

**SPECIFICATION  
FOR  
SCALES, VEHICLE**

(THIS SPECIFICATION IS RELEASED FOR PROCUREMENT PURPOSES UNTIL REVISED OR RESCINDED)

**SCOPE**

THIS SPECIFICATION COVERS THE REQUIREMENTS FOR PITLESS, PORTABLE, ELECTRONIC, STEEL AND CONCRETE TYPE VEHICLE SCALES INCLUDING WEIGHT INDICATOR DEVICE, AND TICKET PRINTER. IT IS NOT INTENDED TO COVER ALL TYPES OF COMMERCIALY AVAILABLE SCALES, NOR TO INCLUDE THE COST OF SITE PREPARATION FOR THE SCALE, NOR TO INCLUDE A "COMPUTERIZED SYSTEM".

**I. CLASSIFICATION**

- A. TYPE 1 - PITLESS, PORTABLE, ELECTRONIC WITH STEEL DECK  
TYPE 2 - PITLESS, PORTABLE, ELECTRONIC WITH CONCRETE DECK.**

**B. SIZE AND CAPACITY**

THE SIZES AND CAPACITIES SHALL BE AS SPECIFIED IN THE INVITATION FOR BIDS.

**II. APPLICABLE STANDARDS**

THE FOLLOWING DOCUMENTS OF ISSUE IN EFFECT ON THE DATE OF THE INVITATION FOR BIDS SHALL FORM A PART OF THIS SPECIFICATION TO THE EXTENT DESCRIBED IN REQUIREMENTS.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) FORMERLY  
NATIONAL BUREAU OF STANDARDS (NBS) HANDBOOK 44  
P.O. BOX 4025  
GAITHERSBURG, MD 20885

NATIONAL TYPE EVALUATION PROGRAM (NTEP)  
P.O. BOX 4025  
GAITHERSBURG, MD 20885

NORTH CAROLINA DEPARTMENT OF AGRICULTURE  
(NCDA) STANDARDS DIVISION REGULATIONS  
P.O. BOX 27647/DEPT. SD  
RALEIGH, N.C. 27611

### III. REQUIREMENTS

#### A. GENERAL

THIS SPECIFICATION COVERS VEHICLE SCALES COMPLETE WITH ALL NECESSARY ACCESSORIES CUSTOMARILY FURNISHED BY THE MANUFACTURER TO ENABLE THE UNIT TO FUNCTION RELIABLY IN SUSTAINED OPERATION.

##### 1. STANDARD PRODUCT

THE SCALE SHALL BE NEW AND A STANDARD PRODUCTION MODEL OF LATEST DESIGN AND AS SPECIFIED HEREIN.

##### 2. USE CONDITIONS

DESIGN AND CONSTRUCTION SHALL BE SUCH THAT THE SCALE WILL WITHSTAND EXTREMELY HARD USE SUCH AS OPERATION IN THE OPEN AIR UNDER ALL WEATHER CONDITIONS FOR EXTENDED PERIODS OF TIME. COMPONENTS SHALL BE SO DESIGNED AS TO RESIST ANY HARMFUL EFFECTS OF DUST, WATER, WIND, RODENTS OR RADIO FREQUENCY INTERFERENCE AND ELECTROMAGNETIC INTERFERENCE.

##### 3. EASE OF MAINTENANCE

THE DESIGN OF THE SCALE SHALL PERMIT READY ACCESSIBILITY FOR SERVICING, REPLACEMENT AND ADJUSTMENT OF COMPONENT PARTS AND ACCESSORIES WITH MINIMUM DISTURBANCE OF OTHER ELEMENTS.

##### 4. DECK

THE DECK SHALL BE DESIGNED TO WITHSTAND MAXIMUM LOADS UNDER CONTINUOUS OPERATION. THE DECK MATERIAL SHALL BE DESIGNED ALSO TO HANDLE REPETITIVE TRAFFIC WITH TIRE PRESSURES UP TO 120 PSI WITHOUT DEFORMING OR RIPPLING.

##### 5. APPROVALS AND CERTIFICATION

THE BIDDER MUST CERTIFY THAT THE MODEL SCALE OFFERED COMPLIES WITH THE APPLICABLE TECHNICAL REQUIREMENTS OF NIST HANDBOOK 44 AND WAS EVALUATED UNDER THE NATIONAL TYPE EVALUATION PROGRAM (NTEP). IN ADDITION, THE SCALE AND WEIGHT INDICATING DEVICE MUST BE TYPE APPROVED BY THE N.C. DEPARTMENT OF AGRICULTURE STANDARDS DIVISION, MEASUREMENT SECTION.

##### 6. WELDING

ALL WELDING WILL BE DONE IN COMPLIANCE WITH THE AMERICAN WELDING SOCIETY D1.1-88 STRUCTURAL WELDING CODE AND BE ACCOMPLISHED BY THE MANUFACTURER AT THE FACTORY.

##### 7. SURFACE FINISH

ALL STEEL SURFACES SHALL BE PROPERLY CLEANED, PRIMED AND FINISHED IN ACCORDANCE WITH ACCEPTABLE COMMERCIAL PRACTICES TO GIVE LONG TERM DURATION IN AN OUTDOOR ENVIRONMENT. PREMATURE FAILURE DUE TO MANUFACTURER'S IMPROPER PRACTICES WILL BE THE RESPONSIBILITY OF THE BIDDER TO CORRECT AT NO CHARGE TO THE STATE.

##### 8. LOAD SENSORS (CELLS)

- A. LOAD CELLS SHALL TRANSMIT WEIGHT INFORMATION TO THE WEIGHT INDICATOR. THE LOAD CELL SHALL BE COMMERCIALY AVAILABLE FROM MULTIPLE SOURCES.
- B. ALL LOAD CELLS, JUNCTION BOXES (NEMA-4), AND THE SCALE CHECKING SYSTEM MUST BE EASILY ACCESSIBLE. ALL WIRING TO BE RUN IN CONDUIT.
- C. LOAD CELLS SHALL BE WATER SEALED AND MOUNTED AND SECURELY SUPPORTED ON THE FOUNDATION. SURGE VOLTAGE PROTECTION SHALL BE PROVIDED.
- D. LOAD CELLS SHALL BE APPROVED BY NTEP AND MEET THE NIST HANDBOOK 44 FOR CLASS III L DEVICES. A CERTIFICATE OF CONFORMANCE TO THESE STANDARDS SHALL BE FURNISHED UPON REQUEST.

9. CONCENTRATED LOAD CAPACITY (CLC)

THE CLC AS DEFINED BY NIST SHALL BE A MINIMUM OF 35 TONS. IN ADDITION THE SCALE SHOULD BE DESIGNED TO HANDLE THE MAXIMUM REPETITIVE LOADS SPECIFIED IN THE INVITATION FOR BIDS.

**B. TYPE 1 - PITLESS, PORTABLE, ELECTRONIC SCALE WITH STEEL DECK.**

1. CONSTRUCTION

- A. THE DECK SHALL BE A LOW PROFILE, FREE-FLOATING MODULAR DESIGN UTILIZING HIGH-STRENGTH STEEL DECK PLATE OF MINIMUM 50,000 PSI YIELD STRENGTH. THE SCALE SHALL BE DESIGNED TO BE EASILY FIELD EXPANDABLE.
- B. A TOTALLY ENCLOSED STEEL "SANDWICH" TYPE DESIGN SHALL BE UTILIZED TO MINIMIZE DEFLECTION, PREVENT PREMATURE STRUCTURAL FAILURE AND ELIMINATE ACCUMULATION OF DIRT, DEBRIS AND WATER.

**C. TYPE 2 - PITLESS, PORTABLE, ELECTRONIC SCALE WITH CONCRETE DECK.**

1. CONSTRUCTION

THE DECK SHALL BE A LOW PROFILE, FREE FLOATING, MODULAR DESIGN UTILIZING HIGH STRENGTH STEEL REINFORCED CONCRETE WITH A MINIMUM OF 5,000 PSI COMPRESSIVE STRENGTH. THE CONCRETE SHALL BE POURED AT THE FACTORY OR AT THE SITE AND HAVE HIGH ABRASION RESISTANCE AND LOW PERMEABILITY FROM INFILTRATION OF WATER AND ROAD SALTS. THE SCALE SHALL BE DESIGNED TO BE EASILY FIELD-EXPANDABLE. CERTIFICATION OF CONCRETE STRENGTH SHALL BE FURNISHED UPON REQUEST.

**D. EQUIPMENT**

1. WEIGHT INDICATOR

- A. A DESKTOP INDUSTRIAL STYLE DIGITAL WEIGHT INDICATOR COMPATIBLE WITH THE SCALE OFFERED IS TO BE FURNISHED. INDICATOR MUST COMPLY WITH THE NIST HANDBOOK 44 REQUIREMENTS FOR CLASS III L DEVICES AND BE CERTIFIED BY NTEP.

B. THE FOLLOWING MINIMUM INFORMATION MUST BE OBTAINABLE:

- 1. GROSS WEIGHT

2. TARE WEIGHT
3. NET WEIGHT
4. TIME AND DATE
5. CUSTOMER I.D. NUMBER
6. CONSECUTIVE NUMBER

- C. THE WEIGHT INDICATOR MUST BE EASILY PROGRAMMABLE TO ALLOW FLEXIBILITY IN PRINTING REQUIREMENTS.
- D. SURGE VOLTAGE PROTECTION MUST BE FURNISHED.
- E. THE WEIGHT INDICATOR SHALL BE DESIGNED TO INTERFACE WITH COMPUTERS AND PRINTERS.

2. TICKET PRINTER

HIGH SPEED, DOT MATRIX PRINTER THAT WILL INTERFACE AND COMMUNICATE WITH WEIGHT INDICATOR OFFERED SHALL BE FURNISHED AND MUST PRINT A MINIMUM OF:

1. GROSS WEIGHT
2. TARE WEIGHT
3. NET WEIGHT
4. TIME AND DATE
5. I.D. NUMBER
6. CONSECUTIVE NUMBER

MUST PRINT AT LEAST 3 LINES PER SECOND. MUST HAVE AUTOMATIC TICKET ADVANCE. MUST HAVE 40 COLUMN CAPABILITY.

3. INSTALLATION OF SCALE, WEIGHT INDICATOR AND PRINTER

- A. THE SUCCESSFUL BIDDER WILL BE REQUIRED TO PROVIDE AND INSTALL THE SCALE WITH ALL NECESSARY HARDWARE (INCLUDING CABLING) AND SOFTWARE TO INTERFACE THE WEIGHT INDICATOR AND PRINTER WITH THE SCALE.
- B. THE SUCCESSFUL BIDDER WILL TEST THE SYSTEM AT EACH LANDFILL SITE AND LEAVE IN SATISFACTORY OPERATING CONDITION.

**E. OPTIONAL EQUIPMENT - WHEN SPECIFIED IN THE INVITATION FOR BID, PRICES SHALL BE QUOTED ON THE FOLLOWING OPTIONAL ITEMS:**

1. LIGHTNING PROTECTION SYSTEM

ALL SCALE COMPONENTS INCLUDING LOAD CELLS, SCALE INSTRUMENT, PRINTER AND ACCESSORIES SHALL BE PROTECTED.

2. OPTIONAL WEIGHT INDICATORS.
3. OPTIONAL PRINTERS.

**IV. WARRANTY**

THE CONTRACTOR WARRANTS TO THE OWNER THAT ALL EQUIPMENT FURNISHED UNDER THIS SPECIFICATION WILL BE NEW, OF GOOD MATERIAL AND WORKMANSHIP AND AGREES TO REPLACE

PROMPTLY ANY PART OR PARTS WHICH BY REASON OF DEFECTIVE MATERIAL OR WORKMANSHIP SHALL FAIL UNDER NORMAL USE, FREE OF NEGLIGENCE OR ACCIDENT, FOR A MINIMUM PERIOD OF 24 MONTHS FROM DATE OF ACCEPTANCE. SUCH REPLACEMENT SHALL INCLUDE ALL PARTS, LABOR AND TRANSPORTATION COSTS TO THE OWNER.

UNDER SAME AND ALL CONDITIONS AS ABOVE, THE TYPE 2 SCALE (CONCRETE DECK) SHALL BE COVERED FOR AN ADDITIONAL PERIOD OF AT LEAST 36 MONTHS. ANY PERIODIC INSPECTIONS WHICH MAY BE PERFORMED BY THE CONTRACTOR OR HIS REPRESENTATIVE SHALL BE WITHOUT CHARGE TO THE OWNER.

#### **V. TRAINING, MANUALS AND DRAWINGS**

- A. THE CONTRACTOR SHALL FURNISH A QUALIFIED REPRESENTATIVE TO INSTRUCT THE OWNERS OPERATOR(S) IN THE OPERATION AND MAINTENANCE OF THE EQUIPMENT FOR A MINIMUM PERIOD OF EIGHT HOURS.
- B. AN OPERATOR'S MANUAL FOR EACH COMPONENT OF THE SYSTEM SHALL BE FURNISHED.
- C. SUCCESSFUL BIDDER WILL BE RESPONSIBLE FOR FURNISHING THE OWNER A COPY OF THE NECESSARY DRAWINGS AND SPECIFICATIONS NEEDED TO PREPARE THE SITE.

#### **VI. ACCEPTANCE OF EQUIPMENT AND TESTING**

- A. UPON RECEIPT OF THE EQUIPMENT, IT IS THE RESPONSIBILITY OF THE OWNER TO DETERMINE IF ALL THE EQUIPMENT CALLED FOR IN THE IFB IS DELIVERED AS SPECIFIED.
- B. THE SUCCESSFUL BIDDER WILL BE RESPONSIBLE FOR PERFORMING THE NECESSARY FIELD TESTING TO DETERMINE IF THE SCALE IS OPERATING SATISFACTORILY. THE N.C. DEPT. OF AGRICULTURE, STANDARDS DIVISION, IS TO BE NOTIFIED BY THE SUCCESSFUL BIDDER SO THIS DIVISION CAN DO THEIR TESTING FOR FINAL APPROVAL.

#### **VII. DELIVERY AND PAYMENT**

DELIVERY OF AND PAYMENT FOR THIS EQUIPMENT UNDER THIS SPECIFICATION SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE INVITATION FOR BIDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PACKING, PACKAGING OR PROTECTION REQUIRED TO INSURE DELIVERY IN AN UNDAMAGED CONDITION. THE OWNER SHALL PROVIDE DRY AND SECURE STORAGE FOR ELECTRICAL TYPE COMPONENTS PRIOR TO INSTALLATION.

#### **VIII. ORDERING DATA**

PURCHASER SHOULD EXERCISE ANY DESIRED OPTION OFFERED HEREIN AND SHOULD SPECIFY THE FOLLOWING:

1. TITLE, NUMBER, AND DATE OF THIS SPECIFICATION.
2. SIZES AND CAPACITIES OF SCALES.
3. TYPE OF SCALE, TYPE 1-STEEL DECK OR TYPE 2-CONCRETE DECK.
4. OPTIONAL EQUIPMENT DESIRED.

**NOTES:** 1. THIS SPECIFICATION DOES NOT COVER THE REQUIREMENTS FOR SITE PREPARATION SUCH AS SOIL ANALYSIS, POURING CONCRETE (OTHER THAN SCALE DECK), ELECTRICAL WORK, BACKFILLING, AND ANY OTHER RELATED FOUNDATION WORK. THIS PORTION OF THE WORK WILL BE HANDLED SEPARATE FROM THIS CONTRACT ON AN INDIVIDUAL BASIS BY EACH LOCALITY.

2. THIS SPECIFICATION DOES NOT COVER THE REQUIREMENTS FOR A "COMPUTERIZED DATA MANAGEMENT SYSTEM". EACH LOCALITY WILL BE HANDLING THEIR REQUIREMENTS ON AN INDIVIDUAL BASIS UNDER A SEPARATE CONTRACT.
3. THE SUCCESSFUL BIDDER WILL BE RESPONSIBLE FOR FURNISHING THE NECESSARY SUPERVISION NEEDED TO ASSURE THE SITE IS PREPARED FOR RECEIPT OF THE SCALE AND RELATED COMPONENTS.
4. THE ACQUISITION OF NECESSARY LOCAL PERMITS TO INSTALL THE SCALE WILL BE THE RESPONSIBILITY OF EACH LOCALITY.