**Inspection and test plan – Kerb and channel**

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| **Project no.** | CC0375 | | **Project name** | Hunter Power Project | | | | | | **Date** |  |
| **Symal ITP no.** | | CC0375-ITP-006 | **Revision no.** | 5 | **Revision date** | 01/02/2023 | **Plant and equipment used** | |  | | |
| **UGL ITP no.** | | 3200-0663-HPP-QA-ITP-007 | | | | | **SHL ITP no.** | HPP-UGL-QUA-GN-GEN-ITP-0007 | | | |
| **Lot no.** | |  | **Location (chainages, detailed description or marked up plan)** | | | | |  | | | |

Attach Dockets, Certificates and QA Documents to ITP

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| Contact Details | | Summary of Requirements | | | Principle Codes / Standards | | Records | |
| **Customer:**  **Construction Manager:**  **Project Engineer:**  **Quality Representative:**  Subcontractors    Surveillance / Inspection Key  **HOLD POINT (H):** Nominated point beyond which work shall not proceed without verified acceptance by nominee.  **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.  **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.  **VISUAL (V): 100**% Visual Inspection of work / item to ensure compliance with code / specification.  **DIMENSIONAL (D): Measurement** of critical dimensions to ensure work / item is within tolerance. | | **Process Qualifications**  **Traceability:**  Material:  Alloy Verification  Heat Treatment:  Pressure Testing  Consumable:  NDT:  Welder ID:  WPS:  Electrical:  Instruments  **Heat Treatment:**  **Dimensional Control:**  **Testing (NDT):**  **Acceptance Specification:**  **Pressure Testing:**  **Elect. / Instrumentation:**  Notes: | | | **Client Specifications**  HPP-AEC-CIV-GN-GEN-SPT-0161\_0 QUALITY (CONSTRUCTION)  HPP-AEC-CIV-DD-SWS-SPT-1121\_0 OPEN DRAINS INCLUDING KERB AND CHANNEL  HPP-AEC-CIV-GN-GEN-SPT-0319\_0 MINOR CONCRETE WORKS  **Engineering Procedures / WI** | | **(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 | |
| Prepared by: | Steven Lee | | Date: 01/02/23 | Approved By: Joshua Fisicaro | | Date: 01/02/23 | |  |

|  | |  | |  |  |  | **Verification of acceptance by** | | | | | | **Remarks / record (eg. test frequency, reports, certificates, checklist etc)** | |
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|  | |  | |  |  |  | **Symal** | | **UGL** | | **SHL** | |
| **Item no.** | | **Activity** | | **Ref docs** | **Acceptance criteria** | **Acceptance** | **Key** | **Sign date** | **Key** | **Sign date** | **Key** | **Sign date** |
| **1.0 Preliminaries** | | | | | | | | | | | | | | |
| **1.1** | | Determine lot size | | Spec. 0161 Quality [Cl 7.3] | Lots to be broken up accordingly and outlined on a lot map | Yes  No  N/A | S |  | S |  | S |  | Lot map | |
| **1.2** | | Concrete Mix Design | | Spec. 1121 Open Drains [Cl 3.1] | Submission of Mix Design and compliance certificates for concrete constituents  **HOLD POINT** | Yes  No  N/A | **H** |  | **H** |  | **H** |  | Material conformance certificate | |
| **1.3** | | Joint Fillers & Sealants | | Spec. 1121 Open Drains [Cl 3.2] | Submission of Compliance Certificate for joint fillers and sealants  **HOLD POINT** | Yes  No  N/A | **H** |  | **H** |  | **H** |  | Material conformance certificate | |
| **1.4** | | Kerb & Gutter Methodology | | Spec. 1121 Open drain including K&C [Cl 4.3] | Construct kerb and channel in fixed forms, by extrusion or by slip forming to AS2876.  Submit details of method proposed including type of extrusion or slipform, concrete properties, equipment and finish.  **HOLD POINT**  **Notice: 14 working days prior to commencement on site** | Yes  No  N/A | **H** |  | **H** |  | **H** |  |  | |
| **1.5** | | Underlying Lot Conformance | | Underlying Lot ITP | Underlying services and/or assets have been installed prior to commencing works over and/or above.  Refer underlying lot ITP(s) | Yes  No  N/A | S |  | S |  | S |  |  | |
| **1.6** | | Survey set out | | Drawings | Set out the alignment and level of the kerb | Yes  No  N/A | S |  | S |  | S |  |  | |
| **2.0 Kerb and channel placement** | | | | | | | | | | | | | | |
| **2.1** | | Foundation | | Spec. 1121 Open drain including K&C [Cl 4.3] | Shape and compact foundation material to the requirements of the respective pavement course  **HOLD POINT**  **Notice: 1 working day before forming** | Yes  No  N/A | **H** |  | **H** |  | **H** |  | Test reports | |
| **2.2** | | Trial section | | Spec. 1121 Open drain including K&C [Cl 4.3] | Construct trial section to demonstrate the Contractors capability of forming equipment.  **HOLD POINT**  **Notice: To be completed on 1st section of kerb,**  **3 days prior to commencing next section** | Yes  No  N/A | **H** |  | **H** |  | **H** |  |  | |
| **2.3** | | Concrete supply and placement | | Spec. 0319  Minor Concrete Works [Cl 4.8, 4.9, 4.10, 4.11]  Drawings | Check docket to ensure strength and slump is as per design requirements  Ensure the temperature of freshly mixed concrete is maintained in between 5°C and 35°C. Ensure elapsed time between batching and discharge of the mix complies with the below table. | Yes  No  N/A | S |  | S |  | S |  | Delivery dockets | |
| **2.4** | | Concrete sampling | | Spec. 0319  Minor Concrete Works [Cl 4.2] | The nominal rate of sampling shall be taken as:   1. Compressive strength: See table below        1. Slump: One per batch of concrete | Yes  No  N/A | S |  | S |  | S |  | Concrete pour record | |
| **2.5** | | Concrete testing | | Drawings | Average compressive strength at 28 days meets minimum design requirements  Slump within tolerances specified in AS 1379 | Yes  No  N/A | S |  | S |  | S |  | Test reports | |
| **2.6** | | Finish | | Spec. 1121 Open drain including K&C [Cl 4.3] | **Finish true to line:** The top and face of the finished kerb and channel.  **Top surface:** Uniform width, free from humps, sags and other irregularities.  **Type:** Steel float finish or as otherwise shown on drawings. | Yes  No  N/A | S |  | S |  | S |  |  | |
| **2.7** | | Joints - Contraction | | Spec. 1121 Open drain including K&C [Cl 4.3] | Contraction joints to conform to the following:   * **Width:** 5mm min. * **Depth:** 20mm * **Intervals:** every 3m for a min of 50% cross sectional area * **Tooling:**  20mm depth / 5mm width | Yes  No  N/A | S |  | S |  | S |  |  | |
| **2.8** | | Joints – Expansion | | Spec. 1121 Open drain including K&C [Cl 4.3] | Expansion joints to conform to the following:   * **Width:** 15mm * **Depth:** Full depth of kerb/channel * **Intervals:** Max interval 15m   *To be provided where channel/gutter abuts against pits, retaining walls, overbridges and both sides of kerb laybacks unless otherwise shown on drawings.* | Yes  No  N/A | S |  | S |  | S |  |  | |
| **2.9** | | Backfill | | Spec. 1121 Open drain including K&C [Cl 4.4] | **Timing:** Backfill behind kerb no earlier than 3 days after concreting.  **Material:** Granular material, free of organic material, clay and rock in excess of 50mm or approval material  **Layers:** Compact in layers not greater than150mm  **WITNESS POINT**  **1 Working days before backfilling behind kerb**  **3 Working days before to backfilling gutter pavement** | Yes  No  N/A | **W** |  | **W** |  | **W** |  |  | |
| **2.10** | | Backfill Compaction | | Spec. 1121 Open drain including K&C [Cl 4.4] | **Compaction:**  As per pavement design drawings or otherwise 95% relative compaction in conformance with AS 1289.5.4.1 | Yes  No  N/A | S |  | S |  | S |  | Test reports | |
| **2.11** | | Gully Pit Tie Ins | | Spec. 1121 Open drain including K&C [Cl 4.4] | Adjust gully pits or precast units to suit the new kerb and gutter profile without reducing hydraulic capacity of the pit. | Yes  No  N/A | S |  | S |  | S |  | Test reports | |
| **3.0 Conformance Check** | | | | | | | | | | | | | | |
| **3.1** | | Survey Report | | Spec. 1121 Open drain including K&C [Cl 4.0] | Survey report verifying kerb and gutter has been constructed within tolerance:  **Finish levels of channel/gutter surface:** within ± 10mm of design level  **Surface deviation of kerb face and channel surface:** ±5 mm from edge of a 3m straight edge, except at laybacks, grade changes or curves, or at gully pits requiring channel/gutter depression. | Yes  No  N/A | S |  | S |  | S |  | Survey report | |
| **3.2** | | 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 | **H** |  | **H** |  | **H** |  |  | |
|  |  | | **Comments**: | | | | | | | | | | |  |
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| **Acceptance of works:** | | | | |  | | |
| Symal Infrastructure representative name |  |  | Symal Infrastructure representative signature |  | Date |  | |
| UGL representative name |  |  | UGL representative signature |  | Date |  | |
| SHL representative name |  |  | SHL representative signature |  | Date |  | |

**Inspection Checklist Report**

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| **Project no.** | CC0375 | **Project name:** | Hunter Power Project | | **Date:** |  |
| **Symal ITP no.** | CC0375-ITP-006 | | | | | |
| **UGL ITP no.** | 3200-0663-HPP-QA-ITP-007 | | **SHL ITP no.** | | HPP-UGL-QUA-GN-GEN-ITP-0007 | |
| **Symal Lot no.** |  | | | | **Symal Sub Lot no.** |  |
| **Location (chainages, detailed description or marked up plan)** | | | |  | | |

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|  | | **Verify of acceptance by** | | | | | | | | | **Remarks / records** |
|  | | **Symal** | | | **UGL** | | | **SHL** | | |
| **ID No.** | **Activity to be verified** | **ITP Step No.** | **Items conforms?** | | | **NCR / Test Report No.** | | **Key** | | **Sign Date** | **Key** | | **Sign Date** | **Key** | | **Sign Date** |  | |
| Yes | No | NA |
| **Preliminaries** | | | | | | | | | | | | | | | | | | |
| 1. | Determine lot size | 1.1 |  |  |  |  | | S | |  | S | |  | S | |  | Lot map | |
| 2. | Concrete Mix Design | 1.2 |  |  |  |  | | **H** | |  | **H** | |  | **H** | |  | Material conformance certificate | |
| 3. | Joint Fillers & Sealants | 1.3 |  |  |  |  | | **H** | |  | **H** | |  | **H** | |  | Material conformance certificate | |
| 4. | Kerb & Gutter Methodology | 1.4 |  |  |  |  | | **H** | |  | **H** | |  | **H** | |  |  | |
| 5. | Underlying Lot Conformance | 1.5 |  |  |  |  | | S | |  | S | |  | S | |  |  | |
| 6. | Survey set out | 1.6 |  |  |  |  | | S | |  | S | |  | S | |  |  | |
| **Kerb and channel placement** | | | | | | | | | | | | | | | | | | |
| 6. | Foundation | 2.1 |  |  |  |  | | **H** | |  | **H** | |  | **H** | |  | Test reports | |
| 7. | Trial section | 2.2 |  |  |  |  | | **H** | |  | **H** | |  | **H** | |  |  | |
| 8. | Concrete supply and placement | 2.3 |  |  |  |  | | S | |  | S | |  | S | |  | Delivery dockets | |
| 9. | Concrete sampling | 2.4 |  |  |  |  | | S | |  | S | |  | S | |  | Concrete pour record | |
| 10. | Concrete testing | 2.5 |  |  |  |  | | S | |  | S | |  | S | |  | Test reports | |
| 11. | Finish | 2.6 |  |  |  |  | | S | |  | S | |  | S | |  |  | |
| 12. | Joints - Contraction | 2.7 |  |  |  |  | | S | |  | S | |  | S | |  |  | |
| 13. | Joints – Expansion | 2.8 |  |  |  |  | | S | |  | S | |  | S | |  |  | |
| 14. | Backfill | 2.9 |  |  |  |  | | **W** | |  | **W** | |  | **W** | |  |  | |
| 15. | Backfill Compaction | 2.10 |  |  |  |  | | S | |  | S | |  | S | |  | Test reports | |
| 16. | Gully Pit Tie Ins | 2.11 |  |  |  |  | | S | |  | S | |  | S | |  | Test reports | |
| **Conformance Check** | | | | | | | | | | | | | | | | | | |
| 17. | Survey report | 3.1 |  |  |  |  | | S | |  | S | |  | S | |  | Survey reports | |
| 18. | Acceptance and closure of non-conforming items | 3.2 |  |  |  |  | | **H** | |  | **H** | |  | **H** | |  |  | |

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| I certify that this Lot conforms to the requirements of the design and specifications; that all associated NCRs have been closed out: and all survey, conformance testing and inspections have been undertaken in accordance with the specified requirements. | | | | |
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| **Symal Representative** |  | **Signature** |  | **Date** |
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|  |  |  |  |  |
| **UGL Representative** |  | **Signature** |  | **Date** |
|  | | | | |
|  |  |  |  |  |
| **SHL Representative** |  | **Signature** |  | **Date** |
| **Comments:** | | | | |
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