

## SURFACE PREPARATION FOR THE APPLICATION OF PROTECTIVE COATINGS ON STEEL OR CAST IRON

**SPECIFICATION: A1**

**ISSUE:3**

**DATE: July 2021**

### 1.0 SCOPE

The scope of this specification applies to operations required for the surface preparation of Steel or Cast Iron.

Refer Design Standard, DS 95 (Standard for the Selection, Preparation, Application, Inspection and Testing of Protective Coatings on Water Corporation Assets) for additional information or clarification.

### 2.0 PURPOSE

The purpose of this specification is to prepare a Steel or Cast-Iron substrate for the application of a protective coating.

### 3.0 DEFINITIONS

**ACA:** Australasian Corrosion Association.

**Contractor:** The service provider or its sub-contractor who will undertake the works.

**Corporation:** The Water Corporation and the Principal for the purposes of externally contracted asset delivery.

**ITP:** The detailed Inspection and Test Plan(s) for the Works.

**NACE:** National Association of Corrosion Engineers.

**Superintendent:** The Superintendent for the contract, as defined in the conditions of contract, who is appointed by the Water Corporation to manage/oversee the work under the contract on behalf of the Water Corporation.

**Works:** The surface preparation, coating application and inspection to be undertaken by the contractor to which this coating specification applies.

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### 4.0 COATING APPLICATOR/PERSONNEL QUALIFICATION

- 4.1 Work shall only be carried out by competent personnel.
- 4.2 The work shall be undertaken by an approved Water Corporation Corrosion Control Panel Services member, unless approved otherwise by the Team Leader – Asset Durability.
- 4.3 The coatings contractor/subcontractor shall nominate a Certified Coating Inspector (NACE or ACA), qualification to SSPC and equivalent will require written approval by the principle to conduct the following:
- Prepare Quality Assurance documentation to meet the specified standards given herein and the required acceptance criteria.
  - Perform inspections and maintain appropriate records for work performed.
  - Testing, monitoring and verification of surface preparation and coating application.

### 5.0 ATMOSPHERIC CONDITIONS

- 5.1 Prior to and during surface preparation, the contractor shall record details pertaining to environmental conditions including ambient and surface temperature, relative humidity and dew point.

### 6.0 SURFACE PREPARATION

- 6.1 The minimum surface preparation finish of the substrate shall be **Class 3** (white metal) in accordance with AS/NZS 1627.4. References shall be made to the relevant paint product datasheet to ensure that the surface profile complies with the requirements of the primary coating product.
- 6.2 When using garnet for blast cleaning of steel or cast iron, only clean fresh garnet shall be used. Recycling of used garnet is not permitted. Only Australian garnet or equivalent with allowable total chlorides of 10-15ppm (max 25ppm) shall be used. The garnet blast shall clean deep into the cavities and pitted areas down to the bare metal, thoroughly removing all rust, soluble salts and other contaminants.
- 6.3 All oil or dirt shall be removed (by appropriate methods) prior to blast cleaning operations.
- 6.4 Surfaces not required to be coated shall be protected with masking materials, which shall be completely removed by the Contractor after completion of the work.

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- 6.5 Welding slag, weld spatter, sharp edges and any other surface irregularities, which may impair the appearance or performance of the protective coating shall be removed. Sharp edges shall be radiussed to a minimum of 2 mm.
- 6.6 Coating shall not be applied to any prepared surface(s) exhibiting “flash corrosion” or that has been abrasive blasted more than 4 hours prior to commencement of coating.
- 6.7 Materials and surface preparation methods used shall be subject to acceptance by the Superintendent (or nominated delegate) prior to commencement of any work.
- 6.8 Particulate contamination to be conducted on blasted surface for surfaces to be used in an immersed environment as per clause 4.2 DS95. The dust quantity level shall not exceed rating 2 and class 2 for dust particle size.
- 6.9 Soluble salt testing to be conducted on the prepared blasted surface before coating application as per DS95 - clause 4.1.
- Immersion service -  $3\mu\text{g}/\text{cm}^2$
  - Ambient service -  $5\mu\text{g}/\text{cm}^2$

### 7.0 INSPECTION

- 7.1 The contractor shall maintain records and evidence of the original surface, blast surface and blast profile. These shall be made available to the Superintendent and/or delegate at the completion of the project.
- 7.2 Assessment of the surface profile height or anchor pattern of the abrasive blasted surface shall be carried out using the Replica Tape method (TESTEX PRESS-O-FILM) as described in AS/NZS 3894.5. Profile range between 50-75 $\mu\text{m}$  on carbon steel or as per manufacturers recommendations.
- 7.3 The Contractor shall provide the Superintendent (or nominated delegate) adequate prior notice as to when and where the surface preparation and coating operations will be conducted to facilitate all specified inspections.
- 7.4 If recognised as a hold point in the ITP, the coating application shall not be carried out until the Superintendent has accepted the surface preparation.

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**8.0 CONTRACTOR'S RESPONSIBILITY**

- 8.1 The Contractor shall supply all necessary plant, equipment, materials and labour, prepare the surface and apply and maintain the protective coating in accordance with this specification.
- 8.2 An Inspection Test Plan (ITP) shall be forwarded to the Water Corporation Superintendent for review a minimum of ten working days prior to the commencement of work.
- 8.3 A list of all items to be inspected and the relevant drawing reference shall be forwarded to the Water Corporation Superintendent prior to the inspection being undertaken.
- 8.4 The preceding inspection clauses shall not relieve the Contractor of their responsibility to supply materials and perform work in accordance with the requirements of any overriding contract documentation.

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