**Inspection and test plan – Fire Service Installation & Commissioning**

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| **Project no.** | **CC0394** | **Project name** | Rangebank 200MW BESS | | **Date** | 20/07/2023 | | **RJE Approval** |  |
| **ITP no.** | CC0394-ITP-009 | **Revision date** | 12/10/2023 | **Plant and equipment used** | | | Excavator, Tandem, Truck & Trailers, DPU, pressure testing equipment, plumbing equipment | | |
| **Lot no.** |  | **Location (chainages, detailed description or marked up plan)** | | | | |  | | |

|  |  |  |  |  | **Verification of acceptance by** | | | | | **Remarks/record (e.g. Test frequency reports, certificates, checklist etc.)** |
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|  |  |  |  |  | **Symal** | | | **RJE Ltd.** | |
| **Item no.** | **Activity** | **Ref docs** | **Acceptance criteria** | **Acceptance** | **Key** | **Resp** | **Initial/ date** | **Key** | **Sign/ date** |
| **1.0 Preliminaries** | | | | | | | | | | |
| **1.1** | **Determine Lot Size** | AS3500 | Pipe / lot length:  ­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | See Work Lot Map  Yes  No  N/A |  | SE |  |  |  | Work Lot Map |
| **1.2** | **Survey Set-out** | IFC Drawings | Prior to excavations being carried out, the contractor shall engage a suitably qualified surveyor to set out all fire lines including hydrants and risers. | Yes  No  N/A | W | SE |  |  |  |  |
| **1.3** | **Approved Material Type** | IFC Drawings  AS3500 | All materials selected in accordance with AS4130 and RJE civil specification and drawings. | Yes  No  N/A | H | SE |  |  |  |  |
| **2.0 In Process Works** | | | | | | | | | | |
| **2.1** | **Excavation** | IFC Drawings  AS3500  Excavation permit | All excavations subject to inspection prior to the installation of services and throughout the duration of the excavation.  Excavate to the lines, levels and grades as required for in ground services specified in accordance with the requirements of AS 3500. | Yes  No  N/A | S | SE |  |  |  |  |
| **2.2** | **Removal of Obstructions** | IFC Drawings and specifications | Remove obstructions including roots, stumps, boulders, and the like which may, in the opinion of Symal, interfere with the proper functioning of the service. | Yes  No  N/A | S | SE |  |  |  |  |
| **2.3** | **Bedding** | IFC Drawings and specifications | Pipes should be bedded and supported by class 3 quarry material with a minimum thickness of 75mm.  5-10mm crushed rock or sand shall be used as the haunching material. | Yes  No  N/A | S | SE |  |  |  |  |
| **3.0 Installation of pipes** | | | | | | | | | | |
| **3.1** | **Pipe Installation** | IFC Drawings and specifications | Work shall be carried out by and under the direct supervision of appropriately licenced personnel.  During construction, temporarily seal open ends of pipes and valves to prevent the entry of foreign matter into pipe systems.  Install piping in straight lines at uniform grades without sags. | Yes  No  N/A | S | SE |  |  |  |  |
| **3.2** | **Electrofusion Weld fittings/pipe/couplings** | as per manufacturers recommendations | Ensure pipe is cleaned and scraped prior to welding.  Ensure pipe is fixed firmly in position.  Allow curing time as per specific fittings recommendations,  Visually check all fittings have been welded. | Prior to Backfilling | w | SE |  |  |  | Electrofusion welder calibration certificate. |
| **3.3** | **Cover** | IFC Drawings and specifications  AS3500.1 | **Minimum depth of cover for buried pipes:**   * 600mm to finished surface. | Yes  No  N/A | H | SE |  |  |  | As-Built Attached |
| **4.0 Backfill** | | |  |  |  |  |  |  |  |  |
| **4.1** | **Backfill Material** | IFC Drawings and specifications  AS3500 | After pipes & fittings have been set in the correct position and jointed, further bedding material shall be used to fill all recesses below sockets, and bottoms of trenches.  Trench backfilled with selected clean excavated material, or the purchased material bought to site.  5mm Dust Compliant for bedding  **BACKFILL Overlay WITH 20mm nominal size class 3 crushed rock** | Yes  No  N/A | S | SE |  |  |  | Material dockets |
| **4.2** | **Layer Thickness** | IFC Drawings  AS3500 | Backfill material must be placed and compacted in layers not exceeding 300mm.  Backfill trenches as soon as possible after approval of laid and bedded service.  Allow adequate cover over pipe (minimum 600mm) | Yes  No  N/A | H | SE |  |  |  |  |
| **4.3** | **Compaction** | IFC Drawings  AS1289 | Compaction to be undertaken using hand methods only for first 300mm. | Yes  No  N/A | S | SE |  |  |  |  |
| **4.4** | **Preliminary Pressure testing** | IFC Drawings  RJE NOE  AS3500.1 | Sign-off items 1.0 – 4.3.  RJE NOE  Complete Hydrostatic test for 2 Hours @ 1700kpa. Pressure deviation to be not more than +/- 35Kpa. | Yes  No  N/A | H | SE |  | H |  | RJE NOE |
| **5.0 Fire Hydrant Install** | | | | | | | | | | |
| **5.1** | **Survey set-out** | IFC Drawings | Prior to the commencement of works, the contractor shall engage a suitably qualified surveyor to set out the works and clearly mark its limits. | Yes  No  N/A | W | SE |  |  |  |  |
| **5.2** | **Approved Material Type** | IFC Drawings  AS3500 | Materials used for the installation of Hydrants to be in accordance with AS3500 | Yes  No  N/A | H | SE |  |  |  |  |
| **5.3** | **Fire Hydrant Install** | IFC Drawings | Ensure fire hydrants are located such that they do not impact vehicle access.  Bollards are to be installed for physical protection.  Confirm valve operability. | Yes  No  N/A | S | SE |  |  |  |  |
| **6.0 Conformance Check** | | |  |  |  |  |  |  |  |  |
| **6.1** | **Clean & Finish** | IFC Drawings | On completion, each line shall be free from dirt, debris, or other impediments. | Yes  No  N/A | S | SE |  |  |  |  |
| **6.2** | **Testing** | AS3500.1 | All pipe and hydrants to be pressure tested in accordance with AS3500.1  Complete Hydrostatic test for 2 Hours @ 1700kpa | Yes  No  N/A | H | SE |  | H |  | Test certification  Calibration certificates |
| **6.3** | **As-Builts** | IFC Drawings | Accurately record the routes of all underground pipes before backfilling. | Yes  No  N/A | H | SE |  |  |  | As-Built Attached |

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| **Works complete (signer SS)** | |  | | | **Date works complete** | |  | | | |
| **Lot conforms (signer SE)** |  | | **Date lot closed** |  | | **NCR/s no. raised** | |  | **Date NCR closed for this lot** |  |

**Responsibility (Resp.) Key**: **PM**-Project Manager, **PE**-Project Engineer, **SE**- Site Engineer, **CS**-Civil Superintendent, **SS**-Site Supervisor, S**V**-Surveyor, **CR**-Client Representative

**Inspection Key : W –** Witness, **H –** Hold Point, **S -** Surveillance