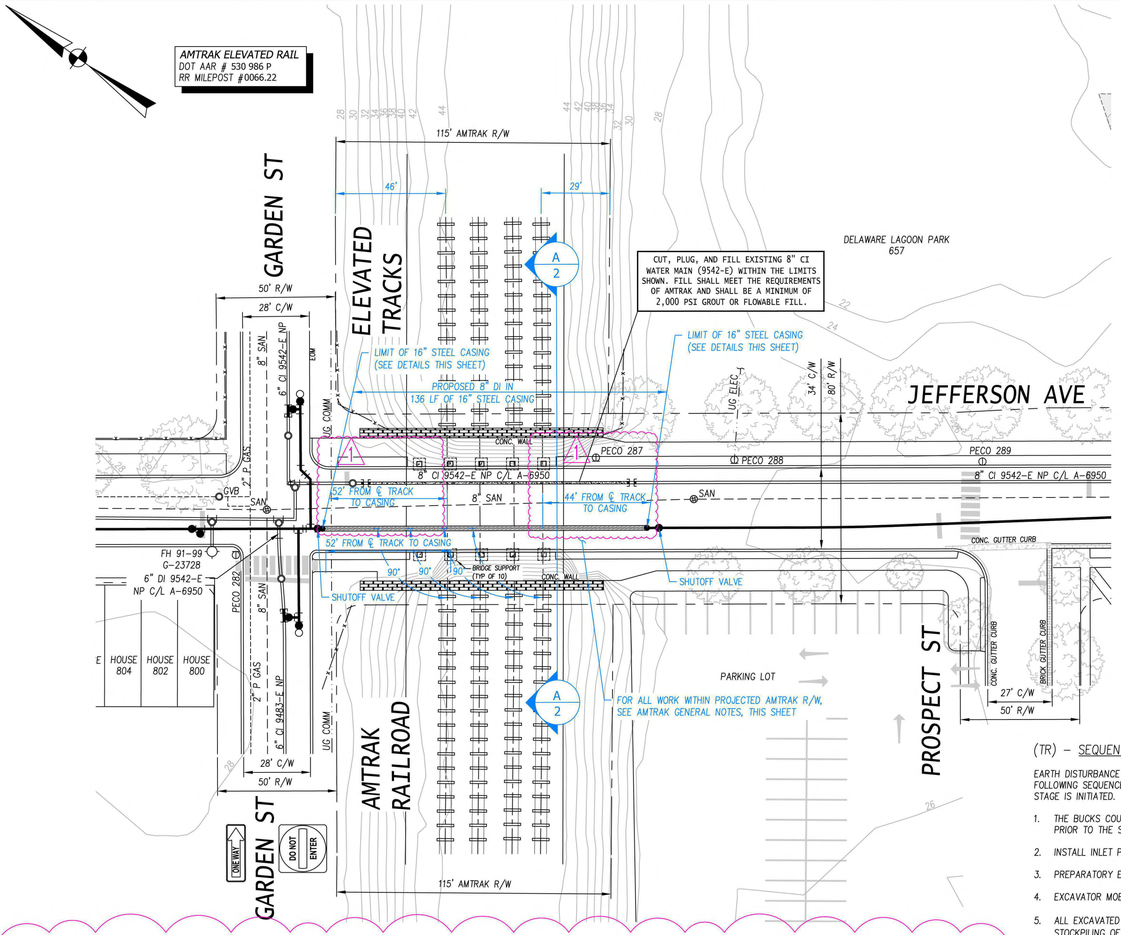
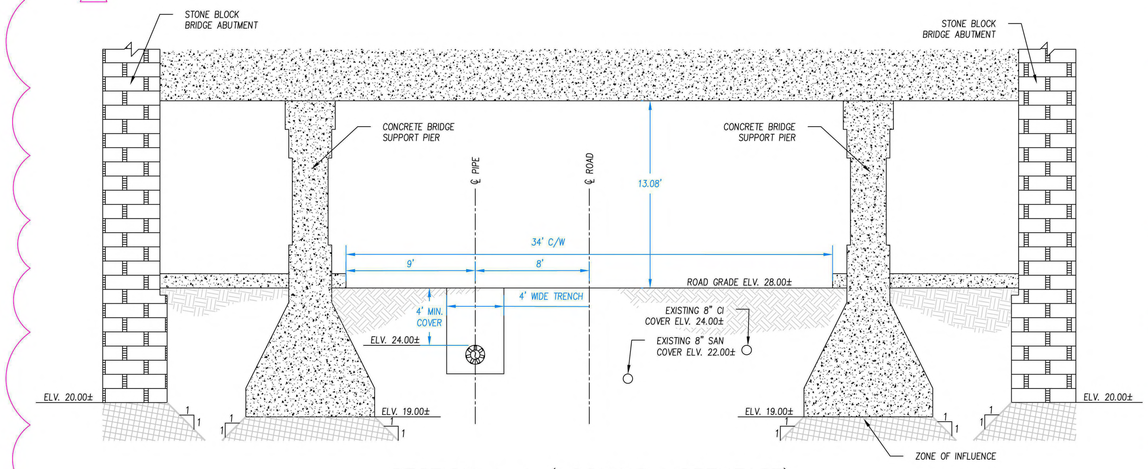
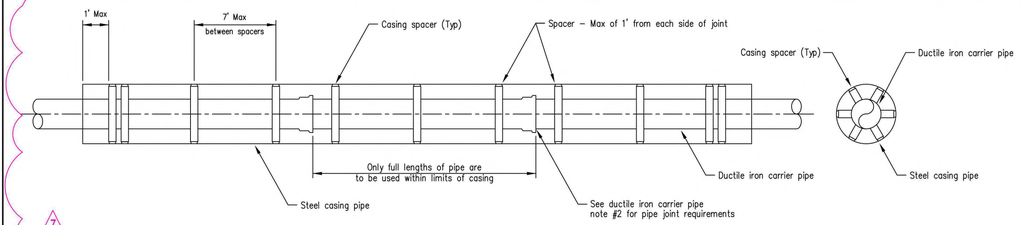


2



SECTION A-A (LOOKING NORTHEAST)
JEFFERSON AVE AT RAILROAD BRIDGE
US DOT # 530 986 P
MILEPOST 0066.22
SCALE 1"=5'



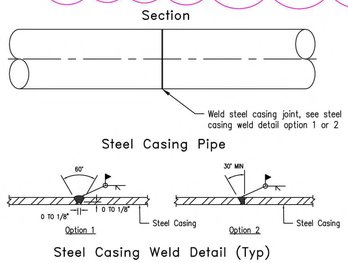
3

STEEL CASING PIPE NOTES:

1. ALL CASING PIPE UP TO 24" DIAMETER SHALL BE ASTM A53 GRADE B, 0.50" WALL THICKNESS, STANDARD WEIGHT, MANUFACTURED IN ACCORDANCE WITH AWWA C200.
2. 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.
3. ALL EXPOSED CASING PIPE SHALL BE SHOP BLASTED AND COATED EXTERNALLY IN ACCORDANCE WITH THE STATE DOT PAINT SPECIFICATION FOR STRUCTURAL STEEL.
4. ALL STEEL PIPE BELOW GRADE SHALL BE WRAPPED WITH PROTECTO-WRAP 310, COLD APPLIED PIPE TAPE OR CARBOLINE COATING. IN CASES WHERE STEEL PIPE RUNS ABOVE GRADE, COATING SHALL EXTEND TO A MINIMUM OF 18" BEYOND FINISHED GRADE. IF APPLICABLE, REFER TO THE CATHODIC PROTECTION PLAN FOR ADDITIONAL CORROSION PROTECTION MEASURES.
5. IN CASES WHERE STEEL PIPE IS TO BE WELDED IN THE FIELD, PIPE SHALL BE ORDERED WITHOUT COATING 6" FROM EACH END TO ALLOW FOR BEVELING AND WELDING IN THE FIELD.
6. 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.
7. ALL PRODUCTION WELDS SHALL BE PERFORMED, TESTED AND INSPECTED IN CONFORMANCE WITH THE CURRENT EDITION OF AWWA C206.
8. 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.
9. STEEL CASING SHALL BE SO CONSTRUCTED AS TO PREVENT LEAKAGE OF ANY SUBSTANCE FROM THE CASING THROUGHOUT ITS LENGTH EXCEPT AT ENDS. CASING SHALL BE SO INSTALLED AS TO PREVENT THE FORMATION OF A WATERWAY UNDER THE RAILROAD, WITH AN EVEN BEARING THROUGHOUT ITS LENGTH, AND SHALL SLOPE TO ONE END.

DUCTILE IRON CARRIER PIPE NOTES:

1. ALL DUCTILE IRON PIPE SHALL BE CLASS 52 (MIN.), CEMENT LINED, INTERNALLY AND EXTERNALLY COATED AS PER AWWA C150 (LATEST SPECS).
2. 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 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

(TR) – SEQUENCE OF CONSTRUCTION FOR TRENCH EXCAVATION:

EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED.

1. THE BUCKS COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED 72 HOURS PRIOR TO THE START OF CONSTRUCTION BY THE CONTRACTOR.
2. INSTALL INLET PROTECTION IN ALL INLETS PRIOR TO ANY EARTH DISTURBANCE.
3. PREPARATORY EARTHWORK OPERATIONS.
4. EXCAVATOR MOBILIZATION AND SET-UP.
5. ALL EXCAVATED MATERIALS SHALL BE REMOVED VIA DUMP TRUCK (NO STOCKPILING OF ANY EXCAVATED MATERIALS).
6. APPROVED ROAD PLATES ARE TO BE UTILIZED ONLY WHEN NECESSARY AND WITH THE APPROVAL OF THE AQUA INSPECTOR. THE TRENCH WILL BE SHORED TO PREVENT POSSIBLE TRENCH COLLAPSE, THE ROAD PLATE WILL THEN BE ANCHORED AND TEMPORARY PAVING (COLD PATCH) WILL BE PLACED AROUND THE PLATE'S EDGE. THE TEMPORARY PAVING WILL DIMINISH ANY WATER INFLOWING THE PLATED TRENCH OPENING DURING A POSSIBLE RAIN EVENT.
7. EXCAVATE FOR WATER PIPE INSTALLATION. IF GROUNDWATER SEEPAGE INTO WATER MAIN TRENCH OCCURS, PUMP WATER INTO SEDIMENT FILTER BAG. (ALL SATURATED SOILS TO BE REMOVED SHALL BE HAULED IN A WATER TIGHT CONTAINER/DUMP TRUCK.)
8. WATER PIPE INSTALLATION.
9. BACKFILL OPERATIONS/TEMPORARY ROAD RESTORATION.
10. PIPE TESTING OPERATIONS.
11. RESTORATION AND DEMOBILIZATION.
12. THE ENTIRE INSTALLATION PROCESS WILL BE DONE IN THE EXISTING CARTWAY.
13. THE LIMITS OF DISTURBANCE WILL BE WITHIN THE EXISTING CARTWAY.

AMTRAK GENERAL NOTES

1. ALL WORK ON OR ADJACENT TO RAILROAD PROPERTY MUST COMPLY WITH AMTRAK ENGINEERING PRACTICES EP3014 – MAINTENANCE AND PROTECTION OF RAILROAD TRAFFIC DURING CONTRACTOR OPERATIONS.
2. DESIGN AND CONSTRUCTION MUST COMPLY WITH AMTRAK ENGINEERING PRACTICES EP3005 – PIPELINE OCCUPANCY. PRIOR TO CONSTRUCTION OPERATIONS, CONTRACTOR MUST SUBMIT, AT A MINIMUM, THE FOLLOWING TO AMTRAK FOR REVIEW AND APPROVAL: CONSTRUCTION PROCEDURE MEANS AND METHODS, SCHEDULE, DEWATERING SYSTEM (IF ANY), AND CALCULATIONS, AS APPLICABLE. ALL CALCULATIONS MUST BE SIGNED AND STAMPED/SEALED BY A LICENSED ENGINEER REGISTERED IN THE STATE.
3. ALL UNDERGROUND UTILITIES, CABLE, AND FACILITIES MUST BE LOCATED AND PROTECTED BEFORE ANY EXCAVATING, DRILLING, BORING/DIRECTIONAL DRILLING, GROUND PENETRATING ACTIVITIES, OR CONSTRUCTION TAKES PLACE. THIS INCLUDES RAILROAD AND COMMERCIAL UTILITIES, CABLES, DUCT LINES, AND FACILITIES. THESE ACTIVITIES WILL NOT BE PERFORMED IN CLOSE PROXIMITY TO THE RAILROAD DUCT LINES UNLESS MONITORED BY ON-SITE AMTRAK COMMUNICATIONS AND SIGNAL (C&S) DEPARTMENT PERSONNEL. HAND DIGGING MAY BE REQUIRED, AS DIRECTED BY AMTRAK THROUGH THE ON-SITE AMTRAK C&S SUPPORT PERSONNEL. AMTRAK MAINTAINS THE RIGHT TO ACCESS ALL EXISTING CABLES AND CONDUITS THROUGHOUT CONSTRUCTION. AMTRAK ALSO RESERVES THE RIGHT TO UPGRADE AND INSTALL NEW CABLES AND CONDUITS IN THE AFFECTED AREA. THE "ONE-CALL" PROCESS MUST BE FOLLOWED. BE AWARE THAT AMTRAK IS NOT PART OF THE ONE-CALL PROCESS; CONTACT AMTRAK ENGINEERING TO HAVE ALL RAILROAD UNDERGROUND UTILITIES AND ASSETS LOCATED. IF REQUESTED BY AMTRAK, EXISTING DEPTHS OF UTILITIES BEING CROSSED MUST BE VERIFIED THROUGH TEST PITS PERFORMED BY THE CONTRACTOR AS DIRECTED BY AND UNDER THE DIRECT SUPERVISION OF AMTRAK C&S SUPPORT PERSONNEL. PRECAUTIONS MUST BE TAKEN TO PREVENT ANY INTERRUPTION TO RAILROAD OPERATION.
4. ANY WORK (OR EQUIPMENT BEING STAGED ONSITE DURING CONSTRUCTION) PERFORMED AT OR NEAR A RAILROAD CROSSING MUST NOT OBSTRUCT THE VIEW OF FLASHING LIGHT UNITS OR GATES TO ONCOMING TRAFFIC.
5. PRIOR TO ENTERING AMTRAK'S PROPERTY FOR ANY WORK, THE CONTRACTOR MUST EXECUTE AMTRAK'S STANDARD TEMPORARY PERMIT TO ENTER UPON PROPERTY (PTE). THE FULLY EXECUTED PTE, WRITTEN NOTICE TO PROCEED FROM AMTRAK THAT ALL REQUIREMENTS OF THE PTE HAVE BEEN MET AND PROOF OF SAFETY TRAINING MUST, AT ALL TIMES, BE FURNISHED BY THE CONTRACTOR AT THE PROJECT SITE.
6. ALL PERSONS THAT ARE ON OR ADJACENT TO THE RAILROAD PROPERTY MUST SUCCESSFULLY COMPLETE THE CONTRACTOR ORIENTATION TRAINING. ALL CONTRACTORS MUST CARRY THEIR "AMTRAK CONTRACTOR ROADWAY WORKER PROTECTION" CARD WITH THEM AT ALL TIMES WHILE ON OR ADJACENT TO RAILROAD PROPERTY.
7. ANY DEBRIS OR DAMAGE RESULTING FROM WORK SHALL BE IMMEDIATELY REPORTED TO THE RAILROAD. RAILROAD SHALL BE REPAIRED BY RAILROAD FORCES AT PROJECT EXPENSE.

1

PIPE CROSSING DATA	CARRIER PIPE	CASING PIPE
CONTENTS TO BE HANDLED	WATER	NONE
OPERATING PRESSURE (PSI)	80	N/A
NOMINAL PIPE SIZE (")	8"	16"
O.S. DIAMETER (")	9.05"	16.00"
I.S. DIAMETER (")	8.39"	15.00"
WALL THICKNESS (")	0.33"	0.50"
WEIGHT PER FOOT (LBS)	29	83
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)	350	N/A
TYPE OF JOINT	MECHANICAL	WELDED
TYPE OF COATING	BITUMASTIC	BITUMASTIC
DETAILS OF CATHODIC PROTECTION	COATING	WRAP OR COATING
DETAILS OF SEAL OR PROTECTION AT ENDS OF CASING	N/A	N/A 3
METHOD OF INSTALLATION	TRENCHING	TRENCHING
SPECIFIC MIN. YIELD STRENGTH	42,000 PSI	35,000 PSI
CHARACTER OF SUBSURFACE MATERIAL	UNKNOWN	UNKNOWN
APPROXIMATE GROUND WATER LEVEL	UNKNOWN	UNKNOWN
SOURCE OF INFORMATION ON SUBSURFACE CONDITIONS	N/A	N/A

SCALE
0 30 60 FEET

CERTIFIED CORRECT PLANS
Professional Engineer
Approved by Bureau of Technical Utility Services
PA PUBLIC UTILITY COMMISSION
ATTEST Secretary
01/30/2026
Docket: A-2025-3054656

TOTAL ENGINEERING & CONSULTING SERVICES, LLC
www.totalengineeringllc.com | 267.434.1919

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER ANTHONY J CARMASSI PE088879

NO	DATE	REVISION	INTL
3	12/15/2025	RESPONSE PER AMTRAK COMMENTS DATED 12/05/2025	DBC
2	08/15/2025	RESPONSE PER AMTRAK COMMENTS DATED 08/08/2025	JMM
1	06/02/2025	RESPONSE PER AMTRAK COMMENTS DATED 05/15/2025	JMM
0	11/18/2025	ISSUED FOR CONSTRUCTION	JMM
0	11/17/2025	DESIGN COMPLETION	JMM

AQUA PENNSYLVANIA, INCORPORATED
762 LANCASTER AVENUE, BRYN MAWR, PA., 19010

PROJECT PLAN FOR:
JEFFERSON AVE PROJECT
AMTRAK ROE PLAN
BRISTOL BOROUGH, BUCKS COUNTY

DRAWN BY:	JDB	CHK'D BY:	JMM
DATE:	03/07/2024	SCALE:	N.T.S.
PROJECT No:	554.17	CPA ID No:	4637385
APPROVED			

EXT No: 20275-E
PLATE: 1D14, 1E14, 1E15
A - 63315
SHEET 6 OF 12

CM# 37218
WO# 300002783