

SECTION 625 - REVISED 8-17-11

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, cast iron steps, manhole frames, covers, and any incidentals thereto, at locations shown on the plans.

625.1.2 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:

Bricks for manholes Section 775.

Cement mortar for manholes Class D, 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 and steps Section 787 and cast in accordance with standard details.

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 brick, of precast concrete sections, or of cast in place concrete with cast iron manhole steps, frames and covers, in accordance with the standard details. 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 radius as large as the manhole will permit. Changes in size and grade of the channels shall be made gradually and evenly.

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

The excavation shall be made cylindrical to a diameter sufficient in size to permit sheeting if necessary and leave room that the bricks may be laid in a workmanlike manner and the outside ~~plaster~~ ^{mortar} coat properly applied or the precast concrete sections or forms may be properly assembled.

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

Brickwork shall not be laid upon a concrete foundation less than 24 hours after such foundation has been poured. 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. A double row-lock course of brick in the manhole wall shall be arched over the top half of the circumference of all inlet and outlet pipes. The

mortared

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brick manholes shall be ~~plastered~~ outside with ½ inch of cement mortar as shown on the standard details. Inside of brick wall shall be neatly pointed. The ~~plaster~~ coat shall be cured with a liquid membrane-forming compound conforming with Section 726 immediately after ~~plaster~~ has been placed and finished.

mortar

Frame and Cover. 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 Drop Sewer Connections: Drop sewer connections shall be constructed in conformance with standard details, as the case may be.

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

625.4 MEASUREMENT:

Measurement will be per manhole installed, complete in place, regardless of depth.

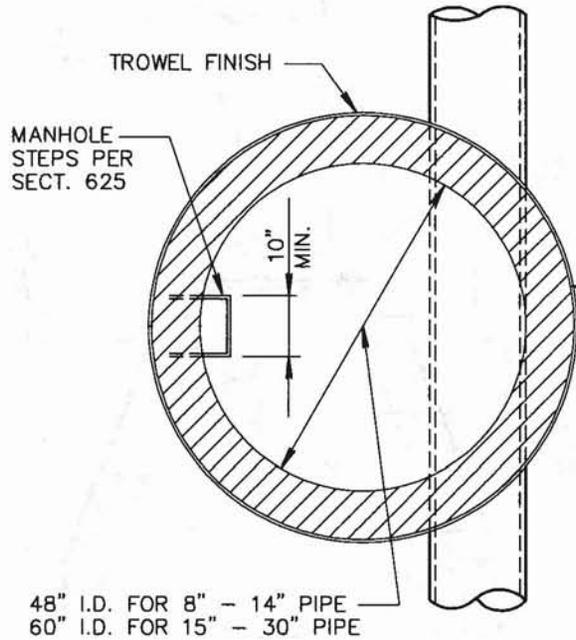
625.5 PAYMENT:

Payment will be made at the unit price bid each manhole, and shall be compensation in full for furnishing and installing manhole, complete, with formed invert, concrete foundation, ladder rungs, 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.

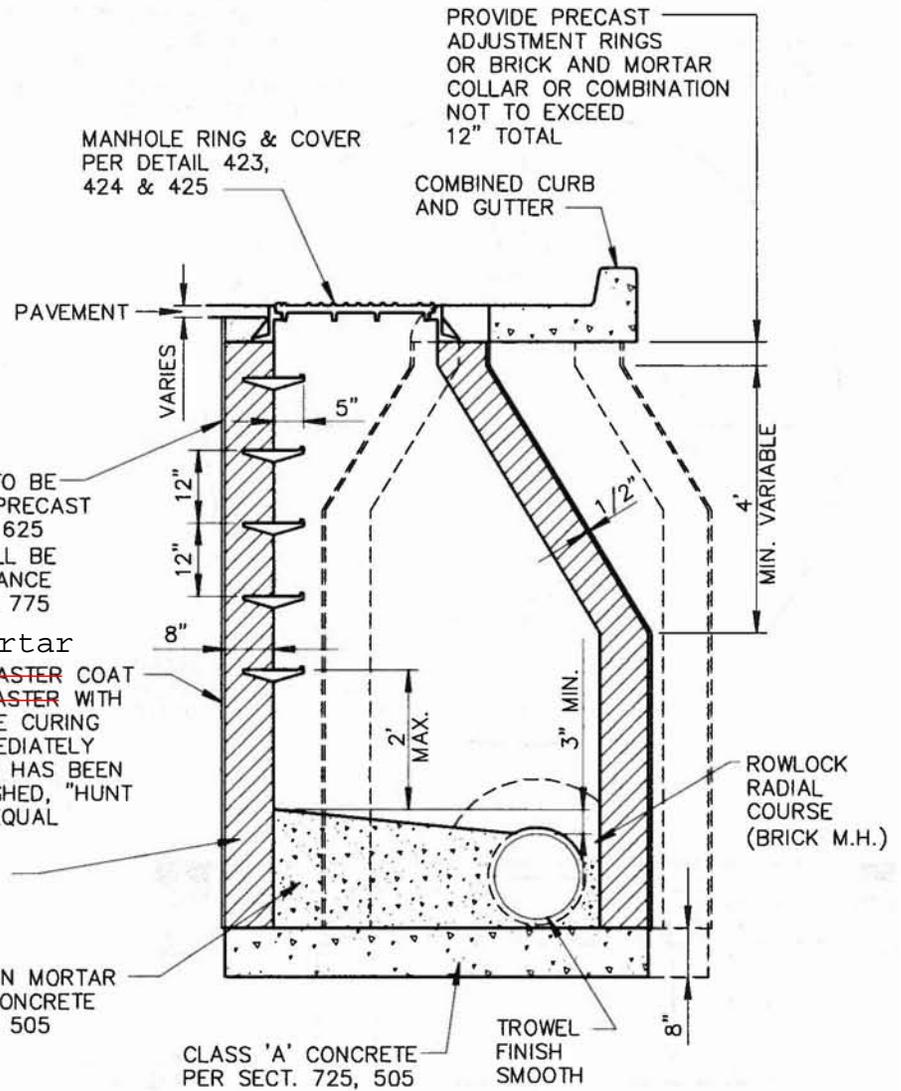
Payment will be made at the unit price bid each, and shall be compensation in full for furnishing and installing vitrified clay pipe sanitary sewer drop connections, concrete encasement, excavation, backfilling, water settling, compaction, sheeting and bracing, removal of obstructions, paving cut replacement, in excess of the applicable pay widths authorized in Section 336, testing, and all work incidental thereto in conformance with the plans and specifications.

End of Section

PIPE SIZE & ELEVATION
AS SHOWN ON PLANS



48" I.D. FOR 8" - 14" PIPE
60" I.D. FOR 15" - 30" PIPE



MANHOLE TO BE
BRICK OR PRECAST
PER SECT. 625
BRICK SHALL BE
IN ACCORDANCE
WITH SECT. 775

mortar
1:3 CEMENT PLASTER COAT
OUTSIDE OF PLASTER WITH
MEMBRANE TYPE CURING
COMPOUND IMMEDIATELY
AFTER PLASTER HAS BEEN
PLACED & FINISHED, "HUNT
PROCESS" OR EQUAL

COURSE BRICK IN MORTAR
OR CLASS 'C' CONCRETE
PER SECT. 725, 505

PROVIDE PRECAST
ADJUSTMENT RINGS
OR BRICK AND MORTAR
COLLAR OR COMBINATION
NOT TO EXCEED
12" TOTAL

COMBINED CURB
AND GUTTER

PAVEMENT

VARIES

5"

12"

12"

8"

2" MAX.

3" MIN.

MIN. VARIABLE

4'

ROWLOCK
RADIAL
COURSE
(BRICK M.H.)

CLASS 'A' CONCRETE
PER SECT. 725, 505

TROWEL
FINISH
SMOOTH

8"

DETAIL NO.

421



STANDARD DETAIL
ENGLISH

OFFSET MANHOLE 8' TO 30' PIPE

REVISED

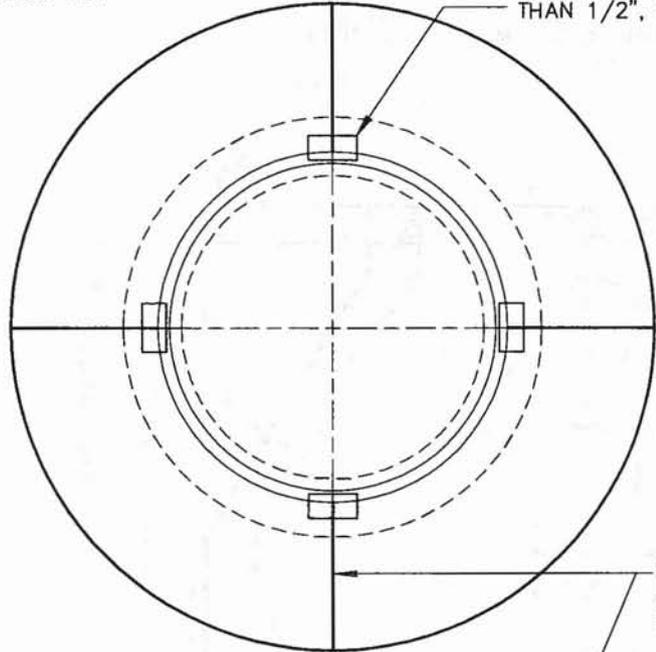
DETAIL NO.

421

REVISED 8-17-11

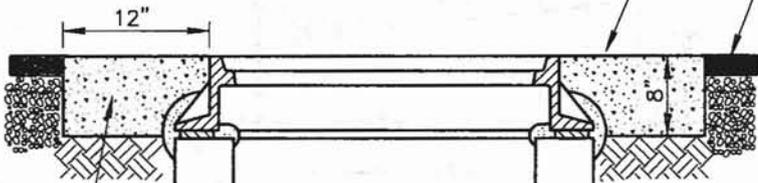
M.H. FRAME AND COVER PER SECT. 625

FOUR STEEL SPACERS, 4"x2" THICKNESS AS REQUIRED FROM 1/2" to 2" WHEN THICKNESS IS LESS THAN 1/2" USE MORTAR, WHEN GREATER THAN 1/2", USE BRICK.



MEDIUM BROOM FINISH WITH RADIALY SCORED MARKS (4 MIN.)

EXISTING OR RECENTLY INSTALLED PAVEMENT



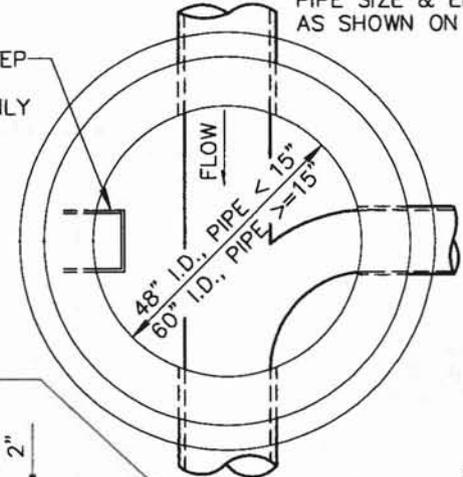
M.H. WALL THICKNESS AND MATERIAL VARIES

SUBGRADE PREPARATION TO CONFORM TO SECT. 301 OR 601

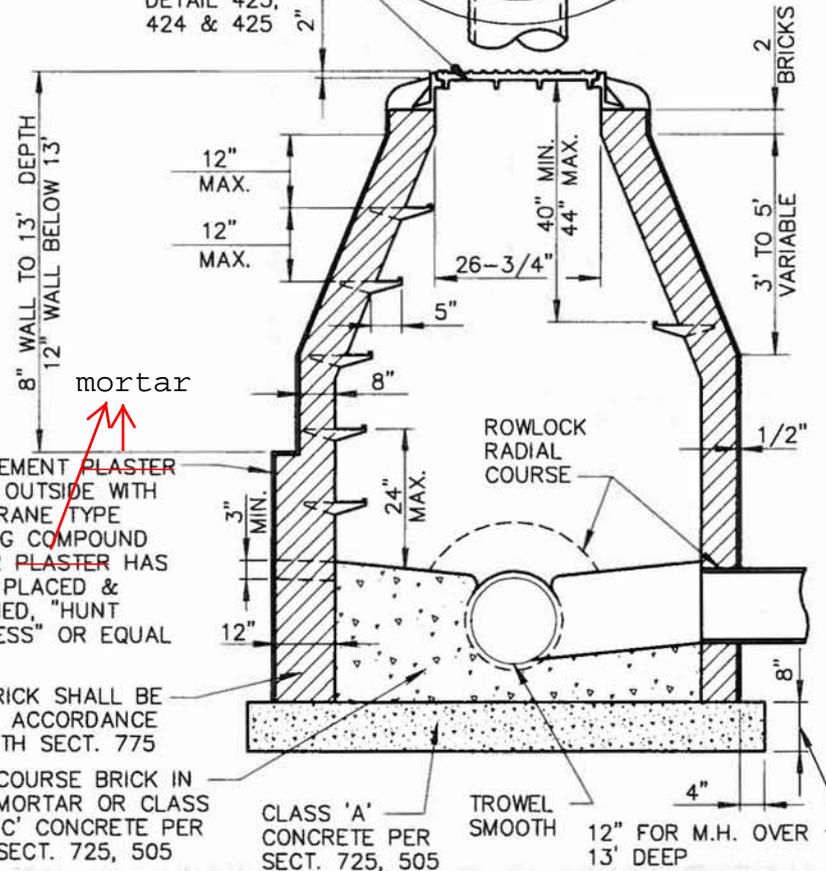
CLASS 'AA' CONCRETE AS PER SECT. 725, 505

M.H. STEP IS 48" M.H. ONLY

PIPE SIZE & ELEVATION AS SHOWN ON PLANS



M.H. RING & COVER STD. DETAIL 423, 424 & 425



1:3 CEMENT PLASTER COAT OUTSIDE WITH MEMBRANE TYPE CURING COMPOUND AFTER PLASTER HAS BEEN PLACED & FINISHED, "HUNT PROCESS" OR EQUAL

BRICK SHALL BE IN ACCORDANCE WITH SECT. 775

COURSE BRICK IN MORTAR OR CLASS 'C' CONCRETE PER SECT. 725, 505

CLASS 'A' CONCRETE PER SECT. 725, 505

TROWEL SMOOTH 12" FOR M.H. OVER 13' DEEP

DETAIL NO. 422

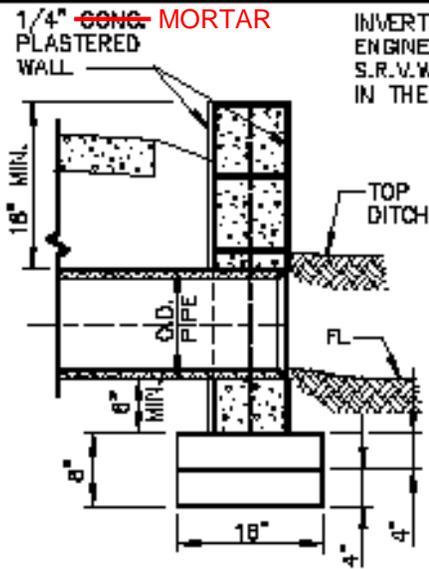


STANDARD DETAIL ENGLISH

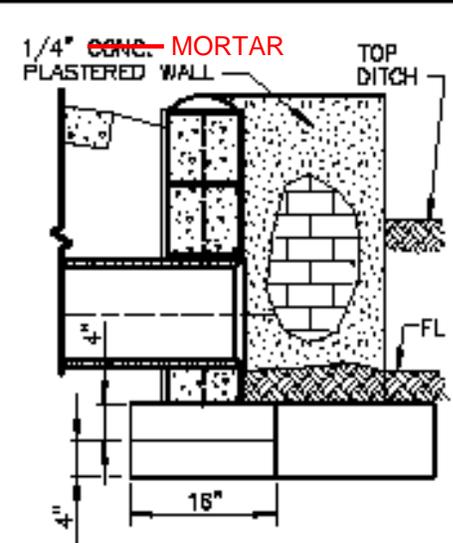
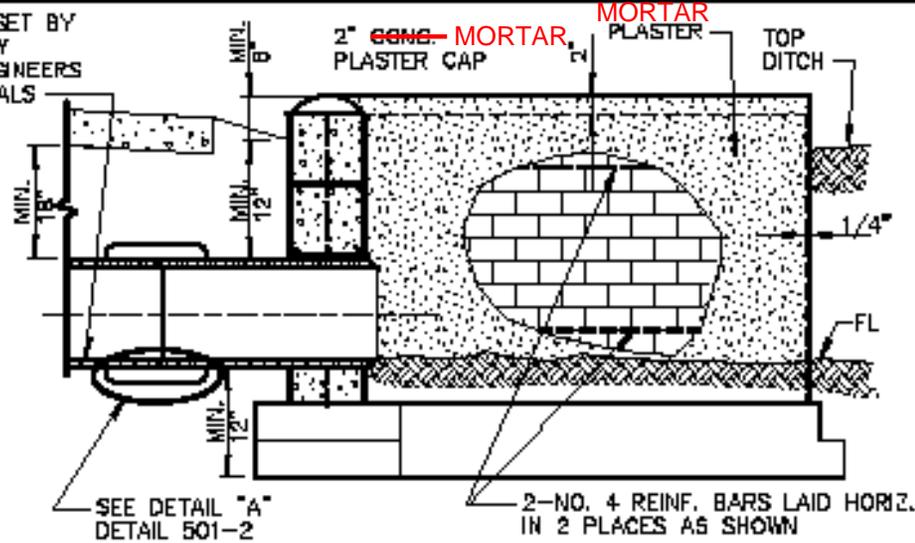
BRICK SEWER MANHOLE AND COVER FRAME ADJUSTMENT

REVISED 01-01-2001

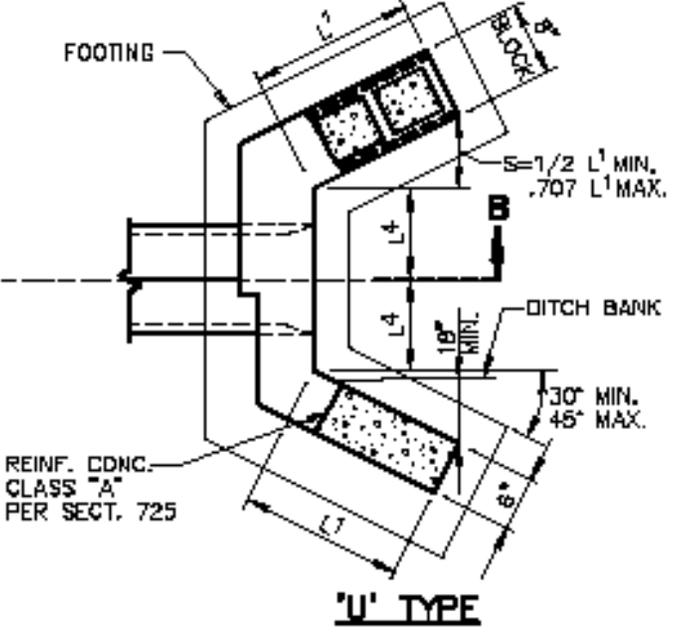
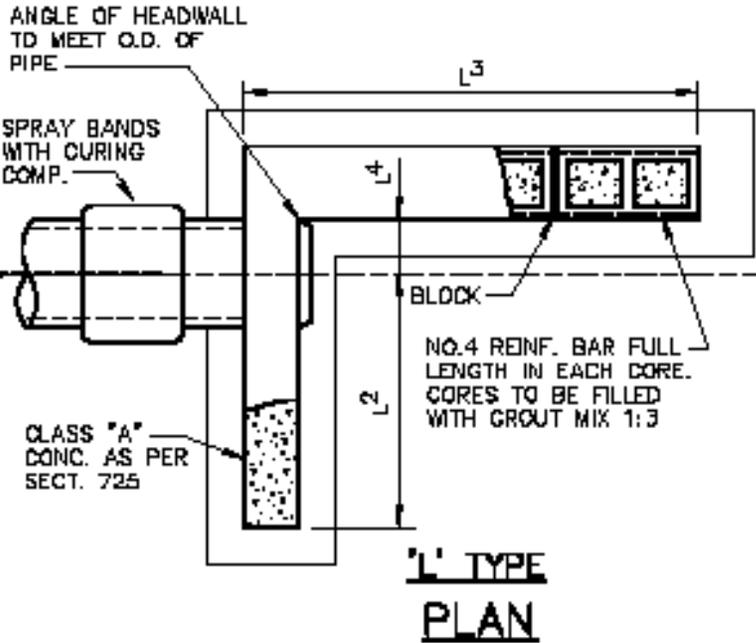
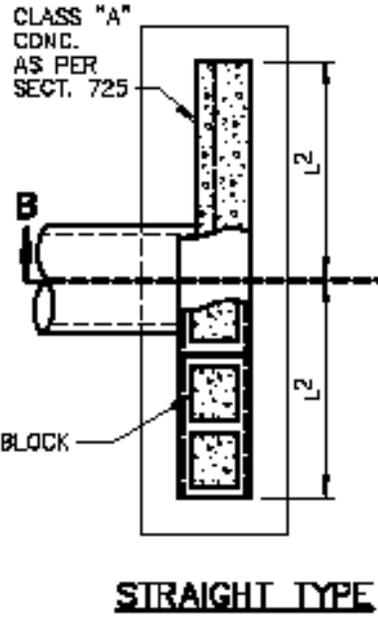
DETAIL NO. 422



INVERT GRADE SET BY ENGINEER OR BY S.R.V.W.L.A. ENGINEERS IN THEIR LATERALS



SECTION B-B



DETAIL NO.
601-1

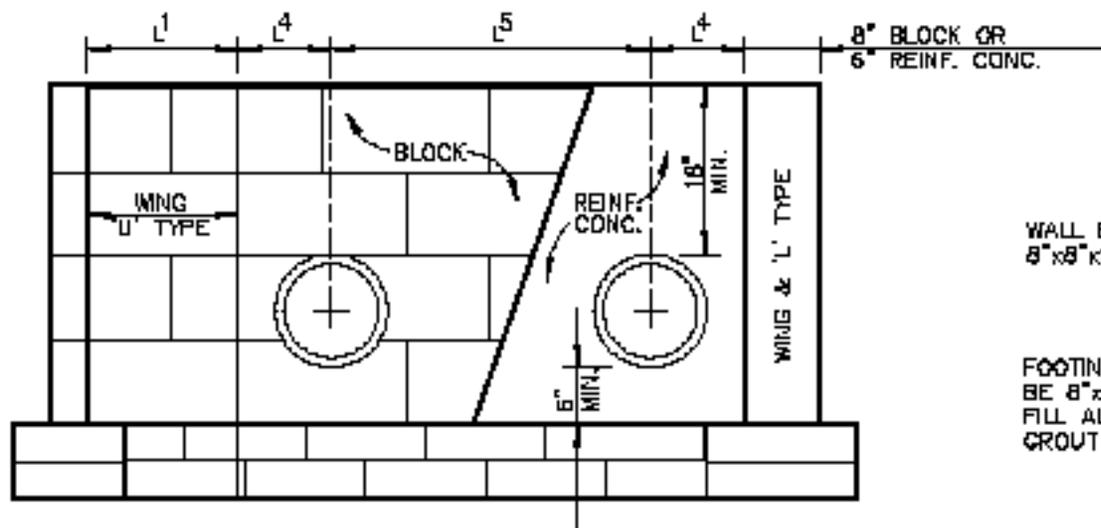


**STANDARD DETAIL
ENGLISH**

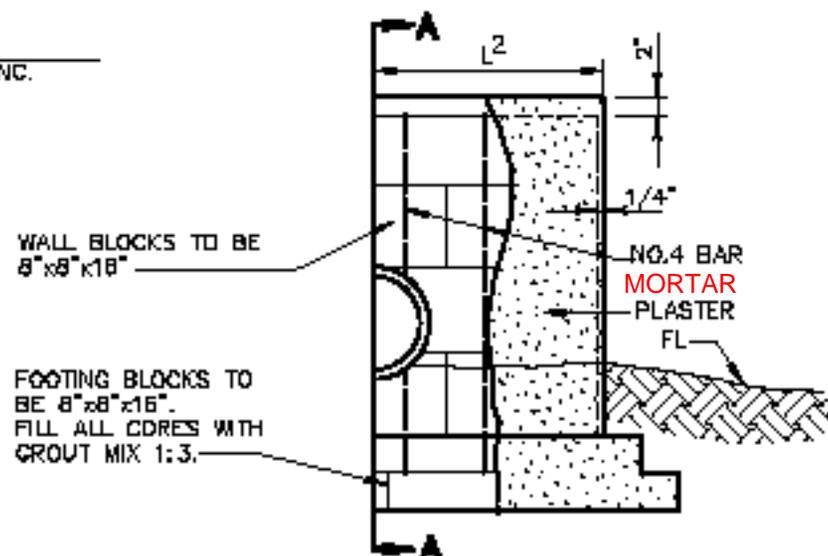
HEADWALL

REVISED

DETAIL NO.
601-1



DOUBLE PIPE HEADWALL



ELEVATION

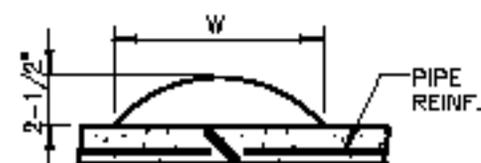
CONCRETE MASONRY UNITS (BLOCK) HEADWALLS JOINED WITH CEMENT MORTAR ~~AND CONCRETE~~ PLASTERED BOTH SIDES OF WALL FULL HEIGHT AND SHALL BE CURED PER SECT. 726.

NOTES:

1. ALL CONCRETE SHALL BE CLASS 'A' PER SECT. 505 & 725.
2. CONCRETE MASONRY UNITS (BLOCK) PER SECT. 510, 775 & 776.
3. CONCRETE REINF. SHALL BE NO.4 BAR 12" O.C. BOTH WAYS.

HEADWALL DIMENSIONS					
*NOMINAL PIPE SIZE	L ¹	L ²	L ³	L ⁴	L ⁵
12"	1'-4"	2'-0"	3'-8"	0'-10"	2'-10"
15"	2'-0"	2'-8"	4'-0"	1'-0"	3'-0"
18"	2'-0"	3'-8"	4'-8"	1'-2"	3'-4"
21"	2'-8"	4'-0"	5'-4"	1'-3"	3'-8"
24"	2'-8"	4'-0"	5'-4"	1'-8"	3'-11"
30"	2'-8"	5'-4"	6'-8"	1'-10"	4'-7"
36"	3'-4"	6'-8"	8'-0"	1'-10"	5'-2"
42"	4'-0"	8'-0"	9'-4"	2'-2"	5'-9"

* NOMINAL PIPE SIZE GIVEN FOR REINFORCED CONC. PIPE.



PIPE SIZE	W
12" - 21" INCL	11"
24" - 42" INCL	13"

DETAIL "A"

DETAIL NO.

501-2



STANDARD DETAIL
ENGLISH

HEADWALL

REVISED

DETAIL NO.

501-2