



UTILITY CONSTRUCTION

NO. DESCRIPTION

- END OF LINE GATE VALVE (MJ x MJ)
- DIP - (PE x PE) - REMOVE BELL - LENGTH = 17 FT - 19 FT
- WEDGE ACTION THRUST RESTRAINT GLAND
- CONCRETE WALL BLOCK (F₂₈ = 3000 PSI MIN) 6 FT x 4 FT x WIDTH (W)
- REBARS - GRADE 60 PER ASTM A615 - SEE REBAR SCHEDULES
- MJ CAP - WITH WEDGE ACTION RESTRAINT GLAND, TAP 2" THREADED OUTLET (FNPT)
- 2" RED BRASS NIPPLE SCH 40 (MNPT x MNPT) - LENGTH = 12 INCH
- 2" RED BRASS 90° BEND (FNPT x FNPT)
- 2" GALVANIZED MALLEABLE IRON COUPLING (FNPT x FNPT)
- STANDARD VALVE BOX ASSEMBLY - SEE DETAIL
- AWG #12 GAUGE COPPER TRACER WIRE - WITH BLUE INSULATION (30 MIL HDPE) TERMINATE WITH 24-INCH EXCESS WIRE (COILED) IN VALVE BOX (TYP.)
- 1" SCH 40 PVC ELECTRICAL CONDUIT - LENGTH AS REQUIRED
- UNDISTURBED SOIL
- HIGH DENSITY CROSS LAMINATED POLYETHYLENE FILM TUBE (HDCLPE) AWWA C105 - 4 MILS EACH x 2 LAYER - 8 MILS TOTAL
- HDPE ADHESIVE TAPE OR HDPE ZIP LOCK TIES
- PLYWOOD FORM
- 2" CAST IRON SOIL PIPE (L = 15') OR VALVE BOX BOTTOM SECTION

NOTES:

- 12" INCH MAINS REQUIRE THIS INSTALLATION.
- 6" INCH MAINS REQUIRE THIS INSTALLATION WHEN SOFT SOILS ARE ENCOUNTERED, OR WHEN REQUIRED BY THE ENGINEER.
- WHEN DIRECTED BY THE ENGINEER, THE CONCRETE WALL BLOCK SIZE MAY BE ADJUSTED, BASED ON ACTUAL SOIL CLASSIFICATION AND PIPE DIAMETER.
- FULLY RESTRAINED JOINT PIPE MAY BE USED IN LIEU OF THIS DETAIL - SEE RESTRAINED JOINT PIPE DETAIL.
- ALTERNATE DETAIL "A" (USING A REVERSED BELL) MAY BE USED IN LIEU OF DETAIL "A".

NO. ALTERNATE DESCRIPTION

WHEN USING 2-INCH HDPE (IPS) BLOW-OFF PIPE WITH STAINLESS STEEL BRASS OR BRONZE MNPT ENDS, USE THE FOLLOWING PRODUCTS:

- 2" SDR 9 HDPE (POLY) - IPS PIPE (MNPT x MNPT) - LENGTH AS REQUIRED - 12" MINIMUM
- 2" SDR 9 HDPE (POLY) - IPS PIPE (MNPT x MNPT) - LENGTH AS REQUIRED.

APPROXIMATE SOIL BEARING CAPACITY (DIPRA)

SOIL TYPE	BEARING CAPACITY (LBS/SQ FT)
HARD CLAY	9,000
SANDY CLAY	6,000
SAND	4,000
SANDY SILT	3,000
SILT	1,500
SOFT CLAY	1,000
MUCK	0

REBAR SCHEDULE

TYPE	LENGTH (INCHES)	NUMBER REQUIRED	PIPE DIAMETER (INCHES)	UNDISTURBED SOIL BEARING AREA (SQ FT)	APPROX. SOIL BEARING PRESSURE (LBS/SQ FT)	W (WIDTH) (INCHES)	CONCRETE VOLUME (APPROXIMATE) (CY)
VERTICAL	38	6	6"	7.478	15	499	20
HORIZONTAL	62	6	6"	12.868	15	858	12
HORIZONTAL	24	2	10"	19.354	15	1,290	12
DIAGONAL	30	4	12"	27.370	15	1,825	14

NO. DESCRIPTION

- CONCRETE PAD - CAST IN PLACE.
- FINAL ASPHALT SURFACE COURSE.
- VALVE BOX COVER.
- TOP SECTION VALVE BOX.
- EXTENSION STEM AS REQUIRED.
- BOTTOM SECTION VALVE BOX.
- 6" PVC PIPE (C900 OR SDR 26).
- STANDARD CONCRETE BRICK - 2 EACH.
- GATE VALVE (OR BALL VALVE, AS APPLICABLE).
- 5" DIA. CAST IRON SOIL PIPE - BELL OF PIPE WILL RECEIVE BOTTOM SECTION OF VALVE BOX.
- EXISTING OR NEW PAVEMENT.
- COMPACTED AGGREGATE BASE COURSE (CABC).
- COMPACTED SUBGRADE.
- AWG #12 GAUGE COPPER TRACER WIRE (THWN) WITH BLUE INSULATION, TERMINATE WITH 24 INCH EXCESS WIRE (COILED) AT METER BOX AND VALVE BOX (TYP.).

NOTES:

- WATER VALVE ADJUSTMENTS WILL BE COMPLETED AT LEAST 36 HOURS BEFORE RESURFACING.
- 12" MINIMUM WIDTH OF EXCAVATION AROUND VALVE BOX.
- DISTURBED AREAS AROUND STRUCTURE ADJUSTMENTS ARE TO BE TAMPED AND FILLED WITH 4000 PSI HIGH EARLY PORTLAND CEMENT CONCRETE.
- ALL DAMAGED OR MISALIGNED VALVE BOXES ARE TO BE REPORTED TO INSPECTOR, OTHERWISE CONTRACTOR ASSUMES RESPONSIBILITY FOR DAMAGE OR MISALIGNMENT.
- IF THE VERTICAL ADJUSTMENT CAUSES LESS THAN ONE INCH OVERLAP BETWEEN TOP SECTION AND BOTTOM SECTION, CONTRACTOR WILL REMOVE AND REPLACE RISER PIPE FROM BOTTOM SECTION TO TOP TO PROVIDE 3 INCHES OF OVERLAP IN TOP SECTION FOR TYPE A OR IF THE VERTICAL ADJUSTMENT CAUSES LESS THAN ONE INCH OVERLAP BETWEEN TOP SECTION AND BOTTOM SECTION, CONTRACTOR WILL REMOVE AND RESET BOTTOM SECTION TO PROVIDE A MINIMUM OF 3 INCHES OVERLAP AT TOP SECTION/BOTTOM SECTION JOINT SECTION & BOTTOM SECTION/RISER PIPE JOINT FOR TYPE B.
- TOP & BOTTOM SECTION TO BE CENTERED OVER NUT, NOT TO BEAR ON VALVE BODY.
- PROVIDE CLEARANCE BETWEEN VALVE BOX/BRICK AND THE VALVE.
- VALVE BOX ASSEMBLY SHALL CONSIST OF NO MORE THAN 3 VERTICAL SECTIONS - 1 TOP SECTION, 1 BOTTOM SECTION AND 1 - PIPE RISER SECTION.

APPROXIMATE SOIL BEARING CAPACITY (DIPRA)

SOIL TYPE	BEARING CAPACITY (LBS/SQ FT)
HARD CLAY	9,000
SANDY CLAY	6,000
SAND	4,000
SANDY SILT	3,000
SILT	1,500
SOFT CLAY	1,000
MUCK	0

REBAR SCHEDULE

TYPE	LENGTH (INCHES)	NUMBER REQUIRED	PIPE DIAMETER (INCHES)	UNDISTURBED SOIL BEARING AREA (SQ FT)	APPROX. SOIL BEARING PRESSURE (LBS/SQ FT)	W (WIDTH) (INCHES)	CONCRETE VOLUME (APPROXIMATE) (CY)
VERTICAL	38	6	6"	7.478	15	499	20
HORIZONTAL	62	6	6"	12.868	15	858	12
HORIZONTAL	24	2	10"	19.354	15	1,290	12
DIAGONAL	30	4	12"	27.370	15	1,825	14

NO. DESCRIPTION

- TYPE I ADJUSTMENT RISER.
- VALVE BOX - TOP SECTION.
- 18" - 8 SS 3/8" - 16 x 3/8" HEX SET SCREW WITH PERMANENT THREAD LOCK (RED) - LOCITITE # 271, PERMABOND HM128, OR APPROVED EQUAL.
- 1/2" DIA. x 1/16" - FIELD DRILL HOLE.

DRILL DEPTH - 1/16"

TYPE II - ADJUSTMENT RISER

TH - TOTAL HEIGHT	AH - ADJUSTMENT HEIGHT	H	MINIMUM WEIGHT - LBS
< 4 1/2"	< 2 1/2"	NOT APPROVED	NOT APPROVED
4 1/2"	2 1/2"	0	16
5"	3"	1/2"	20
6"	4"	1 1/2"	22.5
7"	5"	2 1/2"	25
8"	6"	3 1/2"	27
10"	8"	5 1/2"	32

TYPE I - ADJUSTMENT RISER

TH - TOTAL HEIGHT	AH - ADJUSTMENT HEIGHT	MIN. WEIGHT LBS
3"	1"	7
3 1/2"	1 1/2"	9
4"	2"	15
> 4"	NOT APPROVED	N/A

NO. DESCRIPTION

- 18" x 18" PRECAST (OR CAST IN PLACE) CONCRETE PAD OR 24" DIAMETER PRECAST PAD.
- NON - SHRINK GROUT - IN ANNULAR SPACE.
- VALVE BOX COVER.
- TOP SECTION VALVE BOX.
- EXTENSION STEM AS REQUIRED. SEE NOTES.
- BOTTOM SECTION VALVE BOX.
- 6" PVC PIPE (C900 OR SDR 26).
- PRECAST CONCRETE FOOTING - TYPE II - SEE DETAIL.
- GATE VALVE (OR BALL VALVE, AS APPLICABLE).
- 5" DIA. CAST IRON SOIL PIPE - BELL OF PIPE WILL RECEIVE BOTTOM SECTION OF VALVE BOX.
- AWG #12 GAUGE COPPER TRACER WIRE (THWN) WITH BLUE INSULATION, TERMINATE WITH 24 INCH EXCESS WIRE (COILED) AT METER BOX AND VALVE BOX (TYP.).
- 1/4" OR 3/8" ID CONDUIT - SDR 9 PEX TUBING - ASTM F 876.
- CONCRETE (ROADWAY, DRIVEWAY OR SIDEWALK)
- ASPHALT PAVEMENT.
- COMPACTED AGGREGATE BASE COURSE (CABC) OR ASPHALT BASE COURSE.
- COMPACTED SUBGRADE.
- NONWOVEN GEOTEXTILE FABRIC - 15" x 18" - 2 LAYERS - MIRAFI #40N OR CARTRIDGE MILLS # FX - 40HS.
- PRECAST CONCRETE FOOTING - TYPE I - SEE DETAIL.

NOTES:

- CONCRETE FOOTING TO BE CENTERED OVER VALVE NUT, AND SHALL NOT BEAR ON VALVE BODY.
- PROVIDE CLEARANCE BETWEEN VALVE FOOTING AND THE VALVE.
- WHEN OPERATING NUT DEPTH EXCEEDS 3" BELOW FINISHED GRADE, PROVIDE EXTENSION STEM WITH STANDARD 2" SQUARE OPERATING NUT IN TOP SECTION OF VALVE BOX. SEE STANDARD DETAIL.
- VALVE BOX ASSEMBLY SHALL CONSIST OF NO MORE THAN 3 VERTICAL SECTIONS - 1 TOP SECTION, 1 - BOTTOM SECTION, AND 1 - PIPE RISER SECTION.
- CONCRETE PADS SHALL NOT BE USED IN PAVEMENT (CONCRETE OR ASPHALT), SIDEWALKS OR DRIVEWAYS.

APPROXIMATE SOIL BEARING CAPACITY (DIPRA)

SOIL TYPE	BEARING CAPACITY (LBS/SQ FT)
HARD CLAY	9,000
SANDY CLAY	6,000
SAND	4,000
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