

SECTION 625

MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**625.1 DESCRIPTION:**

625.1.1 Sewer Manholes: Construction shall consist of furnishing all materials and constructing manholes complete in place, as detailed, including foundation walls, manhole frames, covers, and any incidentals thereto, at locations shown on the plans.

625.1.2 Sanitary Drop Sewer Connections: Construction shall consist of furnishing all materials and constructing drop sewer connections complete in place as detailed, including foundation materials, pipe, and any incidentals thereto, at locations shown on the plans.

625.2 MATERIALS:

Unless otherwise shown on the plans or specified in the special provisions, materials to be used shall conform with the following:

If allowed by the contracting agency, brick may be used for maintenance and adjustment of the existing sanitary sewer manhole or ring and cover. Bricks for manholes see Section 775.

Cement mortar for manholes Class D, ~~see per~~ Section 776.

Concrete for manholes Class A, for drop sewer connection Class C, Section 725.

Pipe used in manholes or drop sewer connections shall comply with pipe requirements of Section 615.

Manhole frame, cover Section 787 and cast in accordance with standard details.

Manhole steps shall not be used in sanitary or storm sewer manholes.

~~Plastic manhole steps, which conform to O.S.H.A. and A.S.T.M. C 487 requirements, and steel manhole steps, which are completely encapsulated in corrosion resistant rubber and conform to O.S.H.A. and A.S.T.M. C 478 requirements, may be substituted for cast iron manhole steps. The manufacturer shall furnish the Engineer a certification indicating conformance.~~

625.3 CONSTRUCTION METHODS:

625.3.1 Manholes: Manholes shall be constructed of precast concrete sections, or cast in place concrete.

The invert channels shall be smooth and semi-circular in shape, conforming to the inside of the adjacent sewer sections. Changes in direction of flow shall be made with a smooth curve, having a consistent radius as large as the manhole will permit with no angle points. Changes in size and grade of the channels shall be made gradually, evenly, and uniformly throughout the manhole base.

Invert channels ~~shall may~~ be formed of concrete ~~and have a smooth mortared surface, may or~~ be half tile laid in concrete or may be constructed by laying full section of sewer pipe through the manhole and breaking out the top half after the surrounding concrete has hardened. The bench of the manhole outside the channels shall be smoothed and shall slope towards the channels.

Comment [RTH1]: This section is referenced for the construction of various types of manholes: water line construction (section 610.8 Manholes and Vaults, used for butterfly valves), sanitary sewer construction (section 615.9), reclaimed waterline construction (section 616.2) and for storm drains. When a subsection does not apply to all types of manholes it should identify which types of manholes it apply to.

Comment [RTH2]: ASTM C487 was withdrawn in 1981.

Comment [RTH3]: Manhole steps are required in at least some water line manholes (for butterfly valves) but the referenced ASTM is obsolete therefore delete unless a relevant ASTM is identified.

Scottsdale Detail 2305 references MAG Detail 428 MANHOLE STEPS, the MAG detail references ASTM D2146 which has been withdrawn.

The excavation shall be in such a manor, access is maintained around the manhole base before, during, and after placement of the manhole.

~~Cast in place~~A concrete foundation ~~shall be of~~ Class A concrete ~~shall be poured~~constructed in accordance with the Standard Details and Section 505.

No brickwork shall be laid in water, nor, except as prescribed for curing, shall water be allowed to stand or run on any brickwork until the mortar has thoroughly set. Where new work is joined to existing unfinished work, the contact surfaces of the latter shall be thoroughly cleaned and moistened.

Bricks shall be thoroughly moistened prior to placing, and shall be laid in full cement mortar beds. Every course may be a header course, but at least every fourth course shall be a header course. The horizontal cross-section of the manhole shall be circular unless otherwise called for on the plans or standard details. An oval or egg-shaped section will not be permitted. The brick manholes shall be mortared outside with ½ inch of cement mortar as shown. Inside of the brick wall shall be neatly pointed. The mortar coat shall be cured with a liquid membrane-forming compound conforming with Section 726 immediately after mortar has been placed and finished.

All machined surfaces on the frame and cover shall be such that the cover will lie flat in any position in the frame and have a uniform bearing through its entire circumference. Any frame and cover which creates any noise when passed over by automobiles shall be replaced. Frames shall be set firmly in a bed of mortar true to line and grade, all as shown on the plans and as called for in these specifications.

Backfilling shall be done in accordance with the requirements for trench backfilling as stated in Section 601.

625.3.2 ~~Sanitary Sewer Drop Sewer~~ Connections: Drop sewer connections shall be constructed in conformance with standard details ~~426~~.

Backfilling shall be done in accordance with the requirements for trench backfilling as stated in Section 601.

625.4 MEASUREMENT:

~~Each type of Measurement will be per~~ manhole installed, shall be measured as a complete unit-in-place, no distinction shall be made based on manhole regardless of depth.

625.5 PAYMENT:

Payment will be made at the contract unit price ~~for each accepted manhole, and shall be compensation in full for~~ furnishing and installing the manhole, complete in place, with formed or pre-cast inverts, concrete foundation, sanitary sewer drop connections, sheeting and bracing, removal of obstructions cast iron frame and cover, excavation and backfill, paving cut replacement in excess of the applicable pay widths authorized in Section 336, and any incidentals thereto, in conformance with the plans and specifications.

Comment [RTH4]: It is best to not reference specific detail numbers.

Comment [RTH5]: Should manholes with a sanitary sewer drop connection be considered as a separate type of manhole and have a separate pay item from sanitary sewer manhole?

- End of Section -