

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1            Requirements for the construction of the replacement Palisade fencing and gates.

**1.2            RELATED SECTIONS**

- .1            Section 01 33 00 – Submittal Procedures.
- .2            Section 01 74 19 – Construction/Demolition Waste Management And Disposal.
- .3            Section 03 05 10 – Cast-in-Place Concrete.
- .4            Section 06 05 73 – Wood Treatment.
- .5            Section 06 10 10 – Rough Carpentry.

**1.3            MEASUREMENT PROCEDURES**

- .1            Measure supply and erection of timber fence in sections erected. Measurement shall include the supply, treatment, shipping, field cutting, and installation of all treated timber components and fastening systems.
- .2            Measure supply and erection of timber gates in units of each size erected. Measurement shall include the supply, treatment, shipping, field cutting, and installation of all treated timber components and fastening systems.

**1.4            REFERENCES**

- .1            American Wood-Preservers' Association (AWPA):
  - .1            AWPA M2, Standard Inspection of Treated Wood Products.
  - .2            AWPA M4, Standard for the Care of Preservative-Treated Wood Products.
  - .3            AWPA E12, Standard Method of Determining the Corrosion of Metal in Contact with Wood.
  - .4            AWPA P5, Standard for Waterborne Preservatives.
  - .5            AWPA P8, Standard for Oil Borne Preservatives.
  - .6            AWPA P9, Standard for Solvents and Formulations for Organic Preservative Systems.
  - .7            AWPA P23, Standard for Chromated Copper Arsenate Type C (CCA-C).
  - .8            AWPA P25, Standard for Inorganic Boron (SBX).
  - .9            AWPA P48, Standard for Copper Azole Type C (CA-C).
  - .10          AWPA T1, Use Category System: Processing and Treatment Standard.
  - .11          AWPA U1, Use Category System: User Specification for Treated Wood.

- .2 Canadian Standards Association (CSA):
  - .1 CAN/CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.
  - .2 CAN/CSA-G40.21, Structural Quality Steels.
  - .3 CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .4 CSA O80 Series, Wood Preservation.
  - .5 CSA O80.201, Standard for Hydrocarbon Solvents for Preservatives. This Standard covers hydrocarbon solvents for preparing solutions of preservatives. This is not stand alone specification.
  - .6 CSA O322, Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations.
  - .7 CAN/CSA-S16.1, Limit States Design of Steel Structures.

## **1.5 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures and in accordance with Division 06 Specifications.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Storage and Handling Requirements:
  - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Timber components as per Specification 06 10 10 - Rough Carpentry.
- .2 Fasteners as per Specification 06 10 10 - Rough Carpentry.
- .3 Miscellaneous Metals:
  - .1 Miscellaneous and structural steel shapes and plates: meeting the requirements of CAN/CSA G40.21, Grade 300W.
- .4 Nuts and washers: conforming to CAN/CSA S16.1.
- .5 Hot dip galvanizing: where indicated, to CAN/CSA G164, minimum zinc coating of 600 g/m<sup>2</sup>.

**Part 3 Execution**

**3.1 TREATMENT OF THE EXISTING SITE**

- .1 Contractor shall only use those areas indicated on the Contract Drawings or as approved by the Departmental Representative for the lay down and staging of equipment and materials.
- .2 Contractor shall limit the movement of materials and equipment to those areas that have been previously disturbed. Refer to the Fort Battleford National Historic Site "Cultural Resource Inventory and Cumulative Impact Analysis Addendum" Site Plan dated April, 2006.
- .3 Existing grade along fence line shall be maintained. Re-use existing trench for timber sills and existing post holes.
- .4 Contractor shall not operate tracked equipment or equipment that will cause excessive settlement of the existing grade and previously undisturbed areas around the Stockade fence. If tracked equipment is too be used to erect the new Stockade equipment shall sit on rig matting.
- .5 The amount of rig matting to be supplied shall be at the discretion of the General Contractor. Payment for rig matting shall not be paid for directly but shall be considered a subsidiary obligation of the General Contractor.
- .6 Following the removal of any rig matting used to facilitate Stockade construction, repair or re-seed the existing grade as per Specification 32 92 19 - Mechanical Seeding.

**3.2 ERECTION OF PALISADE STOCKADE**

- .1 Existing D. Fir log Stockade Sections:
  - .1 Depth of existing anchor posts below grade is unknown. Diameter of existing anchor posts varies. If required, increase diameter or depth of post holes indicated on the Contract Drawings by methods approved by Departmental Representative.
  - .2 Remove existing timber sills and use existing trench for new pressure treated timber sills.
- .2 Existing Birch log and steel angle framing Stockade sections:
  - .1 The Contractor shall make every effort to identify the location of existing post holes prior to laying out the Palisade in these areas. If existing post holes cannot be identified contact the Departmental Representative prior to layout and installation of new post holes.
  - .2 Where existing post holes can no longer be found, upon the approval of the Departmental Representative excavate post holes to dimensions indicated on the Contract Drawings by methods approved by Departmental Representative.
- .3 Erect new Stockade along lines and as per the details indicated on the Contract Drawings.
- .4 Installation of timber posts:

- .1 Install 200 mm diameter intermediate posts as indicated on the Contract Drawings. Install to the tolerances indicated in Specification 06 10 10 – Rough Carpentry.
- .2 Locate and erect gate posts as indicated on the Contract Drawings. Confirm height of posts to match existing.
- .3 Install 400 mm diameter anchor posts true to line and plumb with a minimum of 3.048 m of post projecting above ground, or as indicated on the Contract Drawings. Install to the tolerances indicated in Specification 06 10 10 – Rough Carpentry.
- .4 Backfill below anchor posts as per the Contract Drawings.
- .5 Embed anchor posts in concrete as indicated on the Contract Drawings.
- .6 Install braces at end, corner and gate posts as indicated on the Contract Drawings. Join braces into posts and spike securely as indicated.
- .7 Dispose of surplus material in an environmentally friendly manner.

### **3.3 INSTALLATION OF GATES**

- .1 Install gates in locations as indicated on the Contract Drawings.
- .2 Install gates to prevent over-stress on gate posts when gates are open. Install on level ground with ground clearance as indicated on the Contract Drawings.
- .3 Take field dimensions wherever required for accurate installation.
- .4 Erect all metal fabrications in strict accordance with, CAN/CSA S16.1, and all other pertinent regulations and standards.
- .5 Install all metal fabrication items as indicated on the Contract Drawings or as otherwise required to complete the project.
- .6 Touch-up galvanized surfaces with zinc rich primer where required.

**END OF SECTION**

**Part 1 General**

**1.1 DESCRIPTION**

- .1 The work shall consist of seeding with a weed free native seed mixture representative of the surrounding area approved by the Department Representative in all areas designated by the Department Representative.

**1.2 MEASUREMENT AND PAYMENT**

- .1 Measurement of the area seeded will be measured in hectares by the Department Representative.
- .2 Payment for seeding will be made the contract unit price per hectare as specified on the Bid Form. The contract unit price shall be full compensation for all associated work, including but not limited to supply of all material, equipment and labour required for spreading, handling and placing of the seed material specified in the contract documents.

**1.3 SUBMITTALS**

- .1 Submit product data in accordance with section 01 33 00 – Submittal Procedures.
- .2 Provide product data for:
  - .1 Seed.
- .3 The grass seed mixture must be approved by the Department Representative 2 weeks prior to commencing seeding.

**1.4 SCHEDULING**

- .1 Seeding shall be completed within the following periods unless otherwise authorized by the Department Representative.
  - .1 Spring Seeding Period: by June 15<sup>th</sup>.
  - .2 Fall Seeding Period: October 15<sup>th</sup> to Freeze up.

**Part 2 Products**

**2.1 MATERIAL**

- .1 Supply of Materials
  - .1 All materials for seeding shall be supplied by the Contractor.
  - .2 Seed shall be stored dry and protected from direct sunlight and other detrimental conditions. Materials that have been subjected to detrimental conditions, as determined by the Department Representative, will not be accepted for use on the project.

## 2.2 GRASS SEED

- .1 Grass seed mixture:
  - .1 20% Slender Wheatgrass (*Elymus trachycaulus*).
  - .2 34% Western Wheatgrass (*Pascopyrum Smithii*).
  - .3 34% Awned Wheatgrass (*Elymus trachycaulus ssp. subsecundus*).
  - .4 10% Green Needle grass (*Stipa viridula*).
  - .5 2% June Grass (*Koeleria macranthan*).
- .2 Seed mix supplied by the Contractor shall be weed free, tested and certified weed free. The seed shall be mixed and tested by a recognized seed house, and shall be clearly marked with the name of the supplier and the certified mixture composition
- .3 The seed shall be mixed by a conditioner and bulk storage facility approved by the Authority responsible for Canada Seeds Act & Regulations. All seed shall be tested by a Registered Seed Lab, and each bag shall be clearly marked with the name of the supplier and the mixture composition.
- .4 Prior to the use on the project, the Contractor shall provide the Department Representative with a Certificate of Analysis for each lot of seed supplied. Test results from the Certificate of Seed Analysis shall specify the germination, or for native seeds that are not a part of the seed tables the Tetrazolium, and purity for each seed species of the mix as well as the seed mix composition expressed as a percentage of each seed species by dry mass for each seed mix specified.

## Part 3 Execution

### 3.1 QUALITY OF WORK

- .1 Do not perform work under adverse field conditions as determined by Department Representative.
- .2 Remove and dispose of weeds; debris; stones 80 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; in location as directed by Department Representative.

### 3.2 SEED BED PREPARATION

- .1 Topsoil placement and finish grading shall be completed to the satisfaction of the Department Representative prior to any surface preparation. All eroded areas shall be corrected prior to surface preparation, as determined by the Department Representative, using imported material. Areas to be seeded shall be finished to a smooth and uniform surface, which is loosened to a depth of not less than 25 mm at the time of seeding. Where necessary, the surface shall be scarified and the Contractor shall dispose of stones and other debris as determined by the Department Representative.
- .2 Seeding will not be permitted on hardened, crusted or rutted soil. Seeding must occur as soon as possible after disturbance to reduce establishment of non-native species.

**3.3 WEATHER CONDITIONS**

- .1 The Contractor shall not proceed with the work when, in the opinion of the Department Representative, weather conditions are unsuitable. The Department Representative will not allow work to proceed when wind conditions are such that material is being carried beyond the designated work areas or that the material is not being uniformly applied.

**3.4 SEED PLACEMENT**

- .1 Where mechanical seeding is not possible the Contractor shall at no direct cost to the Owner, manual seed areas.
- .2 For mechanical seeding:
  - .1 Mechanical landscape drill seeder ("Brillion" type or equivalent) which accurately places seed at specified depth and rate and rolls in single operation.
  - .2 Use equipment and method acceptable to Departmental Representative.
- .3 For manual seeding:
  - .1 Use manually operated drop seeder ("Cyclone" type or equivalent).
  - .2 Use equipment and method acceptable to Departmental Representative.
- .4 Sow half of required amount of seed in one direction and remainder at right angles as applicable.
- .5 Erosion control measures must be installed following seeding and maintained until vegetation establishes.

**END OF SECTION**