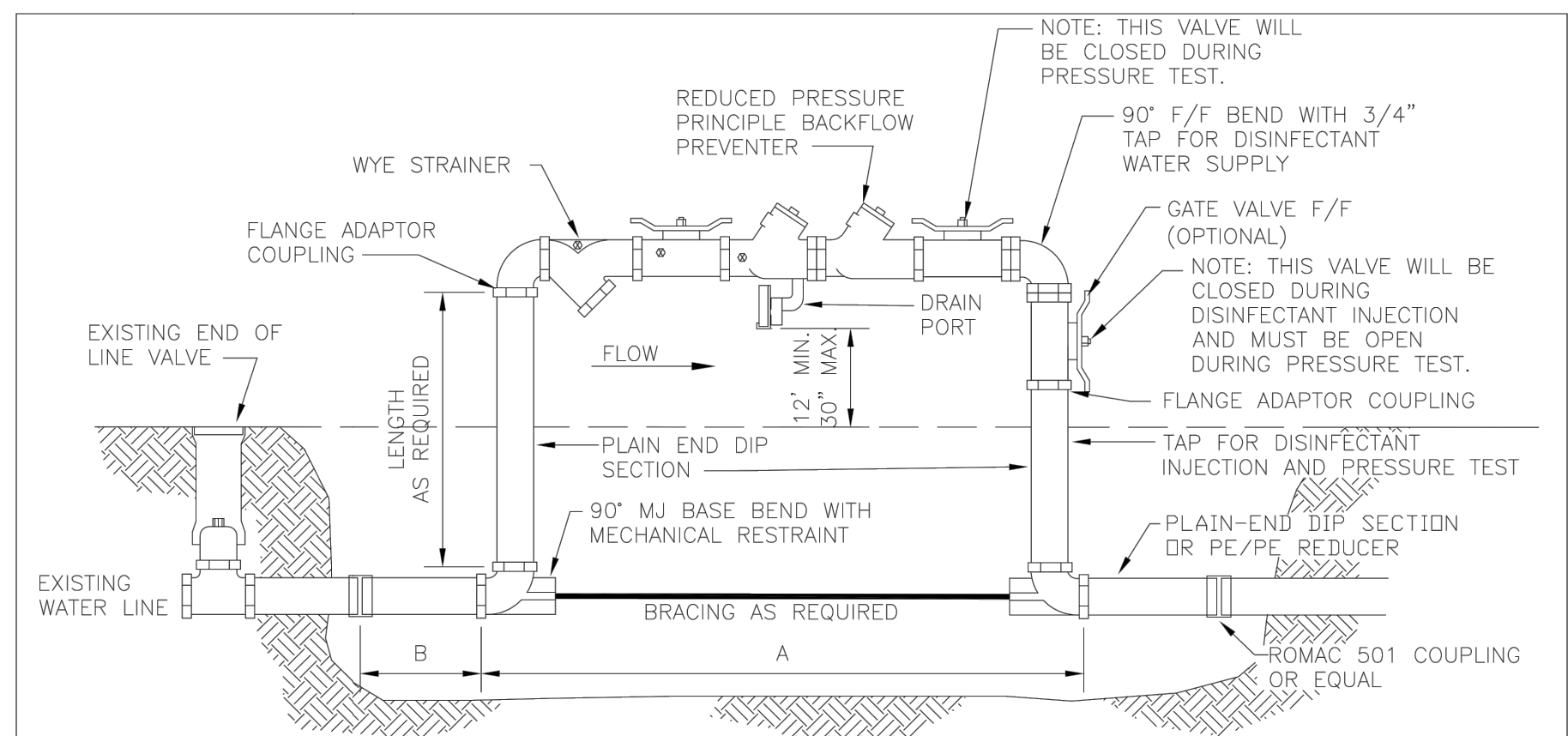


DESIGNED BY: SM  
 DRAWN BY: BCC  
 CHECKED BY: SM  
 APPROVED BY:  
 DATE: 12/09/14  
 REVISED:

**UTILITIES UNIT**  
 UTILITIES ENGINEERING SECTION

1555 MAIL SERVICES CENTER  
 RALEIGH NC 27699-1555  
 PHONE (919) 707-6690  
 FAX (919) 250-4151

UTILITY CONSTRUCTION

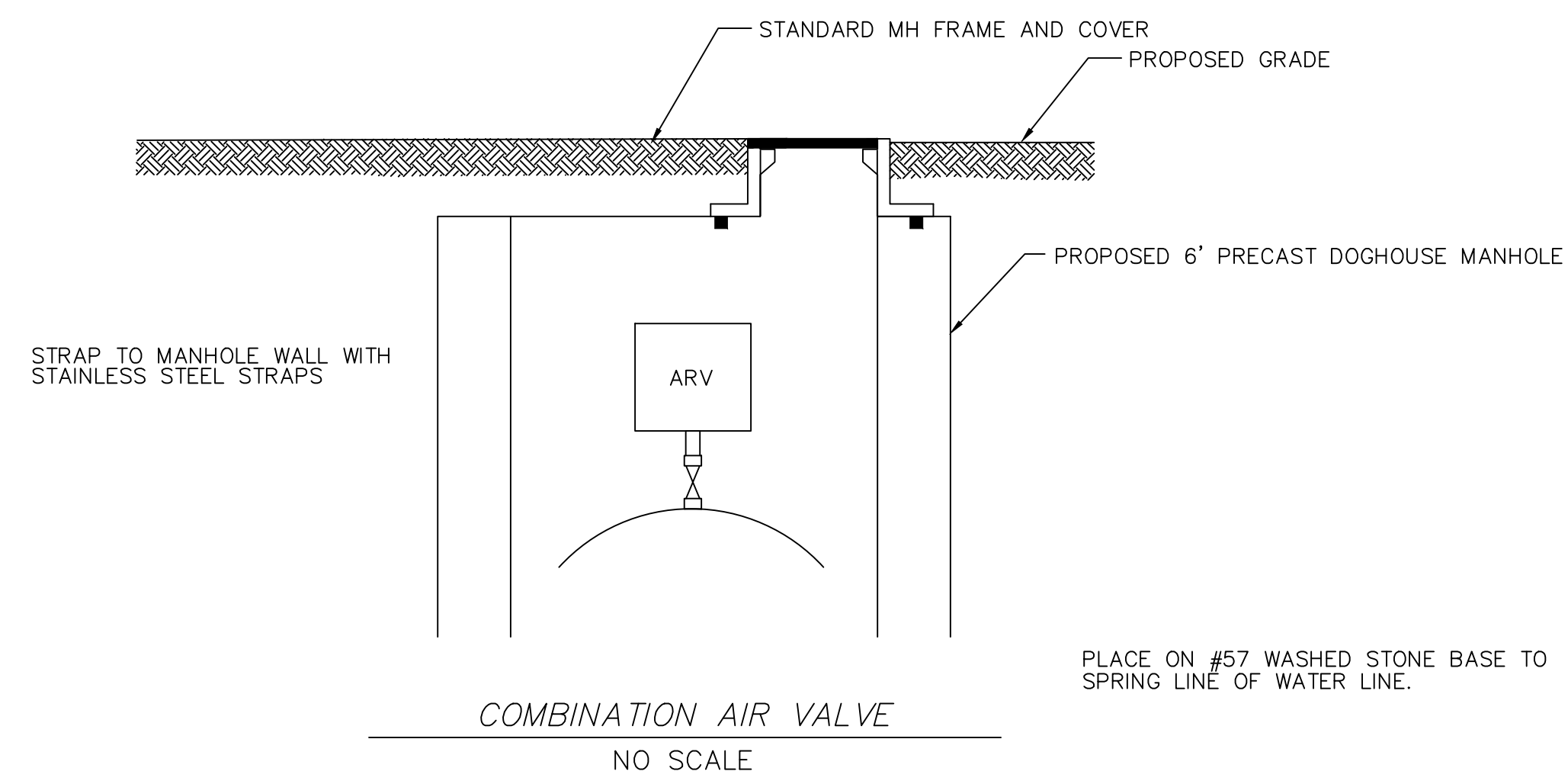


BACKFLOW DEVICE	A	WATER MAIN SIZE	B	WATER MAIN SIZE	MIN. BACKFLOW DEVICE SIZE	MIN. END OF LINE BLOWOFF
4"	6'-3"	6"	17"	6" OR 8"	2"	2"
6"	9"	8"	19"	12"	4"	2.5
8"	11'-2"	12"	22"	16"	6"	4"
		16"	26"	24"	8"	6"

**WSACC**  
 WATER AND SEWER AUTHORITY  
 OF CABARRUS COUNTY

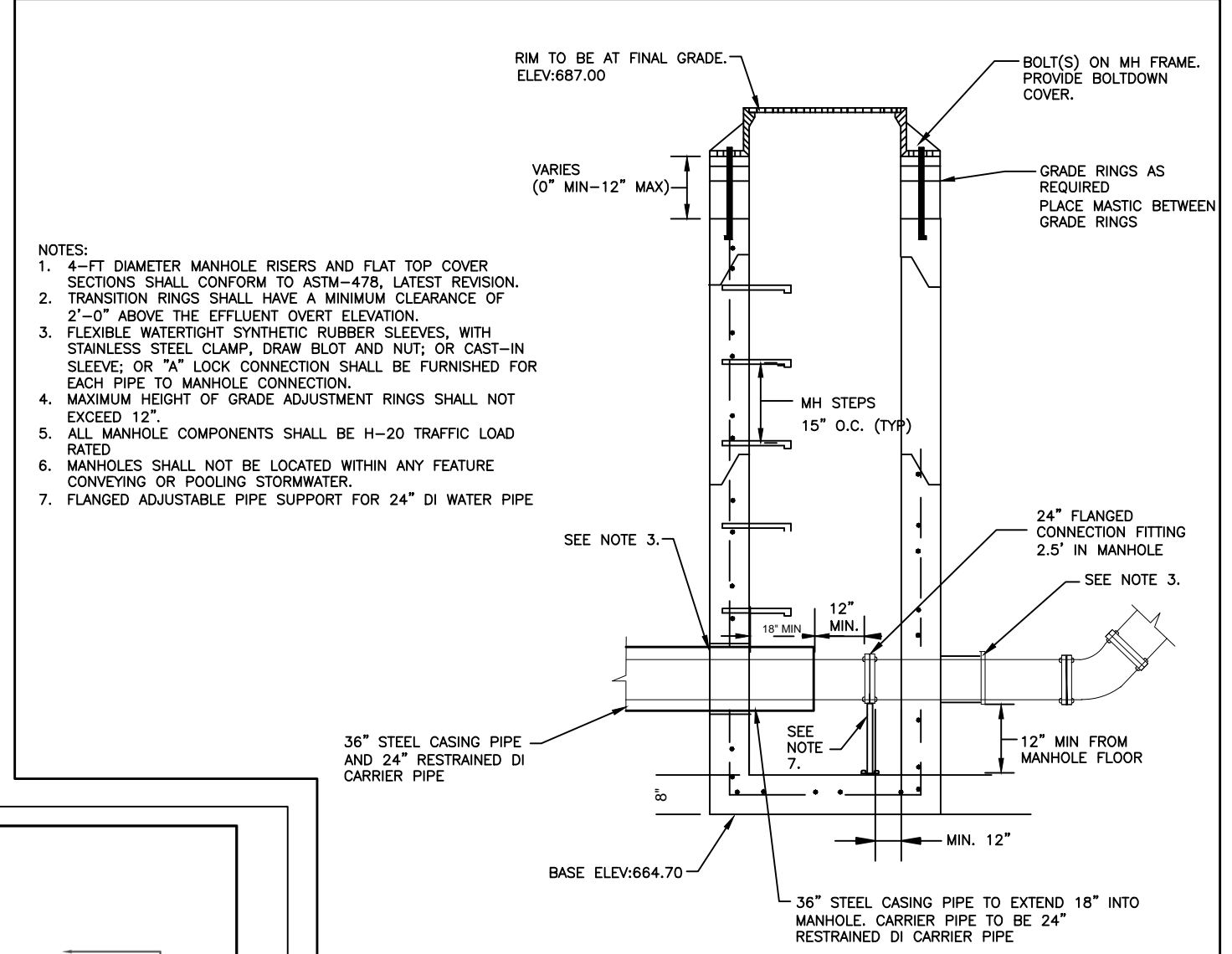
BACKFLOW PREVENTOR BY-PASS CONNECTION FOR FILLING NEW WATER MAINS  
 FILE NAME: W2.0 DATE: 8/06

REVISION NO.	DATE	BY	CHKD



- MANHOLE SHALL BE RATED FOR NCDOT SH-20 LOADING
- ALL CONCRETE SHALL BE MINIMUM 4000 PSI COMPRESSIVE STRENGTH.
- STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857
- REBARS SHALL BE GRADE 60 PER ASTM 185
- DIAGONAL REINFORCING SHALL BE ADDED TO ALL OPENINGS.
- VALVE TO BE LOCATED AT THE CENTER LINE OF MANHOLE.
- FRAME TO BE FLUSH WITH THE GROUND IN MAINTAINED ROAD OR YARD R/W.
- ALL JOINTS SHALL BE MADE WATERTIGHT USING 2 RINGS OF BUTYL RUBBER JOINT MASTIC

COMBINATION VALVE SIZES		
STA.	AIR/VACUUM VALVE	
	3"	

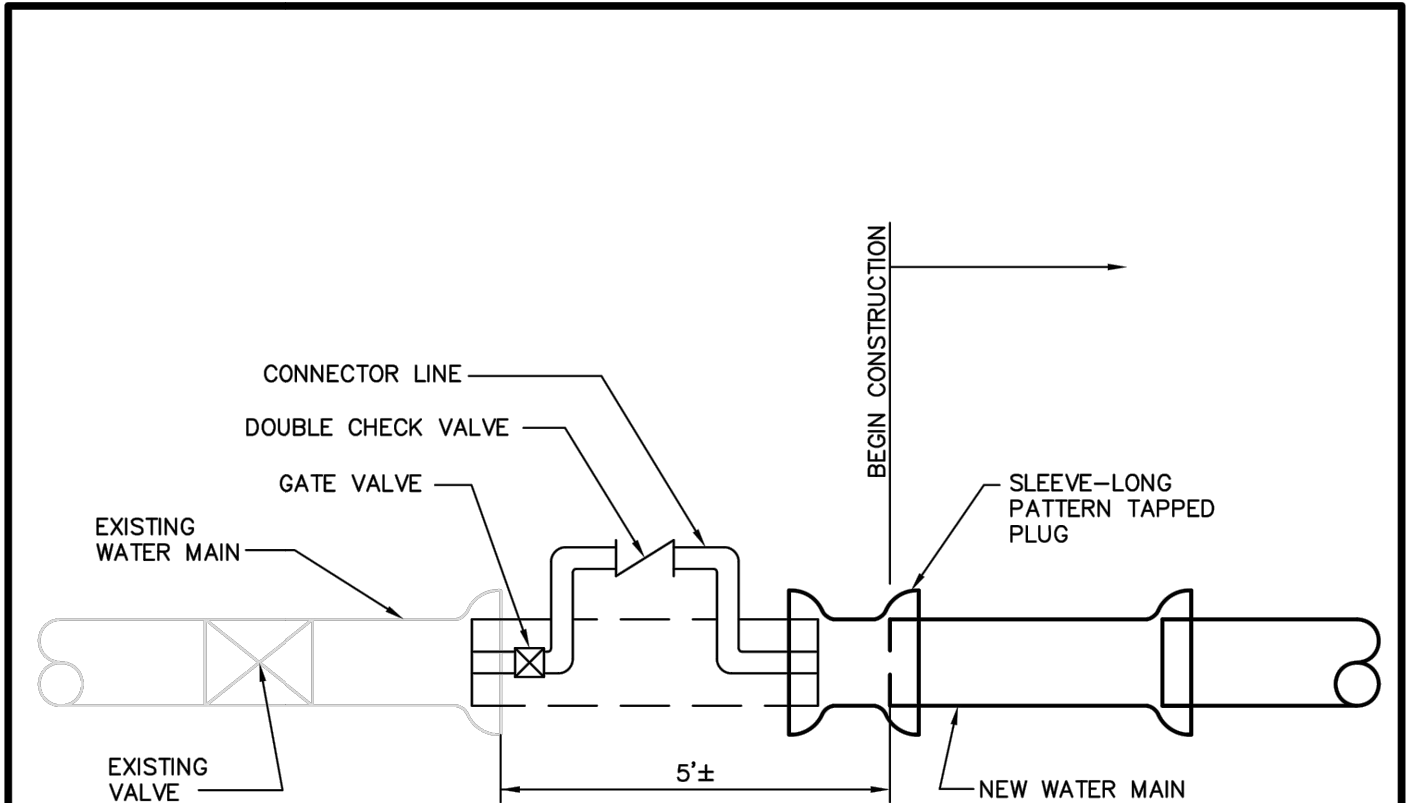


- NOTES:
- 4'-0" DIAMETER MANHOLE RISERS AND FLAT TOP COVER SECTIONS SHALL CONFORM TO ASTM-478, LATEST REVISION.
  - TRANSITION RINGS SHALL HAVE A MINIMUM CLEARANCE OF 2'-0" ABOVE THE EFFLUENT OVERTOP ELEVATION.
  - FLEXIBLE WATERTIGHT SYNTHETIC RUBBER SLEEVES, WITH STAINLESS STEEL CLAMP, DRUM BOLT AND NUT, OR CAST-IN SLEEVE OR "A" LOCK CONNECTION SHALL BE FURNISHED FOR EACH PIPE TO MANHOLE CONNECTION.
  - MAXIMUM HEIGHT OF GRADE ADJUSTMENT RINGS SHALL NOT EXCEED 12".
  - ALL MANHOLE COMPONENTS SHALL BE H-20 TRAFFIC LOAD RATED.
  - MANHOLES SHALL NOT BE LOCATED WITHIN ANY FEATURE CONVEYING OR POOLING STORMWATER.
  - FLANGED ADJUSTABLE PIPE SUPPORT FOR 24" DI WATER PIPE.

CITY OF CONCORD STANDARD DETAIL

**CONCORD** WATER MAIN FLANGE & FITTINGS BY 4' DIAMETER PRECAST CONCRETE MANHOLE

No.	Date	By	REVISION	Checked By:	Approved By:	Date	Sh#	of
1		SVM		PK	MSH	10/14	1	1



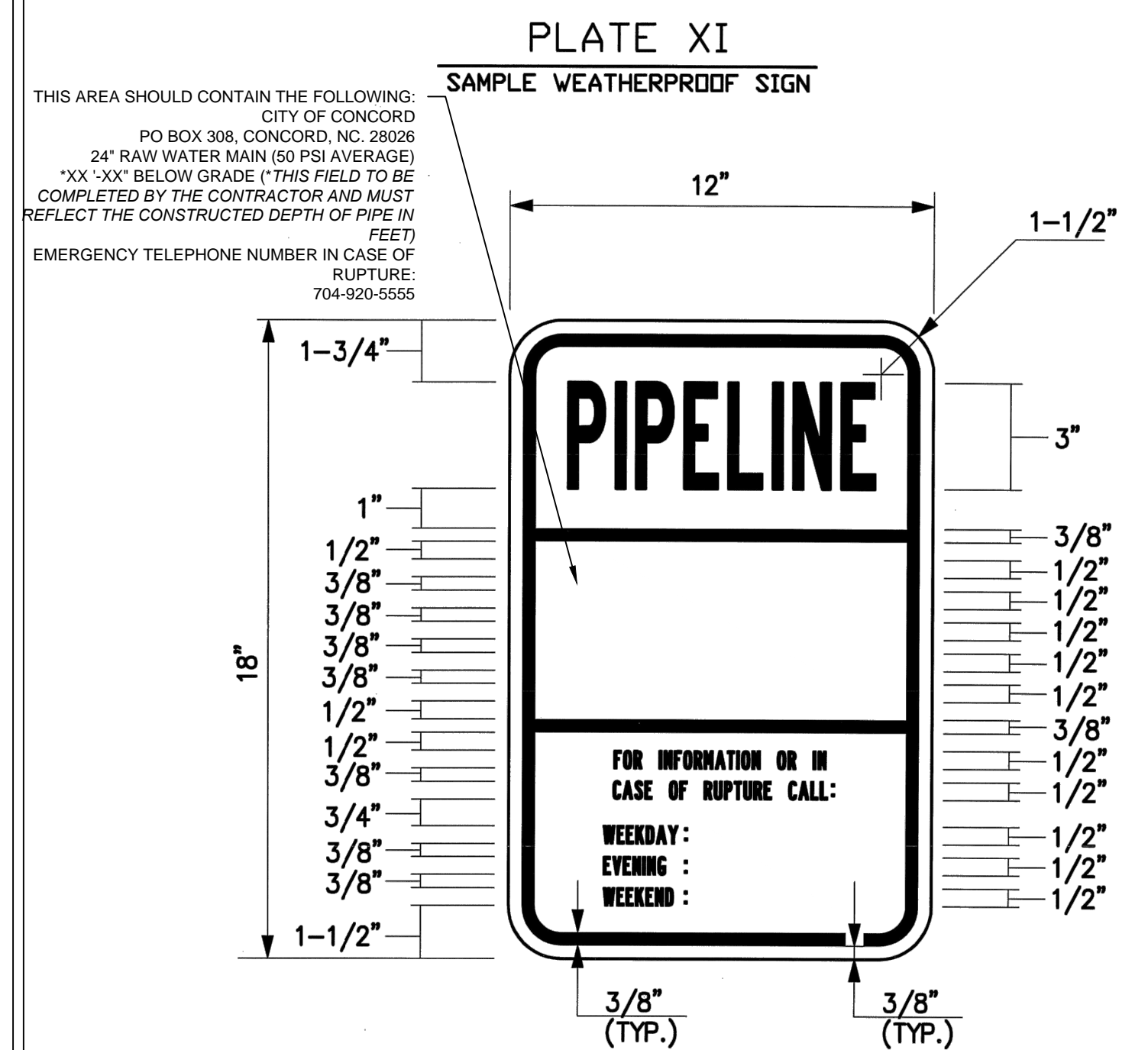
- NOTES:
- INSTALL CONNECTOR LINE FROM EXISTING BLOW OFF ASSEMBLY TO NEW MAIN FOR FILLING, TESTING AND STERILIZING NEW MAIN.
  - CONNECTOR LINE TO BE ASSEMBLED WITH CHECK VALVE AND TO BE OPERATED INDEPENDENT OF EXISTING MAIN.
  - BLOCKING ON EXISTING LINE NOT TO BE DISTURBED.
  - FINAL CONNECTION TO EXISTING MAIN TO BE MADE ONLY AFTER TOTAL PROJECT IS ACCEPTED BY THE OWNER.
  - VALVES ON EXISTING SYSTEM TO BE OPERATED BY OWNER FORCES ONLY.
  - ONLY ONE CONNECTION WILL BE ALLOWED BETWEEN THE EXISTING SYSTEM AND THE NEW CONSTRUCTION UNTIL TESTING AND DISINFECTATION IS COMPLETE.

**WSACC**  
 WATER AND SEWER AUTHORITY  
 OF CABARRUS COUNTY

JUMPER CONNECTION

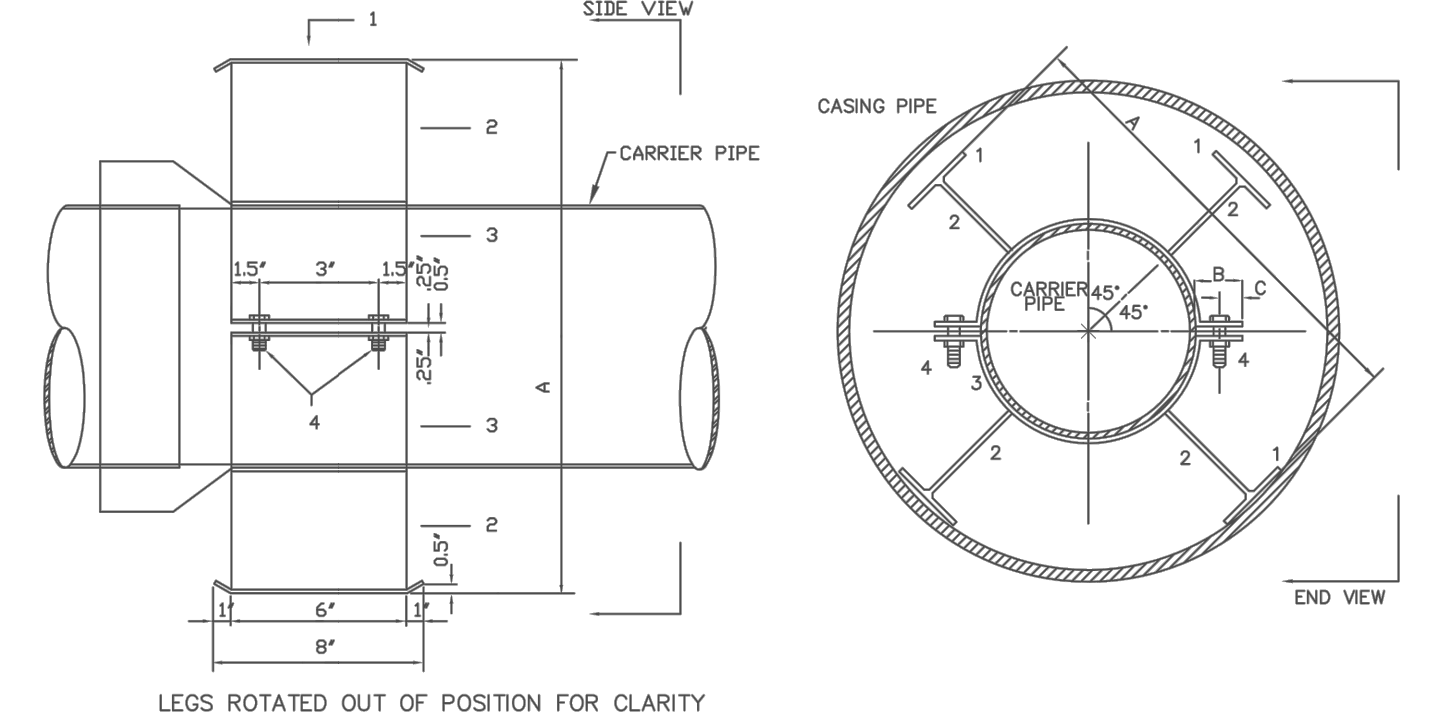
REVISION NO.	DATE	BY	CHKD

FILE NAME: W 13.0 DATE: 2/08



THIS AREA SHOULD CONTAIN THE FOLLOWING:  
 CITY OF CONCORD  
 PO BOX 308, CONCORD, NC 28026  
 24" RAW WATER MAIN (50 PSI AVERAGE)  
 \*XX'-XX" BELOW GRADE (\*THIS FIELD TO BE COMPLETED BY THE CONTRACTOR AND MUST REFLECT THE CONSTRUCTED DEPTH OF PIPE IN FEET)  
 EMERGENCY TELEPHONE NUMBER IN CASE OF RUPTURE: 704-920-5555

- SIGN DATA:
- 1/8" ALUMINUM PANEL
  - 3M SCOTCH LITE "ENGINEER GRADE" SHEETING OR APPROVED EQUAL
  - RED COPY ON WHITE BACKGROUND
  - MOUNT SIGN PANEL 5' ABOVE GRADE (MIN.)
  - USE 2 LB/FT U-CHANNEL POST (MIN.)
  - MOUNT SIGNS BACK-TO-BACK ON POST.



CARRIER PIPE NOMINAL DIA.	CASING PIPE				SPIDER DIMENSIONS			
	O. D.	O. D.	WALL	O. D.	WALL	A	B	C
6"	6.90"	12.75"	0.188"	12.75"	0.250"	11"	1 1/4"	5/8"
8"	9.05"	18"	0.250"	18"	0.312"	16 1/2"	2 1/4"	1"
12"	13.20"	24"	0.250"	24"	0.406"	22 1/2"	3"	1 1/4"
16"	17.40"	30"	0.312"	30"	0.500"	28 1/2"	3 1/2"	1"
24"	25.80"	36"	0.375"	36"	0.5625"	34 1/2"	4"	2"

- NOTES:
- CARRIER PIPE IS RESTRAINED PUSH-ON JOINT DIP, PROVIDE TWO SPIDERS PER JOINT OF CARRIER PIPE.
  - SPIDERS, NUTS, BOLTS & WASHERS SHALL BE STAINLESS STEEL.
  - ADJUST HEIGHT OF SPIDERS AS NECESSARY TO MAINTAIN SPECIFIED SLOPE.
  - CASING PIPE MATERIAL IS STEEL.

**CONCORD** CITY OF CONCORD STANDARD DETAIL CASING PIPE SPIDERS

No.	Date	By	REVISION	Checked By:	Approved By:	Date	Sh#	of
1		SVM		PK	MSH	05/11	1	1



PREPARED BY  
 ENGINEERING DEPARTMENT  
 CITY OF CONCORD  
 P.O. BOX 308  
 CONCORD N.C. 28026  
 (704) 920-5425

