

ITEM 0101701

SPECIAL MANHOLE

DESCRIPTION

This item shall include saw cutting existing pavement, excavating for, cutting existing sewer or storm drainage line and furnishing all labor and materials for construction of a special manhole around an existing storm or sewer pipe. Any connections involving storm or sewer lines will require a Metropolitan District Commission (MDC) permit and inspection.

REFERENCED ITEMS

Item 0103501

REQUIRED SUBMITTALS

None

MATERIALS

The materials used shall be of a type approved by and accepted by the Metropolitan District Commission and as described by typical details in the plans and in the Materials Section of these specifications. In general, manholes will be constructed of brick, concrete block or precast concrete units.

1. CONCRETE AND MORTAR

Concrete for block or precast units will be of Class "A" and shall conform to the requirements of Section M.03 of the State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction, Form 816, 2004.

Mortar required shall be composed of one part Portland cement and two parts of surface dry fine aggregate. No lime or calcium shall be added to the mortar mix. Portland cement, Type I, must conform to the requirements of AASHTO - M85-04 and shall not have a temperature exceeding 160 F at the time of delivery to the mixer. Gradation requirements of fine aggregate are as follows:

Square Mesh Sieves	Total Percent Passing By Weight
3/8	100
No. 4	95-100
No. 88	0-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No.100	2-10

2. MANHOLE STEPS

Manhole steps shall be of forged aluminum alloy 6005-T5 as manufactured by the Aluminum Company of America or equal providing 1500 pounds maximum load on cross bar.

3. MANHOLE FRAMES AND COVERS

Cast iron manhole frames and covers shall conform to item 0101620

4. BRICKWORK

Brickwork shall be #1 sewer brick.

5. BACKFILL

Backfill shall be bank run gravel conforming to Item 0103501 from the invert of the existing pipe to the road subgrade in 6" layers thoroughly compacted. Below the invert of the pipe, backfill may be excavated material unless otherwise directed by the Engineer.

CONSTRUCTION METHODS

The shape and dimensions shall substantially conform to the standard Type I or Type II manholes as shown by the typical details. The construction shall be amended for installation around existing pipe as follows and shown by the applicable detail.

1. BASE SECTION

After excavation to the required depth and dimensions, and the existing combination storm and sewer line has been exposed and supported, 6" of

3/4" crushed stone base shall be placed and tamped for a minimum of 84" diameter area. An 8" thick by 72" minimum diameter Class "A" (3000p.s.i.) concrete manhole base shall be poured on the stone foundation. After allowing sufficient time for the poured concrete manhole base to set, a precast concrete manhole riser section that is cut to fit around the existing pipe (see detail) shall be set on the concrete manhole base. (Alternatively, a 36" high brick or concrete block riser section may be constructed around the existing pipe). The precast concrete riser unit may be shimmed with 6" concrete block as may be required to fit the cut section around the existing pipe. Next, the existing pipe shall be cut from the springline up and removed, leaving the lower half of the pipe intact. Class "A" concrete shall next be poured inside the bottom riser section from the top of the poured concrete base to the spring line of the existing combined sewer and storm drainpipe. The area around the existing pipe shall be sealed with non-shrink grout or elastomeric seal and such seal shall be and remain watertight.

2. UPPER SECTIONS

The remainder of the manhole shall next be constructed to the requirements of standard Type I or Type II manholes, as required.

3. MORTAR

When brick or concrete block is used in lieu of precast concrete units, the outside surface shall be covered (parged) with a minimum 1/4" coat of mortar.

4. MANHOLE STEPS

Forged aluminum manholes steps shall be built into the manhole walls and elsewhere as indicated, and spaced at not more than 16" apart vertically and as shown on the details. Steps should project 4" inside of manhole. That portion of aluminum steps encased in concrete shall be covered with bitumastic or zinc chromate paint.

5. SETTING FRAME AND COVER

A cast iron frame and cover, well coated with bituminous paint prior to placement, shall be provided on the top of each manhole. The frame must be set on a 6" to 18" layer of brickwork to provide for future adjustments to grade. The #1 sewer brick for this work shall be installed with 1/2" joints and a minimum 1/2" coat of mortar on the outside surface. Bricks shall be placed flat with a full brick on the outside surface (outer ring) and a half

brick on the inside face. Bricks shall be staggered from course to course. The inside surface of the brick construction shall be brushed and the mortar joints (inside) pointed as soon as possible after laying. The frame shall be set to a full even bearing on cement mortar at the required line and grade. Flange of frame must not project outside of masonry on which it is set and the inner circle should not overhang brickwork more than 1". Until such time as manhole frames and covers are set, manhole tops shall be kept covered with a plank or other suitable temporary covering to exclude persons, animals, dirt and foreign substances. Any frames that are moved or disturbed after initial setting shall be reset on a fresh bed of mortar.

METHOD OF MEASUREMENT

This work will be measured for payment by each "Special Manhole" constructed including saw cutting existing pavement, excavation, mortar, cutting existing pipe, backfill, bituminous materials for patching and all labor and materials associated with constructing a special manhole around the existing combined sewer and storm drain pipe including connection of proposed storm drainage pipe.

BASIS OF PAYMENT

This work will be paid for at the contract unit price per each "SPECIAL MANHOLE", constructed which price shall include all labor, material and equipment required to complete the work specified. Payment for cast iron frames and covers will be made under item 0101620.

<u>PAY ITEM</u>	<u>DESCRIPTION</u>	<u>PAY UNIT</u>
0101701	Special Manhole	EA