**INSPECTION AND TEST PLAN (ITP)**

**Bollard Installation**

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| Document Information | | | | | |
| Title | Inspection and Test Plan (ITP) – Bollard Installation | | | | |
| Number | HPP-UGL-CIV-GN-GEN-ITP-0021 | | | | |
| Revision | 0 | | | | |
| Revision Information | | | | | |
| Revision | Date | Description | Author | Reviewer | Approver |
| 0 | 8 November 2024 | Issued For Use | G.Nuss | G.Nuss | G.Wilkinson |
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| Contact Details | | Summary of Requirements | | Principle Codes / Standards | | Records |
| **Project Engineer: Quality Representative:** | | **Process Qualifications** | |  | | **(MDR Insert as marked ◻ )**   * Inspect Release Certs. * Deviations/Concessions * Material Certificates * Conformance Certificate * Welding Records * Welder Qual. Register * NDT Reports * Report on Repairs * Heat Treatment Records * Dimensional Records * Non-Conformance Rpts * Pressure Test Records * Drawings & Data Sheets * Misc Verification Records * Electrical Test Sheets |
| Subcontractors | | **Traceability:** | | **Client Specifications** | |
| HPP-AEC-CIV-GN-GEN-SPT-0161 QUALITY (CONSTRUCTION)  HPP-AEC-CIV-GN-GEN-SPT-0319 MINOR CONCRETE WORKS | |
| ACG  ACW | | Material: Alloy Verification | |
| Heat Treatment: Pressure Testing | |
| Consumable: NDT: | |
| Welder ID: WPS: | |
| Electrical: Instruments | |
| Surveillance / Inspection Key | |
| **HOLD POINT (H):** Nominated point beyond which work shall not proceed without verified acceptance by nominee. | | **Heat Treatment: Dimensional Control:** | |
| **WITNESS POINT (W):** Points at which the nominee shall be notified and invited to witness an activity, but further work may proceed without the presence of the nominee. | | **Testing (NDT): Acceptance Specification:** | |
| **REVIEW (R): Verify** by examination of documentary evidence that inspection / tests have been satisfactorily conducted. | | **Pressure Testing:**  **Elect. / Instrumentation:** | |
| **SURVEILLANCE (S): Continuing** evaluation of the status of methods, analysis of records and monitoring of activities on a random basis to ensure quality requirements will be met. | |  | |
| Notes: | |
| **VISUAL (V): 100**% Visual Inspection of work / item to ensure compliance with code / specification. | |  | |
| **Engineering Procedures / WI** | |
| **DIMENSIONAL (D): Measurement** of critical dimensions to ensure work / item is within tolerance | |  | |  | |
| Prepared by: | Graham Nuss | Date: 8/11/2024 | Approved By: Grant Wilkinson | | Date : 8/11/2024 |  |

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|  | | | | | **Verification of acceptance by** | | | | | | **Remarks / record (eg. test frequency, reports, certificates,**  **checklist etc)** |
| **NA** | | **HPP Con.** | | **HPP QA** | |
| **Item no.** | **Activity** | **Ref docs** | **Acceptance criteria** | **Acceptance** | **Key** | **Sign date** | **Key** | **Sign date** | **Key** | **Sign date** |
| 1. **Preliminaries** | | | | | | | | | | | |
| **1.1** | Documentation | Issued drawings / Site copy drawings | Check that you have the latest site and engineering drawings BEFORE starting each task/set of tasks. | * Yes ☐ No   + N/A |  |  | S |  | S |  |  |
| **1.2** | Lot Traceability | Spec. 0161  Quality [Cl 7.3] | Prepare a lot map for traceability of the work area. | * Yes ☐ No   + N/A |  |  | S |  | S |  | Lot Map |
| **1.3** | Confirm Bollard Type | Drawings | Confirm bollard type as detailed on the drawings. | * Yes ☐ No   + N/A |  |  | S |  | S |  | Checklist |
| 1.4 | Setout bollard location | Drawings | Setout bollard at locations as detailed on the drawings | * Yes ☐ No * N/A |  |  | S |  | S |  | Checklist |
| 1.5 | Excavation Permit | Drawings | Ensure approved excavation permit is in place and review on site – if required | * Yes ☐ No * N/A |  |  | S |  | S |  | Checklist |
|  | | | | | | | | | | | |
| **2.1** | Location | Drawings | Confirm location and place setout offset marks | * Yes ☐ No   + N/A |  |  | S |  | S |  | Checklist |
| **2.2** | Underground utilities | Drawings | Check utilities to avoid footing clashing | * Yes ☐ No   + N/A |  |  | S |  | S |  | Checklist |

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|  | | | | | | | | | | **Verification of acceptance by** | | | | | | | | | | | | **Remarks / record (eg. test frequency, reports, certificates,**  **checklist etc)** | | |
| **NA** | | | **HPP Con.** | | | | | **HPP QA** | | | |
| **Item no.** | | **Activity** | | | **Ref docs** | | **Acceptance criteria** | **Acceptance** | | **Key** | | **Sign date** | **Key** | | **Sign date** | | | **Key** | **Sign date** | |  | | |
| **3.0 Installation Process - In concrete** | | | | | | | | | | | | | | | | | | | | | | | | |
| **3.1** | | Anchors | | | Drawings | | Install specified anchor bolts following manufacturers requirements | * Yes ☐ No   N/A | | S | | NA | S | |  | | | S |  | | Checklist | | |
| **4.0 Installation Process - In pavement** | | | | | | | | | | | | | | | | | | | | | | | | |
| **4.1** | | Excavation | | | Drawings | | Vacuum excavate site according to bollard specifications (depth and width based on bollard type and use case) | * Yes ☐ No   N/A | | S | | NA | S | |  | | | S |  | | Checklist | | |
| **4.2** | | Placement | | | Drawings | | Position and secure bollard or sleeve in hole before pouring concrete | * Yes ☐ No   N/A | | S | | NA | S | |  | | | S |  | | Checklist | | |
| **4.3** | | Concrete - footing | | | Drawings | | Fill N32 concrete around bollard foundation, slope the top of concrete down away from bollard all round | * Yes ☐ No   N/A | | S | | NA | S | |  | | | S |  | | Checklist | | |
| **5.0 Finishes** | | | | | | | | | | | | | | | | | | | | | | | | |
| **5.1** | | Eyelets | | | Drawings | | Install eyelets in locations shown on drawings | * Yes ☐ No   N/A | | S | | NA | S | |  | | | S |  | | Checklist | | |
| **5.2** | | Concrete - bollard | | | Drawings | | Fill bollard with concrete – if detailed on the drawings | * Yes ☐ No   N/A | | S | | NA | S | |  | | | S |  | | Checklist | | |
| **5.2** | | Final Inspection | | | Drawings | | Inspect bollard and apply touch up paint to any damaged areas | * Yes ☐ No   N/A | | S | | NA | S | |  | | | S |  | | Checklist | | |
| **6.0 Acceptance of Works** | | | | | | | | | | | | | | | | | | | | | | | |
| **6.1** | | Acceptance and closure of non-  conforming items | Spec. 0161 Quality [Cl 3.8] | | NCRs to be opened for non-conforming items and closed prior to closing construction lot. **HOLD POINT** | | * Yes ☐ No   + N/A |  | | NA | | | **H** | |  | **H** | | |  | | |  | |

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| HPP Construction representative name |  | HPP Quality representative name |  | Date |  |
| HPP Construction representative signature |  | HPP Quality representative signature |  | Date |  |

**ITC – Bollard Installation**

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| **Project no.** | HPP | **Project name** | Hunter Power Project | | **Date** |  |
| **ITP no.** |  | | | | | |
| **Lot no.** |  | | | | **Sub Lot no.** |  |
| **Location Description**  **(chainages, detailed description or marked up plan)** | | | |  | | |

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|  |  | Item Conforms | |  |
| Step | Activity | Sign | Date | Comments |
| 1. **Preliminaries** | | | | |
| 1.1 | Confirm correct bollard type for intended use (removable, fixed, collapsible, etc.) |  | | |
|  | TYPE 1 - Removeable 90mm Padlock Surface Mounted (Code: B90-SM-PL-REM-Y) |  |  |  |
|  | TYPE 2 - Removeable 90mm Padlock with free mounting Sleeve Base Code: B90-IG-REM-PL-Y) |  |  |  |
|  | TYPE 3 - Bolted 165mm Surface Mounted (Code: B165-DP-SM-Y) |  |  |  |
|  | TYPE 4 - Fixed 90mm in ground (Code: B90-IG-Y) |  |  |  |
|  | TYPE 5 - Fixed 165mm in ground (Code: B165-DP-IG-Y) |  |  |  |
|  | TYPE 6 - Fixed 140mm in ground (Code: B140-IG-Y) |  |  |  |
| 1.2 | Review site plans for bollard placement locations |  |  |  |
| 1.3 | Setout bollard location |  |  |  |
| 1.4 | Ensure approved excavation permit in place and review on site |  |  |  |
| **2. Site Preparation** | | | | |
| 2.1 | Confirm location and place setout offset marks |  |  |  |
| 2.2 | Check utilities to avoid footing clashing |  |  |  |
| **3. Installation Process - In concrete** | | | | |
| 3.1 | Install specified anchor bolts following manufacturers requirements |  | | |
|  | TYPE 1 - 4 off - 10mm x 100mm long concrete anchors |  |  |  |
|  | TYPE 3 - 4 off - 14mm x 100mm long concrete anchors |  |  |  |
| **4. Installation Process - In pavement** | | | | |
| 4.1 | Vacuum excavate site according to bollard specifications (depth and width based on bollard type and use case) |  | | |
|  | TYPE 2 - 300mm diameter x 350mm deep |  |  |  |
|  | TYPE 4 - 300mm diameter x 450mm deep |  |  |  |
|  | TYPE 5 – 600mm diameter x 1000mm deep |  |  |  |
|  | TYPE 6 - 450mm diameter x 500mm deep |  |  |  |
| 4.2 | Position and secure bollard or sleeve in hole before pouring concrete |  |  |  |
| 4.3 | Fill N32 concrete around bollard foundation, slope the top of concrete down away from bollard all round |  |  |  |
| **5. Finishes** | | | | |
| 5.1 | Install eyelets in locations shown on drawings |  |  |  |
| 5.2 | Fill bollard with concrete |  | | |
|  | TYPE 3: Fill with concrete and place cap |  |  |  |
|  | TYPE 5: Fill with concrete and place cap |  |  |  |
|  | TYPE 6: Fill with concrete and place cap |  |  |  |
| 5.3 | Inspect bollard and apply touch up paint to any damaged areas |  |  |  |

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| Acceptance of works | | | | |
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| **HPP Construction Representative** |  | **Signature** |  | **Date** |
|  | | | | |
|  |  |  |  |  |
| **HPP Quality Representative** |  | **Signature** |  | **Date** |
| **Comments:** | | | | |
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