

1. GENERAL

1.1 Work Included

- .1 The intent of the work under this section is to supply and install three (3) complete low profile platform (pitless) truck scales including the associated electronic equipment, instrumentation and devices for an automated weighing system at the City of Winnipeg's Brady Rd. Landfill Site.
- .2 The scales and automated system for each of the three (3) scales shall be supplied from a single manufacturer.
 - .1 Acceptable scale manufacturers are Mettler Toledo Inc., Canadian Scale Company Inc., Active Manufacturing, Weigh Tronix Canada, Superior Technologies, Cardinal Scale Manufacturing Co.
- .3 Each scale shall have a clear and unobstructed drive-on weighing surface of not less than 24.38 metres long by 3.05 metres wide.
- .4 Each scale shall have a gross scale weighing capacity of 100 tonnes or more.
- .5 Calibrate the scales to 100 tonnes in 10 kilogram increments.
- .6 The scales and all related equipment supplied must be capable of operating in an outdoor environment including operating in temperatures ranging between -40 Celsius and +40 Celsius.
- .7 The scales and related equipment must be approved for trade in Canada and meet all of the requirements and regulations stipulated in the Federal Weights and Measures Act. The Contractor is responsible for obtaining and paying for the Weights and Measures approvals for all three scales.
- .8 The scale and equipment shall have radio frequency protection for Radio Frequency Interference, Electromagnetic Interference and Electrostatic discharge.

1.2 Application

- .1 To weigh loaded and empty vehicles on entry and exit of the landfill.
- .2 The scales and automated weighing systems shall be manufactured with reliability and operated with minimum maintenance, capable of operating normally for as much as 24 hours per day, 7 days a week.
- .3 All of the truck scales and related systems shall be approved legal for trade by Measurement Canada under the Weights and Measures Act.

1.3 Definitions

- .1 Testing: Testing is defined as the operation of a specific item of equipment under actual or simulated conditions for the purpose of ensuring the equipment satisfies its design criteria. All testing shall be conducted by the Contractor. The materials, labour, and equipment required to conduct the testing are the Contractor's responsibility.
- .2 Commissioning: Commissioning is defined as the operation of equipment systems under actual or simulated conditions for the purpose of ensuring the system performs its intended functions.

1.4 Submissions

- .1 The Contractor shall submit a detailed description of their proposed design and installation for all scales. The information is to include (but is not limited to) detailed shop drawings and specifications of the scales, foundation interface and connection, remote display devices, guide rails, skirting, installation guides.
- .2 The Contractor is responsible to check all scale and related equipment shop drawings and ensure the materials, controls, list of equipment supplied, manufacturer's name, and other details are conforming to the requirements of the Contract.

2. PRODUCTS

2.1 Scale Foundation and Concrete Approach Ramp

- .1 The Contractor shall supply and install the scale foundation, anchor bolts, concrete approach ramps, asphalt, signage, payment equipment, steel platforms and other related works closely with the weigh scale supplier to ensure proper coordination of the related work.

2.2 Weighbridge

- .1 The scale's weighbridge shall be manufactured from structural steel capable of weighing vehicles with a dual tandem axle rating of 35,000 kilograms.
- .2 The deck plate shall be checker plate surface with a minimum thickness of 10mm.
- .3 The weighbridge must be capable of accepting wheel loading anywhere on the scale.
- .4 The weighbridge shall be designed in such a way as to provide access to the junction boxes, load cell cables, base plates, and all foundation anchor bolts, from the top of the scale foundation to easily facilitate inspection and maintenance.
- .5 Prepare all steel surfaces to SSPC SP 6. Shop apply a three coat paint finish with a total dry film thickness (DFT) of 6 mils. The coating shall be resistant to degradation from chemicals and ultraviolet light.
- .6 The paint system shall consist of:

- .1 Prime Coat - M33/34 polyamide epoxy primer with 51% solids applied at a DFT of 2 mils.
- .2 Second Coat – M36/37 polyamide epoxy gloss coating with 54% solids applied at a DFT of 2 mils.
- .3 Top Coat – M74/75 aliphatic acrylic urethane gloss coat with 51% solids applied at a DFT 2 mils.

The colour will be selected by the City from the manufacturer's standard range of colours.
All three scales shall be painted the same colour.

- .7 No field welding of the weigh scales is permitted.
- .8 The weigh scales shall be provided with environmental skirting to prevent the build-up of ice, snow, mud and other debris that may affect accurate weighing.
- .9 The weigh scales shall be equipped with steel tire guides at least 200mm high.

2.3 Load Cells, Cables and Electrical Equipment

- .1 The load cell shall be a stainless steel, digital or analog classified to NEMA IV or better.
- .2 Load Cells shall be non-proprietary and of industry standard that is easily available from multiple manufacturers.
- .3 Load Cells shall be N.T.E.P. approved, with:
 - .1 Side load rejection ratio of 500:1
 - .2 Safe Side Load of 100%
 - .3 Maximum overload of 300%
- .4 The Contractor shall submit details of the load cells including any proprietary advantages and materials in the shop drawings (see Section 01300).
- .5 All weigh equipment cabling shall be terminated in weatherproof, stainless steel, junction boxes rated to NEMA IV or better.
- .6 All load cell wiring and cables shall be run in rigid conduit, 100% shielded and encased in an external steel mesh jacket for protection against environment, electrical noise and rodents.
- .7 The scale design shall minimize the number of junction boxes, cable terminations required to reduce servicing requirements and increase reliability.
- .8 All junction boxes, load cell mounting hardware, cover bolts and fasteners to be stainless steel.

- .9 Equipped with integral lightning protection.
- .10 Environmentally sealed.
- .11 Assemblies:
 - .1 Load cell mounting assemblies shall be designed to check lateral movement of the scale platform, while controlled longitudinal movement from temperature (expansion and contraction) is allowed. The design shall be a “free-floating” weighbridge, designed to limit oscillation, and the weighed load to rapidly stabilize, in order to reduce throughput.

2.4 Digital Indicator

- .1 The scale is to be equipped with a digital weight indicator appropriate for use on the truck scale.
- .2 The digital weight indicators are to be equipped with two standard communication ports configured in bit serial ASCII, bi-directional, RS-232C that will allow weight data from the loads cells to be acquired by the computer in an “on-demand” mode.
- .3 The digital indicator shall be capable of performing calibration, span, zero and shift adjustment through software calculations that require no in-scale adjustment.
- .4 The digital weight indicator shall be UL/CSA listed and approved equipment.
- .5 The digital weight indicator must be compatible with the City’s Wasteworks software. and capable of the following functions:
 - .1 Record information on each load including; weight, date, time in, time out, gross weight, net weight, vehicle identification, ticket number, tipping fee rate (both flat rate and rate based unit weight), payment method, company/account name, material type, waste source, and route number.
 - .2 Capability to allow use of tare weights to calculate net weight for any load on the scale.
 - .3 Capability to calculate tipping fee charge based on load weight.
 - .4 Capability to track the number of vehicles on the site at any given time.
 - .5 Produce summary reports on all information recorded for the each individual load.
 - .6 Capability to export information to Microsoft Access.

2.5 Lightning and Surge Protection

- .1 Supply and install a lightning and surge protection systems to protect all components of each scale including (but not limited to): the load cells, scale instruments, printers, signal lights, display devices.

2.6 Remote Display Board

- .1 Each scale shall have a remote display device.
- .2 The display device shall be capable of displaying the weights from loads on the scales.
- .3 The display for each scale shall be visible from all locations on the weigh bridge of that scale and may be mounted independent of the scale.
- .4 The display shall have a minimum digit height of 50mm.
- .5 Each scale shall be capable of automatically weighing loads from vehicles equipped with radio tags/transponders.
- .6 The display board hardware software shall be compatible with the City's Wasteworks software.
- .7 Supply all gates, gate controls, keypad, and interlocking devices (green/red lights) as shown on drawings, including mounting of all these devices. Some of the scales will include traffic gates to control access on and off of the weigh scale. Refer to the drawings for locations of the gates. Gates placed at the scale approach ramp shall open with vehicles equipped with transponders/radio tags. The second gate placed at the exit ramp of the scale shall open on supply of appropriate information being entered into the key pad.
- .8 Vehicles shall be weighed automatically after the appropriate information is entered into the keypad (money paid etc.). Some of the scale lanes are intended to be unmanned and completely automated.

2.7 Commissioning

- .1 Conduct testing and commissioning of each of the weigh scales and all related systems.
- .2 The work included in this section consists of furnishing labour, instruments, and tools required in testing, adjusting, and calibrating the weigh scales and all related equipment.
- .3 All work shall be in accordance with the manufacturer's requirements and in the presence of a qualified representative of the manufacturer present during all testing and commissioning activities.
- .4 Shop Drawings, submittal data, up-to-date revisions, change orders, and other data required for planning, preparation, and execution of the testing and commissioning work shall be complete and available no later than 30 Calendar Days prior to the start of testing and commissioning.
- .5 Weighscale installation shall be complete prior to start of testing and commissioning.
- .6 The wasteworks software system shall be complete and operational. The Contractor shall install all necessary interfaces, computers and computer programs, and make these

operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution.

- .7 All test points, load cells, identification tags, etc., shall be accessible and clear of obstructions that would impede testing and commissioning procedures.
- .8 Qualified installation or start-up personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.
- .9 Any deficiencies in the installation or performance of the weighscale and related systems shall be brought to the attention of the Contract Administrator.
- .10 The work necessary to correct deficient items shall be performed and verified by the Contractor before any retesting. Unresolved deficiencies shall be noted in a final report.
- .11 All instruments used for measurements shall be accurate and calibrated. The Contractor is responsible for obtaining and paying all costs associated with approval under the Weights and Measures Act of Canada to approve the scales legal for trade/tender.

2.8 Warranty

- .1 The scale and all equipment shall have a ten (10) year all-inclusive warranty. The Contractor shall promptly correct any defects during the warranty period.
- .2 The scale assembly including all load cells, scale instrumentation, printers, junction boxes, cables, display devices and accessories shall be warranted from failures due to a defect in manufacturing, workmanship, installation, lightning, or surge voltages during the warranty period.
- .3 The Contractor shall bear all costs associated with repairing any defect covered under the warranty including (but not limited to) replacement parts, equipment, on-site labour, freight, handling, and re-certification to Weights and Measures.
- .4 The load cells, display devices and other electronic equipment shall be warranted against defects for a minimum a period of two (2) years.

2.9 Servicing Requirements

- .1 The Contractor shall supply a copy of the manufacturer's recommended maintenance and calibration program for the weigh scales for a period of five (5) years. Provide all details of the program, such as frequency of inspections, testing, calibration, lubrication, and cleaning.
- .2 The proposed maintenance and calibration program shall include inspection and calibration of the weigh scales at least every six (6) months.

END OF SECTION