**Inspection and test plan – Rock Filled Gabions**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project no.** | | CC-0388 | | | **Project name** | Shoalhaven Area Remediation of Multiple Slips | | | | | **Date** | |  | | **Approved by** |  |
| **ITP no.** | SYM-0388-ITP-005 | | | | **Revision no.** | B | **Revision date** | | 12/05/23 | **Plant and equipment used** | | | |  | | |
| **Site no.** |  | | | | **Location (chainages, detailed description or marked up plan)** | | | | | | |  | | | | |
| **Layer thickness** | | |  | **Estimated qty** | |  | |

Attach Dockets, Certificates and QA Documents to ITP

|  |  | |  |  |  | **Verification or test by** | | | | | **Remarks / record (eg. test frequency, reports, certificates, checklist etc)** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | |  |  |  | **Symal Infrastructure** | | | **Shoalhaven City Council** | |
| **Item no.** | **Activity** | | **Ref docs** | **Acceptance criteria** | **Acceptance** | **Key** | **Resp.** | **Initial/date** | **Key** | **Sign date** |
| **1.0 – Material** | | | | | | | | | | | |
| 1.1 | Gabions | | TfNSW R55  Cl 2.1  IFC Drawing | Gabions must have a nominal mesh size of 80 mm x 100 mm. The minimum diameter of mesh wire  must be 2.7 mm. The minimum diameter of galvanized selvedge wire must be 3.4 mm.  The mesh is flexible, woven, galvanized and PVC coated when required as per IFC drawings. | Yes  No  N/A | S |  |  |  |  |  |
| 1.2 | Selvedges | | TfNSW R55  Cl 2.3 | All edges of the gabions must be selvedged with a continuous wire in accordance with ASTM A975-97. | Yes  No  N/A | S |  |  |  |  |  |
| 1.3 | Lacing and Connecting Wire | | TfNSW R55  Cl 2.5 | Materials must conform to ASTM A975-97. | Yes  No  N/A | S |  |  |  |  | Alternative fastener systems such as “C” clips in place of lacing and connecting wire are permitted but must conform to the requirements of ASTM A975-97. |
| 1.4 | Rock Fill - Strength | | TfNSW R55  Cl 2.6 | At least 100 kN and a maximum wet/dry strength  variation of 35% when tested in accordance with Test Method TfNSW T215. | Yes  No  N/A | S |  |  |  |  |  |
| 1.5 | Rock Fill - Size | | TfNSW R55  Cl 2.6 | For gabions, the minimum and maximum rock size must be 100 mm and 250 mm respectively | Yes  No  N/A | H |  |  |  |  |  |
| **2.0 Gabion Installation** | | | | | | | | | | | |
| 2.1 | Material Inspection | |  | The gabions shall be visually inspected to ensure that they are free from defects such as cracks, splits, or punctures. | Yes  No  N/A | S |  |  | W |  |  |
| 2.2 | Set out | | IFC Drawings | Setout of gabion location and level. | Yes  No  N/A | S |  |  |  |  |  |
| 2.3 | Foundation Inspection | | IFC Drawings | Backfill material is compacted in layers to the required density, loose material has been removed.  Geotextile is placed as per the IFC drawings. | Yes  No  N/A |  |  |  | H |  |  |
| 2.4 | Assembly | | TfNSW R55  Cl 4.1 | Visual inspection of the gabion boxes to ensure they are free from kinks and bends.  Measurement of the gabion boxes and mattresses to ensure they meet the design specifications.  Lacing are securely fastened. | Yes  No  N/A | S |  |  | W |  |  |
| 2.5 | Erection | |  | Only assembled boxes or groups of boxes are positioned in the structure.  The side, or end, from which work is to proceed, must be secured either to the completed work, or by galvanized star pickets driven into the ground at 1 m spacing. The star pickets must be firmly embedded in the ground and reach at least to the top of the gabion box.  Measurement of the gabion boxes and mattresses to ensure they meet the design specifications.  Lacing are securely fastened.  If further gabion boxes positioned in the structure are required. | Yes  No  N/A | S |  |  |  |  |  |
| 2.6 | Stretching | | TfNSW R55  Cl 4.3 | Verification that the gabion units have been supplied and assembled in accordance with specification requirements. | Yes  No  N/A | S |  |  |  |  | Carry out final stretching of the gabion boxes using a pull-lift of at least one tonne capacity. |
| 2.7 | Pipe Culvert Within Gabion Structures | | IFC Drawings | Mesh is cut and laced as per the IFC Drawings. | Yes  No  N/A | W |  |  | W |  |  |
| 2.8 | Filling | | TfNSW R55  Cl 4.4 | Gabion boxes shall be filled with rocks only while under tension and the rocks shall be placed by hand packing to produce a neat face free from excessive bulges, depressions and voids.  Internal bracing wires shall be provided to prevent distortion of the gabion units during filling and in the completed structure. | Yes  No  N/A | S |  |  |  |  | Mechanical filling equipment may be used provided that adequate precautions are taken to protect any PVC coating from abrasion during filling operations. |
| 2.9 | Final Lacing | | TfNSW R55  Cl 4.5 | Gabion boxes and mattresses are finally laced and secured through each mesh along all edges, ends and diaphragms. | Yes  No  N/A | S |  |  | W |  |  |
| **3.0 Subsoil** | | | | | | | | | | | |
| **3.1** | Subsoil Drainage Pipe | IFC Drawings | | DN100 Socked Subsoil Drainage Pipe installed at base of wall before backfill.   * Discharge through face of wall at 25m centres   Provide clear out riser to surface | Yes  No  N/A | W |  |  | W |  |  |
| **3.2** | Subsoil Aggregate | IFC Drawings | | Install subsoil layer min. 200mm wide from rear face of wall before backfill.   * Aggregate to be nominal 20mm in dimension.   Wrapped in approved Geotextile. | Yes  No  N/A | S |  |  | S |  |  |
| **3.3** | Rock fill material behind the gabion | IFC Drawings | | Backfill behind the gabions by compacting in 200mm layers to at least 98% of standard maximum dry density | Yes  No  N/A |  |  |  | W |  |  |
| **4.0 Conformance check** | | | | | | | | | | | |
| **4.1** | Tolerances | IFC Drawings | | Surface Level: the top surface level must be as per design levels or as approved. | Yes  No  N/A | S |  |  | S |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Works complete (sign SS) |  | |  | Date works complete | | |  | |
| Site conforms (sign PE) |  | |  | Date Site closed | | |  | |
| NCR no. raised |  | |  | Date NCR closed for this Site | | |  | |
| **Site acceptance:** | | | | | | | | |
| Symal Infrastructure representative name | |  | | |  | Client representative name | |  |
| Symal Infrastructure representative signature | |  | | |  | Client representative signature | |  |

**Responsibility (resp.) key: PM –** Project Manager**, PE –** Project Engineer**, SE –** Site Engineer**, SS –** Site Supervisor

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