



TECHNICAL SPECIFICATIONS
FOR
ADJUSTING MANHOLES

1. Description

This item shall consist of adjusting sanitary sewer manhole frames and water manhole frames (i.e. air releases) and furnishing all labor, materials, and other items necessary to bring the frames to the grades as shown on the Plans or as specified by the Engineer.

Milling or grinding around manholes shall be accomplished with care to prevent damage to utility property. Unless otherwise approved by the Engineer, milling or grinding operations shall be carried to within one (1) foot of all manholes. The Contractor will be responsible for hand chipping the remaining one foot on all manholes.

The adjustment of other utility facilities owned by Knoxville Utilities Board (KUB) Electric, BellSouth, AT&T and others shall be provided by the respective owner. Payment for the adjustment of storm sewer frames and manholes will be made under Item 23.0.

2. Materials

- (a) Gray iron adjusting rings of 1", 1½" and 2" in height shall be used to adjust existing manhole frames to final grade. The ring shall be 23 5/8" in diameter and capable of accepting a 1 1/8" lid. Ring shall be a minimum of 3/4" thick by appropriate height meeting ASTM A36 or A.I.S.I. 1020 Hot Rolled Steel. A maximum of one new adjusting ring may be used per manhole. Acceptable adjustment rings shall be as supplied by American Highway Products, Massillon, Ohio or W.M. Miller, Knoxville, Tennessee or approved equal.
- (b) Clay brick shall be medium hard or better quality Grade SM sewer brick conforming to the requirements of ASTM C32. Brick shall be solid and not cored.
- (c) Precast grade rings, either 4" or 6", may be installed above the manhole cone. No more than two grade rings shall be used. Where manholes are to be raised or lowered 12 inches or more, the existing cone shall be removed and precast sections installed.
- (d) Butyl mastic sealant shall be used when rejoining the manhole frame to the precast manhole following milling operations and for all adjustments to provide a watertight structure. The sealing compound shall be produced from blends of refined hydrocarbon resins and plasticizing compounds reinforced with inert mineral filler, and shall contain no solvents, irritating fumes, or obnoxious odors. The compound shall not depend on oxidizing, evaporation, or chemical action for its adhesive or cohesive strength. It shall be supplied in extruded rope form of suitable cross section and in such sizes to seal the joint space. Use 2 complete ropes at each joint.

3. Construction Requirements

- (a) All manhole frames shall be reset as follows:

Manholes that are more than 1/4 inch over or under the specified grade.

- (b) The manhole frames shall be accurately set to line and grade by one of the following methods:

- 1) Removing the frame and lid and raising or lowering the masonry top of the structure and resetting with either clay brick and mortar or by using precast grade rings.
- 2) Use of one new adjustment ring fitted to the manhole frame. Placement of adjusting ring shall occur immediately in advance of the paving operation. The Contractor shall install the adjusting ring according to the manufacturer's specifications and recommendations which will be provided by KUB. The ring shall be adequately tightened to insure proper operation under normal traffic conditions. The grade of the lid shall be within a 1/4" tolerance of the surrounding pavement and shall provide a smooth riding surface.

- (c) Excavation shall be performed whenever necessary to bring the frames to grade on the Plans and as designated by the Engineer. Backfill material and compaction shall conform to the Specifications for Mineral Aggregate Base.

- (d) All frames shall be thoroughly cleaned of all excess mortar and accumulations of silt, clay, debris or foreign matter of any kind and shall be free from such at the time pavement is to be laid.

- (e) Flat metal manhole covers shall be temporarily placed immediately ahead of the paver so that the paver shall never pass over crowned manholes. A sufficient number of flat covers shall be available on the job site to allow the paving operation to progress smoothly. Once the ring area has been paved, the temporary manhole cover shall be removed and the original manhole cover placed on the ring. The Contractor shall fill in any needed asphaltic concrete to insure a proper, neat and long-lasting installation. The Contractor will be responsible for any repair or maintenance due to poor workmanship.

- (f) All manhole and valve box covers shall be cleaned and returned to their original condition after paving. No asphalt or debris shall be left on any lid or cover.

- (g) All installations shall be inspected and approved by a KUB inspector.

4. Equipment

The Contractor shall provide the necessary tools and equipment to complete all work as described above.

5. Measurement

The number of manhole frames adjusted and accepted will be measured for payment per each.

6. Payment

Payment will be made under the following bid items as set forth in the Bid Schedule and shall be full compensation for all work, materials, labor, and incidentals required to complete the work in accordance with the Plans and Specifications.

<u>Pay Item</u>	<u>Unit</u>
Adjusting Manhole Frames (Full Mill Depth)	Ea.
Adjusting Manhole Frames (Adjustment Ring Only)	Ea.

On milled streets, manholes will be lowered in order that leveling can be accomplished. After leveling is complete, the manholes will be raised to the correct surface grade. This will be one adjustment and paid for under pay item, Adjusting Manhole Frames (full mill depth).