

CLTWater STANDARD DETAILS

MANUFACTURERS:
 SOUTHERN METER C.H. 5/8" x 3/4" METER BOX BODY
 BROOKS #36MB METER BOX BODY
 OLDCASTLE #MB36 METER BOX BODY
 BES #C09W METER BOX BODY
 CHRISTY B9 METER BOX BODY

NOTES:
 A. METER BOX SHALL ACCOMMODATE COMPANION PLASTIC METER BOX LID - SEE STANDARD DETAIL.
 B. MINOR DIMENSION VARIATIONS ARE PERMITTED, BASED ON MANUFACTURER'S PRODUCT LINES, PROVIDED THE CMUD STANDARD PLASTIC LID FITS PROPERLY.
 C. CONCRETE SHALL BE MINIMUM 1" c = 3000 PSI COMPRESSIVE STRENGTH.
 D. DESIGN SHALL CONFORM TO ASTM C858-SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
 E. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C 857.
 F. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND A 82.

NO SCALE
 STANDARD NO. AA
 REVISION NO. 1
 DATE 8/23/2011

CHARLOTTE-MECKLENBURG UTILITIES
 STANDARD DETAILS
 WATER

PRECAST CONCRETE METER BOX FOR 3/4 - INCH DOMESTIC WATER SERVICE

WEIGHT - 70 LB. (MIN.) - 85 LB (MAX.)

MANUFACTURERS:
 SOUTHERN METER #C.H. 2 METER BOX BODY
 BROOKS #65MB METER BOX BODY
 OLDCASTLE PRECAST #MB65 METER BOX BODY

NOTES:
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 B. MINOR DIMENSION VARIATIONS ARE PERMITTED BASED ON MANUFACTURER'S PRODUCT LINES, PROVIDED THE CMUD STANDARD PLASTIC LID FITS PROPERLY.
 C. CONCRETE SHALL BE MINIMUM 1" c = 3000 PSI COMPRESSIVE STRENGTH.
 D. DESIGN SHALL CONFORM TO ASTM C858-SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
 E. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C 857.
 F. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND A 82.

NO SCALE
 STANDARD NO. BB
 REVISION NO. 1
 DATE 8/23/2011

CHARLOTTE-MECKLENBURG UTILITIES
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PRECAST CONCRETE METER BOX FOR 1 - INCH WATER SERVICE

WEIGHT - 150 LB. (MIN.) - 170 LB (MAX.)

NO. DESCRIPTION

- 1 END OF LINE GATE VALVE (MJ x MJ)
- 2 DIP - (PE x PE) - REMOVE BELL - LENGTH = 17 FT - 19 FT
- 3 WEDGE ACTION THRUST RESTRAINT GLAND
- 4 CONCRETE WALL BLOCK (P = 3600 PSI MIN) 6 FT x 4 FT x WIDTH (W)
- 5 REBAR - GRADE 60 PER ASTM A615 - SEE REBAR SCHEDULES
- 6 MJ CAP - WITH WEDGE ACTION RESTRAINT GLAND, TAP 2" THREADED OUTLET (FNPT)
- 7 2" RED BRASS NIPPLE SCH 40 (MNPT x MNPT) - LENGTH = 12 INCH
- 8 2" RED BRASS 90° BEND (FNPT x FNPT)
- 9 2" RED BRASS NIPPLE SCH 40 (MNPT x MNPT) - LENGTH AS REQUIRED
- 10 2" GALVANIZED MALLEABLE IRON COUPLING (FNPT x FNPT)
- 11 STANDARD VALVE BOX ASSEMBLY - SEE DETAIL
- 12 AWG #12 GAUGE COPPER TRACER WIRE - WITH BLUE INSULATION (SOME HOPE) TERMINATE WITH 4-INCH EXCESS WIRE (COILED) IN VALVE BOX (TYP)
- 13 1" SCH 40 PVC ELECTRICAL CONDUIT - LENGTH AS REQUIRED
- 14 UNDISTURBED SOIL
- 15 HIGH DENSITY CROSS LAMINATED POLYETHYLENE FILM TUBE (HDCLPE) AWWA C105 - 4 MILS EACH x 2 LAYER x MILS TOTAL
- 16 HDPE ADHESIVE TAPE OR HDPE ZIP LOCK TIES
- 17 PLYWOOD FORM
- 18 5" CAST IRON SOIL PIPE (L = 15') OR VALVE BOX BOTTOM SECTION

NOTES:
 A. 12-INCH MAINS REQUIRE THIS INSTALLATION.
 B. 6-INCH THROUGH 10-INCH MAINS REQUIRE THIS INSTALLATION WHEN SOFT SOILS ARE ENCOUNTERED, OR WHEN REQUIRED BY THE ENGINEER.
 C. WHEN DIRECTED BY THE ENGINEER, THE CONCRETE WALL BLOCK SIZE MAY BE ADJUSTED, BASED ON ACTUAL SOIL CLASSIFICATION AND PIPE DIAMETER.
 D. FULLY RESTRAINED JOINT PIPE MAY BE USED IN LIEU OF THIS DETAIL - SEE RESTRAINED JOINT PIPE DETAILS.
 E. ALTERNATE DETAIL "A" (USING A REVERSED BELL) MAY BE USED IN LIEU OF DETAIL "A".

NO. ALTERNATE DESCRIPTION
 WHEN USING 2-INCH HOPE (IPS) BLOW-OFF PIPE WITH STAINLESS STEEL, BRASS OR BRONZE MNPT ENDS, USE THE FOLLOWING PRODUCTS:
 7 2" SDR 9 HOPE (POLY) - IPS PIPE (MNPT x MNPT) - LENGTH AS REQUIRED - 12-INCH MINIMUM.
 9 2" SDR 9 HOPE (POLY) - IPS PIPE (MNPT x MNPT) - LENGTH AS REQUIRED.

APPROXIMATE SOIL BEARING CAPACITY (DIPRA)

SOIL TYPE	BEARING CAPACITY (LB/SQ FT)
HARD CLAY	9,000
7,000	
SANDY CLAY	6,000
5,000	
SAND	4,000
2,000	
SANDY SILT	3,000
2,000	
SILT	1,500
1,250	
SOFT CLAY	1,000
750	
MUCK	500
250	

REBAR SCHEDULE

TYPE	LENGTH (INCHES)	NUMBER REQUIRED
VERTICAL	36	6
HORIZONTAL	82	6
HORIZONTAL	24	2
DIAGONAL	30	4

REBAR SCHEDULE

PIPE DIAMETER (INCHES)	BAR SIZE	TOTAL REBAR LENGTH (FT)	TOTAL REBAR WEIGHT (LB)
6"	#7	64	86
8"	#7	64	131
10"	#8	64	171
12"	#9	64	218

SCALE
 1" = 12' (MIN.)
 1" = 10' (PIPE DIAMETER)

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DEAD END THRUST - WALL BLOCKING AND 2-INCH BLOW-OFF ASSEMBLY 6-INCH THROUGH 12-INCH MAINS

REBAR DETAIL

PLAN VIEW

ELEVATION VIEW

END VIEW

DETAIL "A"

DETAIL "A" (ALT)

NOTES:
 A. ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE STAINLESS STEEL - TYPE 304 WITH ANTI-SEIZE COMPOUND.
 B. ALL PIPE SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP TO PROPERTY LINE VALVE.
 C. METER CONFIGURATION AND LENGTH MAY VARY DUE TO BRAND - VERIFY LENGTH TO DETERMINE MINIMUM VAULT LENGTH.
 D. VAULT SHALL BE SIZED AS NEEDED FOR PIPE (7.5" MINIMUM) AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
 E. ALL CONCRETE SHALL BE MINIMUM 4000 PSI COMPRESSIVE STRENGTH.
 F. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
 G. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
 H. REBARS SHALL BE GRADE 60 PER ASTM A615.
 I. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
 J. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
 K. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTORS (MAN-HOLE BOOTS) OR WITH 8-INCHES OF BRICK & MORTAR (AND 1/2 INCH THICK CONSTRUCTION EXPANSION MATERIAL).
 L. FRAME TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM VAULT.
 M. ALL JOINTS SHALL BE MADE WATERTIGHT USING 2 RINGS OF BUTYL RUBBER JOINT MASTIC.
 N. ALL VALVES SHALL BE OPEN RIGHT - CLOCKWISE, EXCEPT NO. 13.

NO. DESCRIPTION

- 1 4" TAPPING SLEEVE AND 4" FLANGE x MJ TAPPING VALVE ON EXISTING MAIN, 3" MJ TEE AND 2" MJ GATE VALVE ON NEW MAIN
- 2 STANDARD VALVE BOX ASSEMBLY (TYP) - ALL VALVES (REDUCER NOT REQUIRED ON NEW MAIN INSTALLATIONS)
- 3 4" x 3" REDUCER (RJ) REQUIRED ON EXISTING MAIN INSTALLATIONS. (REDUCER NOT REQUIRED ON NEW MAIN INSTALLATIONS)
- 4 FLANGE DUCTILE IRON TEE WITH ADJUSTABLE FLANGE SUPPORT
- 5 FLANGE DUCTILE IRON 90° BEND
- 6 FLANGE x FLARE DUCTILE IRON PIPE (MIN. SPECIAL CLASS 53)
- 7 MJ LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINTS
- 8 3/4" BALL CORPORATION STOP WITH TAPPING SADDLE
- 9 FLANGE GATE VALVE WITH 2" OPERATING NUT - OPEN RIGHT AND WITH ADJUSTABLE FLANGE SUPPORT ON BYPASS VALVE
- 10 FLANGE STRAINER
- 11 FLANGE COMPOUND METER ASSEMBLY (W/AMR TRANSMITTERS, METER CONFIGURATION MAY VARY DUE TO BRAND SUPPLIED)
- 12 FLANGE CHECK VALVE W/BLIND FLANGE-2" TAP/THREADED BRASS PLUG MECHANICAL JOINT (RJ) GATE VALVE-2" OPERATING NUT - OPEN LEFT @ PROPERTY LINE
- 13 MECHANICAL JOINT PLUG WITH 2" TAP
- 14 2" PIPE GALVANIZED STEEL (SCH 80), RED BRASS (SCH 40), HDPE (DR 9) OR DIP WITH STANDARD VALVE BOX CONCRETE PAD
- 15 2" THREADED COUPLING
- 16 AIR TRANSMITTERS
- 17 ADJUSTABLE FLANGE SUPPORTS (3 REQUIRED)
- 18 PRECAST REINFORCED CONCRETE VAULT
- 19 MINIMUM OF (3) STANDARD SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2 FT.
- 20 JOINT REQUIRED AT FLAT TOP SECTION.
- 21 3/8" DIA. GALV. STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL
- 22 AWG #12 GAUGE COPPER TRACER WIRE (TWN) - WITH BLUE INSULATION - TERMINATE WITH 24" EXCESS WIRE (COILED) @ EYE BOLT AND VALVE BOX (TYPICAL)
- 23 CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
- 24 VALVE LOCK (FURNISHED BY CMUD) - LOCK VALVE CLOSED
- 25 PLASTIC STEP - 12" OR 16" O.C. VERTICAL SPACING

SCALE
 1" = 12' (MIN.)
 1" = 10' (PIPE DIAMETER)

CHARLOTTE-MECKLENBURG UTILITIES
 STANDARD DETAILS
 WATER

3 - inch COMPOUND WATER METER AND PRECAST CONCRETE VAULT

PLAN

ELEVATION

SECTION VIEW

ALTERNATE IN CONCRETE SIDEWALK

2/6/2015
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 Utilities