###### **Functional Specification for the Procurement, Delivery and Installation of a Cathodic Protection System at the Barrow Marine Terminal**

|  |  |  |
| --- | --- | --- |
| **Prepared by:**  Date: 19/04/2016 | R Wood |  |
| **Reviewed by:**  Date: | J Lane |  |

Contents

1. Introduction
2. Scope of Requirements
3. Access arrangements
4. **Introduction**

International Nuclear Services Ltd (INS) operates and manages 3 Pacific Nuclear Transport Ltd (PNTL) vessels from their home port of Barrow-in-Furness (Barrow Marine Terminal). The Pacific Heron, Pacific Egret, and Pacific Grebe are frequently berthed at the Barrow Marine Terminal (BMT). BMT is situated within the Port of Barrow-in-Furness in the North West of England and was built in the 1980s within a contained dock system operated by Associated British Ports (ABP).

INS have identified a requirement for the installation of a new/replacement sacrificial anode ‘**Cathodic Protection System’** to its marine terminal facility**.** The current system was installed in 1998 with a designed 10 year life span. The system includes 168 (one hundred and sixty eight) sacrificial anodes which protect the exposed face of the wetted sheet/box piling quay wall. Projecting from the face of the quay wall are 10 (ten) dolphin piers supported by steel box piles. The system is approaching 20 years old, far exceeding the original design life. This is in part due to the natural brackish nature of the dock water.

A full underwater inspection of the BMT is carried out on an annual basis. In February 2016 all soft marine growth was removed from all anodes, and a set of depletion figures were recorded. The majority of anodes are highly depleted.

1. **Scope of Requirements**

This scope of requirements shall be read in consultation with the following documentation;

1. INS Marine Terminal Anode Inspection February 2016
2. INS Drawing – Fender Details (Showing Quayside Dolphins)
3. Detail Illustrating Typical Cross Section through Quay
4. Detail of Existing Sacrificial Anode Cathodic Protection System
5. Photograph of Existing Anode Securing Arrangement
6. Photograph of Existing Anode Layout and Quay Wall

A number of key deliverables are required across two phases of the project;

* **Phase I – *Detailed Design***
  + Technical Selection of Anode and No. Of Anodes
    - Make
    - Model
    - Size
    - Type (fixings/bracketry)
    - Materials
    - Availability of Original Manufacturer Equipment
    - Supporting Calculations
    - Selection Justification
    - Design Life Expectancy of New System (minimum **20 years with detailed design justification**)
  + Technical Coating Specification
    - Surface Preparation including required standards (all wetted areas/splash zone) to Swedish Standard Sa2.5 (to all areas of quay wall, box piles, fixtures and fittings) or alternative approved preparation standard.
    - Surface Coating (all wetted areas/splash zone) including full Paint Specification (applicable to all areas of quay wall, box piles, fixtures and fittings, and double coating ships bowthrust areas). International Paint Interzone 954HB epoxy paint – typically 500 microns or equivalent approved coating system.
    - Dock Level Management (with BMT and ABP)
    - Provide Oil bund or equivalent to collect as much debris as possible during surface preparation (including clean up and disposal).
    - Provide one full approved detailed coating specification (including as a minimum detail preparation, coating application, paint specification, product data sheets, safety data sheets, risk assessments and method statements).
* ***Note: The dock level will be lowered to as low as practical in accordance with ABP and any operational requirements of vessels within the dock system. The estimated dock level will be at 8.8m dock datum for the works on the anode replacement and paint preparation/coating.***
  + **Detailed Installation Design**
    - Develop and provide a specification of total number/location of anodes.
    - Provide detailed drawings of anodes, fixings/bracketry and technical specifications including performance information of anodes.
    - Provide detailed methodology of anode fixing to existing bracketry/or alternative proposed method.
    - If utilising existing brackets, a report is required regarding the structural integrity of the steel work and fixings (new fixings will be required to secure to existing brackets).
    - Consider the current locations and arrangement (including any areas of existing limited anode coverage/weaker areas of coverage) and advise if current arrangement is suitable or recommend an alternative, detailed justification is required.
    - Provide a schematic of design/layout and ensure system meets relevant performance requirements for systems of this type.
    - Undertake the role of Principle Designer under the CDM Regulations 2015
* ***Note; the tenderer shall provide a full breakdown of the deliverables he is proposing to submit as part of the detailed design (full Phase I package)***
* **Phase II – *On Site Removal of Existing Cathodic Protection System***
  + Project Plan/Timeline (showing all aspects of project including dock level lowering and duration and anode removal).
  + Complete removal and disposal.
  + On Site Removal
  + On Site Supervision
  + Full Health and Safety File, including but not limited to;
    - Risk Assessments
    - Safety Method Statements
    - Material Safety Data Sheets
    - COSHH risk assessments
    - Approved Waste Carrier Licences
    - Approved reception/end disposal Certificates
    - Personnel Qualifications and Competence Certificates
  + Comply with CDM Regulations 2015
* **Phase III – *On Site Preparation of Steelwork and Paint Coating***
  + Project Plan/Timeline (showing all aspects of project including dock level lowering and duration, paint preparation and coating).
  + On Site Preparation and Coating
  + On Site Supervision
  + On Site approval of prepared areas and to be witnessed and approved by International Paint technical representative.
  + Full Health and Safety File, including but not limited to;
    - Risk Assessments
    - Safety Method Statements
    - Material Safety Data Sheets
    - COSHH risk assessments
    - Approved Waste Carrier Licences
    - Approved reception/end disposal Certificates
    - Personnel Qualifications and Competence Certificates
  + Comply with CDM Regulations 2015
* ***Note; Phase III On Site costs shall be split out from the other Phases of work and clearly detailed separately.***
* **Phase IV – *On Site Installation of Cathodic Protection System***
  + Project Plan/Timeline (showing all aspects of project including dock level lowering and duration and installation).
  + On Site Installation
  + On Site Supervision
  + Full Health and Safety File, including but not limited to;
    - Risk Assessments
    - Safety Method Statements
    - Material Safety Data Sheets
    - COSHH risk assessments
    - Approved Waste Carrier Licences
    - Approved reception/end disposal Certificates
    - Personnel Qualifications and Competence Certificates
  + Comply with CDM Regulations 2015
  + Test, Commission and Handover Sacrificial Anode System to prove that the system function meets the requirements of the detailed design.
  + Produce final ‘as built’ drawings, documentation and construction pack on INS issued drawing templates.
* ***Note: timing of actual Phase II, III and IV will be subject to vessel operational schedules. All planning will be agreed in advance with BMT management.***

1. **Access arrangements**

All requests for access to Barrow Marine Terminal shall be made in writing at least 24 hours in advance to [Jacqueline.a.ducie@innuserv.com](mailto:Jacqueline.a.ducie@innuserv.com) cc [rob.w.wood@innuserv.com](mailto:rob.w.wood@innuserv.com) [john.alexander@innuserv.com](mailto:john.alexander@innuserv.com).

Our visiting hours are Monday to Thursday 0800 to 1700hrs, and Friday 0800 to 1500hrs.

Photographic ID will be required for all visitors.