SECTION 02310
ADJUSTING MANHOLES, INLETS AND VALVE BOXES TO GRADE

PART I: GENERAL

1.1 GENERAL REQUIREMENTS
- A. Adjusting elevation of manholes, inlets and valve boxes to new grades.

1.2 MEASUREMENT AND PAYMENT
- A. Unit Prices:
  1. No separate payment shall be made for adjusting inlets and valve boxes to grade for new construction under this Section. Include payment in the unit price for related item.
  2. Payment for adjusting existing manhole and frame and cover to new grade is on a unit price basis for each manhole and frame and cover.
  3. Payment for adjusting existing utility structures to grade is on unit price basis for each:
     - a. Inlet adjusted.
     - b. Valve box adjusted.
     - c. Refer to Section 01270 – Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum):
  1. If Contract is Stipulated Price Contract, payment for Work in this Section is included in Total Stipulated Price.

1.3 REFERENCES
- A. CFTS – City of Friendswood Technical Specifications.

PART II: PRODUCTS

2.1 CONCRETE MATERIALS
- A. Provide concrete, conforming to requirements of Section 03300 – Structural Concrete.
- B. Provide precast concrete manhole sections and adjustment rings conforming to requirements of Section 02305 – Precast Concrete Manholes.
- C. Provide mortar conforming to requirements of Section 03100 – Mortar.

2.2 CAST-IRON MATERIALS
- A. Provide cast-iron materials conforming to requirements of Section 02315 – Frames, Grates, Rings and Covers.

2.3 PIPING MATERIALS

A. For riser pipes and fittings, refer to all Sections from Section 02200 to Section 02280.

2.4 MASONRY MATERIALS FOR STORM SEWER MANHOLES AND INLETS

A. Provide concrete brick masonry units.

PART III: EXECUTION

3.1 EXAMINATION

A. Examine existing structure, valve box, frame and cover or inlet box, frame and cover or inlet, piping and connections for damage or defects affecting adjustment to grade. Report damage or defects to the Project Manager.

3.2 ESTABLISHING GRADE

A. Coordinate grade-related items with existing grade and finished grade or paving and relate to established bench mark or reference line.

3.3 ADJUSTING MANHOLES AND INLETS

A. Curb and Gutter Streets.
   1. Manholes and inlets in the paving shall have top of ring matching top of surrounding pavement.
   2. Manholes and inlets within five feet (5 Ft) of the back of curb shall have top of ring a minimum of three inches (3 In) above the top of the nearest adjacent curb.
   3. All other manholes and inlets shall be three inches (3 In) above finished grade. In new development where finish grade has not been established, manhole shall be six inches (6 In) above rough grade.

B. Open Ditch Streets.
   1. Manholes and inlets in the paving shall have top of ring matching top of surrounding pavement.
   2. Manholes and inlets between edge of pavement and top of ditch bank shall be one inch (1 In) above adjacent finished grade.
   3. Manholes and inlets at any location in ditch shall be a minimum of three inches (3 In) above the highest top of ditch bank.
   4. All other manholes and inlets shall be three inches above finished grade. In new development where finish grade has not been established, manhole shall be six inches (6 In) above rough grade.

C. Manholes in ditches shall be a minimum of three inches above the elevation at the center of the road.

D. Rebuild adjustment portion of manhole or inlet by adding or removing Adjustments. Follow procedures for the type of structure being adjusted detailed in the following Sections:
   1. Section 02300 – Cast-In-Place Concrete Manholes.
   2. Section 02305 – Precast Concrete Manholes.
   3. Section 02605 – Cast-In-Place Inlets, Headwalls and Wingwalls.
   4. Section 02610 – Precast Concrete, Inlets, Headwalls and Wingwalls.
   5. Section 02615 – Concrete Brick Manholes for Storm Sewers.

E. Salvage and reuse cast-iron frame and cover or grate.

F. Protect or block off manhole or inlet bottom using wood forms shaped to fit so that no debris or soil falls to bottom during adjustment.

G. Verify that manholes and inlets are free of visible leaks as result of reconstruction. Repair leaks in manner subject to the Project Manager's approval.

3.4 ADJUSTING VALVE BOXES

A. Salvage and reuse valve box and surrounding concrete block as approved by the Project Manager. No separate pay.

B. Remove and replace six inch (6 In) ductile iron riser pipe with suitable length for depth of cover required to establish adjusted elevation to accommodate actual finish grade.

C. Reinstall valve box and riser piping plumbed in vertical position. Provide minimum six inches (6 In) telescoping freeboard space between riser pipe top butt end and interior contact flange of valve box for vertical movement damping.

D. After valve box has been set, aligned and adjusted so that top lid is level with final grade.

3.5 BACKFILL AND GRADING

A. Backfill area of excavation surrounding each adjusted manhole, inlet and valve box and compact according to requirements of Section 02120 – Excavation and Backfill for Structures.

B. Grade ground surface to drain away from each manhole and valve box. Place earth fill around manholes to level of upper rim of manhole frame. Place earth fill around valve box concrete slab.

C. In unpaved areas, grade surface at uniform slope of one to five (1:5) from manhole frame to natural grade. Provide minimum of four inches (4 In) of topsoil conforming to requirements of Section 02905 – Topsoil. Provide seeding in accordance with Section 02910 – Hydromulch Seeding or if sodding in accordance with Section 02915 – Sodding.

END OF SECTION