE CERTIFICATE IS ISSUED, THE MANAGER (QC) WILL REQUEST TCCS ASSET ACCEPTANCE. THE CONTRACTOR/CONSULTANT IS TO PROVIDE DRAWINGS IN THE FOLLOWING FORMATS: PDF, ELECTRONIC ACAD AND HARD COPY. REFER TO REF 06 OR 08 FOR TCCS WAE REQUIREMENTS. WHEN THE WAE DRAWINGS ARE VERIFIED BY TCCS STANDARDS AND THE DATA QUALITY OFFICER APPROVES CONNECTION OF THE NEW STREETLIGHTS TO STREETLIGHTING NETWORK, THIS INFORMATION IS FORWARDED TO ACTEWAGL FOR CONNECTION. THE SUPERINTENDENT IS TO PROVIDE THE REQUEST FOR ELECTRICAL CONNECTION AT THE SUPERINTENDENTS EXPENSE. ACTEWAGL TO PROVIDE CONNECTION(S) TO THE NEW STREET LIGHTING. THE CONTRACTOR IS ALSO TO PROVIDE TWO SETS OF KEYS TO ANY LOCKS (EG. CONTROL CUBICLES), ANY OPERATIONS AND MAINTENANCE MANUALS INCLUDING MANUFACTURERS DOCUMENTS/DRAWINGS AND RECORDS OF FAULT LOOP IMPEDANCE, INSULATION PROTECTION AND CIRCUIT PROTECTION TESTS PRIOR TO HAND OVER.
54. TCCS ASSET NUMBERS ARE TO BE INSTALLED PRIOR TO ENERGISATION.
55. MAINTAIN THE WORKS FOR THE 12 MONTHS DEFECTS LIABILITY PERIOD.
56. PAY ALL FEES ASSOCIATED WITH APPLICATIONS, INSPECTIONS, APPROVALS AND UPDATING OF INFORMATION.
57. ANY DAMAGE CAUSED BY THE CONTRACTOR, OR THEIR SUB-CONTRACTORS, SHALL BE RECTIFIED AT THE CONTRACTORS EXPENSE.

Rev.	Date	Details and Status	By	Rev.	Date	Details and Status	By
02	08.03.24	REISSUE FOR DRAFT DR	JT				
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NOT FOR TENDER

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Designed	Reviewed / Date	Approved / Date
A. Bencke	M. O'Connor 08.03.24	A. Bencke 08.03.24
Drawn	AutoCAD Drawing	
J. Thilakasiri	120114-E010 [02]	

Client: SMEC AUSTRALIA PTY LTD

Project: WILLIAM HOVELL DRIVE DUPLICATION

Drawing Title: SCOPE OF WORKS ELECTRICAL SERVICES

Scale	Sht.Size	Drawing No.	Rev.
N.T.S.	A1	120114-E010	02

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