

5/14/99

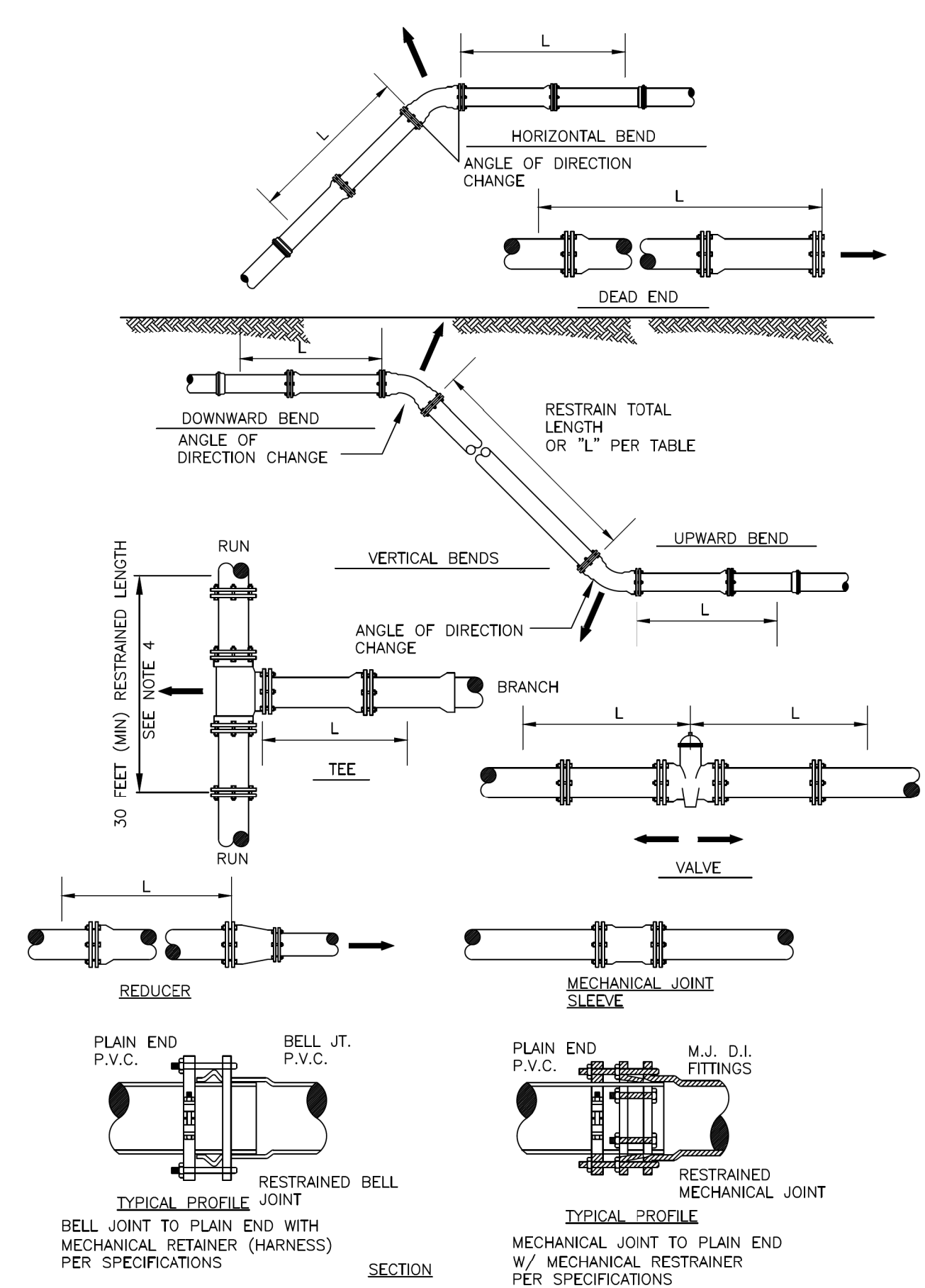
2-Jul-2017 10:30 AM
 2017-07-01 Roadway Design/60 Client Folder Structure/R5752/Utilities/Engineering/UC/Proj/R5752_Ut_dtl_UC3B.pahdgn
 2017-07-01 10:30 AM

PROJECT TYPICAL DETAILS

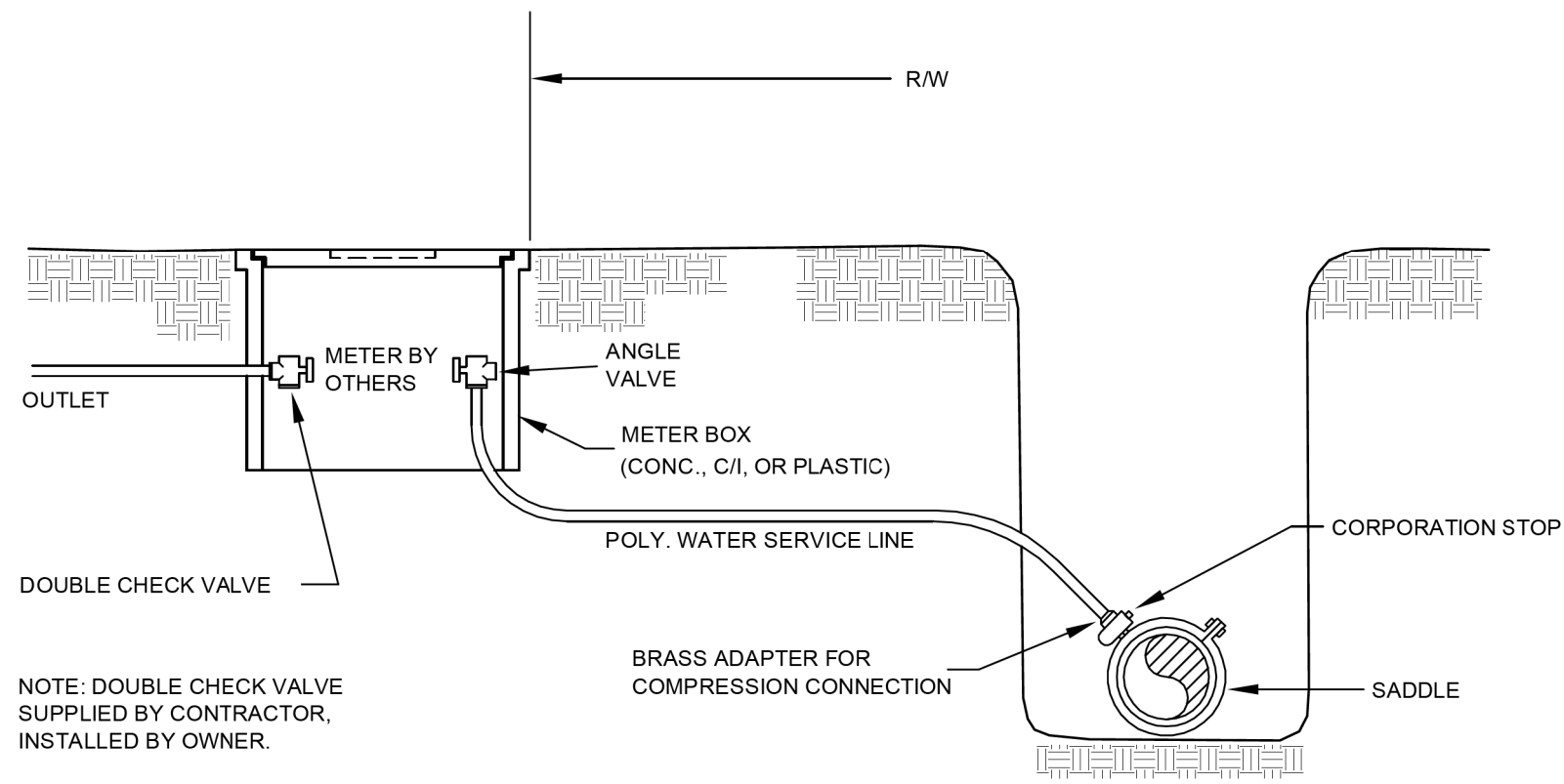
PROJECT REFERENCE NO.	SHEET NO.
R-5752	UC-3B
DESIGNED BY: WPS	
DRAWN BY: KAP	
CHECKED BY: WPS	
APPROVED BY: MKS	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



- PVC PIPE RESTRAINT NOTES:**
- THE "PVC PIPE RESTRAINT JOINT SCHEDULE" SHALL BE UTILIZED ON ALL PVC PIPING.
 - ASSUMPTIONS: PVC PIPE SAFETY FACTOR=1.5, TEST PRESSURE=200PSI, SOIL=GW, TRENCH TYPE S, DEPTH OF COVER=36 INCHES. CALCULATIONS DONE IN ACCORDANCE WITH AWWA M23 AND M41 MANUALS.
 - BENDS AND VALVES: SHALL BE RESTRAINED ON EACH SIDE OF FITTING W/MECHANICAL JOINT AND BELL RESTRAINT WHERE APPLICABLE.
 - TEES, BLOW-OFF, ARV, AND FIRE HYDRANT FITTINGS: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE OR FITTING (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE FOR RESTRAINED LENGTH ON TEE "BRANCH" LINE.
 - HDPE TO PVC TRANSITIONS: THE PVC PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).
 - CONTRACTOR SHALL USE FULL (20 FT NOMINAL) LENGTH JOINTS OF PVC PIPE INTO AND OUT OF EACH FITTING UNLESS OTHERWISE DIRECTED. WHERE SHORTER JOINTS ARE REQUIRED ON EITHER SIDE OF A FITTING ADDITIONAL JOINT RESTRAINT MAY BE REQUIRED BY USE OF HARNESS ASSEMBLIES PER THE SPECIFICATION.
 - WHERE THE CALCULATED RESTRAINED JOINT LENGTH IS LESS THAN OR EQUAL TO 20 FEET (NOMINAL LENGTH OF ONE JOINT OF PIPE) THE FITTING ONLY SHALL BE RESTRAINED BY USE OF A MECHANICAL JOINT RETAINER GLAND DESIGNED FOR USE WITH PVC PIPING IN ACCORDANCE WITH THE SPECIFICATIONS.
 - WHERE THE CALCULATED RESTRAINED JOINT LENGTH IS GREATER THAN OR EQUAL TO 20 FEET THE FITTING SHALL BE RESTRAINED BY USE OF A MECHANICAL JOINT RETAINER GLAND DESIGNED FOR USE WITH PVC PIPING IN ACCORDANCE WITH THE SPECIFICATIONS. IN ADDITION TO THE FITTING THE FOOTAGE SPECIFIED IN THE TABLE UPSTREAM/DOWNSTREAM OF THE FITTING SHALL BE RESTRAINED BY USE OF HARNESS ASSEMBLIES (BELL RESTRAINT SYSTEMS) DESIGNED FOR USE WITH PVC PIPE IN ACCORDANCE WITH THE SPECIFICATIONS.
 - WHERE NON-STANDARD CIRCUMSTANCES ARISE IN THE FIELD CONSULT THE ENGINEER PRIOR TO INSTALLATION OF RESTRAINT SYSTEMS. FAILURE TO CONSULT THE ENGINEER MAY REQUIRE EXCAVATION AND ADJUSTMENT TO THE RESTRAINED JOINT ASSEMBLIES.
 - ALL FITTINGS SHALL BE DUCTILE IRON MECHANICAL RESTRAINED JOINT FITTINGS IN ACCORDANCE WITH THE SPECIFICATIONS.
 - THE INSTALLATION OF BELL HARNESS RESTRAINTS AT PVC JOINTS SHALL BE COMPLETED PER THE MANUFACTURERS RECOMMENDATION, WHICH INCLUDES NOT OVER TIGHTENING THE PARALLEL RODS/NUTS. THESE NUTS SHOULD ONLY BE SNUG TIGHT. THE HOME MARKS ON THE PIPE SHOULD ALWAYS BE VISIBLE AFTER THE RESTRAINT IS INSTALLED.
 - WHERE ADJACENT OR OFFSET BENDS (NOT INCLUDING VALVES, OR DEADENDS) HAVE OVERLAPPING RESTRAINED LENGTHS, ALL PIPE BETWEEN THE BENDS SHALL BE RESTRAINED. RESTRAINED LENGTH FOR THE OUTERMOST BENDS SHALL BE TWICE THE SELECTED LENGTH FROM THE STANDARD LENGTHS TABLE INCLUDED IN THIS DETAIL FOR PVC PIPE.



2" SERVICE CONNECTION DETAIL

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NOMINAL PIPE SIZE (IN)	SUMMARY TABLE - PVC PIPE RESTRAINED JOINT LENGTHS									
	HORIZONTAL BENDS			VERTICAL BENDS				VALVES		
	45° BENDS L (FT)	22.5° BENDS L (FT)	11.25° BENDS L (FT)	VERTICAL UP BEND	VERTICAL DN BEND	VERTICAL UP BEND	VERTICAL DN BEND	VERTICAL UP BEND	VERTICAL DN BEND	L (FT)
8	12	6	3	12	42	6	21	3	10	101
TEES SEE NOTE 4										
REDUCERS										
RUN SIZE (IN)	BRANCH SIZE (IN)	L (FT)	SIZE (IN)	L (FT)						
8	8	25	10" x 8"	41						
8	6	F.O.								
6	6	2								

Notes:
 ***F.O. = Fitting Only

RESTRAINED JOINT DETAIL

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