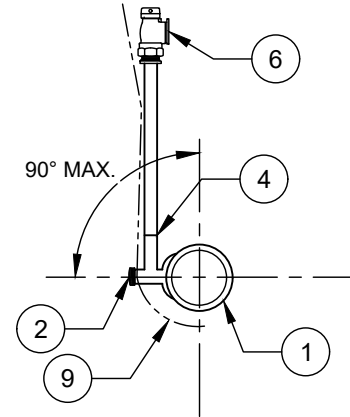


TAPPING SADDLE WITH CAP AND CUTTER



OPTION - ANGLED TAPPING SADDLE WITH METER ABOVE MAIN

NO.	DESCRIPTION:
1.	HDPE WATER MAIN.
2.	HDPE SERVICE TAPPING SADDLE WITH CAP AND CUTTER.
3.	HDPE WATER TUBING (SDR-9 CTS).
4.	ELECTROFUSION COUPLING.
5.	FINISHED GRADE OF SIDEWALK.
6.	5/8" X 3/4" ANGLE BALL VALVE WITH LOCK WINGS, YOKE STAR NUT X CTS COMPRESSION.
7.	WATER METER WITH TRANSMITTER.
8.	METER BOX ASSEMBLY. SEE STANDARD DETAIL.
9.	TRACER WIRE - CONTINUOUS AWG #12 GAUGE SOLID COPPER TRACER WIRE WITH 30 MILS THICK BLUE HDPE INSULATION.
10.	TYPE K COPPER TUBING OR HDPE SDR-9 (CTS) TUBING WITH INSERT STIFFENERS.
11.	CURB AND GUTTER.

- NOTES:**
- A. METER LOCATION WHERE SIDEWALK AND CURB ARE INTEGRAL IS AT BACK OF SIDEWALK INSTEAD OF BACK OF CURB AS SHOWN.
 - B. ANGLED OPTION IS ONLY ALLOWED WITH CLTW APPROVAL.

CHARLOTTE WATER
 A CITY OF CHARLOTTE DEPARTMENT
 STANDARD DETAILS
 WATER METERS

**HDPE SERVICE CONNECTION TAP ON
 HDPE PIPE (3/4-INCH TO 1-INCH)**

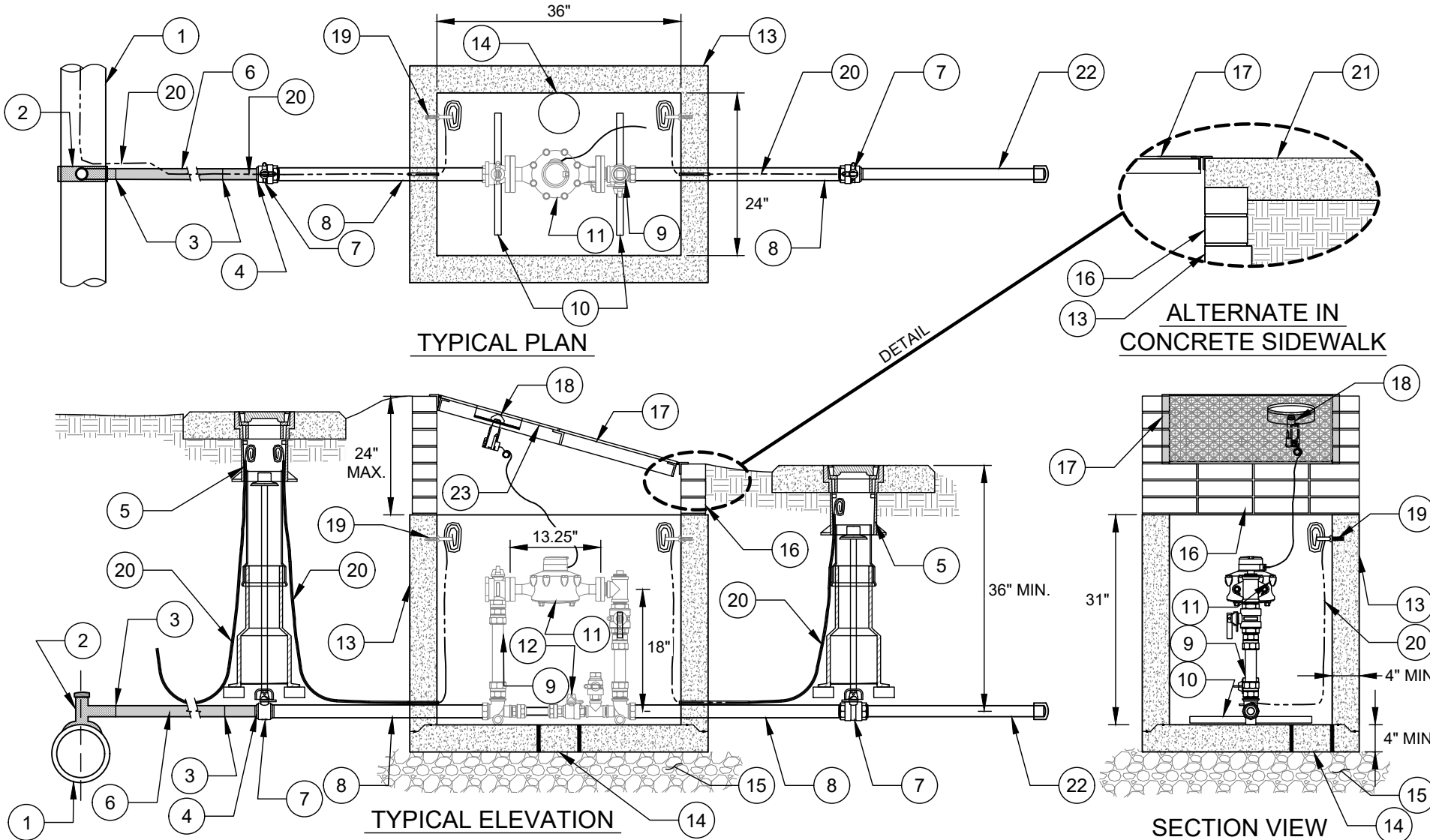
NO SCALE
VERSION 1.0
DATE 04/2024
DETAIL 15.1.1

NOTES:

- A. ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE STAINLESS STEEL - TYPE 304 WITH ANTI-SEIZE COMPOUND.
- B. ALL PIPE SHALL BE RESTRAINED FROM TAP TO PROPERTY LINE VALVE.
- C. VAULT SHALL BE RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- D. ALL CONCRETE SHALL BE MINIMUM 3,600 PSI COMPRESSIVE STRENGTH.
- E. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
- F. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- G. REBARS SHALL BE GRADE 60 PER ASTM A615.
- H. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- I. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- J. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTERS (MANHOLE BOOTS) OR WITH 4" OF BRICK & MORTAR (AND 1/2-INCH THICK CONSTRUCTION EXPANSION MATERIAL AROUND THE PIPE).
- K. FRAME TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM VAULT.
- L. ALL JOINTS SHALL BE MADE WATERTIGHT USING 2 RINGS OF BUTYL RUBBER JOINT MASTIC.

NO. DESCRIPTION:

- 1. HDPE WATER MAIN.
- 2. HDPE SERVICE TAPPING SADDLE WITH T-HEAD OPERATING NUT, AND CAP AND CUTTER.
- 3. HDPE BUTT FUSION JOINT.
- 4. BUTT FUSION X THREADED (MNPT) ADAPTER.
- 5. STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES (OMIT AT CORPORATION STOP ON SHORT SIDE SERVICE).
- 6. 1 1/2" SDR-9 IPS HDPE PIPE.
- 7. 1 1/2" BRASS BALL VALVE (FNPT X FNPT).
- 8. 1 1/2" RED BRASS PIPE NIPPLE (L = 30").
- 9. 1 1/2" BRASS METER SETTER ASSEMBLY - NO SOLDER JOINTS PERMITTED. SEE TECHNICAL SPECIFICATIONS.
- 10. 1" SCH 40 RED BRASS NIPPLE (L = 18") X 2 EACH.
- 11. 1 1/2" WATER METER ASSEMBLY WITH AMR TRANSMITTER (BY CONTRACTOR).
- 12. BY PASS BALL VALVE WITH LOCK WINGS - LOCK VALVE IN CLOSED POSITION (SERIAL NUMBERED STUD LOCK - FURNISHED BY CLTW).
- 13. PRECAST CONCRETE SERVICE VAULT (36" X 24" X 31").
- 14. 6" DIAMETER SUMP HOLE.
- 15. 6" COMPACTED #57 WASHED STONE. MINIMUM OF (3) STANDARD SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2'.
- 16. 24" X 36" ACCESS DOOR - SEE STANDARD DETAIL.
- 17. AMR TRANSMITTER.
- 18. 3/8" DIAMETER GALV. STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL.
- 19. AWG #12 GAUGE SOLID COPPER TRACER WIRE 30 MILS BLUE HDPE INSTALLATION - TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYP.).
- 20. CAST IN PLACE CONCRETE SIDEWALK - BRICK WORK SHALL NOT EXTEND TO SURFACE, ACCESS DOOR SHALL REST ON SIDEWALK.
- 21. 1 1/2" TYPE K COPPER TUBING TAIL PIECE - L = 24" MIN. - BRASS OR PVC CAP END.
- 22. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

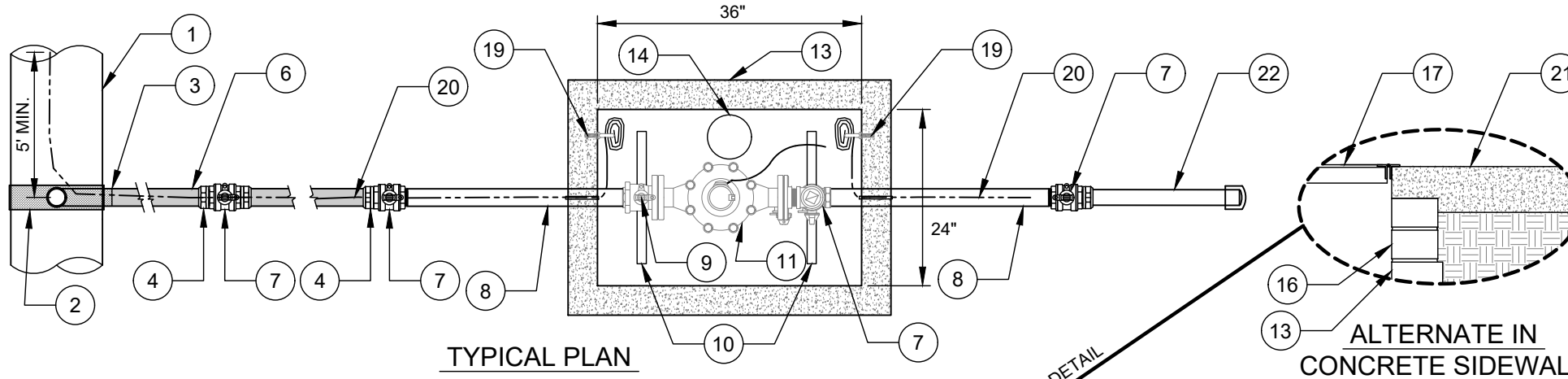


NOTES:

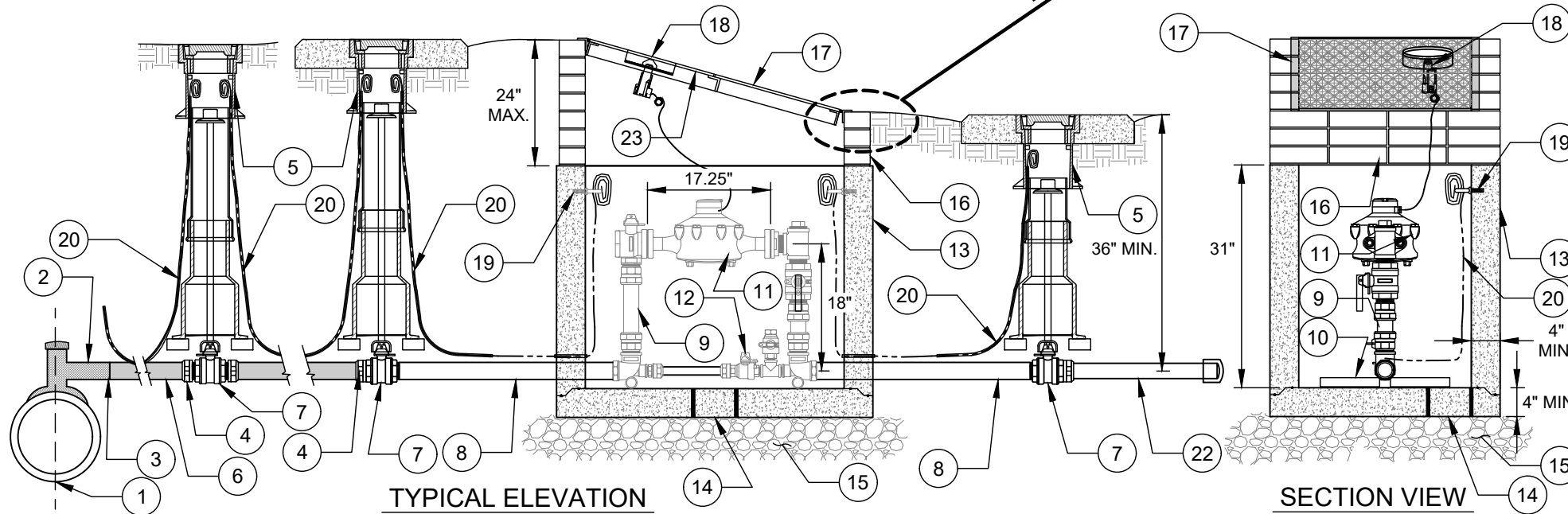
- A. ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE STAINLESS STEEL - TYPE 304 WITH ANTI-SEIZE COMPOUND.
- B. ALL PIPE SHALL BE RESTRAINED FROM TAP TO PROPERTY LINE VALVE.
- C. VAULT SHALL BE RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- D. ALL CONCRETE SHALL BE MINIMUM 3,600 PSI COMPRESSIVE STRENGTH.
- E. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
- F. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
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- I. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- J. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTERS (MANHOLE BOOTS) OR WITH 4" OF BRICK & MORTAR (AND 1/2-INCH THICK CONSTRUCTION EXPANSION MATERIAL AROUND THE PIPE).
- K. FRAME TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM VAULT.
- L. ALL JOINTS SHALL BE MADE WATERTIGHT USING 2 RINGS OF BUTYL RUBBER JOINT MASTIC.

NO. DESCRIPTION:

1. HDPE WATER MAIN.
2. HDPE SERVICE TAPPING SADDLE WITH CAP AND CUTTER.
3. HDPE BUTT FUSION JOINT.
4. BUTT FUSION X THREADED (MNPT) ADAPTER.
5. STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES (OMIT AT CORPORATION STOP ON SHORT SIDE SERVICE).
6. 2" SDR-9 IPS HDPE PIPE.
7. 2" BRASS BALL VALVE (FNPT X FNPT).
8. 2" RED BRASS PIPE NIPPLE (L = 30").
9. 2" BRASS METER SETTER ASSEMBLY - NO SOLDER JOINTS PERMITTED. SEE TECHNICAL SPECIFICATIONS.
10. 1" SCH 40 RED BRASS NIPPLE (L = 18") X 2 EACH.
11. 2" WATER METER ASSEMBLY WITH AMR TRANSMITTER (BY CONTRACTOR).
12. BY PASS BALL VALVE WITH LOCK WINGS - LOCK VALVE IN CLOSED POSITION (SERIAL NUMBERED STUD LOCK - FURNISHED BY CLTW).
13. PRECAST CONCRETE SERVICE VAULT (36" X 24" X 31").
14. 6" DIAMETER SUMP HOLE.
15. 6" COMPACTED #57 WASHED STONE.
16. MINIMUM OF (3) STANDARD SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2'.
17. 24" X 36" ACCESS DOOR - SEE STANDARD DETAIL.
18. AMR TRANSMITTER.
19. 3/8" DIAMETER GALV. STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL.
20. AWG #12 GAUGE SOLID COPPER TRACER WIRE 30 MILS BLUE HDPE - TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYP.).
21. CAST IN PLACE CONCRETE SIDEWALK - BRICK WORK SHALL NOT EXTEND TO SURFACE, ACCESS DOOR SHALL REST ON SIDEWALK.
22. 2" TYPE K COPPER TUBING TAIL PIECE - L = 24" MIN. - BRASS OR PVC CAP END.
23. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.



TYPICAL PLAN

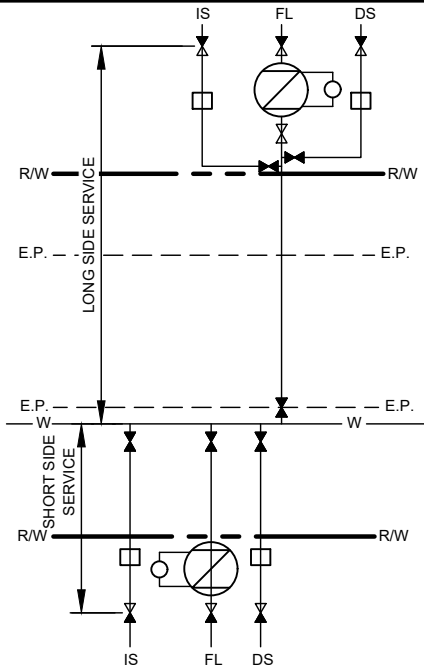


TYPICAL ELEVATION

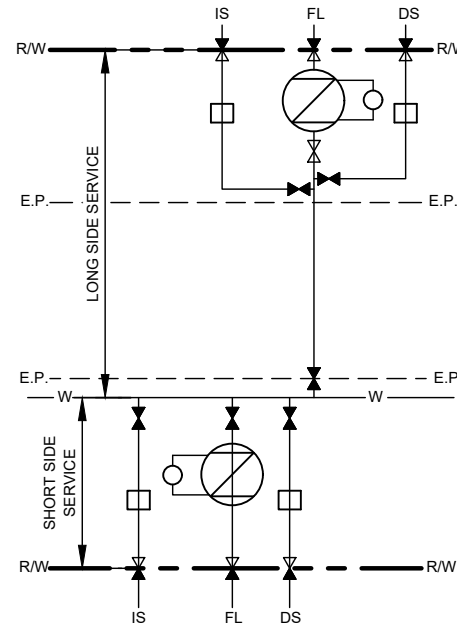
SECTION VIEW

ALTERNATE IN CONCRETE SIDEWALK

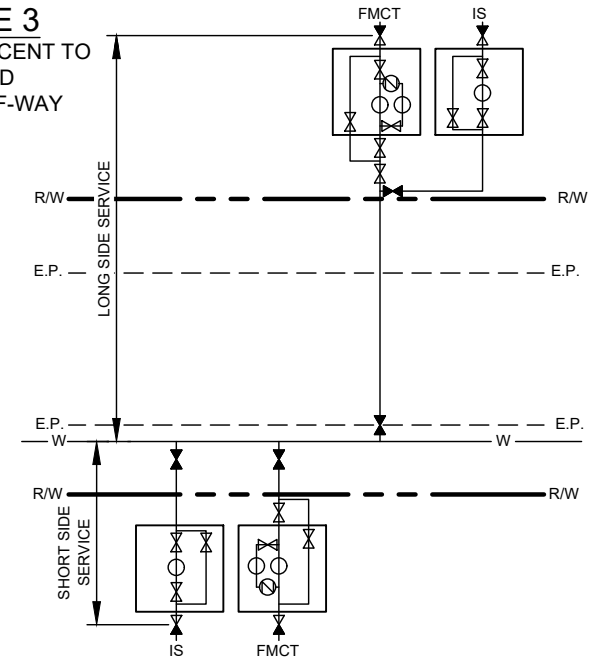
TYPE 1
METERS ADJACENT TO ROAD RIGHT-OF-WAY



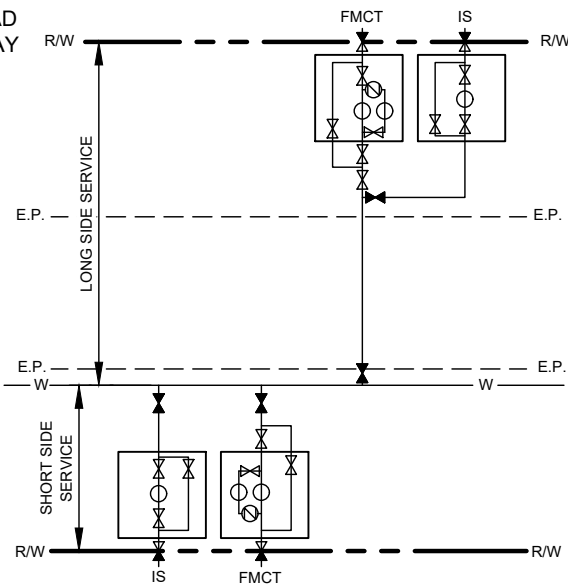
TYPE 2
METERS IN ROAD RIGHT-OF-WAY



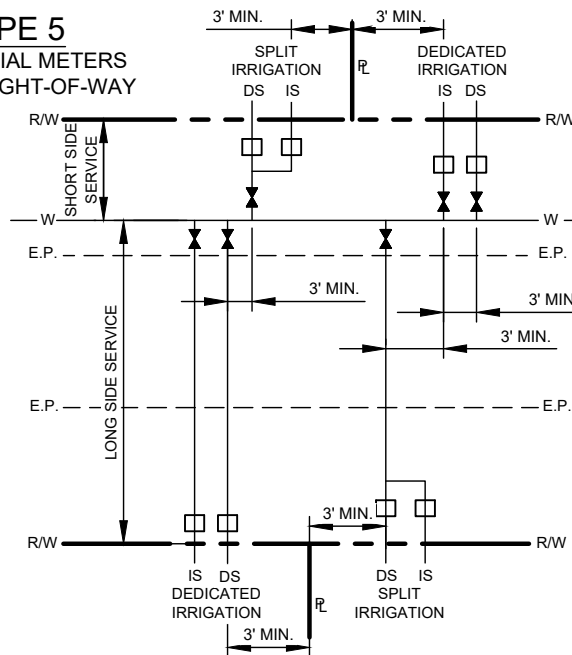
TYPE 3
FMCT ADJACENT TO ROAD RIGHT-OF-WAY



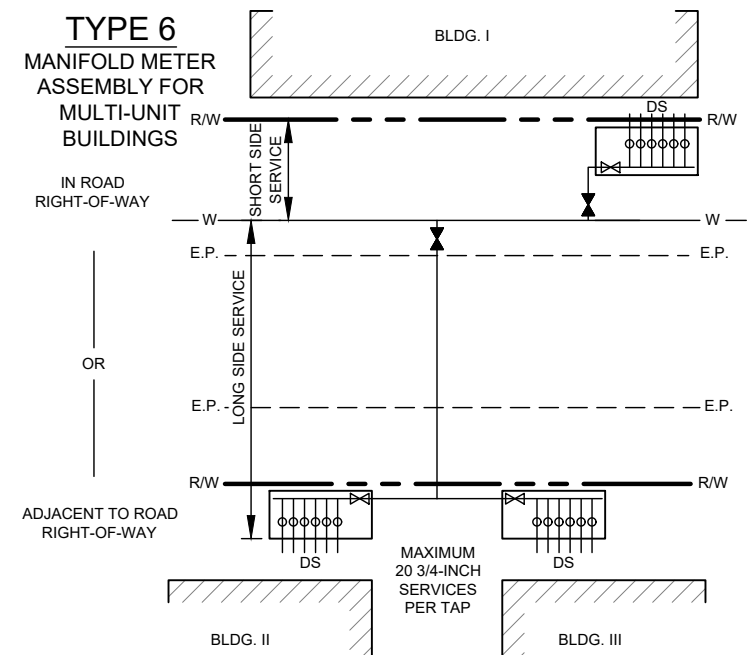
TYPE 4
FMCT IN ROAD RIGHT-OF-WAY



TYPE 5
RESIDENTIAL METERS IN ROAD RIGHT-OF-WAY



TYPE 6
MANIFOLD METER ASSEMBLY FOR MULTI-UNIT BUILDINGS



LEGEND / NOTE:

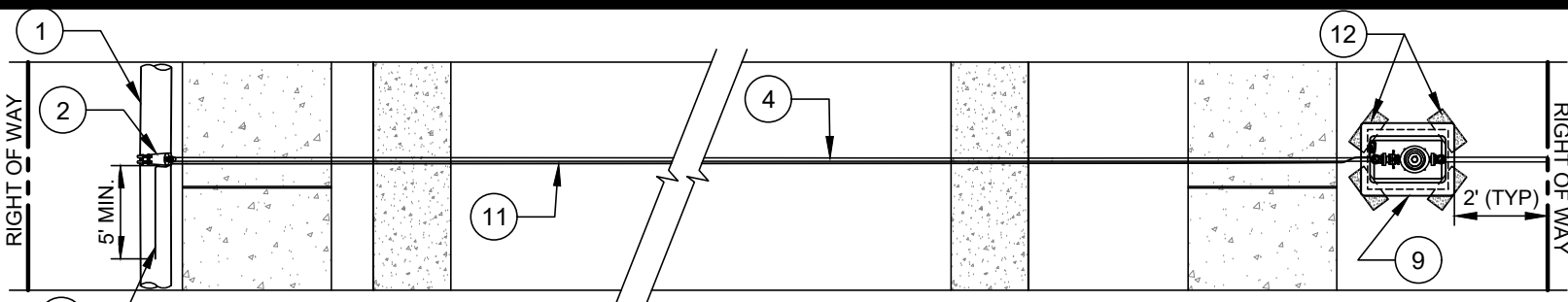
- IS = LAWN IRRIGATION SERVICE
- DS = DOMESTIC POTABLE WATER SERVICE
- FL = FIRE LINE SERVICE WITH DETECTOR METER
- FMCT = FACTORY MUTUAL COMPOUND TYPE / FIRE MAIN COMPOUND TYPE OR ULTRASONIC METER TYPE.

- ⊗ = FOR 3/4"-2" SERVICE - TAPPING SADDLE AND BALL CORPORATION STOP - CC (TAPER) THREAD.
- ⊗ = FOR 3"-12" SERVICE - TAPPING SLEEVE AND TAPPING GATE VALVE (FL X MJ) FOR EXISTING WATER MAINS OR MJ TEE, FOSTER ADAPTOR, SERVICE GATE VALVE, (RESTRAINED) FOR NEW MAINS.
- ⊗ = GATE VALVE OR BALL VALVE - SEE METER DETAILS

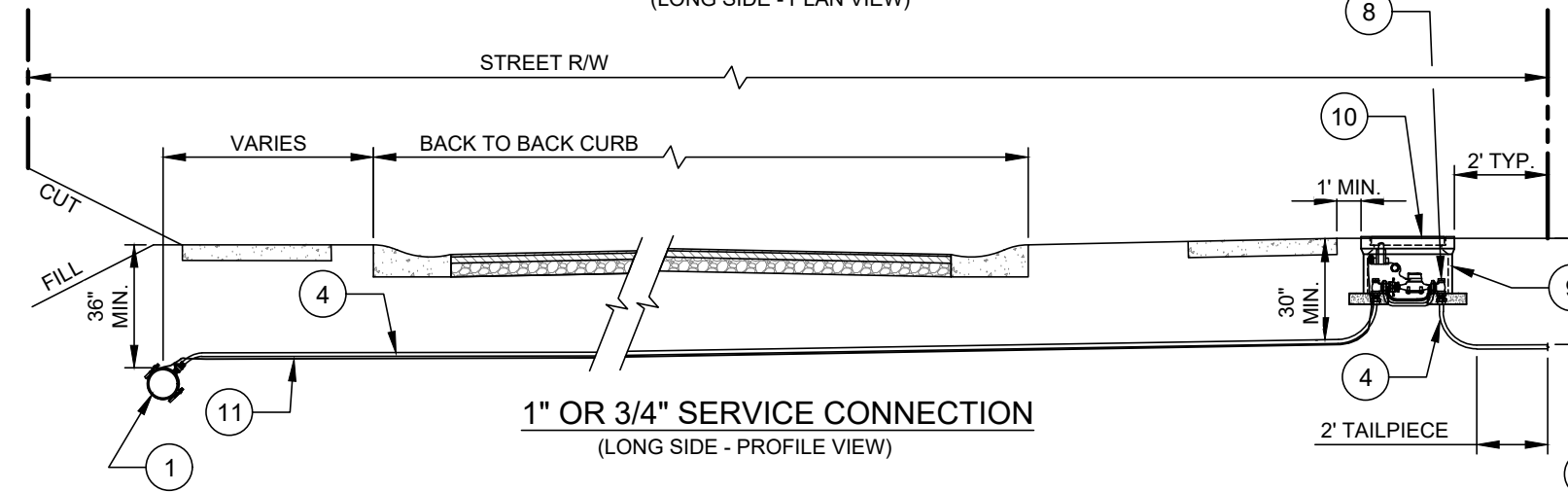
- ⊗ = PROPERTY LINE VALVE - FOR 3/4"-1" - NOT REQUIRED, FOR 1 1/2"-2" - BALL VALVE CURB STOP, OR FOR 3"-12" - OPEN LEFT MJ GATE VALVE (RESTRAINED).

ALL PIPE SHALL BE RESTRAINED FROM MAIN TO PROPERTY LINE VALVE - 3/4"-2" SHALL BE TYPE K COPPER OR SDR 9 HDPE (NO JOINTS PERMITTED BETWEEN WATER MAIN AND METER), 3"-12" SHALL BE RESTRAINED JOINT DUCTILE IRON. SEE INDIVIDUAL METER DETAILS FOR SPECIFIC COMPONENT REQUIREMENTS.

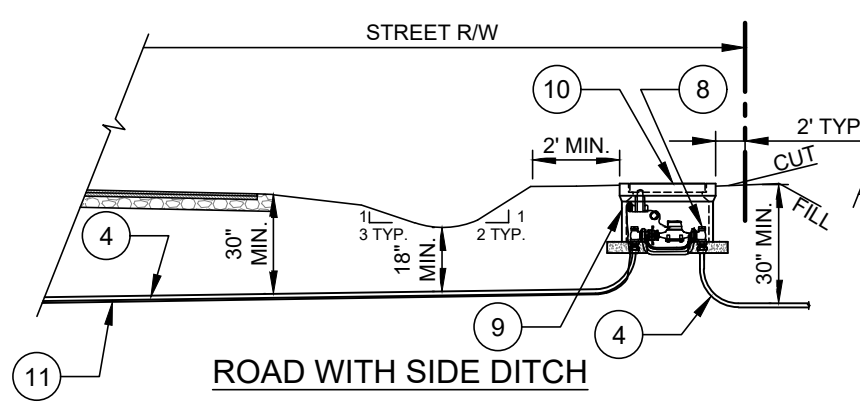
NO.	DESCRIPTION:
1.	WATER MAIN.
2.	S.S. DOUBLE STRAP SERVICE SADDLE - CC (TAPER) THREAD OUTLET.
3.	BALL CORPORATION STOP WITH BRASS TEE HEAD OPERATING NUT - CC (TAPER) THREAD X CTS COMPRESSION.
4.	TYPE K COPPER TUBING OR SDR9 HDPE (POLY) TUBING WITH INSERT STIFFENERS - CONTINUOUS ONE PIECE (NO FITTING ALLOWED).
5.	5/8" X 3/4" ANGLE BALL VALVE WITH LOCK WINGS - CTS COMPRESSION X YOKE STAR NUT.
6.	5/8" DUCTILE IRON YOKE BAR.
7.	5/8" METER ASSEMBLY (BY CLTW) WITH AMR TRANSMITTER.
8.	CUSTOMER PROPERTY LINE 5/8" X 3/4" ANGLE BALL VALVE WITH LOCK WINGS - CTS COMPRESSION X YOKE STAR NUT.
9.	GRAY HDPE PLASTIC METER BOX - SEE STD. DETAILS.
10.	GRAY HDPE METER BOX LID WITH AMR TRANSMITTER - SEE STD. DETAILS.
11.	AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH 30 MILS BLUE INSULATION HDPE - TERMINATE IN METER BOX WITH 24" EXCESS WIRE (COILED).
12.	SOLID STANDARD CONCRETE BRICKS - DIAGONAL AT CORNERS - 4 EACH.



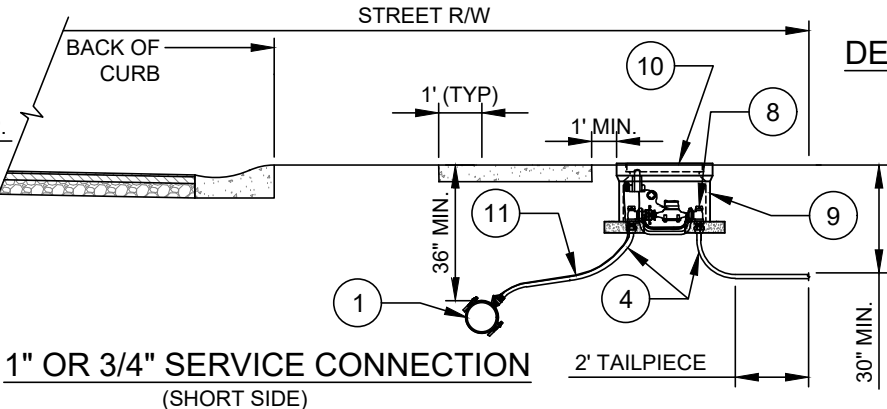
1" OR 3/4" SERVICE CONNECTION
(LONG SIDE - PLAN VIEW)



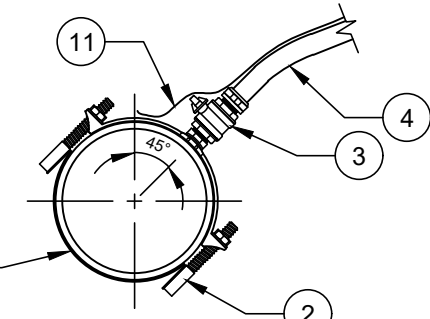
1" OR 3/4" SERVICE CONNECTION
(LONG SIDE - PROFILE VIEW)



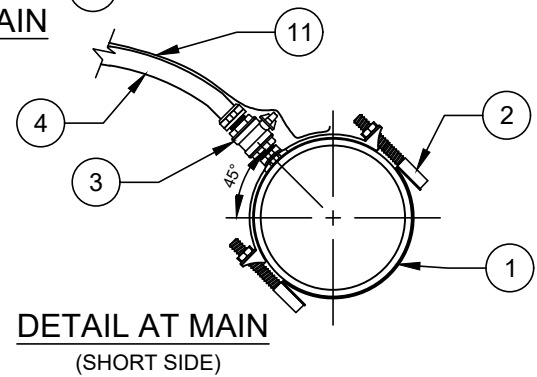
ROAD WITH SIDE DITCH



1" OR 3/4" SERVICE CONNECTION
(SHORT SIDE)

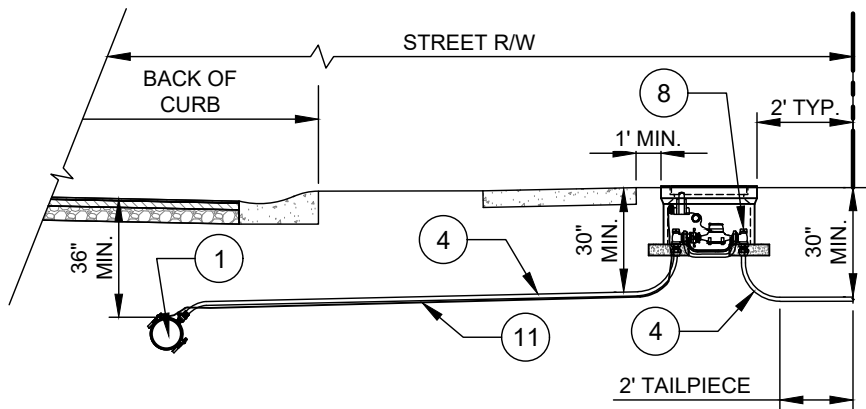


DETAIL AT MAIN
(LONG SIDE)

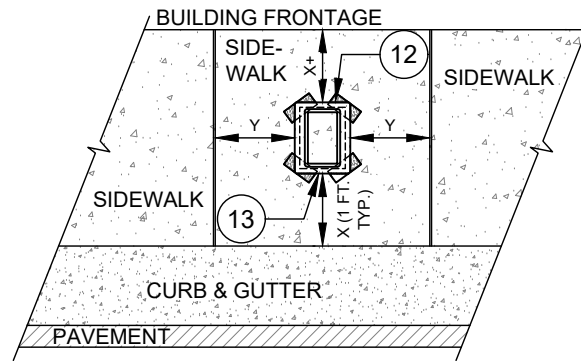


DETAIL AT MAIN
(SHORT SIDE)

- NOTES:**
- A. MIN. DISTANCE CENTER TO CENTER ON SERVICES OR TO BELLS OR SPIGOTS SHALL BE 3' AS MEASURED ALONG THE MAIN.
 - B. CENTER ANGLE BALL VALVES AND METER (NO. 5 - NO. 7) IN METER BOX.
 - C. SHOWN AS 3/4" SERVICE, USE 1" COMPONENTS FOR 1" DOMESTIC WATER SERVICE.
 - D. TRACER WIRE REQUIRED FOR ALL SERVICES REGARDLESS OF PIPE TYPE.
 - E. WHEN METER BOX MUST BE PLACED IN CONCRETE, IT SHALL BE COMPLETELY IN, AND CENTERED IN CONCRETE PANEL, PER CDOT / NCDOT REQUIREMENTS.
 - F. CLTW MAINTENANCE ENDS WITH THE CUSTOMER PROPERTY LINE ANGLE BALL VALVE (NO. 8).
 - G. METER SHALL SERVE PROPERTY IT FRONTS.
 - H. SERVICE LINE SHALL RUN PERPENDICULAR TO THE ROAD/ROW IF THE MAIN IS ON A SKEW.



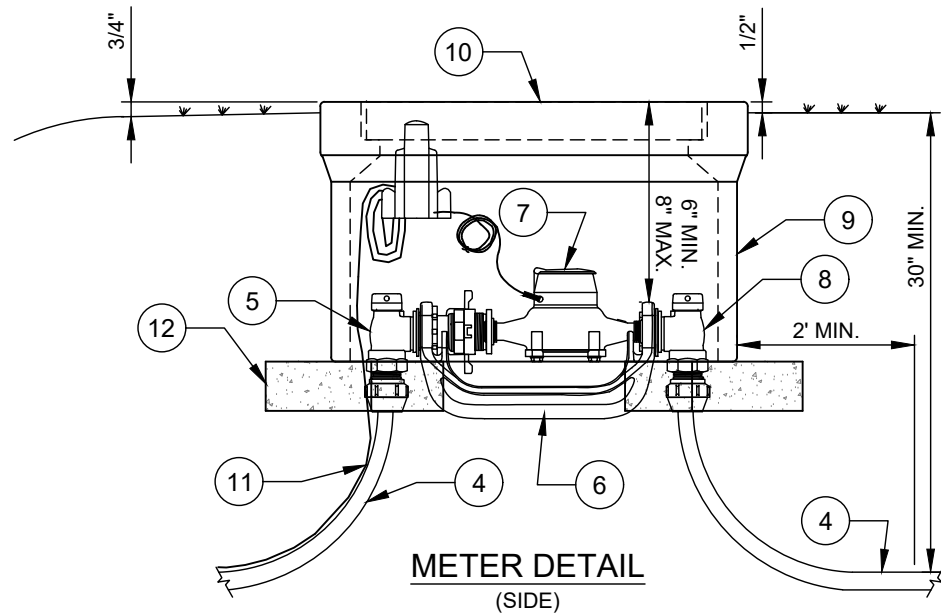
1" OR 3/4" SERVICE CONNECTION
(SHORT SIDE - IN PAVEMENT)



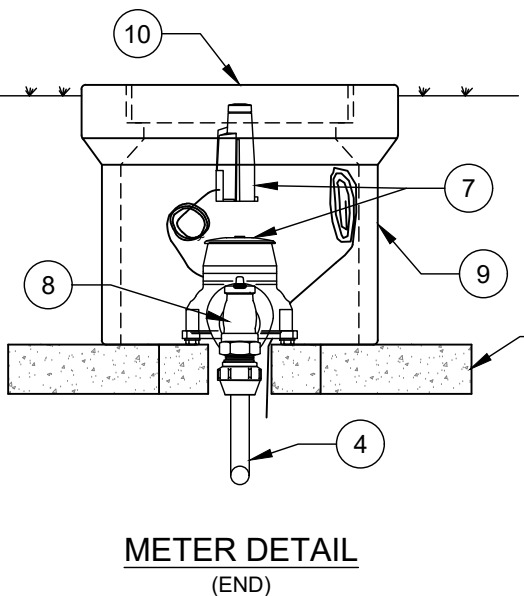
METER BOX IN SIDEWALK
(REQUIRES PRIOR CLTW APPROVAL)

NO. DESCRIPTION:

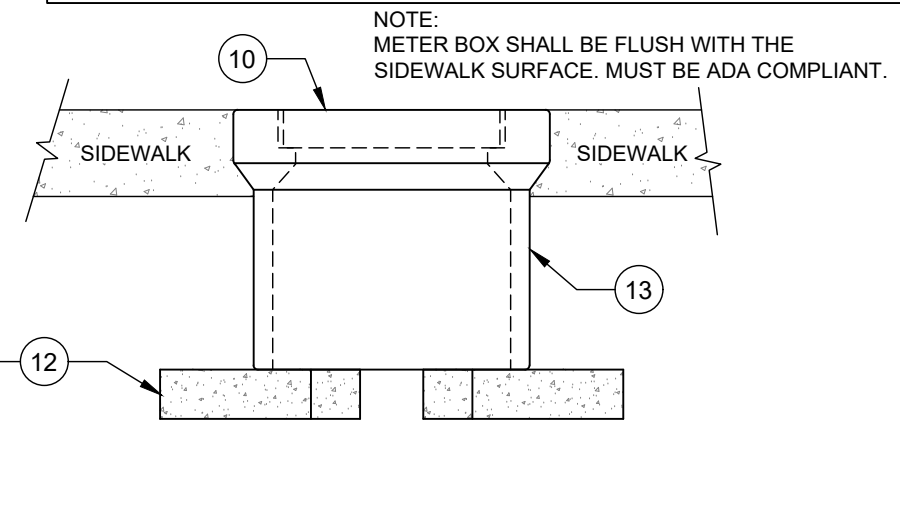
1. WATER MAIN.
2. S.S. DOUBLE STRAP SERVICE SADDLE - CC (TAPER) THREAD OUTLET.
3. BALL CORPORATION STOP WITH BRASS TEE HEAD OPERATING NUT- CC (TAPER) THREAD x CTS COMPRESSION.
4. TYPE K COPPER TUBING OR SDR9 HDPE (POLY) TUBING WITH INSERT STIFFENERS - CONTINUOUS ONE PIECE (NO FITTING ALLOWED).
5. 5/8" x 3/4" ANGLE BALL VALVE WITH LOCK WINGS - CTS COMPRESSION x YOKE STAR NUT.
6. 5/8" DUCTILE IRON YOKE BAR.
7. 5/8" METER ASSEMBLY (BY CLTW) WITH AMR TRANSMITTER.
8. CUSTOMER PROPERTY LINE 5/8" X 3/4" ANGLE BALL VALVE WITH LOCK WINGS - CTS COMPRESSION X YOKE STAR NUT.
9. GRAY HDPE PLASTIC METER BOX - SEE STD. DETAILS.
10. GRAY HDPE METER BOX LID WITH AMR TRANSMITTER - SEE STD. DETAILS.
11. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH 30 MILS BLUE INSULATION HDPE - TERMINATE IN METER BOX WITH 24" EXCESS WIRE (COILED).
12. SOLID STANDARD CONCRETE BRICKS - DIAGONAL AT CORNERS - 4 EACH.
13. USE CONCRETE METER BOX WHEN IN SIDEWALK.



METER DETAIL
(SIDE)



METER DETAIL
(END)

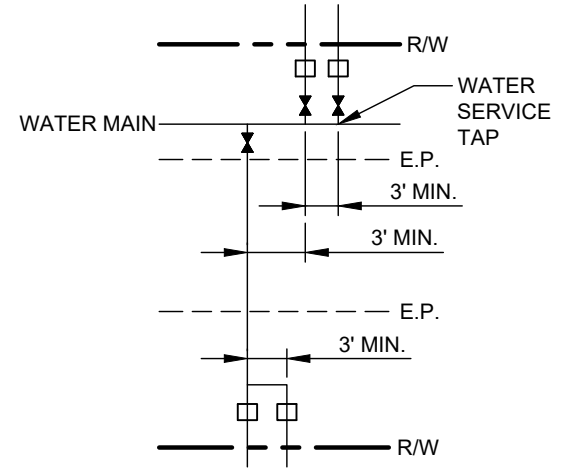


METER BOX IN SIDEWALK DETAIL
(REQUIRES PRIOR CLTW APPROVAL)
(BOX SHALL BE CONCRETE BOX WITH PLASTIC LID, AND SUPPORTED BY CONCRETE SIDEWALK - AS SHOWN)

NOTE:
METER BOX SHALL BE FLUSH WITH THE SIDEWALK SURFACE. MUST BE ADA COMPLIANT.

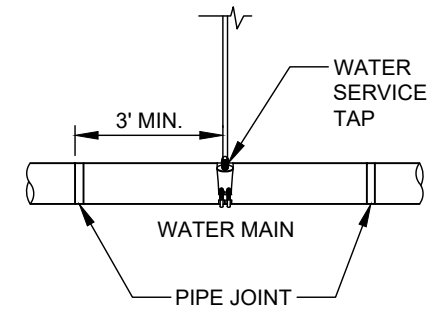
- NOTES:**
- A. MIN. DISTANCE CENTER TO CENTER ON SERVICES OR TO BELLS OR SPIGOTS SHALL BE 3' AS MEASURED ALONG THE MAIN.
 - B. CENTER ANGLE BALL VALVES AND METER (NO. 5 - NO.7) IN METER BOX.
 - C. SHOWN AS 3/4" SERVICE, USE 1" COMPONENTS FOR 1" DOMESTIC WATER SERVICE.
 - D. TRACER WIRE REQUIRED FOR ALL SERVICES REGARDLESS OF PIPE TYPE.
 - E. WHEN METER BOX MUST BE PLACED IN CONCRETE, IT SHALL BE COMPLETELY IN, AND CENTERED IN CONCRETE PANEL, PER CDOT / NCDOT REQUIREMENTS.
 - F. CLTW MAINTENANCE ENDS WITH THE CUSTOMER PROPERTY LINE ANGLE BALL VALVE (NO. 8).
 - G. METER SHALL SERVE PROPERTY IT FRONTS.
 - H. SERVICE LINE SHALL RUN PERPENDICULAR TO THE ROAD/ROW IF THE MAIN IS ON A SKEW.
 - I. METER BOX IS NOT ALLOWED IN DRIVEWAY.

REQUIREMENT 1
MINIMUM SPACING BETWEEN WATER TAPS: 3 FT



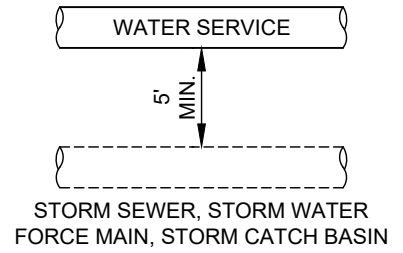
PLAN VIEW
(HORIZONTAL SEPARATION)

REQUIREMENT 2
MINIMUM CLEARANCE OF WATER TAP TO PIPE JOINTS OR FITTINGS: 3 FT



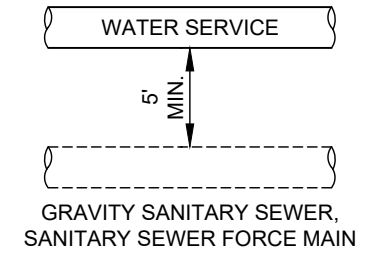
PLAN VIEW
(HORIZONTAL SEPARATION)

REQUIREMENT 3
MINIMUM SPACING BETWEEN WATER SERVICES AND PARALLEL STORM PIPES/CATCH BASINS: 5 FT



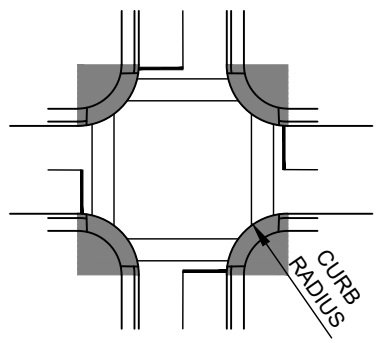
PLAN VIEW
(HORIZONTAL SEPARATION)

REQUIREMENT 4
MINIMUM SPACING BETWEEN WATER SERVICES AND SEWER SERVICES: 5 FT



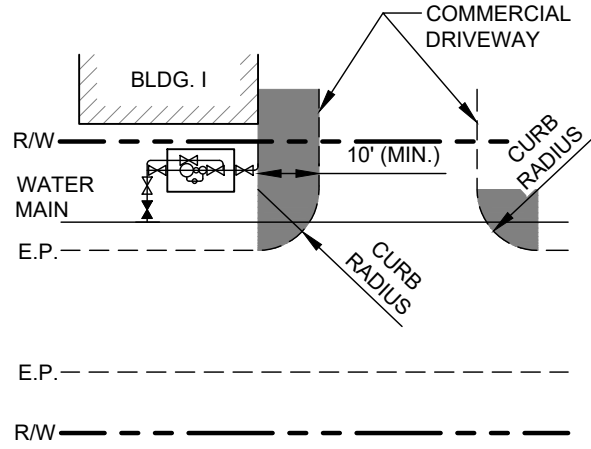
PLAN VIEW
(HORIZONTAL SEPARATION)

REQUIREMENT 5
WATER SERVICES PROHIBITED INSIDE CURB RADIUS POINT OF PUBLIC AND PRIVATE ROAD INTERSECTIONS



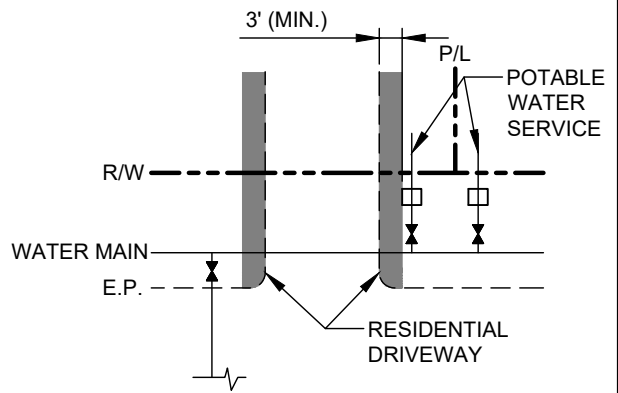
PLAN VIEW

REQUIREMENT 6
WATER SERVICE VAULTS PROHIBITED WITHIN 10 FT OF COMMERCIAL DRIVEWAYS OR WITHIN THE CURB RADIUS POINT, WHICHEVER IS GREATER



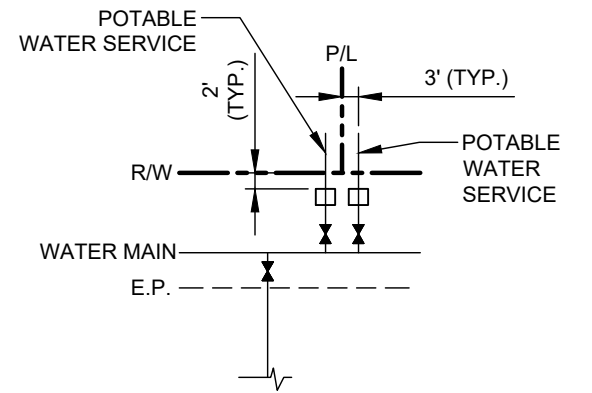
PLAN VIEW
(HORIZONTAL SEPARATION)

REQUIREMENT 7
WATER SERVICE METER BOXES PROHIBITED WITHIN 3 FT OF RESIDENTIAL DRIVEWAYS

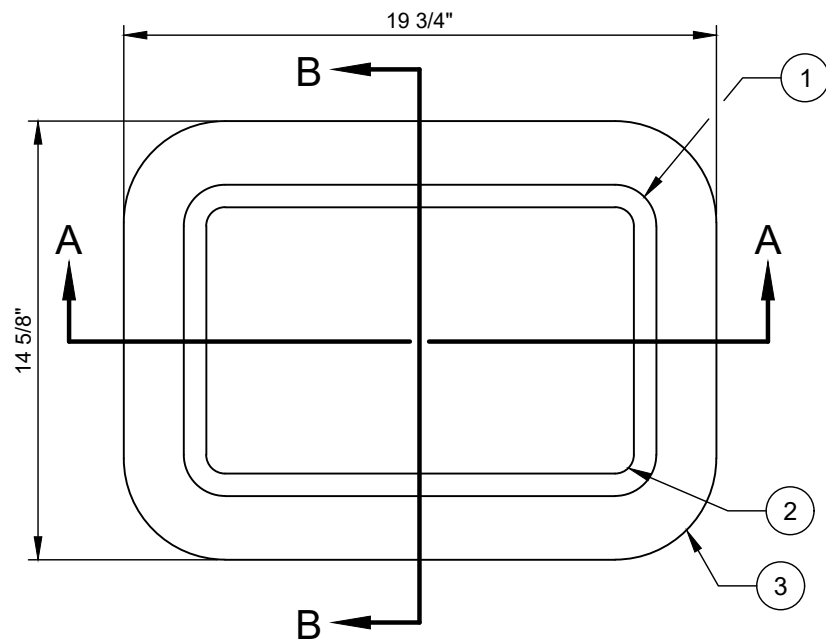


PLAN VIEW
(HORIZONTAL SEPARATION)

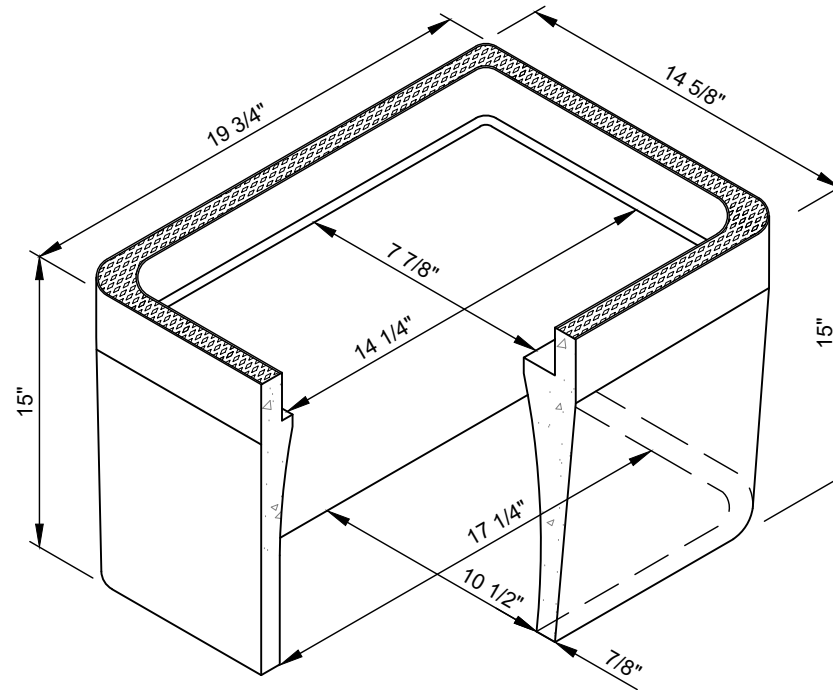
REQUIREMENT 8
MINIMUM CLEARANCE BETWEEN PROPERTY LINE AND WATER SERVICE/VAULT: 3 FT



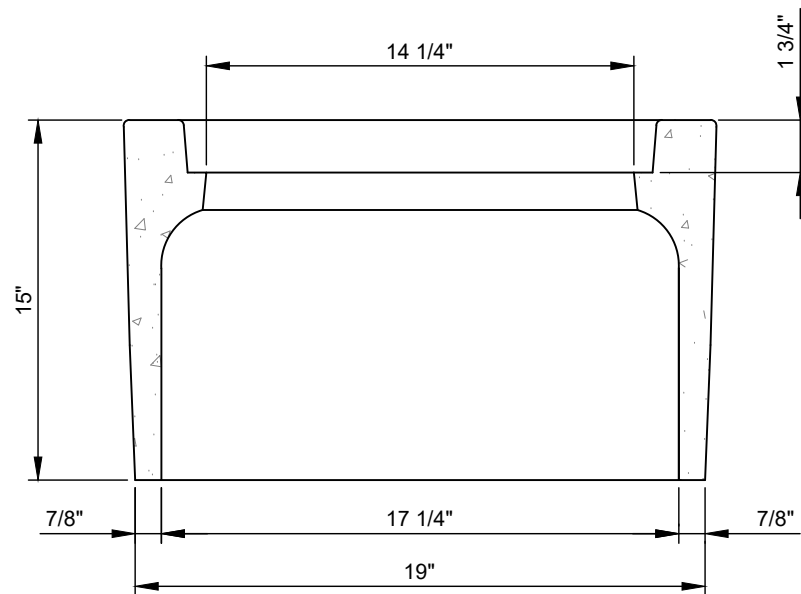
PLAN VIEW
(HORIZONTAL SEPARATION)



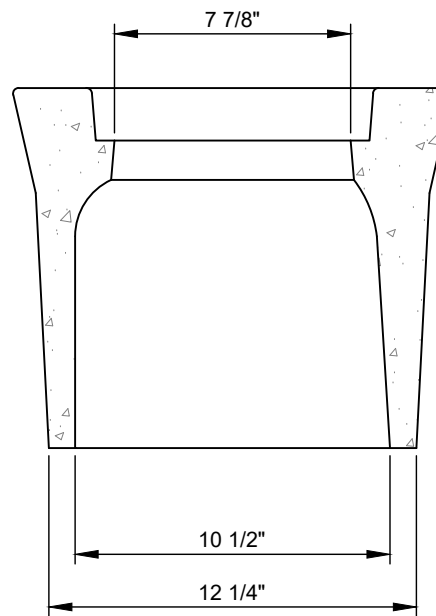
PLAN VIEW



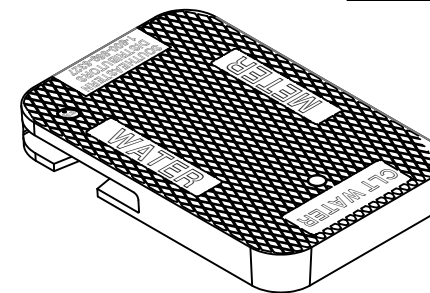
BODY



SECTION VIEW A - A



SECTION VIEW B - B



PLASTIC LID

NO. DESCRIPTION:

1. 1 3/8" RADIUS.
2. 5/8" RADIUS.
3. 3 3/8" RADIUS.

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 CLTW STANDARD PLASTIC LID FITS PROPERLY.
- C. CONCRETE SHALL BE MINIMUM $f_c = 4,000$ 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 C857.
- F. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 AND A82.
- G. WHEN METER HAS TO BE IN SIDEWALK, USE THIS DETAIL ONLY (CONCRETE BOX).

MANUFACTURERS:

SOUTHERN METER C.H. 5/8" x 3/4" METER BOX BODY

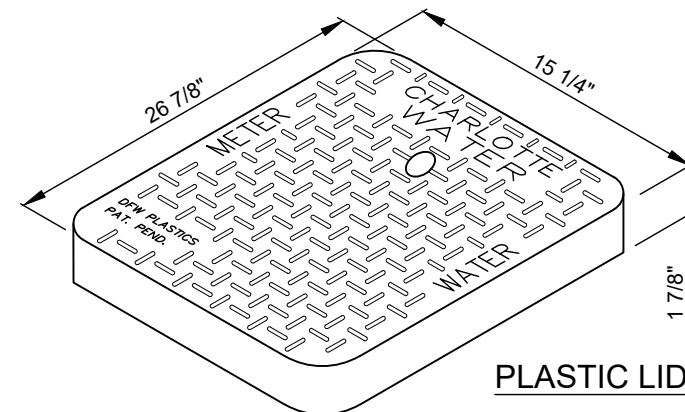
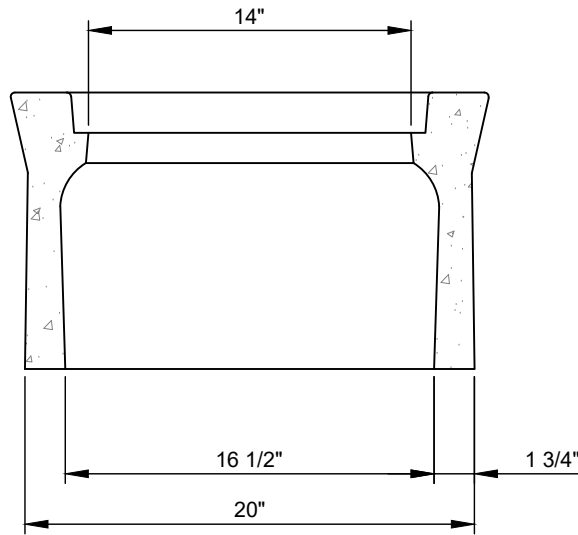
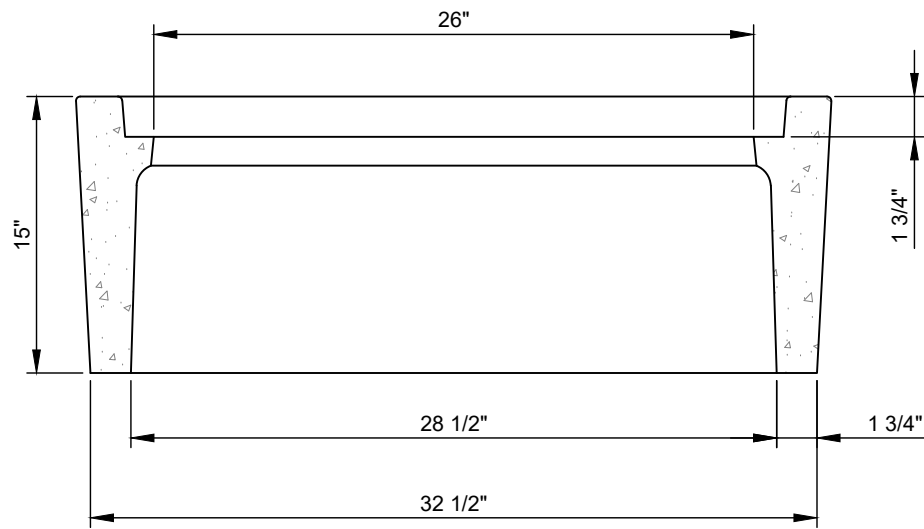
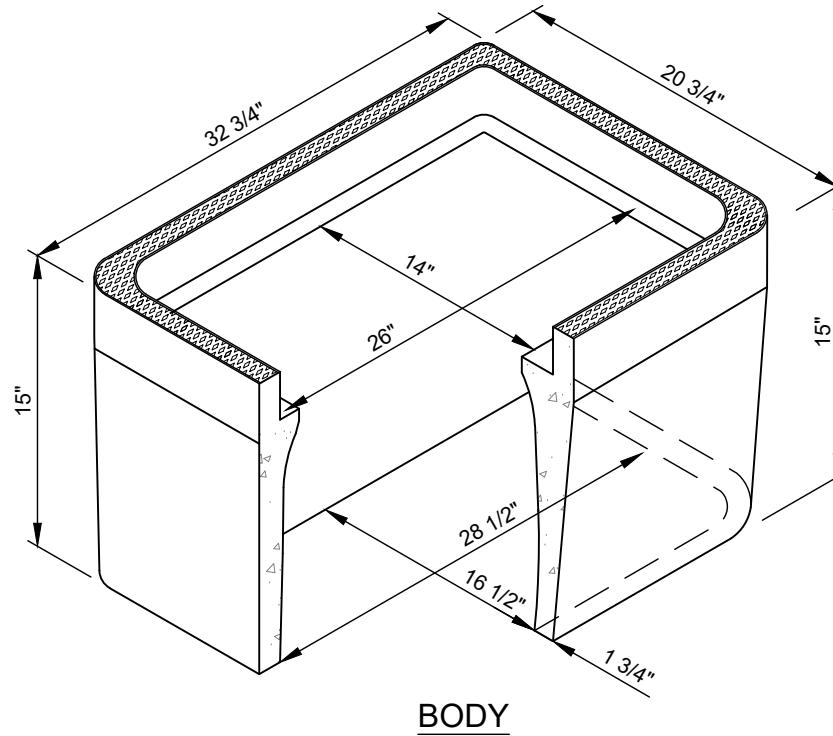
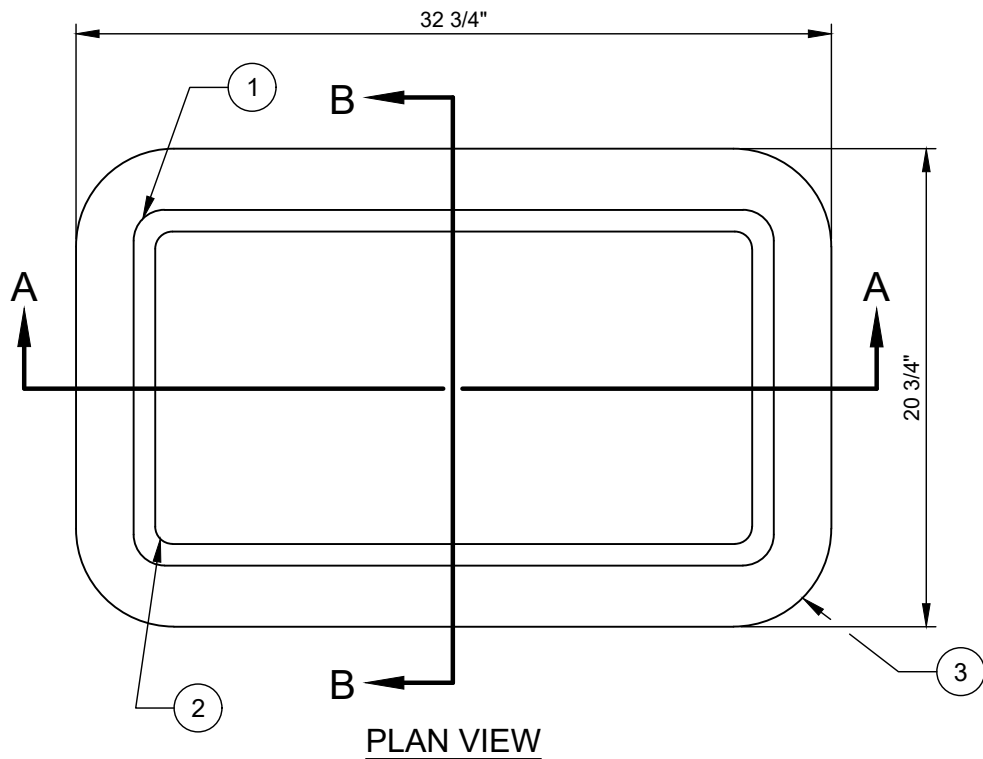
NO SCALE

VERSION
1.0

DATE
04/2024

DETAIL
15.2.1

BOX BODY WEIGHT - 88 LB



NO. DESCRIPTION:

1. 1 11/32" RADIUS.
2. 3/4" RADIUS.
3. 4 1/4" RADIUS.

NOTES:

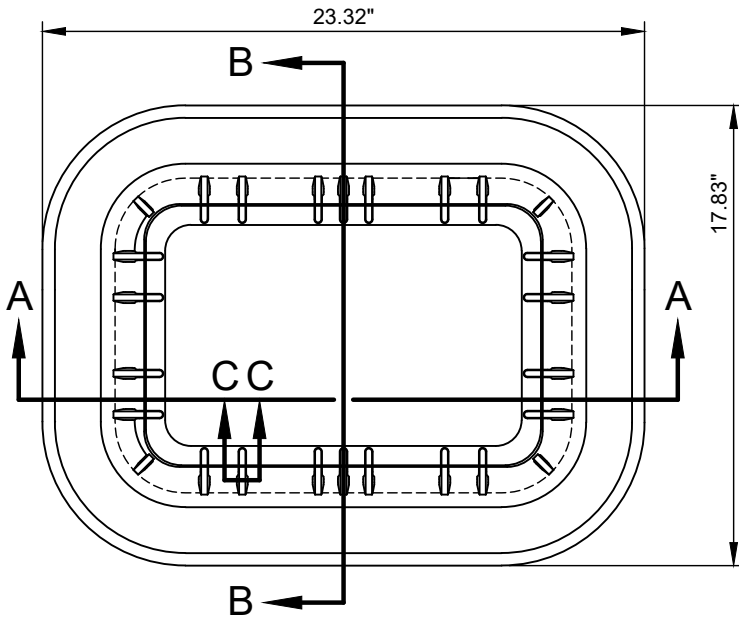
- A. METER BOX SHALL ACCOMMODATE COMPANION PLASTIC METER BOX LID - SEE STANDARD DETAIL.
- B. MINOR DIMENSION VARIATIONS ARE PERMITTED, BASED ON MANUFACTURER'S PRODUCT LINES, PROVIDED THE CLTW STANDARD PLASTIC LID FITS PROPERLY.
- C. CONCRETE SHALL BE MINIMUM $f_c = 4,000$ PSI COMPRESSIVE STRENGTH.
- D. DESIGN SHALL CONFORM TO ASTM C858-SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY".
- E. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- F. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 AND A82.
- G. WHEN METER HAS TO BE IN SIDEWALK, USE THIS DETAIL ONLY (CONCRETE BOX).

MANUFACTURERS:

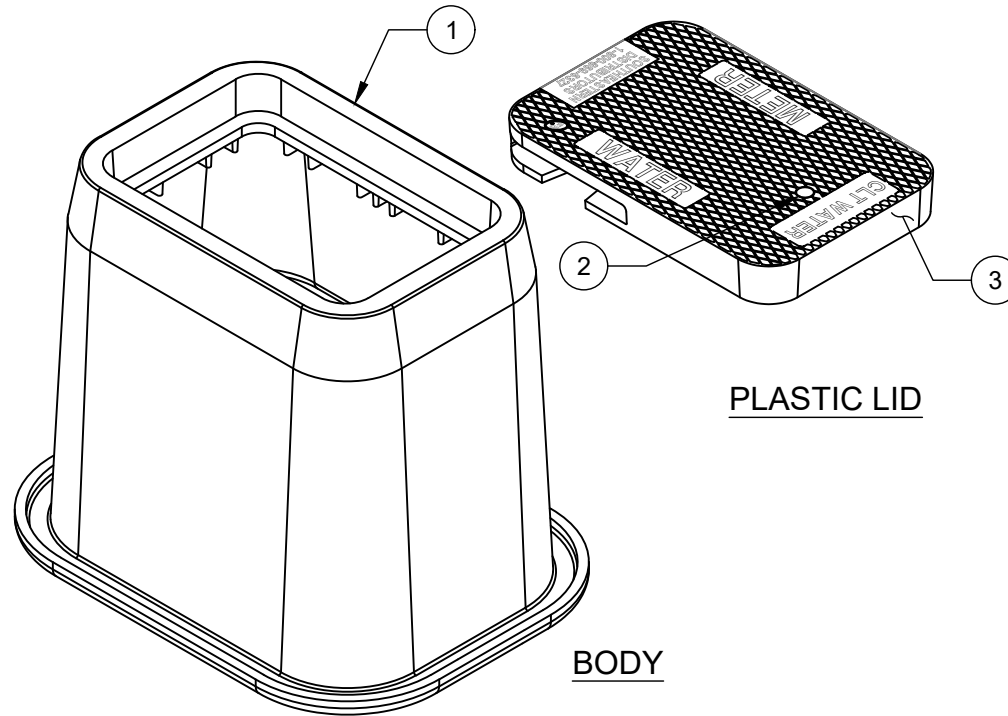
SOUTHERN METER #C.H. 2 METER BOX BODY

BOX BODY WEIGHT - 191 LB

CLEANOUT/AIR RELEASE BOX



PLAN VIEW



PLASTIC LID

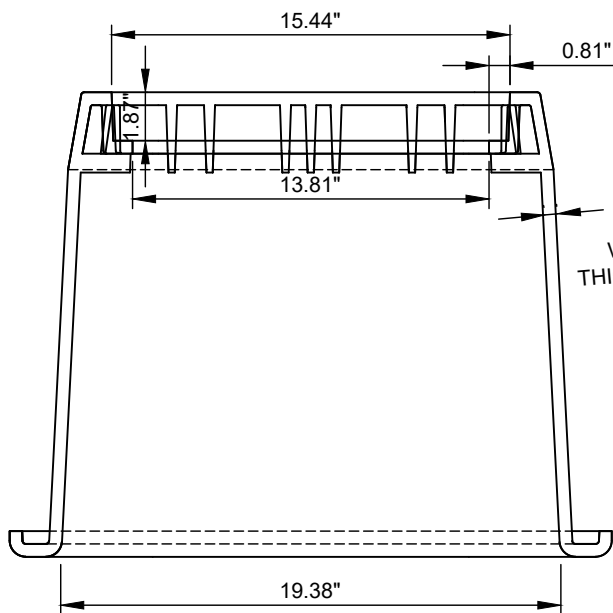
BODY

NO. DESCRIPTION:

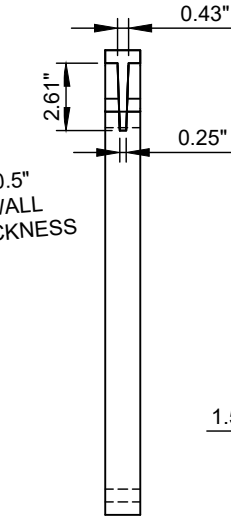
1. MATERIAL SHALL BE HIGH DENSITY POLYETHYLENE.
2. 0.69" DIAMETER PICK HOLE.
3. CHARLOTTE GRAY PLASTIC LID.
4. ITRON 40W MOUNT.
5. 1/8" X Ø3/4" RARE EARTH MAGNET.
6. IMPRINTED "M" UNDER MAGNET.

NOTES:

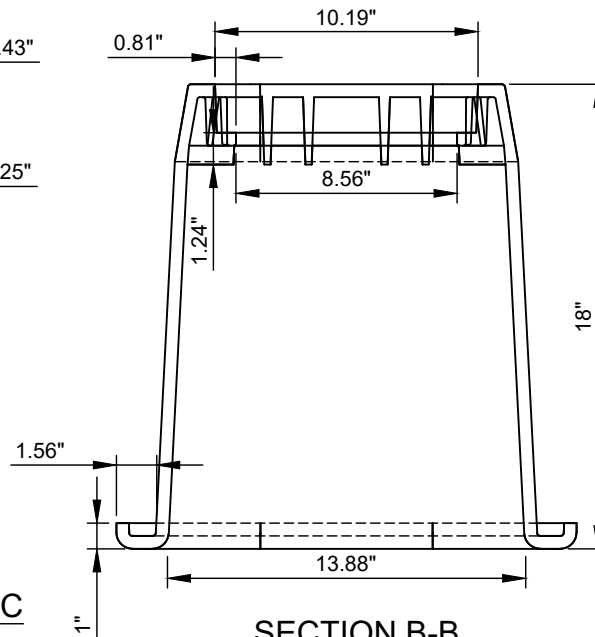
- A. MATERIAL SHALL BE HIGH DENSITY POLYETHYLENE.
- B. LOAD RATING = HS20.
- C. COLOR SHALL BE CHARLOTTE GRAY.
- D. SUPPLIER/MANUFACTURER: SOUTHEASTERN DISTRIBUTORS MODEL MB 16 - HD (ADDED HEIGHT).



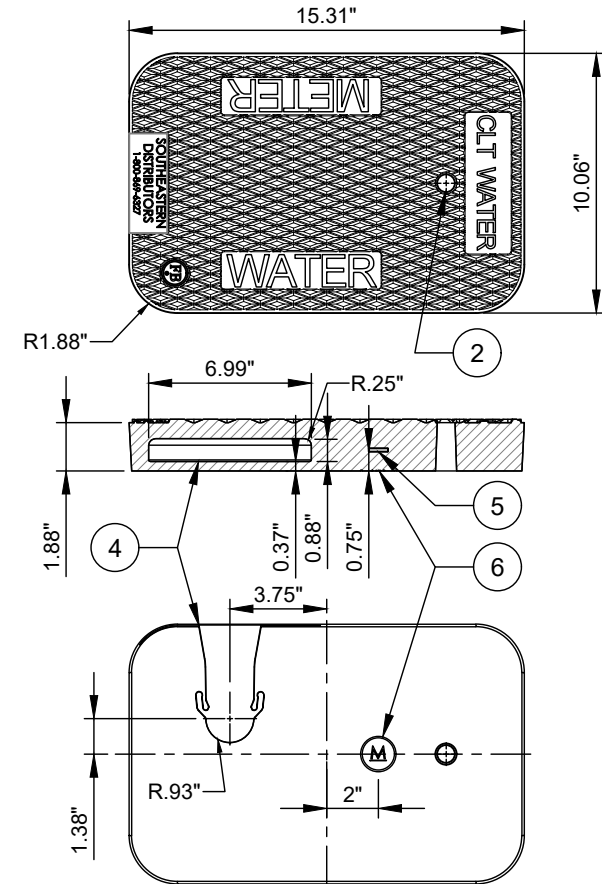
SECTION A-A



**SECTION C-C
RIB DETAIL**



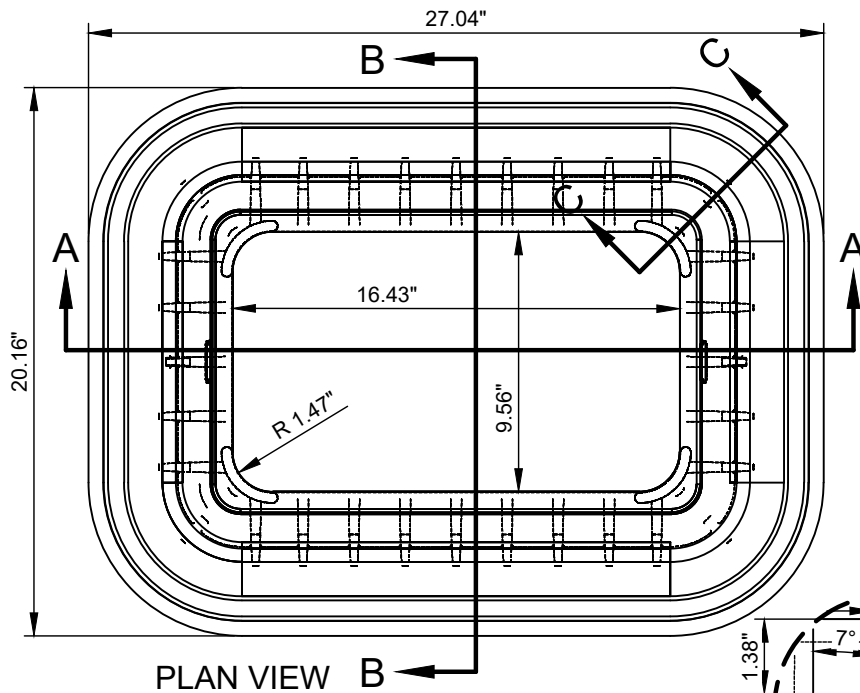
SECTION B-B



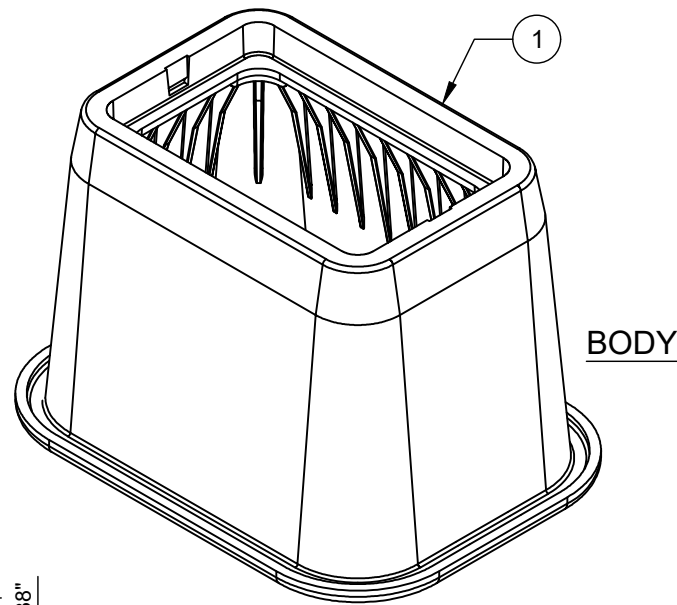
BOTTOM VIEW

METER BOX BODY WEIGHT= 16-18 LBS.

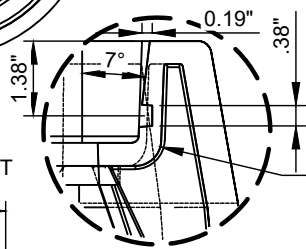
LID WEIGHT - INCLUDING MAGNET - 6 LBS.



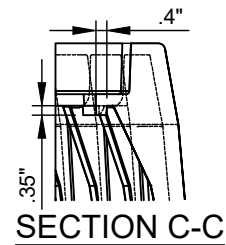
PLAN VIEW



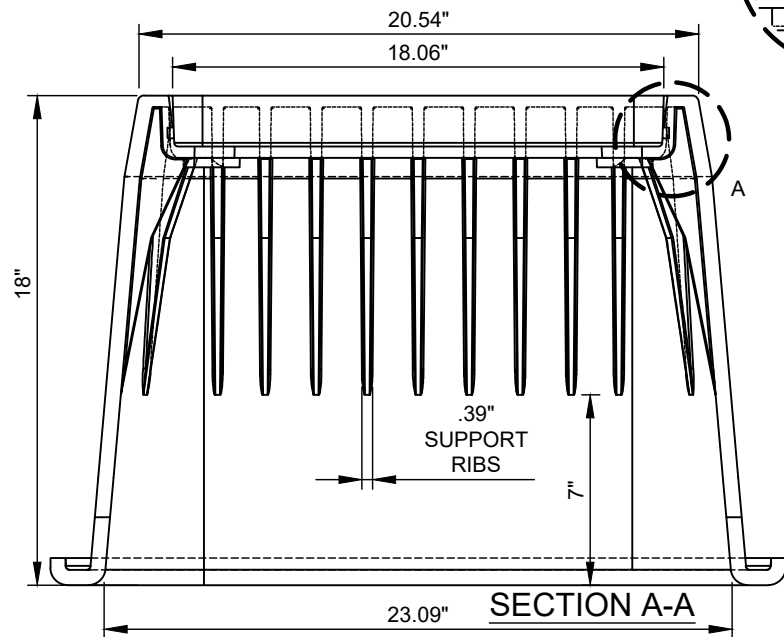
BODY



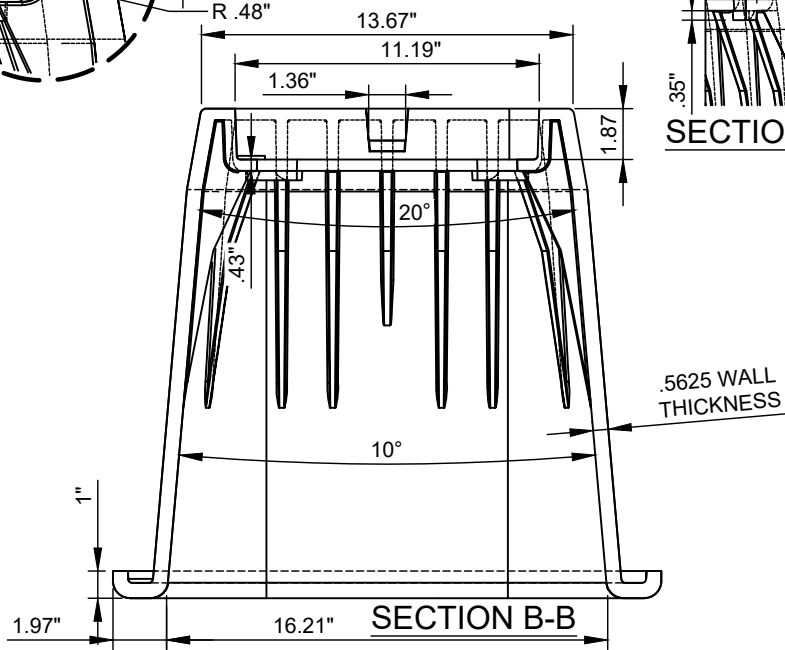
DETAIL A - SNAP SLOT



SECTION C-C



SECTION A-A



SECTION B-B

NO. DESCRIPTION:

- 1. MATERIAL SHALL BE HIGH DENSITY POLYETHYLENE.

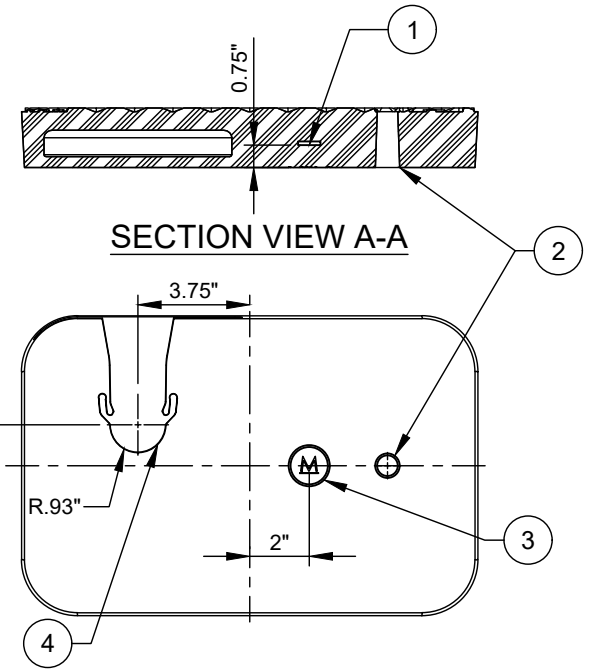
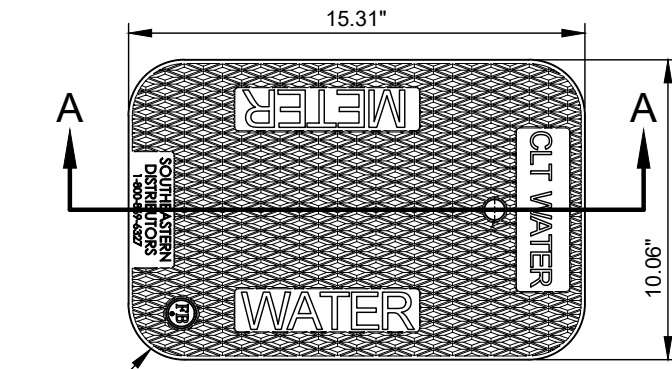
NOTES:

- A. LOAD RATING = HS20.
- B. COLOR SHALL BE CHARLOTTE GRAY.
- C. SUPPLIER/MANUFACTURER: SOUTHEASTERN DISTRIBUTORS MODEL MB 17.5.

METER BOX BODY WEIGHT= LBS.

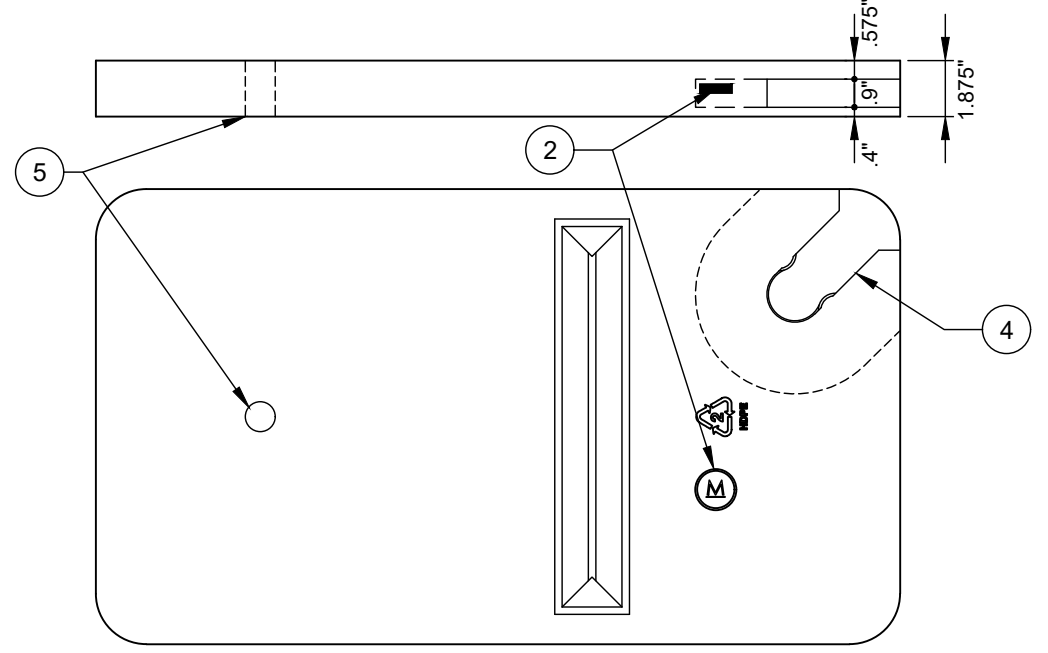
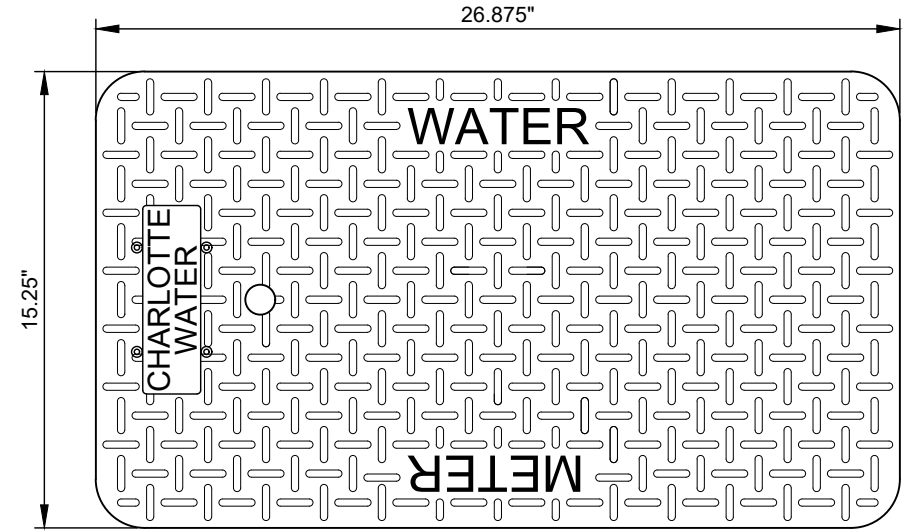
LID WEIGHT - INCLUDING MAGNET - LBS.

3/4-INCH SERVICE LID



SOUTHEASTERN DISTRIBUTORS - MB16 HD - LID WEIGHT - INCLUDING MAGNET - 6 LBS.

1-INCH SERVICE LID



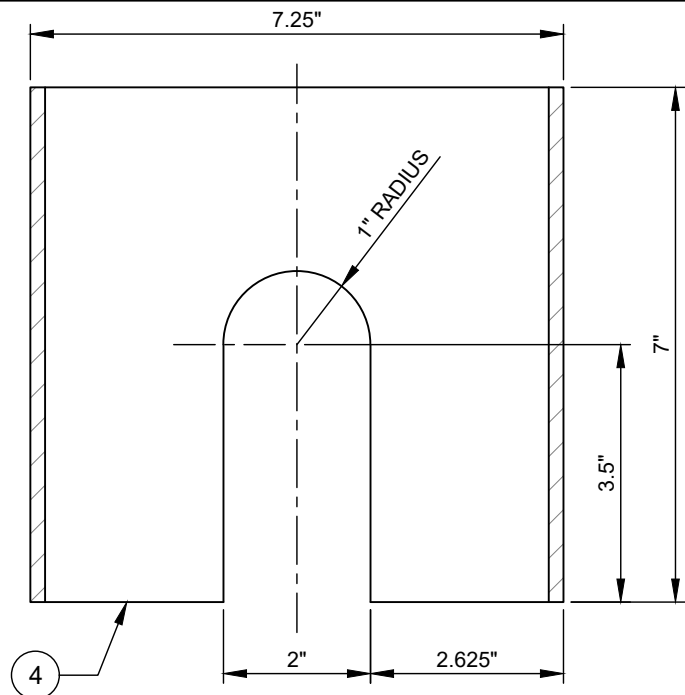
DFW 65C - RSGSM - LID WEIGHT - LBS.

NO. DESCRIPTION:

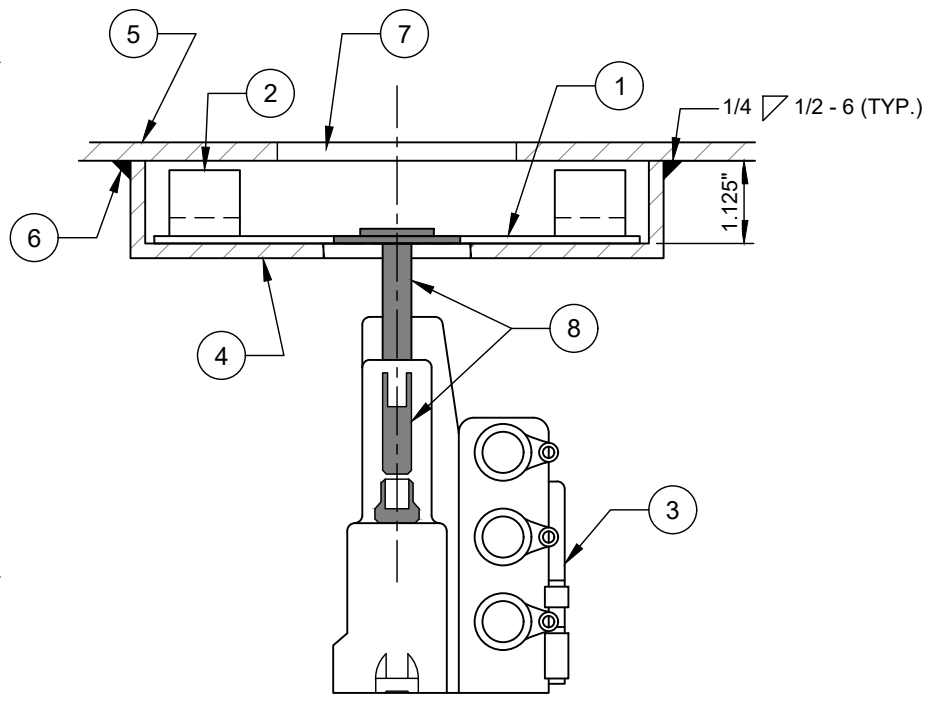
1. 1/8" X Ø3/4" DIA. RARE EARTH MAGNET (MOLDED IN RARE EARTH MAGNET, MINIMUM 1.4 TESLA MAGNET STRENGTH).
2. 0.69" DIAMETER PICK HOLE.
3. MAGNET LOCATION MARKER.
4. ITRON 40W MOUNT.
5. 1" DIAMETER PICK HOLE.

NOTES:

- A. MATERIAL - HIGH DENSITY POLYETHYLENE (HDPE) - RECYCLED.
- B. COLOR - CHARLOTTE GREY.
- C. LOAD RATING - HEAVY DUTY.
- D. MANUFACTURER - SOUTHEASTERN DISTRIBUTORS, INC., DFW PLASTICS INC. OR APPROVED EQUAL.



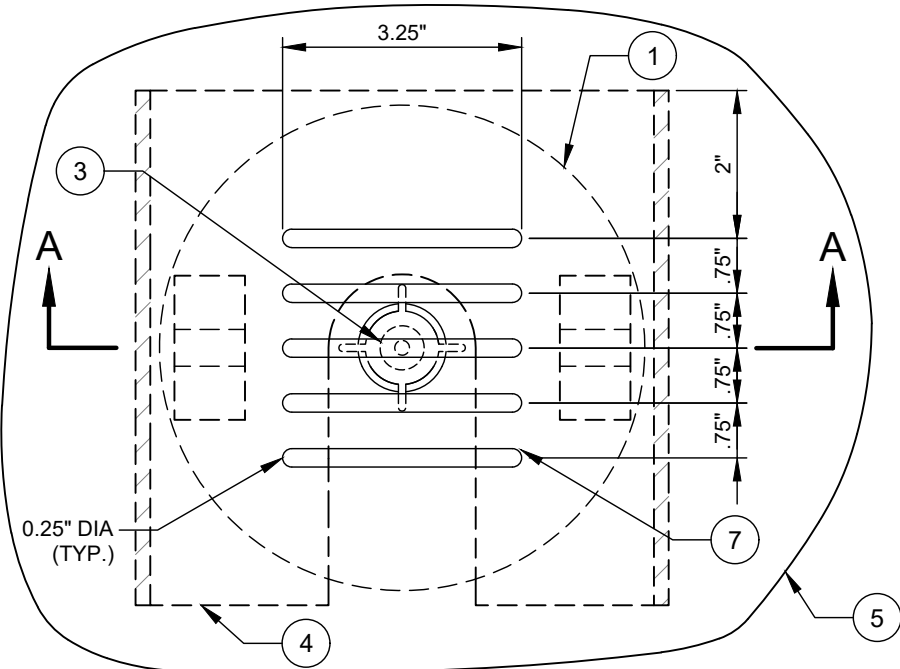
PLAN - SUPPORT BRACKET



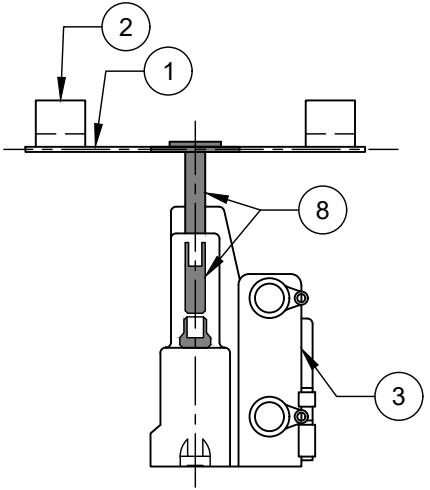
SECTION "A-A" -
SUPPORT BRACKET

NO.	DESCRIPTION:
1.	ITRON 6.7" DIAMETER SHELF MOUNT DISC WITH FOAM SPACERS.
2.	FOAM SPACERS 2 EACH (TYPICAL).
3.	ITRON END POINT TRANSMITTER.
4.	SUPPORT BRACKET (1/4" STEEL PLATE).
5.	DIAMOND PLATE DOOR LEAF.
6.	FILLET WELD SUPPORT BRACKET AT CORNERS.
7.	TRANSMITTER SLOTS - 5 EA. AS SHOWN.
8.	ITRON 100W ADAPTER.
9.	ITRON 500W ADAPTER.

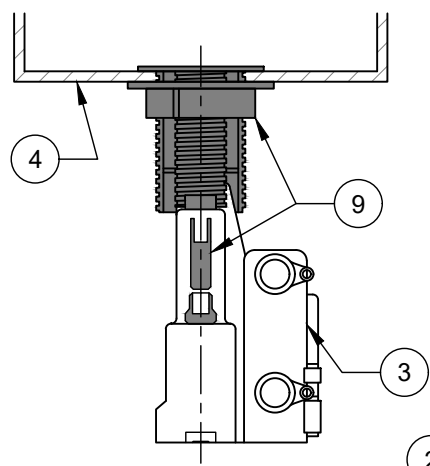
- NOTES:**
- A. ONE SUPPORT BRACKET REQUIRED FOR EACH METER IN VAULT.
 - B. ITRON 100W ADAPTER SHALL BE SNAPPED INTO SHELF MOUNT DISC AND ITRON 100W ERT TRANSMITTER. ITRON 500W ADAPTER SHALL BE TIGHTLY ATTACHED TO THE SUPPORT BRACKET SLOT AND ITRON 100W TRANSMITTER.
 - C. TRANSMITTER/MOUNT ADAPTER SHALL BE INSERTED INTO SUPPORT BRACKET AS SHOWN.
 - D. DOOR LEAF AND SUPPORT BRACKET SHALL BE OF LIKE MATERIALS.
 - E. SEE ACCESS DOOR STANDARD DETAILS FOR SUPPORT BRACKET LOCATIONS.



PLAN - TRANSMITTER SLOT DETAIL

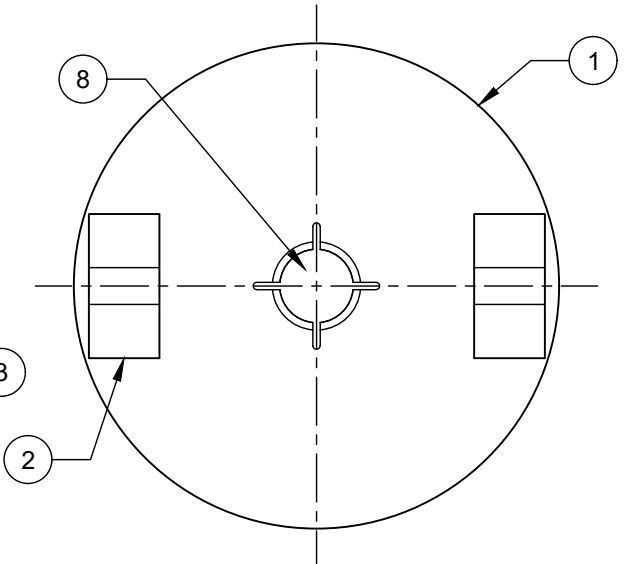


WITH 100W ADAPTER



WITH 500W ADAPTER

SECTION - TRANSMITTER &
SHELF MOUNT DISC



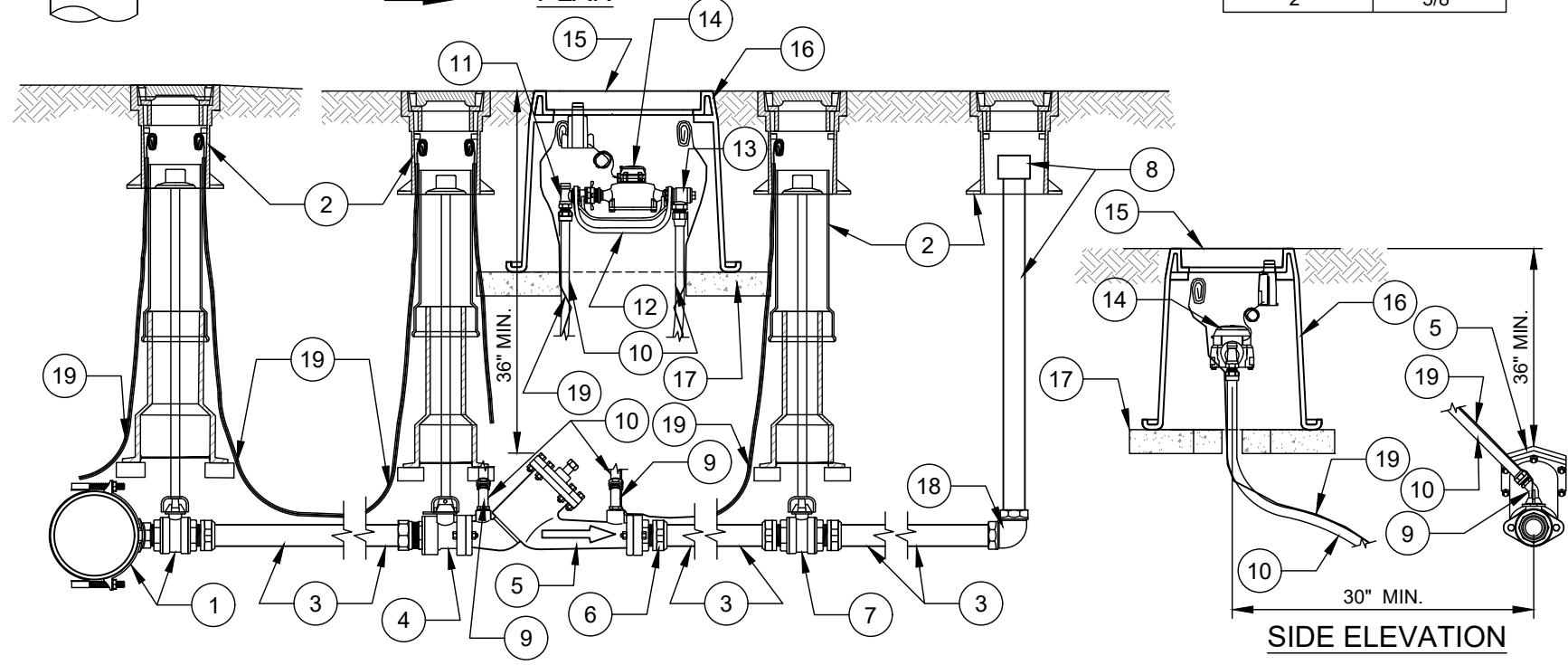
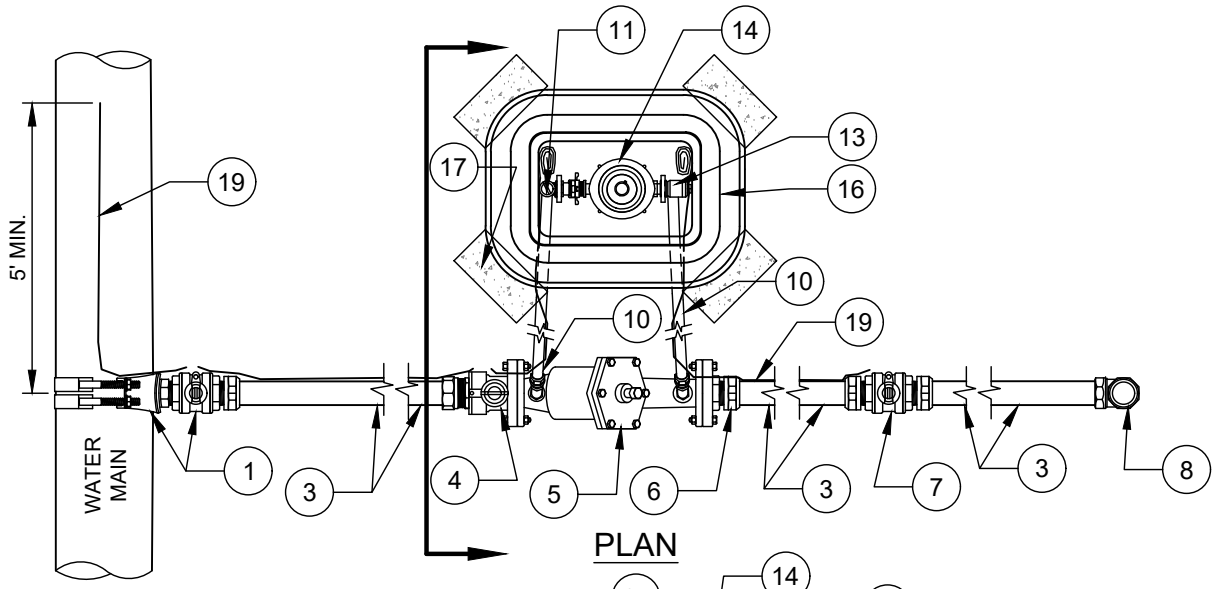
PLAN - SHELF MOUNT DISC

NO SCALE

VERSION
1.0

DATE
04/2024

DETAIL
15.3.1



NOTES:

- A. CENTER ANGLE BALL VALVE NO. 11 AND SINGLE ANGLE CHECK VALVE NO. 13 IN METER BOX.
- B. LOCK ANGLE BALL VALVE NO. 11 IN OPEN POSITION. PERMANENT LOCK (WITH CLTW SERIAL #) SHALL BE FURNISHED BY CLTW.
- C. METER BOX TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM METER BOX.
- D. 5/8-INCH METER SHALL BE INSTALLED IN STANDARD METER BOX PER STD. DETAIL.

FIRE SERVICE SIZE	DETECTOR METER SIZE
2"	5/8"

NO. DESCRIPTION:

- 1. TAPPING SADDLE & 2" BALL CORPORATION STOP WITH BRASS TEE HEAD OPERATING NUT (CC TAPER THREAD X CTS COMPRESSION).
- 2. STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES (OMIT AT CORPORATION STOP ON SHORT SIDE SERVICE).
- 3. 2" TYPE K COPPER TUBING CONTINUOUS ONE PIECE (NO FITTINGS ALLOWED).
- 4. BALL STRAIGHT METER VALVE - (2 BOLT METER FL X CTS COMPRESSION), MUELLER #B-24335 OR APPROVED EQUAL.
- 5. DETECTOR CHECK VALVE - (2 BOLT METER FL X 2 BOLT METER FL), FEBCO SERIES 406, OR APPROVED EQUAL.
- 6. STRAIGHT METER COUPLING - (2 BOLT METER FL X CTS COMPRESSION), FORD #CF34-77, OR APPROVED EQUAL.
- 7. PROPERTY LINE BALL CURB VALVE - (ALL CTS COMPRESSION), MUELLER #B-25209, FORD #B44-777, OR APPROVED EQUAL.
- 8. TEMPORARY 2" BLOW-OFF ASSEMBLY - GALV. STEEL PIPE WITH THREADED COUPLING.
- 9. 3/4-INCH 45° COUPLING (MIP TREAD X CTS COMPRESSION), MUELLER #H15529, OR APPROVED EQUAL.
- 10. 3/4-INCH TYPE K COPPER.
- 11. 5/8-INCH X 3/4-INCH ANGLE BALL VALVE WITH LOCK WINGS (LOCK OPEN) (CTS COMPRESSION X YOKE STAR NUT).
- 12. 5/8-INCH METER YOKE BAR.
- 13. 5/8-INCH X 3/4 INCH SINGLE ANGLE CHECK VALVE (YOKE STAR NUT X CTS COMPRESSION).
- 14. 3/4-INCH METER ASSEMBLY WITH AMR TRANSMITTER (BY CLTW).
- 15. SOLID POLYETHYLENE (HDPE) METER BOX LID.
- 16. STANDARD 3/4-INCH PLASTIC METER BOX PER STANDARD DETAIL. USE CONCRETE METER BOX ONLY WHEN METER IS IN SIDEWALK.
- 17. SOLID STANDARD CONCRETE BRICKS - DIAGONAL AT CORNERS - 4 EACH.
- 18. 90° BEND (CTS COMPRESSION X FNPT).
- 19. AWG #12 GAUGE SOLID COPPER TRACER WIRE WITH 30 MILS BLUE INSULATION, TERMINATE WITH 24" EXCESS WIRE (COILED) AT METER BOX AND VALVE BOX (TYP).

ALTERNATE DESCRIPTION:

- WHEN USING HDPE (IPS) POLY IN PLACE OF COPPER TUBING - USE THE FOLLOWING PRODUCTS:
- 1. 2" BALL CORPORATION STOP (CC TAPER THREAD X FNPT).
 - 3. 2" SDR9 HDPE (IPS) POLY WITH STAINLESS STEEL, BRASS, OR BRONZE MNPT ENDS CONTINUOUS ONE PIECE (NO FITTINGS ALLOWED).
 - 4. BALL STRAIGHT METER VALVE (2 BOLT METER FLANGE X FNPT) MUELLER #B-24337 OR APPROVED EQUAL.
 - 6. STRAIGHT METER COUPLING - (2 BOLT METER FL X FNPT) FORD #CF31-77, OR APPROVED EQUAL.
 - 7. BALL CURB VALVE (FNPT X FNPT).
 - 18. 90° BEND (FNPT X FNPT).

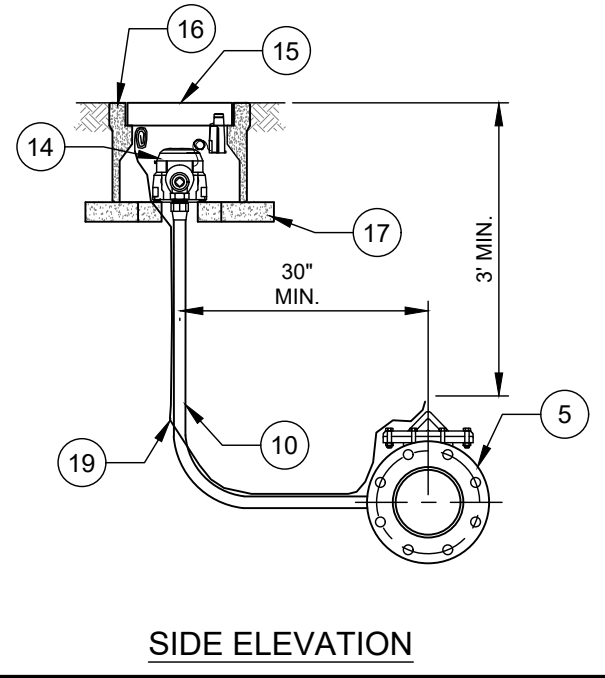
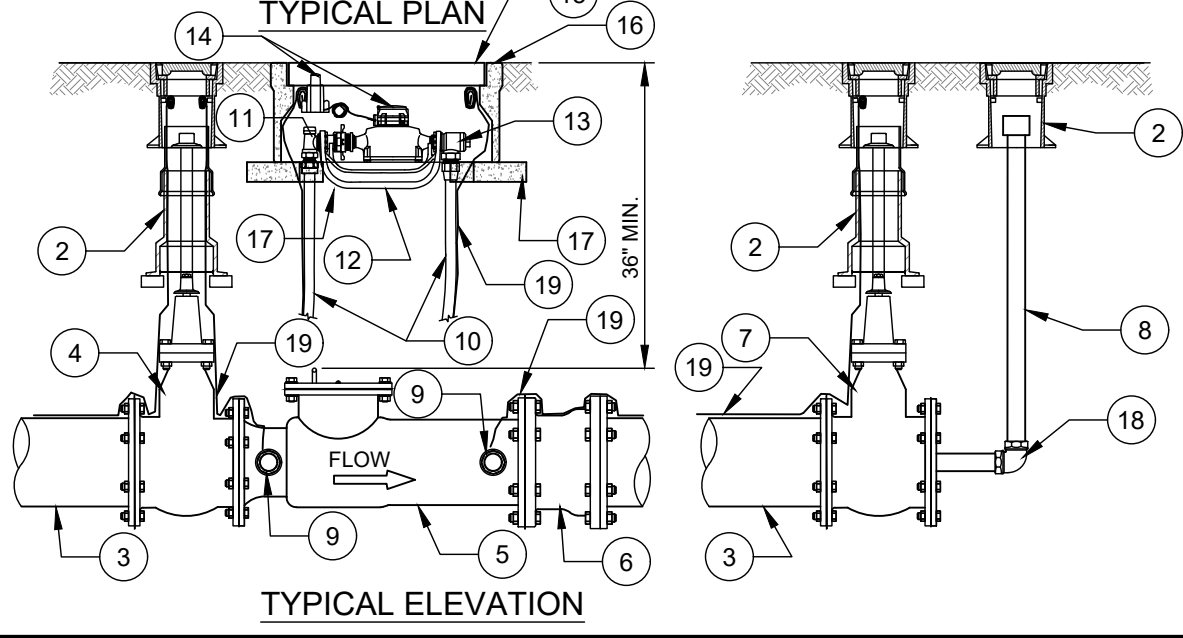
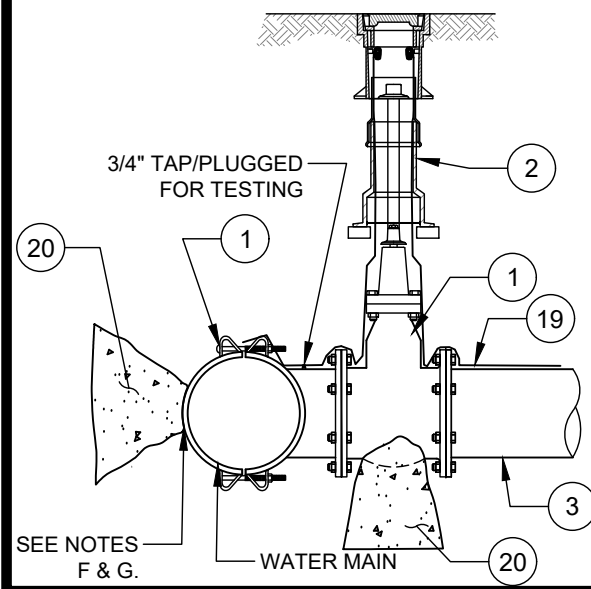
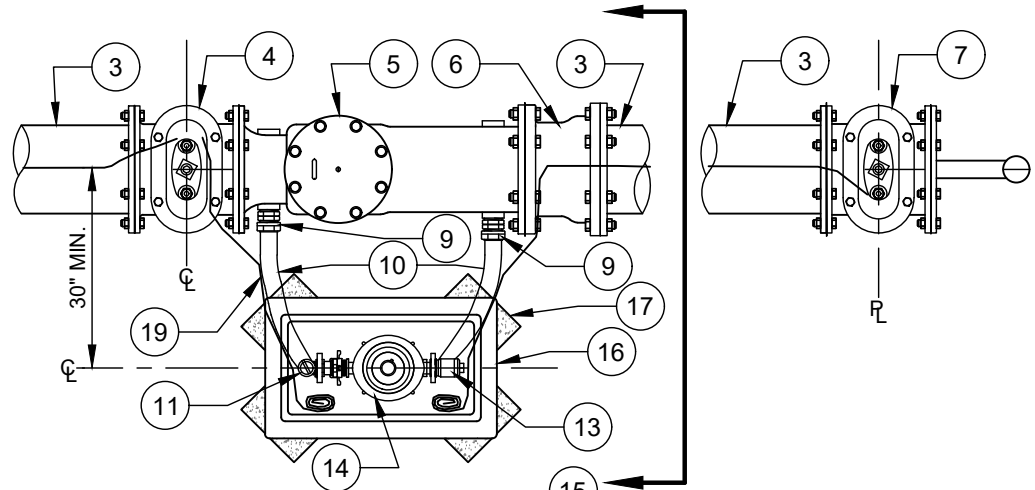
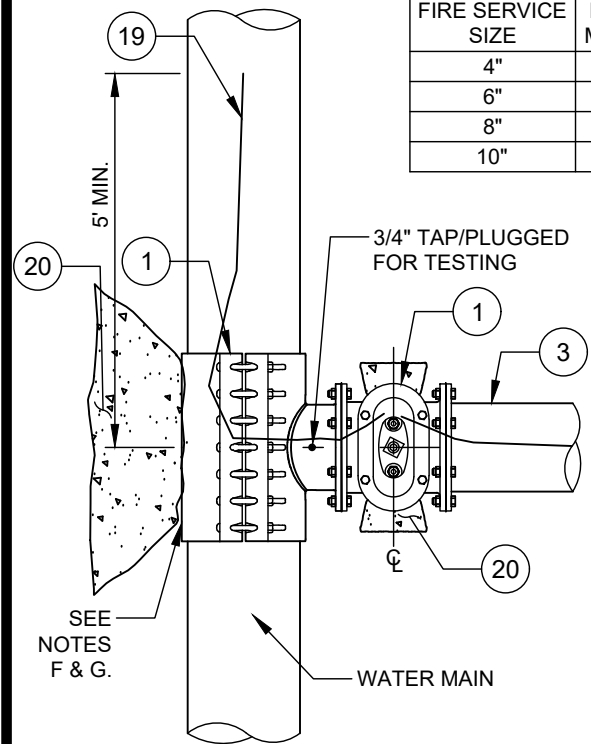
FIRE SERVICE SIZE	DETECTOR METER SIZE
4"	1"
6"	1"
8"	1"
10"	1"

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 BOX TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM METER BOX.
- D. ALL VALVES SHALL BE OPEN RIGHT - CLOCKWISE, EXCEPT NO. 7.
- E. ONE INCH METER SHALL BE INSTALLED IN STANDARD METER BOX PER STD. DETAIL.
- F. WRAP TAPPING SLEEVE WITH 2 LAYERS HDPE PLASTIC FILM (HDCLPE PER AWWA C-105) - 4 MILS EACH LAYER - EXTEND HDPE 2' EACH WAY FROM SLEEVE - DUCT TAPE OR ZIP LOCK TIE ENDS.
- G. CONCRETE THRUST BLOCKING REQUIRED AT TAPPING SLEEVE.
- H. ANGLE BALL VALVE NO. 11 PERMANENT LOCK (WITH CLTW SERIAL #) SHALL BE FURNISHED BY CLTW.

NO. DESCRIPTION:

- 1. TAPPING SLEEVE & FL X MJ TAPPING VALVE ON EXISTING MAIN. MJ TEE, FOSTER ADAPTOR, AND MJ GATE VALVE ON NEW MAIN.
- 2. STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES.
- 3. RESTRAINED JOINT DUCTILE IRON PIPE.
- 4. FLANGE X MJ GATE VALVE ON LONG SIDE SERVICES. FLANGE X FL ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN).
- 5. DETECTOR CHECK VALVE (FLANGE X FLANGE).
- 6. FLANGE X MJ ADAPTOR (OMIT WHEN PROPERTY LINE VALVE NO. 7 IS BOLTED DIRECTLY TO DETECTOR CHECK VALVE NO. 5).
- 7. MJ GATE VALVE (RESTRAINED, OPEN LEFT) AT PROPERTY LINE. (FL X MJ GATE VALVE BOLTED DIRECTLY TO DETECTOR CHECK VALVE NO. 5 - WHEN APPROVED).
- 8. TEMP. 2" PIPE GALV. STEEL (SCH 80) WITH THREADED COUPLING.
- 9. CTS X MNPT BRASS STRAIGHT COUPLING (WITH BRASS HEX REDUCING BUSHING - AS REQUIRED).
- 10. 1" COPPER TUBE - TYPE K.
- 11. 1" ANGLE BALL VALVE WITH LOCK WINGS (LOCK OPEN WITH LOCK FURNISHED BY CLTW) (CTS COMPRESSION X YOKE STAR NUT).
- 12. 1" METER YOKE BAR.
- 13. 1" SINGLE ANGLE CHECK VALVE (YOKE STAR NUT X CTS COMPRESSION).
- 14. 1" METER ASSEMBLY WITH AMR TRANSMITTER (BY CLTW).
- 15. GRAY SOLID POLYETHYLENE (HDPE) METER BOX LID PER STD. DETAIL.
- 16. GRAY STANDARD 1-INCH PLASTIC METER BOX PER STANDARD DETAIL. USE CONCRETE METER BOX ONLY WHEN METER IS IN SIDEWALK.
- 17. SOLID STANDARD CONCRETE BRICKS - DIAGONAL AT CORNERS - 4 EACH.
- 18. TEMP. MALLEABLE IRON (GALV.) 90° BEND (FNPT X FNPT).
- 19. AWG #12 GAUGE SOLID COPPER HDPE INSTALLATION TRACER WIRE WITH 30 MILS BLUE INSULATION, TERMINATE WITH 24" EXCESS WIRE (COILED) AT METER BOX AND VALVE BOX (TYP.).
- 20. CONCRETE THRUST BLOCKING - 3,600 PSI.



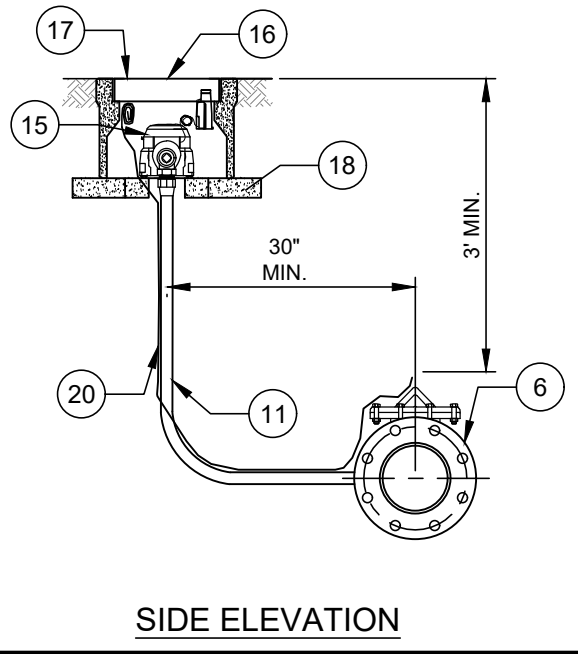
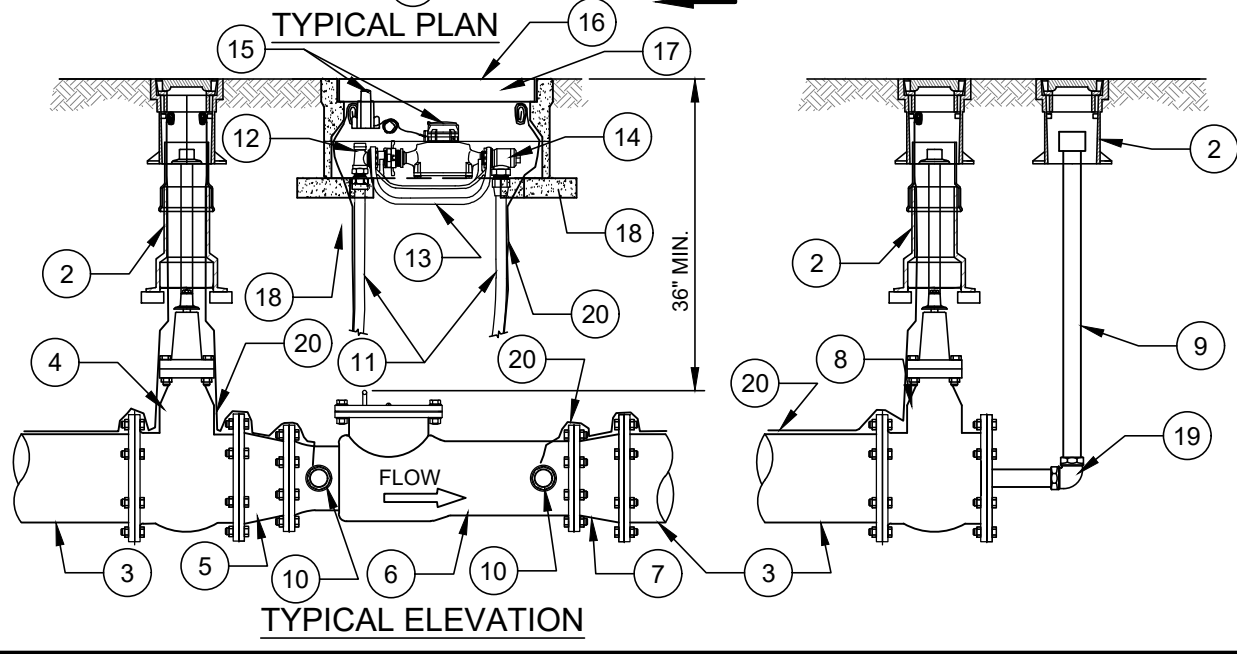
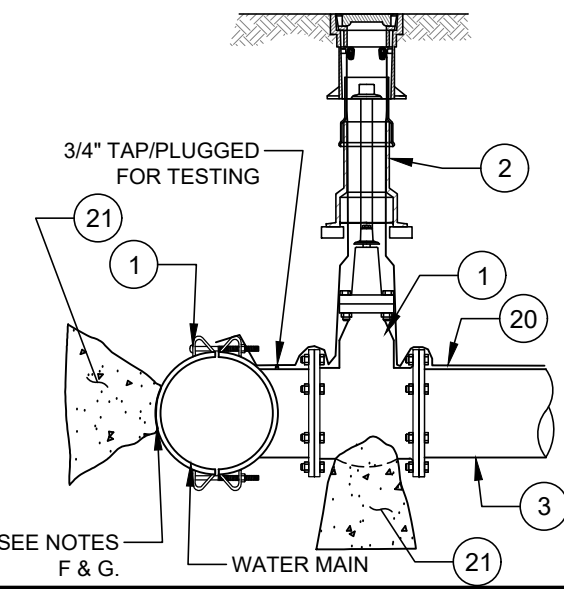
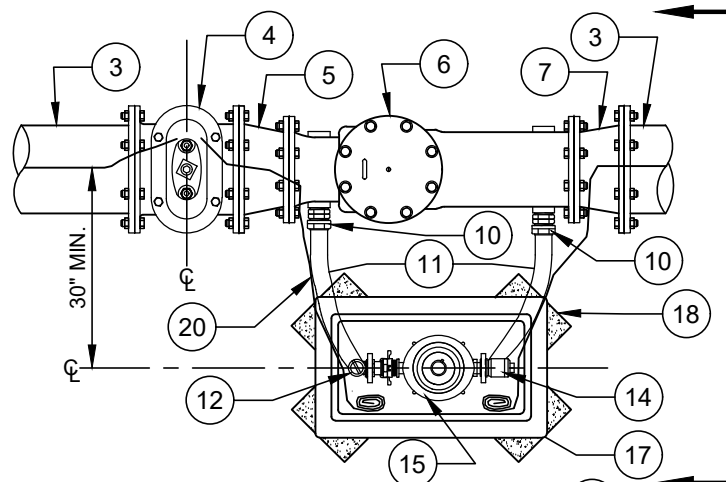
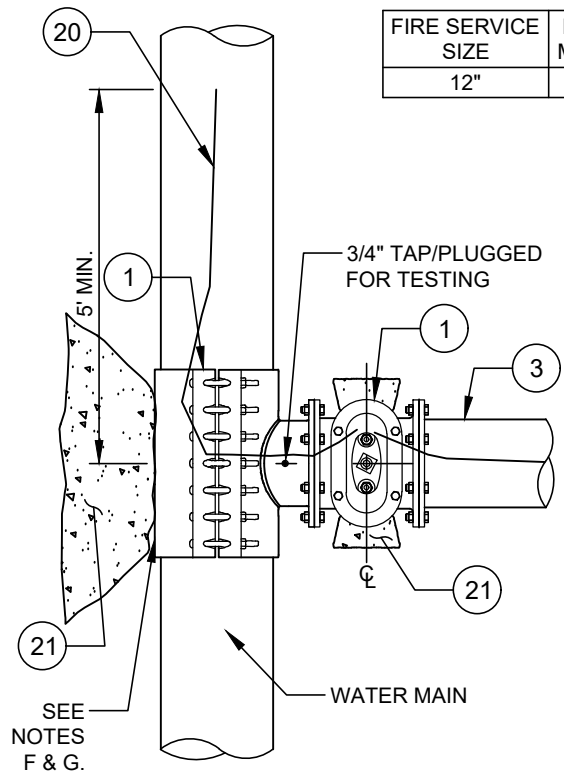
FIRE SERVICE SIZE	DETECTOR METER SIZE
12"	1"

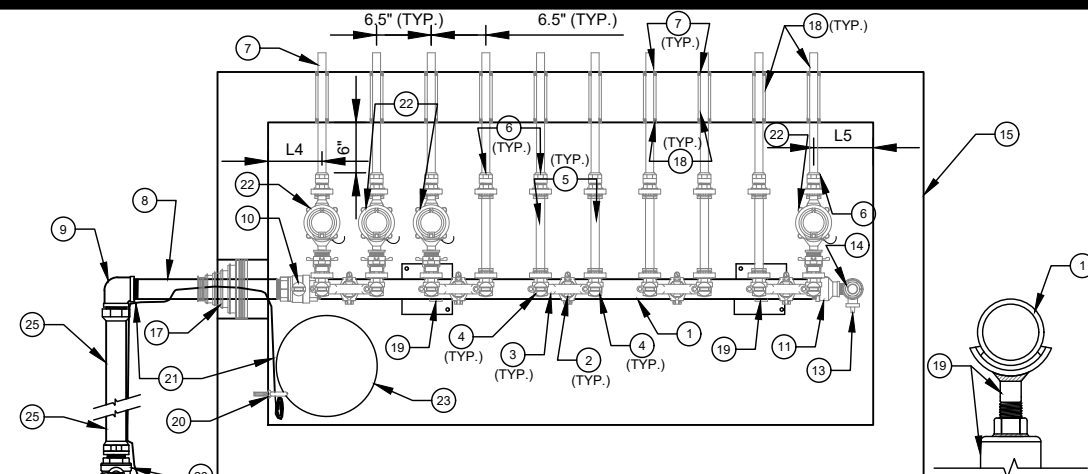
NOTES:

- 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 BOX TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM METER BOX.
- D. ALL VALVES SHALL BE OPEN RIGHT - CLOCKWISE, EXCEPT NO. 8.
- E. ONE INCH METER SHALL BE INSTALLED IN STANDARD METER BOX PER STD. DETAIL.
- F. WRAP TAPPING SLEEVE WITH 2 LAYERS HDPE PLASTIC FILM (HDCLPE PER AWWA C-105) - 4 MILS EACH LAYER - EXTEND HDPE 2' EACH WAY FROM SLEEVE - DUCT TAPE OR ZIP LOCK TIE ENDS.
- G. CONCRETE THRUST BLOCKING REQUIRED AT TAPPING SLEEVE.
- H. ANGLE BALL VALVE NO. 12 PERMANENT LOCK (WITH CLTW SERIAL #) SHALL BE FURNISHED BY CLTW.

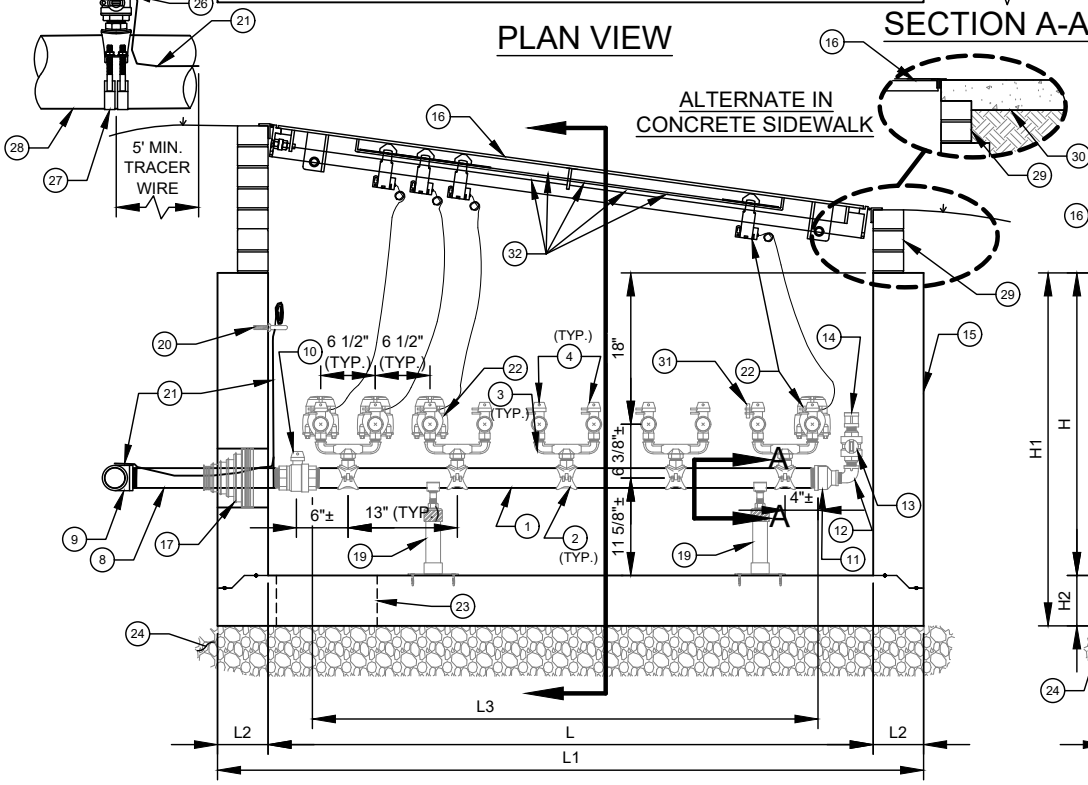
NO. DESCRIPTION:

- 1. TAPPING SLEEVE & FL X MJ 12" TAPPING VALVE ON EXISTING MAIN. MJ TEE, FOSTER ADAPTER AND MJ 12" GATE VALVE ON NEW MAIN.
- 2. STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES.
- 3. RESTRAINED JOINT DUCTILE IRON PIPE - 12" DIAMETER.
- 4. 12" MJ GATE VALVE ON LONG SIDE SERVICES. OMIT ON SHORT SIDE SERVICE (NOT SHOWN).
- 5. 12" X 10" REDUCER - MJ X FLANGE.
- 6. 10" DETECTOR CHECK VALVE (FLANGE X FLANGE).
- 7. 10" X 12" REDUCER - FLANGE X MJ.
- 8. MJ GATE VALVE (RESTRAINED, OPEN LEFT) AT PROPERTY LINE. (FL X MJ GATE VALVE BOLTED DIRECTLY TO 10" X 12" REDUCER NO. 7 - WHEN APPROVED).
- 9. TEMP. 2" PIPE GALV. STEEL (SCH 80) WITH THREADED COUPLING. CTS X MNPT BRASS STRAIGHT COUPLING (WITH BRASS HEX REDUCING BUSHING - AS REQUIRED).
- 10. 1" COPPER TUBE - TYPE K.
- 11. 1" ANGLE BALL VALVE WITH LOCK WINGS (LOCK OPEN WITH LOCK FURNISHED BY CLTW) (CTS COMPRESSION X YOKE STAR NUT).
- 12. 1" METER YOKE BAR.
- 13. 1" SINGLE ANGLE CHECK VALVE (YOKE STAR NUT X CTS COMPRESSION).
- 14. 1" METER ASSEMBLY WITH AMR TRANSMITTER (BY CLTW).
- 15. GRAY SOLID POLYETHYLENE (HDPE) METER BOX LID PER STD. DETAIL.
- 16. GRAY STANDARD 1-INCH PLASTIC METER BOX PER STANDARD DETAIL. USE CONCRETE METER BOX ONLY WHEN METER IS IN SIDEWALK.
- 17. SOLID STANDARD CONCRETE BRICKS - DIAGONAL AT CORNERS - 4 EACH.
- 18. TEMP. MALLEABLE IRON (GALV.) 90° BEND (FNPT X FNPT).
- 19. AWG #12 GAUGE SOLID COPPER HDPE INSTALLATION TRACER WIRE WITH 30 MILS BLUE INSULATION, TERMINATE WITH 24" EXCESS WIRE (COILED) AT METER BOX AND VALVE BOX (TYP.).
- 20. CONCRETE THRUST BLOCKING - 3,600 PSI.





PLAN VIEW



ELEVATION VIEW

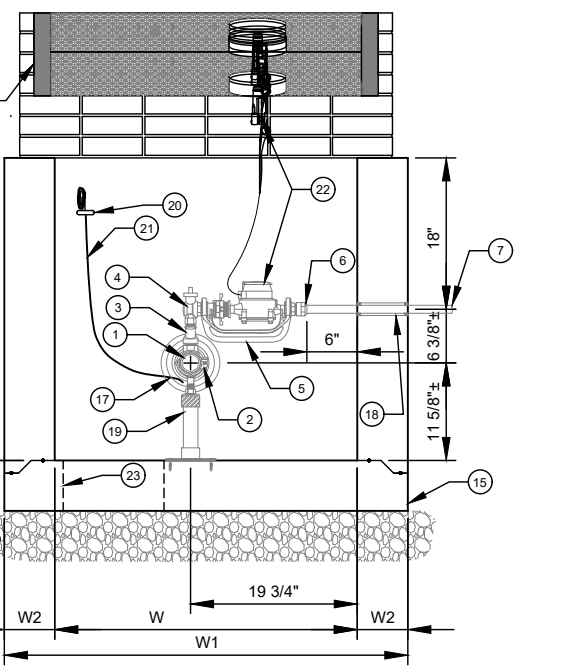
NO. ALTERNATE DESCRIPTION:

WHEN USING SDR9 HDPE (IPS) WITH STAINLESS STEEL, BRASS, OR BRONZE MNPT ENDS, USE THE FOLLOWING PRODUCTS:

- 2" - 90° SCH. 40 BRASS OR S.S. BEND - FNPT X FNPT.
- 2" SDR9 HDPE (POLY) IPS PIPE (MNPT X MNPT) - LENGTH AS REQUIRED (NO JOINTS PERMITTED).
- FOR EXISTING MAINS - 2" BALL CORPORATION STOP W/ TEE HEAD OPERATING NUT - CC (TAPER THREAD) X FNPT (W/ STD. VALVE BOX ASSEMBLY) OR; FOR NEW MAINS - MJ TEE, MJ PLUG - TAP - 2", 2" X 6" SCH 40 RED BRASS NIPPLE, 2" GATE VALVE W/ TEE HEAD OPERATING NUT (FNPT) (WITH STANDARD VALVE BOX ASSEMBLY).

NOTES:

- ACCESS DOOR SHALL BE ANCHORED TO VAULT OR SIDEWALK PER ACCESS DOOR STANDARD DETAIL.
- ACCESS DOOR SHALL BE FLUSH WITH GROUND OR SIDEWALK, AND GROUND SHALL SLOPE AWAY FROM VAULT.
- SEE MULTIPLE WATER SERVICES - SCHEMATIC STANDARD DETAIL FOR ADDITIONAL LAYOUT REQUIREMENTS AND OPTIONS.
- ASSEMBLY MAY BE FLIPPED 180° TO MEET SITE REQUIREMENTS.



SIDE ELEVATION VIEW

- NO. DESCRIPTION:**
- 2" SCH. 40 RED BRASS PIPE MNPT (LENGTH = L3).
 - 2" X 1" BRASS SERVICE SADDLE - FNPT OUTLET.
 - 1" X 3/4" X 3/4" BRASS U-BRANCH - MNPT.
 - 5/8" X 3/4" ANGLE BALL VALVE WITH LOCK WINGS - FNPT X YOKE STAR NUT.
 - 5/8" DUCTILE IRON METER YOKE BAR.
 - 5/8" STRAIGHT BALL VALVE (YOKE STAR NUT X FNPT).
 - 3/4" RED BRASS NIPPLE WITH THREADED END (L = 18").
 - 2" SCH. 40 RED BRASS PIPE MNPT (L = 24").
 - 2" - 90° BRASS BEND - FNPT X CTS COMPRESSION.
 - 2" BALL VALVE CURB STOP W/ TEE HEAD OPERATING NUT - FNPT X FNPT.
 - 2" X 1" BRASS REDUCER - FNPT X FNPT.
 - 1" BRASS 90° STREET ELBOW - MNPT X FNPT.
 - 1" BALL VALVE CURB STOP - MNPT X MNPT WITH LOCK WINGS (LOCK CLOSED WITH PERMANENT BLUE PAD LOCK FURNISHED BY CLTW).
 - 1" RED BRASS THREADED COUPLING - FNPT X FNPT.
 - PRECAST CONCRETE METER VAULT - SEE CHART FOR SIZE.
 - MANIFOLD HOT DIP GALV. STEEL ACCESS DOOR - SEE DETAIL.
 - 2" FLEXIBLE PIPE CONNECTOR BOOT (**DO NOT FILL WITH MORTAR**).
 - 1 1/2"Ø - SCH 40 PVC SLEEVE (WITH RUBBER ISOLATION BUSHING AT EACH FACE OF VAULT WALL) OR FOAM RUBBER PIPE INSULATION THROUGH SLEEVE.
 - GALV. STEEL OR S.S. ADJUSTABLE SADDLE PIPE SUPPORT (NUMBER REQ'D = N1) WITH 1/4"± THICK NEOPRENE LINER (WITH STAINLESS STEEL EPOXY ANCHORS).
 - 3/8" DIAMETER STAINLESS STEEL EYE BOLT (EPOXY ANCHOR).
 - AWG #12 GAUGE COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) - TERMINATE WITH 24" EXCESS WIRE (COILED) @ EYE BOLT AND VALVE BOX (TYPICAL).
 - 5/8" WATER METER WITH AMR TRANSMITTER (FURNISHED BY CLTW).
 - 12" DIAMETER SUMP HOLE.
 - 6" #57 WASHED STONE.
 - 2" TYPE K COPPER (NO JOINTS PERMITTED).
 - FOR EXISTING MAINS - 2" BALL CORPORATION STOP - WITH T-HEAD OPERATING NUT - CC (TAPER TREAD) X CTS COMPRESSION (WITH STANDARD VALVE BOX ASSEMBLY) OR; FOR NEW MAINS - MJ TEE, MJ PLUG - TAP - 2", 2" X 6" SCH 40 RED BRASS NIPPLE, 2" GATE VALVE W/ TEE HEAD OPERATING NUT (FNPT) (WITH STANDARD VALVE BOX ASSEMBLY), BRASS STRAIGHT CONNECTOR (MNPT X CTS COMPRESSION) MUELLER #H-15428, FORD #C84-77GJ, McDONALD #24753T.
 - SERVICE SADDLE - CC (TAPER THREAD OUTLET).
 - 6" OR LARGER WATER MAIN.
 - PRECAST CONC. RISER OR BRICKWORK MAY BE REQUIRED FOR GRADE ADJUSTMENTS. MAX HEIGHT SHALL BE 12".
 - CAST IN PLACE CONCRETE SIDEWALK - BRICK WORK SHALL NOT EXTEND TO SURFACE, ACCESS DOOR SHALL REST ON SIDEWALK.
 - UNUSED SERVICES SHALL BE LOCKED (LOCK (BLUE SERIAL NO.) FURNISHED BY CLTW) IN CLOSED POSITION.
 - FOR EACH WATER METER, ATTACH AN ENGRAVED LABEL DIRECTLY ABOVE THE METER/ALIGNED WITH THE TRANSMITTER, INCLUDING THE PREMISE NUMBER, STREET NUMBER/UNIT NUMBER AND STREET NAME, TO UNDERSIDE OF DOOR.

DESIGN REQUIREMENTS:

- VAULT SHALL BE RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWING / CALCULATIONS / P.E. SEALED FOR REVIEW.
- ALL CONCRETE SHALL BE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
- DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE."
- STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- REBARS SHALL BE GRADE 60 PER ASTM A615.
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- PIPE PENETRATIONS SHALL BE ISOLATED FROM PIPE WITH FLEXIBLE CONNECTERS (MANHOLE BOOTS) OR WITH RUBBER ISOLATION BUSHINGS.
- PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

DIMENSIONS (INCHES)

VAULT (INSIDE)			VAULT (OVERALL-MIN.)			WALL THICKNESS (MIN.)	FLOOR THICKNESS (MIN.)	NUMBER OF METERS (MAX.)	L3 2" RED BRASS PIPE LENGTH NO. 1	N1 REQ'D NO. OF PIPE SUPPORTS NO. 19	L4	L5
L	W	H	L1	W1	H1	W2 / L2	H2					
72	36	36	84	48	42	6	6	10	60	2	6.5	7
60	36	36	72	48	42	6	6	8	48	2	7	7.5
48	36	36	60	48	42	6	6	6	36	2	7.5	8
36	36	36	44	44	40	4	4	4	24	1	8	8.5

NOTES:

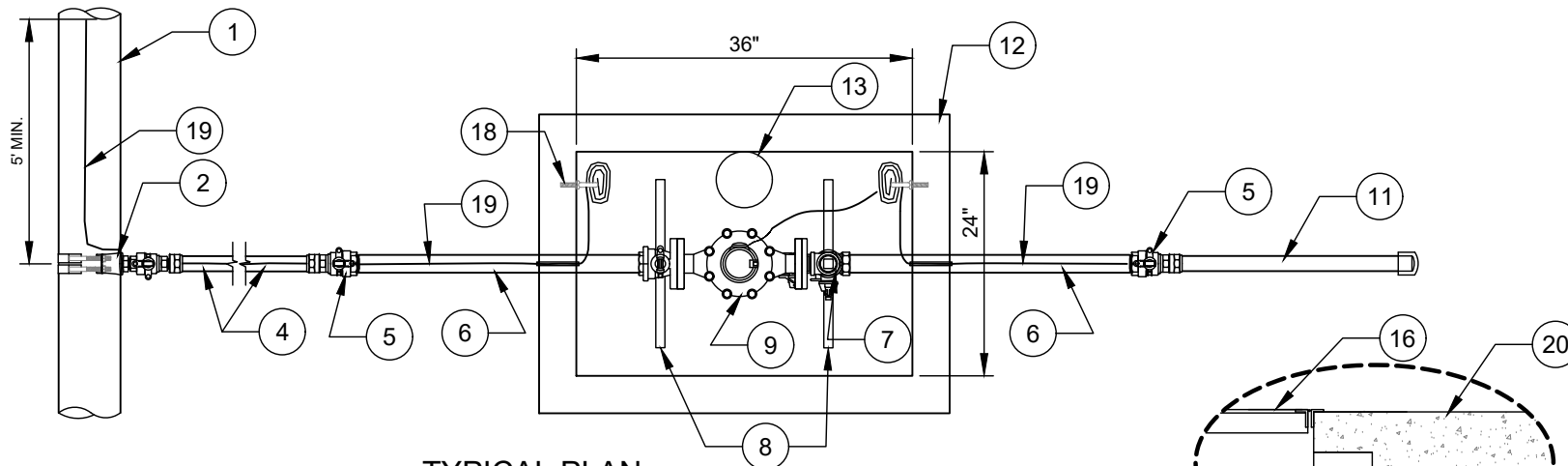
- A. ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE STAINLESS STEEL - TYPE 304 WITH ANTI-SEIZE COMPOUND.
- B. ALL PIPE SHALL BE RESTRAINED FROM TAP TO PROPERTY LINE VALVE.
- C. VAULT SHALL BE RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- D. ALL CONCRETE SHALL BE MINIMUM 4000 PSI COMPRESSIVE STRENGTH.
- E. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
- F. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- G. REBARS SHALL BE GRADE 60 PER ASTM A615.
- H. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- I. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- J. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTERS (MANHOLE BOOTS) OR WITH 4-INCHES OF BRICK & MORTAR (AND 1/2 INCH THICK CONSTRUCTION EXPANSION MATERIAL).
- K. FRAME TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM VAULT.
- L. ALL JOINTS SHALL BE MADE WATERTIGHT USING 2 RINGS OF BUTYL RUBBER JOINT MASTIC.
- M. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

1. EXISTING OR PROPOSED WATER MAIN.
2. TAPPING SADDLE AND 1 1/2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT (CC TAPER THREAD X CTS COMPRESSION).
3. STANDARD VALVE BOX ASSEMBLY (TYP) - ALL VALVES (OMIT AT CORPORATION STOP ON SHORT SIDE SERVICE OR WHEN IN THE PAVEMENT).
4. 1 1/2" TYPE K COPPER TUBING.
5. 1 1/2" BALL VALVE (CTS COMPRESSION X FNPT).
6. 1 1/2" RED BRASS PIPE NIPPLE (L = 30" OR 36").
7. 1 1/2" BRASS METER SETTER ASSEMBLY - FORD #VB-76-95311-05, MUELLER #098B 242343, CAMBRIDGE #6020-718F6F6-UUBS OR MCDONALD #720B618WTFF, NO SOLDER JOINTS PERMITTED.
8. 1" SCH 40 RED BRASS NIPPLE (L = 18") X 2 EACH.
9. 1 1/2" WATER METER ASSEMBLY WITH AMR TRANSMITTER (BY CONTRACTOR).
10. BYPASS BALL VALVE WITH LOCK WINGS - LOCK VALVE IN CLOSED POSITION (SERIAL NUMBERED STUD LOCK - FURNISHED BY CLTW).
11. 1 1/2" TYPE K COPPER TUBING TAIL PIECE - L = 24" MIN. - BASS OR PVC TEMP. CAP.
12. PRECAST CONCRETE SERVICE VAULT (36" X 24" X 31").
13. 6" DIAMETER SUMP HOLE.
14. 6" COMPACTED #57 WASHED STONE.
15. MINIMUM OF (3) STANDARD SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2'.
16. 24" X 36" ACCESS DOOR - SEE STANDARD DETAIL.
17. AMR TRANSMITTER.
18. 3/8" DIAMETER GALV. STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL.
19. AWG #12 GAUGE SOLID COPPER HDPE INSTALLATION TRACER WIRE - WITH 30 MILS BLUE INSULATION TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYP).
20. CAST IN PLACE CONCRETE SIDEWALK - BRICK WORK SHALL NOT EXTEND TO SURFACE, ACCESS DOOR SHALL REST ON SIDEWALK.
21. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

NO. ALTERNATE DESCRIPTION:

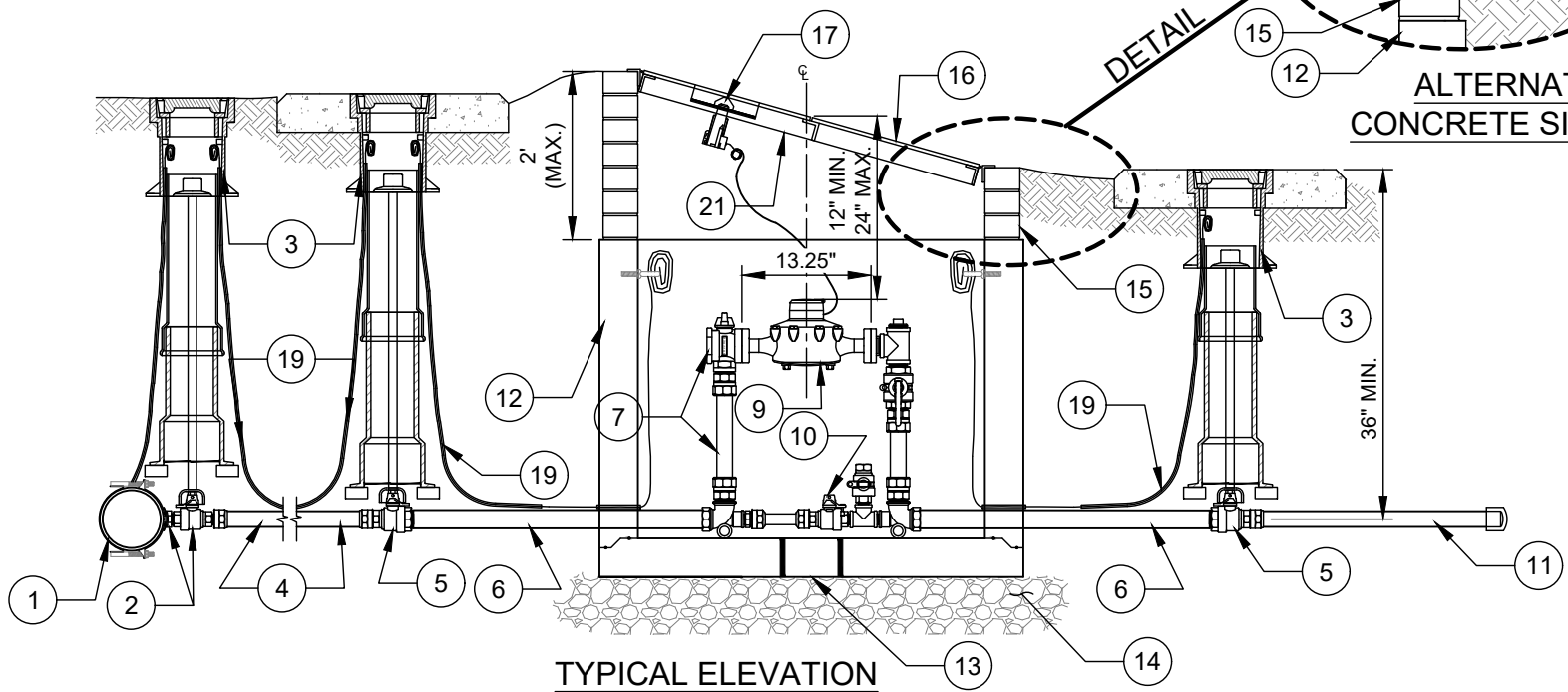
- WHEN USING SDR9 HDPE (IPS) WITH STAINLESS STEEL, BRASS, OR BRONZE MNPT ENDS, USE THE FOLLOWING PRODUCTS:
2. 1 1/2" BALL CORPORATION STOP (CC TAPER THREAD X FNPT).
 4. 1 1/2" SDR9 HDPE (POLY) - IPS PIPE (MNPT X MNPT).
 5. 1 1/2" BALL VALVE (FNPT X FNPT).
 11. 1 1/2" SDR9 HDPE (POLY) - IPS PIPE (MNPT X MNPT) - BASS OR PVC TEMP. CAP.



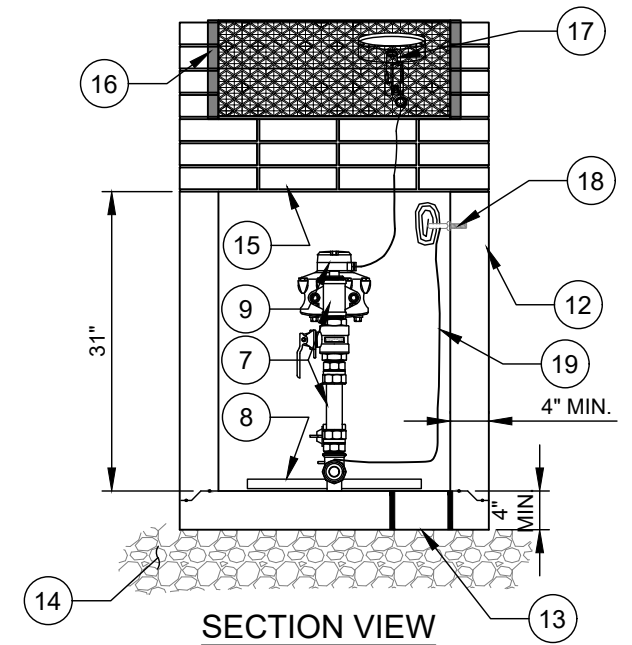
TYPICAL PLAN



ALTERNATE IN CONCRETE SIDEWALK



TYPICAL ELEVATION



SECTION VIEW

NOTES:

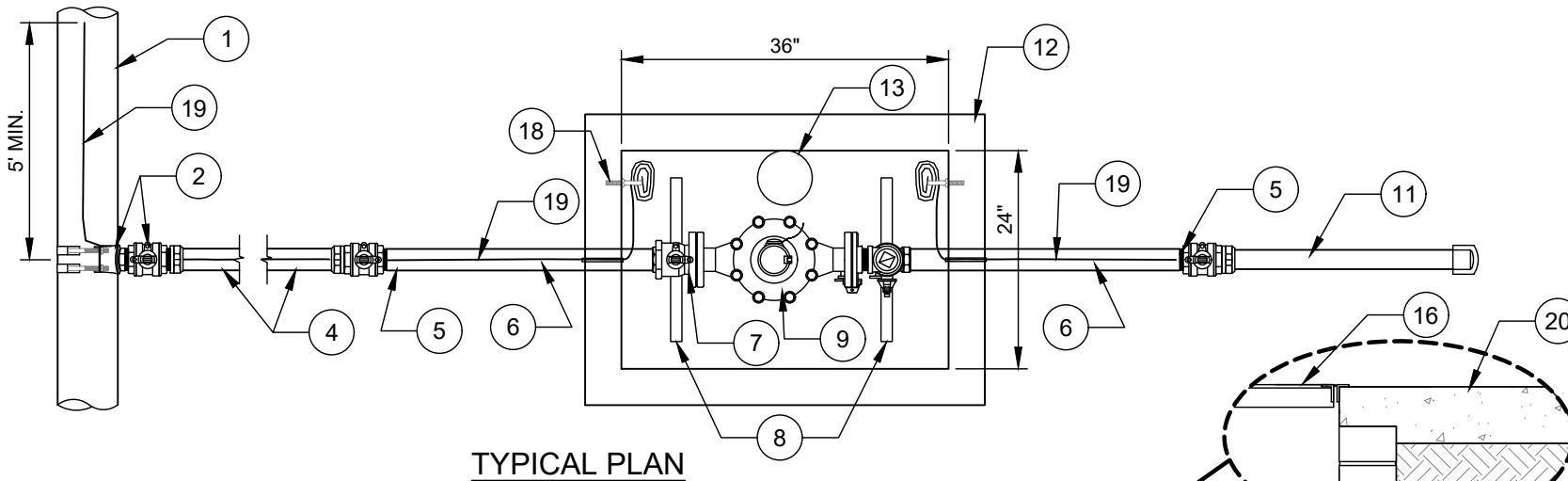
- A. ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE STAINLESS STEEL - TYPE 304 WITH ANTI-SEIZE COMPOUND.
- B. ALL PIPE SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP TO PROPERTY LINE VALVE.
- C. VAULT SHALL BE RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- D. ALL CONCRETE SHALL BE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
- E. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
- F. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- G. REBARS SHALL BE GRADE 60 PER ASTM A615.
- H. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- I. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- J. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTORS (MANHOLE BOOTS) OR WITH 8" OF BRICK & MORTAR (AND 1/2-INCH THICK CONSTRUCTION EXPANSION MATERIAL). FRAME TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM VAULT.
- K. ALL JOINTS SHALL BE MADE WATERTIGHT USING 2 RINGS OF BUTYL RUBBER JOINT MASTIC.
- L. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

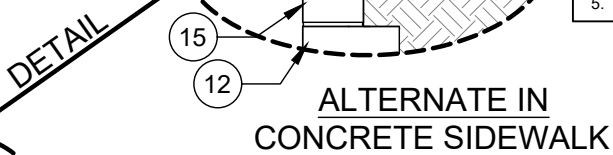
1. EXISTING OR PROPOSED WATER MAIN.
2. TAPPING SADDLE AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT (CC TAPER THREAD X CTS COMPRESSION).
3. STANDARD VALVE BOX ASSEMBLY (TYP) - ALL VALVES (OMIT AT CORPORATION STOP ON SHORT SIDE SERVICE OR WHEN IN THE PAVEMENT).
4. 2" TYPE K COPPER TUBING.
5. 2" BALL VALVE (CTS COMPRESSION X FNPT).
6. 2" RED BRASS PIPE NIPPLE (L = 30" OR 36").
7. 2" BRASS METER SETTER ASSEMBLY - FORD #VB-77-95311-02, MUELLER #106B 242343, CAMBRIDGE #6020-7187F7-UUBS OR MCDONALD #720B718WTFF, NO SOLDER JOINTS PERMITTED.
8. 1" SCH 40 RED BRASS NIPPLE (L=18") X 2 EACH.
9. 2" WATER METER ASSEMBLY WITH AMR TRANSMITTER (BY CONTRACTOR).
10. 1" BYPASS BALL VALVE WITH LOCK WINGS - LOCK VALVE IN CLOSED POSITION (PERMANENT STUD LOCK - FURNISHED BY CLTW).
11. 2" TYPE K COPPER TUBING TAIL PIECE - L = 24" MIN. - BASS OR PVC TEMP. CAP.
12. PRECAST CONCRETE SERVICE VAULT (36" X 24" X 31").
13. 6" DIAMETER SUMP HOLE.
14. 6" COMPACTED #57 WASHED STONE.
15. MINIMUM OF (3) STANDARD SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2'.
16. 24" X 36" ACCESS DOOR - SEE STANDARD DETAIL.
17. AMR TRANSMITTER.
18. 3/8" DIAMETER GALV. STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL.
19. AWG #12 GAUGE SOLID COPPER HDPE INSTALLATION TRACER WIRE - WITH 30 MILS BLUE INSULATION TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYP).
20. CAST IN PLACE CONCRETE SIDEWALK - BRICK WORK SHALL NOT EXTEND TO SURFACE, ACCESS DOOR SHALL REST ON SIDEWALK.
21. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

NO. ALTERNATE DESCRIPTION:

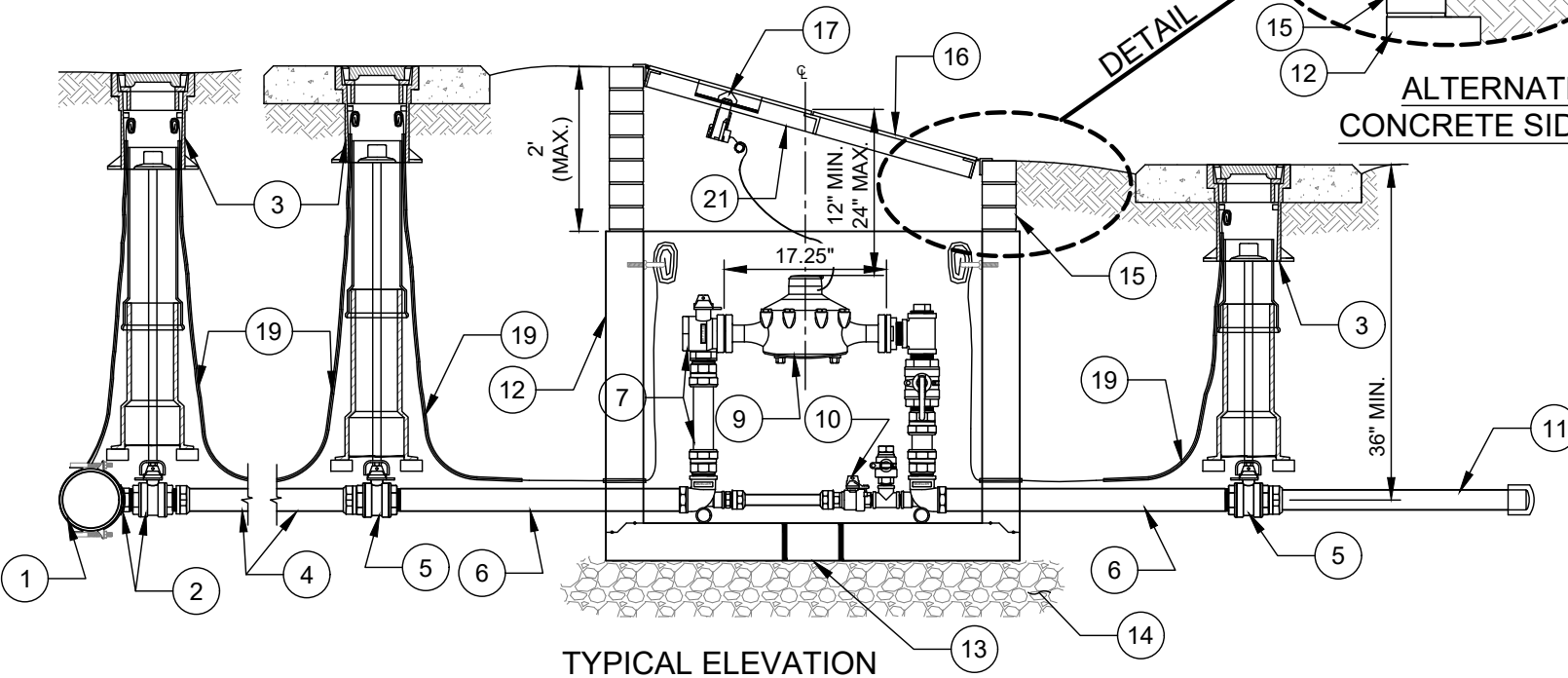
- WHEN USING SDR9 HDPE (IPS) WITH STAINLESS STEEL, BRASS, OR BRONZE MNPT ENDS, USE THE FOLLOWING PRODUCTS:
2. 2" BALL CORPORATION STOP (CC TAPER THREAD X FNPT).
 4. 2" SDR9 HDPE (POLY) - IPS PIPE (MNPT X MNPT).
 5. 2" BALL VALVE (FNPT X FNPT).



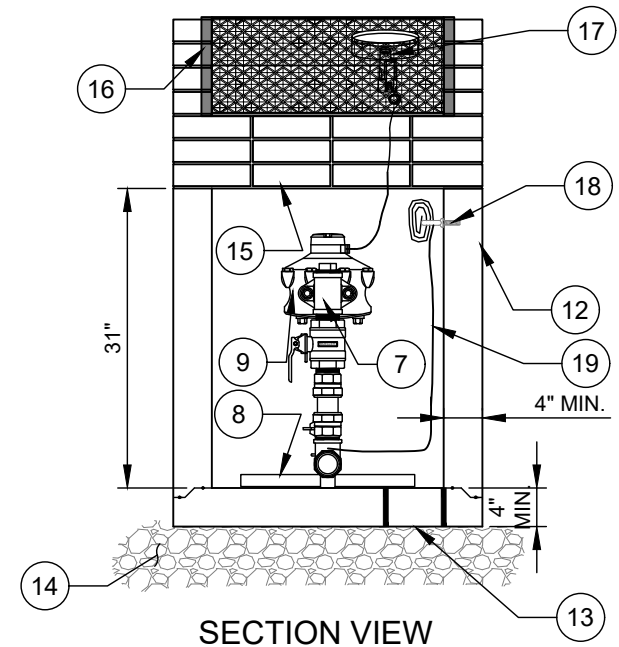
TYPICAL PLAN



ALTERNATE IN CONCRETE SIDEWALK



TYPICAL ELEVATION



SECTION VIEW

NO SCALE

VERSION 1.0
 DATE 04/2024
 DETAIL 15.4.3

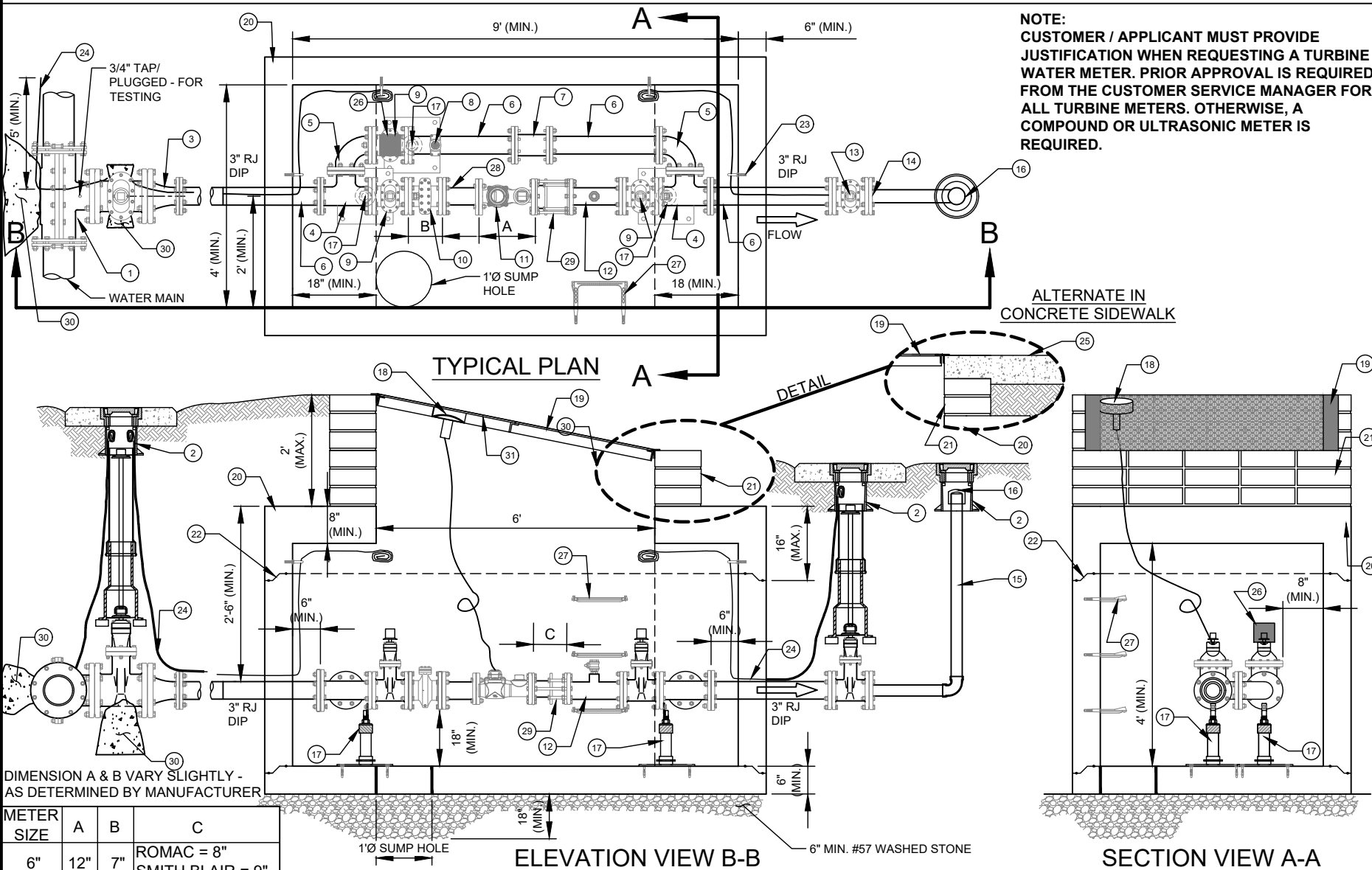
NOTES:

- 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 (8' X 4' MINIMUM) AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 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 (MANHOLE BOOTS) OR WITH 8" OF BRICK AND MORTAR (AND 1/2-INCH THICK CONSTRUCTION EXPANSION MATERIAL AROUND THE PIPE).
- 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.
- O. SERVICE AND VAULT MAY BE ROTATED 90° WHEN NEEDED, DUE TO LIMITED SITE / SPACE RESTRICTIONS.
- P. WRAP TAPPING SLEEVE WITH 2 LAYERS HDPE PLASTIC FILM (HDCLPE PER AWWA C-105) - 4 MILS EACH LAYER - EXTEND HDPE 2' EACH WAY FROM SLEEVE - DUCT TAPE OR ZIP LOCK TIE ENDS.
- Q. CONCRETE THRUST BLOCKING REQUIRED AT TAPPING SLEEVE.
- R. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

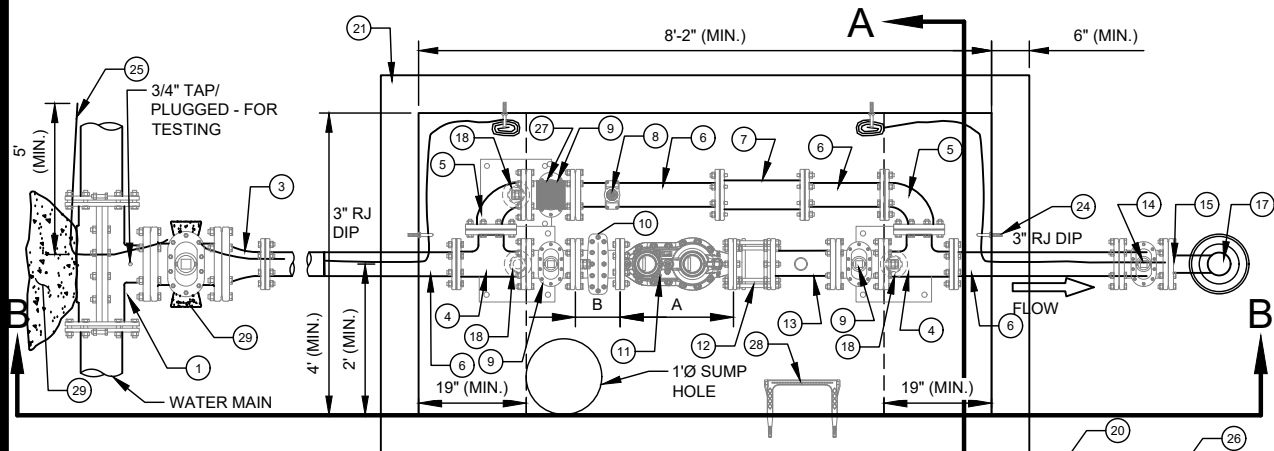
NO. DESCRIPTION:

1. 4" TAPPING SLEEVE AND 4" FLANGE X MJ TAPPING VALVE ON EXISTING MAIN. 3" MJ TEE, 3" FOSTER ADAPTOR AND 3" MJ GATE VALVE ON NEW MAIN.
2. STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES.
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 PLAIN END DUCTILE IRON PIPE - LL = 63" (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. PLATE STRAINER - FL X FL.
11. FLANGE TURBINE METER ASSEMBLY W/AMR TRANSMITTERS. METER CONFIGURATION MAY VARY DUE TO BRAND SUPPLIED.
12. 3" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
13. MECHANICAL JOINT (RJ) GATE VALVE - 2" OPERATING NUT - OPEN LEFT @ PROPERTY LINE.
14. MECHANICAL JOINT PLUG WITH 2" TAP.
15. TEMP 2" PIPE GALVANIZED STEEL (SCH 80) WITH STANDARD VALVE BOX/CONCRETE PAD.
16. TEMP 2" THREADED COUPLING (SCH 80 - G.S.F.).
17. ADJUSTABLE FLANGE PIPE SUPPORTS (3 REQUIRED).
18. AMR TRANSMITTERS.
19. 4' X 5' DOUBLE-LEAF ACCESS DOOR. SEE STANDARD DETAIL.
20. PRECAST REINFORCED CONCRETE VAULT - 8' X 4' X 4' (MIN.).
21. MINIMUM OF (3) STANDARD SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2'. JOINT REQUIRED AT FLAT TOP SECTION.
22. 3/8" DIA. GALVANIZED STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL.
23. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) - TERMINATE WITH 24" EXCESS WIRE (COILED) @ EYE BOLT AND VALVE BOX (TYPICAL).
24. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
25. VALVE LOCK (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
26. PLASTIC STEP - 12" VERTICAL SPACING.
27. DUCTILE IRON PIPE SPOOL (FL X FL) - L = 15" (SPECIAL CLASS 53).
28. DISMANTLING JOINT - FL X FL - (L = 10" OR 9" - EXTENDED) SMITH BLAIR #975 (SET TO 9") OR ROMAC #DJ400 (SET TO 8") WITH STAINLESS STEEL TIE RODS/HARDWARE.
29. CONCRETE THRUST BLOCKING - 3,600 PSI.
30. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

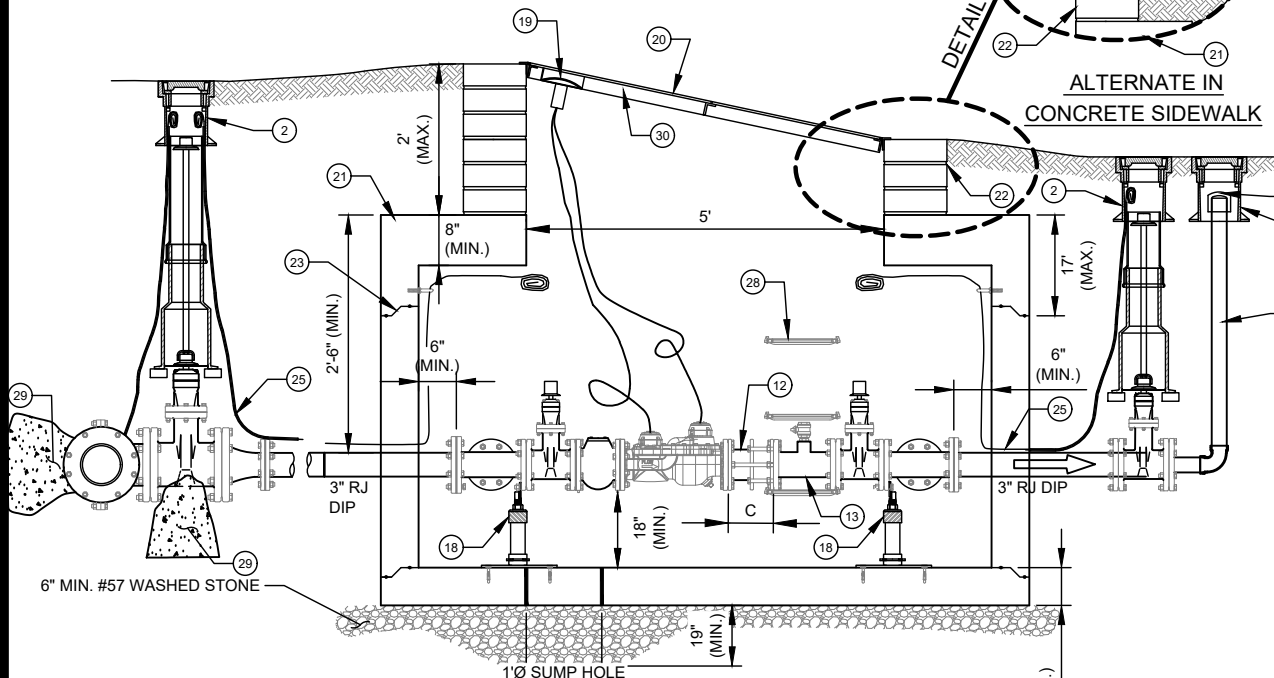


DIMENSION A & B VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER

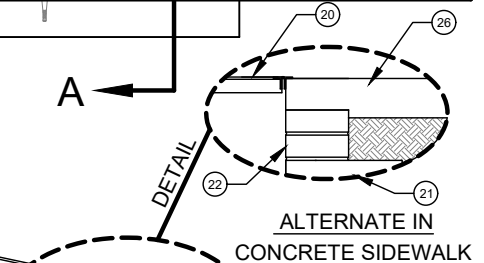
METER SIZE	A	B	C
6"	12"	7"	ROMAC = 8" SMITH BLAIR = 9"



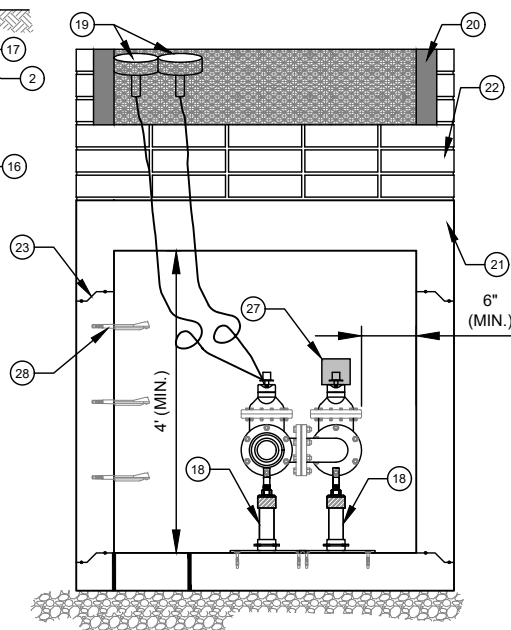
TYPICAL PLAN



ELEVATION VIEW B-B



ALTERNATE IN CONCRETE SIDEWALK



SECTION VIEW A-A

DIMENSION A & B VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER

METER SIZE	A	B	C
6"	18"	7"	ROMAC = 8" SMITH BLAIR = 9"

NOTES:

- A. ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE STAINLESS STEEL - TYPE 316 WITH ANTI-SEIZE COMPOUND.
- B. ALL PIPE SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP TP 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' x 4' MINIMUM) AND RATED FOR NCDOT HS-21 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
- F. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATION FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
- G. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- H. REBARS SHALL BE GRADE 60 PER ASTM A616.
- I. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A195.
- J. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- K. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTORS (MANHOLE BOOTS) OR WITH 8" OF BRICK AND 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. 14.
- O. WRAP TAPPING SLEEVE WITH 2 LAYERS HDPE PLASTIC FILM (HDCLPE PER AWWA C-105) - 4 MILS EACH LAYER - EXTEND HDPE 2' EACH WAY FROM SLEEVE - DUCT TAPE OR ZIP LOCK TIE ENDS.
- P. CONCRETE THRUST BLOCKING REQUIRED AT TAPPING SLEEVE.
- Q. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

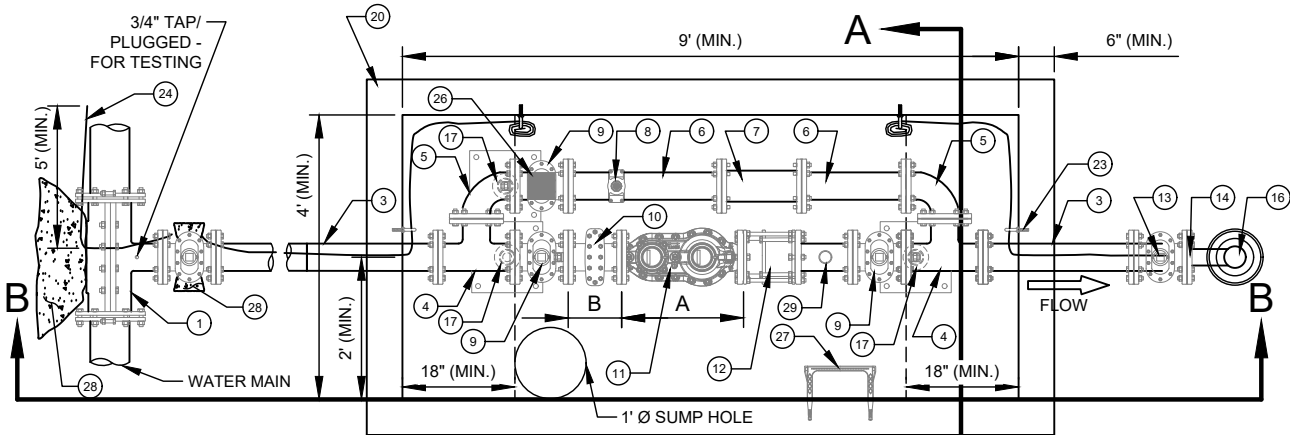
NO. DESCRIPTION:

- 1. 4" TAPPING SLEEVE AND 4" FLANGE x MJ TAPPING VALVE ON EXISTING MAIN. 3" MJ TEE, 3" FOSTER ADAPTER, AND 3" MJ GATE VALVE ON NEW MAIN.
- 2. STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES.
- 3. 4" x 3" REDUCER (RJ) REQUIRED ON EXISTING MAIN INSTALLATIONS.
- 4. FLANGE DUCTILE TEE WITH ADJUSTABLE FLANGE SUPPORT. (REDUCER NOT REQUIRED ON NEW MAIN INSTALLATIONS).
- 5. FLANGE DUCTILE IRON 90°-BEND.
- 6. FLANGE x PLAIN END DUCTILE IRON PIPE 2 EA. - LL = 49" (MIN.) (SPECIAL CLASS 53).
- 7. MJ LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINTS.
- 8. 3/4" BALL CORPORATION STOP (CC TAPER THREAD) AND S.S. SERVICE 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. 3" DISMANTLING JOINT (RESTRAINED) - ROMAC DJ400 - LL = 7" TO 9", SET TO 8", OR SMITH-BLAIR #975 - 8" TO 10", SET TO 9". - FL x FL - (L = 10" OR 9" - EXTENDED) SMITH BLAIR #975 OR ROMAC #DJ400 WITH STAINLESS STEEL TIE RODS/HARDWARE.
- 13. 3" EPOXY COATED/LINED STEEL FL x FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT x FNPT.
- 14. MECHANICAL JOINT (RJ) GATE VALVE - 2" OPERATING NUT - OPEN LEFT AT PROPERTY LINE.
- 15. MECHANICAL JOINT PLUG WITH 2" TAP.
- 16. TEMP. 2" PIPE GALVANIZED STEEL (SCH 80) WITH STANDARD VALVE BOX/CONCRETE PAD.
- 17. TEMP. 2" THREADED COUPLING.
- 18. ADJUSTABLE FLANGE PIPE SUPPORTS (3 REQUIRED).
- 19. AMR TRANSMITTERS.
- 20. 4' x 5' DOUBLE-LEAF ACCESS DOOR. SEE STANDARD DETAIL.
- 21. PRECAST REINFORCED CONCRETE VAULT.
- 22. MINIMUM OF (3) STANDARD SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2'. JOINT REQUIRED AT FLAT TOP SECTION.
- 23. 3/8" DIA. GALVANIZED STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL.
- 24. AWG #12 GAUGE SOLID COPPER HDPE INSTALLATION TRACER WIRE - WITH 30 MILS BLUE INSULATION - TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
- 25. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
- 26. VALVE LOCK AND WARNING TAG (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
- 27. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
- 28. CONCRETE THRUST BLOCKING - 3,600 PSI.
- 29. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

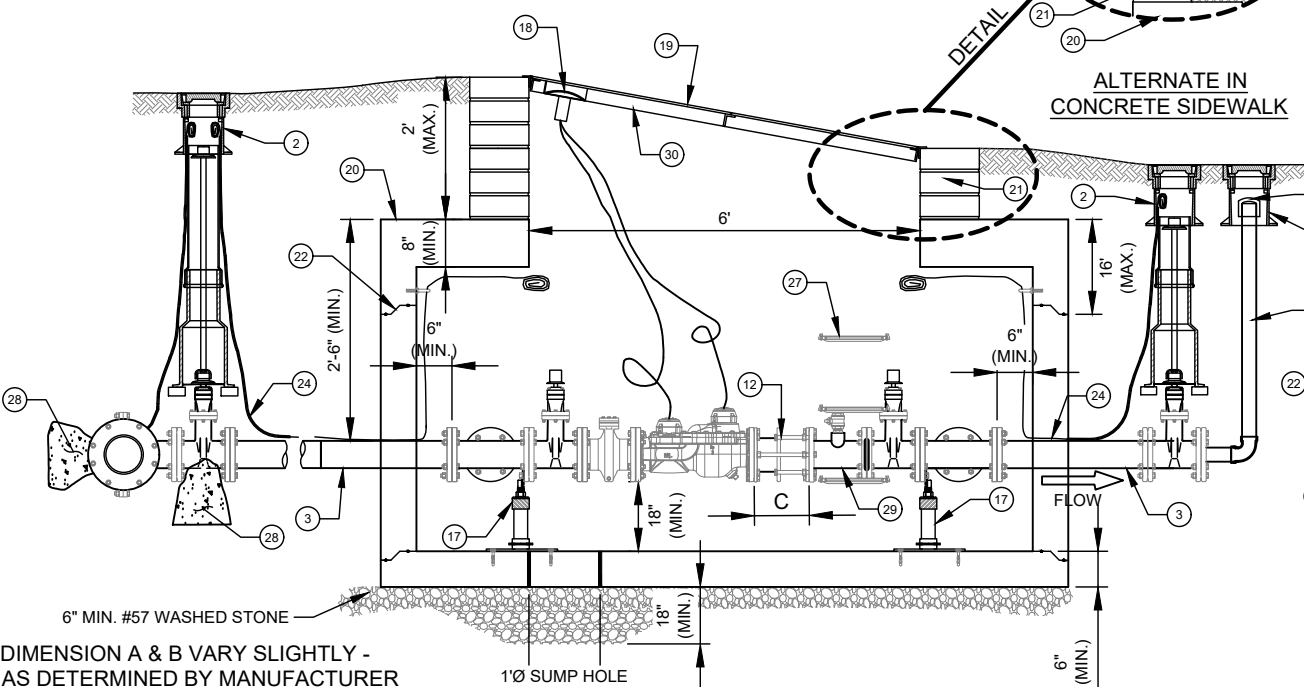
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VERSION 1.0
DATE 04/2024

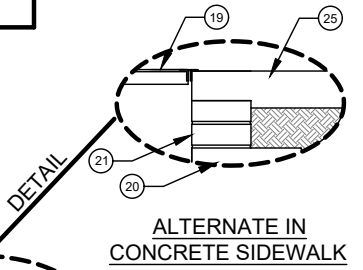
DETAIL 15.4.5



TYPICAL PLAN A



ELEVATION VIEW B-B



ALTERNATE IN CONCRETE SIDEWALK

- NOTES:**
- ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE STAINLESS STEEL - TYPE 304 WITH ANTI-SEIZE COMPOUND.
 - ALL PIPE SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP TO PROPERTY LINE VALVE.
 - METER CONFIGURATION AND LENGTH MAY VARY DUE TO BRAND - VERIFY LENGTH TO DETERMINE MINIMUM VAULT LENGTH.
 - VAULT SHALL BE SIZED AS NEEDED FOR PIPE (8.5' X 4' MINIMUM) AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
 - ALL CONCRETE SHALL BE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
 - DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
 - STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
 - REBARS SHALL BE GRADE 60 PER ASTM A615.
 - WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
 - DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
 - PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTORS (MANHOLE BOOTS) OR WITH 8" OF BRICK & MORTAR (AND 1/2-INCH THICK CONSTRUCTION EXPANSION MATERIAL).
 - FRAME TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM VAULT.
 - ALL JOINTS SHALL BE MADE WATERTIGHT USING 2 RINGS OF BUTYL RUBBER JOINT MASTIC.
 - ALL VALVES SHALL BE OPEN RIGHT - CLOCKWISE, EXCEPT NO. 13.
 - WRAP TAPPING SLEEVE WITH 2 LAYERS HDPE PLASTIC FILM (HDCLPE PER AWWA C-105) - 4 MILS EACH LAYER - EXTEND HDPE 2' EACH WAY FROM SLEEVE - DUCT TAPE OR ZIP LOCK TIE ENDS.
 - CONCRETE THRUST BLOCKING REQUIRED AT TAPPING SLEEVE.
 - PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

- NO. DESCRIPTION:**
- 4" TAPPING SLEEVE AND 4" FLANGE X MJ TAPPING VALVE ON EXISTING MAIN. 4" MJ TEE, 4" FOSTER ADAPTOR, AND 4" MJ GATE VALVE ON NEW MAIN.
 - STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES.
 - FLANGE X PLAIN END DUCTILE IRON PIPE - L = 30" (MIN.) (SPECIAL CLASS 53).
 - FLANGE DUCTILE IRON TEE WITH ADJUSTABLE FLANGE SUPPORT.
 - FLANGE DUCTILE IRON 90° - BEND.
 - FLANGE X PLAIN END DUCTILE IRON PIPE 2 EA. - LL = 62" (MIN. SPECIAL CLASS 53).
 - MJ LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINTS.
 - 3/4" BALL CORPORATION STOP WITH TAPPING SADDLE.
 - FLANGE GATE VALVE; WITH 2" OPERATING NUT - OPEN RIGHT AND WITH ADJUSTABLE FLANGE SUPPORT ON BYPASS VALVE.
 - FLANGE STRAINER.
 - FLANGE COMPOUND METER ASSEMBLY W/AMR TRANSMITTERS. METER CONFIGURATION MAY VARY DUE TO BRAND SUPPLIED.
 - 4" DISMANTLING JOINT (RESTRAINED) - ROMAC DJ400 - LL = 7" TO 9", SET TO 8", OR SMITH-BLAIR #975 - 8" TO 10", SET TO 9". - FL X FL - (L = 10" OR 9" - EXTENDED) SMITH BLAIR #975 OR ROMAC #DJ400 WITH STAINLESS STEEL TIE RODS/HARDWARE.
 - MECHANICAL JOINT (RJ) GATE VALVE - 2" OPERATING NUT - OPEN LEFT AT PROPERTY LINE.
 - MECHANICAL JOINT PLUG WITH 2" TAP.
 - TEMP. 2" PIPE GALVANIZED STEEL (SCH 80) WITH STANDARD VALVE BOX/CONCRETE PAD.
 - TEMP. 2" THREADED COUPLING.
 - ADJUSTABLE FLANGE PIPE SUPPORTS (3 REQUIRED).
 - AMR TRANSMITTERS.
 - 4' X 6' DOUBLE-LEAF ACCESS DOOR. SEE STANDARD DETAIL.
 - PRECAST REINFORCED CONCRETE VAULT.
 - MINIMUM OF (3) STANDARD SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2'.
 - JOINT REQUIRED AT FLAT TOP SECTION.
 - 3/8" DIA. GALV. STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL.
 - AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH 30 MILS BLUE HDPE INSULATION - TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
 - CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
 - VALVE LOCK AND WARNING TAG (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
 - PLASTIC STEP - 12" VERTICAL SPACING.
 - CONC. THRUST BLOCKING - 3,600 PSI.
 - 4" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
 - ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

DIMENSION A & B VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER

METER SIZE	A	B	C
4"	20"	9"	ROMAC = 8" SMITH BLAIR = 9"

SECTION VIEW A-A

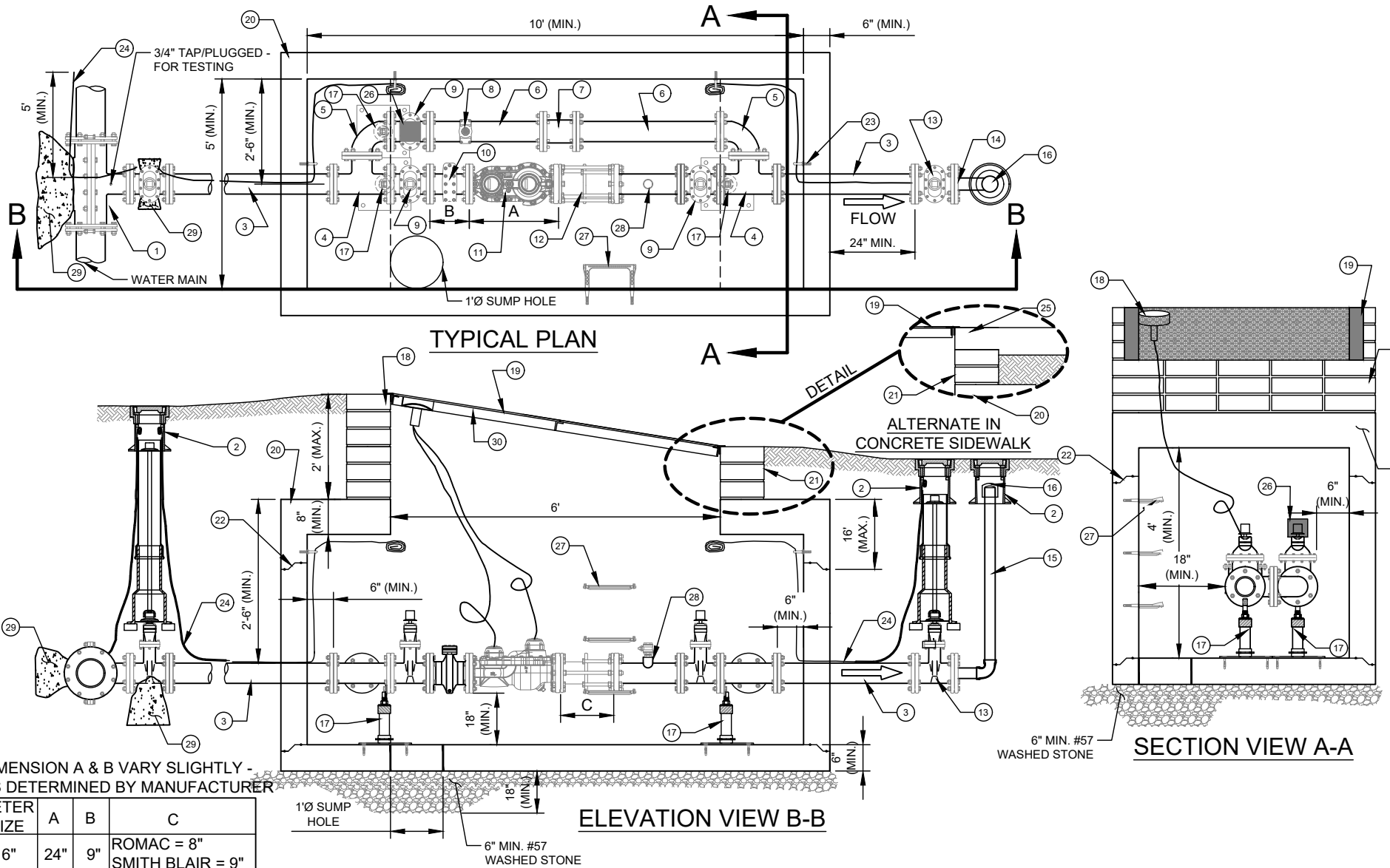
NOTES:

- 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 / WIDTH MAY VARY DUE TO BRAND - VERIFY LENGTH TO DETERMINE MINIMUM VAULT LENGTH.
- D. VAULT SHALL BE SIZED AS NEEDED FOR PIPE (8.5' X 4' MINIMUM) AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 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 (MANHOLE BOOTS) OR WITH 8" 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.
- O. WRAP TAPPING SLEEVE WITH 2 LAYERS HDPE PLASTIC FILM (HDCLPE PER AWWA C-105) - 4 MILS EACH LAYER - EXTEND HDPE 2' EACH WAY FROM SLEEVE - DUCT TAPE OR ZIP LOCK TIE ENDS.
- P. CONCRETE THRUST BLOCKING REQUIRED AT TAPPING SLEEVE.
- Q. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

1. 6" TAPPING SLEEVE AND 6" FLANGE X MJ TAPPING VALVE ON EXISTING MAIN. 6" MJ TEE, 6" FOSTER ADAPTOR AND 6" MJ GATE VALVE ON NEW MAIN.
2. STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES.
3. 6" DUCTILE IRON PIPE - FLANGE X PE - L = 30" OR 36" (SPECIAL CLASS 53).
4. FLANGE DUCTILE IRON TEE WITH ADJUSTABLE FLANGE SUPPORT.
5. FLANGE DUCTILE IRON 90° - BEND.
6. FLANGE X PLAIN END DUCTILE IRON PIPE 2 EA. - LL = 66" (MIN. SPECIAL CLASS 53).
7. MJ LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINTS.
8. 2" BALL CORPORATION STOP (THREADED OUTLET) 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. 6" DISMANTLING JOINT (RESTRAINED) - ROMAC DJ400 - LL = 7" TO 9", SET TO 8", OR SMITH-BLAIR #975 - 8" TO 10", SET TO 9". - FL X FL - (L = 8" OR 9" - EXTENDED) SMITH BLAIR #975 OR ROMAC #DJ400 WITH STAINLESS STEEL TIE RODS/HARDWARE.
13. MECHANICAL JOINT (RJ) GATE VALVE - 2" OPERATING NUT - OPEN LEFT @ PROPERTY LINE.
14. MECHANICAL JOINT PLUG WITH 2" TAP.
15. TEMP. 2" PIPE GALVANIZED STEEL (SCH 80) WITH STANDARD VALVE BOX/CONCRETE PAD.
16. TEMP. 2" THREADED COUPLING.
17. ADJUSTABLE FLANGE PIPE SUPPORTS (3 REQUIRED).
18. AMR TRANSMITTERS.
19. 5' X 6' DOUBLE-LEAF ACCESS DOOR. SEE STANDARD DETAIL.
20. PRECAST REINFORCED CONCRETE VAULT. MINIMUM OF (3) SOLID CONCRETE CAP BLOCK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2'.
21. JOINT REQUIRED AT FLAT TOP SECTION.
22. 3/8" DIAMETER GALV. STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL.
23. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) - TERMINATE WITH 24" EXCESS WIRE (COILED) @ EYE BOLT AND VALVE BOX (TYPICAL).
24. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
25. VALVE LOCK AND WARNING TAG (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
26. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
27. 6" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
28. CONCRETE THRUST BLOCKING - 3,600 PSI.
29. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.
- 30.



DIMENSION A & B VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER

METER SIZE	A	B	C
6"	24"	9"	ROMAC = 8" SMITH BLAIR = 9"

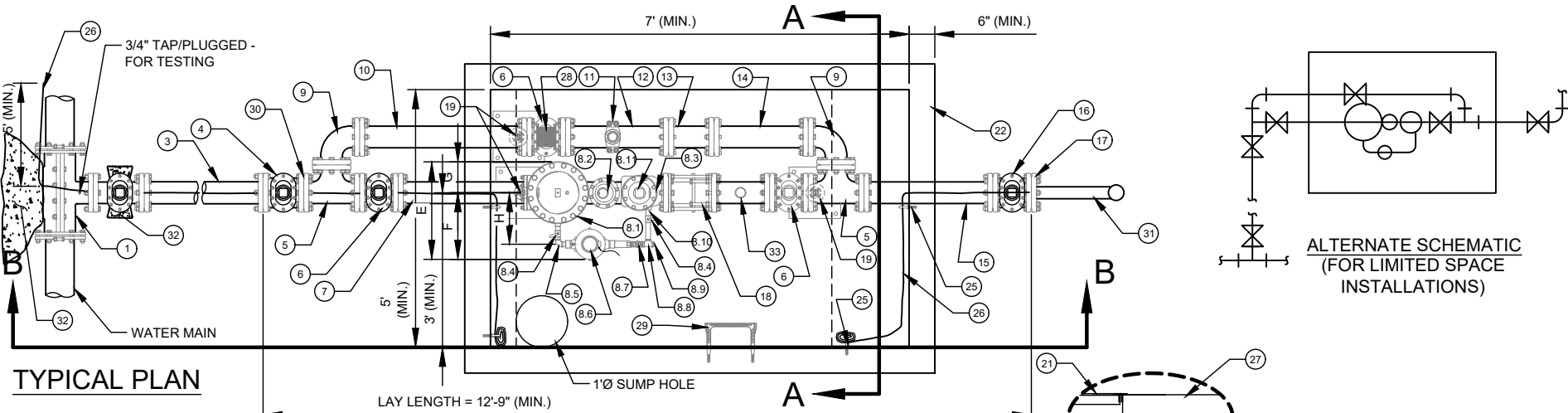
NOTES:

- A. ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE SERIES 300 STAINLESS STEEL (ASTM F 593 / F 594) - WITH ANTI-SEIZE COMPOUND.
- B. ALL PIPE SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP TO PROPERTY LINE VALVE.
- C. METER CONFIGURATION AND LENGTH / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS/P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
- F. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".

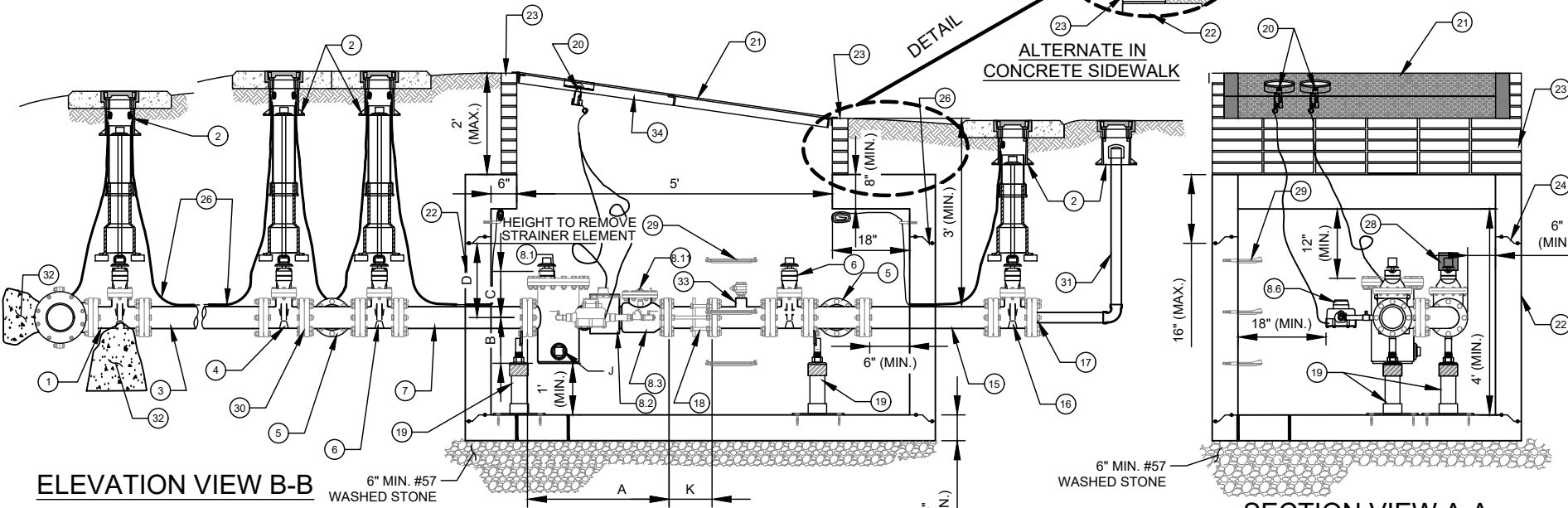
- G. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- H. REBARS SHALL BE GRADE 60 PER ASTM A615.
- I. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- J. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- K. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTORS (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

1. 4" - TAPPING SLEEVE AND 4" FL X MJ TAPPING VALVE ON EXISTING MAIN. 4" MJ OUTLET TEE, 4" FOSTER ADAPTOR, AND 4" MJ GATE VALVE ON NEW MAIN.
2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
3. 4" DUCTILE IRON PIPE - RESTRAINED.
4. 4" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 4" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
5. 4" ALL FLANGE DUCTILE IRON TEE.
6. 4" ALL FLANGE GATE VALVE.
7. 4" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 30" (MIN.) (SPECIAL CLASS 53).
8. 4" FMCT METER ASSEMBLY (FLANGE X FLANGE) - 4" X 1"
 - 8.1. STRAINER.
 - 8.2. METER WITH AMR TRANSMITTER.
 - 8.3. CHECK VALVE.
 - 8.4. 1" BRASS BALL VALVE WITH HANDLE (FNPT X FNPT).
 - 8.5. 1" BRASS 90° BEND (FNPT X FNPT).
 - 8.6. 1" METER WITH AMR TRANSMITTER.
 - 8.7. 1" BRONZE CHECK VALVE (FNPT X FNPT).
 - 8.8. 1" BRONZE TEE (FNPT X FNPT X FNPT).
 - 8.9. 1" BRONZE PLUG (MNPT).
 - 8.10. 1" RED BRASS PIPE NIPPLES (TYP. - AS REQUIRED) - (MNPT X MNPT).
 - 8.11. 2" (MIN.) SQUARE HEAD BRASS PLUG (MNPT).
9. 4" DUCTILE IRON 90° BEND FLANGE X FLANGE.
10. 4" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 39" (MIN.) (SPECIAL CLASS 53).
11. 4" X 1" SERVICE SADDLE WITH 1" BALL CORPORATION STOP - CC - TAPER THREAD.
12. 4" DUCTILE IRON PIPE - FLANGE X PE - L = 22" (MIN.) (SPECIAL CLASS 53).
13. 4" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINTS.
14. 4" DUCTILE IRON PIPE - FLANGE X PE - L = 20" (MIN.) (SPECIAL CLASS 53).
15. 4" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
16. 4" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
17. 4" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
18. 4" DISMANTLING JOINT (RESTRAINED) - ROMAC DJ400 - LL = 7" TO 9", SET TO 8", OR SMITH-BLAIR #975 - 8" TO 10", SET TO 9". - FL X FL - (L = 8" OR 9" - EXTENDED) SMITH BLAIR #975 OR ROMAC #DJ400 WITH STAINLESS STEEL TIE RODS/HARDWARE.
19. GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQUIRED = 3) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
20. AMR TRANSMITTERS.
21. 5' X 5' ACCESS DOOR - SEE STD. DETAIL.
22. PRECAST REINFORCED CONCRETE VAULT - 8' X 5' X 4' (MIN.). SEE NOTES C AND D.
23. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME - MAX. 2". JOINT REQUIRED AT FLAT TOP SECTION.
24. 3/8" DIA. GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
25. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
26. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
27. VALVE LOCK AND WARNING TAG (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
28. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
29. ISOLATION FLANGE KIT REQUIRED WITH ALL CATHODIC PROTECTED MAINS, AND ALL MAINS 30-INCH AND LARGER.
30. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80)).
31. CONCRETE THRUST BLOCKING - 3,600 PSI.
32. 4" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
33. ATTACH ENGRAVED LABEL WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE



TYPICAL PLAN



ELEVATION VIEW B-B

SECTION VIEW A-A

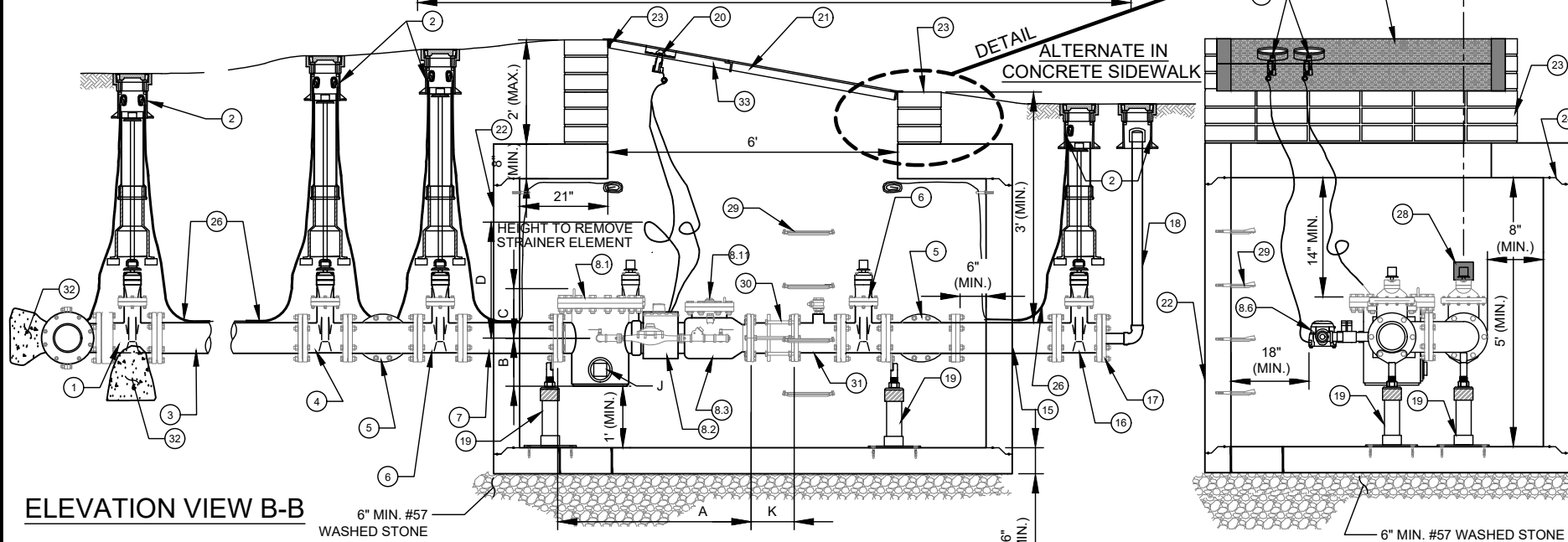
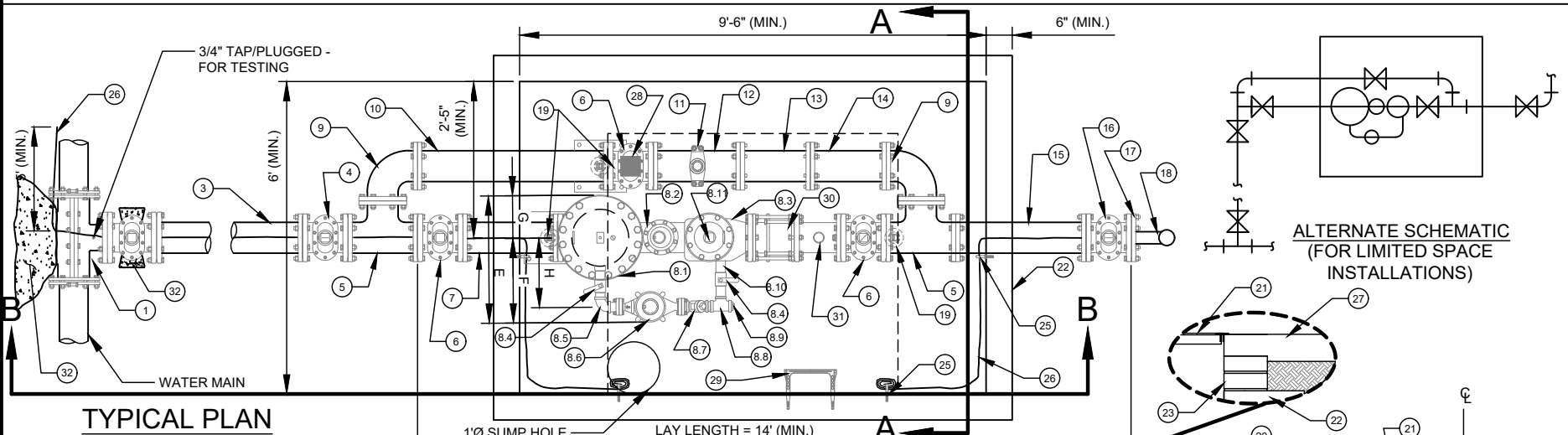
DIMENSION B - H VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER.

METER SIZE	A	B	C	D	E	F	G	H	J	K
4"	33"	10 5/8"	10 3/4"	17 1/2"	22"	15 1/4"	6 3/4"	12"	2"	SMITH-BLAIR = 9" ROMAC = 8"

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 / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 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 (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.



DIMENSION B - H VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER.

METER SIZE	A	B	C	D	E	F	G	H	J	K
6"	45"	11 1/16"	11 3/8"	21 1/4"	29"	19 1/2"	9 1/2"	16"	3"	SMITH-BLAIR = 9" ROMAC = 9"

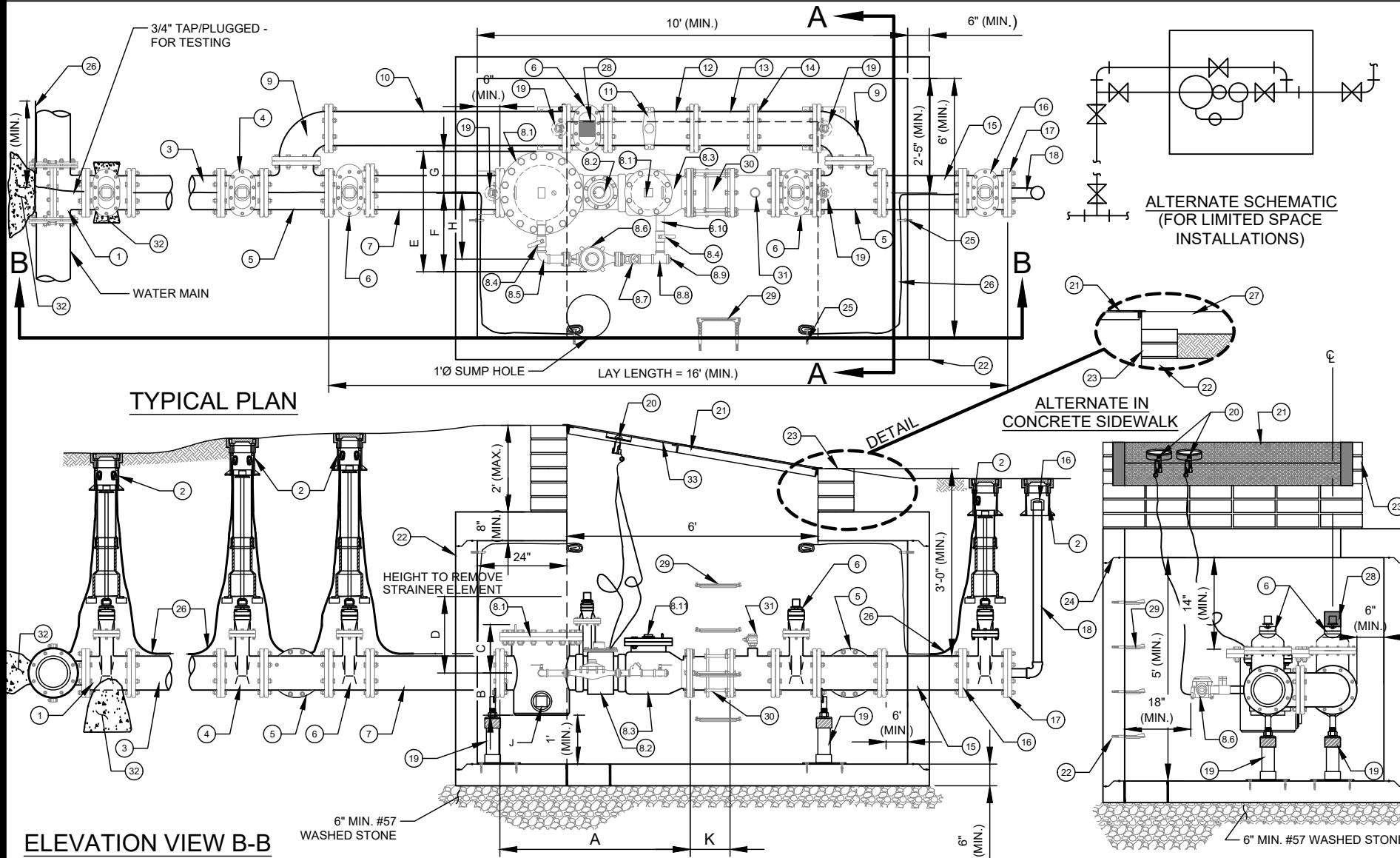
- NO. DESCRIPTION:
- 1. 6" TAPPING SLEEVE AND 6" FL X MJ TAPPING VALVE ON EXISTING MAIN. 6" MJ OUTLET TEE, 6" FOSTER ADAPTOR, (OR SWIVEL TEE) AND 6" MJ GATE VALVE ON NEW MAIN.
- 2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
- 3. 6" DUCTILE IRON PIPE - RESTRAINED.
- 4. 6" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 6" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
- 5. 6" ALL FLANGE DUCTILE IRON TEE.
- 6. 6" ALL FLANGE GATE VALVE.
- 7. 6" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 30" (MIN.) (SPECIAL CLASS 53).
- 8. 6" FMCT METER ASSEMBLY (FLANGE X FLANGE) - SHOWN AS 6" X 2", MAY ALSO BE 6" X 1 1/2" - AS DETERMINED BY MANUFACTURER.
- 8.1. STRAINER.
- 8.2. METER WITH AMR TRANSMITTER.
- 8.3. CHECK VALVE.
- 8.4. 2" BRASS BALL VALVE WITH HANDLE (FNPT X FNPT).
- 8.5. 2" BRASS 90° BEND (FNPT X FNPT).
- 8.6. 2" METER (2 BOLT METER FL - EACH END) WITH TRANSMITTER.
- 8.7. 2" BRONZE CHECK VALVE (FNPT X FNPT).
- 8.8. 2" BRONZE TEE (FNPT X FNPT X FNPT).
- 8.9. 2" BRONZE PLUG (MNPT).
- 8.10. 2" RED BRASS PIPE NIPPLES (TYP. - AS REQUIRED) - (MNPT X MNPT).
- 8.11. 2" (MIN.) SQUARE HEAD BRASS PLUG (MNPT).
- 9. 6" DUCTILE IRON 90° BEND FLANGE X FLANGE.
- 10. 6" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 64.5" (MIN.) (SPECIAL CLASS 53).
- 11. 6" X 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP - CC - TAPER THREAD.
- 12. 6" DUCTILE IRON PIPE - FLANGE X PE - L = 24" (MIN.) (SPECIAL CLASS 53).
- 13. 6" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT.
- 14. 6" DUCTILE IRON PIPE - FLANGE X PE - L = 18" (MIN.) (SPECIAL CLASS 53).
- 15. 6" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
- 16. 6" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
- 17. 6" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
- 18. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80), RED BRASS (SCH 40), HDPE (DR9) OR DIP - END WITH THREADED COUPLING).
- 19. GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQUIRED = 3) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
- 20. AMR TRANSMITTERS.
- 21. 6' X 5' ACCESS DOOR - SEE STD. DETAIL.
- 22. PRECAST REINFORCED CONCRETE VAULT - 9.5' X 6' X 5' (MIN.). SEE NOTES C AND D.
- 23. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME - MAX. 2". JOINT REQUIRED AT FLAT TOP SECTION.
- 24. 3/8" DIA. GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
- 25. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
- 26. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
- 27. VALVE LOCK AND WARNING TAG (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
- 28. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
- 29. 6" DISMANTLING JOINT (RESTRAINED) - ROMAC DJ400 - LL = 7.38" TO 9.38", SET TO 9" OR SMITH-BLAIR #975 - LL = 8" TO 10", SET TO 9".
- 30. 6" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
- 31. CONCRETE THRUST BLOCKING - 3,600 PSI.
- 32. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

CHARLOTTE WATER
 A CITY OF CHARLOTTE DEPARTMENT
 STANDARD DETAILS
 WATER METERS
 6-INCH FIRE METER COMPOUND TYPE (FMCT) WATER METER AND PRECAST CONCRETE VAULT
 NO SCALE
 VERSION 1.0
 DATE 04/2024
 DETAIL 15.4.9

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 / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 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 (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.



- | NO. | DESCRIPTION: |
|-------|--|
| 1. | 8" OUTLET TAPPING SLEEVE AND 8" FL X MJ TAPPING VALVE ON EXISTING MAIN. 8" MJ OUTLET TEE, 8" FOSTER ADAPTOR AND 8" MJ GATE VALVE ON NEW MAIN. |
| 2. | STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES. |
| 3. | 8" DUCTILE IRON PIPE - RESTRAINED. |
| 4. | 8" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 8" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN). |
| 5. | 8" ALL FLANGE DUCTILE IRON TEE. |
| 6. | 8" ALL FLANGE GATE VALVE. |
| 7. | 8" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 36" (MIN.) (SPECIAL CLASS 53). |
| 8. | 8" FMCT METER ASSEMBLY (FLANGE X FLANGE) |
| 8.1. | STRAINER. |
| 8.2. | METER WITH AMR TRANSMITTER. |
| 8.3. | CHECK VALVE. |
| 8.4. | 2" BRASS BALL VALVE WITH HANDLE (FNPT X FNPT). |
| 8.5. | 2" BRASS 90° BEND (FNPT X FNPT). |
| 8.6. | 2" METER (2 BOLT METER FL - EACH END) WITH TRANSMITTER. |
| 8.7. | 2" BRONZE CHECK VALVE (FNPT X FNPT). |
| 8.8. | 2" BRONZE TEE (FNPT X FNPT X FNPT). |
| 8.9. | 2" BRONZE PLUG (MNPT). |
| 8.10. | 2" RED BRASS PIPE NIPPLES (TYP. - AS REQUIRED) - (MNPT X MNPT). |
| 8.11. | 2" (MIN.) SQUARE HEAD BRASS PLUG (MNPT). |
| 9. | 8" DUCTILE IRON 90° BEND FLANGE X FLANGE. |
| 10. | 8" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 87.5" (MIN.) (SPECIAL CLASS 53). |
| 11. | 8" X 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP - CC - TAPER THREAD. |
| 12. | 8" DUCTILE IRON PIPE - FLANGE X PE - L = 20" (MIN.) (SPECIAL CLASS 53). |
| 13. | 8" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT. |
| 14. | 8" DUCTILE IRON PIPE - FLANGE X PE - L = 14" (MIN.) (SPECIAL CLASS 53). |
| 15. | 8" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53). |
| 16. | 8" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE. |
| 17. | 8" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT). |
| 18. | 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80) - END WITH THREADED COUPLING). |
| 19. | GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQUIRED = 4) (WITH STAINLESS STEEL ADHESIVE ANCHORS). |
| 20. | AMR TRANSMITTERS. |
| 21. | 5' X 6' ACCESS DOOR - SEE STD. DETAIL. |
| 22. | PRECAST REINFORCED CONCRETE VAULT - 10' X 6' X 5' (MIN.). SEE NOTES C AND D. |
| 23. | MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME - MAX. 2". JOINT REQUIRED AT FLAT TOP SECTION. |
| 24. | 3/8" DIAMETER GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL. |
| 25. | AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL). |
| 26. | CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK. |
| 27. | VALVE LOCK AND WARNING TAG (FURNISHED BY CLTW) - LOCK VALVE CLOSED. |
| 28. | PLASTIC STEP - 12" O.C. VERTICAL SPACING. |
| 29. | 8" DISMANTLING JOINT (RESTRAINED) - ROMAC DJ400 - LL = 7.38" TO 9.38", SET TO 9" OR SMITH-BLAIR #975 - LL = 8" TO 10", SET TO 9". |
| 30. | 8" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT. |
| 31. | CONCRETE THRUST BLOCKING - 3,600 PSI. |
| 32. | ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE. |

DIMENSION B - H VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER.

METER SIZE	A	B	C	D	E	F	G	H	J	K
8"	53"	11 13/16"	13 29/64"	25 7/8"	34 1/4"	21 3/4"	12 1/2"	17"	3"	SMITH-BLAIR = 9" ROMAC = 9"

NO SCALE

VERSION	1.0
DATE	04/2024
DETAIL	15.4.10

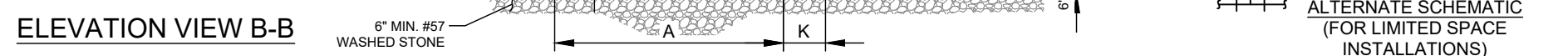
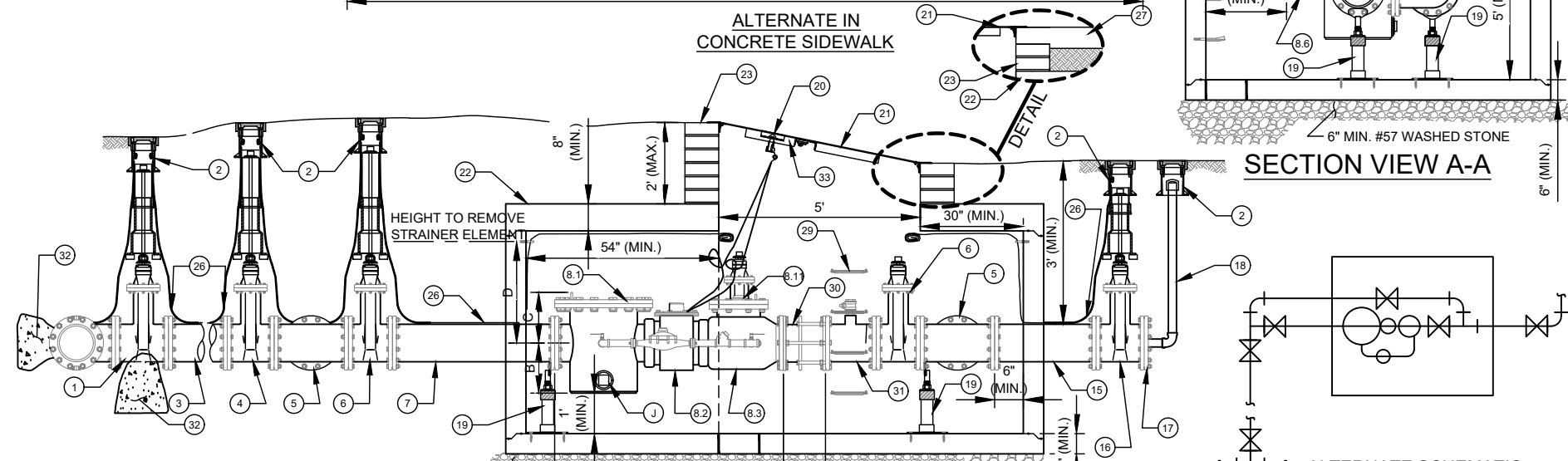
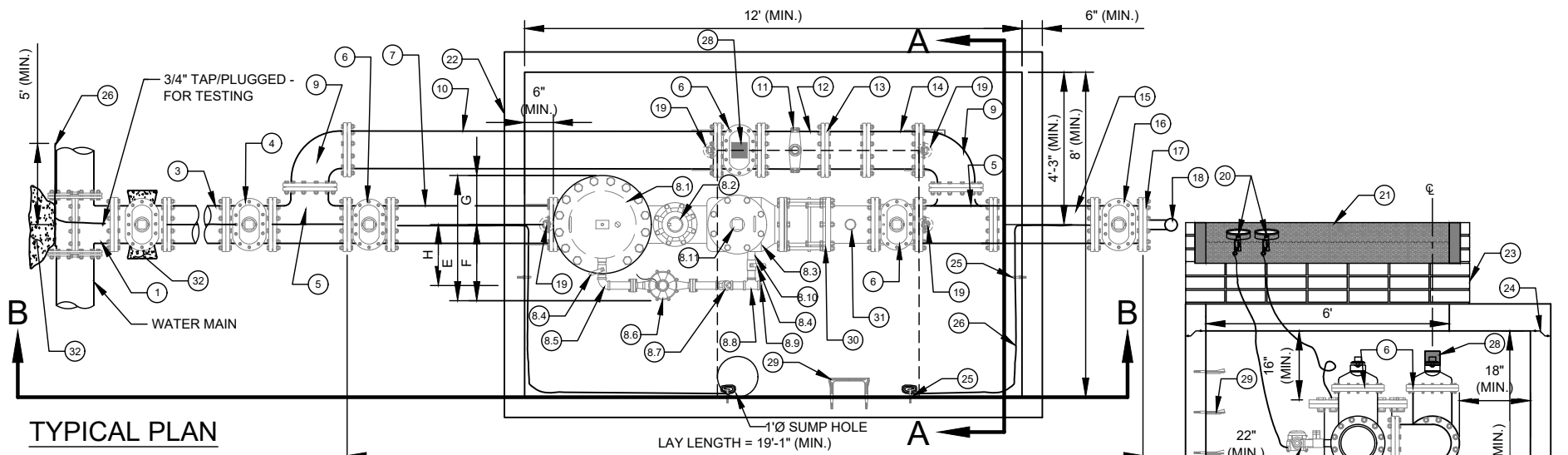
NOTES:

- 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 / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 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 (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

1. 10" OUTLET TAPPING SLEEVE AND 10" FL X MJ TAPPING VALVE ON EXISTING MAIN. 10" MJ OUTLET TEE, 10" FOSTER ADAPTOR AND 10" MJ GATE VALVE ON NEW MAIN AND FOSTER ADAPTER.
2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
3. 10" DUCTILE IRON PIPE - RESTRAINED.
4. 10" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 10" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
5. 10" ALL FLANGE DUCTILE IRON TEE.
6. 10" ALL FLANGE GATE VALVE.
7. 10" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 48" (MIN.) (SPECIAL CLASS 53).
8. 10" FMCT METER ASSEMBLY (FLANGE X FLANGE)
 - 8.1. STRAINER.
 - 8.2. METER WITH AMR TRANSMITTER.
 - 8.3. CHECK VALVE.
 - 8.4. 2" BRASS BALL VALVE WITH HANDLE (FNPT X FNPT).
 - 8.5. 2" BRASS 90° BEND (FNPT X FNPT).
 - 8.6. 2" METER (2 BOLT METER FL - EACH END) WITH AMR TRANSMITTER.
 - 8.7. 2" BRONZE CHECK VALVE (FNPT X FNPT).
 - 8.8. 2" BRONZE TEE (FNPT X FNPT X FNPT).
 - 8.9. 2" SQUARE HEAD BRONZE PLUG (MNPT).
 - 8.10. 2" RED BRASS PIPE NIPPLES (TYP. - AS REQUIRED) - (MNPT X MNPT).
 - 8.11. 2" (MIN.) SQUARE HEAD BRASS PLUG (MNPT).
9. 10" DUCTILE IRON 90° BEND FLANGE X FLANGE.
10. 10" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 117.5" (MIN.) (SPECIAL CLASS 53).
11. 10" X 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP - CC - TAPER THREAD.
12. 10" DUCTILE IRON PIPE - FLANGE X PE - L = 20" (MIN.) (SPECIAL CLASS 53).
13. 10" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT.
14. 10" DUCTILE IRON PIPE - FLANGE X PE - L = 14" (MIN.) (SPECIAL CLASS 53).
15. 10" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
16. 10" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
17. 10" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
18. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80) - END WITH THREADED COUPLING).
19. GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQUIRED = 4) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
20. AMR TRANSMITTERS.
21. 5' X 6' ACCESS DOOR - SEE STD. DETAIL.
22. PRECAST REINFORCED CONCRETE VAULT - 12' X 8' X 5' (MIN.). SEE NOTES C AND D.
23. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME - MAX. 2".
24. JOINT REQUIRED AT FLAT TOP SECTION.
25. 3/8" DIA. GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
26. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
27. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
28. VALVE LOCK AND WARNING TAG (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
29. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
30. 10" DISMANTLING JOINT (RESTRAINED) - ROMAC DJ400 - LL = 9.5" TO 11.5", SET TO 10.5" OR SMITH-BLAIR #975 - LL = 9" TO 11", SET TO 10".
31. 10" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
32. CONCRETE THRUST BLOCKING - 3,600 PSI.
33. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.



DIMENSION B - H VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER.

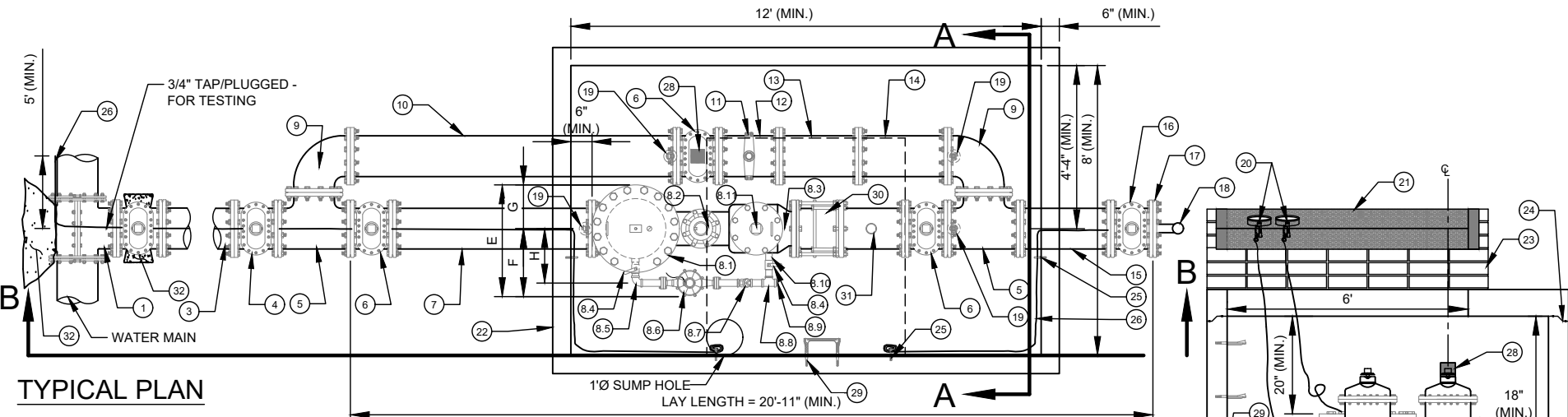
METER SIZE	A	B	C	D	E	F	G	H	J	K
10"	68"	14 13/16"	15"	30 1/16"	36 1/4"	22 1/2"	13 3/4"	18"	3"	SMITH-BLAIR = 10" ROMAC = 10.5"

NOTES:

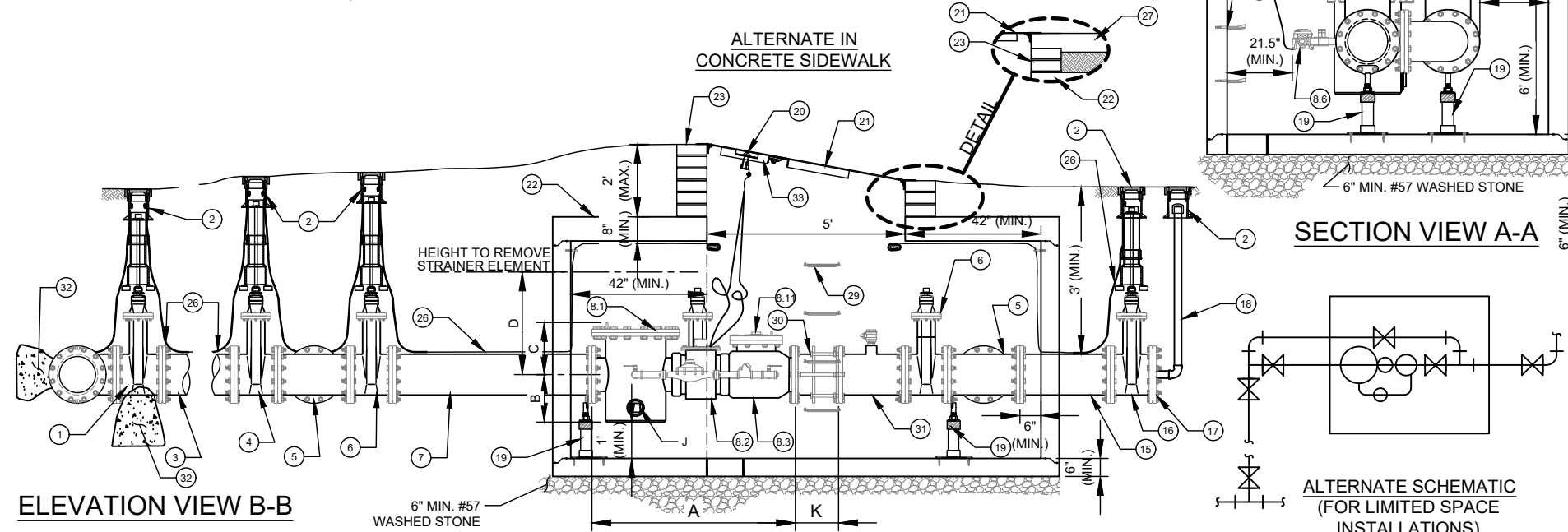
- A. ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE STAINLESS STEEL - TYPE 304 WITH ANTI-SEIZE COMPOUND.
- B. ALL PIPE SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP TO PROPERTY LINE VALVE.
- C. METER CONFIGURATION AND LENGTH / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 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 (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

- NO. DESCRIPTION:**
1. 12" OUTLET TAPPING SLEEVE AND 12" FL X MJ TAPPING VALVE ON EXISTING MAIN. 12" MJ OUTLET TEE, 10" FOSTER ADAPTOR AND 10" MJ GATE VALVE ON NEW MAIN.
 2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
 3. 12" DUCTILE IRON PIPE - RESTRAINED.
 4. 12" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 12" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
 5. 12" ALL FLANGE DUCTILE IRON TEE.
 6. 12" ALL FLANGE GATE VALVE.
 7. 12" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 66" (MIN.).
 8. 12" FMCT METER ASSEMBLY (FLANGE X FLANGE)
 - 8.1. STRAINER.
 - 8.2. METER WITH AMR TRANSMITTER.
 - 8.3. CHECK VALVE.
 - 8.4. 2" BRASS BALL VALVE WITH HANDLE (FNPT X FNPT).
 - 8.5. 2" BRASS 90° BEND (FNPT X FNPT).
 - 8.6. 2" METER (2 BOLT METER FL - EACH END) WITH AMR TRANSMITTER.
 - 8.7. 2" BRONZE CHECK VALVE (FNPT X FNPT).
 - 8.8. 2" BRONZE TEE (FNPT X FNPT X FNPT).
 - 8.9. 2" SQUARE HEAD BRONZE PLUG (MNPT).
 - 8.10. 2" RED BRASS PIPE NIPPLES (TYP. - AS REQUIRED) - (MNPT X MNPT).
 - 8.11. 2" (MIN.) SQUARE HEAD BRASS PLUG (MNPT).
 9. 12" DUCTILE IRON 90° BEND FLANGE X FLANGE.
 10. 12" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 132.5" (MIN.) (SPECIAL CLASS 53).
 11. 12" X 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP - CC - TAPER THREAD.
 12. 12" DUCTILE IRON PIPE - FLANGE X PE - L = 24" (MIN.) (SPECIAL CLASS 53).
 13. 12" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT.
 14. 12" DUCTILE IRON PIPE - FLANGE X PE - L = 14" (MIN.) (SPECIAL CLASS 53).
 15. 12" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
 16. 12" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
 17. 12" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
 18. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80) - END WITH THREADED COUPLING).
 19. GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORT (NUMBER REQUIRED = 4) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
 20. AMR TRANSMITTERS.
 21. 5' X 6' ACCESS DOOR - SEE STD. DETAIL.
 22. PRECAST REINFORCED CONCRETE VAULT - 12' X 8' X 6' (MIN.). SEE NOTES C AND D.
 23. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME - MAX. 2".
 24. JOINT REQUIRED AT FLAT TOP SECTION.
 25. 3/8" DIAMETER GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
 26. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
 27. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
 28. VALVE LOCK AND WARNING TAG (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
 29. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
 30. 12" DISMANTLING JOINT (RESTRAINED) - ROMAC DJ400 - LL = 9.5" TO 11.5", SET TO 10.5" OR SMITH-BLAIR #975 - LL = 9" TO 11", SET TO 10".
 31. 12" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
 32. CONCRETE THRUST BLOCKING - 3,600 PSI.
 33. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.



TYPICAL PLAN



ELEVATION VIEW B-B

DIMENSION B - H VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER.

METER SIZE	A	B	C	D	E	F	G	H	J	K
12"	68"	15 3/4"	17 1/4"	34 1/16"	36 1/4"	22 1/2"	13 3/4"	18"	3"	SMITH-BLAIR = 10" ROMAC = 10.5"

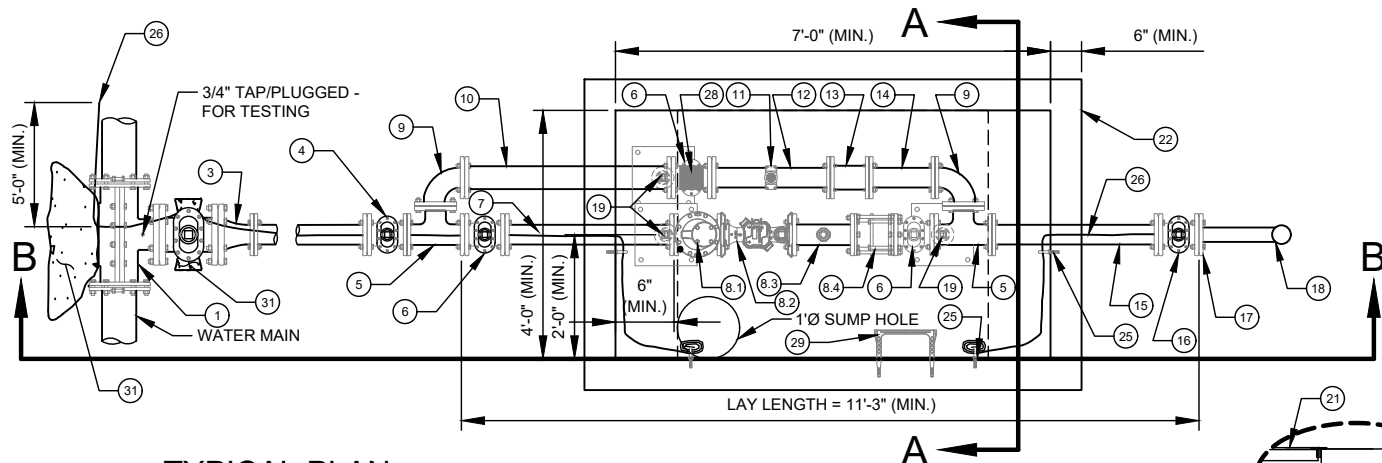
NOTES:

- 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 / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
- F. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".

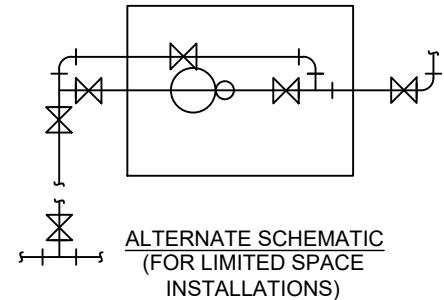
- G. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- H. REBARS SHALL BE GRADE 60 PER ASTM A615.
- I. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- J. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- K. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTORS (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

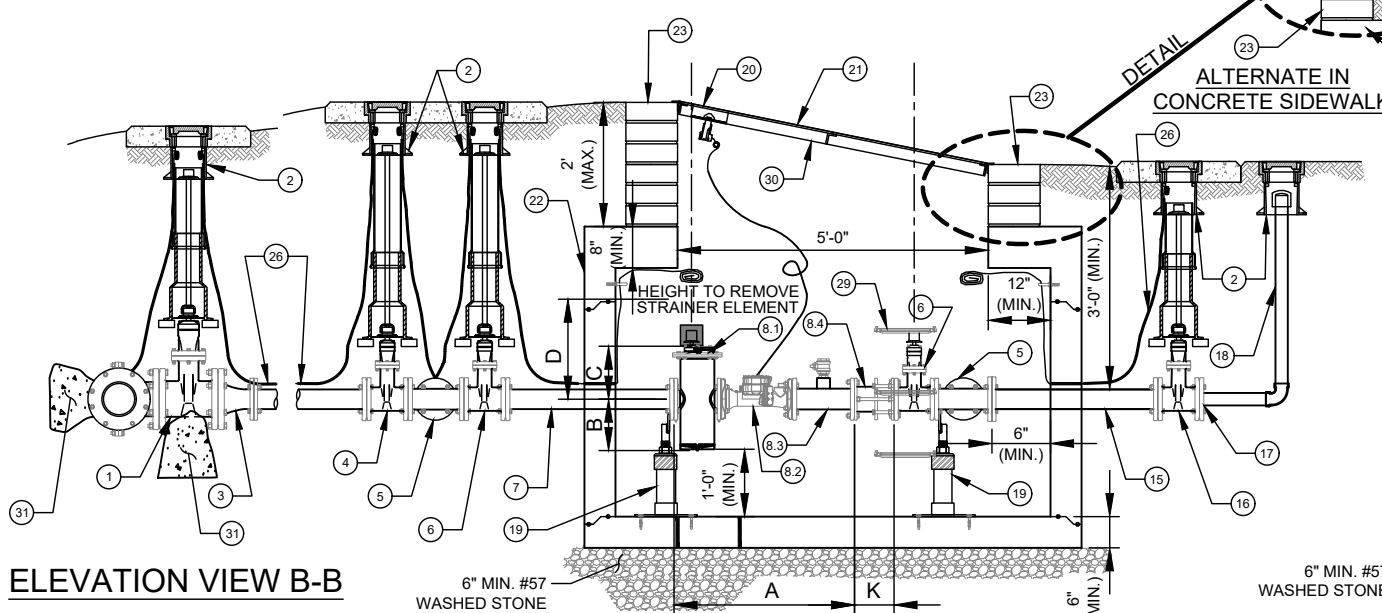
1. 4" TAPPING SLEEVE AND 4" FL X MJ TAPPING VALVE ON EXISTING MAIN. 3" MJ OUTLET TEE, 3" FOSTER ADAPTOR, AND 3" MJ GATE VALVE ON NEW MAIN. WHEN THE NEW MAIN IS LARGER THAN 12", USE A 6" SWIVEL TEE, 6" MJ GATE VALVE, 6" FOSTER ADAPTOR, AND 6" X 3" MJ REDUCER.
2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
3. 4" FOSTER ADAPTOR, 4" X 3" REDUCER (RMJ) REQUIRED ON EXISTING MAIN INSTALLATIONS.
4. 3" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 3" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
5. 3" ALL FLANGE DUCTILE IRON TEE.
6. 3" ALL FLANGE GATE VALVE.
7. 3" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 30" (MIN.) (SPECIAL CLASS 53).
8. 3" ULTRASONIC WATER METER ASSEMBLY (FLANGE X FLANGE).
- 8.1. BERMAD OR BADGER FIRE RATED BASKET STRAINER (FL X FL) - LL = 9.8" (BERMAD MODEL FP-60F-D) OR LL = 14.25" (BADGER MODEL 7000 AFSS FIRE SERVICE STRAINER).
- 8.2. 3" MASTER METER OCTAVE OR BADGER E-SERIES OR NEPTUNE MACH10 ULTRASONIC WATER METER WITH ITRON W100 TRANSMITTER - LL = 12".
- 8.3. 3" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
- 8.4. ROMAC D J400 DISMANTLING JOINT - LL = 7" TO 9", SET TO 8" OR SMITH-BLAIR MODEL 975 DISMANTLING JOINT (RESTRAINED) - LL = 8" TO 10", SET TO 9".
9. 3" DUCTILE IRON 90° BEND FLANGE X FLANGE.
10. 3" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL (SPECIAL CLASS 53) - L = 43.5" (MIN.) (WHEN USING BERMAD STRAINER) OR L = 39" (MIN.) (WHEN USING BADGER STRAINER).
11. 3" X 1.5" SERVICE SADDLE WITH 1.5" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - CC - TAPER THREAD X FNPT.
12. 3" DUCTILE IRON PIPE - FLANGE X PE - L = 24" (MIN.) (SPECIAL CLASS 53).
13. 3" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINTS.
14. 3" DUCTILE IRON PIPE - FLANGE X PE - L = 12" (MIN.) (SPECIAL CLASS 53).
15. 3" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
16. 3" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
17. 3" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
18. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80) OR RED BRASS (SCH 40) - END WITH THREADED COUPLING).
19. GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQUIRED = 3) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
20. AMR TRANSMITTER.
21. 4' X 5' ACCESS DOOR - SEE STD. DETAIL.
22. PRECAST REINFORCED CONCRETE VAULT - 7' X 4' X 4' (MIN.) (L X W X D), SEE NOTES G AND D.
23. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES (OR PRECAST RISER) UNDER ACCESS DOOR FRAME - MAX. 2" JOINT REQUIRED AT FLAT TOP SECTION.
24. 3/8" DIAMETER GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
25. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
26. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
27. VALVE LOCK (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
28. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
29. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.
30. CONCRETE THRUST BLOCKING - 3,600 PSI.



TYPICAL PLAN



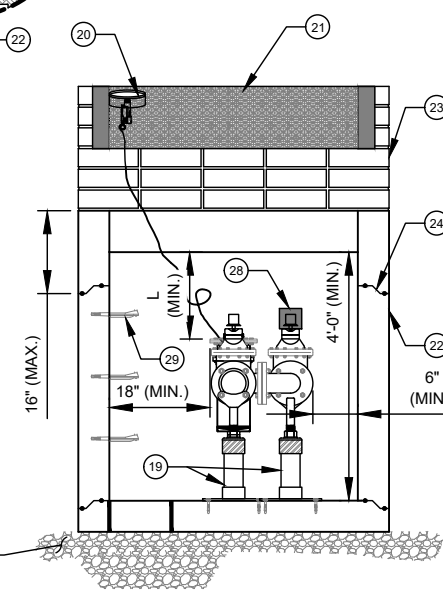
ALTERNATE SCHEMATIC (FOR LIMITED SPACE INSTALLATIONS)



ELEVATION VIEW B-B



DETAIL ALTERNATE IN CONCRETE SIDEWALK



SECTION VIEW A-A

METER SIZE	A	B	C	D	K	L
3"	BERMAD = 33.8" BADGER = 38.25"	BERMAD = 6.3" BADGER = 10"	BERMAD = 5.9" BADGER = 10.625"	BERMAD = 23.1" BADGER = 31.25"	SMITH-BLAIR = 9" ROMAC = 8"	BERMAD = 20" BADGER = 14"

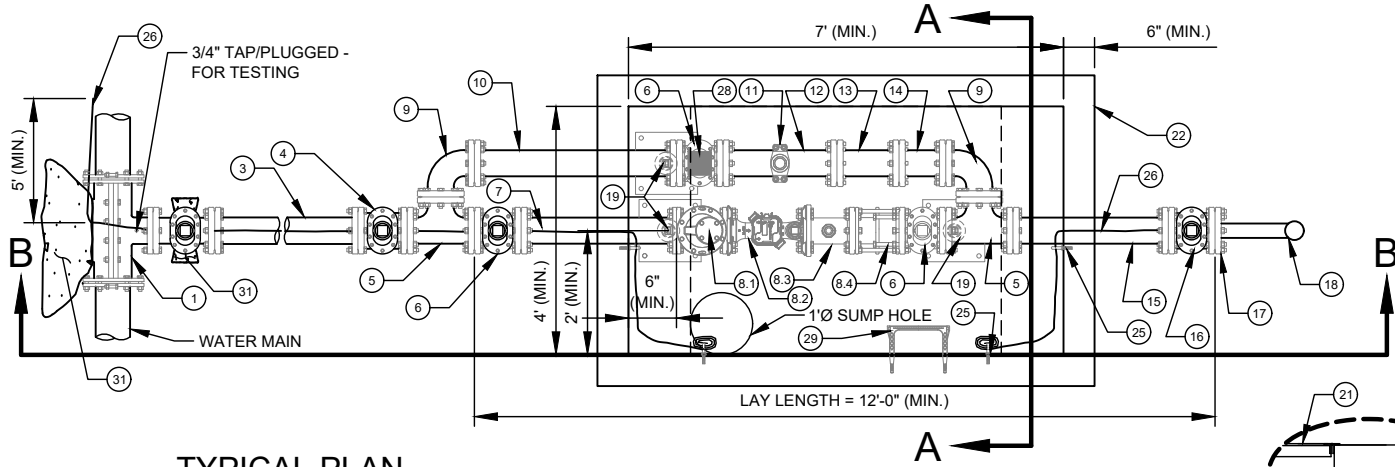
NOTES:

- 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 / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
- F. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".

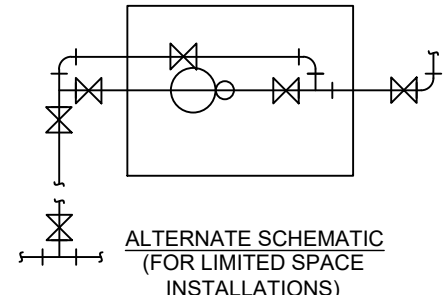
- G. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- H. REBARS SHALL BE GRADE 60 PER ASTM A615.
- I. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- J. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- K. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTORS (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

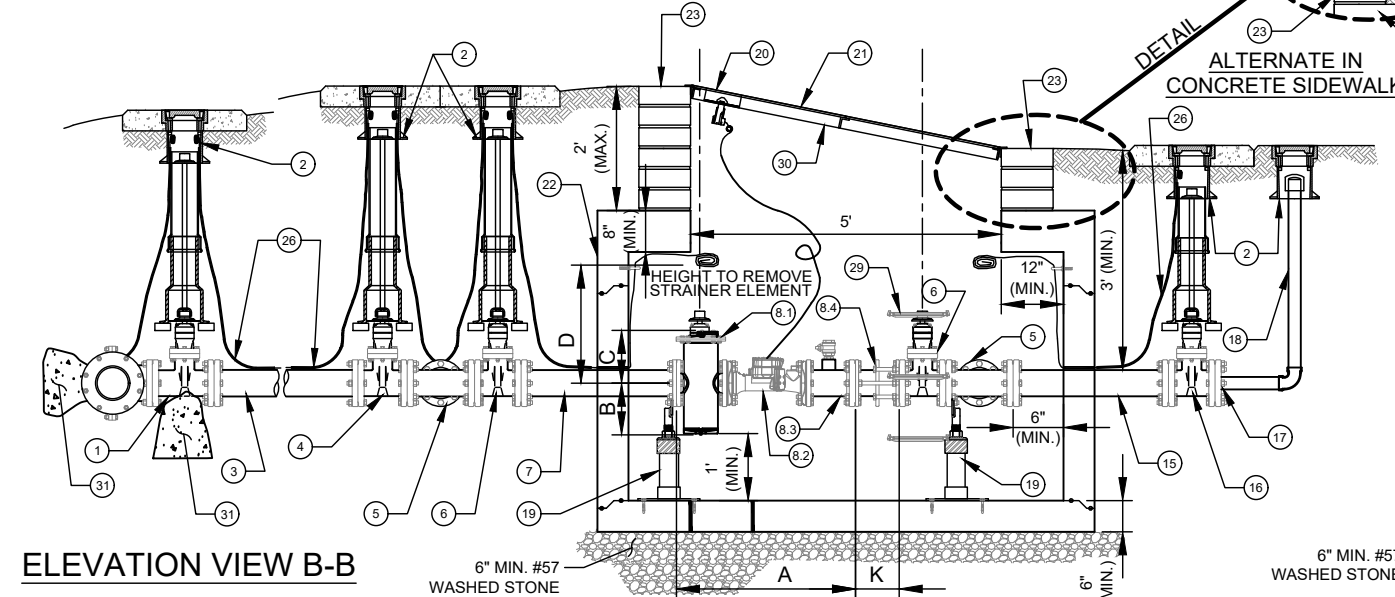
1. 4" TAPPING SLEEVE AND 4" FL X MJ TAPPING VALVE ON EXISTING MAIN. 4" MJ OUTLET TEE, 4" FOSTER ADAPTOR, AND 4" MJ GATE VALVE ON NEW MAIN. WHEN THE NEW MAIN IS LARGER THAN 12", USE A 6" SWIVEL TEE, 6" MJ GATE VALVE, 6" FOSTER ADAPTOR, AND 6" X 4" MJ REDUCER.
2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
3. 4" DUCTILE IRON PIPE - RESTRAINED.
4. 4" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 4" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
5. 4" ALL FLANGE DUCTILE IRON TEE.
6. 4" ALL FLANGE GATE VALVE.
7. 4" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 30" (MIN.) (SPECIAL CLASS 53).
8. 4" ULTRASONIC WATER METER ASSEMBLY (FLANGE X FLANGE).
- 8.1. BERMAD OR BADGER FIRE RATED BASKET STRAINER (FL X FL) - LL = 11.5" (BERMAD MODEL FP-60F-D) OR LL = 11.375" (BADGER MODEL 7000 AFSS FIRE SERVICE STRAINER).
- 8.2. 4-INCH MASTER METER OCTAVE OR BADGER E-SERIES OR NEPTUNE MACH10 ULTRASONIC WATER METER WITH ITRON W100 TRANSMITTER - LL = 14".
- 8.3. 4" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
- 8.4. ROMAC DJ J400 DISMANTLING JOINT - LL = 7" TO 9", SET TO 8" OR SMITH-BLAIR MODEL 975 DISMANTLING JOINT (RESTRAINED) - LL = 8" TO 10", SET TO 9".
9. 4" DUCTILE IRON 90° BEND FLANGE X FLANGE.
10. 4" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 48" (MIN.) (SPECIAL CLASS 53).
11. 4" X 1.5" SERVICE SADDLE WITH 1.5" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - CC - TAPER THREAD X FNPT.
12. 4" DUCTILE IRON PIPE - FLANGE X PE - L = 24" (MIN.) (SPECIAL CLASS 53).
13. 4" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINTS.
14. 4" DUCTILE IRON PIPE - FLANGE X PE - L = 12" (MIN.) (SPECIAL CLASS 53).
15. 4" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
16. 4" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
17. 4" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
18. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80) OR RED BRASS (SCH 40) - END WITH THREADED COUPLING).
19. GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQUIRED = 3) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
20. AMR TRANSMITTER.
21. 4' X 5' ACCESS DOOR - SEE STD. DETAIL.
22. PRECAST REINFORCED CONCRETE VAULT - 7' X 4' X 4' (MIN.) (L X W X D). SEE NOTES C AND D.
23. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES (OR PRECAST RISER) UNDER ACCESS DOOR FRAME - MAX. 2' JOINT REQUIRED AT FLAT TOP SECTION.
24. JOINT REINFORCED AT FLAT TOP SECTION.
25. 3/8" DIA. GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
26. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
27. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
28. VALVE LOCK (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
29. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
30. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.
31. CONCRETE THRUST BLOCKING - 3,600 PSI.



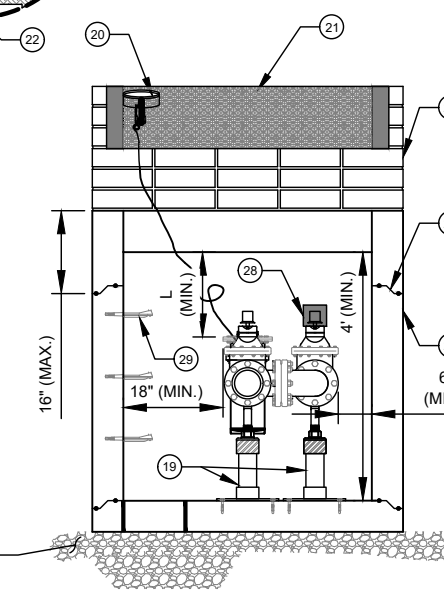
TYPICAL PLAN



ALTERNATE SCHEMATIC (FOR LIMITED SPACE INSTALLATIONS)



ELEVATION VIEW B-B



SECTION VIEW A-A

METER SIZE	A	B	C	D	K	L
4"	BERMAD = 37.5" BADGER = 37.375"	BERMAD = 8.4" BADGER = 10"	BERMAD = 7.7" BADGER = 10.625"	BERMAD = 28.8" BADGER = 31.25"	SMITH-BLAIR = 9" ROMAC = 8"	BERMAD = 18" BADGER = 14"

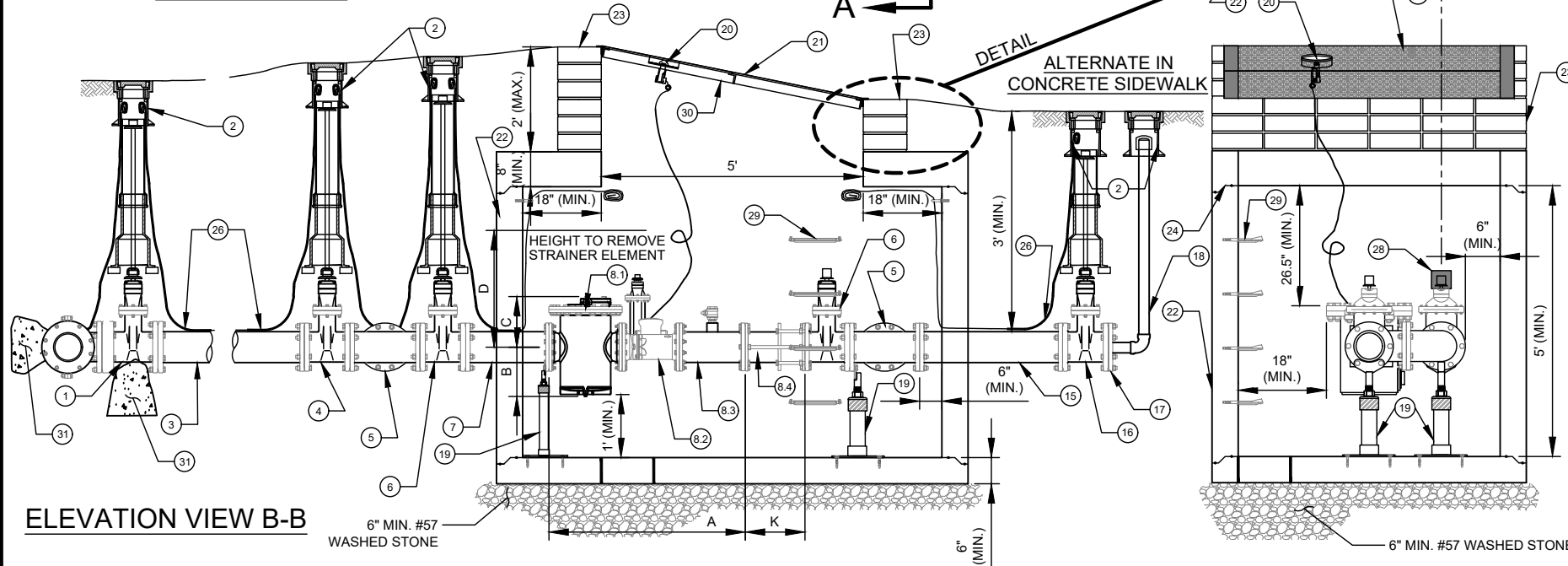
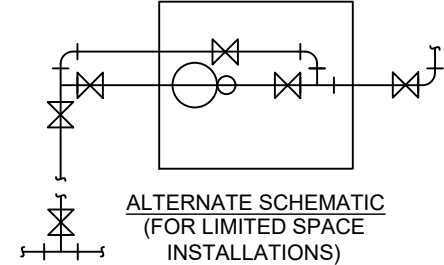
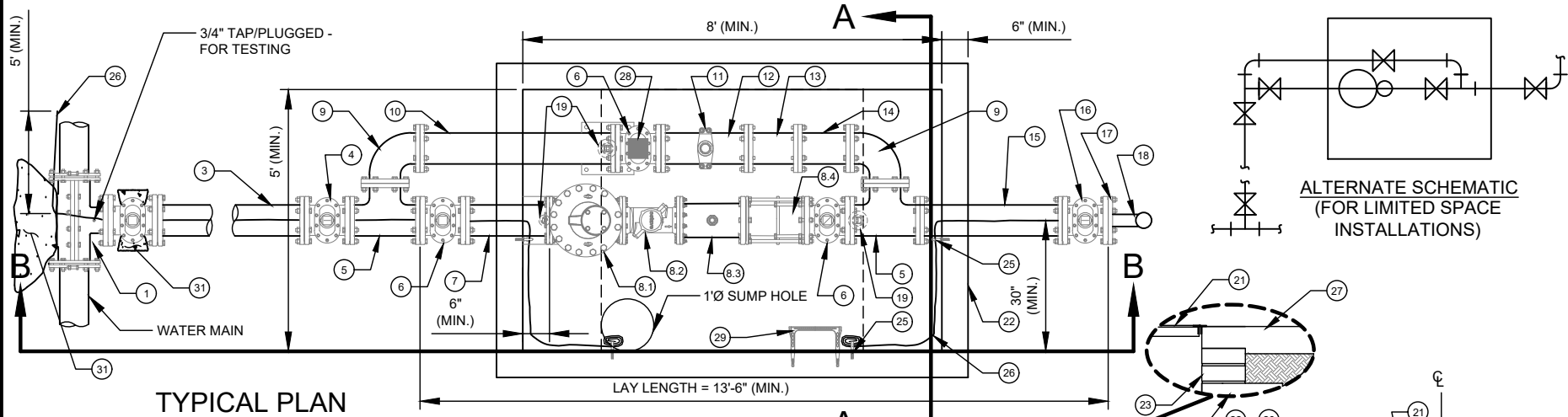
NOTES:

- 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 / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 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. REBAR 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 (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PAR ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

1. 6" TAPPING SLEEVE AND 6" FL X MJ TAPPING VALVE ON EXISTING MAIN. 6" MECHANICAL JOINT OUTLET TEE, 6" FOSTER ADAPTOR, (OR SWIVEL TEE) AND 6" MJ GATE VALVE ON NEW MAIN.
2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
3. 6" DUCTILE IRON PIPE - RESTRAINED.
4. 6" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 6" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
5. 6" ALL FLANGE DUCTILE IRON TEE.
6. 6" ALL FLANGE GATE VALVE.
7. 6" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 30" (MIN.) (SPECIAL CLASS 53).
8. 6" ULTRASONIC WATER METER ASSEMBLY (FLANGE X FLANGE).
- 8.1. BERMAID MODEL FP-60F-D FIRE RATED BASKET STRAINER (FL X FL), LL = 14.9"
- 8.2. 6-INCH MASTER METER OCTAVE OR BADGER E-SERIES OR NEPTUNE MACH 10 WITH ITRON W100 TRANSMITTER - LL = 18".
- 8.3. 6" EPOXY COATED/LINED STEEL FLANGE X FLANGE SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
- 8.4. ROMAC D J400 DISMANTLING JOINT - LL = 7.38" TO 9.38", SET TO 9" OR SMITH-BLAIR MODEL 975 DISMANTLING JOINT (RESTRAINED) - LL = 8" TO 10", SET TO 9".
9. 6" DUCTILE IRON 90° BEND FLANGE X FLANGE.
10. 6" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 58.5" (MIN.) (SPECIAL CLASS 53).
11. 6" X 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - CC - TAPER THREAD X FNPT.
12. 6" DUCTILE IRON PIPE - FLANGE X PE - L = 24" (MIN.) (SPECIAL CLASS 53).
13. 6" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT.
14. 6" DUCTILE IRON PIPE - FLANGE X PE - L = 12" (MIN.) (SPECIAL CLASS 53).
15. 6" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
16. 6" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
17. 6" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
18. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80) OR RED BRASS (SCH 40) - END WITH THREADED COUPLING). GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQUIRED = 3) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
19. AMR TRANSMITTER.
20. 5' X 5' ACCESS DOOR - SEE STD. DETAIL.
21. PRECAST REINFORCED CONCRETE VAULT - 8' X 5' X 5' (MIN.) (L X W X D). SEE NOTES C AND D.
22. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES (OR PRECAST RISER) UNDER ACCESS DOOR FRAME - MAX. 2" JOINT REQUIRED AT FLAT TOP SECTION.
23. 3/8" DIAMETER GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
24. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
25. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
26. VALVE LOCK (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
27. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
28. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.
29. CONCRETE THRUST BLOCKING - 3,600 PSI.



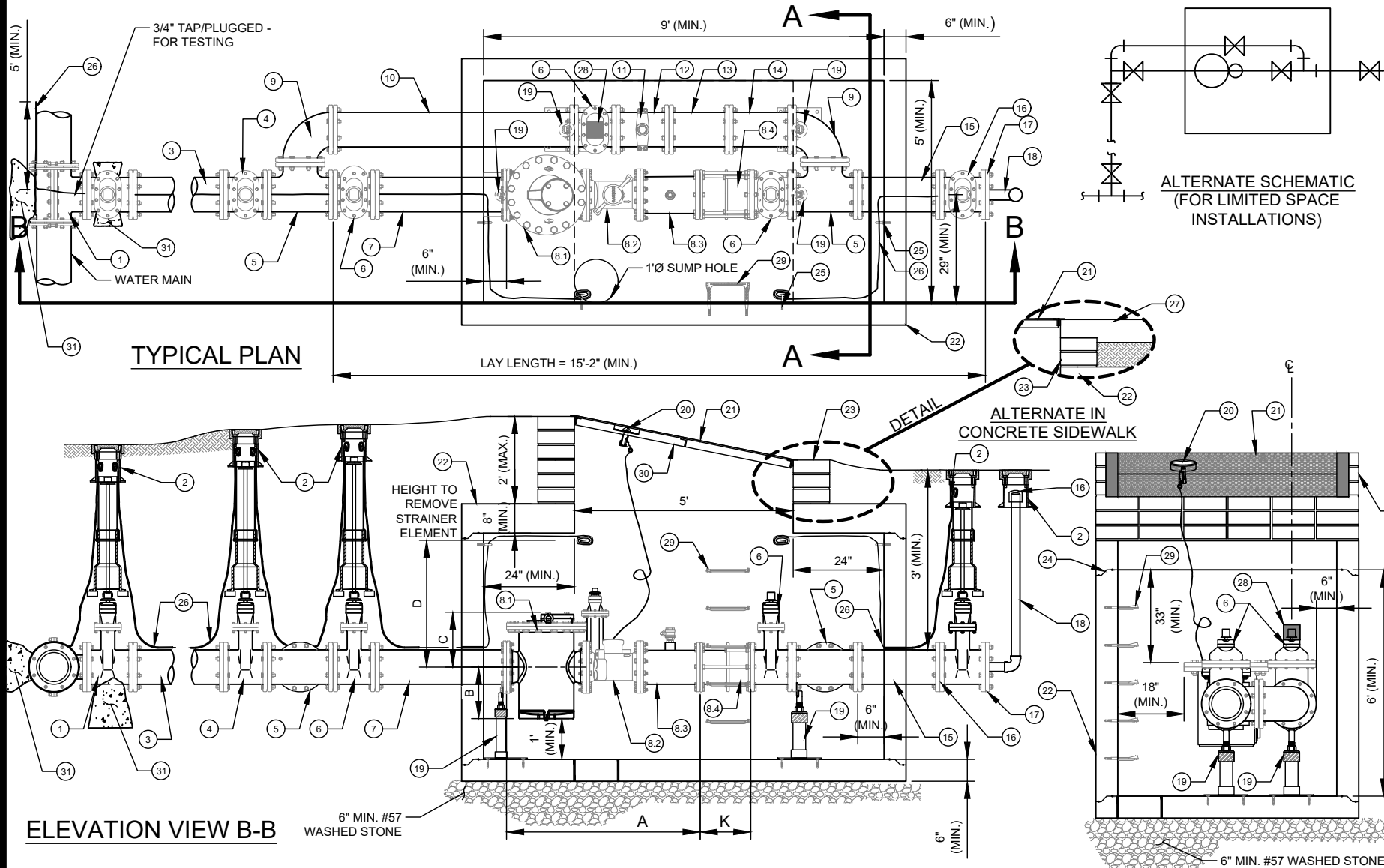
METER SIZE	A	B	C	D	K
6"	44.9"	10.7"	10.8"	37.3"	SMITH-BLAIR = 9" ROMAC = 9"

CHARLOTTE WATER
 A CITY OF CHARLOTTE DEPARTMENT
 STANDARD DETAILS
 WATER METERS
 6-INCH ULTRASONIC WATER METER
 (COMBINED FIRE AND DOMESTIC) SERVICE
 AND PRECAST CONCRETE VAULT
 NO SCALE
 VERSION 1.0
 DATE 04/2024
 DETAIL 15.5.3

- 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 / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
 - D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
 - E. ALL CONCRETE SHALL BE MINIMUM 4,000 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. REBAR 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 (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKING PER ASTM C478.

- NO. DESCRIPTION:**
1. 8" OUTLET TAPPING SLEEVE AND 8" FL X MJ TAPPING VALVE ON EXISTING MAIN. 8" MJ OUTLET TEE, 8" FOSTER ADAPTOR AND 8" MJ GATE VALVE ON NEW MAIN.
 2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
 3. 8" DUCTILE IRON PIPE - RESTRAINED.
 4. 8" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 8" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
 5. 8" ALL FLANGE DUCTILE IRON TEE.
 6. 8" ALL FLANGE GATE VALVE.
 7. 8" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 40" (MIN.)
 8. 8" ULTRASONIC WATER METER ASSEMBLY (FLANGE X FLANGE).
 - 8.1. BERMAID MODEL FP-60F-D FIRE RATED BASKET STRAINER (FL X FL). LL = 18.7"
 - 8.2. 8-INCH MASTER METER OCTAVE OR BADGER E-SERIES OR NEPTUNE MACH10 WITH ITRON W100 TRANSMITTER - LL = 20".
 - 8.3. 8" EPOXY COATED/LINED STEEL FLANGE X FLANGE SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
 - 8.4. ROMAC D J400 DISMANTLING JOINT - LL = 7.38" TO 9.38", SET TO 9" OR SMITH-BLAIR MODEL 975 DISMANTLING JOINT (RESTRAINED) - LL = 8" 10", SET TO 9".
 9. 8" DUCTILE IRON 90° BEND FLANGE X FLANGE.
 10. 8" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 75.5" (MIN.) (SPECIAL CLASS 53).
 11. 8" X 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - CC - TAPER THREAD X FNPT.
 12. 8" DUCTILE IRON PIPE - FLANGE X PE - L = 24" (MIN.) (SPECIAL CLASS 53).
 13. 8" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT.
 14. 8" DUCTILE IRON PIPE - FLANGE X PE - L = 12" (MIN.) (SPECIAL CLASS 53).
 15. 8" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
 16. 8" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
 17. 8" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
 18. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80) OR RED BRASS (SCH 40) - END WITH THREADED COUPLING).
 19. GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQUIRED = 4) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
 20. AMR TRANSMITTER.
 21. 5' X 5' ACCESS DOOR - SEE STD. DETAIL.
 22. PRECAST REINFORCED CONCRETE VAULT - 9' X 5' X 6" (MIN.) (L X W X D). SEE NOTES C AND D.
 23. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES (OR PRECAST RISER) UNDER ACCESS DOOR FRAME - MAX. 2" JOINT REQUIRED AT FLAT TOP SECTION.
 24. 3/8" DIAMETER GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
 25. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
 26. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
 27. VALVE LOCK (FURNISHED BY CLTW) - LOCK VALVE CLOSED. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
 28. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.
 29. CONCRETE THRUST BLOCKING - 3,600 PSI.
 - 30.
 - 31.



METER SIZE	A	B	C	D	K
8"	50.7"	14.8"	12.2"	44.2"	SMITH-BLAIR = 9" ROMAC = 9"

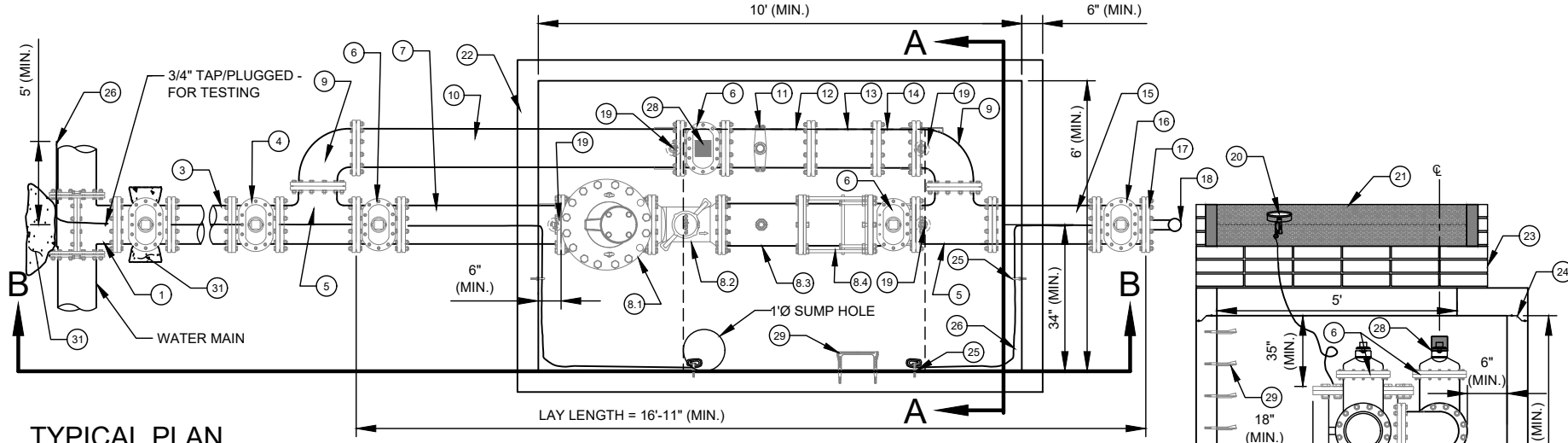
NOTES:

- 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 / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
- F. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".

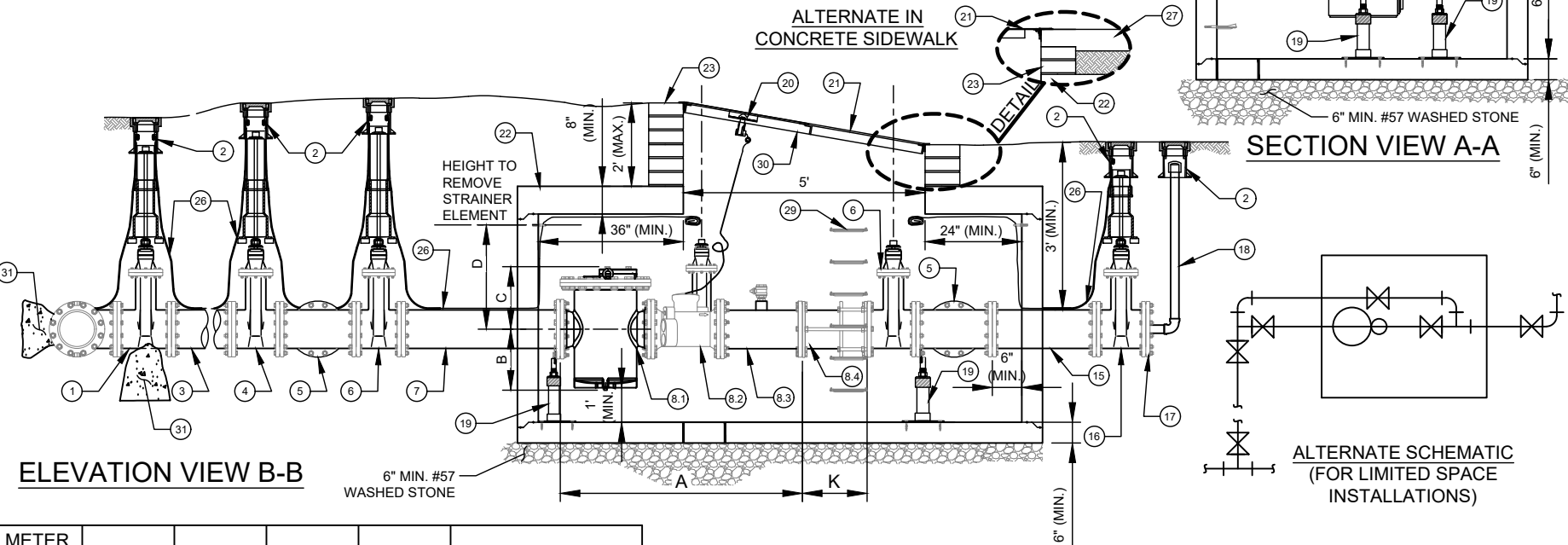
- G. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- H. REBAR SHALL BE GRADE 60 PER ASTM A615.
- I. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- J. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- K. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTORS (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

1. 10" OUTLET TAPPING SLEEVE AND 10" FL X MJ TAPPING VALVE ON EXISTING MAIN. 10" MJ OUTLET TEE, 10" FOSTER ADAPTOR AND 10" MJ GATE VALVE ON NEW MAIN.
2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
3. 10" DUCTILE IRON PIPE - RESTRAINED.
4. 10" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 10" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
5. 10" ALL FLANGE DUCTILE IRON TEE.
6. 10" ALL FLANGE GATE VALVE.
7. 10" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 50" (MIN.) (SPECIAL CLASS 53).
8. 10" FMCT METER ASSEMBLY (FLANGE X FLANGE)
 - 8.1. BERMAID MODEL FP-60F-D FIRE RATED BASKET STRAINER (FL X FL). LL = 22.0"
 - 8.2. 10-INCH MASTER METER OCTAVE OR NEPTUNE MACH10 WITH ITRON W100 TRANSMITTER - LL = 17.75"
 - 8.3. 10" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
 - 8.4. ROMAC D J400 DISMANTLING JOINT - LL = 9.5" TO 11.5", SET TO 10.5" OR SMITH-BLAIR MODEL 975 DISMANTLING JOINT (RESTRAINED) - LL = 9" TO 11", SET TO 10".
9. 10" DUCTILE IRON 90° BEND FLANGE X FLANGE.
10. 10" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 89" (MIN.) (SPECIAL CLASS 53).
11. 10" X 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - CC - TAPER THREAD X FNPT.
12. 10" DUCTILE IRON PIPE - FLANGE X PE - L = 24" (MIN.) (SPECIAL CLASS 53).
13. 10" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT.
14. 10" DUCTILE IRON PIPE - FLANGE X PE - L = 12" (MIN.) (SPECIAL CLASS 53).
15. 10" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
16. 10" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
17. 10" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
18. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80) - END WITH THREADED COUPLING).
19. GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQUIRED = 4) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
20. AMR TRANSMITTERS.
21. 5' X 5' ACCESS DOOR - SEE STD. DETAIL.
22. PRECAST REINFORCED CONCRETE VAULT - 10' X 6' X 6.5" (MIN.) (L X W X D). SEE NOTES C AND D.
23. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES (OR PRECAST RISER) UNDER ACCESS DOOR FRAME - MAX. 2". JOINT REQUIRED AT FLAT TOP SECTION.
24. 3/8" DIA. GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
25. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL).
26. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
27. VALVE LOCK (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
28. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
29. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.
30. CONCRETE THRUST BLOCKING - 3,600 PSI.



TYPICAL PLAN



ELEVATION VIEW B-B

SECTION VIEW A-A

ALTERNATE SCHEMATIC (FOR LIMITED SPACE INSTALLATIONS)

METER SIZE	A	B	C	D	K
10"	51.75"	16.2"	14.2"	49.6"	SMITH-BLAIR = 10" ROMAC = 10.5"

NO SCALE

VERSION 1.0
DATE 04/2024
DETAIL 15.5

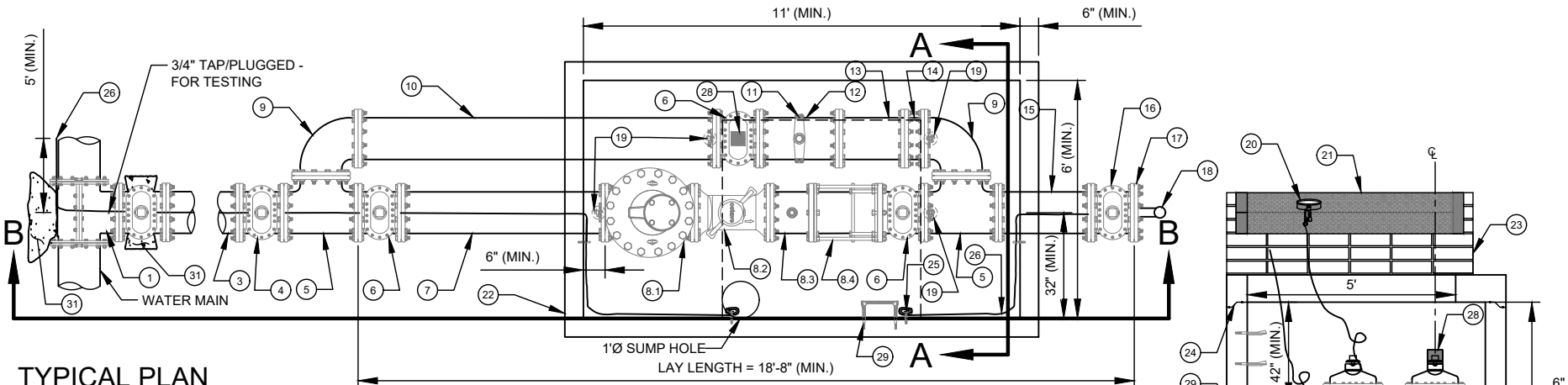
NOTES:

- 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 / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- D. VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- E. ALL CONCRETE SHALL BE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
- F. DESIGN SHALL CONFORM TO ASTM C858 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".

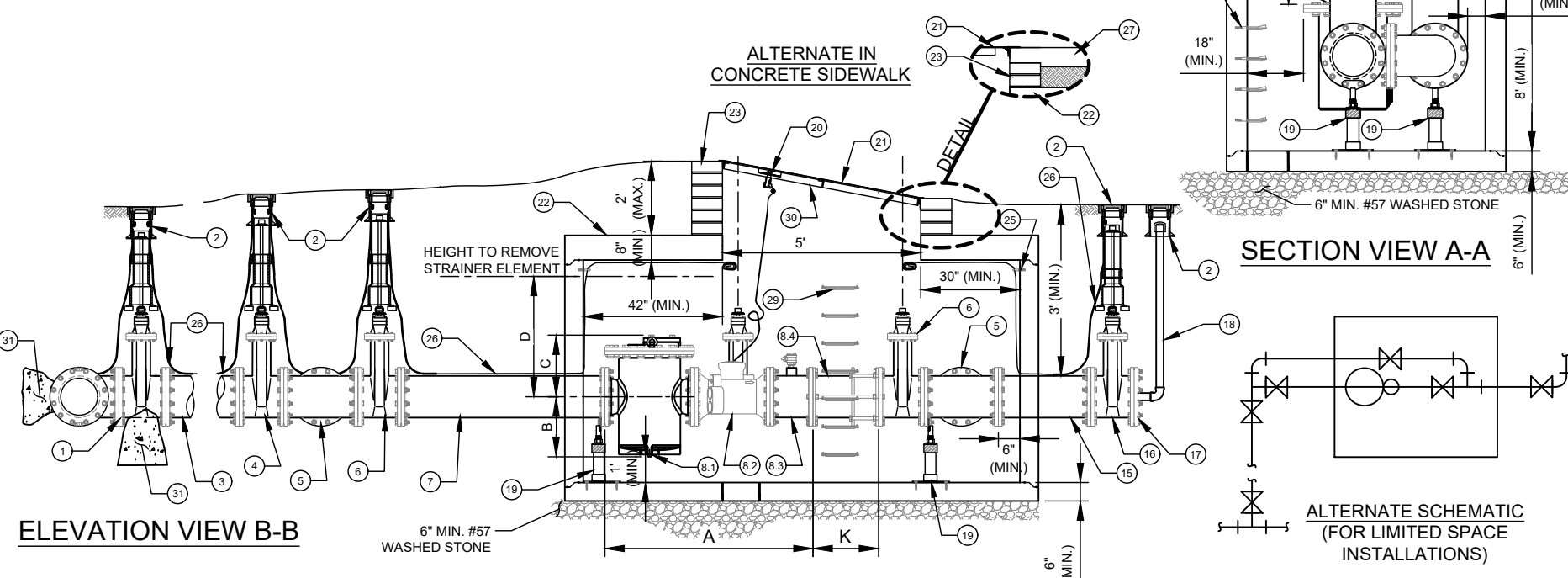
- G. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857.
- H. REBAR SHALL BE GRADE 60 PER ASTM A615.
- I. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- J. DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS.
- K. PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTORS (MANHOLE BOOTS) OR WITH 8" 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. 16.
- O. PRECAST VAULT COMPONENTS SHALL HAVE MARKINGS PER ASTM C478 REQUIREMENTS.

NO. DESCRIPTION:

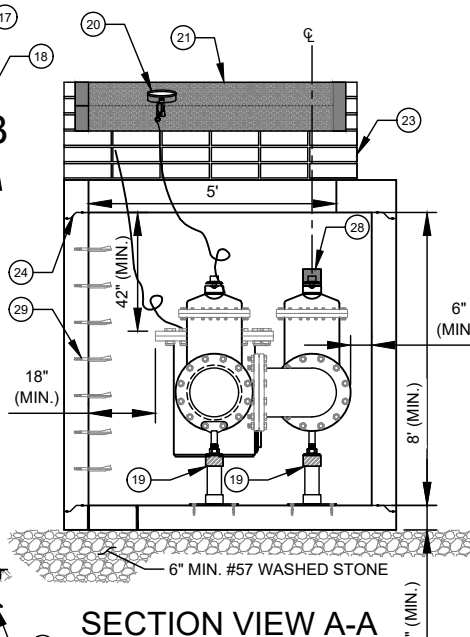
1. 12" OUTLET TAPPING SLEEVE AND 12" FL X MJ TAPPING VALVE ON EXISTING MAIN. 12" MJ OUTLET TEE, 12" FOSTER ADAPTOR, AND 10" MJ GATE VALVE ON NEW MAIN.
2. STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES.
3. 12" DUCTILE IRON PIPE - RESTRAINED.
4. 12" MJ X FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 12" MJ X FL GATE VALVE ON LONG SIDE SERVICE (SHOWN).
5. 12" ALL FLANGE DUCTILE IRON TEE.
6. 12" ALL FLANGE GATE VALVE.
7. 12" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 60" (MIN.) (SPECIAL CLASS 53).
8. 12" ULTRASONIC WATER METER ASSEMBLY (FLANGE X FLANGE)
 - 8.1. BERMAID MODEL FP-60F-D FIRE RATED BASKET STRAINER (FL X FL). LL = 26.8"
 - 8.2. 12-INCH MASTER METER OCTAVE OR NEPTUNE MACH10 WITH ITRON W100 TRANSMITTER - LL = 19.75".
 - 8.3. 12" EPOXY COATED/LINED STEEL FL X FL SPOOL WITH 2" FNPT TEST OUTLET - LL = 12" (MARS CO.) AND 2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - MNPT X FNPT.
 - 8.4. ROMAC D J400 DISMANTLING JOINT - LL = 9.5" TO 11.5", SET TO 10.5" OR SMITH-BLAIR MODEL 975 DISMANTLING JOINT (RESTRAINED) - LL = 9" TO 11", SET TO 10".
9. 12" DUCTILE IRON 90° BEND FLANGE X FLANGE.
10. 12" DUCTILE IRON PIPE - FLANGE X FLANGE SPOOL - L = 107" (MIN.) (SPECIAL CLASS 53).
11. 12" X 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP WITH T-HEAD OPERATING NUT - CC - TAPER THREAD X FNPT.
12. 12" DUCTILE IRON PIPE - FLANGE X PE - L = 24" (MIN.) (SPECIAL CLASS 53).
13. 12" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT.
14. 12" DUCTILE IRON PIPE - FLANGE X PE - L = 12" (MIN.) (SPECIAL CLASS 53).
15. 12" DUCTILE IRON PIPE - FLANGE X PE - L = 30" (MIN.) (SPECIAL CLASS 53).
16. 12" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
17. 12" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT).
18. 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80) OR RED BRASS (SCH 40) - END WITH THREADED COUPLING). GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORT (NUMBER REQUIRED = 4) (WITH STAINLESS STEEL ADHESIVE ANCHORS).
19. 12" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE.
20. AMR TRANSMITTER.
21. 5' X 5' ACCESS DOOR - SEE STD. DETAIL.
22. PRECAST REINFORCED CONCRETE VAULT - 11' X 6' X 8" (MIN.) (L X W X D). SEE NOTES C AND D.
23. MINIMUM OF THREE STD. SOLID CONCRETE BRICK COURSES (OR PRECAST RISER) UNDER ACCESS DOOR FRAME - MAX. 2".
24. JOINT REQUIRED AT FLAT TOP SECTION.
25. 3/8" DIA. GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL.
26. AWG #12 GAUGE SOLID COPPER TRACER WIRE - WITH BLUE INSULATION (30 MILS HDPE) TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYP.).
27. CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
28. VALVE LOCK (FURNISHED BY CLTW) - LOCK VALVE CLOSED.
29. PLASTIC STEP - 12" O.C. VERTICAL SPACING.
30. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.
31. CONCRETE THRUST BLOCKING - 3,600 PSI.



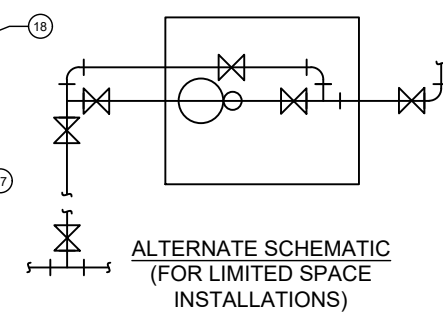
TYPICAL PLAN



ELEVATION VIEW B-B



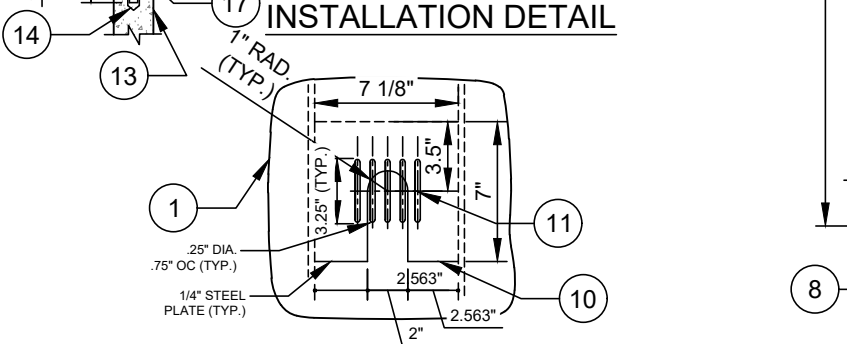
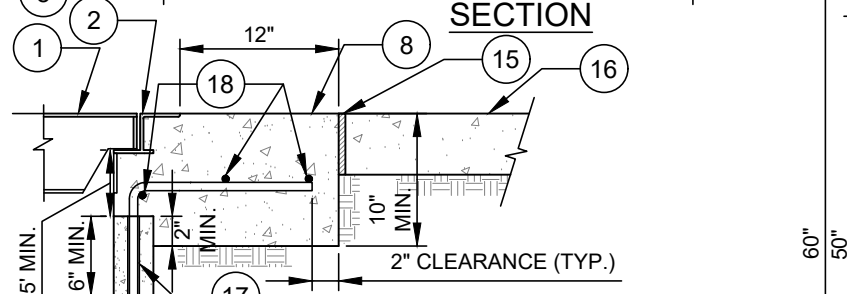
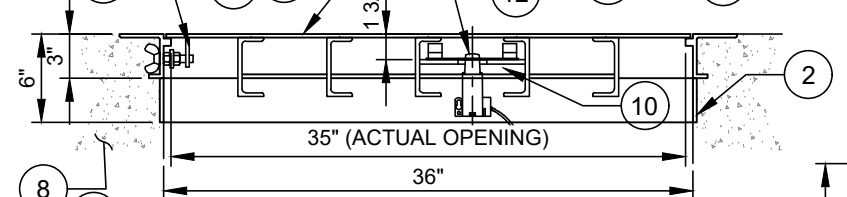
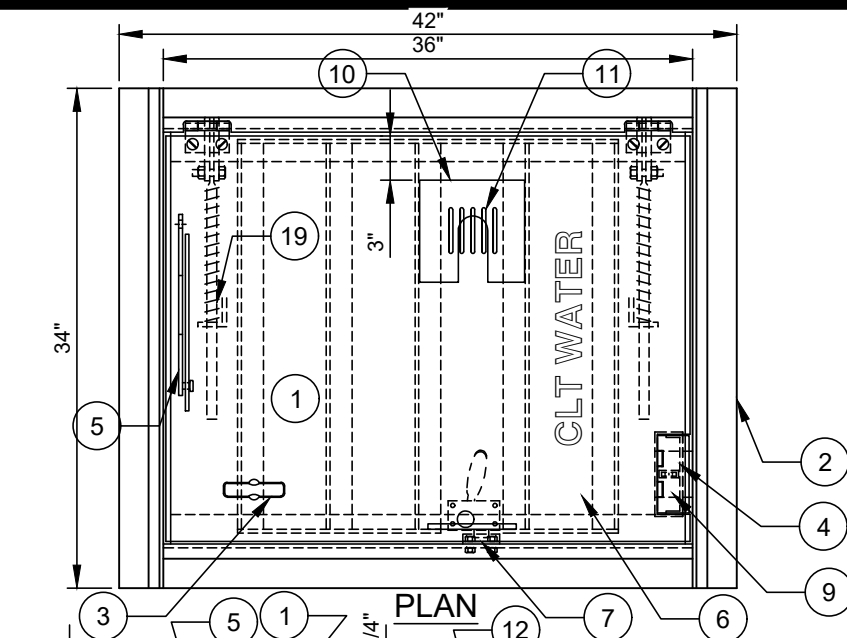
SECTION VIEW A-A



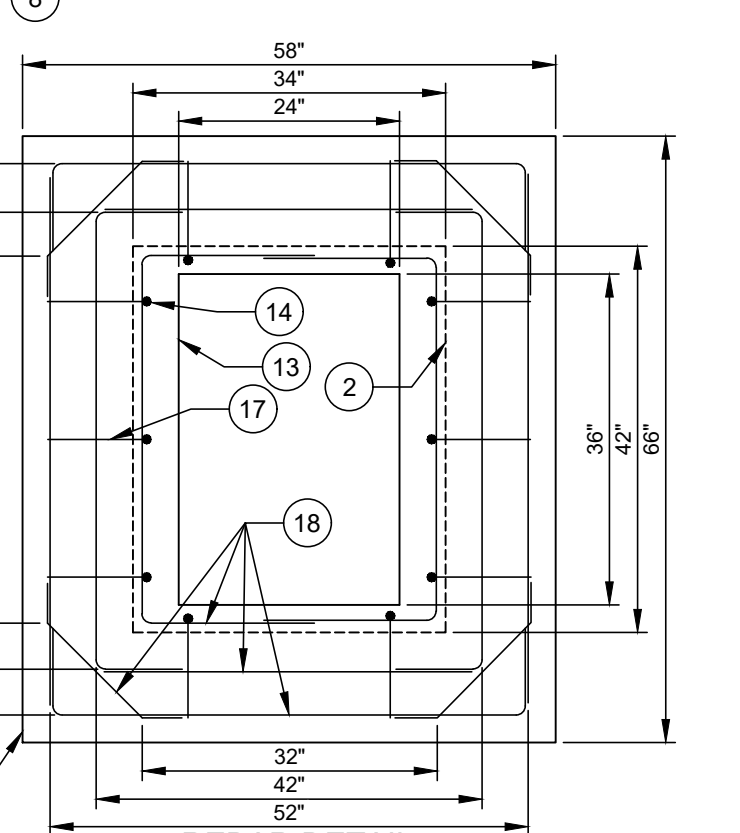
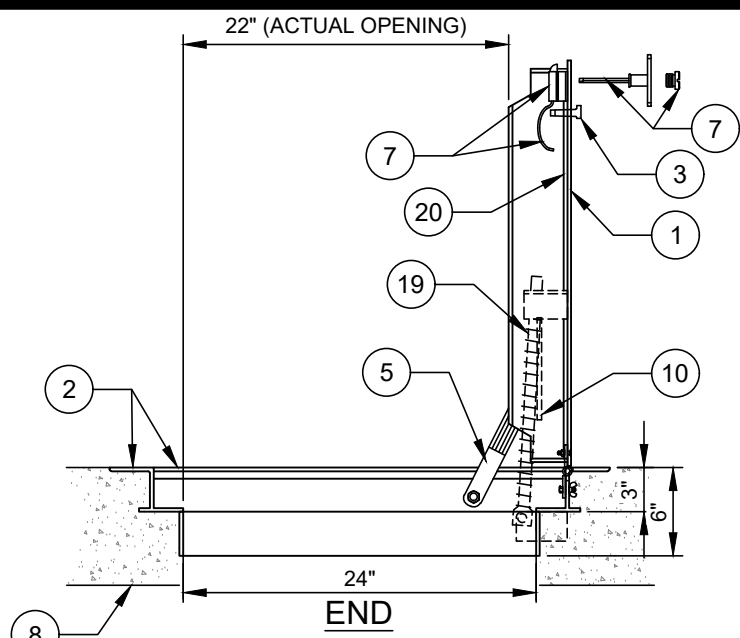
ALTERNATE SCHEMATIC (FOR LIMITED SPACE INSTALLATIONS)

METER SIZE	A	B	C	D	K
12"	58.55"	19.6"	18.1"	60.8"	SMITH-BLAIR = 10" ROMAC = 10.5"

CHARLOTTE WATER
 A CITY OF CHARLOTTE DEPARTMENT
 STANDARD DETAILS
 WATER METERS
 12-INCH ULTRASONIC WATER METER (COMBINED FIRE AND DOMESTIC) SERVICE AND PRECAST CONCRETE VAULT
 NO SCALE
 VERSION 1.0
 DATE 04/2024
 DETAIL 15.56



TRANSMITTER SLOT & TRANSMITTER SUPPORT DETAIL



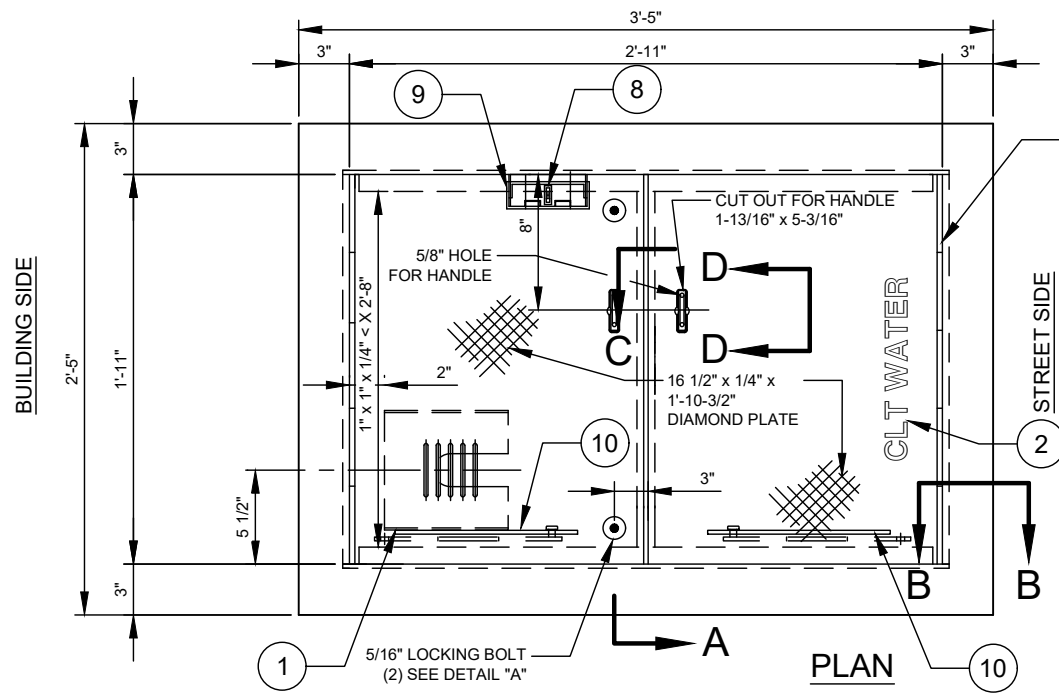
REBAR DETAIL

- NO. DESCRIPTION:**
1. SINGLE DOOR LEAF - REINFORCED.
 2. CAST-IN STEEL DOOR FRAME W/ 3" SKIRT.
 3. FLUSH DROP HANDLE.
 4. RECESSED PADLOCK ASSEMBLY (STANDARD SIZE) WITH STAINLESS STEEL STAPLE / SPRING LOADED HINGED LID.
 5. AUTOMATIC HOLD OPEN ARM WITH VINYL GRIP.
 6. 2" LETTERING MILLED INTO DOOR LEAF.
 7. SLAM LOCK / THREADED PLUG / REMOVABLE KEY / INSIDE HANDLE.
 8. CONCRETE FRAME - CAST IN PLACE.
 9. PADLOCK TO BE FURNISHED BY CLTW.
 10. TRANSMITTER SUPPORT BRACKET.
 11. TRANSMITTER SLOT.
 12. TRANSMITTER.
 13. PRECAST CONCRETE VAULT WALL.
 14. DRILLED OR CAST HOLE - EPOXY ADHESIVE.
 15. 1/2-INCH EXPANSION MATERIAL (CONSTRUCTION JOINT).
 16. CONCRETE/ASPHALT HARDSCAPE.
 17. #5 REBAR ANCHOR.
 18. #4 REBAR.
 19. COMPRESSION SPRING ASSEMBLY - TYPE 300 STAINLESS STEEL.
 20. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

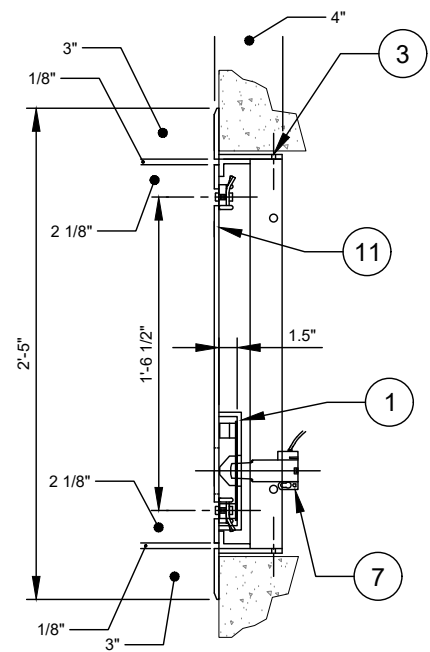
- DESIGN REQUIREMENTS:**
- A. MATERIAL - A36 STEEL HOT DIP GALVANIZED. ENTIRE ASSEMBLY SHALL BE GALVANIZED. GALVANIZED COATING SHALL BE A MINIMUM OF 3.9MLS PER ASTM A123 GRADE 100.
 - B. LIVE LOAD - AASHTO H - 20 - 44 WHEEL LOAD. (16,000# +30% IMPACT OVER 10" X 20" AREA.
 - C. DOOR LEAF - 1/4-INCH THICK STEEL DIAMOND PLATE.
 - D. FINISH - HOT DIP GALVANIZED, SLIP RESISTANT MEETING ADA REQUIREMENTS.
 - E. HINGE / LOCKNUTS / BOLTS - STAINLESS STEEL - TYPE 316.
 - F. SLAM LOCK / HOLD OPEN ARM - STAINLESS STEEL - TYPE 316.
 - G. ACCESS DOOR SHALL BE MODEL AHS, AS MANUFACTURED BY U.S.F. FABRICATION, OR APPROVED EQUAL.
 - H. BITUMINOUS PAINT SHALL BE APPLIED TO FRAME IN CONTACT AREA WITH CONCRETE.
 - I. REBARS SHALL BE ASTM A615 - GRADE 60.
 - J. REBAR SPLICE LENGTH SHALL BE 12" MINIMUM.
 - K. CONCRETE - $f'c = 3,600$ PSI MINIMUM.
 - L. FORCE REQUIRED TO OPEN LEAF (W/SPRINGS) SHALL BE MINUS 5 LBS. MINIMUM AND 35 LBS. MAXIMUM.
 - M. COMPRESSION SPRING ASSEMBLY SHALL BE DESIGNED BY MANUFACTURERS TO CONFORM TO LIFTING FORCE REQUIREMENTS - NUMBER OF SPRINGS AS REQUIRED.

WARNING NOTE:
 THIS DOOR IS NOT TO BE USED IN ROADWAYS OR DRIVEWAYS. IT MAY BE USED IN OFF STREET LOCATIONS WHICH MAY OCCASIONALLY BE SUBJECT TO H-20 WHEEL LOADS.

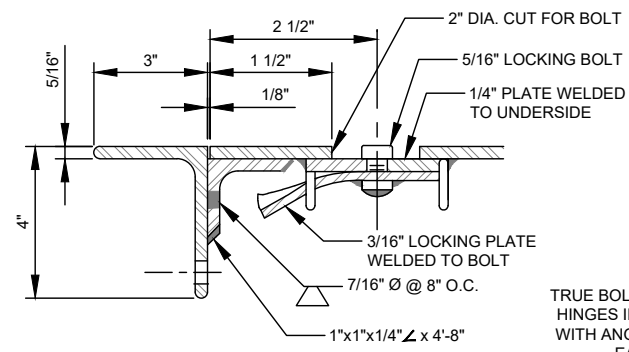
NOTES:
 THIS INSTALLATION DETAIL AND REINFORCED CONCRETE FRAME REQUIREMENTS WILL BE USED ON ALL H-10 OR H-20 LOAD RATED ACCESS DOORS REGARDLESS OF DOOR SIZE.



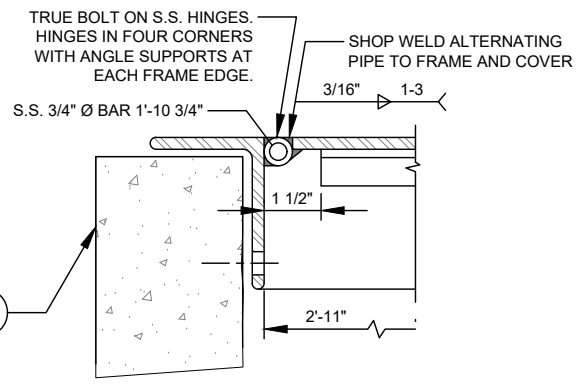
TRUE BOLT ON S.S. HINGES. HINGES IN FOUR CORNERS WITH ANGLE SUPPORTS AT EACH FRAME EDGE. SEE DETAIL "B"



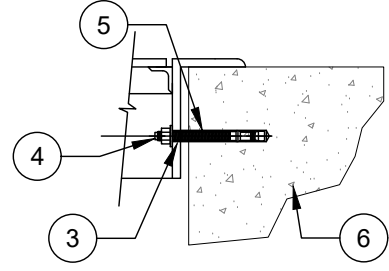
SECTION SIDE



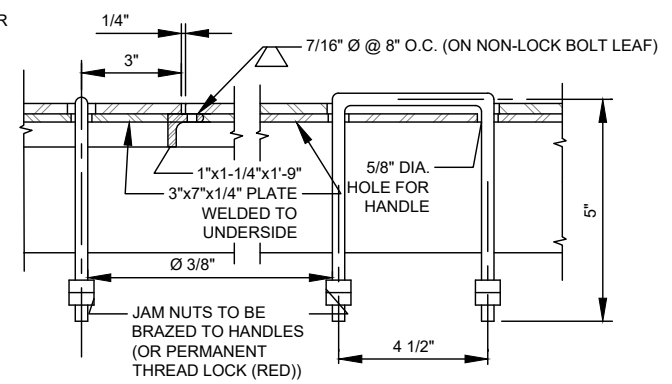
DETAIL A - LOCKING BOLT (2)



DETAIL B HINGE



ANCHOR DETAIL



DETAIL C HANDLE (2)

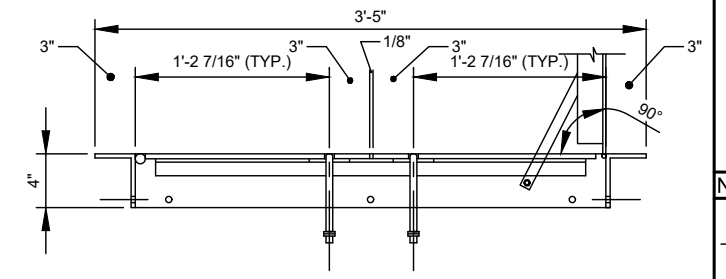
DETAIL D HANDLE

- NO. DESCRIPTION:**
1. TRANSMITTER SUPPORT BRACKET (SEE STANDARD DETAIL).
 2. 2" LETTERING MILLED INTO DOOR LEAF.
 3. 9/16-INCH DIAMETER DRILLED HOLE (10 EACH).
 4. 1/2-INCH DIAMETER X 4-1/2-INCH STAINLESS STEEL EPOXY ADHESIVE ANCHOR - (RED HEAD, HILTI OR APPROVED EQUAL).
 5. 1/2-INCH DIAMETER DRILLED HOLE IN CONCRETE.
 6. CONCRETE VAULT OR PEDESTRIAN SIDEWALK.
 7. WATER METER TRANSMITTER.
 8. RECESSED PADLOCK ASSEMBLY (STANDARD SIZE) WITH STAPLE/SPRING LOADED HINGED LID.
 9. PADLOCK TO BE FURNISHED BY CLTW.
 10. AUTOMATIC HOLD OPEN ARM WITH VINYL GRIP.
 11. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

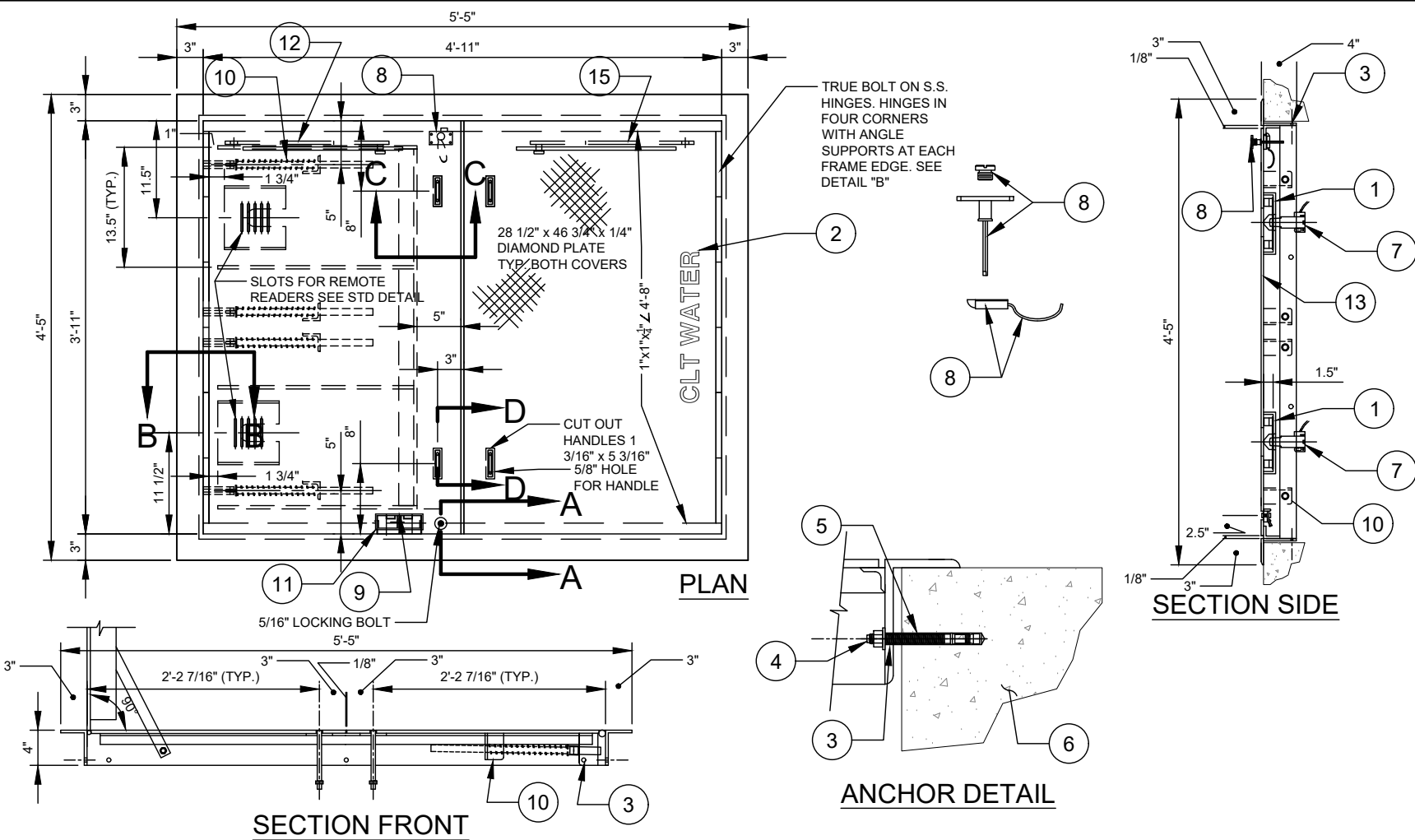
- DESIGN REQUIREMENTS:**
- a. MATERIAL - STRUCTURAL STEEL - ASTM A-36.
 - b. LIVE LOAD - 1,000 LBS. / SQ. FT. MINIMUM - PEDESTRIAN LOADING. MAXIMUM DEFLECTION 1/150 TH. OF SPAN.
 - c. DOOR LEAF - 1/4-INCH THICK DIAMOND PLATE.
 - d. COMPRESSION SPRINGS AND HOLD OPEN BAR ASSEMBLY ARE REQUIRED ON EACH LEAF.
 - e. TRUE BOLT ON STAINLESS STEEL HINGES WITH SUPPORT ANGLES - TYPE 304 STAINLESS STEEL.

- NOTES:**
- A. CONTRACTOR SHALL ANCHOR FRAME USING ANCHOR HOLE NO. 4 - AS APPROVED (ANCHOR DETAIL).
 - B. FRAME AND COVER TO BE HOT DIP GALVANIZED. ENTIRE ASSEMBLY SHALL BE GALVANIZED. GALVANIZED COATING SHALL BE A MINIMUM OF 3.9MILS PER ASTM A123 GRADE 100.
 - C. FRAME DIMENSIONS SHALL ALLOW FOR CLOSE FIT INSIDE VAULT AS SHOWN AT TOP OF VAULT WALLS.
 - D. STAINLESS STEEL FOR ALL HARDWARE.

WARNING NOTE:
THIS DOOR IS NOT TO BE USED IN OR ADJACENT TO DRIVEWAYS OR ANY AREA SUBJECT TO VEHICLE WHEEL LOADS, OR ANY LOAD GREATER THAN 1,000 PSF.

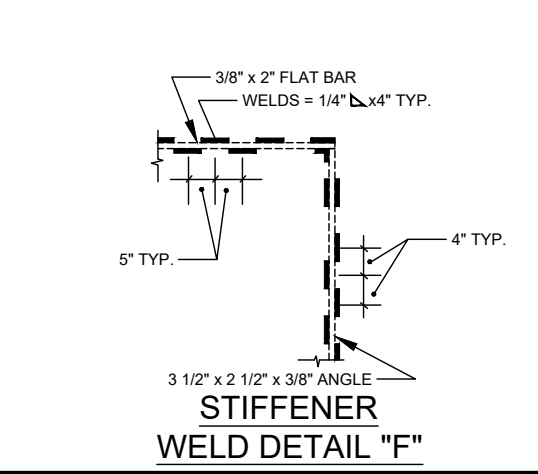
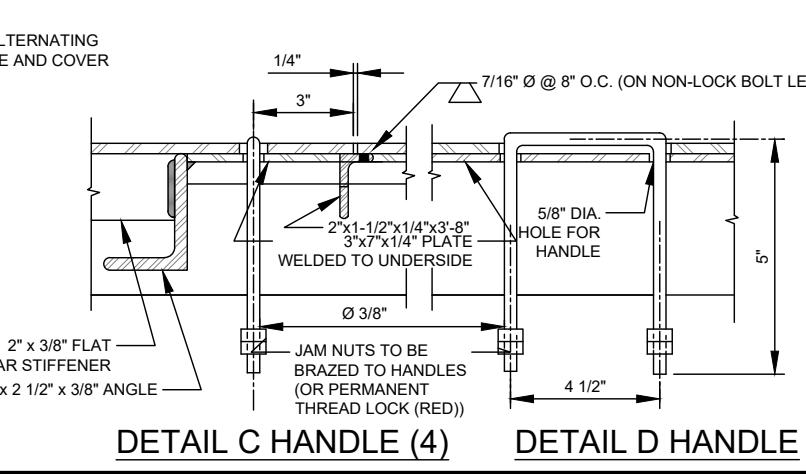
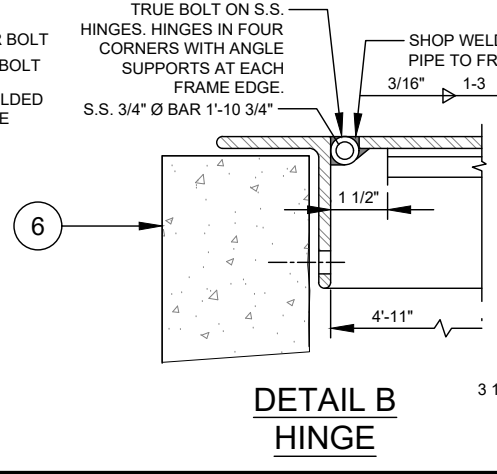
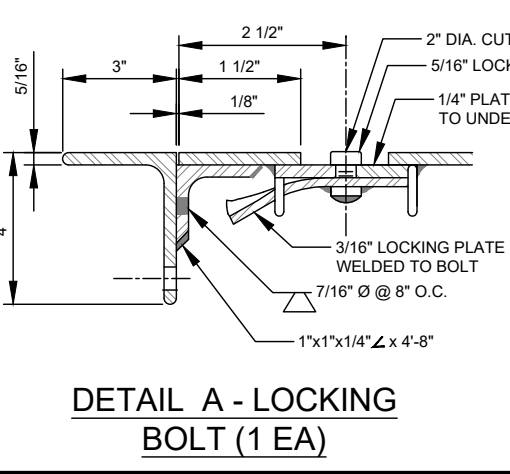


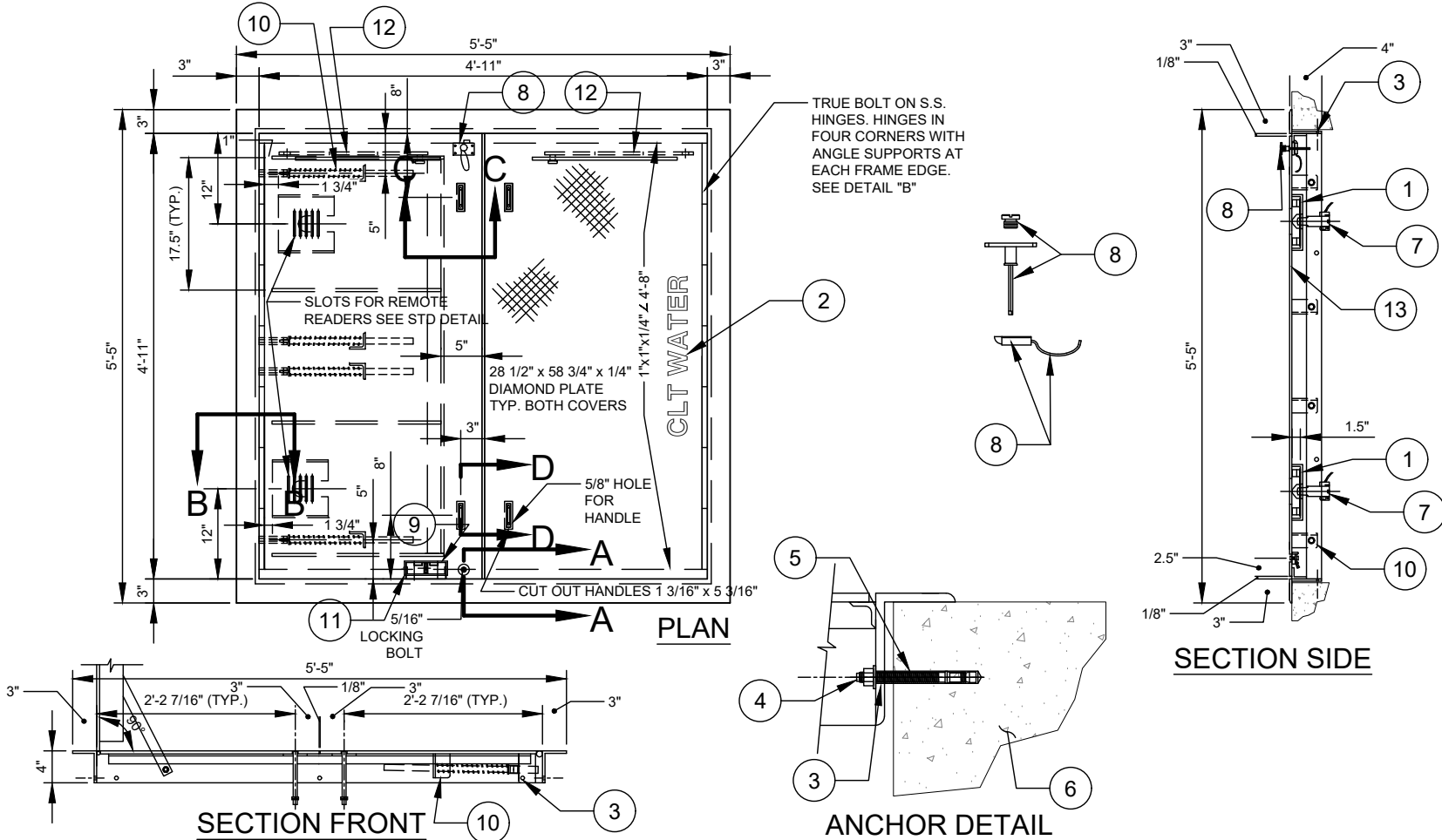
SECTION FRONT



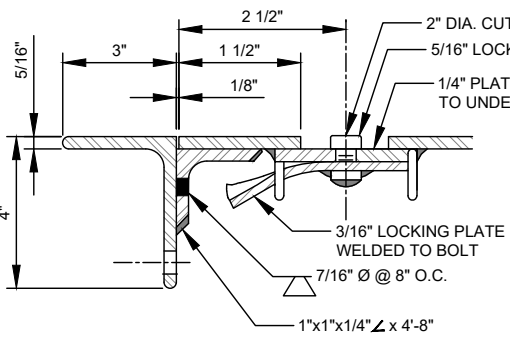
- NO. DESCRIPTION:**
1. TRANSMITTER SUPPORT BRACKET (SEE STANDARD DETAIL).
 2. 2" LETTERING MILLED INTO DOOR LEAF.
 3. 9/16-INCH DIAMETER DRILLED HOLE (10 EACH).
 4. 1/2-INCH DIAMETER X 4-1/2-INCH STAINLESS STEEL EPOXY ADHESIVE ANCHOR - (RED HEAD, HILTI OR APPROVED EQUAL).
 5. 1/2-INCH DIAMETER DRILLED HOLE IN CONCRETE.
 6. CONCRETE VAULT OR PEDESTRIAN SIDEWALK.
 7. WATER METER TRANSMITTER.
 8. SLAM LOCK/THREADED PLUG / REMOVABLE KEY / INSIDE HANDLE.
 9. RECESSED PADLOCK ASSEMBLY (STANDARD SIZE) WITH STAPLE / SPRING LOADED HINGED LID.
 10. OPEN COMPRESSION SPRING ASSEMBLY (# AS REQUIRED) - HORIZONTALLY MOUNTED.
 11. PADLOCK TO BE FURNISHED BY CLTW.
 12. AUTOMATIC HOLD OPEN ARM WITH VINYL GRIP.
 13. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.
- DESIGN REQUIREMENTS:**
- a. MATERIAL - STRUCTURAL STEEL - ASTM A-36.
 - b. LIVE LOAD - 1,000 LBS. / SQ. FT. MINIMUM - PEDESTRIAN LOADING. MAXIMUM DEFLECTION 1/150 TH. OF SPAN.
 - c. DOOR LEAF - 1/4-INCH THICK DIAMOND PLATE.
 - d. COMPRESSION SPRINGS AND HOLD OPEN BAR ASSEMBLY ARE REQUIRED ON EACH LEAF.
 - e. SLAM LOCK / HOLD OPEN ARM - STAINLESS STEEL - TYPE 300.
 - f. COMPRESSION SPRING ASSEMBLY - STAINLESS STEEL - TYPE 300.
 - g. FORCE REQUIRED TO OPEN LEAF (W/SPRINGS) SHALL BE MINUS 5 LBS. MINIMUM AND 20 LBS. MAXIMUM.
 - h. TRUE BOLT ON S.S. HINGES WITH SUPPORT ANGLES - TYPE 304 STAINLESS STEEL.
- NOTES:**
- A. CONTRACTOR SHALL ANCHOR FRAME USING ANCHOR HOLE NO. 4 - AS APPROVED (ANCHOR DETAIL).
 - B. FRAME AND COVER TO BE HOT DIP GALVANIZED. ENTIRE ASSEMBLY SHALL BE GALVANIZED. GALVANIZED COATING SHALL BE A MINIMUM OF 3.9MLS PER ASTM A123 GRADE 100.
 - C. FRAME DIMENSIONS SHALL ALLOW FOR CLOSE FIT INSIDE VAULT AS SHOWN AT TOP OF VAULT WALLS.
 - D. STIFFENER TO BE WELDED TO BACK OF ACCESS DOOR USING WELD PATTERN AS SHOWN.
 - E. COMPRESSION SPRING ASSEMBLY SHALL BE DESIGNED BY MANUFACTURER TO CONFORM TO LIFTING FORCE REQUIREMENTS - NUMBER OF SPRINGS AS REQUIRED.
 - F. STAINLESS STEEL FOR ALL HARDWARE.

WARNING NOTE:
THIS DOOR IS NOT TO BE USED IN OR ADJACENT TO DRIVEWAYS OR ANY AREA SUBJECT TO VEHICLE WHEEL LOADS, OR ANY LOAD GREATER THAN 1,000 PSF.

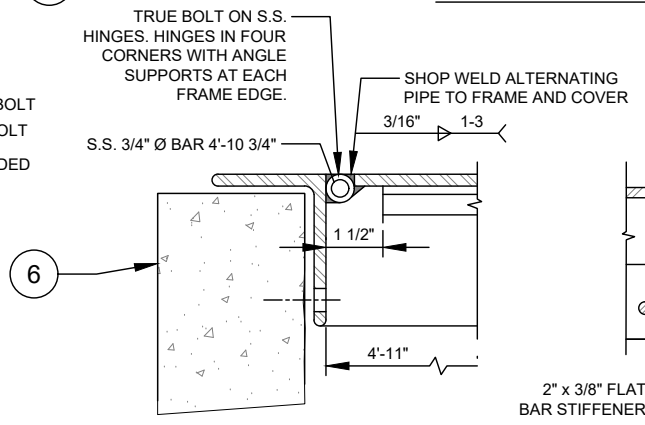




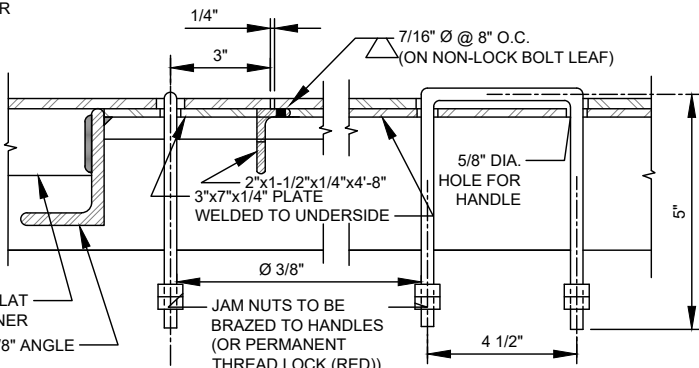
- NO. DESCRIPTION:**
1. TRANSMITTER SUPPORT BRACKET (SEE STANDARD DETAIL).
 2. 2" LETTERING MILLED INTO DOOR LEAF.
 3. 9/16-INCH DIAMETER DRILLED HOLE (10 EACH).
 4. 1/2-INCH DIAMETER X 4-1/2-INCH STAINLESS STEEL EPOXY ADHESIVE ANCHOR - (RED HEAD, HILTI OR APPROVED EQUAL).
 5. 1/2-INCH DIAMETER DRILLED HOLE IN CONCRETE.
 6. CONCRETE VAULT OR PEDESTRIAN SIDEWALK.
 7. WATER METER TRANSMITTER.
 8. SLAM LOCK/THREADED PLUG / REMOVABLE KEY / INSIDE HANDLE.
 9. RECESSED PADLOCK ASSEMBLY (STANDARD SIZE) WITH STAPLE / SPRING LOADED HINGED LID.
 10. OPEN COMPRESSION SPRING ASSEMBLY (# AS REQUIRED) - HORIZONTALLY MOUNTED.
 11. PADLOCK TO BE FURNISHED BY CLTW.
 12. AUTOMATIC HOLD OPEN ARM WITH VINYL GRIP.
 13. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.
- DESIGN REQUIREMENTS:**
- a. MATERIAL - STRUCTURAL STEEL - ASTM A-36.
 - b. LIVE LOAD - 1,000 LBS. / SQ. FT. MINIMUM - PEDESTRIAN LOADING. MAXIMUM DEFLECTION 1/150 TH. OF SPAN.
 - c. DOOR LEAF - 1/4-INCH THICK DIAMOND PLATE.
 - d. COMPRESSION SPRINGS AND HOLD OPEN BAR ASSEMBLY ARE REQUIRED ON EACH LEAF.
 - e. SLAM LOCK / HOLD OPEN ARM - STAINLESS STEEL - TYPE 300.
 - f. COMPRESSION SPRING ASSEMBLY - STAINLESS STEEL - TYPE 300.
 - g. FORCE REQUIRED TO OPEN LEAF (W/SPRINGS) SHALL BE MINUS 5 LBS. MINIMUM AND 20 LBS. MAXIMUM.
 - h. TRUE BOLT ON S.S. HINGES WITH SUPPORT ANGLES. - TYPE 304 STAINLESS STEEL.
- NOTES:**
- A. CONTRACTOR SHALL ANCHOR FRAME USING ANCHOR HOLE NO. 4 - AS APPROVED (ANCHOR DETAIL).
 - B. FRAME AND COVER TO BE HOT DIP GALVANIZED. ENTIRE ASSEMBLY SHALL BE GALVANIZED. GALVANIZED COATING SHALL BE A MINIMUM OF 3.9MILS PER ASTM A123 GRADE 100.
 - C. FRAME DIMENSIONS SHALL ALLOW FOR CLOSE FIT INSIDE VAULT AS SHOWN AT TOP OF VAULT WALLS.
 - D. STIFFENER TO BE WELDED TO BACK OF ACCESS DOOR USING WELD PATTERN AS SHOWN.
 - E. COMPRESSION SPRING ASSEMBLY SHALL BE DESIGNED BY MANUFACTURER TO CONFORM TO LIFTING FORCE REQUIREMENTS - NUMBER OF SPRINGS AS REQUIRED.
 - F. STAINLESS STEEL FOR ALL HARDWARE.
- WARNING NOTE:**
THIS DOOR IS NOT TO BE USED IN OR ADJACENT TO DRIVEWAYS OR ANY AREA SUBJECT TO VEHICLE WHEEL LOADS, OR ANY LOAD GREATER THAN 1,000 PSF.



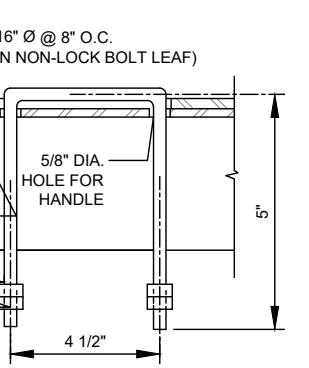
DETAIL A - LOCKING BOLT (1 EA)



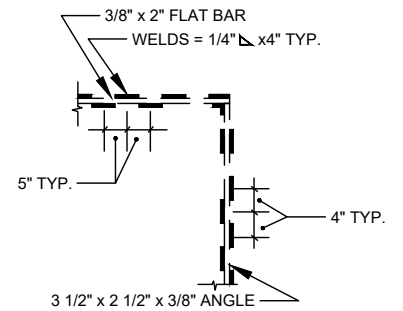
DETAIL B HINGE



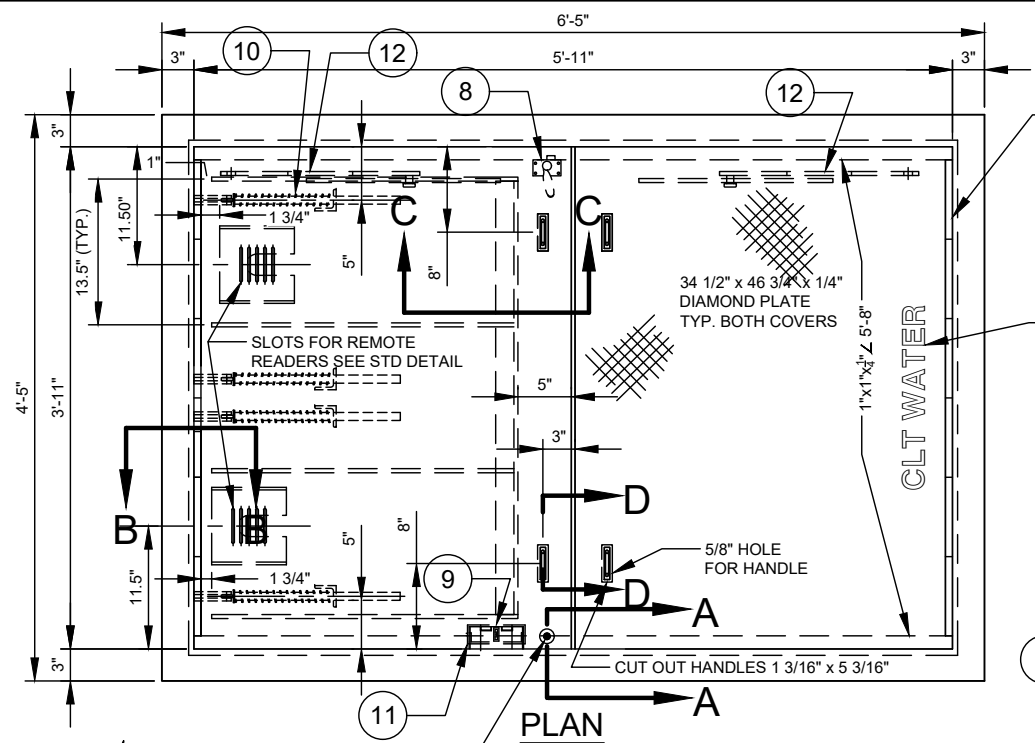
DETAIL C HANDLE (4)



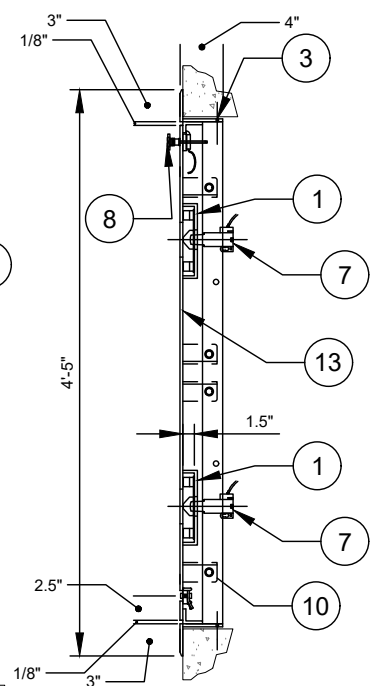
DETAIL D HANDLE



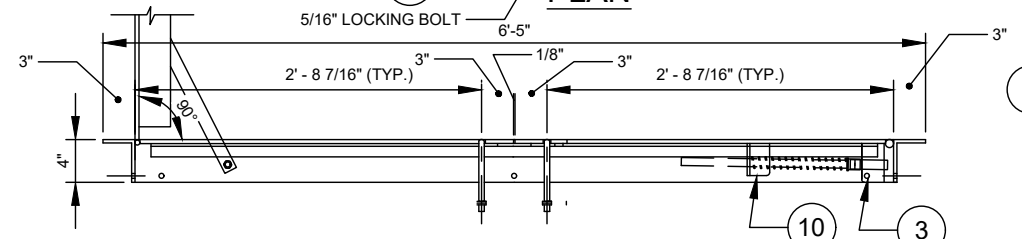
STIFFENER WELD DETAIL "F"



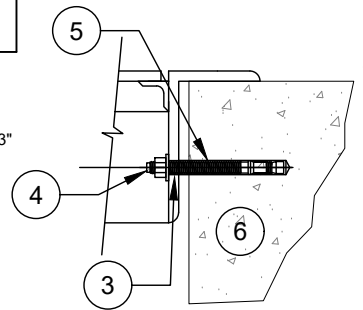
TRUE BOLT ON S.S. HINGES. HINGES IN FOUR CORNERS WITH ANGLE SUPPORTS AT EACH FRAME EDGE. SEE DETAIL "B"



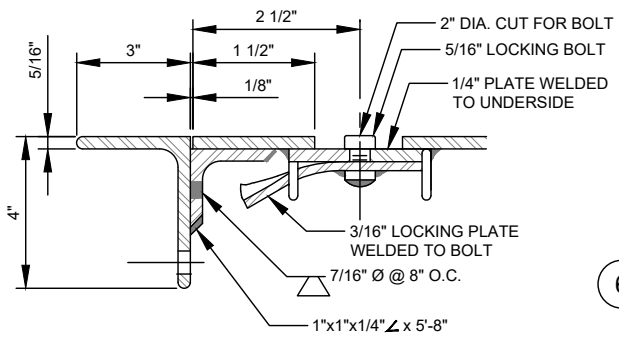
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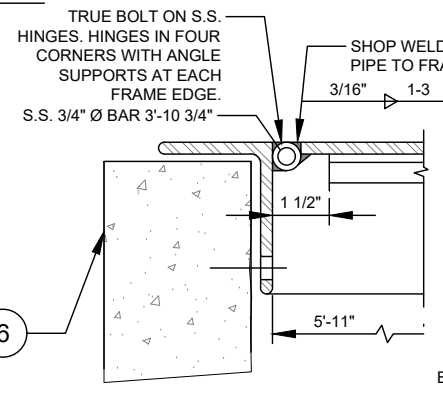
SECTION FRONT



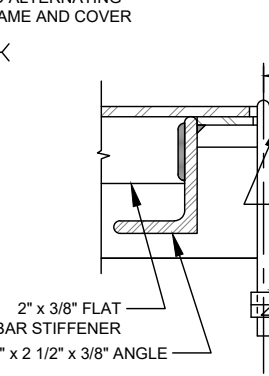
ANCHOR DETAIL



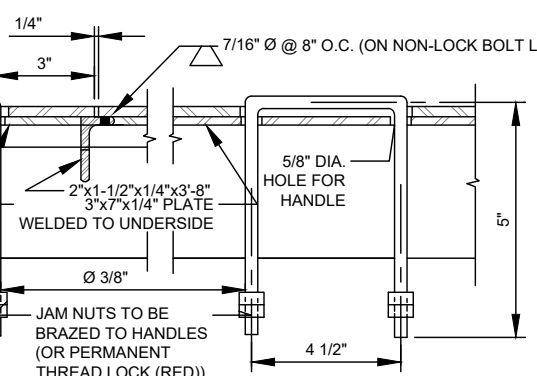
DETAIL A - LOCKING BOLT (1 EA)



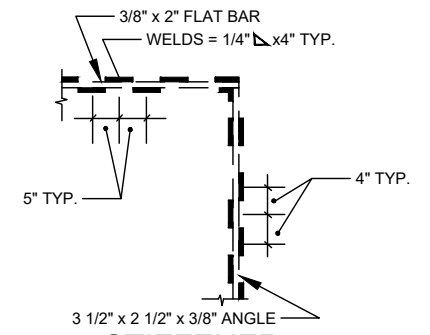
DETAIL B HINGE



DETAIL C HANDLE (4)



DETAIL D HANDLE



STIFFENER WELD DETAIL "F"

NO. DESCRIPTION:

1. TRANSMITTER SUPPORT BRACKET (SEE STANDARD DETAIL).
2. 2" LETTERING MILLED INTO DOOR LEAF.
3. 9/16-INCH DIAMETER DRILLED HOLE (10 EACH).
4. 1/2-INCH DIAMETER X 4-1/2-INCH STAINLESS STEEL EPOXY ADHESIVE ANCHOR - (RED HEAD, HILTI OR APPROVED EQUAL).
5. 1/2-INCH DIAMETER DRILLED HOLE IN CONCRETE.
6. CONCRETE VAULT OR PEDESTRIAN SIDEWALK.
7. WATER METER TRANSMITTER.
8. SLAM LOCK/THREADED PLUG / REMOVABLE KEY / INSIDE HANDLE.
9. RECESSED PADLOCK ASSEMBLY (STANDARD SIZE) WITH STAPLE / SPRING LOADED HINGED LID.
10. OPEN COMPRESSION SPRING ASSEMBLY (# AS REQUIRED) - HORIZONTALLY MOUNTED.
11. PADLOCK TO BE FURNISHED BY CTLW.
12. AUTOMATIC HOLD OPEN ARM WITH VINYL GRIP.
13. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

DESIGN REQUIREMENTS:

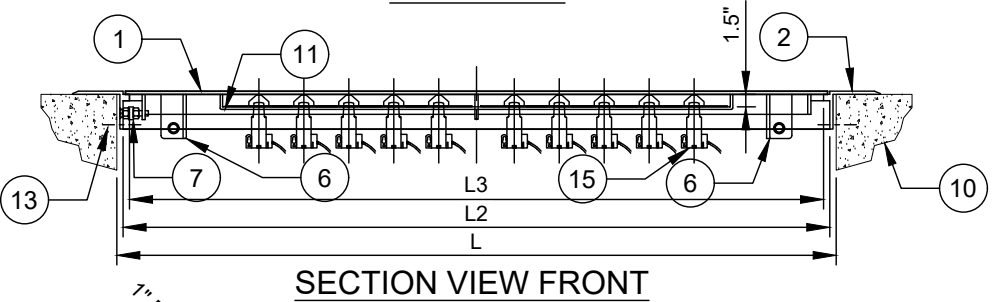
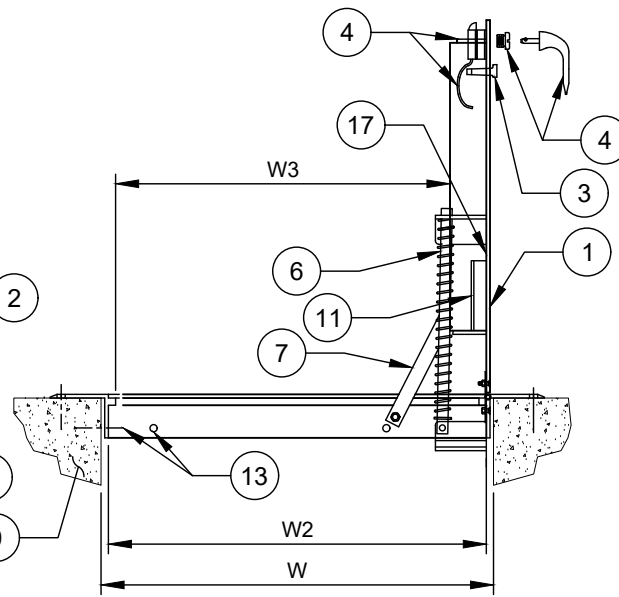
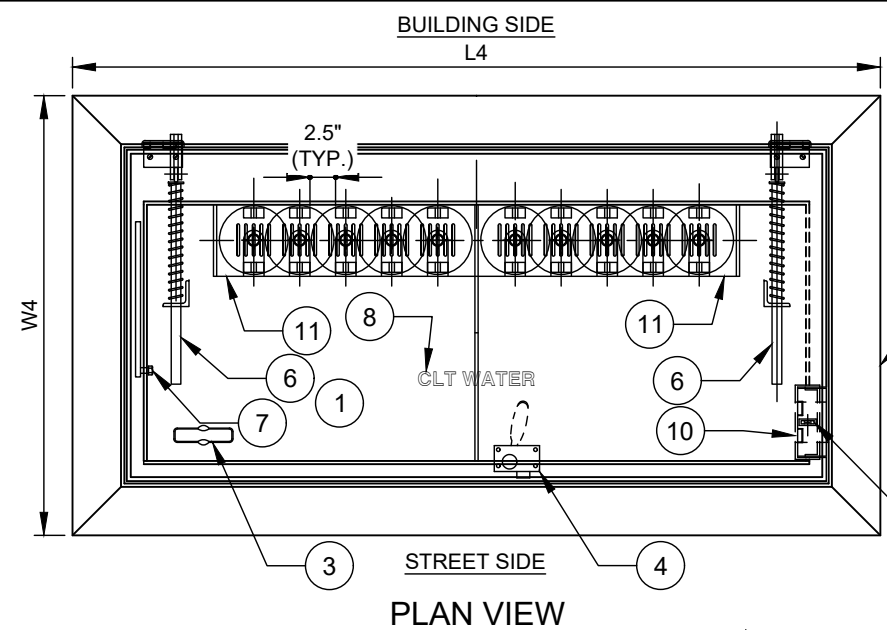
- a. MATERIAL - STRUCTURAL STEEL - ASTM A-36.
- b. LIVE LOAD - 1,000 LBS. / SQ. FT. MINIMUM - PEDESTRIAN LOADING. MAXIMUM DEFLECTION 1/150 TH. OF SPAN.
- c. DOOR LEAF - 1/4-INCH THICK DIAMOND PLATE.
- d. COMPRESSION SPRINGS AND HOLD OPEN BAR ASSEMBLY ARE REQUIRED ON EACH LEAF.
- e. SLAM LOCK / HOLD OPEN ARM - STAINLESS STEEL - TYPE 300.
- f. COMPRESSION SPRING ASSEMBLY - STAINLESS STEEL - TYPE 300.
- g. FORCE REQUIRED TO OPEN LEAF (W/SPRINGS) SHALL BE MINUS 5 LBS. MINIMUM AND 20 LBS. MAXIMUM.
- h. TRUE BOLT ON S.S. HINGES WITH SUPPORT ANGLES - TYPE 304 STAINLESS STEEL.

NOTES:

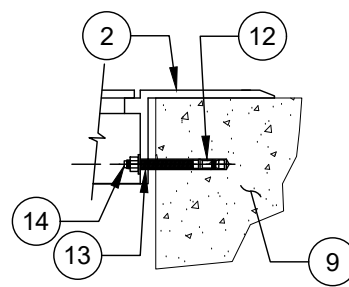
- A. CONTRACTOR SHALL ANCHOR FRAME USING ANCHOR HOLES NO. 4 - AS APPROVED (ANCHOR DETAIL).
- B. FRAME AND COVER TO BE HOT DIP GALVANIZED. ENTIRE ASSEMBLY SHALL BE GALVANIZED. GALVANIZED COATING SHALL BE A MINIMUM OF 3.9MILS PER ASTM A123 GRADE 100.
- C. FRAME DIMENSIONS SHALL ALLOW FOR CLOSE FIT INSIDE VAULT AS SHOWN AT TOP OF VAULT WALLS.
- D. STIFFENER TO BE WELDED TO BACK OF ACCESS DOOR USING WELD PATTERN AS SHOWN.
- E. COMPRESSION SPRING ASSEMBLY SHALL BE DESIGNED BY MANUFACTURER TO CONFORM TO LIFTING FORCE REQUIREMENTS - NUMBER OF SPRINGS AS REQUIRED.
- F. STAINLESS STEEL FOR ALL HARDWARE.

WARNING NOTE:

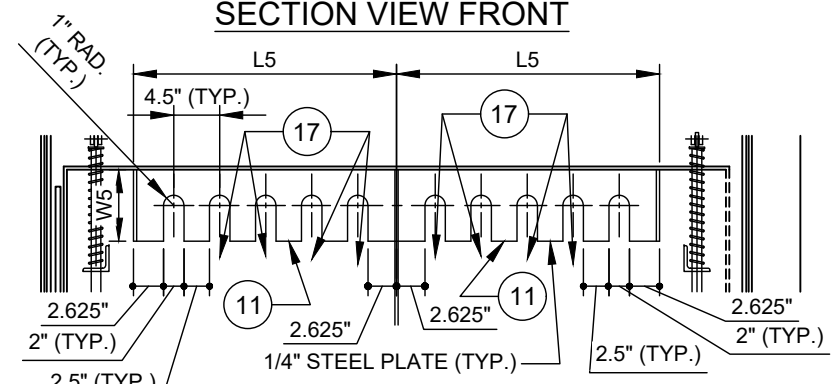
THIS DOOR IS NOT TO BE USED IN OR ADJACENT TO DRIVEWAYS OR ANY AREA SUBJECT TO VEHICLE WHEEL LOADS, OR ANY LOAD GREATER THAN 1,000 PSF.



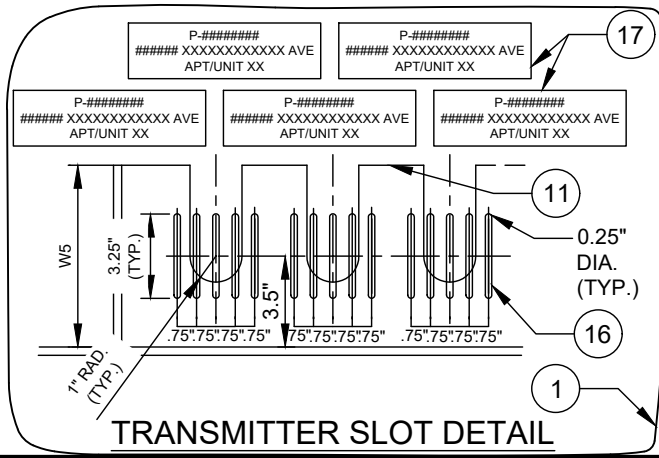
SECTION VIEW SIDE



ANCHOR DETAIL



TRANSMITTER SUPPORT BRACKET



TRANSMITTER SLOT DETAIL

DIMENSIONS (INCHES)

VAULT	NUMBER OF METERS	METERS PER BRACKET	L5 BRACKET LENGTH	W5 BRACKET WIDTH	NUMBER OF SLOTS PER BRACKET
L	W				
72	36	10	25.25	7	20
60	36	8	20.75	7	16
48	36	6	16.25	7	12
36	36	4	11.75	7	8

NO. DESCRIPTION:

- SINGLE DOOR LEAF - REINFORCED.
- ANGLE DOOR FRAME.
- FLUSH DROP HANDLE.
- SLAM LOCK / THREADED PLUG / REMOVABLE KEY / INSIDE HANDLE.
- RECESSED PADLOCK ASSEMBLY (STANDARD SIZE) WITH STAINLESS STEEL STAPLE.
- OPEN COMPRESSION SPRING ASSEMBLY - HORIZONTALLY MOUNTED.
- AUTOMATIC HOLD OPEN ARM WITH VINYL GRIP.
- 2" LETTERING MILLED INTO DOOR LEAF.
- CONCRETE VAULT OR PEDESTRIAN SIDEWALK.
- PADLOCK TO BE FURNISHED BY CLTW.
- TRANSMITTER SUPPORT BRACKETS.
- 1/2-INCH DIAMETER HOLE IN CONCRETE.
- 9/16-INCH DIAMETER DRILLED HOLE (# AS REQUIRED).
- 1/2-INCH DIAMETER X 4-1/2-INCH EPOXY ADHESIVE ANCHOR - (RED HEAD, HILTI OR APPROVED EQUAL).
- TRANSMITTER.
- TRANSMITTER SLOT.
- FOR EACH WATER METER, ATTACH AN ENGRAVED LABEL DIRECTLY ABOVE THE METER/ALIGNED WITH THE TRANSMITTER, INCLUDING THE PREMICE NUMBER, STREET NUMBER/UNIT NUMBER AND STREET NAME, TO UNDERSIDE OF DOOR.

DESIGN REQUIREMENTS:

- MATERIAL - STEEL A36, EXCEPT AS NOTED.
- LIVE LOAD - 1,000 LBS. / SQ. FT. MINIMUM - PEDESTRIAN LOADING. MAXIMUM DEFLECTION 1/150 OF SPAN.
- DOOR LEAF - 1/4-INCH THICK STEEL DIAMOND PLATE.
- FINISH - HOT DIPPED GALVANIZED. ENTIRE ASSEMBLY SHALL BE GALVANIZED. GALVANIZED COATING SHALL BE A MINIMUM OF 3.9MILS PER ASTM A123 GRADE 100. SLIP RESISTANT MEETING ADA REQUIREMENTS.
- HINGE / LOCKNUTS / BOLTS - STAINLESS STEEL - TYPE 316.
- SLAM LOCK / HOLD OPEN ARM - STAINLESS STEEL - TYPE 316.
- COMPRESSION SPRING ASSEMBLY - STAINLESS STEEL - TYPE 300.
- FORCE REQUIRED TO OPEN LEAF (W/ SPRINGS) SHALL BE MINUS 5 LBS. MINIMUM AND 35 LBS. MAXIMUM.
- ACCESS DOOR SHALL BE MODEL AS MANUFACTURED BY U.S.F. FABRICATION, MODEL AS MANUFACTURED BY EJ CORP, OR APPROVED EQUAL.

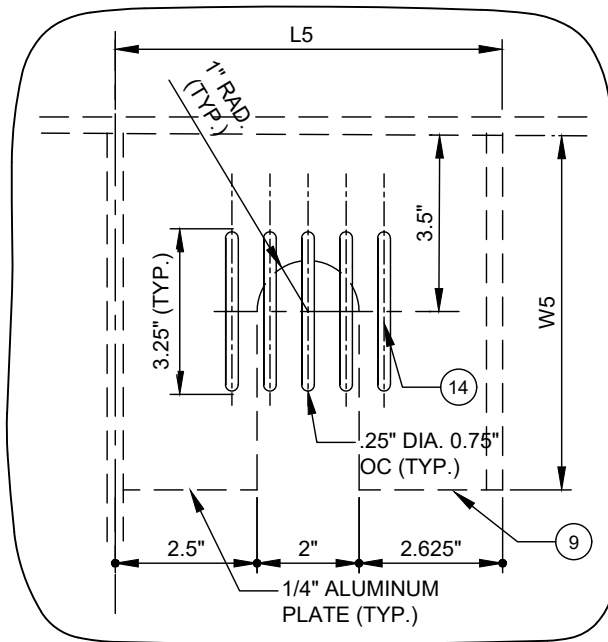
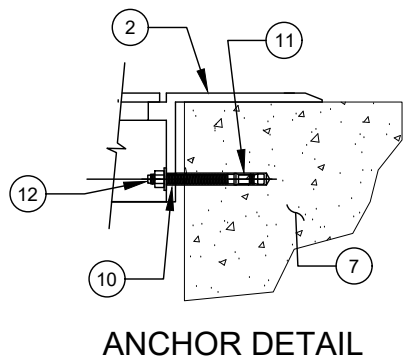
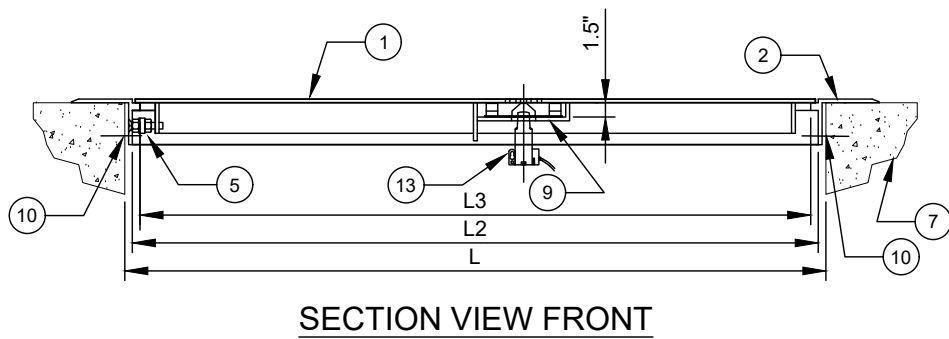
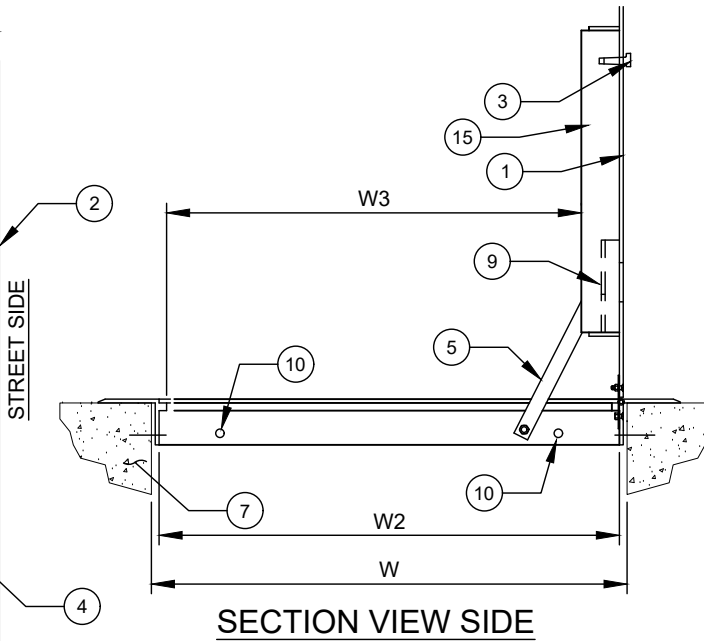
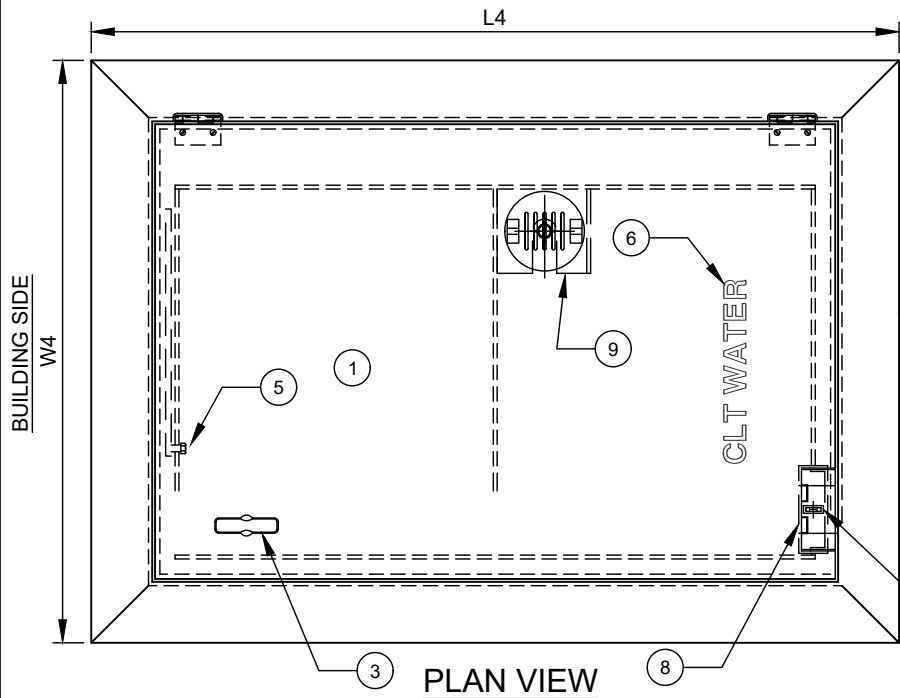
WARNING NOTE:
THIS DOOR IS NOT TO BE USED IN OR ADJACENT TO DRIVEWAYS OR ANY AREA SUBJECT TO VEHICLE WHEEL LOADS, OR ANY LOAD GREATER THAN 1,000 PSF.

DIMENSIONS (INCHES)

CONC. CLEAR OPENING	FRAME OPENING	CLEAR OPENING	OVERALL FRAME SIZE	BASE WT. W/O OPTIONS	LIFT ASSIST SPRINGS	SLAM LOCK				
L	W	L2	W2	L3	W3	L4	W4	POUNDS	REQ'D ?	REQ'D ?
72	36	71	35	70	31	79	43	404	YES	YES
60	36	59	35	58	31	67	43	344	YES	YES
48	36	47	35	46	31	55	43	284	YES	YES
36	36	35	35	34	31	43	43	227	YES	YES

NO SCALE

VERSION	1.0
DATE	04/2024
DETAIL	15.6.6



NO. DESCRIPTION:

1. SINGLE DOOR LEAF - REINFORCED.
2. ANGLE DOOR FRAME.
3. FLUSH DROP HANDLE.
4. RECESSED PADLOCK ASSEMBLY (STANDARD SIZE) WITH STAINLESS STEEL STAPLE.
5. AUTOMATIC HOLD OPEN ARM WITH VINYL GRIP.
6. 2" LETTERING MILLED INTO DOOR LEAF.
7. CONCRETE VAULT OR PEDESTRIAN SIDEWALK.
8. PADLOCK TO BE FURNISHED BY CLTW.
9. TRANSMITTER SUPPORT BRACKET.
10. 9/16-INCH DIAMETER DRILLED HOLE (# AS REQUIRED).
11. 1/2-INCH DIAMETER HOLE IN CONCRETE.
12. 1/2-INCH DIAMETER X 4-1/2-INCH EPOXY ADHESIVE ANCHOR - (RED HEAD, HILTI OR APPROVED EQUAL).
13. TRANSMITTER.
14. TRANSMITTER SLOT.
15. ATTACH ENGRAVED LABEL, WITH PREMISE NUMBER, TO UNDERSIDE OF DOOR, NEAR THE LIFTING HANDLE.

DESIGN REQUIREMENTS:

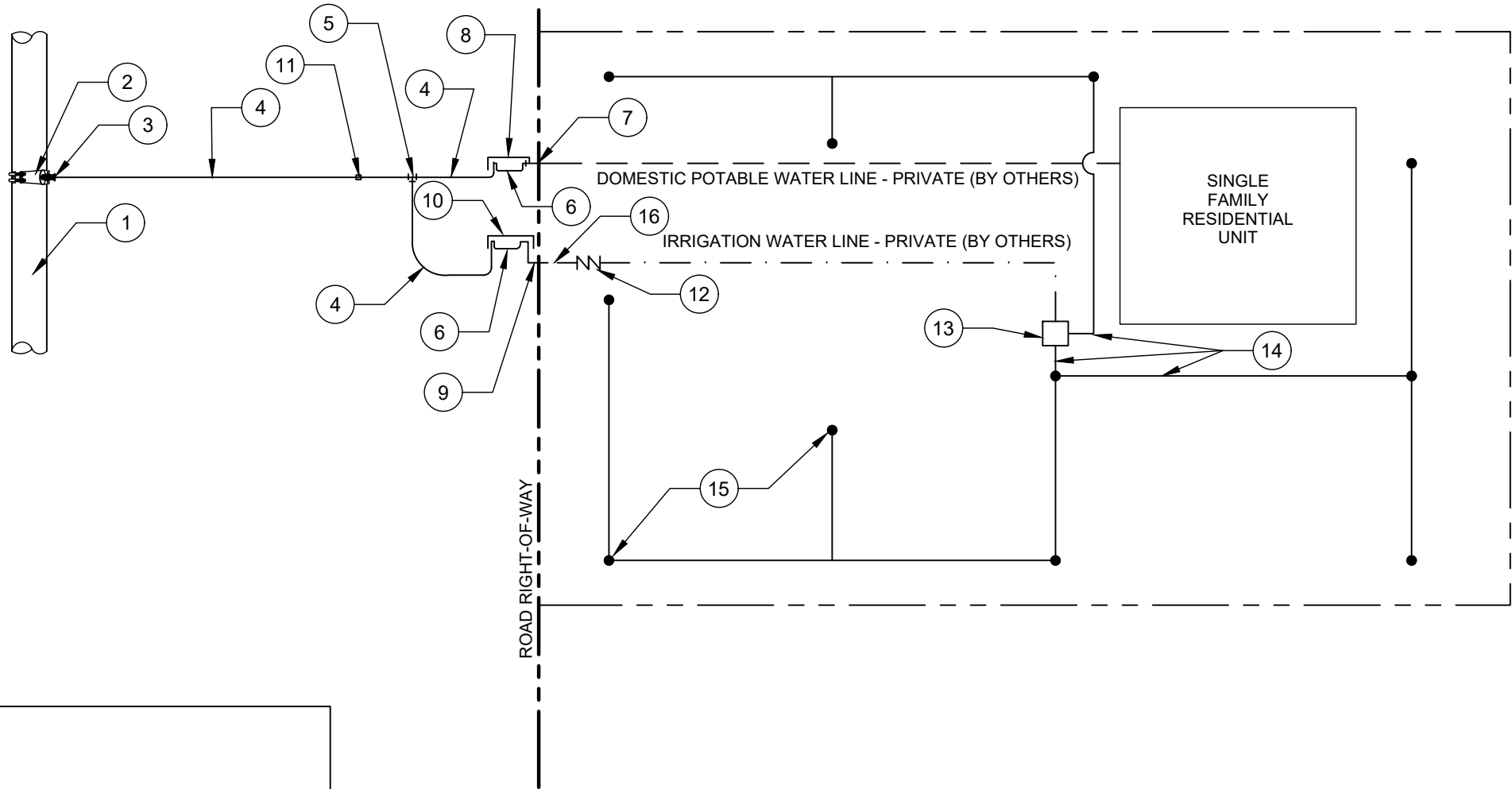
- a. MATERIAL - STEEL A36, EXCEPT AS NOTED.
- b. LIVE LOAD - 1,000 LBS. / SQ. FT. MINIMUM - PEDESTRIAN LOADING. MAXIMUM DEFLECTION 1/150 OF SPAN.
- c. DOOR LEAF - 1/4-INCH THICK STEEL DIAMOND PLATE.
- d. FINISH - HOT DIPPED GALVANIZED. ENTIRE ASSEMBLY SHALL BE GALVANIZED. GALVANIZED COATING SHALL BE A MINIMUM OF 3.9MILS PER ASTM A123 GRADE 100. SLIP RESISTANT MEETING ADA REQUIREMENTS.
- e. HINGE / LOCKNUTS / BOLTS - STAINLESS STEEL - TYPE 316.
- f. HOLD OPEN ARM - STAINLESS STEEL - TYPE 316.
- g. FORCE REQUIRED TO OPEN LEAF SHALL BE 35 LBS. MAXIMUM.
- h. ACCESS DOOR SHALL BE MODEL AS MANUFACTURED BY U.S.F. FABRICATION, MODEL AS MANUFACTURED BY EJ CORP, OR APPROVED EQUAL.

WARNING NOTE:

THIS DOOR IS NOT TO BE USED IN OR ADJACENT TO DRIVEWAYS OR ANY AREA SUBJECT TO VEHICLE WHEEL LOADS, OR ANY LOAD GREATER THAN 1,000 PSF.

DIMENSIONS (INCHES)

CONC. CLEAR OPENING		FRAME OPENING		CLEAR OPENING		OVERALL FRAME SIZE		BRACKET LENGTH	BRACKET WIDTH	BASE WT. W/O OPTIONS
L	W	L2	W2	L3	W3	L4	W4	L5	W5	POUNDS
36	24	35	23	34	20	43	31	7.125	7	154

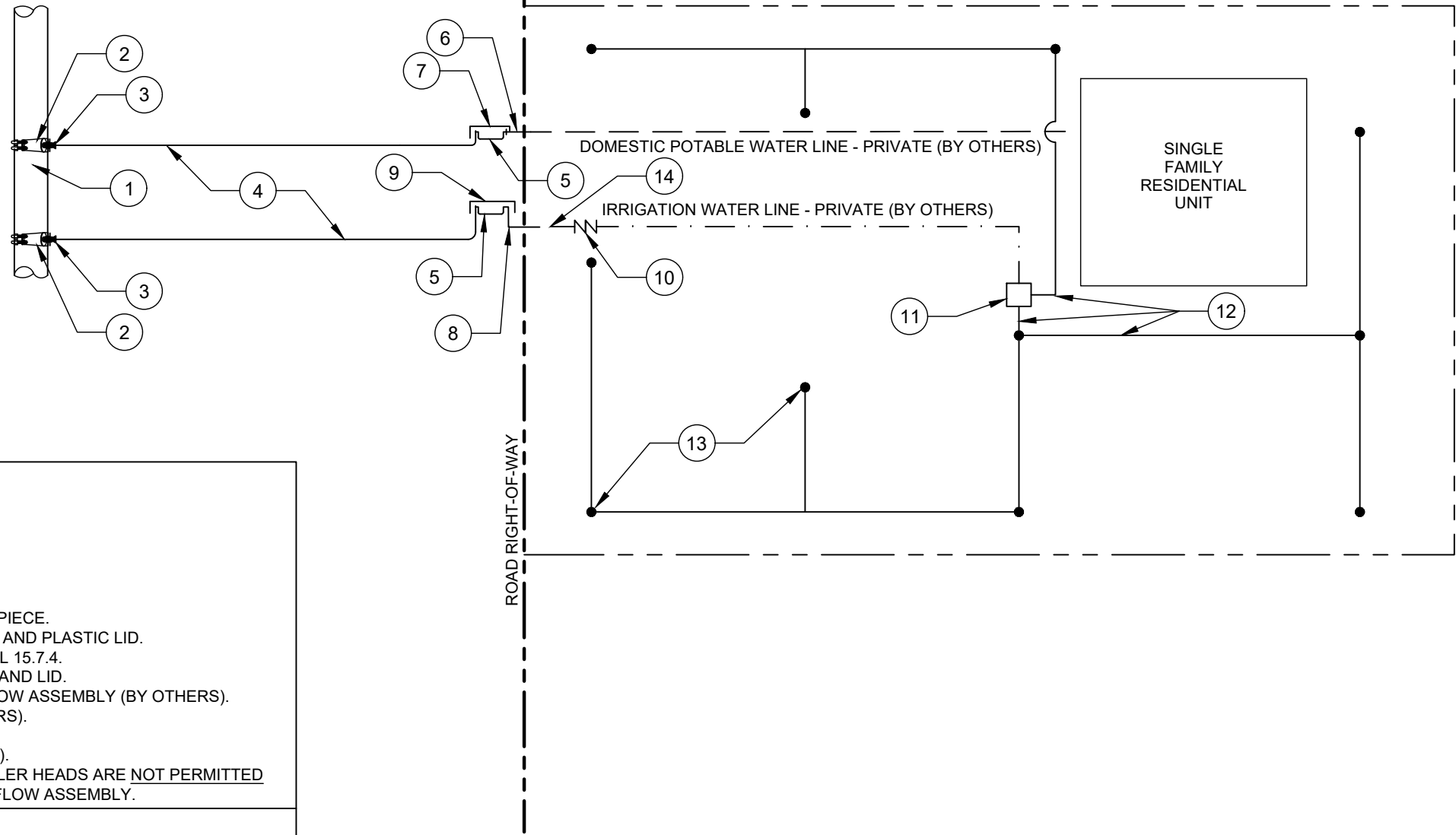


NO. DESCRIPTION:

1. PUBLIC WATER MAIN.
2. DOUBLE STRAP SERVICE SADDLE.
3. CORPORATION STOP.
4. 3/4" CORPORATION STOP.
5. BRANCH / TEE - (MUELLER H - 15381, FORD T444 - 333, OR McDONALD 4760T).
6. ANGLE VALVE / YOKE BAR / METER / ERT.
7. 3/4" COPPER OR HDPE SERVICE TUBING TAIL PIECE.
8. STD. PLASTIC OR CONCRETE METER BOX AND PLASTIC LID.
9. BRASS 90° YOKE STAR NUT x FNPT COUPLING, SCH. 80 PVC ADAPTER (MNPT x SOCKET), 3/4" SCH. 40 PVC (L= AS REQUIRED), SCH. 80 PVC 90° BEND (SOCKET x SOCKET) AND 3/4" SCH. 40 PVC (L= 24 INCH) TAIL PIECE.
10. GREEN PLASTIC IRRIGATION METER BOX AND LID.
11. TEMPORARY LINE STOP, WITH ICE PLUG / PIPE FREEZING ON COPPER TUBING. (OMIT WITH NEW CONSTRUCTION).
12. REDUCED PRESSURE PRINCIPAL BACKFLOW ASSEMBLY (BY OTHERS).
13. IRRIGATION CONTROL SYSTEM (BY OTHERS).
14. IRRIGATION PIPE SYSTEM (BY OTHERS).
15. IRRIGATION SPRINKER HEAD (BY OTHERS).
16. BRANCHES AND / OR IRRIGATION SPRINKLER HEADS ARE NOT PERMITTED BETWEEN IRRIGATION METER AND BACKFLOW ASSEMBLY.

NOTES:

- A. SPLIT IRRIGATION SERVICES ARE NOT ALLOWED WHEN DOMESTIC METER BOX IS LOCATED IN CONCRETE.
- B. METER LOCATION AND RELATIONSHIP TO ROAD RIGHT-OF-WAY, CURB, SIDEWALK AND DRIVEWAYS WILL VARY FROM SITE TO SITE BASED ON EXISTING CHARLOTTE WATER STANDARDS.
- C. CHARLOTTE WATER MAINTENANCE ENDS IN THE METER BOX ASSEMBLY, AT THE LAST BRASS FITTING.
- D. DOMESTIC SERVICE SHALL BE ON THE RUN OF THE TEE, AND THE IRRIGATION SERVICE SHALL BE ON THE BRANCH OF THE TEE, AS SHOWN.
- E. METER BOXES SHALL BE INSTALLED SIDE BY SIDE, WITH 2 FT. MIN. AND 5 FT. MAX. SEPARATION.
- F. SOLVENT WELDS ON PVC PIPE / FITTINGS SHALL BE CLEANED AND PRIMED PRIOR TO APPLYING GLUE.
- G. SERVICES SHALL BE ALL COPPER OR HDPE SERVICE TUBING. DO NOT MIX SERVICE TUBING MATERIALS.
- H. THIS DETAIL FOR SINGLE FAMILY RESIDENTIAL ONLY.

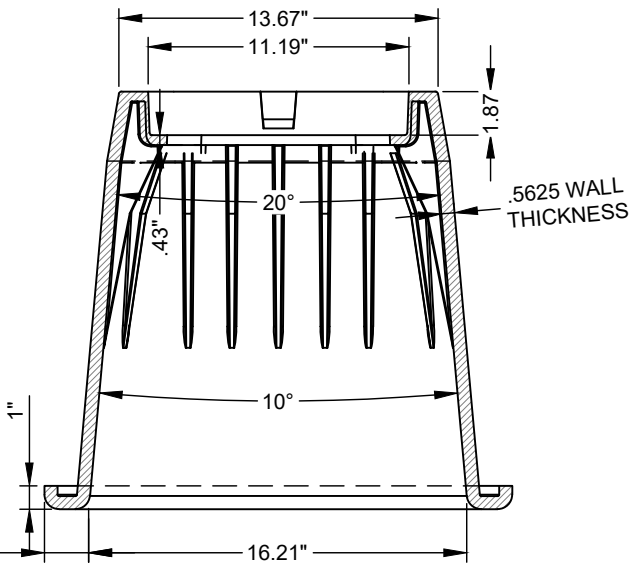
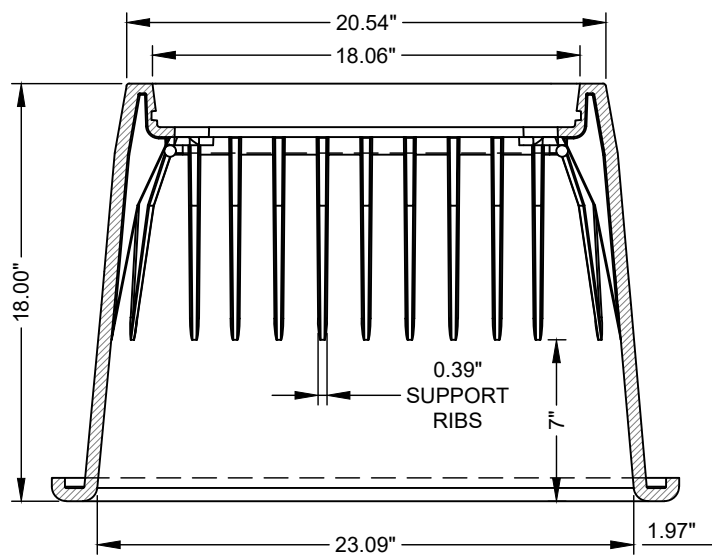
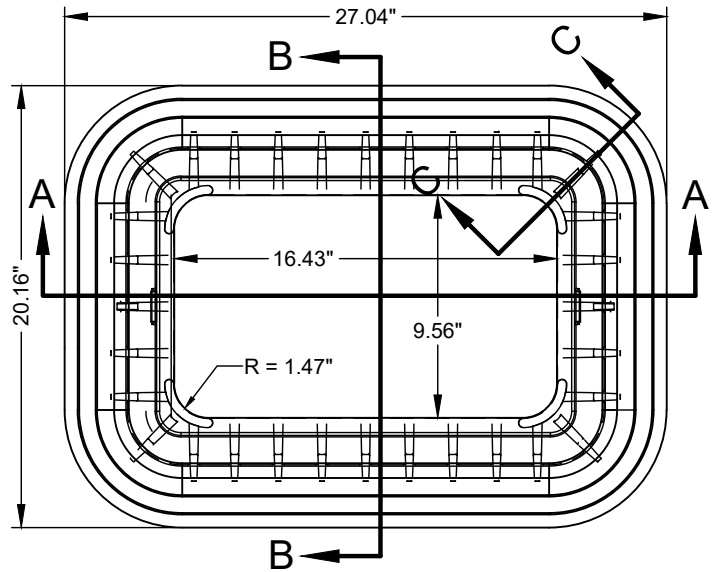
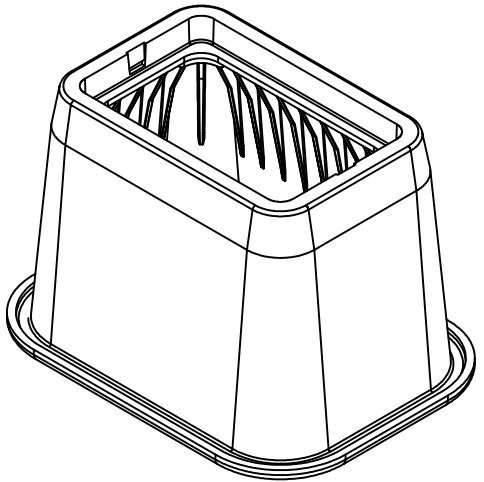
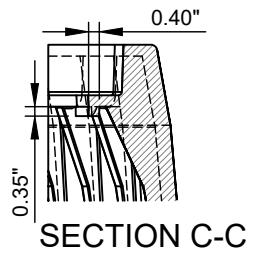


NO. DESCRIPTION:

1. PUBLIC WATER MAIN.
2. DOUBLE STRAP SERVICE SADDLE.
3. CORPORATION STOP.
4. COPPER OR HDPE SERVICE TUBING.
5. ANGLE VALVE / YOKE BAR / METER / ERT.
6. COPPER OR HDPE SERVICE TUBING TAIL PIECE.
7. STD. PLASTIC OR CONCRETE METER BOX AND PLASTIC LID.
8. FOR TAILPIECE CONNECTIONS SEE DETAIL 15.7.4.
9. GREEN PLASTIC IRRIGATION METER BOX AND LID.
10. REDUCED PRESSURE PRINCIPAL BACKFLOW ASSEMBLY (BY OTHERS).
11. IRRIGATION CONTROL SYSTEM (BY OTHERS).
12. IRRIGATION PIPE SYSTEM (BY OTHERS).
13. IRRIGATION SPRINKER HEAD (BY OTHERS).
14. BRANCHES AND / OR IRRIGATION SPRINKLER HEADS ARE NOT PERMITTED BETWEEN IRRIGATION METER AND BACKFLOW ASSEMBLY.

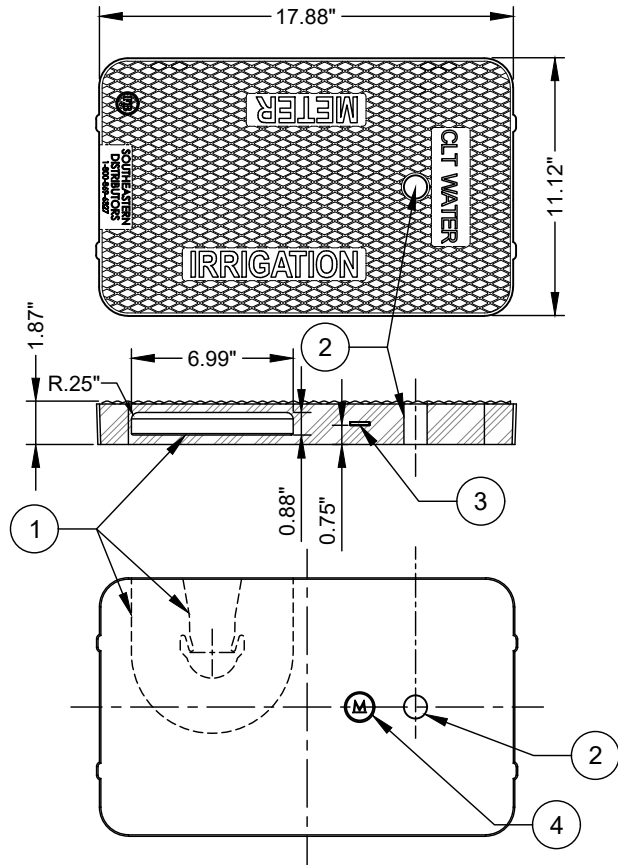
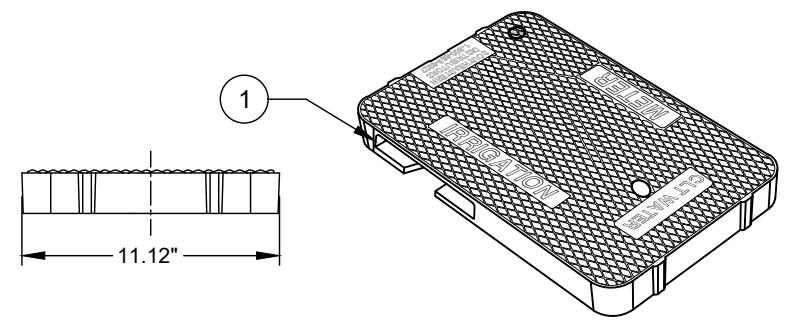
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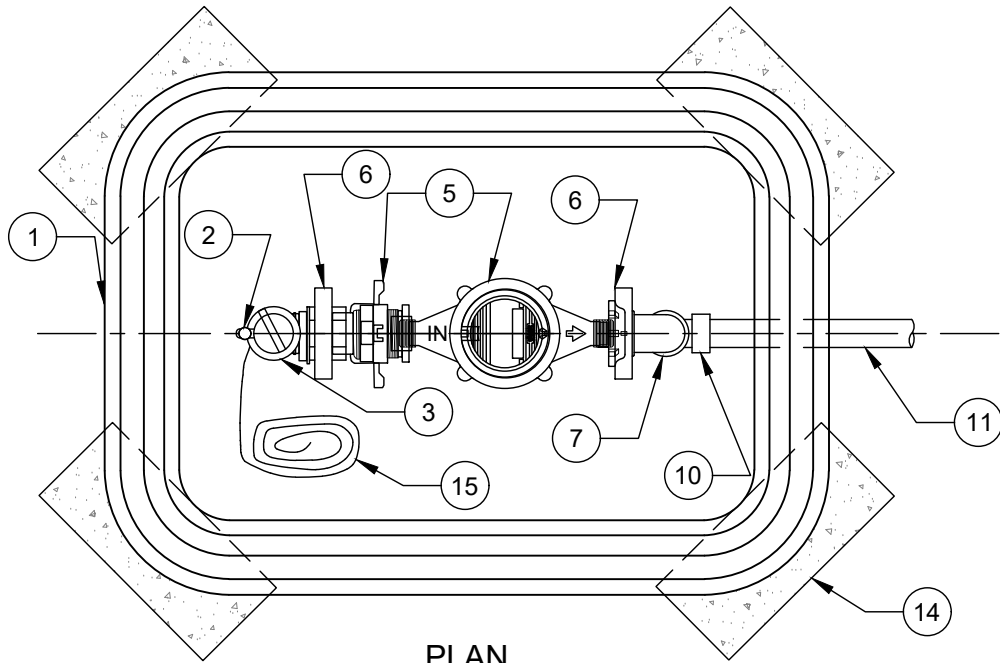
- A. METER LOCATION AND RELATIONSHIP TO ROAD RIGHT-OF-WAY, CURB, SIDEWALK AND DRIVEWAYS WILL VARY FROM SITE TO SITE BASED ON EXISTING CHARLOTTE WATER STANDARDS.
- B. CHARLOTTE WATER MAINTENANCE ENDS IN THE METER BOX ASSEMBLY, AT THE LAST BRASS FITTING.
- C. METER BOXES SHALL BE INSTALLED SIDE BY SIDE, WITH 3 FT. MIN. AND 8 FT. MAX. SEPARATION.
- D. SOLVENT WELDS ON PVC PIPE / FITTINGS SHALL BE CLEANED AND PRIMED PRIOR TO APPLYING GLUE.
- E. SPLIT IRRIGATION SERVICES ARE NOT ALLOWED WHEN DOMESTIC METER BOX IS LOCATED IN CONCRETE.
- F. THIS DETAIL FOR SINGLE FAMILY RESIDENTIAL ONLY.



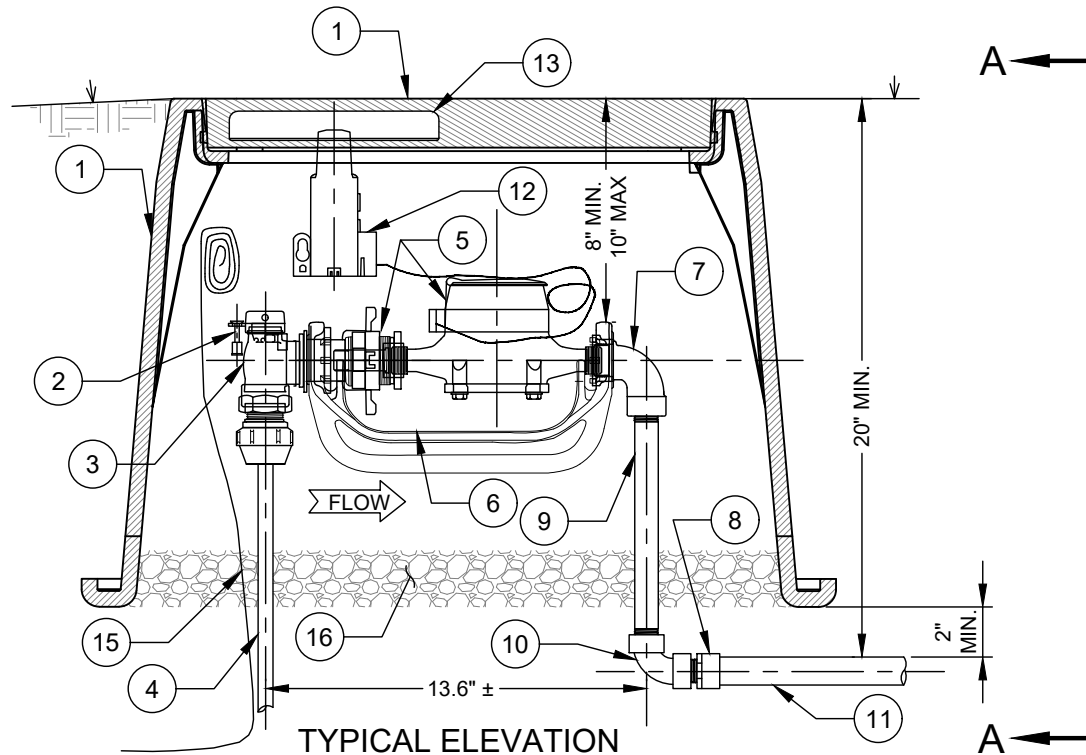
SUPPLIER/MANUFACTURER: SOUTHEASTERN DISTRIBUTORS MODEL MB-17.5 GREEN BOX & LID (COLOR-PANTONE #355C) WITH AMR TRANSMITTER SUPPORT BRACKET (AS SHOWN)

- NO. DESCRIPTION:
1. AMR TRANSMITTER SUPPORT.
 2. 1 INCH DIAMETER PICK HOLE.
 3. 1/8" X Ø3/4" RARE EARTH MAGNET.
 4. IMPRINTED "M" UNDER MAGNET.





PLAN



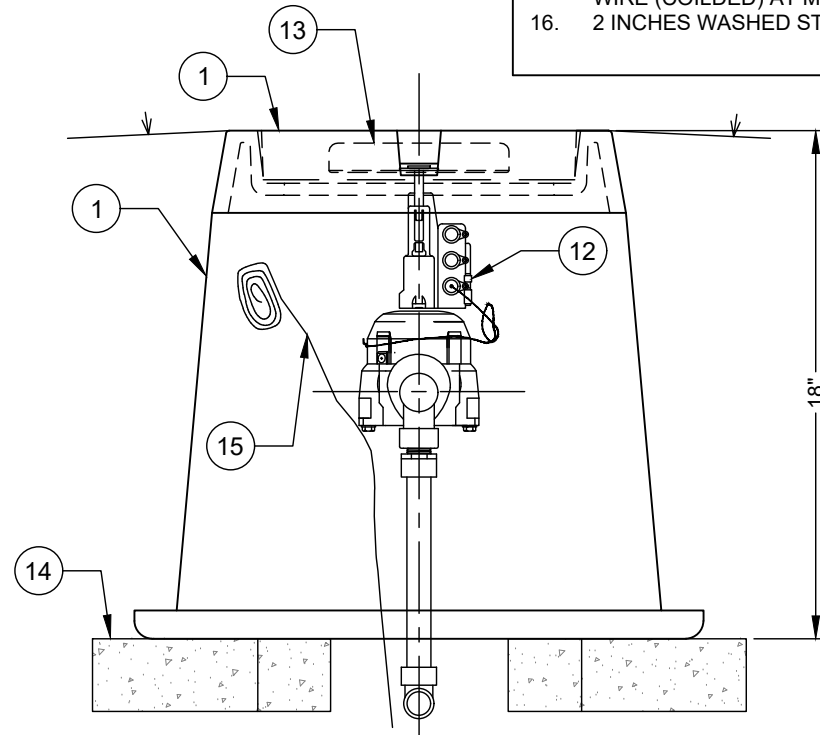
TYPICAL ELEVATION

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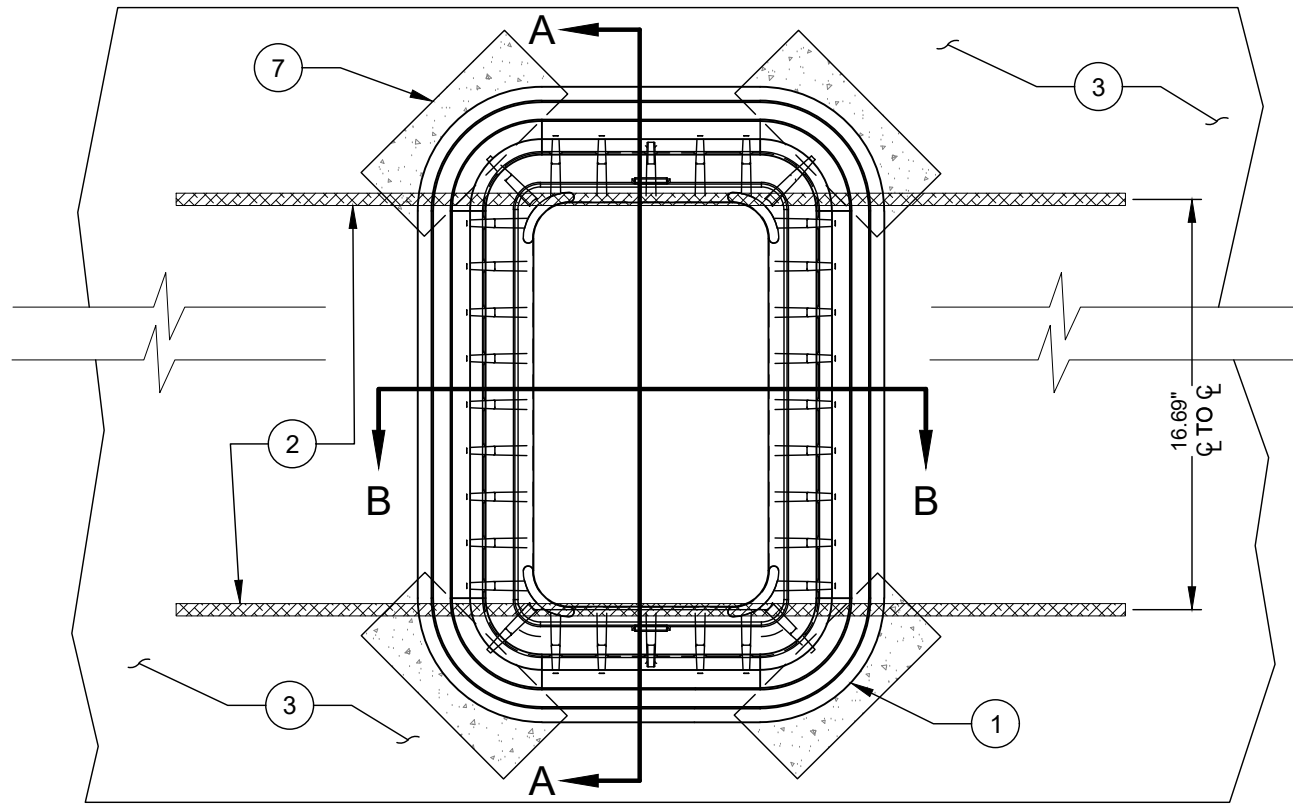
- A. CENTER ANGLE BALL VALVE / 90° CONNECTOR (NO. 3 / NO. 7) IN METER BOX.
- B. SHOWN AS 3/4" SERVICE, USE 1" COMPONENTS FOR 1" IRRIGATION SERVICE.
- C. SOLVENT WELDS ON PVC PIPE / FITTINGS SHALL BE CLEANED AND PRIMED PRIOR TO APPLYING GLUE.

NO. DESCRIPTION:

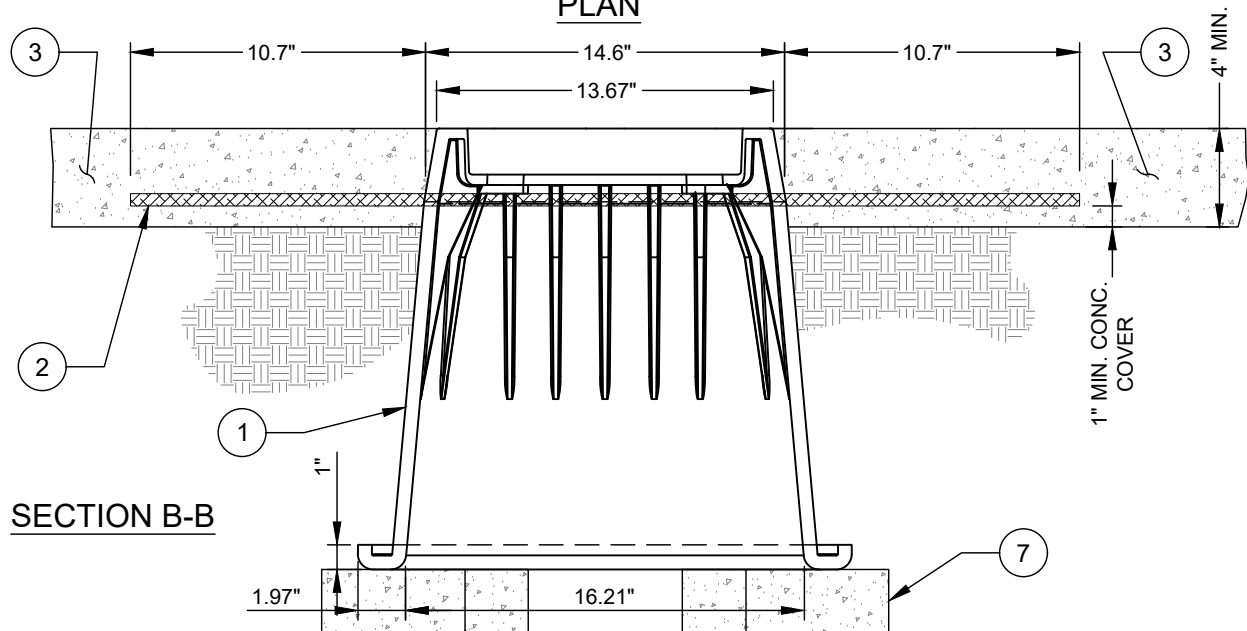
- 1. PLASTIC GREEN METER BOX AND GREEN LID (CONCRETE BOX REQUIRED IN CONCRETE SIDEWALK APPLICATIONS AS DIRECTED).
- 2. STUD LOCK, FURNISHED BY CHARLOTTE WATER.
- 3. 3/4" x 5/8" ANGLE BALL VALVE W / LOCK WINGS (LOCKED - CLOSED).
- 4. 3/4" COPPER TUBING OR 3/4" HDPE - COPPER TUBING SIZE (CTS).
- 5. 5/8" METER ASSEMBLY, WITH ERT AMR, FURNISHED BY CHARLOTTE WATER.
- 6. 5/8" YOKE BAR.
- 7. BRASS 90° YOKE STAR NUT x FNPT CONNECTOR - (MULLER H - 14214 FORD L - 91, OR McDONALD 4779FY).
- 8. SCH. 80 PVC ADAPTER (MNPT x SOCKET).
- 9. 3/4" OR 1" RED BRASS NIPPLE (LL = 6" OR 9" AS REQUIRED FOR CLEARANCE).
- 10. BRASS 90° BEND (FNPT X FNPT).
- 11. 3/4" SCH. 40 PVC TAIL PIPE (L = 24").
- 12. ERT - ELECTRONIC RADIO TRANSMITTER.
- 13. TRANSMITTER SUPPORT SLOT.
- 14. SOLID STANDARD CONCRETE BRICK-DIAGONAL AT CORNERS - 4 EACH.
- 15. AWG #12 GAUGE SOLID COPPER TRACER WIRE WITH BLUE 30 MIL HDPE INSULATION, TERMINATE WITH 24 INCH EXCESS WIRE (COILDED) AT METER BOX AND VALVE BOX (TYP.).
- 16. 2 INCHES WASHED STONE INSIDE BOX.



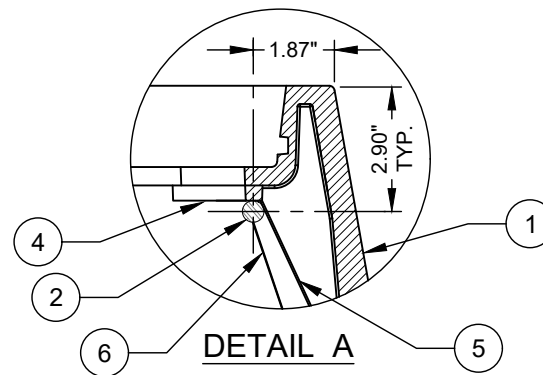
VIEW A-A



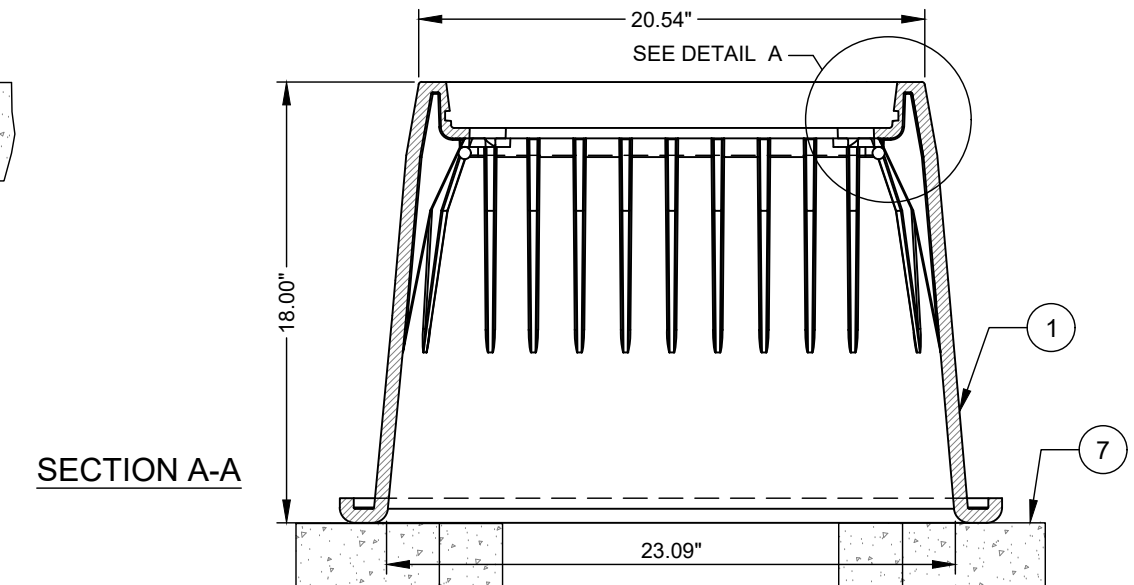
PLAN



SECTION B-B



DETAIL A



SECTION A-A

NO. DESCRIPTION:

1. GREEN PLASTIC IRRIGATION WATER SERVICE METER BOX AND GREEN PLASTIC LID.
2. 1/2" DIAMETER REBAR x 2, L = 36 INCHES, INSTALLED THROUGH 1/2" DIAMETER DRILLED HOLES IN METER BOX WALLS AND CORNER RIBS. LOCATE AS SHOWN WITH BOX LIP AND SIDE RIBS RESTING ON REBAR.
3. CONCRETE HARDSCAPE, $f'_c = 3,600$ PSI, MINIMUM.
4. BOX LIP.
5. SIDE RIB.
6. CORNER RIB.
7. SOLID STANDARD CONCRETE BRICK - DIAGONAL AT 4 CORNERS.

NOTES:

- A. RELOCATE METER BOX OUTSIDE CONCRETE HARDSCAPE WHEN POSSIBLE.
- B. RELOCATION AND FINAL LOCATION REQUIRES CHARLOTTE WATER APPROVAL.
- C. IF RELOCATION IS NOT POSSIBLE, METER BOX MUST BE LOCATED COMPLETELY WITHIN CONCRETE.
- D. METER BOX SHALL BE SET FLUSH WITH CONCRETE.