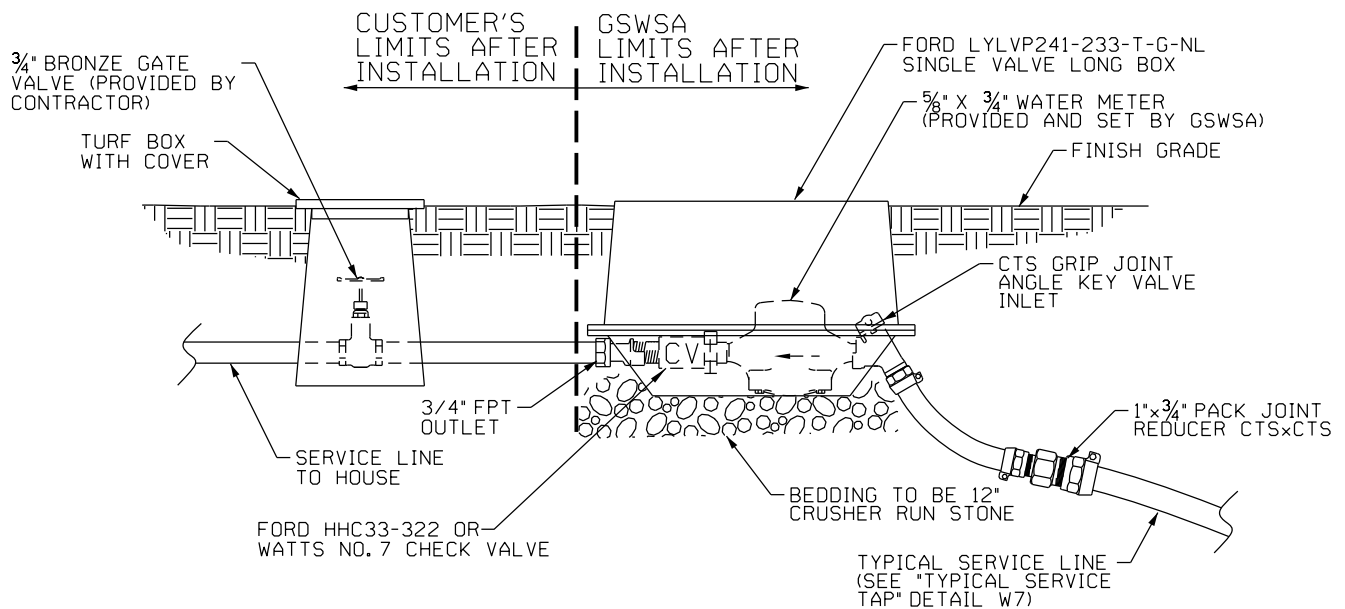


PLAN



PROFILE

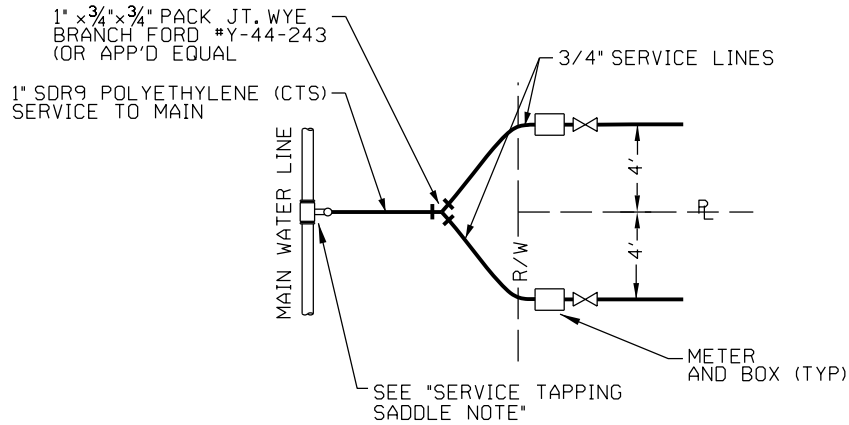
TYPICAL METER BOX 1

W1

TYPICAL WATER SERVICE DETAIL  
FOR FUTURE CUSTOMER CONNECTIONS  
(FOR GWSA RURAL & CAPITAL  
PROJECTS ONLY)

WATER ONLY  
UPDATED: 10/29/2014

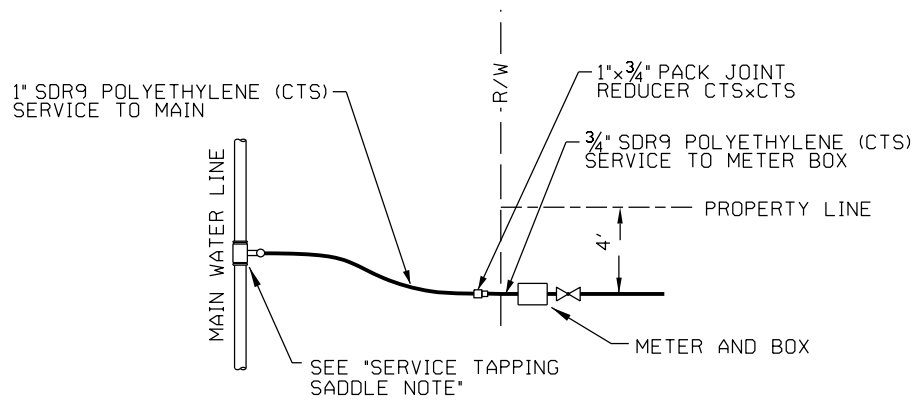
W1



SERVICE TAPPING SADDLE NOTE:  
 SMITH-BLAIR SINGLE STRAP, NYLON-COATED WITH  
 WIDE SST BANDS NO. 315; OR SMITH-BLAIR DOUBLE STRAP,  
 NYLON-COATED WITH WIDE SST BANDS NO. 317.

PLAN

TYPICAL DOUBLE SERVICE CONNECTION



SERVICE TAPPING SADDLE NOTE:  
 SMITH-BLAIR SINGLE STRAP, NYLON-COATED WITH  
 WIDE SST BANDS NO. 315; OR SMITH-BLAIR DOUBLE STRAP,  
 NYLON-COATED WITH WIDE SST BANDS NO. 317.

PLAN

TYPICAL SINGLE SERVICE CONNECTION

W3

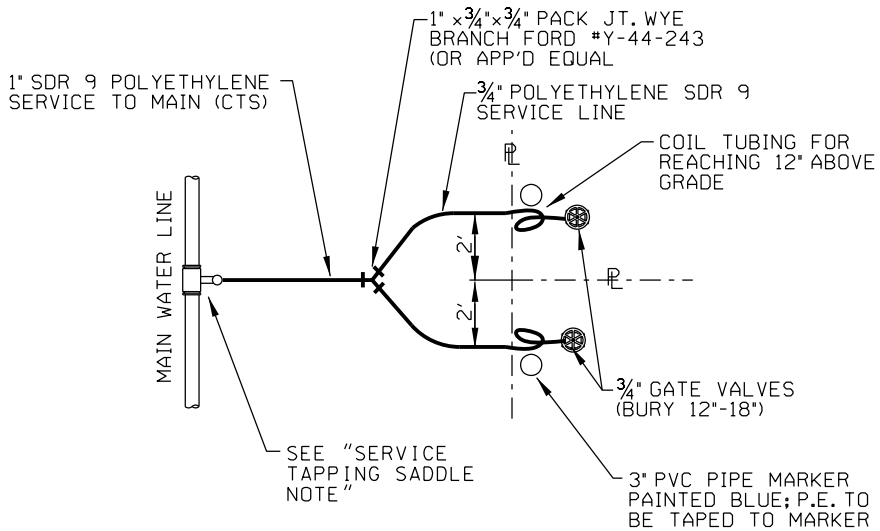
TYPICAL WATER SERVICE DETAIL  
 FOR FUTURE CUSTOMER CONNECTIONS  
 (FOR GSWA RURAL & CAPITAL  
 PROJECTS ONLY)

WATER ONLY  
 UPDATED: 06/19/09

W3

LATEST REVISION:  
 06/19/09 DRT CHANGED TEE TO WYE, ADDED PACK JOINT  
 REDUCER AND REVISED SIZES.

GRAND STRAND  
 WATER & SEWER AUTHORITY



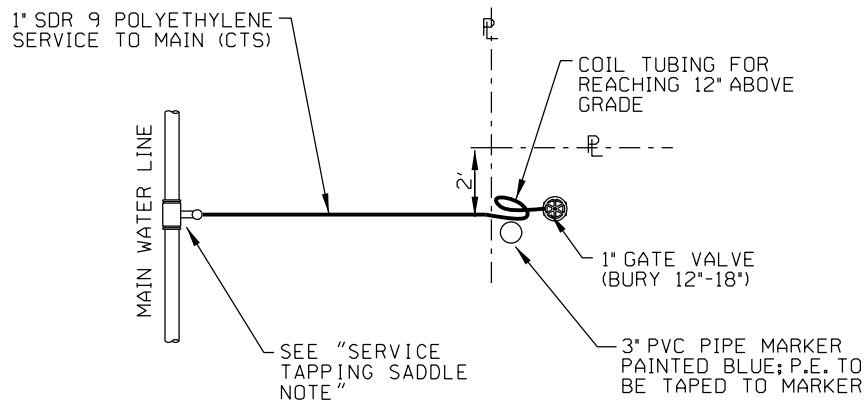
SERVICE TAPPING SADDLE NOTE:  
 SMITH-BLAIR SINGLE STRAP, NYLON-COATED WITH  
 WIDE SST BANDS NO. 315; OR SMITH-BLAIR DOUBLE STRAP,  
 NYLON-COATED WITH WIDE SST BANDS NO. 317.

PLAN

TYPICAL DOUBLE SERVICE CONNECTION  
 FOR FUTURE CUSTOMER CONNECTIONS  
 (FOR DEVELOPER PROJECTS ONLY)

W4

TYPICAL DOUBLE SERVICE CONNECTION FOR FUTURE CUSTOMER CONNECTIONS (FOR DEVELOPER PROJECTS ONLY)	
WATER ONLY UPDATED: 6/26/02	W4
GRAND STRAND WATER & SEWER AUTHORITY	



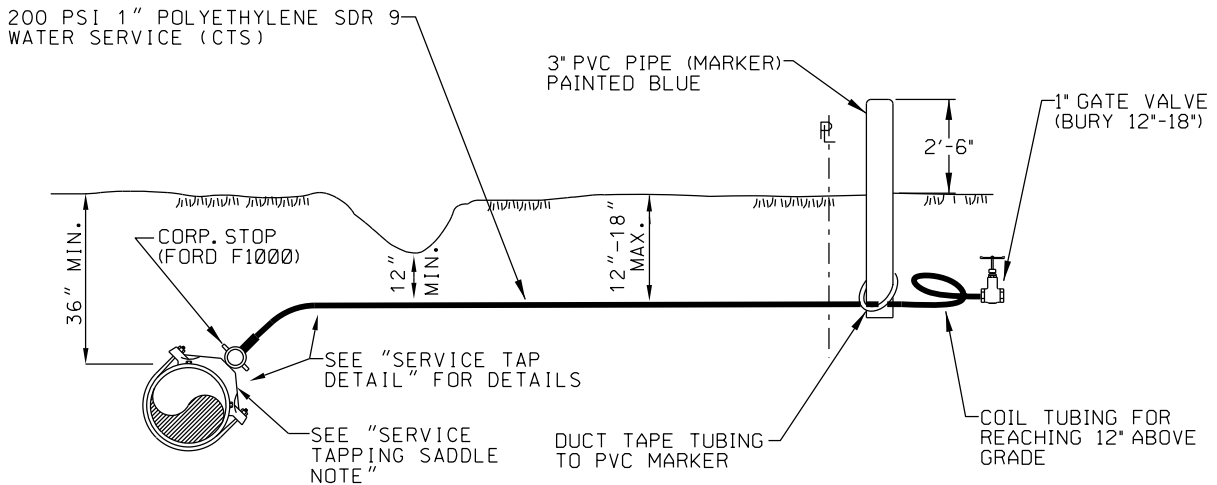
SERVICE TAPPING SADDLE NOTE:  
 SMITH-BLAIR SINGLE STRAP, NYLON-COATED WITH  
 WIDE SST BANDS NO. 315; OR SMITH-BLAIR DOUBLE STRAP,  
 NYLON-COATED WITH WIDE SST BANDS NO. 317.

PLAN

TYPICAL SINGLE SERVICE CONNECTION  
FOR FUTURE CUSTOMER CONNECTIONS  
(FOR DEVELOPER PROJECTS ONLY)

W5

TYPICAL SINGLE SERVICE CONNECTION FOR FUTURE CUSTOMER CONNECTIONS (FOR DEVELOPER PROJECTS ONLY)	
WATER ONLY UPDATED: 6/26/02	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">W5</div>
GRAND STRAND WATER & SEWER AUTHORITY	



SERVICE TAPPING SADDLE NOTE:  
 SMITH-BLAIR SINGLE STRAP, NYLON-COATED WITH  
 WIDE SST BANDS NO. 315; OR SMITH-BLAIR DOUBLE STRAP,  
 NYLON-COATED WITH WIDE SST BANDS NO. 317.

TYPICAL WATER SERVICE DETAIL  
FOR FUTURE CUSTOMER CONNECTIONS  
(FOR DEVELOPER PROJECTS ONLY)

W6

TYPICAL WATER SERVICE DETAIL FOR FUTURE CUSTOMER CONNECTIONS (FOR DEVELOPER PROJECTS ONLY)	
WATER ONLY UPDATED: 6/26/02	W6
GRAND STRAND WATER & SEWER AUTHORITY	

SERVICE LINE (CTS):  
 TYP. 200 PSI POLYETHYLENE  
 SDR 9 SERVICE MAT'L. PER  
 AWWA STDS. COMPRESSION  
 FITTING USE 1" FOR SINGLE  
 AND DOUBLE METER SERVICES.

CORPORATION STOP  
 FORD F1000 W/COMPRESSION  
 FITTING OR APPR. EQUAL

WATER MAIN

RUBBER GASKET

45° MIN.

SEE "SERVICE  
 TAPPING SADDLE  
 NOTE"

SERVICE TAPPING SADDLE NOTE:  
 SMITH-BLAIR SINGLE STRAP, NYLON-COATED WITH  
 WIDE SST BANDS NO. 315; OR SMITH-BLAIR DOUBLE STRAP,  
 NYLON-COATED WITH WIDE SST BANDS NO. 317.

## TYPICAL SERVICE TAP

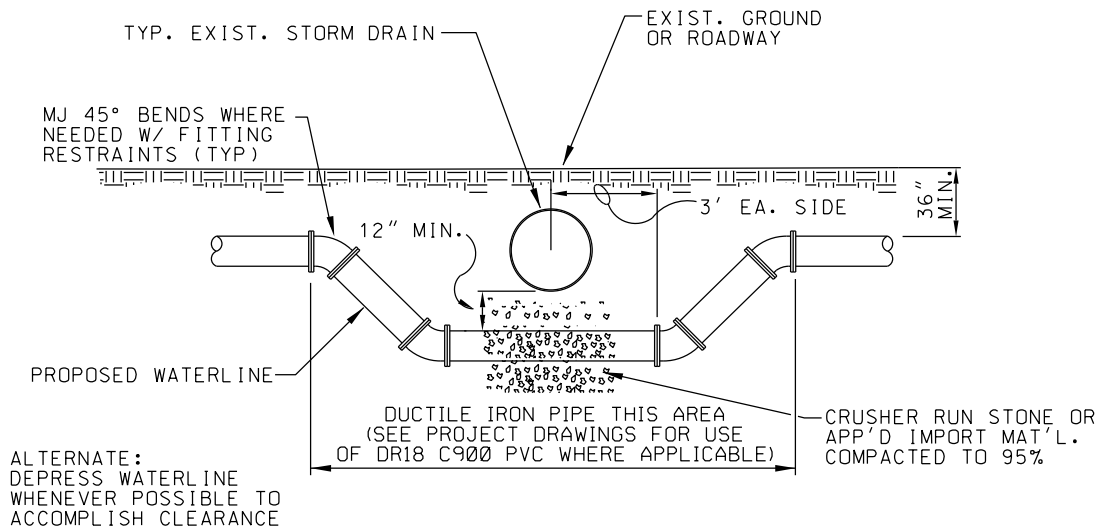
W7

### TYPICAL SERVICE TAP

WATER ONLY  
 UPDATED: 08/28/06

W7

GRAND STRAND  
 WATER & SEWER AUTHORITY



## TYPICAL STORM DRAIN CROSSING

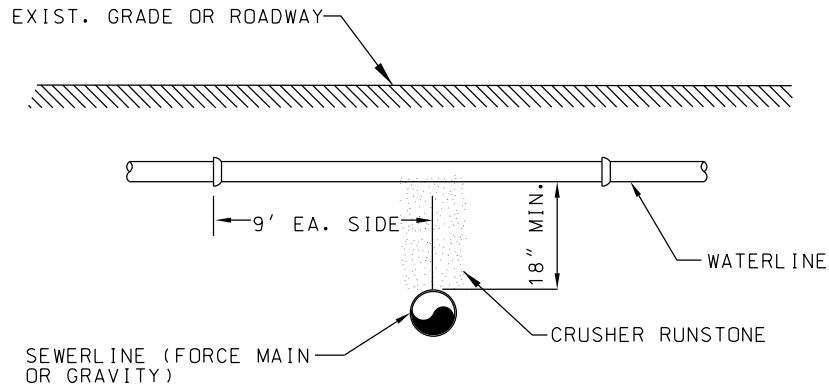
W8

TYPICAL  
STORM DRAIN CROSSING

WATER ONLY  
UPDATED: 5/13/02

W8

GRAND STRAND  
WATER & SEWER AUTHORITY



## TYPICAL SEWERLINE CROSSING

W9

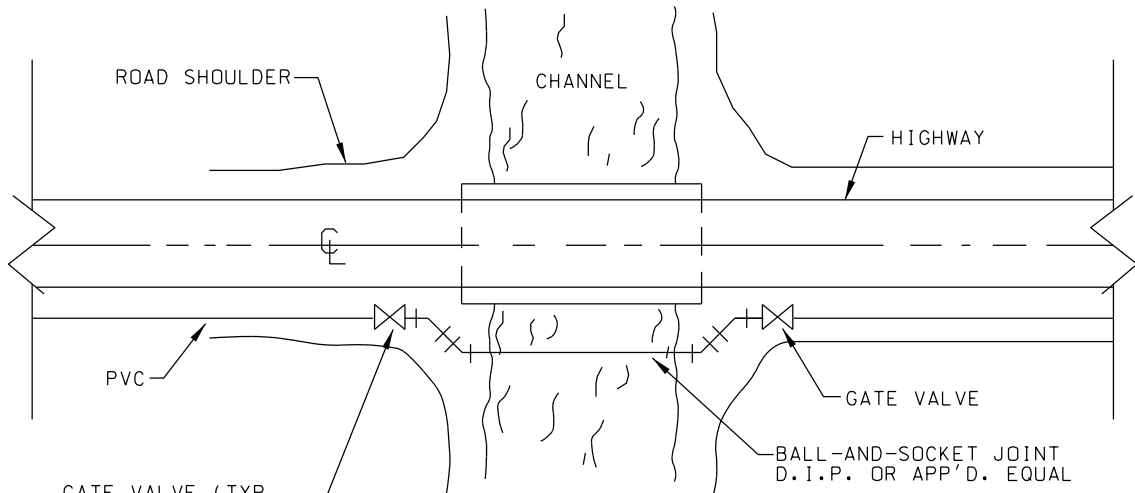
### TYPICAL SEWERLINE CROSSING

WATER ONLY  
UPDATED: 2/16/98

W9

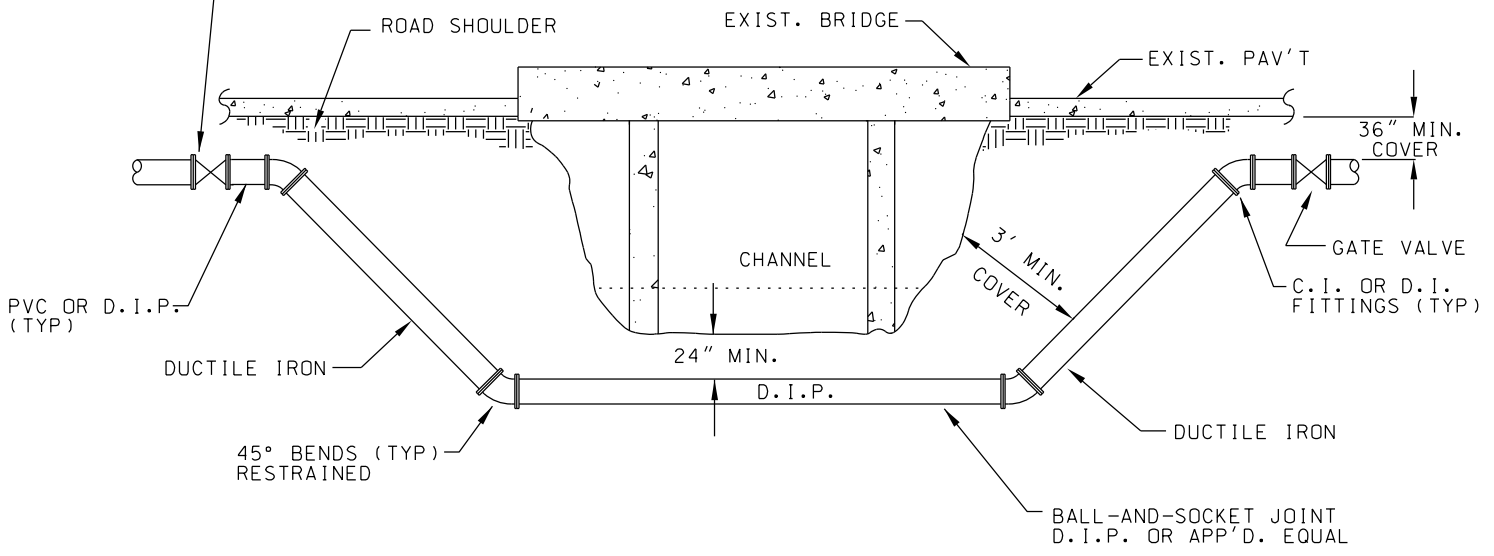
GRAND STRAND  
WATER & SEWER AUTHORITY





GATE VALVE (TYP. EA. SIDE OF WATER COURSE WIDER THAN FIFTEEN (15) FEET

PLAN



PVC OR D.I.P. (TYP)

DUCTILE IRON

45° BENDS (TYP) RESTRAINED

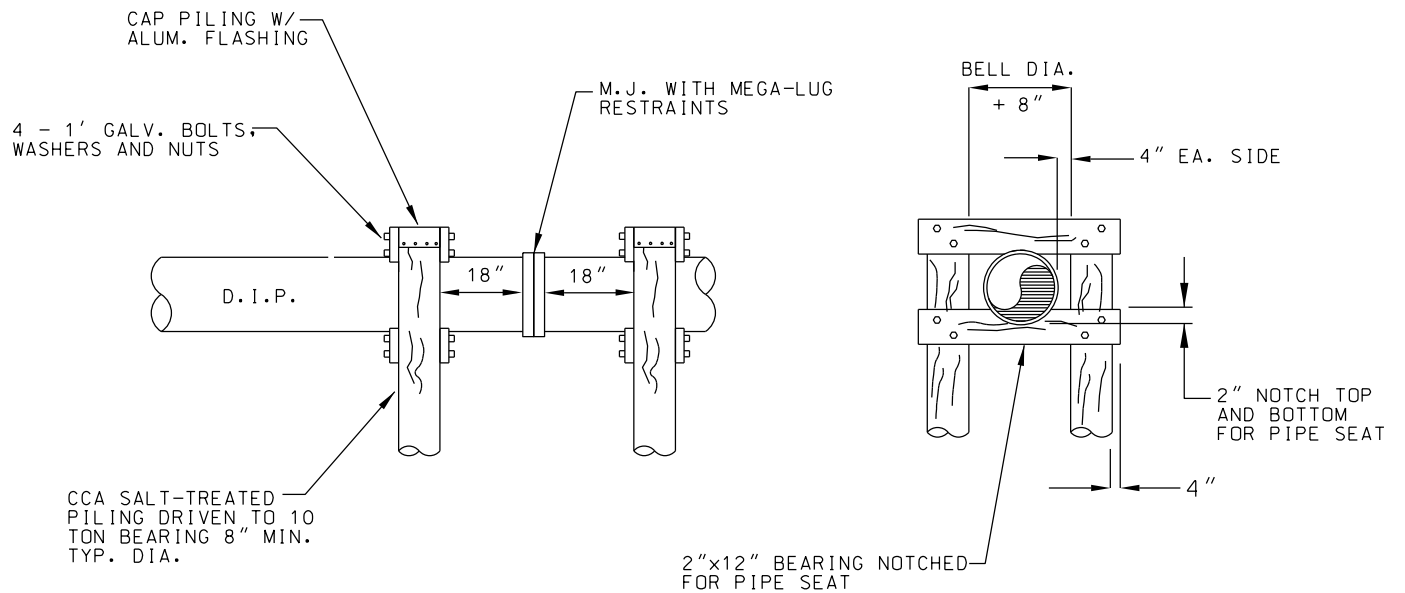
PROFILE

- NOTES:
- 1) ALL JOINTS TO BE RESTRAINED.
  - 2) FOR CROSSING WATER COURSES GREATER THAN FIFTEEN (15) FEET IN WIDTH, A BLOWOFF SHALL BE PROVIDED ON THE SIDE OPPOSITE THE SUPPLY SERVICE IF SYSTEM IS NOT LOOPED.

TYPICAL UNDER CHANNEL CROSSING AT BRIDGE

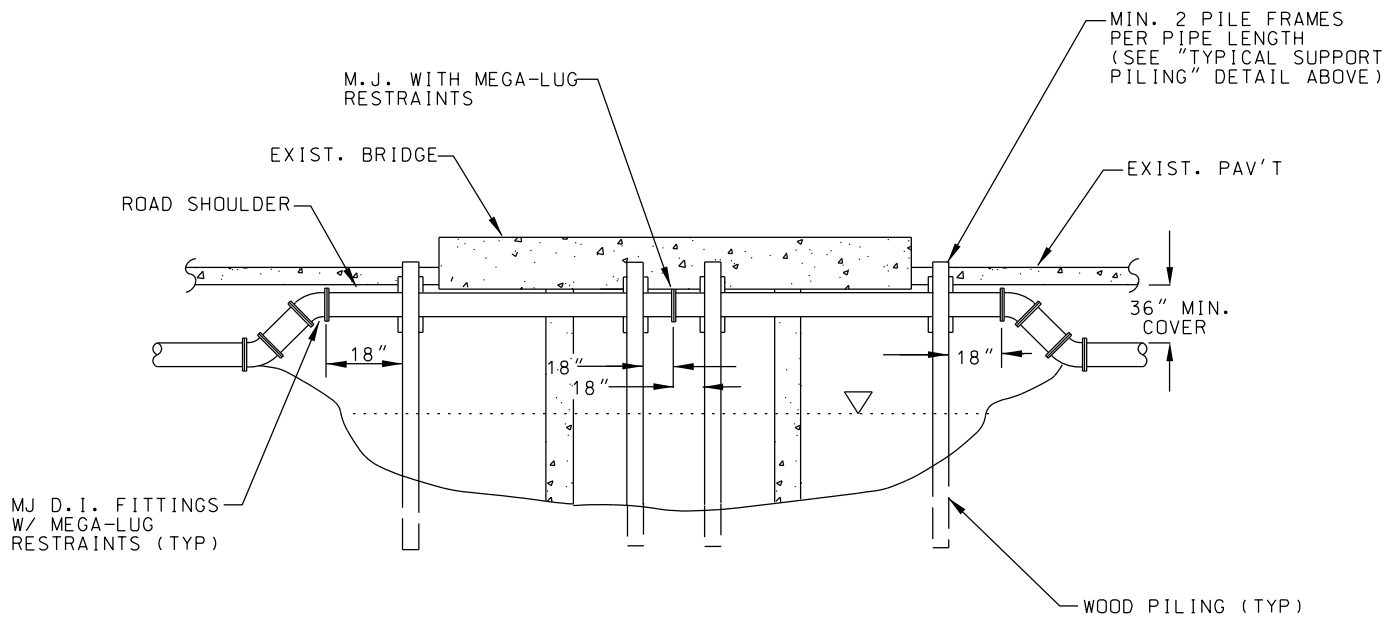
W10

<b>TYPICAL UNDER CHANNEL CROSSING AT BRIDGE</b>	
WATER ONLY UPDATED: 12/26/97	<b>W10</b>
<b>GRAND STRAND WATER &amp; SEWER AUTHORITY</b>	



TYPICAL SUPPORT PILING

NOTE: GSWA TO APPROVE CONTRACTORS PROPOSED  
LOCATION OF PILE FRAMES PRIOR TO INSTALLATION

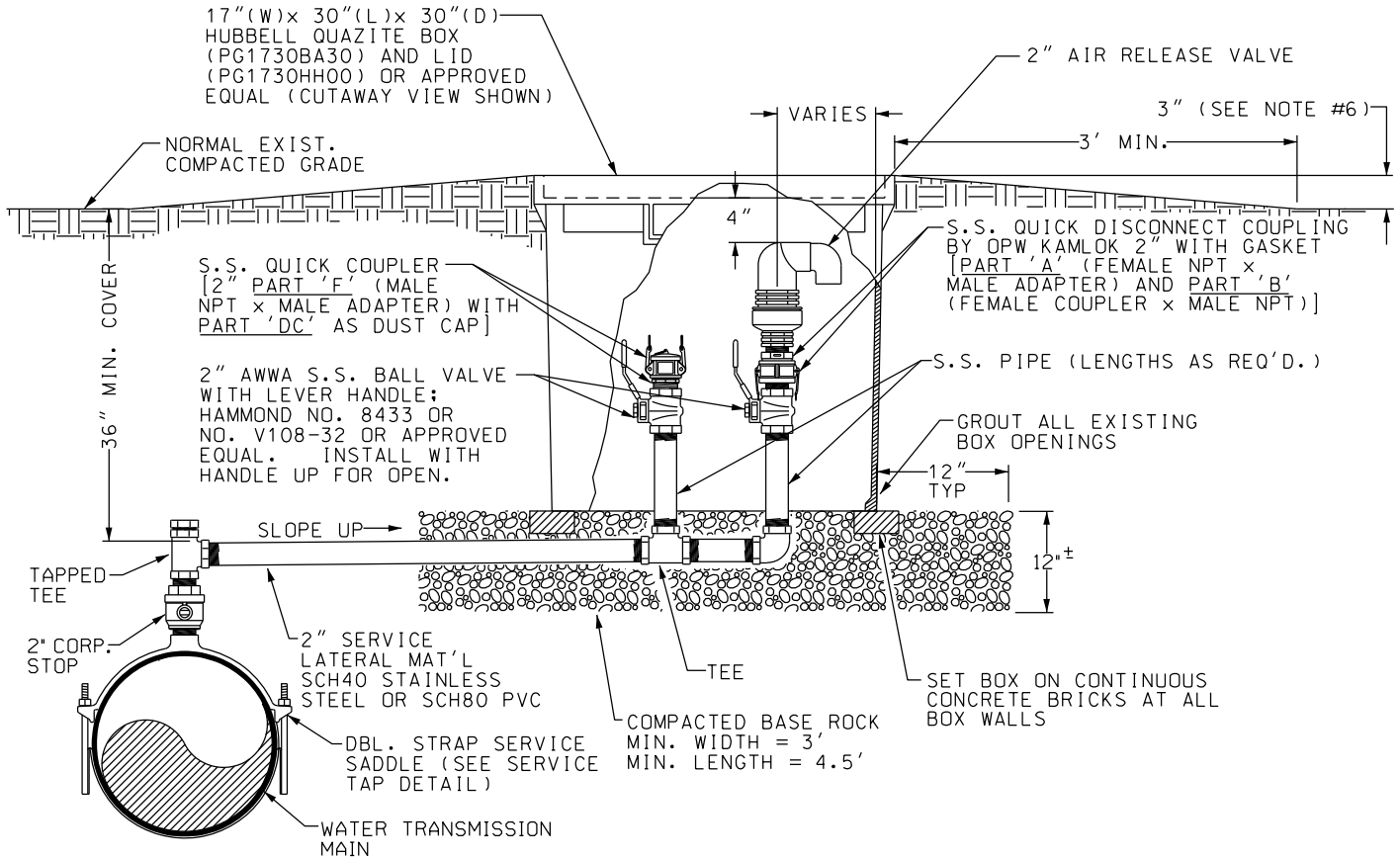


TYPICAL ABOVE CHANNEL CROSSING AT BRIDGE

W11

TYPICAL ABOVE CHANNEL CROSSING AT BRIDGE	
WATER ONLY UPDATED: 12/26/97	
W11	
GRAND STRAND WATER & SEWER AUTHORITY	

ENCLOSURE BOX AND LID SHALL BE  
 MINIMUM "TIER 22" LOAD RATING:  
 VERTICAL: 22,500 LBS (DESIGN) / 33,750 LBS (TEST)  
 LATERAL: 800 LBS/SF (DESIGN) / 1,200 LBS/SF (TEST)  
 (DRIVEWAY, PARKING LOT, AND OFF-ROADWAY APPLICATIONS  
 SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY  
 VEHICULAR TRAFFIC)



**NOTES:**

- 1) AIR RELEASE VALVE SHALL BE INSTALLED ON THE HIGH POINT OF WATER MAIN.
- 2) ALL MATERIALS & EQUIPMENT TO BE PER AWWA SPEC'S.
- 3) AIR RELEASE SHALL BE VALMATIC NO. 38, A.R.I. MODEL D-040.2 OR APPROVED EQUAL
- 4) CORP. STOP, PIPING, FITTINGS, AND VALVES TO BE SAME DIAMETER AS AIR RELEASE VALVE INLET.
- 5) LIMIT OF PAY ITEMS INCLUDES SERVICE SADDLE.
- 6) ARV ASSEMBLIES INSTALLED IN ROAD RIGHTS-OF-WAY MUST BE FLUSH WITH EXISTING SHOULDER GRADE. INSTALLATIONS IN EASEMENT AREAS SHALL BE RAISED ABOVE EXISTING GRADE AS SHOWN IN DETAIL.
- 7) 2" TEE, NIPPLE & BALL VALVE TO BE STD AWWA OR APPROVED EQUAL. NIPPLES & BALL VALVES SHALL BE STAINLESS STEEL.

**TYPICAL AIR RELEASE VALVE ASSEMBLY**

W12

LATEST REVISION:  
 07/18/08 DRT

DESCRIBED PARTS 'A' & 'B' FOR A.R.V. QUICK DISCONNECT AND CHANGED PART 'A' TO PART 'F' FOR OTHER QUICK DISCONNECT. REMOVED NOTE FOR STABILITY BLOCKING INSIDE BOX. CHANGED ENCLOSURE SUPPLIER FROM STRONGWELL TO HUBBELL.

12/02/2013 DRT CHANGED LID TO "HH" (TIER 22) AND ADDED NOTE FOR TIER 22 ENCLOSURE BOX AND LID.

**TYPICAL  
 AIR RELEASE VALVE  
 ASSEMBLY**

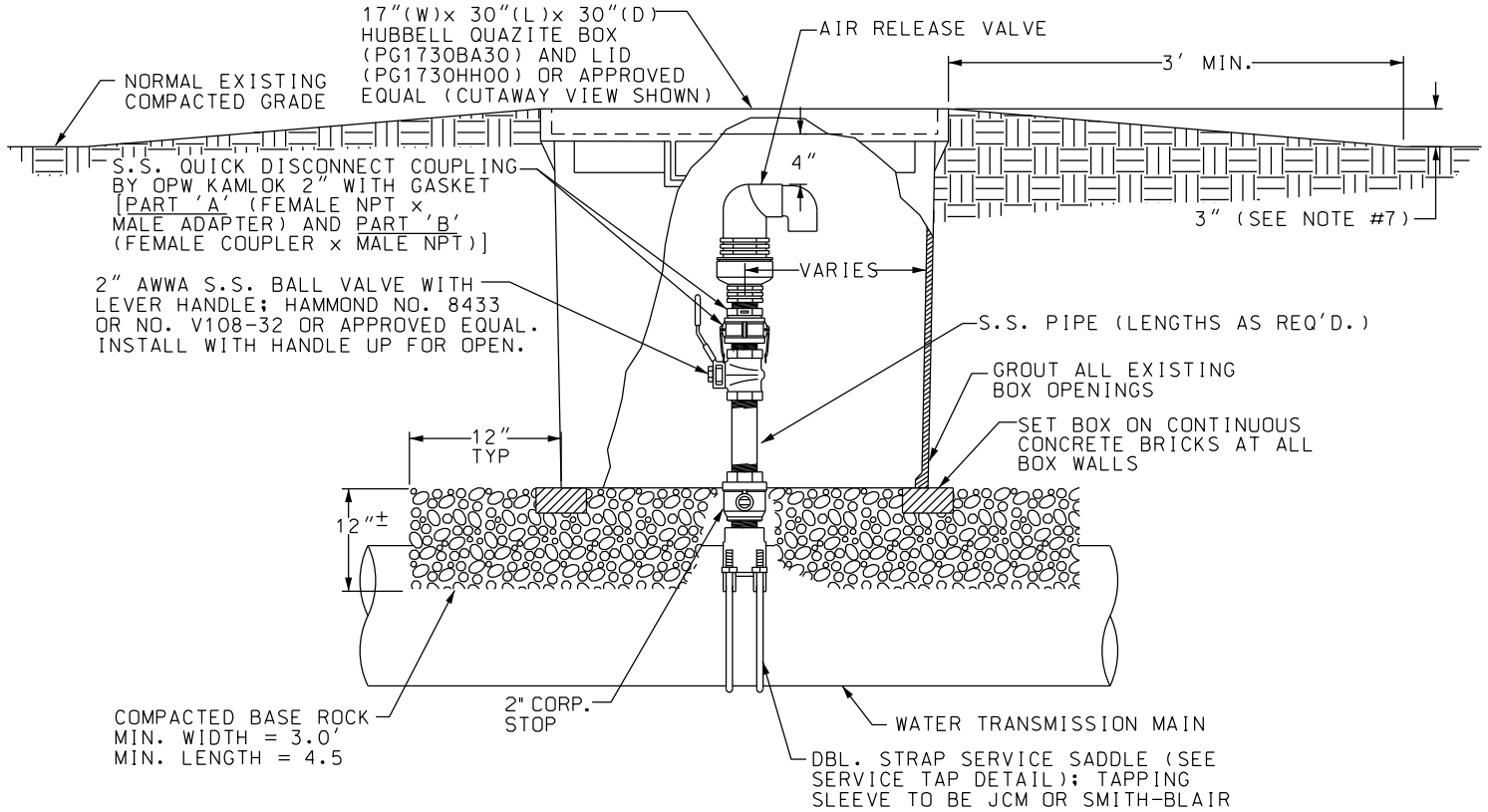
WATER ONLY  
 UPDATED: 12/02/2013

W12

GRAND STRAND  
 WATER & SEWER AUTHORITY

ENCLOSURE BOX AND LID SHALL BE  
 MINIMUM "TIER 22" LOAD RATING:  
 VERTICAL: 22,500 LBS (DESIGN) / 33,750 LBS (TEST)  
 LATERAL: 800 LBS/SF (DESIGN) / 1,200 LBS/SF (TEST)  
 (DRIVEWAY, PARKING LOT, AND OFF-ROADWAY APPLICATIONS  
 SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY  
 VEHICULAR TRAFFIC)

17"(W)x 30"(L)x 30"(D)  
 HUBBELL QUAZITE BOX  
 (PG1730BA30) AND LID  
 (PG1730HH00) OR APPROVED  
 EQUAL (CUTAWAY VIEW SHOWN)



**NOTES:**

- 1) AIR RELEASE VALVE SHALL BE INSTALLED ON THE HIGH POINT OF WATER MAIN.
- 2) ALL MATERIALS & EQUIPMENT TO BE PER AWWA SPEC'S.
- 3) AIR RELEASE SHALL BE A.R.I. MODEL D-040.2.
- 4) CORPORATION STOP, S.S. PIPE, FITTINGS, AND PIPING TO BE SAME DIAMETER AS AIR RELEASE VALVE INLET.
- 5) AIR RELEASE VALVES MUST BE NSF APPROVED.
- 6) LIMIT OF PAY ITEMS INCLUDES SERVICE SADDLE.
- 7) ARV ASSEMBLIES INSTALLED IN ROAD RIGHTS-OF-WAY MUST BE FLUSH WITH EXISTING SHOULDER GRADE. INSTALLATIONS IN EASEMENT AREAS SHALL BE RAISED ABOVE EXISTING GRADE AS SHOWN IN DETAIL.

**TYPICAL AIR RELEASE VALVE ASSEMBLY**

W13

LATEST REVISION:  
 07/18/08 DRT

12/02/2013 DRT

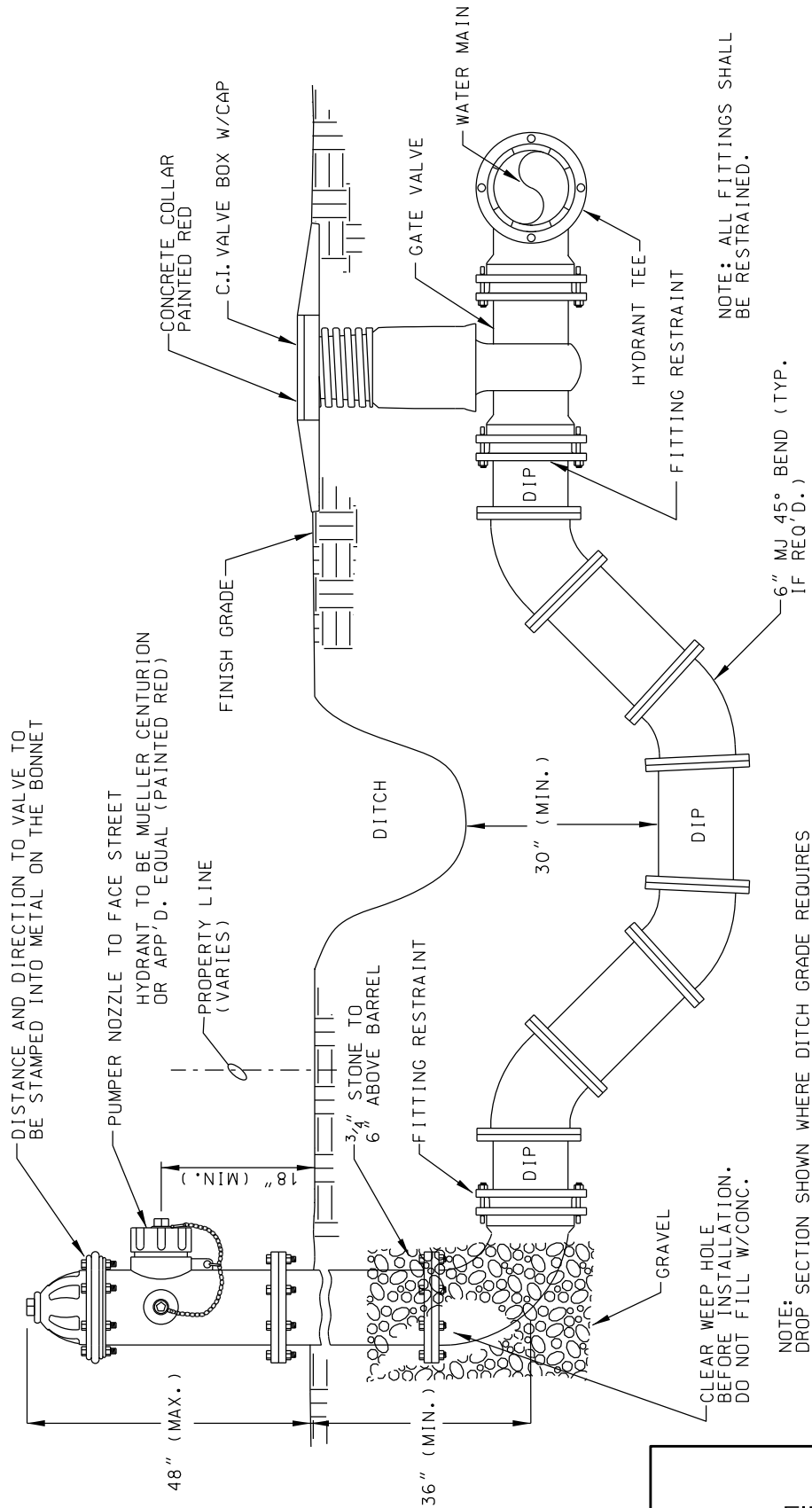
DESCRIBED PARTS 'A' & 'B' FOR QUICK DISCONNECT.  
 REMOVED NOTE FOR STABILITY BLOCKING INSIDE BOX.  
 CHANGED ENCLOSURE SUPPLIER FROM STRONGWELL TO HUBBELL.  
 CHANGED LID TO "HH" (TIER 22) AND ADDED NOTE FOR  
 TIER 22 ENCLOSURE BOX AND LID.

**TYPICAL  
 AIR RELEASE VALVE  
 ASSEMBLY**

WATER ONLY  
 UPDATED: 12/02/2013

W13

GRAND STRAND  
 WATER & SEWER AUTHORITY

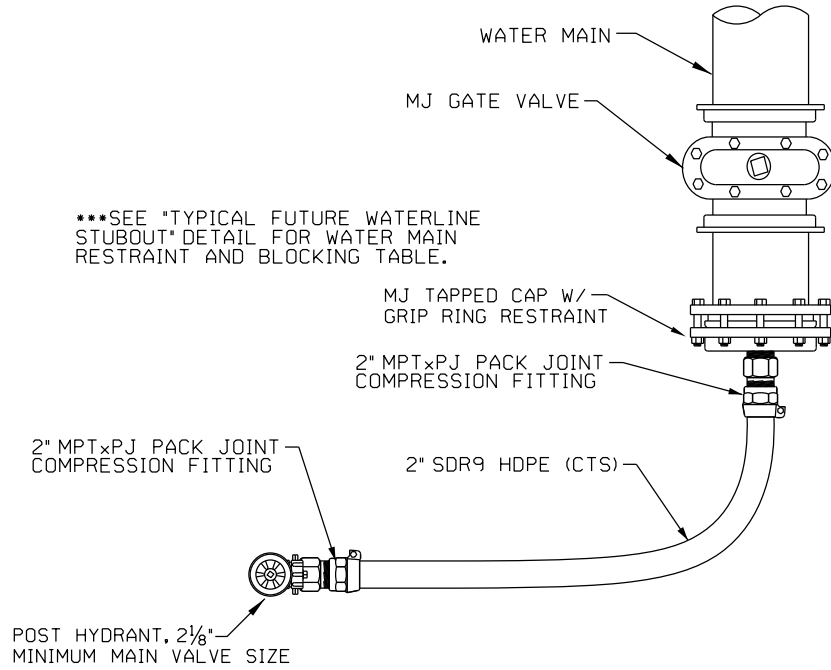


NOTE: ALL FITTINGS SHALL BE RESTRAINED.

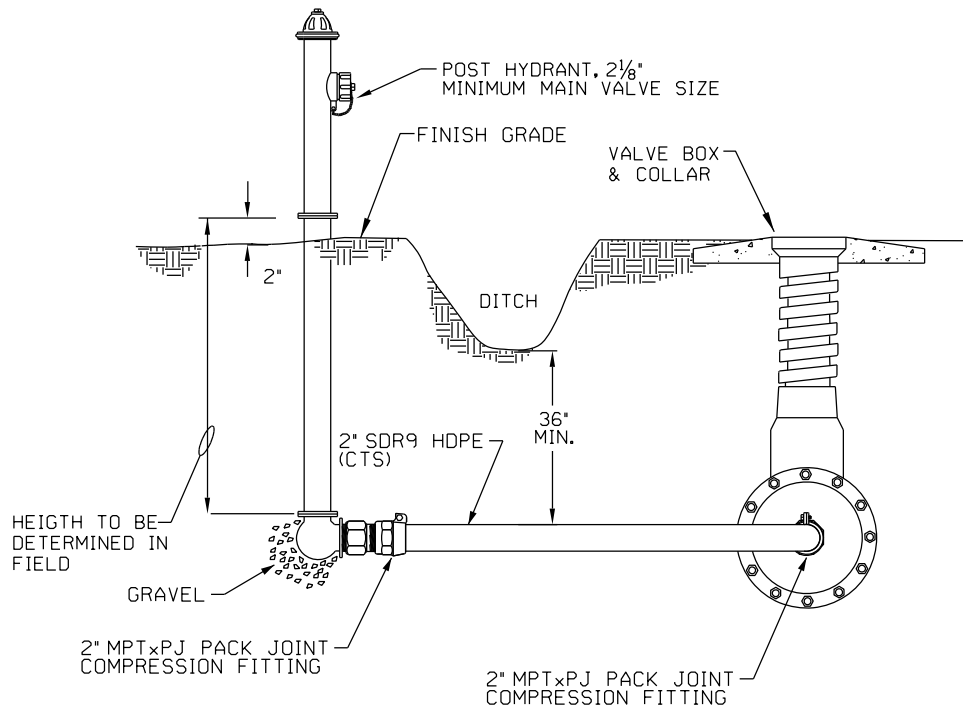
### TYPICAL FIRE HYDRANT

W14

<b>TYPICAL FIRE HYDRANT</b>	
WATER ONLY UPDATED: 8/13/01	
W14	
GRAND STRAND WATER & SEWER AUTHORITY	



PLAN



PROFILE

TYPICAL POST HYDRANT BLOW-OFF

W15

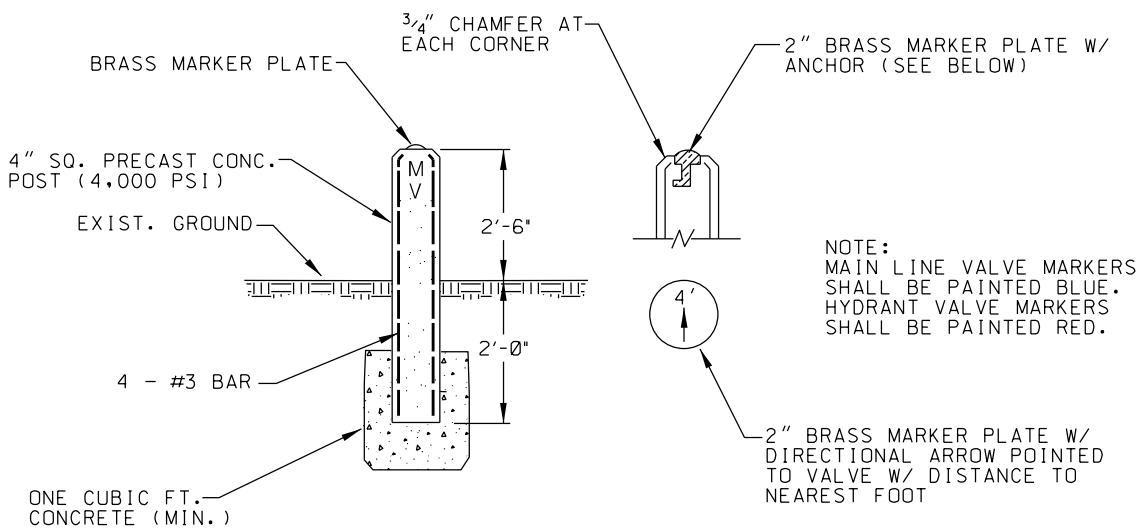
TYPICAL POST HYDRANT BLOW-OFF

WATER ONLY  
 UPDATED: 06/19/09

W15

GRAND STRAND  
 WATER & SEWER AUTHORITY

LATEST REVISION:  
 06/19/09 DRT CHANGED PH LEAD FROM GIP TO HDPE AND ADDED  
 PACK JOINT FITTINGS.



## TYPICAL CONCRETE VALVE MARKER

W17

TYPICAL  
CONCRETE VALVE MARKER

WATER ONLY  
UPDATED: 5/13/02

W17

GRAND STRAND  
WATER & SEWER AUTHORITY

ENCLOSURE BOX AND LID SHALL BE  
 MINIMUM "TIER 22" LOAD RATING:  
 VERTICAL: 22,500 LBS (DESIGN) / 33,750 LBS (TEST)  
 LATERAL: 800 LBS/SF (DESIGN) / 1,200 LBS/SF (TEST)  
 (DRIVEWAY, PARKING LOT, AND OFF-ROADWAY APPLICATIONS  
 SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY  
 VEHICULAR TRAFFIC)

17"(W) x 30"(L) x 18"(D)  
 HUBBELL QUAZITE BOX  
 (PG1730BA18) AND LID  
 (PG1730HH00) OR APPROVED  
 EQUAL (CUTAWAY VIEW SHOWN)

SHOWN PREASSEMBLED

S.S. QUICK COUPLER  
 [1 1/2" PART 'F' (MALE  
 NPT x MALE ADAPTER) WITH  
 PART 'DC' AS DUST CAP]

VALVE BOX COLLAR

GRADE

1 1/2" AWWA S.S. BALL  
 VALVE WITH LEVER HANDLE;  
 HAMMOND NO. 8433 OR  
 NO. V108-32 OR APPROVED  
 EQUAL. INSTALL WITH  
 HANDLE UP FOR OPEN.

THRUST BLOCKING

VALVE BOX

1 1/2" HDPE 3408  
 PIPE (INCLUDE  
 FITTINGS NEEDED  
 FOR CONNECTION  
 TO TAPPED PLUG  
 AND BLOWOFF)

1 1/2" S.S. NIPPLE (TYP)  
 OF VARIOUS LENGTHS

1 1/2" 90° BEND

4" MJ GATE  
 VALVE

ADJUST SIZE CHANGE  
 AT THIS LOCATION

SEE TABLE FOR  
 RECOMMENDED SIZE

PIPE CONFIGURATION TO BLOWOFF  
 TO BE FIELD-DETERMINED (CURVE  
 PIPE TO KEEP FROM CRIMPING.)

NOTE:  
 THIS DETAIL IS FOR MAIN LINES 4" DIA. AND SMALLER.  
 BLOWOFFS SHALL BE SIZED TO ACHIEVE 2.5 FT/SEC  
 MINIMUM VELOCITY IN THE MAIN WITH A MINIMUM  
 RESIDUAL PRESSURE OF 25 PSI. THE TABLE BELOW  
 IS RECOMMENDED BY THE SC DHEC FOR BLOWOFF SIZING.  
 USE STANDARD POST HYDRANT BLOWOFF FOR MAINS  
 LARGER THAN 4' DIA..

4" x 1 1/2" MJ TAPPED  
 PLUG (RESTRAINED)

4" MAIN  
 WATERLINE

MAIN LINE DIA.	FLOW REQUIRED	MIN. ORIFICE SIZE	RECOMMENDED PIPE SIZE	RECOMMENDED BLOWOFF SIZE
2"	25 GPM	0.75"	1 1/2"	1 1/2"
2 1/2"	40 GPM	1"	1 1/2"	1 1/2"
3"	60 GPM	1.24"	1 1/2"	1 1/2"
4"	100 GPM	1.5"	1 1/2"	1 1/2"
*6"	220 GPM	1.65"	2"	2"
*8"	400 GPM	2.21"	2 1/2"	2 1/2"

\*SEE "TYPICAL POST HYDRANT BLOWOFF" (W15) FOR DETAIL.

## TYPICAL BLOWOFF ASSEMBLY

W18

### TYPICAL BLOWOFF ASSEMBLY

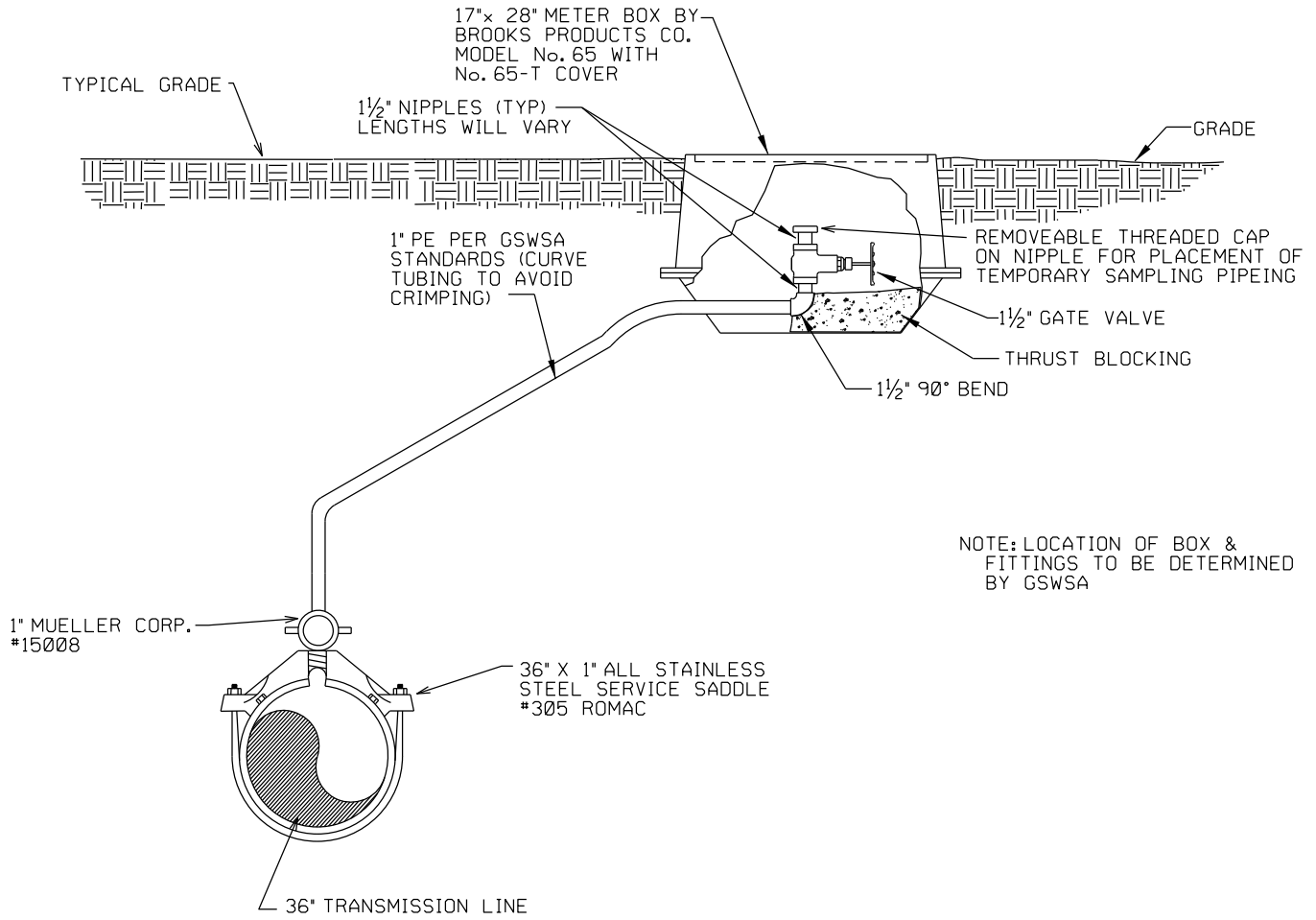
WATER ONLY  
 UPDATED: 12/02/2013

W18

GRAND STRAND  
 WATER & SEWER AUTHORITY

LATEST REVISION:  
 7/18/08 DRT CHANGED PART 'A' TO PART 'F' FOR QUICK COUPLER.  
 CHANGED ENCLOSURE SUPPLIER FROM STRONGWELL TO HUBBELL.  
 12/02/2013 DRT ADDED NOTE FOR TIER 22 ENCLOSURE BOX AND LID.





## TYPICAL WATER SAMPLING ASSEMBLY

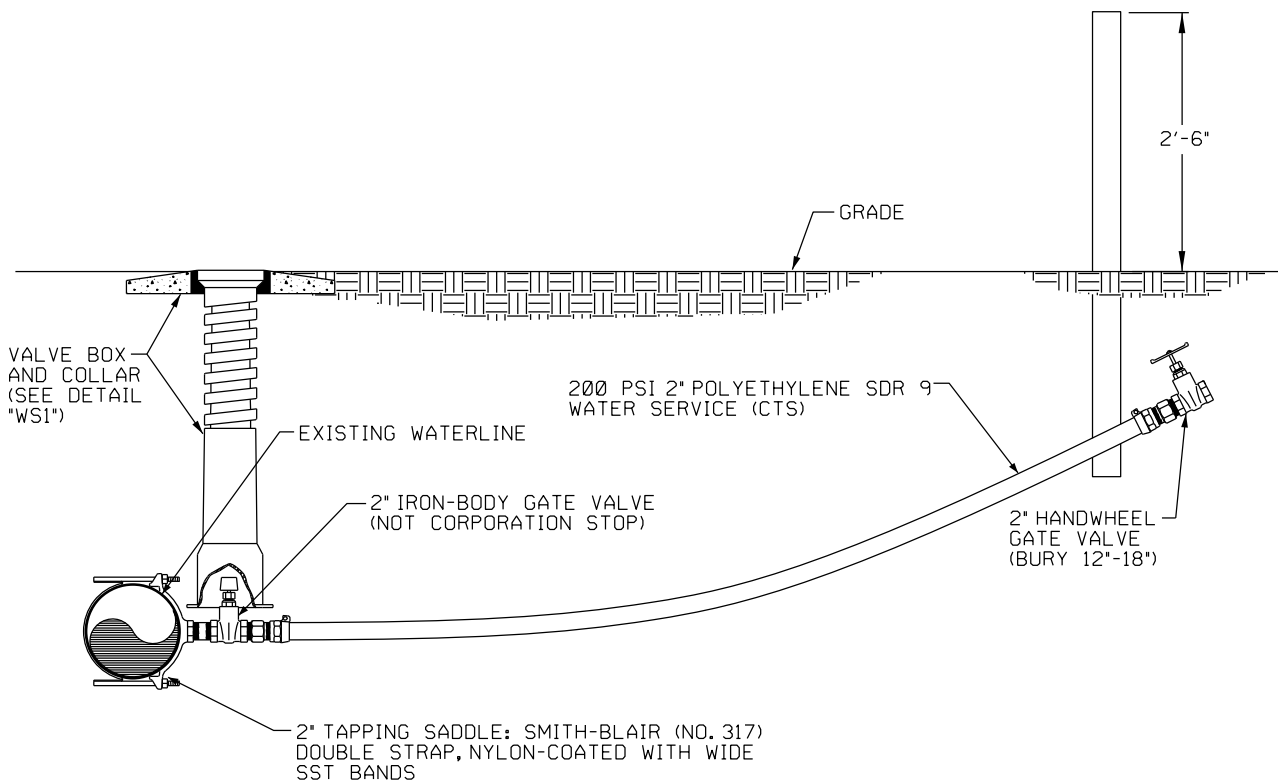
W19

TYPICAL  
WATER SAMPLING ASSEMBLY

WATER ONLY  
UPDATED: 5/24/99

W19

GRAND STRAND  
WATER & SEWER AUTHORITY



ELEVATION

TYPICAL WATER SERVICE DETAIL  
FOR 1 1/2" - 2" METER SERVICES  
(FOR DEVELOPER PROJECTS ONLY)

W20

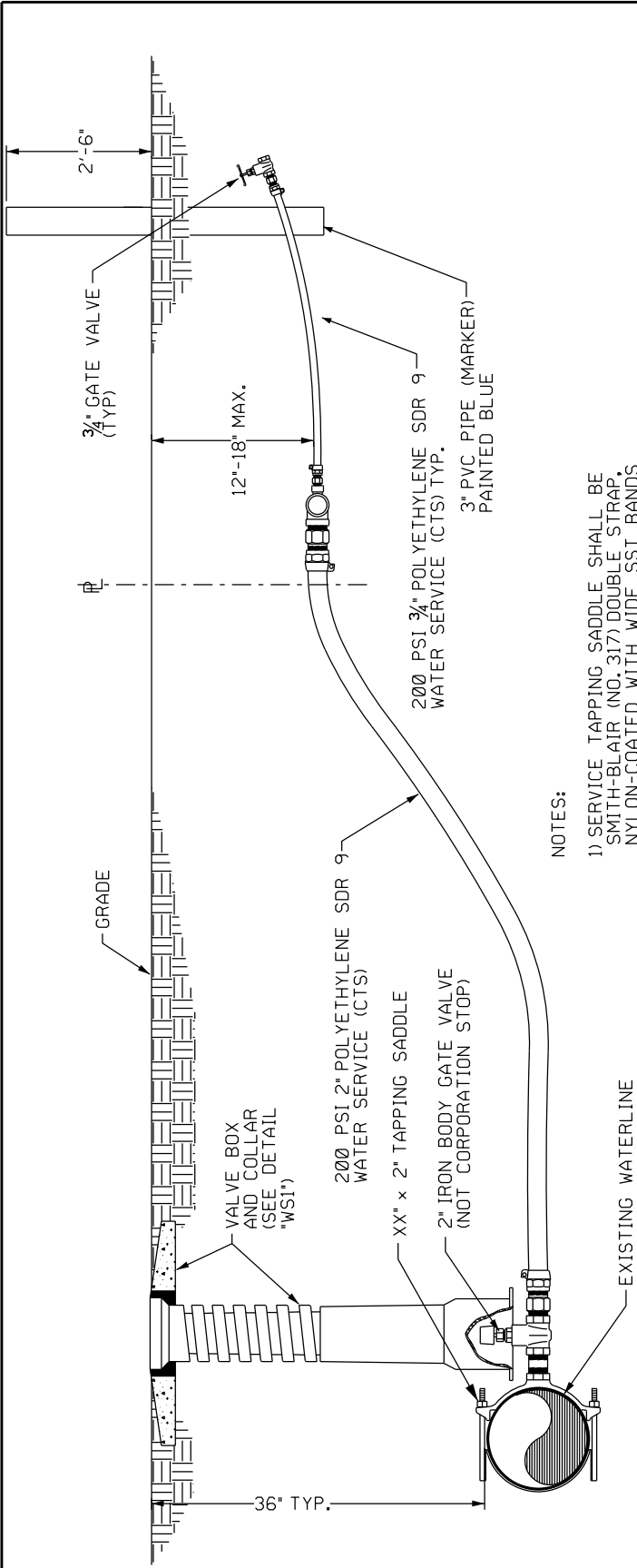
TYPICAL WATER SERVICE DETAIL  
 FOR 1 1/2" - 2" METER SERVICES  
 (FOR DEVELOPER PROJECTS ONLY)

WATER ONLY  
 UPDATED: 02/02/2010

W20

LATEST REVISION:  
 02/02/2010 DRT 2" HANDWHEEL G.V. TO BE BURIED RATHER  
 THAN LEFT ABOVE GROUND.

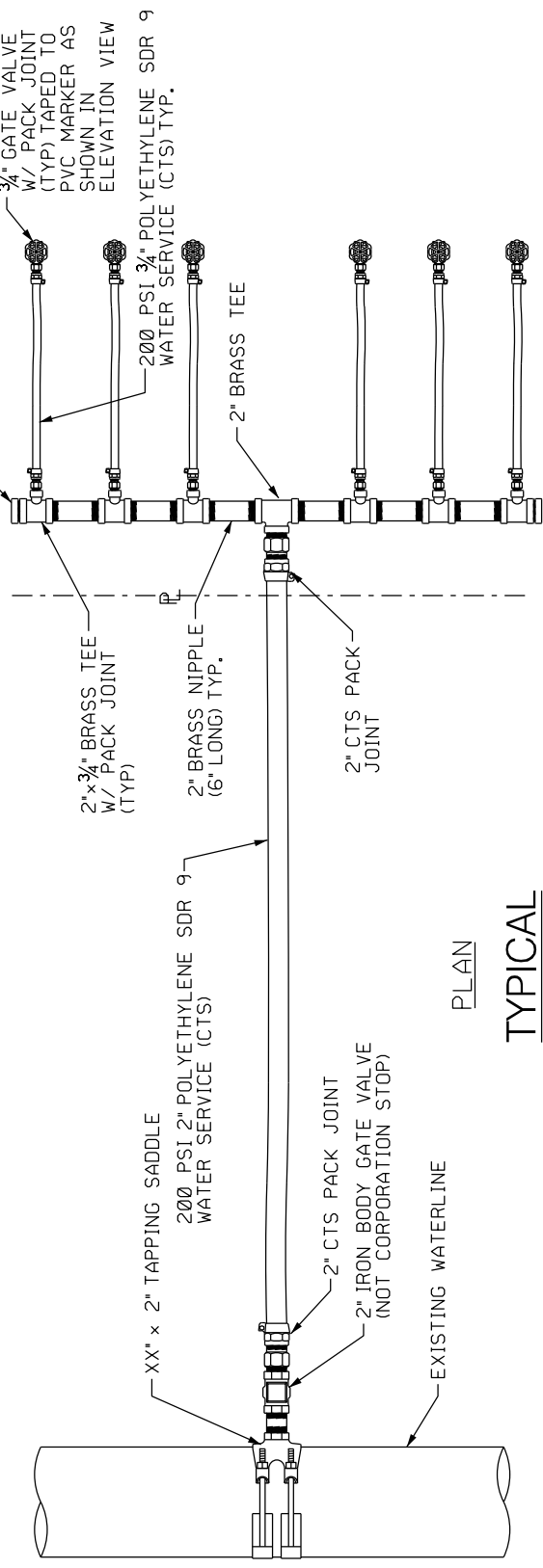
GRAND STRAND  
 WATER & SEWER AUTHORITY



ELEVATION

NOTES:

- 1) SERVICE TAPPING SADDLE SHALL BE SMITH-BLAIR (NO. 317) DOUBLE STRAP, NYLON-COATED WITH WIDE SST BANDS



PLAN

TYPICAL  
MULTIFAMILY WATER SERVICE CONNECTION  
FOR FUTURE CUSTOMER CONNECTIONS  
(FOR DEVELOPER PROJECTS ONLY)

W21

LATEST REVISION:  
11/3/10 DRT REVISED TO SHOW 3/4" STUBOUT LINES  
TERMINATING BELOW GROUND RATHER THAN ABOVE.

TYPICAL  
MULTIFAMILY WATER SERVICE DETAIL  
FOR FUTURE CUSTOMER CONNECTIONS  
(FOR DEVELOPER PROJECTS ONLY)

WATER ONLY  
UPDATED: 11/3/10

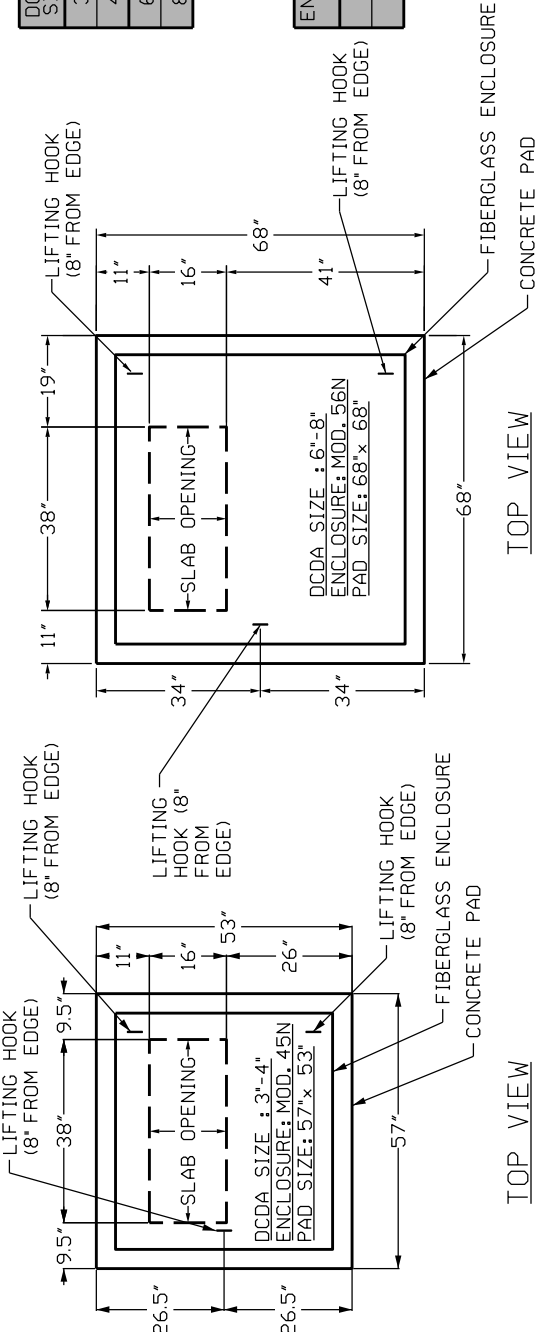
W21

GRAND STRAND  
WATER & SEWER AUTHORITY

DCDA SIZE	A	B	C	D*	ENCLOSURE MODEL
3"	29 <sup>1</sup> / <sub>8</sub> "	25 <sup>3</sup> / <sub>4</sub> "	3 <sup>3</sup> / <sub>4</sub> "	22 <sup>1</sup> / <sub>4</sub> "	45N
4"	31 <sup>1</sup> / <sub>8</sub> "	27 <sup>3</sup> / <sub>4</sub> "	4 <sup>1</sup> / <sub>2</sub> "	23 <sup>1</sup> / <sub>4</sub> "	
6"	35 <sup>3</sup> / <sub>4</sub> "	32 <sup>3</sup> / <sub>4</sub> "	5 <sup>1</sup> / <sub>2</sub> "	30 <sup>1</sup> / <sub>8</sub> "	56N
8"	40 <sup>3</sup> / <sub>4</sub> "	36 <sup>3</sup> / <sub>4</sub> "	6 <sup>3</sup> / <sub>4</sub> "	37 <sup>3</sup> / <sub>4</sub> "	

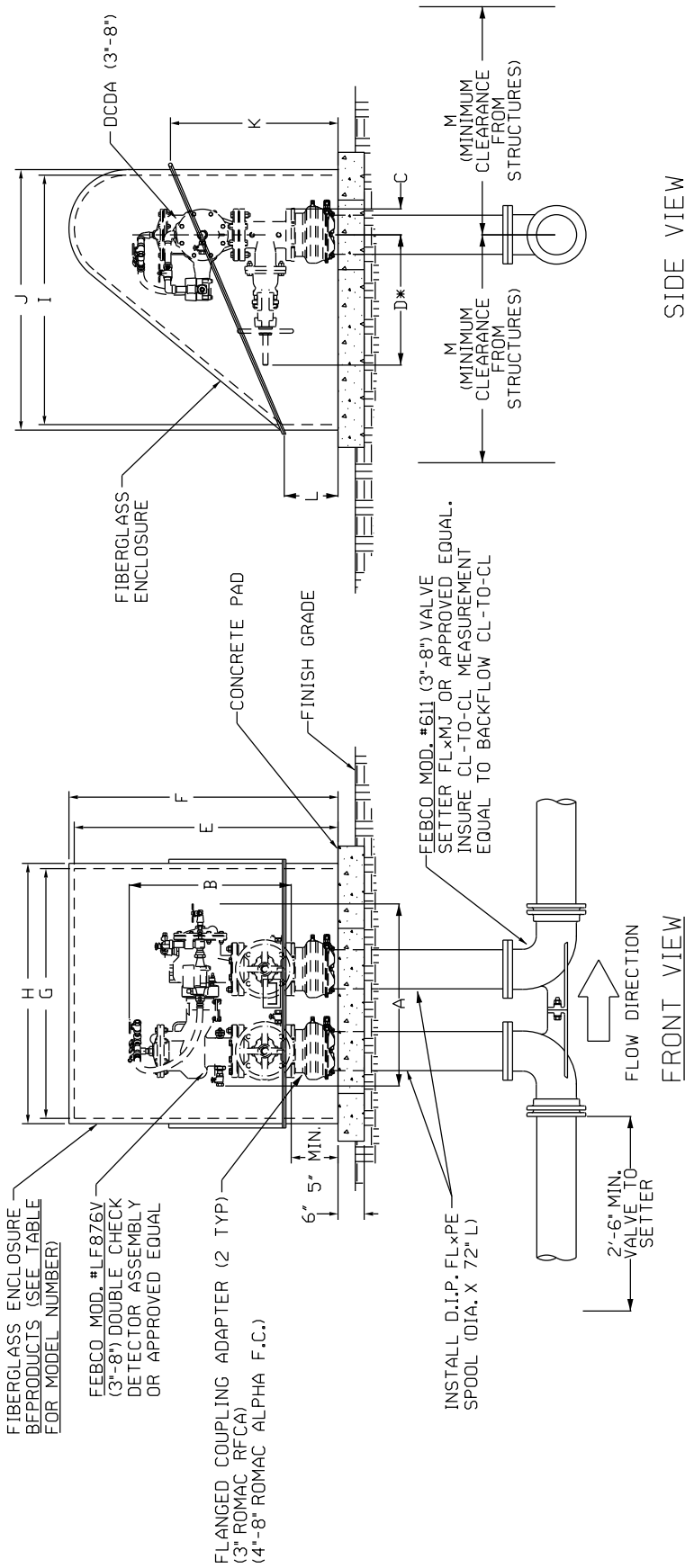
\*INDICATES NOMINAL DIMENSIONS WITH OSY GATE VALVE (FULL OPEN POSITION)

ENCLOSURE MODEL	E	F	G	H	I	J	K	L	M
45N	48"	50"	45"	49"	42"	45"	33"	14"	36"
56N	60"	62"	56"	60"	56"	60"	39"	12"	52"



LATEST REVISION:  
7/24/2017 DRT  
8/14/2017 DRT

ADDED PIPE CLEARANCE MEASUREMENTS.  
ADDED F.C.A.'S AND SPOOL LENGTHS.



SIDE VIEW

FRONT VIEW

## TYPICAL DOUBLE CHECK DETECTOR ASSEMBLY (3"-8") ABOVE GROUND MOUNT WITH ENCLOSURE

W22

TYPICAL DOUBLE CHECK DETECTOR ASSEMBLY (3"-8") ABOVE GROUND MOUNT WITH ENCLOSURE

WATER ONLY  
UPDATED: 7/24/2017

W22

GRAND STRAND  
WATER & SEWER AUTHORITY