

SECTION 33 05 17

ADJUST MISCELLANEOUS STRUCTURES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Adjustment of utility structures.
- B. Related Sections:
 - 1. Section 33 40 00 – Storm Drainage Utilities.

1.02 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. Bid Items have been provided for various adjustments. Payment at the Bid Unit Price for all items is considered compensation in full for all materials and Work required to furnish and install the Bid Item in place. All necessary material removals, aggregate base, bituminous material, compaction and preparation work shall be considered incidental. On new structures and gate valve boxes, no separate payment for adjustment to final grade will be made. Adjustment of these new items shall be considered incidental to the bid items for the furnishing and installing of each item.
 - 2. Adjust Manhole Casting: Measurement will be by each structure adjusted.
 - 3. Adjust Handhole: Measurement will be by each handhole adjusted. Only one adjustment will be paid per handhole regardless of the number of adjustments made.
 - 4. Adjust Gate Valve: Measurement will be by each gate valve box adjusted. Only one adjustment will be paid per valve box regardless of the number of adjustments made. Payment will only be made for adjustment of valve boxes within paved areas. This item shall not apply to newly furnished and installed gate valves and boxes.
 - 5. Valve Box: Measurement will be per each valve box and bonnet furnished and installed. All other items will be considered incidental. This shall include removal of the existing valve box and all necessary excavation, aggregate base, bituminous material and preparation work.
 - 6. Reconstruct Drainage Structure: Measurement will be per each structure reconstructed greater than 12 inches in height. This item shall include the adjustment rings necessary to set the casting to finish grade but does not include installation of the casting. This item shall not apply to newly furnished and installed structures.
 - 7. Casting Assembly: Measurement will be per each by the type of casting assembly furnished and installed. This item shall not apply to newly furnished and installed structures.
 - 8. Salvage and Install Casting: Measurement shall be per each casting assembly salvaged and installed. Adjusting rings shall not be included under this item.
 - 9. Install Casting: Measurement shall be per each casting assembly installed. Adjusting rings shall not be included under this item. This item shall not apply to newly furnished and installed structures.
 - 10. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

- A. American Society of Testing and Materials (ASTM):
 - 1. ASTM A48 – Specification for Gray Iron Casting.

2. ASTM A240 – Specification for Heat – Resisting Chromium – Nickel Stainless Steel Plate Sheet and Strip for Pressure Vessels.
 3. ASTM C6 – Specification for Normal Finishing Hydrating Lime (Mortar).
 4. ASTM C141 – Specification for Hydraulic Hydrated Lime for Structural Purposes (Mortar).
 5. ASTM C150 – Specification for Portland Cement (Concrete Rings/Mortar).
 6. ASTM C923 – Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Materials.
 7. ASTM F593 – Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
 8. ASTM F594 – Specification for Stainless Steel Nuts.
- B. Minnesota Department of Transportation “Standard Specifications for Construction” 2020 Edition (MnDOT Spec.):
1. 2503 – Pipe Sewers.
 2. 2506 – Manholes and Catch Basins.
 3. 3733 – Geotextiles.

1.04 SEQUENCING AND SCHEDULING

- A. Contractor, Engineer, and Owner shall inspect all existing structures prior to beginning construction.
- B. Owner will remove any foreign material found in the existing structures prior to construction. Contractor is responsible for removing any foreign material that enters the structures during construction.

PART 2 PRODUCTS

2.01 ADJUSTING RING

1. only concrete adjusting rings will be allowed

2.02 CASTINGS

- A. Manhole, Catch Basin Frames, and Covers:
 1. Requirement: ASTM A48.
 2. Material: Class 35 cast iron. Best grade. Free from injurious defects and flaws.
 3. Finish Preparation: Sandblast.
 4. Machine cover and frame contact surface for non-rocking protection.
 5. Type and Style: Per details on Drawing. Covers without grate openings shall be stamped “Storm Sewer” or “Sanitary Sewer”.
 6. Covers with 2 concealed pick holes of approved design.
 7. Weight: Minimum of 380 lbs.

2.03 VALVE BOX

- A. Base, Bottom, and Riser shall be 3-piece ductile iron screw type per standard detail plate
- B. Top Section, Cast Iron screw type and drop lid.

PART 3 EXECUTION

3.01 GENERAL

- A. The necessary vertical alignment will be determined by the Engineer and generally as indicated on the schedule of adjustments.
- B. Structures shall not be adjusted prior to placement of base course unless approved by Engineer.
- C. The frame shall be raised or lowered to match the street or gutter.
- D. Protect existing structures from damage.
- E. Prevent sand, concrete, or any other debris from entering the structures.

3.02 PREPARATION

- A. Call utility owners to field mark their utility locations.
- B. Contractor to verify exact location of existing utilities.

3.03 INSTALL ADJUSTMENT RINGS AND CASTING

- A. Remove all dirt, debris, dust, and other deleterious material from surface prior to placement of first adjusting ring.
- B. All edges shall be neatly saw cut before patching.

3.04 ADJUST VALVE BOX

- A. Adjust box by screwing top section up or down.
- B. Prevent sand, chunks of concrete, or any other debris from entering the valve box:
 - 1. Short sections inserted inside the existing top section are not allowed to perform adjustment, unless specified.
- C. Install approved sections as needed.
- D. Patch road to match existing pavement section.

3.05 HYDRANT EXTENSIONS

- A. Remove upper section.
- B. Install extension kit as per manufacture's requirements.
- C. Replace upper and lower rod assemblies with heavy-duty for extensions in excess of 18 inches.
- D. Replace the upper section.

3.06 FIELD QUALITY CONTROL

- A. For adjustments made within bituminous surfaced areas, any settlements of the bituminous surface greater than 3/8 inch below the rim of the adjustment structure will require removal and replacement of the bituminous surfacing at the Contractor's expense.

- B. Secure manholes and structures immediately after completion or before suspension of operations at the end of working day with castings or suitable alternative device.
- C. All manholes and valve boxes shall be raised twice, once after base course, and once before wear course
- D. Adjustments are as follows:
 - 1. Base course - leave manhole castings 1/4" - 1/2" below base course.
 - 2. Wear course - leave manhole 1/4" - 1/2" below finished grade.
 - 3. Gate valves - leave gate valves 1/4" - 1/2" below both base and wear course.
- E. Adjust frame downward by removing the necessary number of adjustment rings from the structure and resetting the frame in a full mortar bed to grade.
- F. Regardless of the direction of adjustment, no shims of any material will be allowed. The minimum thickness of all mortar joints shall be at least 1/4 inch with a maximum allowable thickness of 1/2 inch. All excess mortar from the joint shall be wiped clean from the inside of all rings and frame. All manhole castings must be replaced prior to the placing of the final wear course.
- G. Any re-heating of bituminous pavement shall have prior approval by the Engineer and shall be performed with infra-red heat with the Engineer present.

END OF SECTION