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NOTES:  
1. REFER TO APPLICABLE PERMITS FOR MINIMUM REQUIREMENTS GOVERNING HIGHWAY OR RAILROAD UNDERCROSSINGS.  
2. THE MINIMUM DIAMETER AND THICKNESS OF THE CASING PIPE SHALL BE AS LISTED IN THE TABLE SHOWN IN THIS DETAIL.  
3. SEE AGENCY PERMIT FOR LENGTH AND DEPTH REQUIREMENTS.  
4. IN CASE OF A CONFLICT BETWEEN THIS DETAIL AND A PERMIT, THE STRICTEST REQUIREMENT SHALL GOVERN.  
5. PERFORM ALL EXCAVATION AND BACKFILLING ACTIVITIES IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (PL 91-597), AS AMENDED.  
6. USE CASING SPACERS (SEE DETAIL) TO MOVE CARRIER PIPE INTO CASING PIPE. SPACING OF SPACERS WILL BE DICTATED BY THE LENGTH OF CASING PIPE AND NUMBER OF JOINTS OF CARRIER PIPE. USE A MINIMUM OF 2 SPACERS PER JOINT OF PIPE OR 1 SPACER PER 10'.  
7. AT NO TIME DURING THE BORING AND JACKING OPERATION SHALL THE ALZER HEAD BE ALLOWED TO EXTEND OUT IN FRONT OF THE CASING BEING INSTALLED.  
8. THE BORING AND JACKING OF THE CASING PIPE SHALL BE A CONTINUOUS INSTALLATION, WITH NO WELDING OF THE CASING UNDER THE TRAVEL LANE PAVEMENT AND IN ACCORDANCE WITH THE APPLICABLE ENDORSEMENT PERMIT.  
9. CONTRACTOR SHALL SUBMIT PLANS AND SPECIFICATIONS FOR DEWATERING TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING THE PROCESS (FOR RAILWAYS, RAILWAY AUTHORITY MUST APPROVE ALSO). IT WILL BE THE SOLE JUDGMENT OF DOT OR RAILWAY AUTHORITY AS TO WHEN THE OPERATION CAN BE SAFELY HALTED.  
10. BORED INSTALLATIONS SHALL HAVE A BORED HOLE NO MORE THAN 1-INCH GREATER THAN OUTSIDE DIAMETER OF THE CASING PIPE.  
11. JOINTS BETWEEN LENGTHS SHALL BE COMPLETELY WELDED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY RECOMMENDED PROCEDURES.  
12. SEAL CASING ENDS WITH TYPE II CONCRETE GROUT AND CONCRETE BRICKS, SO AS TO PREVENT THE ENTRANCE OF SOIL. LEAVE A GAP TO ALLOW LEAKAGE TO PASS IN CASE OF A MAIN BREAK.  
13. SPRING INSIDE CASING SHALL BE POLYWRAPPED.

STEEL CASING PIPE SIZE REQUIREMENTS FOR ASTM A139 GRADE B		
RESTRAINED JOINT O.D. CARRIER PIPE SIZE (INCHES)	MINIMUM CASING SIZE (INCHES)	MINIMUM CASING THICKNESS (INCHES)
4	14	0.250
6	16	0.281
8	18	0.312
10	20	0.375
12	24	0.375
14	26	0.438
16	30	0.469
18	32	0.500
20	36	0.532
24	42	0.625
30	48	0.688
36	54	0.781
42	56	0.812
48	62	0.875
54	72	1.000

NOTE: ACTUAL THICKNESS SHALL BE DETERMINED BY THE CASING INSTALLER BASED ON AN EVALUATION OF THE REQUIRED JACKING FORCES.

JACK AND BORE  
NOT TO SCALE

SPACER DETAIL

PROFILE

DOCUMENT NO.:  
EC-4.3.2-CD-W

DETAIL NO.:  
18

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TYPICAL 2" AND SMALLER DOUBLE CHECK VALVE ASSEMBLY ONLY  
BACKFLOW PREVENTION ASSEMBLY ABOVE GROUND INSTALLATION  
NOT TO SCALE

ENCLOSURE BOX

NOTES:  
1. ONLY DOUBLE CHECK VALVE ASSEMBLIES 2" AND SMALLER MAY BE INSTALLED BELOW GROUND AS SHOWN. ALL REDUCED PRESSURE PRINCIPLE ASSEMBLIES AND DOUBLE CHECK VALVE ASSEMBLIES LARGER THAN 2" MUST BE INSTALLED ABOVE GROUND.  
2. BOX MUST BE SIZED TO ALLOW ADEQUATE ROOM FOR TESTING AND MAINTENANCE. TYPICALLY THIS DIMENSION SHOULD BE A MIN. OF 6" ALL AROUND (SIDES AND BOTTOM).  
3. BELOW-GROUND INSTALLATIONS SHALL BE INSTALLED USING AN ACCEPTABLE ENCLOSURE BOX WITH TOP FOR ASSEMBLIES EXPOSED TO VEHICULAR TRAFFIC A TRAFFIC-GRADE ENCLOSURE BOX OR PROTECTIVE BOLLARDS ARE REQUIRED.

DOCUMENT NO.:  
EC-4.3.2-CD-W

DETAIL NO.:  
31

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HANAHAN RECREATION  
COMPLEX  
CITY OF HANAHAN  
HANAHAN, SOUTH CAROLINA

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CHECKED BY: JRP

REVISION HISTORY

NO.	DATE	DESCRIPTION
B	10/29/20	
C	01/22/21	
O	03/11/21	
1	03/26/21	

WATER  
DETAILS

C10.3