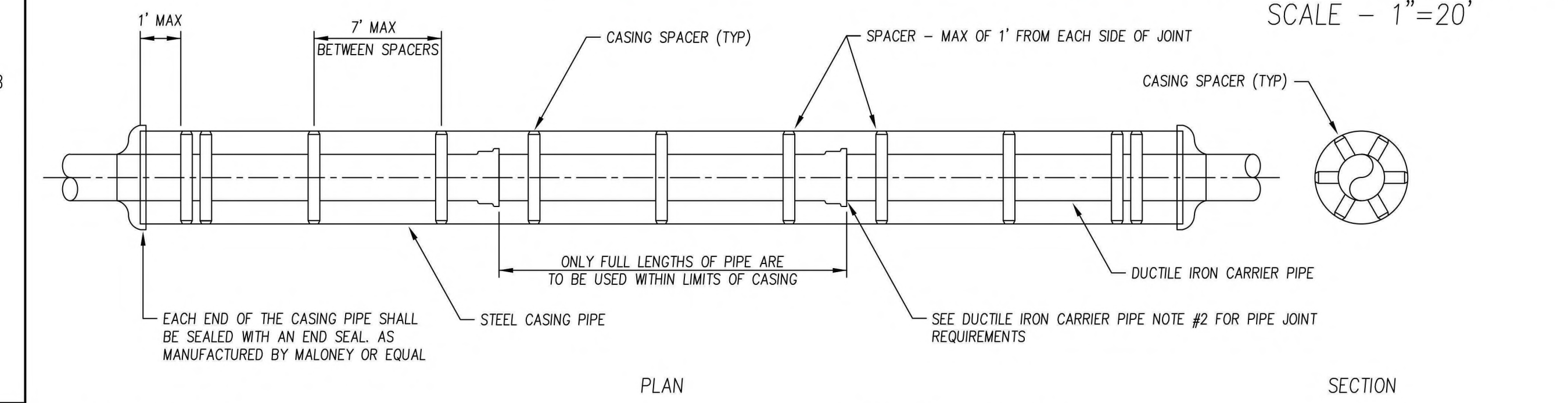


SECTION A-A (LOOKING EAST)  
BRIDGE STREET AT RAILROAD BRIDGE  
US DOT AAR # 588 600 D  
MILEPOST HP 0027.710  
SCALE 1"=5'

All shoring should be installed from the top down and removed from the bottom up.  
TYPICAL SHEETING AND SHORING



- NORFOLK SOUTHERN CONSTRUCTION REQUIREMENTS**
- OSHA RULE AND REGULATIONS MUST BE ADHERED TO FOR SAFETY IN EXCAVATIONS, THE DESIGN AND THE SHORING OF THE BORING PITS. ADDITIONALLY, PITS SHALL BE FENCED WITH ADEQUATE LIGHTING FOR PUBLIC SAFETY.
  - THE TRACK AND RIGHT-OF-WAY MUST BE PROTECTED FROM ANY EROSION CAUSED BY THE PROJECT FIELD WORK.
  - THE PIPE SHALL BE LAID WITH SUFFICIENT SLACK SO THAT IT IS NOT IN TENSION.
  - CARRIER PIPES INSTALLED WITHIN A CASING PIPE SHALL BE DESIGNED FOR THE INTERNAL PRESSURE TO WHICH IT WILL BE SUBJECTED.
  - CASINGS FOR CARRIER PIPES OF NON-FLAMMABLE SUBSTANCES SHALL HAVE BOTH ENDS OF THE CASING BLOCKED UP IN SUCH A WAY AS TO PREVENT THE ENTRANCE OF FOREIGN MATERIAL BUT ALLOWING LEAKAGE TO PASS IN THE EVENT OF A CARRIER BREAK.
  - ALL PIPELINES (EXCEPT THOSE IN STREETS OR ACCESS ROADS WHERE IT WOULD NOT BE PRACTICAL TO DO SO) SHALL BE PROMINENTLY MARKED AT THE RIGHT OF WAY LINES (ON BOTH SIDES OF TRACK FOR CROSSINGS) BY DURABLE, WEATHERPROOF SIGNS LOCATED OVER THE CENTERLINE OF THE PIPE. SIGNS SHALL SHOW THE FOLLOWING:  
(1) NAME AND ADDRESS OF APPLICANT  
(2) CONTENTS OF PIPE  
(3) PRESSURE IN PIPE  
(4) EMERGENCY TELEPHONE NUMBER
  - THE APPLICANT MUST MAINTAIN ALL SIGNS ON NS RIGHT-OF-WAY AS LONG AS THE OCCUPATIONAL AGREEMENT IS IN EFFECT.
  - ALL PRESSURE PIPELINES INSTALLED ON NS RIGHT-OF-WAY BY OPEN CUT SHALL HAVE DETECTABLE UNDERGROUND WARNING TAPE PLACED A MINIMUM DISTANCE OF 18 INCHES DIRECTLY ABOVE THE PIPELINE WITH THE TAPE PLACED NOT LESS THAN 12" BELOW GRADE.
  - ACCESSIBLE EMERGENCY SHUT OFF VALVES SHALL BE INSTALLED WITHIN EFFECTIVE DISTANCES EACH SIDE OF THE RAILROAD AT LOCATIONS SELECTED BY NS WHERE HAZARD TO LIFE AND PROPERTY MUST BE GUARDED AGAINST. NO ADDITIONAL VALVES WILL BE REQUIRED WHERE PIPELINES ARE PROVIDED WITH AUTOMATIC CONTROL STATIONS AND WITHIN DISTANCES APPROVED BY NS.
  - CONSTRUCTION SHALL BE ACCOMPLISHED SO THAT ADEQUATE AND UNINTERRUPTED DRAINAGE IN NS RIGHT-OF-WAY IS MAINTAINED.
  - BORED, JACKED OR TUNNELED INSTALLATIONS SHALL HAVE A BORE HOLE ESSENTIALLY THE SAME AS THE OUTSIDE DIAMETER OF THE PIPE PLUS THE THICKNESS OF THE PROTECTIVE COATING.
  - THE USE OF WATER OR OTHER LIQUIDS TO FACILITATE CASING EMPLACEMENT AND SPOIL REMOVAL IS PROHIBITED EXCEPT WHEN USED IN CONJUNCTION WITH DIRECTIONAL BORING METHOD "A" (SEE SECTION 5.1.6 OF "SPECIFICATIONS FOR PIPELINE OCCUPANCY OF NORFOLK SOUTHERN CORPORATION PROPERTY").
  - IF DURING INSTALLATION AN OBSTRUCTION IS ENCOUNTERED WHICH PREVENTS INSTALLATION OF THE PIPE IN ACCORDANCE WITH THIS SPECIFICATION, THE PIPE SHALL BE ABANDONED IN PLACE AND IMMEDIATELY FILLED WITH GROUT. A NEW INSTALLATION PROCEDURE AND REVISED PLANS MUST BE SUBMITTED TO, AND APPROVED BY NS BEFORE WORK CAN RESUME.
  - ANY EXCAVATION, HOLES, OR TRENCHES ON THE NS PROPERTY SHALL BE COVERED, GUARDED AND/OR PROTECTED. HANDRAILS, FENCE, OR OTHER BARRIER METHODS MUST MEET OSHA AND FRA REQUIREMENTS.
  - RAIL AND TRACK MONITORING IS REQUIRED IN ACCORDANCE WITH SECTION 5.1.2 OF "SPECIFICATIONS FOR PIPELINE OCCUPANCY OF NORFOLK SOUTHERN CORPORATION PROPERTY".
  - PROVIDE NOTIFICATION PRIOR TO THE START OF CONSTRUCTION, INCLUDING UPDATED PROJECT SCHEDULES.
  - A RIGHT OF ENTRY PERMIT MUST BE SECURED PRIOR TO START OF CONSTRUCTION.

- GENERAL NOTES**
- CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF NORFOLK SOUTHERN'S NSCE-8 SPECIFICATIONS
  - PIPELINE AND CROSSING TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH LAST APPROVED AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION SPECIFICATIONS FOR PIPELINES CONVEYING FLAMMABLE AND NON-FLAME SUBSTANCES.
  - BLASTING NOT PERMITTED

PIPE CROSSING DATA	CARRIER PIPE	CASING PIPE
CONTENTS TO BE HANDLED	WATER	NONE
OPERATING PRESSURE (PSI)	100	N/A
NOMINAL PIPE SIZE (")	16"	24"
O.S. DIAMETER (")	9.05"	24.00"
I.S. DIAMETER (")	8.39"	25.00"
WALL THICKNESS (")	0.33"	0.50"
WEIGHT PER FOOT (LBS)	58	186
MATERIAL	DUCTILE	STEEL
PROCESS OF MANUFACTURE	CENTRIFUGALLY CAST	WELDED ROUND PIPE
SPECIFICATION	AWWA C150/C151	ASTM A53 & AWWA C200
GRADE OR CLASS	THICKNESS CLASS 52	A53 GRADE B
WORKING PRESSURE (PSI)	150	N/A
TYPE OF JOINT	MECHANICAL & SLIP ON	WELDED
TYPE OF COATING	BITUMASTIC	BITUMASTIC
DETAILS OF CATHODIC PROTECTION	COATING	WRAP OR COATING
DETAILS OF SEAL OR PROTECTION AT ENDS OF COATING	N/A	FLEXIBLE OIL/WATER RESISTANT RUBBER END SEALS
METHOD OF INSTALLATION	TRENCHING	BORING
SPECIFIC MIN. YIELD STRENGTH	42,000 PSI	35,000 PSI
CHARACTER OF SUBSURFACE MATERIAL	N/A	N/A
APPROXIMATE GROUND WATER LEVEL	N/A	N/A
SOURCE OF INFORMATION ON SUBSURFACE CONDITIONS	N/A	N/A

- STEEL CASING PIPE NOTES:**
- ALL CASING PIPE SHALL BE ASTM A53 GRADE B, 0.50" WALL THICKNESS, STANDARD WEIGHT, MANUFACTURED IN ACCORDANCE WITH AWWA C200.
  - CASING PIPE SHALL BE REQUIRED FOR WATER MAINS CROSSING OVER AND UNDER HIGHWAYS, RAILROADS, OR ANY OTHER LOCATION WHERE A LEAKING PIPE CAN CREATE A HAZARDOUS CONDITION. IN GENERAL, CASING PIPE IS NOT REQUIRED FOR MAINS CROSSING BODIES OF WATER.
  - ALL EXPOSED CASING PIPE SHALL BE SHOP BLASTED AND COATED EXTERNALLY IN ACCORDANCE WITH THE STATE DOT PAINT SPECIFICATION FOR STRUCTURAL STEEL.
  - ALL STEEL PIPE BELOW GRADE SHALL BE WRAPPED WITH PROTECTO-WRAP 310, COLD APPLIED PIPE TAPE. (WRAPPING TO EXTEND TO A MINIMUM OF 18" BEYOND FINISHED GRADE.) IF APPLICABLE, REFER TO THE CATHODIC PROTECTION PLAN FOR ADDITIONAL CORROSION PROTECTION MEASURES.
  - ALL STEEL PIPE SHALL BE ORDERED WITHOUT COATING 6" FROM EACH END TO ALLOW FOR BEVELING AND WELDING IN THE FIELD.
  - ALL WELDERS SHALL BE CERTIFIED IN ACCORDANCE WITH THE API 1104 CODE OR AN APPROVED EQUAL. CONTRACTOR SHALL PROVIDE OWNER WITH EVIDENCE OF CURRENT WELDER QUALIFICATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
  - ALL PRODUCTION WELDS SHALL BE PERFORMED, TESTED AND INSPECTED IN CONFORMANCE WITH THE CURRENT EDITION OF AWWA C206.
  - ANY WELDER WHO MAKES A PRODUCTION WELD THAT FAILS TO COMPLY WITH THE REQUIREMENTS OF AWWA C206 MAY BE IMMEDIATELY DISQUALIFIED FROM CURRENT AND/OR FUTURE WORK AT THE DISCRETION OF THE OWNER.

- DUCTILE IRON CARRIER PIPE NOTES:**
- ALL DUCTILE IRON PIPE SHALL BE CLASS 52 (MIN.), CEMENT LINED, INTERNALLY AND EXTERNALLY COATED AS PER AWWA C150 (LATEST SPECS).
  - WHEN USING TYTON (OR PUSH-ON) JOINT PIPE, THE USE OF FIELD-LOK (RESTRAINT TYPE) GASKETS ARE REQUIRED AT EACH JOINT WITHIN THE CASING PIPE AND (2) PIPE JOINTS PAST THE CASING END SEAL ON EACH END. PIPE IS TO BE PUSHED THROUGH CASING, NOT PULLED. CONSULT PROJECT CONSTRUCTION PLANS IF OTHER TYPE OF RESTRAINT PIPE IS BEING INSTALLED AND FOLLOW THOSE SPECIFICATIONS ACCORDINGLY.

NOMINAL PIPE DIAMETER	MINIMUM NOMINAL CASING I.D.
8"	16"
10"	18"
12"	20"
16"	24"
20"	36"

TYPICAL DUCTILE IRON WATER MAIN WITH STEEL CASING AND SPACERS DETAIL

**CERTIFIED CORRECT PLANS**  
*Anthony J Carmassi*  
 Registered Professional Engineer  
 Approved by Bureau of Technical Utility Services  
**PA PUBLIC UTILITY COMMISSION**  
 ATTEST *Rosemary Benetton* Secretary  
 04/01/2025  
 Docket: A-2024-3052595

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COMMONWEALTH OF PENNSYLVANIA  
 REGISTERED PROFESSIONAL ENGINEER  
**ANTHONY J CARMASSI**  
 ENGINEER  
 PE088879

AQUA PENNSYLVANIA, INCORPORATED  
 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010  
**PROJECT PLAN FOR:**  
**PICKERING TRANSMISSION MAIN (PHASE 1A-1) PROJECT**  
**NORFOLK SOUTHERN ROE PLAN**  
**PHOENIXVILLE BORO, CHESTER COUNTY**

DRAWN BY: DW	CHK'D BY: JMM/AJC	EXT No: 20562-G
DATE: 01/29/2024	SCALE: N.T.S.	PLATE: ZZ-12, A-12, A-13
PROJECT No: 605.23	ACTIVITY No: 5869704	<b>A - 68330</b>
APPROVED: <i>Anthony J Carmassi</i>		NORFOLK SOUTHERN ROE 15