

PART 1 - GENERAL

- 1.1 Description of Work .1 This section specifies requirements for the following items:
.1 Waterers
.2 Bar Gates
- 1.2 Reference Standards .1 CAN/CSA G40.20/G40.21- General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel
.2 CSA G164-18 - Hot Dip Galvanizing of irregularly Shaped Articles.
.3 ASTM A48/A48M-03 (R2016) (or latest edition), Standard Specification for Gray Iron Castings.
.4 ASTM A123 / A123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
.5 ASTM A307-14 (or latest edition), Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- 1.3 Related Work .1 Refer to other Specification Sections for related information.
- 1.4 Submissions .1 Shop Drawings:
.1 Clearly indicate the following items:
.1 General arrangements, dimensions, clearance locations and directions of assemblies as installed on structures.
.2 Locations, sizes and installation tolerances of anchor bolts, and embedded parts.
.3 Types of materials used, finishes and core thickness.
.4 All other pertinent details and accessories.
.2 Product Data/Samples:
.1 Provide product data and manufacturers brochures for the waterers and gate assemblies.

PART 2 - PRODUCTS

- 2.1 Materials .1 Waterers to be premanufactured assemblies, purposely intended for cattle watering in the local climate. Assemblies are to meet the following specifications:

- .1 Double wall enclosure complete with minimum 50mm injected polyurethane foam insulation (R18). Exterior of enclosure to be UV resistant Polypropylene.
 - .2 Hinged stainless steel bowl.
 - .3 Internal thermostatically controlled 120V-500W water heating element. Thermostat to be fully adjustable. Unit shall include an integral 15A receptacle on the inside of the cabinet assembly. Entire assembly shall be manufacturer pre-wired as a single point connection.
 - .4 Complete waterer assembly to be CSA certified.
 - .5 Flow rate: 5.5 GPM at 30PSI.
 - .6 Non-siphoning design and nylon control valve and float.
 - .7 Coordinate final selection of unit with Departmental Representative and other installations of this project. Cabinet to have approximate dimensions 610mm (H) x 840mm (L) x 610mm (W).
 - .8 Mounting attachments for cabinet to concrete base to be located inside of the cabinet.
 - .9 Acceptable product: HLW-P100 Heated Livestock Waterer by CANARM, or approved equivalent.
- .2 Bar Gates must meet the following specifications:
- .1 Bar gates, posts, latches, and all other appertences to be supplied as a complete unit from a single manufacturer, purpose made for agricultural applications.
 - .2 Gate assembly materials and construction to conform to Section 05 50 00.
 - .3 All gate assemblies to be hot-dipped galvanized after fabrication.
 - .4 Gate length to be as noted on drawings. All gates to be adjustable allowing reduction of up to 610mm (minimum) for field fitting. After field adjustment of length, gates are to be field fit with purpose made slip on standard gate end, complete with clamps at top, bottom and middle rails. Slip on gate end to overlap horizontal gate rails as per manufacturer printed instructions.
 - .5 Gate panels to be 1220mm tall, installed with the top rail 1524mm above the top of concrete (curb or concrete floor where applicable). Gates to have 5 horizontal cross rails, equally spaced.

- .6 Gate posts to be minimum 76x76x4.8mm, complete with base plates for embedment in concrete and purpose made hinge attachments as required to match gate layout. Posts to be embedded in concrete minimum 300mm and extend minimum 1524mm above finished concrete surface.
- .7 Gates ends and posts to come complete with preparations for chain latching and hinges and pins as required. Hinge attachments to be adjustable, allowing fine tuning for gate installation and future levelling.
- .8 Acceptable Gate Assembly: 5-Bar Gates by CANARM, or approved equivalent.
- .3 Hardware and miscellaneous items must meet the following specifications:
 - .1 Bolts and hardware to Section 05 50 00.
 - .2 Do not use items manufactured or fabricated from scrap steel of unknown chemical composition or physical properties.
 - .3 Hot dip galvanize bolts, anchor bolts, nuts, washers, pipe sleeves, steel plates, and any other miscellaneous steel to CSA ASTM A123/A123M with minimum zinc coating of 600 g/m².

PART 3 - EXECUTION

- 3.1 Waterers
 - .1 Supply waterers and install completed units in locations shown on drawings or as indicated by the Departmental Representative.
 - .2 Do not make alterations to any components without written permission of the Departmental Representative.
 - .3 Install units as per manufacturer printed instructions with considerations of the local climate, including connection of electrical and mechanical services.
 - .4 Immediately notify Departmental Representative of discrepancies if manufacturer instructions differ from details shown in project documents. Do not proceed with installation until directed by Departmental Representative in writing.
 - .5 Adjust thermostat to temper water in bowl to 4 degree celcius.

- .6 Adjust float to account for site specific water pressure, setting water level in bowl to manufacturer specifications.
- 3.2 Bar Gates
 - .1 Supply bar gates and install completed units in locations shown on plan or as indicated by the Departmental Representative.
 - .2 Do not make alterations to any components without written permission of the Departmental Representative.
 - .3 Set gate posts in new concrete where indicated (Building 51 Pen Area).
 - .4 Weld purpose made attachments for gate hinges onto existing posts (Building 20 Cattle Yards) as required. Welds to be minimum 6mm fillet welds continuous for entire length of joint and ground smooth.
 - .5 Existing posts to be painted with exterior primer and two coats of Alkyd Epoxy exterior paint after modifications for gate attachments. Paint colour to be selected by Departmental Representative from contractor supplied colour samples.
 - .6 Adjust bar gates for operation and latching at full range of motion as indicated on the drawings. Gates must swing freely to full 180 degree open condition.
- 3.3 Installation
 - General
 - .1 Confirm installation locations for all equipment with Departmental Representative on site.
 - .2 Repair finishes and coatings damaged during transportation and installation.
 - .1 Repair hot dipped galvanized items with two coats of zinc rich primer.
 - .2 Repair painted components with factory supplied touch-up paint, matching colour and application thickness.

END OF SECTION