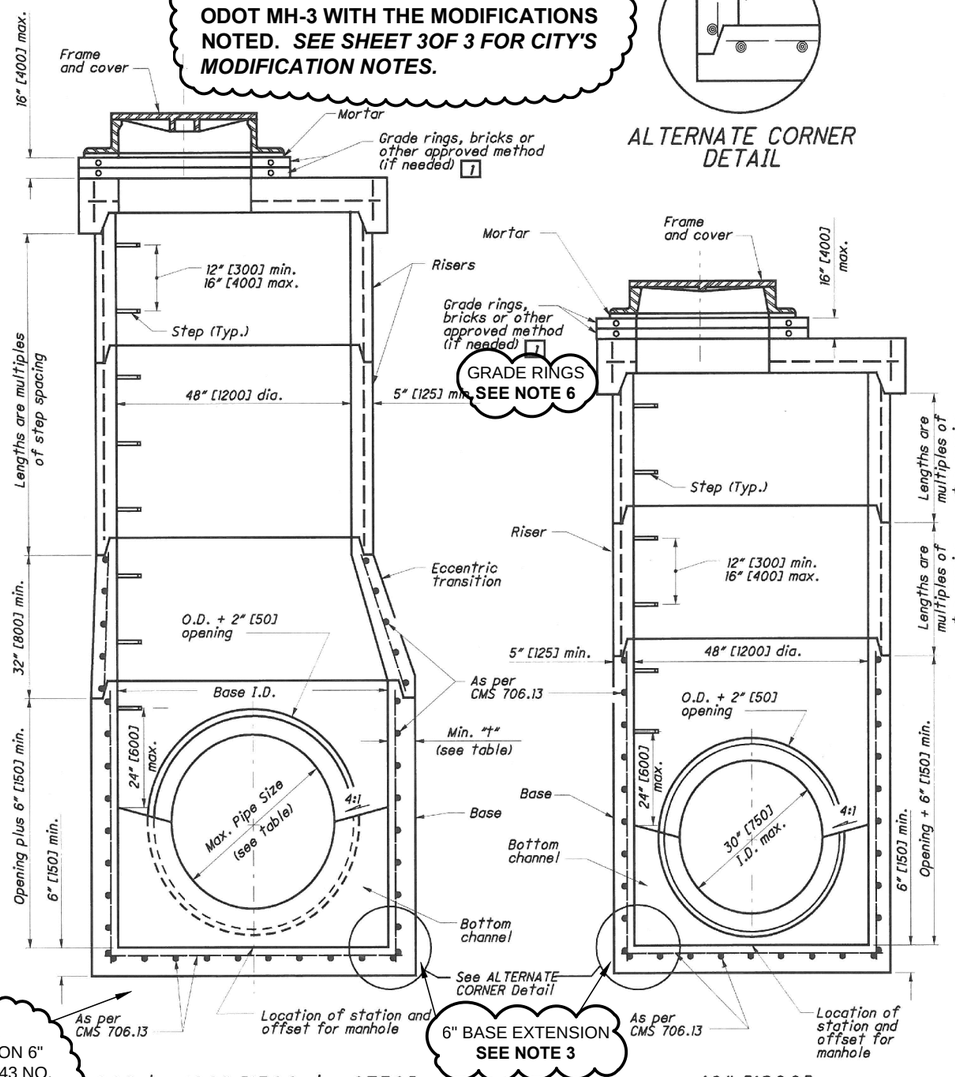
THE CITY'S STANDARD MANHOLE FOR SANITARY AND STORM SEWERS IS THE ODOT MH-3 WITH THE MODIFICATIONS NOTED. *SEE SHEET 3OF 3 FOR CITY'S MODIFICATION NOTES.*



ALTERNATE CORNER DETAIL

SECTION VIEWS OF REINFORCED PRECAST MANHOLES

NOTES

GENERAL: *With normal soil and site conditions, this standard precast manhole may be used for any required manhole depth. Sections of the precast manhole shall be cast and assembled with either all tongue or all groove ends up. Lift holes may be provided in each section for handling. Handling device for the flat slab shall be left in place.* — SEE NOTE 1

TOP: *This section shall be ~~a flat slab, unless~~ an eccentric cone ~~is specified.~~* — SEE NOTE 2

TRANSITION (OR REDUCER): *This section can be ~~either~~ eccentric cone ~~or flat slab.~~* — SEE NOTE 2

BASE: *Manhole No. 3 is shown with a monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately. Openings for inlet and outlet pipes shall be provided, either when the unit is cast or later, to meet project requirements. Bottom channels may be formed of concrete, precast in the base or field constructed as shown on SCD* ***MH-1.1 and MH-3.1.*** — SEE NOTE 3

RISER SECTIONS: *Openings for 18" [450] and smaller inlet pipes may be either prefabricated, or cut in the field provided the sides of the pipe at the springline do not project into the manhole.* — SEE NOTE 4

CONNECTIONS: *Connections between precast manhole sections, and pipes on sanitary sewers, may be sealed with resilient connectors conforming to ASTM C 923.* — SEE NOTE 4

JOINT SEAL: *Seal between precast manhole sections on sanitary sewers shall be resilient and flexible gasket joints per CMS 706.11.*

OPENINGS: *The maximum pipe opening shall be the O.D. of the pipe being supplied plus 2" [50] when fabricated or field cuts. Fill any voids per CMS 601.* — SEE NOTE 4

MATERIALS: *Materials for bases and other precast sections, including reinforcement not specified hereon, shall comply with the requirements of CMS 706.13.*

DROP PIPE: *When specified on the plans, drop pipe shall be constructed ~~as shown on SCD MH-3.1.~~* — SEE NOTE 4

STEPS, FRAMES AND COVERS: *~~Shall comply with the requirements set forth on SCD MH-1.1.~~* — SEE NOTE 5

TOP SLAB REBAR: *Reinforcing steel used within the top slab shall be epoxy coated.*

LEGEND

1 *Reconstruction to grade only. Approved materials are kept on file by the Office of Materials Management.*

MAXIMUM PIPE SIZES		
BASE I.D.	**MIN. "t"**	**MAX. PIPE SIZE**
60" [1500]	5" [125]	36" [900]
72" [1800]	6" [150]	48" [1200]
84" [2100]	7" [175]	54" [1350]
90" [2250]	7½" [190]	60" [1500]
96" [2400]	8" [200]	66" [1650]
108" [2750]	9" [230]	72" [1800]

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
STATE HYDRAULIC ENGINEER

REVISIONS
7-20-01
7-19-02
7-15-05
1-20-06

ALL METRIC DIMENSIONS (IN BRACKETS [ ]) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

PRIMARY HYDRAULIC ENGINEER J. Stains

OFFICE OF STRUCTURAL ENGINEERING

STANDARD HYDRAULIC CONSTRUCTION DRAWING
MANHOLE No. 3

SCD NUMBER **MH-1.2**

1 / 2

\\p\Construction Drawings\SCD\Hydraulics\MH\MH1.2 Jan06 V8.dgn 03-OCT-2008 10:45AM fchaek

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: JAN 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_10.dwg**

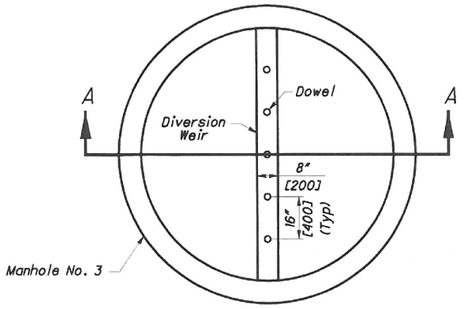
REVISIONS

DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 10

PRECAST STORM OR SANITARY MANHOLE

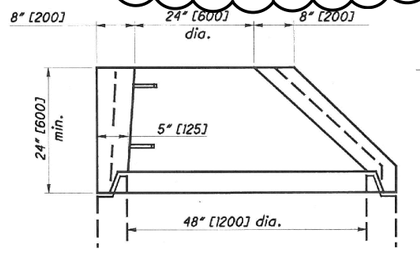
SHEET 1 OF 3



MANHOLE NO. 3 W/ __" BASE I.D. AND __" WEIR

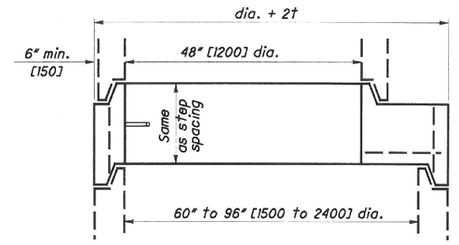
(NTS)

ECCENTRIC CONE IS STANDARD FOR CITY OF CANTON **SEE NOTE 2**



ALTERNATE ECCENTRIC CONE TOP

~~(Only if specified)~~



FLAT SLAB TRANSITION

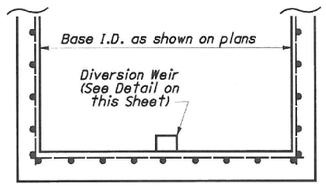
ONLY IF SPECIFIED SEE NOTE 2

NOTES

MANHOLE NO. 3 W/___" BASE I.D. AND ___" DIVERSION WEIR: *Furnish manhole base with precast diversion weir or construct diversion weir from Structure Concrete, Class C or Brick and Masonry Units conforming to CMS 604. A bottom channel section for the manhole is not required when a diversion weir is specified on the plans.*

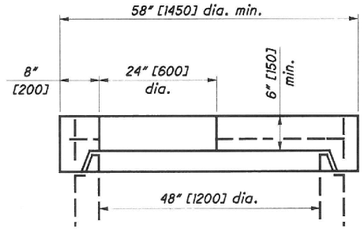
Place diversion weir perpendicular to flow of inflowing trunk sewer. Dowel concrete or masonry units into the base of the manhole to a depth of 3" [75] using epoxy coated #4 reinforcing bars. Start dowels at the center of the diversion weir and space 16" [400] on center across the entire weir.

All materials and labor, including excavation and backfill, shall be paid for at the contract price for ***ITEM 604 - MANHOLE NO. 3 WITH ___" BASE I.D. AND ___" DIVERSION WEIR.***



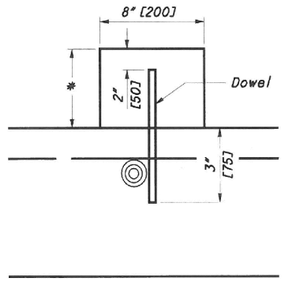
SECTION A-A

(NTS)



FLAT SLAB TOP

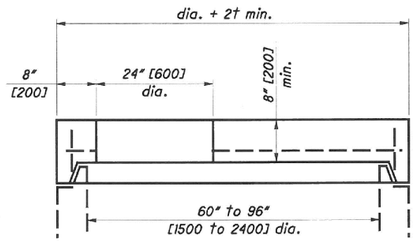
ONLY IF SPECIFIED SEE NOTE 2



* Furnish weir height as shown in plans.

DIVERSION WEIR DETAIL

(NTS)



FLAT SLAB TOP

ONLY IF SPECIFIED SEE NOTE 2

THE CITY'S STANDARD MANHOLE FOR SANITARY AND STORM SEWERS IS THE ODOT MH-3 WITH THE MODIFICATIONS NOTED. ***SEE SHEET 3OF 3 FOR CITY'S MODIFICATION NOTES.***

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
STATE HYDRAULIC ENGINEER

REVISIONS
7-20-01
7-19-02
7-15-06
7-20-06

ROADWAY HYDRAULIC ENGINEER
J. Stains

ALL METRIC DIMENSIONS (IN BRACKETS [ ]) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

OFFICE OF STRUCTURAL ENGINEERING

STANDARD HYDRAULIC CONSTRUCTION DRAWING
MANHOLE No. 3

SCD NUMBER MH-1.2

2 / 2

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: JAN 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_10.dwg**

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DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 10

PRECAST STORM OR SANITARY MANHOLE

SHEET 2 OF 3

CANTON CONSTRUCTION STANDARDS NOTES FOR MODIFIED ODOT MANHOLE 3 (SCD MH-1.2)

NOTE 1. LIFT HOLES INSIDE THE MANHOLES MUST BE SEALED WITH GROUT.

NOTE 2. TOP AND TRANSITION SECTIONS MUST BE ECCENTRIC CONE ONLY. USE FLAT SLAB FOR SHALLOW MANHOLE APPLICATIONS OR SPECIAL CIRCUMSTANCES AS DIRECTED BY THE CITY.

NOTE 3. 6" EXTENDED BASE IS STANDARD FOR ALL SANITARY AND STORM MANHOLES. SET MANHOLE BASE ON 6" OF AASHTO M 43 NO. 56, 57, OR 62 CRUSHED STONE SET ON UNDISTURBED EARTH.

NOTE 4. PIPE CONNECTIONS INTO THE MANHOLES MUST NOT EXTEND INTO THE MANHOLE MORE THAN 2" AT THE SIDES OF THE PIPE AT THE SPRING-LINE OF SAID PIPE.

SANITARY CONNECTIONS
SANITARY SEWER PIPE INLETS, WITH FLOWLINES MORE THAN 2' HIGHER THAN THE CHANNEL BENCH MUST BE OUTSIDE DROP CONNECTIONS. DROP CONNECTIONS MUST BE FABRICATED AND CAST INTEGRALLY WITH THE MANHOLE SECTIONS OR INSTALLED PER CITY STANDARD DWG. 11, OUTSIDE DROP CONNECTION FOR SANITARY MANHOLES. NO INSIDE DROPS PERMITTED FOR PRIVATE SEWER CONNECTIONS. INSIDE DROP FOR CITY-OWNED SEWERS ARE SUBJECT TO THE CITY ENGINEER'S APPROVAL.

SANITARY PIPE INLETS MUST BE FLUMED OVER THE BENCH, DIRECTING FLOW INTO THE CHANNEL, USING CONCRETE AND/OR CLAY SEWER BRICK AND MORTAR.

CAST OPENINGS MUST BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 2 INCHES WITH A BUTYL RUBBER A-LOK, X-CEL GASKET, OR APPROVED EQUAL.

CORED OPENINGS MUST BE MACHINE CORED, THE OPENING SHALL BE PER PIPE-TO-MANHOLE CONNECTOR SPECS. USE "KOR-N-SEAL" FLEXIBLE PIPE-TO-MANHOLE CONNECTOR WITH STAINLESS WEDGE ASSEMBLY OR APPROVED EQUAL CONFORMING TO ASTM C-93O OR ASTM C-923.

STORM CONNECTION
OPENINGS FOR STORM PIPE INLETS MAY BE CAST OR MACHINE CORED. OPENINGS SHALL NOT EXCEED THE O.D. OF PIPE + 2". MAKE WATER-TIGHT JOINTS WITH NON-SHRINK CEMENT OR CLASS 'C' CONCRETE APPLIED FROM INSIDE AND OUTSIDE OF MANHOLE.

NOTE 5. STEPS SHALL BE 1/2" STEEL REINFORCED POLYPROPYLENE STEPS 12" W X 5-3/4" BY AMERICAN STEP CO., INC. OR APPROVED EQUAL, MEETING ASTM 478.

FRAMES AND COVER SHALL CONFORM WITH CITY OF CANTON STD. DWG. NO. 12.

NOTE 6. GRADE RINGS FOR NEW MANHOLES MAY BE PRECAST CONCRETE, RUBBER COMPOSITE, OR CLAY BRICK AND MORTAR. CONCRETE BRICK IS NOT PERMITTED.

HEIGHT OF GRADE RINGS COLLECTIVELY SHALL NOT EXCEED 12".

PRECAST CONCRETE GRADE RINGS MUST BE REINFORCED CLASS 'C' CONCRETE AND CONNECTED USING TWO CONCENTRIC RINGS OF 1/2" TO 1" BEADS OF BUTYL RUBBER SEALANT CON-SEAL OR APPROVED EQUAL. SEAL OUTSIDE JOINTS WITH 1/2" NON SHRINK CEMENT PLASTER.

RUBBER COMPOSITE GRADE RINGS MUST BE "INFRA-RISER" BY EJIW OR APPROVED EQUAL, AND CONNECTED USING TWO PARALLEL BEADS OF POLY-SEALANT ADHESIVE PER MANUFACTURER RECOMMENDATION. RUBBER COMPOSITE GRADE RINGS HEIGHT MUST NOT EXCEED 3" AND MUST BE PLACED DIRECTLY UNDER MANHOLE FRAME.

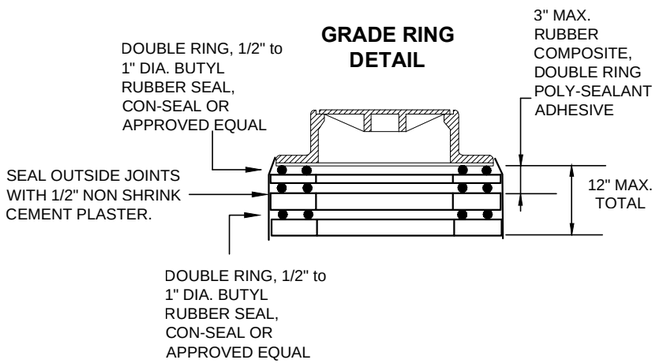
BRICK AND MORTAR RINGS MUST BE BELDEN BRICK, FINE GRIND, ASTM C32-90, OR APPROVED EQUAL WITH HIGH STRENGTH, AIR ENTRAINED, MORTAR. SEAL OUTSIDE JOINTS WITH 1/2" NON SHRINK CEMENT PLASTER.

USE TWO PARALLEL 3/4" BEADS OF BUTYL RUBBER SEALANT CON-SEAL OR APPROVED EQUAL, BETWEEN GRADE RINGS OF DIFFERENT MATERIAL AND BETWEEN GRADE RINGS AND MANHOLE FRAME.

NOTE 7. FOR BACKFILL MATERIAL AND COMPACTION, AND ROCK EXCAVATION, IF APPLICABLE, REFER TO CITY STD.DWG. NO. 19.

NOTE 8. SANITARY MANHOLES TO BE TESTED ACCORDING TO CITY ENGINEER'S SPECIFICATION 04-01 (NEGATIVE AIR PRESSURE TEST).

GRADE RING DETAIL



OPTIONAL MANHOLE BID ITEMS

ITEM	QTY.	UNIT	DESCRIPTION OPTION "A"
604		V.F.	MH WATERPROOFING, COAL TAR, A.P.P.

IF REQUESTED BY THE CITY ENGINEER, OR SPECIFIED IN THE PLAN, THE CONTRACTOR SHALL PROVIDE UNIT PRICE FOR WATERPROOFING THE EXTERIOR OF DESIGNATED MANHOLES. THIS ITEM IS "CITY OPTIONAL" AND THE PRICE IS PAID PER VERTICAL FOOT OF EACH MANHOLE WATERPROOFED AS DIRECTED BY THE ENGINEER. THIS OPTION IS A CONTINGENCY BID ITEM UNLESS SPECIFIED OTHERWISE.

APPLY IN THE FIELD A COAL TAR EPOXY TO THE OUTSIDE OF THE MANHOLE PER MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS FROM THE TOP OF THE EXTENDED BASE TO THE BOTTOM OF THE MANHOLE COVER CASTING.

ITEM	QTY.	UNIT	DESCRIPTION OPTION "B"
604		EACH	NEW MH, POLYMER LINING, A.P.P.
604		V.F.	EXISTING MH, POLYMER LINING, A.P.P.

IF REQUESTED BY THE CITY ENGINEER, OR SPECIFIED IN THE PLAN, THE CONTRACTOR SHALL PROVIDE UNIT PRICE FOR CORROSION RESISTANT POLYMER LININGS AS DESIGNATED. THIS ITEM IS "CITY OPTIONAL" AND THE PRICE IS PAID PER VERTICAL FOOT OR PER EACH MANHOLE LINED AS DIRECTED BY THE ENGINEER. THE UNIT COST FOR THIS ITEM INCLUDES ALL COSTS FOR LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED FOR SUPPLYING AND INSTALLING THE LININGS INCLUDING THE COST FOR BYPASSING EXISTING SEWER FLOWS FOR THE DURATION OF THE INSTALLATION AND CURING TIME AS SPECIFIED. THIS OPTION IS INCLUDED AS A CONTINGENCY BID ITEM. UNLESS SPECIFIED OTHERWISE.

APPLY IN THE FIELD A CORROSION RESISTANT POLYMER LINING (PLASITE 5371 BY CARBOLINE OR APPROVED EQUAL) TO THE INSIDE OF THE NEW OR EXISTING MANHOLE PER MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS. APPLY FROM THE TOP OF THE BENCH TO THE BOTTOM OF THE MANHOLE COVER CASTING.

FOR EXISTING MANHOLES, PRIOR TO POLYMER LINING APPLICATION, RESTORE INSIDE WALLS AS PER LINING MANUFACTURERER'S RECOMMENDATIONS OR AS DIRECTED BY THE CITY ENGINEER.

THE CITY'S STANDARD MANHOLE FOR SANITARY AND STORM SEWERS IS THE ODOT MH-3 WITH THE MODIFICATIONS NOTED.

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APPROVED DATE: JAN 2012

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STANDARD DRAWING NO. 10

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