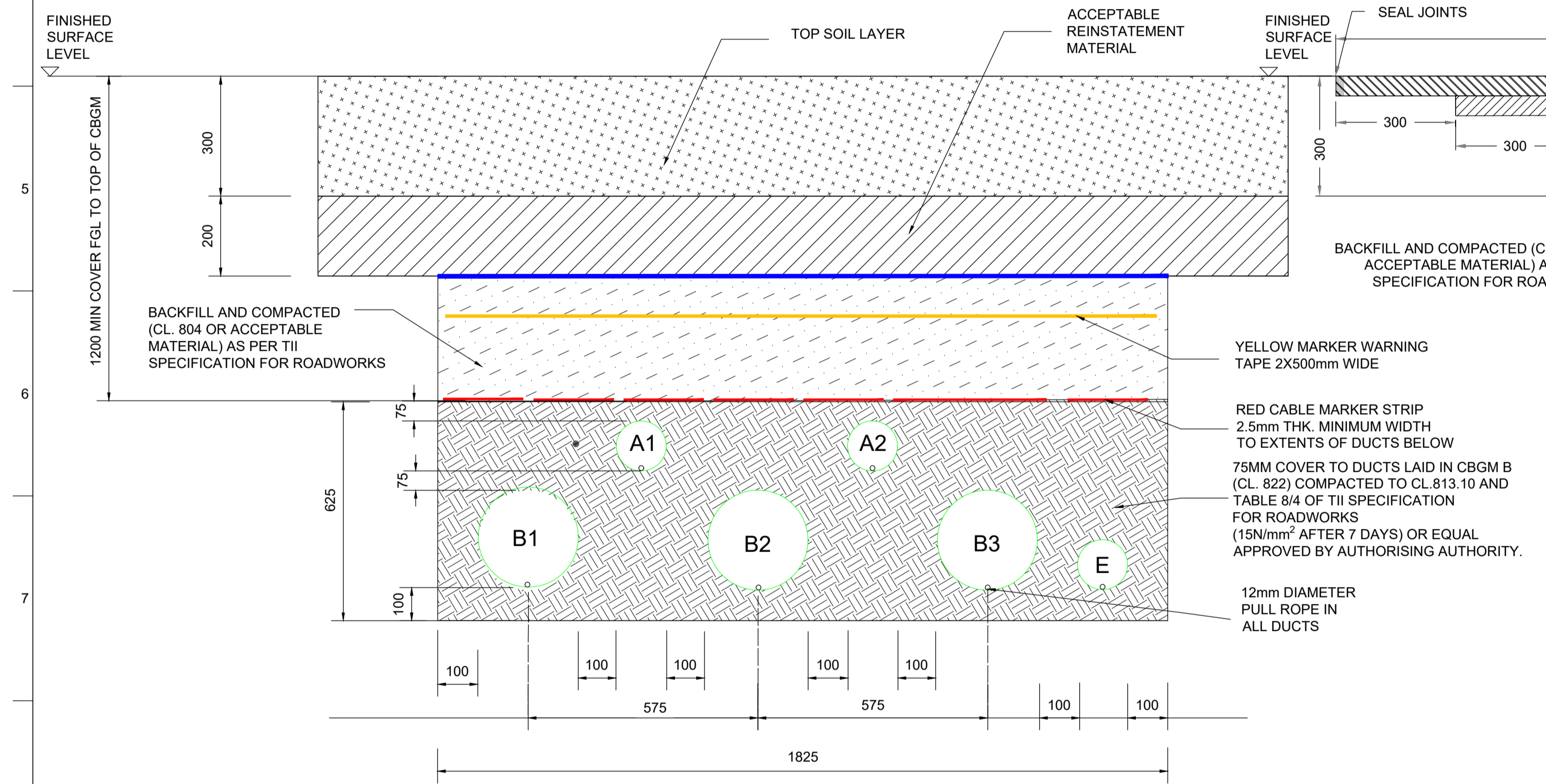
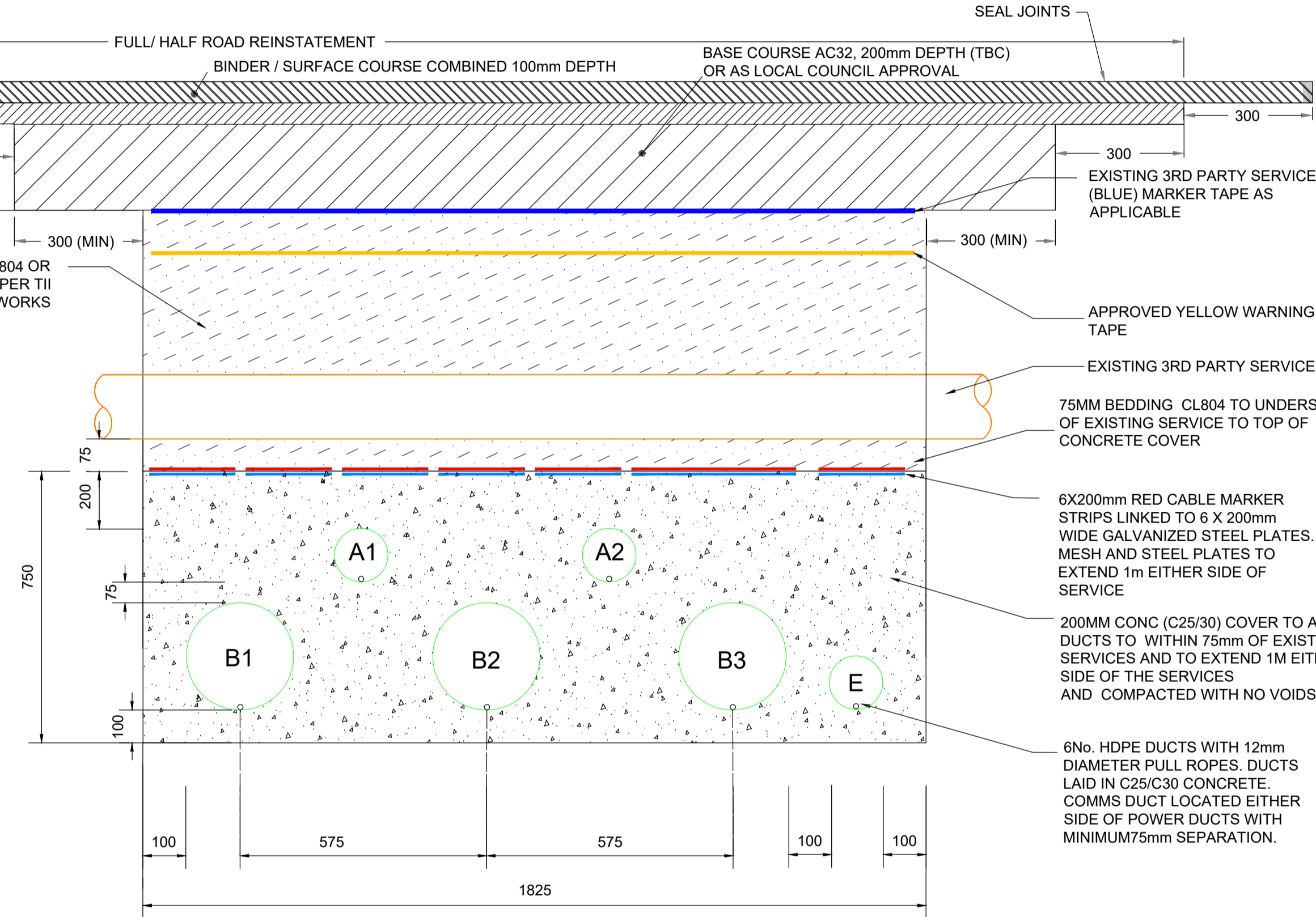


**TRANSITION OF 220KV CIRCUIT TO FLAT FORMATION UNDER 3RD PARTY SERVICE**  
**TYPICAL CROSS-SECTION**  
 NOT TO SCALE



**SECTION B-B**  
**OFF ROAD - TYPICAL CROSS SECTION INDICATING TRENCH FOR**  
**220KV CIRCUIT IN ROAD VERGES (FLAT FORMATION)**  
**CBGM COVER**



**SECTION A-A**  
**ON ROAD - TYPICAL CROSS SECTION INDICATING TRENCH FOR**  
**220KV CIRCUIT IN FLAT FORMATION UNDER 3RD PARTY SERVICE**  
**CONCRETE (C25/30) COVER**

**NOTES:**  
**ELECTRICAL CABLE DUCT 220KV HV DUCTING AND JOINTS (OR SIMILAR AND APPROVED)**  
**MAIN CABLE DUCT (250MM OD)** - SHALL BE 250MM OD - SDR21 HDPE (ESB APPROVED RED) ELECTRIC CABLE DUCT SMOOTH WALL DUCT IS MANUFACTURED FROM POLYETHYLENE (PE) IN ACCORDANCE WITH BS EN50086-2-4 (BS EN 61386-24:2010) AND CONFORM TO ESB CONFORM SPEC 16113 AND EIRGRID SPEC FOR POWER DUCTING.  
**JOINTS** - THE MAIN CABLE DUCT TO BE JOINED USING COMPATIBLE AND APPROVED MECHANICAL FITTINGS/PUSH-FIT COUPLERS. DOUBLE RING-AIRTIGHT SEAL COUPLERS CONNECTION TO EN 1401-1:1998/BS EN 681-1 TYPE WA  
**DIMENSIONS** - O.D. MIN-MAX 250.0-251.0MM, MIN. WALL THICKNESS INCLUDING SKIN 11.9-13.2MM, OVALITY MAX 3.0MM  
**LENGTHS** - 12M OR 6M, 9M, 13.5M AS PER ORDER.  
**MARKING** - PRINTLINE SHALL READ E.G. "DANGER ELECTRICITY CABLES - RADIUS 200MM SDR21 - 200J - DANGER ELECTRICITY CABLES - ESB SPEC 16113 REV8 - BATCH NUMBER - LINE NUMBER"  
**TELECOMMUNICATION AND EARTH BOND DUCTING AND JOINTS. (OR SIMILAR AND APPROVED)**  
**MAIN CABLE DUCT (125MM OD)** - 125MM OD HDPE SMOOTH INNER WALL DUCT TO BSI KITEMARK, BBA APPROVED, ENA TS 12-24 CERTIFICATION/BS EN 61386-24  
**JOINTS** - DUCTING TO BE JOINED USING COMPATIBLE AND APPROVED MECHANICAL FITTINGS/PUSH-FIT AIRTIGHT - SEAL COUPLERS COUPLERS AS PER MANUFACTURES DATA.  
**LENGTHS** STANDARD PIPE OR COIL LENGTHS  
**MARKING** - DUCT MARKING FOR EARTH BOND AND TELECOMMUNICATIONS ELECTRICITY IS PRINTED "ELECTRIC CABLE". ENATS C2 IS PRINTED IN ACCORDANCE TO ENA TS 12-24  
**ELECTRICAL INSTALLATION AND TESTING**  
 ALL ELECTRICAL WORKS INCLUDING EARTH BONDING SHALL BE AS PER ELECTRICAL ENGINEER DESIGN

**NOTES:**  
 A. ALL PRODUCTS TO BE UTILISED DURING CONSTRUCTION TO COMPLY WITH EIRGRID FUNCTIONAL SPECIFICATION, TII SPECIFICATION FOR ROAD WORKS AND ALL RELEVANT IRISH (EUROPEAN) AND BRITISH STANDARDS.  
 B. 300mm MINIMUM VERTICAL AND HORIZONTAL CLEARANCES TO BE OBSERVED BETWEEN CABLE DUCTS AND THIRD PARTY SERVICES (e.g. GAS PIPES (600mm MIN CLEARANCE), WATER MAINS, CULVERTS etc.) IN THE CASE OF HIGH RISK 3RD PARTY SERVICES, GREATER CLEARANCES MAY BE REQUIRED. DESIGNER TO CONSULT 3RD PARTY SERVICE OWNERS FOR GUIDANCE.  
 C. WHERE REQUIRED STEEL PLATES MUST COVER DUCTS. NO OVERLAP IS REQUIRED HOWEVER STANDARD DIMENSIONS MAY RESULT IN AN OVERLAP. SPACING OF 25mm TO BE MAINTAINED BETWEEN STEEL PLATES TO PREVENT THE TRANSFER OF STRAY CURRENT.  
 D. THE MINIMUM CLEARANCE BETWEEN ALL HV AND COMMUNICATION DUCTS IS 75mm, BUT INCREASED SPACING MAY BE REQUIRED IN ORDER TO ACHIEVE THE CABLE RATING (TO BE CONFIRMED BY ELECTRICAL DESIGNER CABLE RATING CALCULATIONS).  
 E. DRAWING IS INDICATIVE ONLY. TO BE USED TO AID IN THE DESIGN OF RELEVANT INFRASTRUCTURE.  
 F. TEMPLATES ARE TO BE USED AT 5m INTERVALS DURING DUCT INSTALLATION IN CBGM. PRE-MADE 75mm/100mm WIDE CONCRETE SPACERS (OR SIMILAR APPROVED) TO BE USED DURING DUCT INSTALLATION IN WET CONCRETE.  
 G. HAND DIG WITHIN 500mm OF EXISTING SERVICE.  
 H. EARTH CONTINUITY CONDUCTOR IS A MIN 125mm DUCT TO BE INSTALLED OUTSIDE OF PHASE DUCT.  
 I. IF EXISTING SERVICE MARKER TAPE IS NOT PRESENT THE YELLOW MARKER TAPE SHOULD BE INSTALLED A MAXIMUM OF 300mm BELOW FINISHED SURFACE LEVEL.  
 J. IN BITUMINOUS AND CONCRETE ROAD SURFACES AND FOOTWAYS, THE TRENCH LINES SHALL INITIALLY BE CUT USING A ROAD SAW, CONCRETE SAW OR EQUIVALENT MECHANICAL MEANS TO THE FULL DEPTH OF THE BITUMINOUS OR CONCRETE MATERIAL PRIOR TO ANY EXCAVATION WORKS

- A= 125mm O.D. HDPE DUCT FOR COMMUNICATIONS, SDR=17.6
- B= 250mm O.D. HDPE DUCT FOR HV CABLE, SDR=21
- E= 125mm O.D. HDPE DUCT FOR EARTH CONTINUITY CONDUCTOR, SDR=17.6
- RED MARKER STRIP
- YELLOW MARKER WARNING TAPE
- EXISTING SERVICE MARKER STRIP
- 6mm GALVANISED STEEL PLATE
- RAPID HARDENING WET CONCRETE C25/30
- CBGM B (CL. 822). COMPACTED TO CL 813.10
- BACKFILL COMPACTED (CL. 804 OR ACCEPTABLE MATERIAL)
- TOP SOIL
- ACCEPTABLE REINSTATEMENT MATERIAL

PL1	22.03.21	SB	SO'S	MW
Rev	Date	By	Chkd	Appd

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**Sure Partners Limited**  
 Design Consultant  
**AECOM**  
 Project Title  
**Arklow Bank Wind Park**  
**Phase 2**  
**Onshore Grid Infrastructure**

Drawing Title  
**Typical Utility Crossing Details**  
 Sheet 1 of 2

Scale at A1 As Shown  
 Role Civil  
 Suitability Planning  
 Arup Job No **271715-00** Rev **PL1**  
 Name **ONS-GEN-005a**