

APPENDIX B
TYPICAL SECTIONS, ENGINEERING DESCRIPTIONS
AND MAPPING

Figure B-1
Widen Existing Tunnel Alternative

TOWNSHIP	COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY	SOMERSET	2 OF 2	B-1
CREATED ON: 9/09/14	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT			
DRAFT ENVIRONMENTAL DOCUMENT			
WIDEN EXISTING TUNNEL ALTERNATIVE			

MAX COVER (ELEV. 2751'±)

MIN COVER (ELEV. 2400'±)

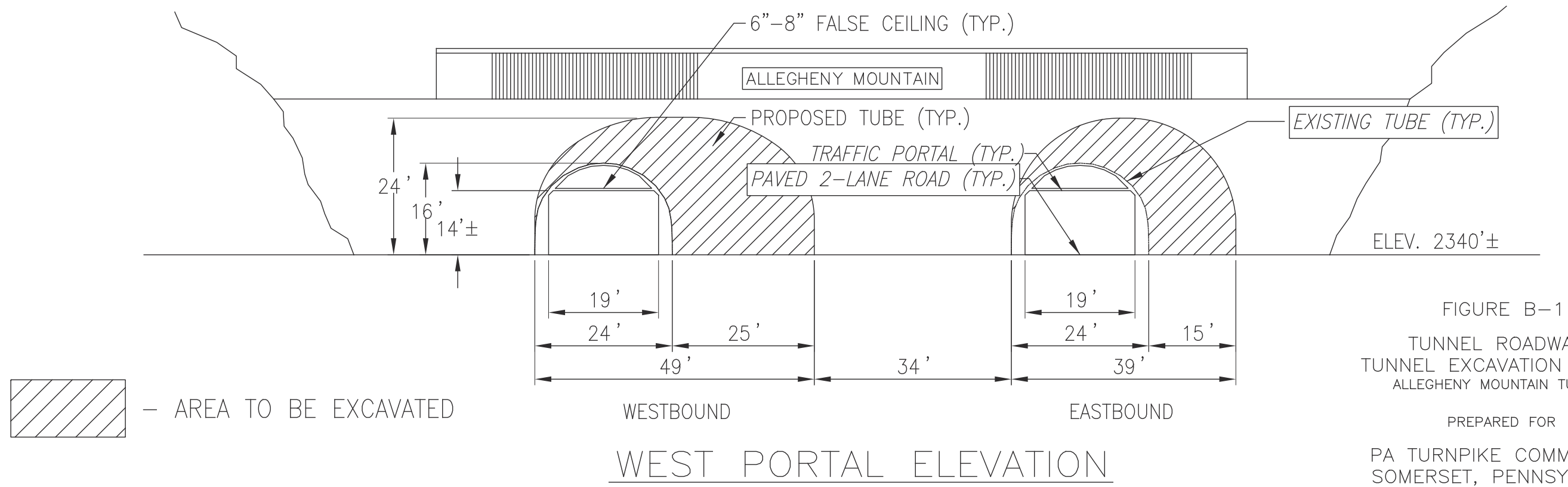


FIGURE B-1
TUNNEL ROADWAYS
TUNNEL EXCAVATION OPTION
ALLEGHENY MOUNTAIN TUNNEL

PREPARED FOR
PA TURNPIKE COMMISSION
SOMERSET, PENNSYLVANIA

 Paul C. Rizzo Associates, Inc.
ENGINEERS / CONSULTANTS / CM

NOTES:
WESTBOUND: 4 LANES
EASTBOUND: 3 LANES



Pennsylvania
Turnpike
Commission

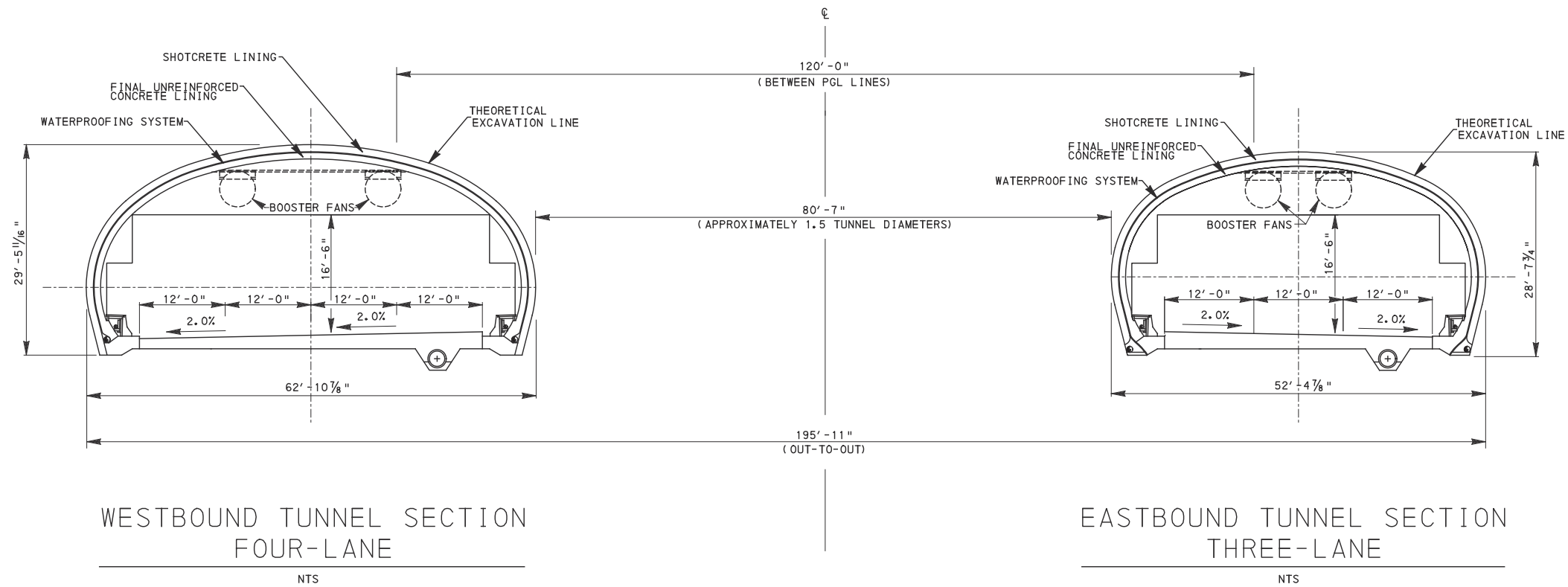


I:\Users\j1\OneDrive\Documents\Projects\Allegheny Tunnel\Drawings\Tunnel\Tunnel.dgn
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Figure B-2
Proposed Roadway Typical Section

Figure B-3
Proposed Tunnel Typical Section

TOWNSHIP	COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY	SOMERSET	1 OF 1	B-3
CREATED ON: 3/10/17	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT			
DRAFT ENVIRONMENTAL DOCUMENT			
PROPOSED TUNNEL TYPICAL SECTIONS			



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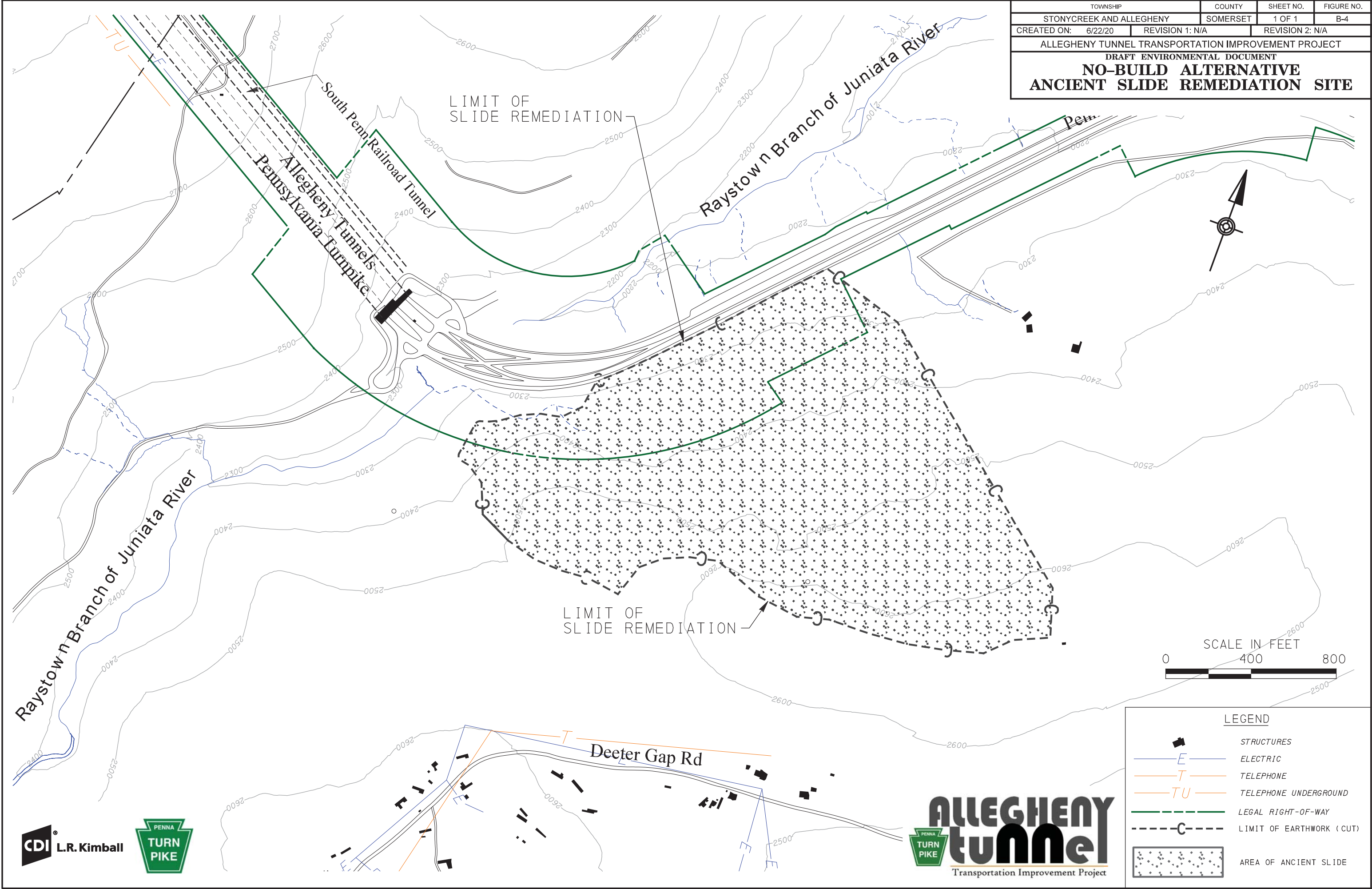


Pennsylvania
Turnpike
Commission



Figure B-4
No Build Alternative Plan and Profile

TOWNSHIP	COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY	SOMERSET	1 OF 1	B-4
CREATED ON: 6/22/20	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT			
DRAFT ENVIRONMENTAL DOCUMENT			
NO-BUILD ALTERNATIVE			
ANCIENT SLIDE REMEDIATION SITE			



SCALE IN FEET
0 400 800

LEGEND	
	STRUCTURES
	ELECTRIC
	TELEPHONE
	TELEPHONE UNDERGROUND
	LEGAL RIGHT-OF-WAY
	LIMIT OF EARTHWORK (CUT)
	AREA OF ANCIENT SLIDE

CDI L.R. Kimball



Figure B-4A

No Build Alternative Estimated Construction,
Operation, and Maintenance Costs

 <p>Allegheny Tunnel Transportation Improvement Project</p>	<p align="center">Allegheny Tunnel Transportation Improvement Project Detailed Alternative Analysis Somerset & Bedford Counties, Pennsylvania</p>
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Cost Estimate**No Build Alternative with Ancient Slide Remediation**

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL
VENTILATION UPDATES	1.0	\$6,000,000.00 / LS	\$6,000,000.00
WESTBOUND CEILING REPLACEMENT EASTBOUND CEILING MAINTENANCE	1.0	\$15,000,000.00 / LS	\$15,000,000.00
LIGHTING REPLACEMENT	1.0	\$3,500,000.00 / LS	\$3,500,000.00
FIRE PROTECTION/DETECTION SYSTEM	1.0	\$200,000.00 / LS	\$200,000.00
STRUCTURAL REFURBISHMENT (FOR WATER CONTROL)	1.0	\$300,000.00 / LS	\$300,000.00
DRAINAGE INLETS (TO REPLACE SLOT DRAINS)	1.0	\$300,000.00 / LS	\$300,000.00
TRAFFIC CONTROL MEASURES	1.0	\$400,000.00 / LS	\$400,000.00
ANCIENT SLIDE REMEDIATION *	6,163,075	\$8.25 / CY	\$50,900,000.00
CONTINGENCY		12%	\$9,192,000.00
OPERATION & MAINTENANCE COSTS			
Tunnel Maintenance	5.0	\$421,400.00 / TUNNEL LANE MILE	\$2,107,000.00
RIGHT-OF-WAY ANCIENT SLIDE AREA RIGHT-OF-WAY	57	\$4,200.00 / ACRE	\$239,400.00

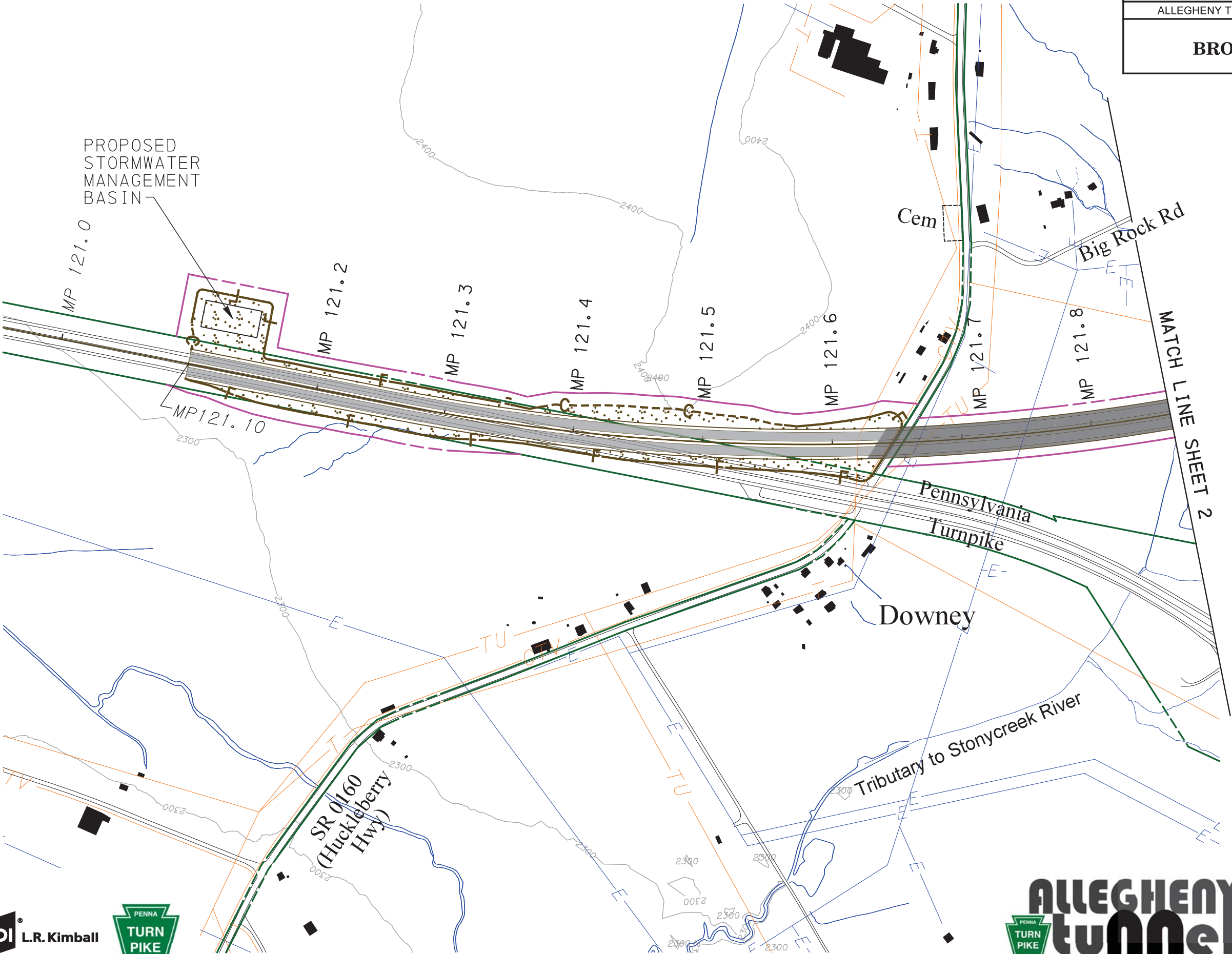
CONSTRUCTION COSTS	\$85,800,000
RIGHT-OF-WAY COSTS	\$240,000
DESIGN COST	\$8,600,000
TOTAL COST	\$94,700,000
**OPERATION & MAINTENANCE COSTS / YEAR	\$2,200,000

* NOTE: Includes Overexcavation, Drainage Measures, Revegetation, etc.

** NOTE: Operation & Maintenance Costs/Year Are Not Included In Total Cost



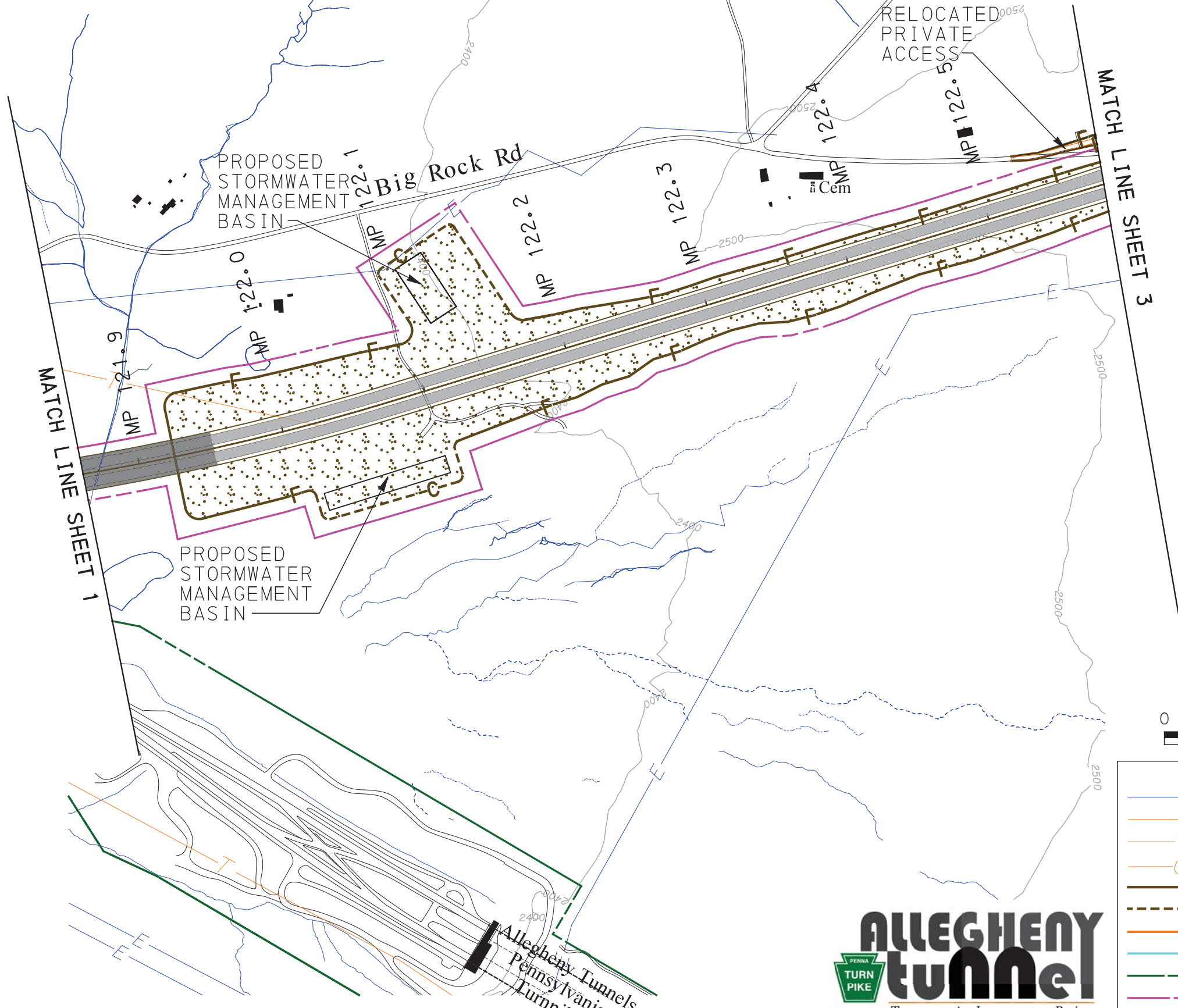
Figure B-5
Brown Cut Alternative Plan and Profile



- | | |
|--|---------------------------|
| | STRUCTURES |
| | ELECTRIC |
| | TELEPHONE |
| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |



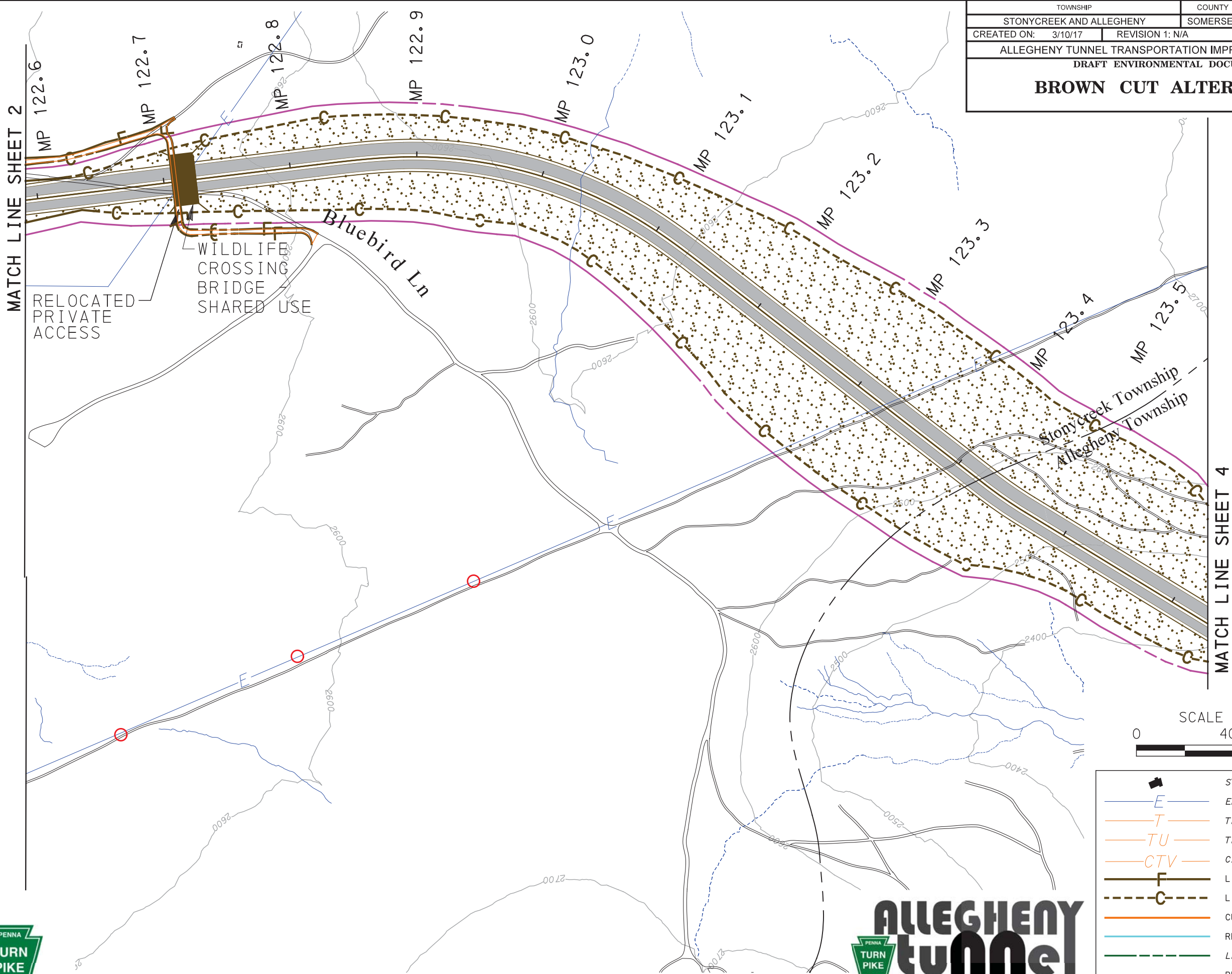
TOWNSHIP	COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY	SOMERSET	2 OF 4	B-5
CREATED ON: 3/10/17	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT			
DRAFT ENVIRONMENTAL DOCUMENT			
BROWN CUT ALTERNATIVE			



	STRUCTURES
	ELECTRIC
	TELEPHONE
	TELEPHONE UNDERGROUND
	CABLE TELEVISION
	LIMIT OF EARTHWORK (FILL)
	LIMIT OF EARTHWORK (CUT)
	CULVERTED STREAM
	RELOCATED STREAM
	LEGAL RIGHT-OF-WAY
	REQUIRED RIGHT-OF-WAY
	AERIAL ELECTRIC TOWERS

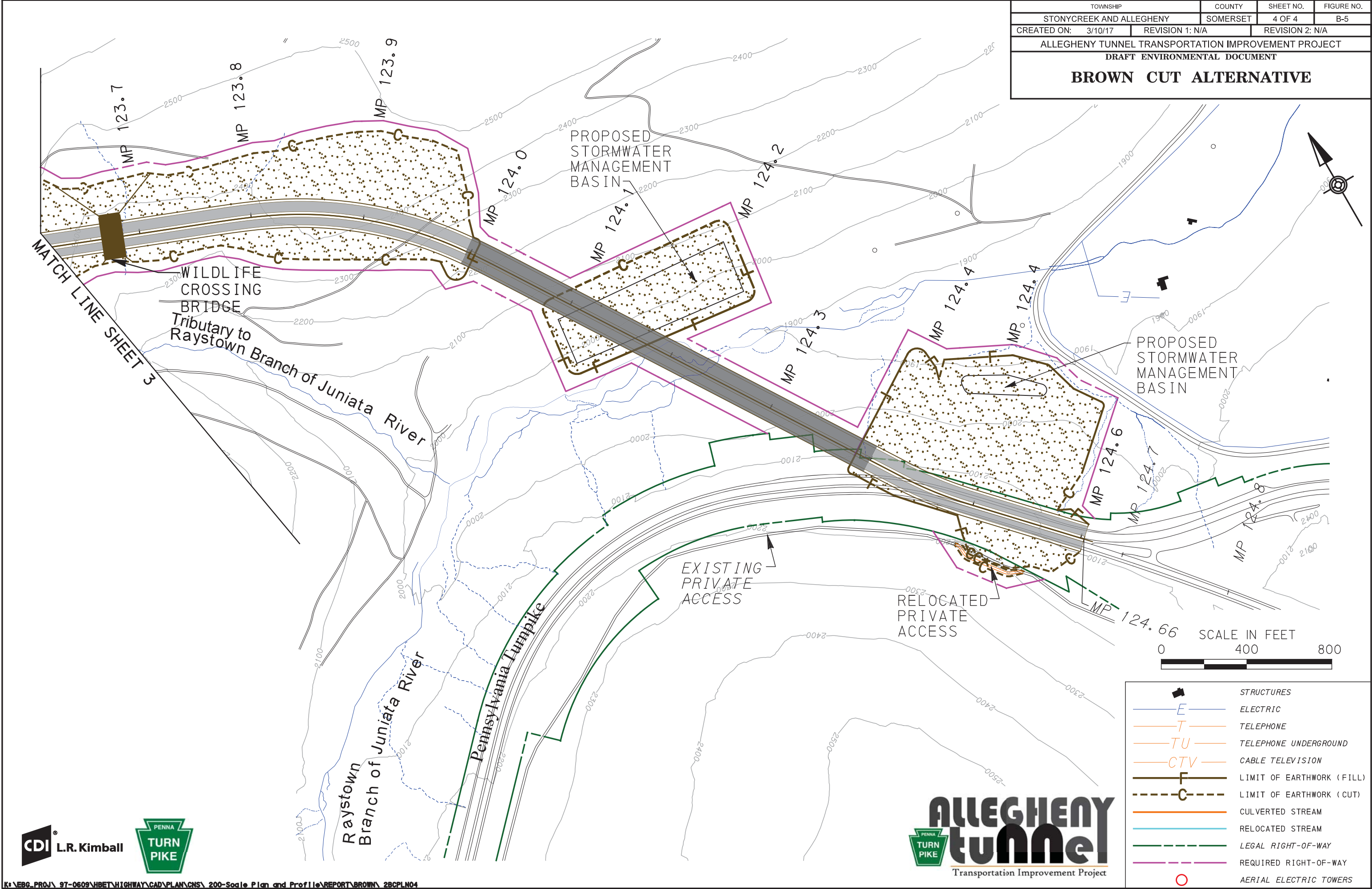


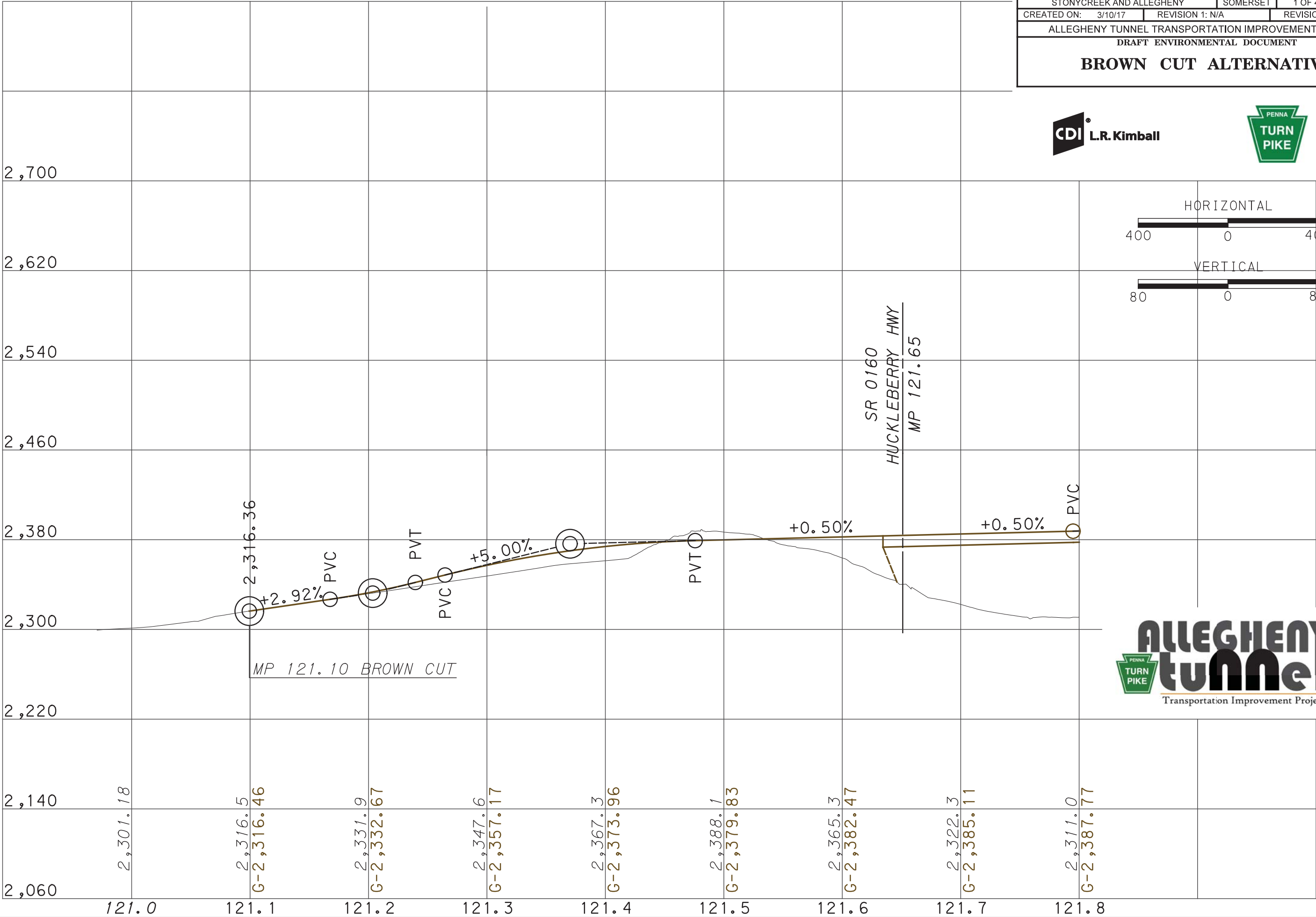
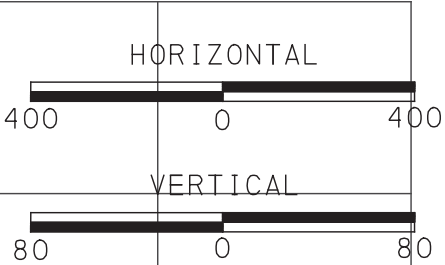
TOWNSHIP	COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY	SOMERSET	3 OF 4	B-5
CREATED ON: 3/10/17	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT			
DRAFT ENVIRONMENTAL DOCUMENT			
BROWN CUT ALTERNATIVE			



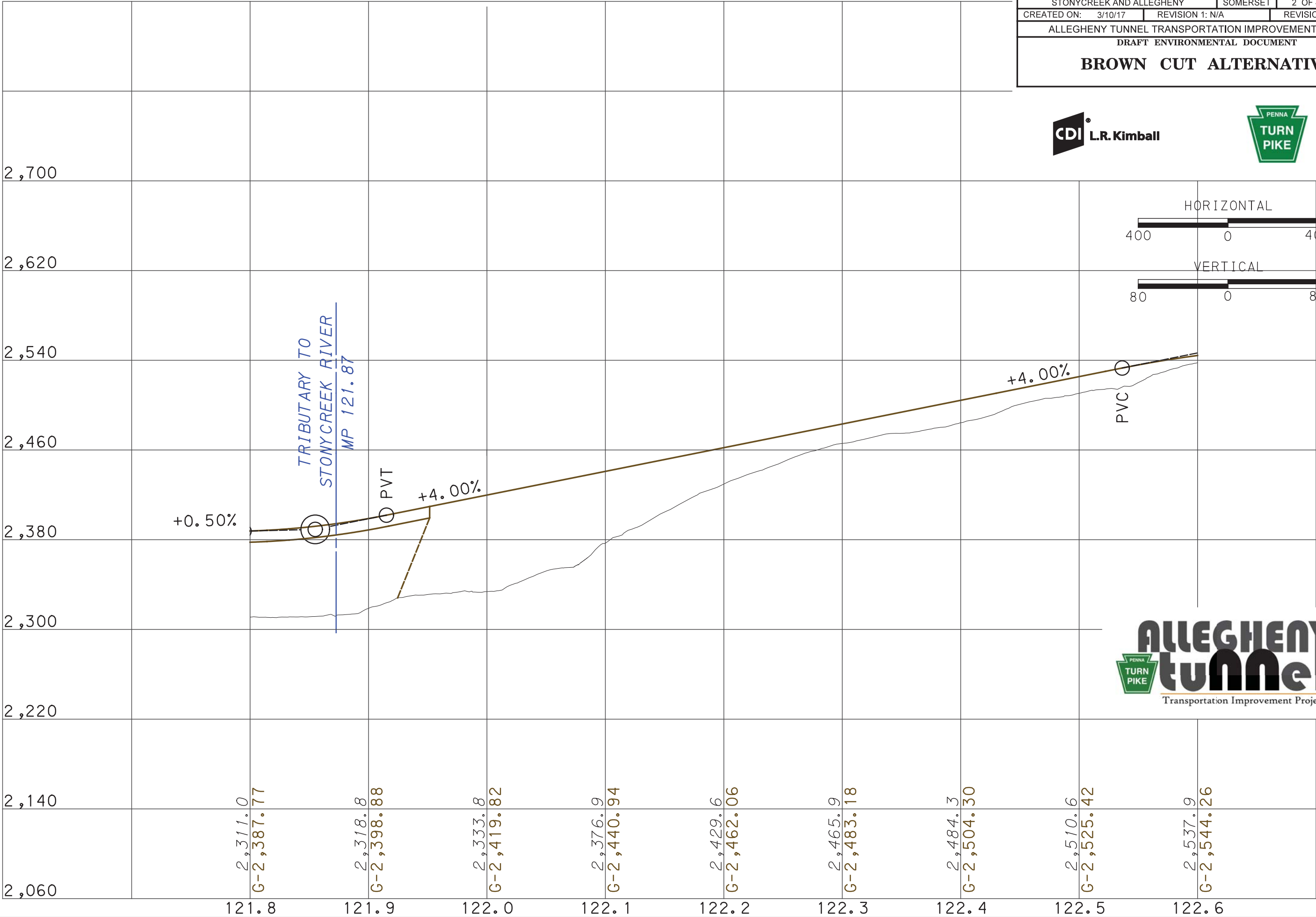
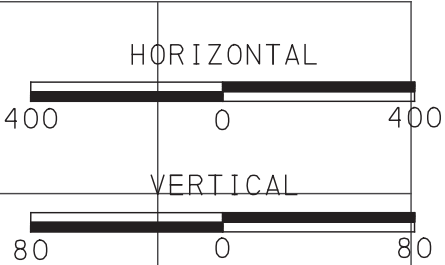
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| | STRUCTURES |
| | ELECTRIC |
| | TELEPHONE |
| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |



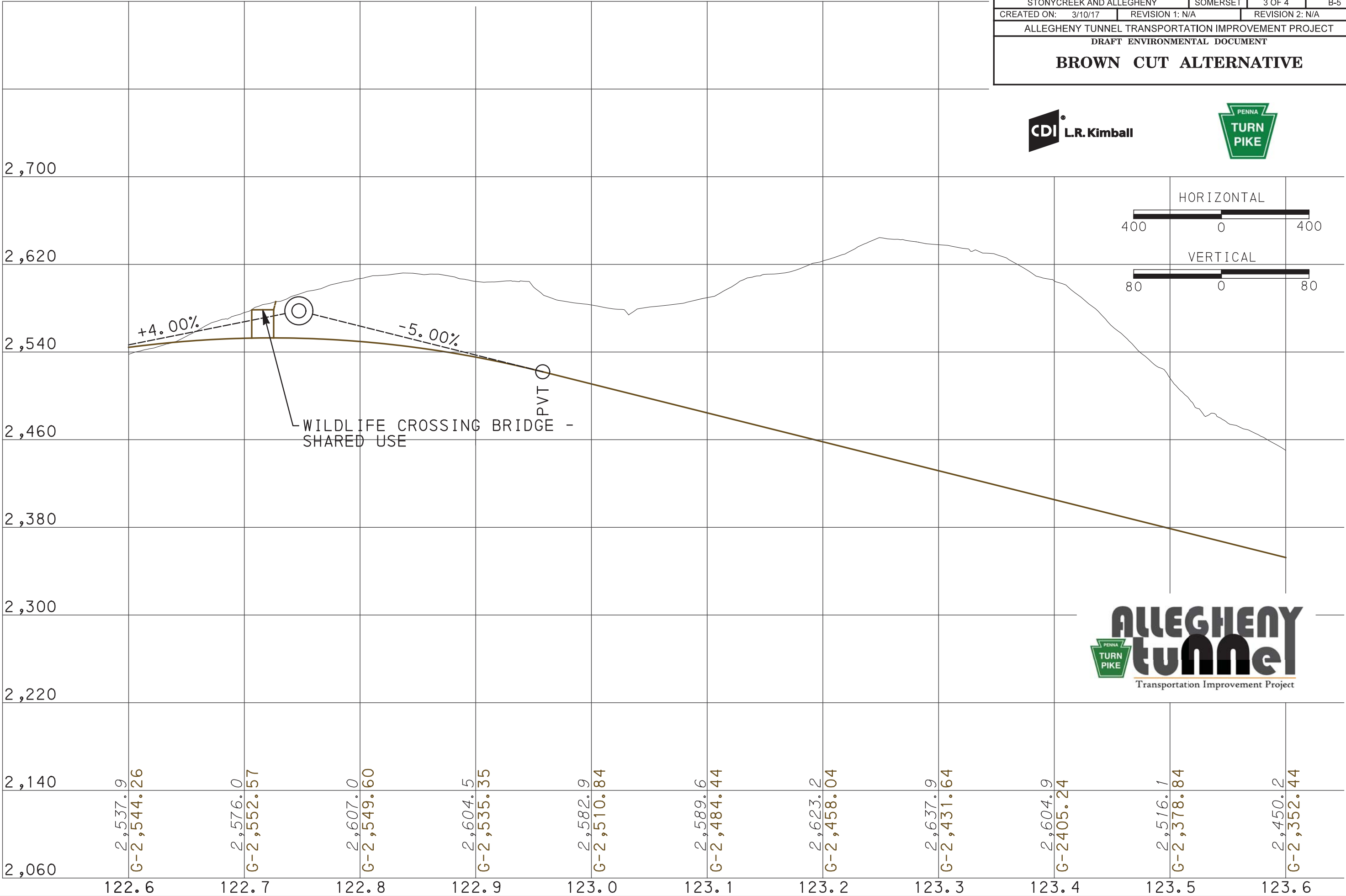
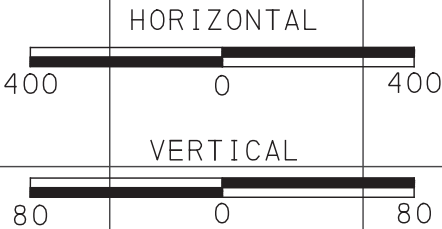




TOWNSHIP		COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY		SOMERSET	2 OF 4	B-5
CREATED ON:	3/10/17	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT				
DRAFT ENVIRONMENTAL DOCUMENT				
BROWN CUT ALTERNATIVE				



REVISION: 97-0609 TURNPIKE HIGHWAY PLANS 200-SCALE PLAN AND PROFILE REPORT BROWN 250P002



TOWNSHIP		COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY		SOMERSET	4 OF 4	B-5
CREATED ON:	3/10/17	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT				
DRAFT ENVIRONMENTAL DOCUMENT				
BROWN CUT ALTERNATIVE				

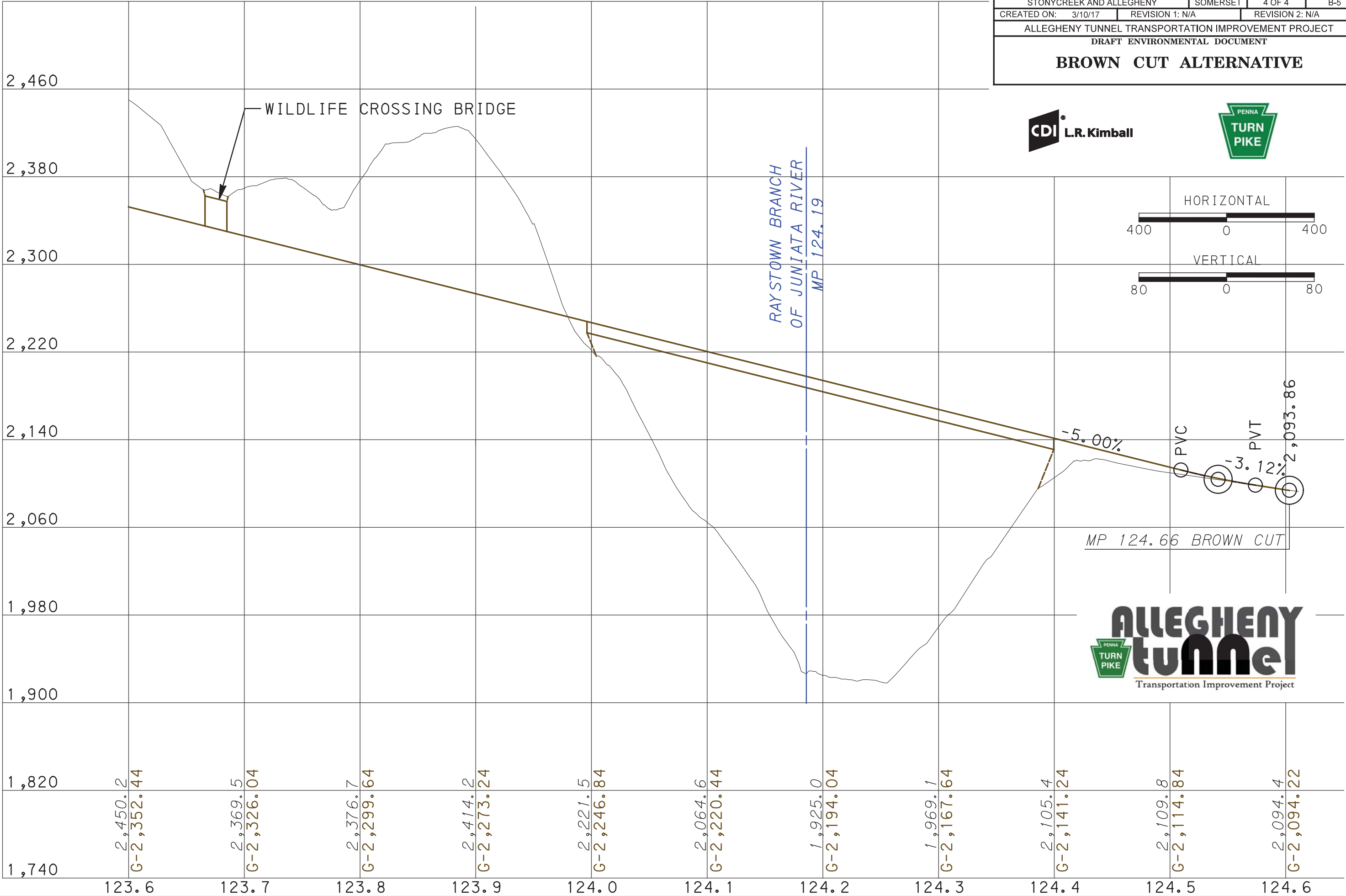
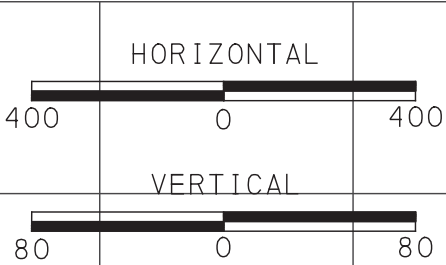



Figure B-5A
**Brown Cut Alternative Estimated Construction,
Operation, and Maintenance Costs**

	<p align="center">Allegheny Tunnel Transportation Improvement Project Detailed Alternative Analysis Somerset County, Pennsylvania</p>
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Cost Estimate

Brown Alignment (7 Lane Cut Option) 26' Median with Swale and Westbound Climbing Lane

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL
ROADWAY (Includes clearing and grubbing, mobilization, field office, engineering surveys, right-of-way fence, pavements, shoulders, drainage, e&s, stormwater management, signing, pavement markings and delineators, landscaping & guiderail)	18.4	\$3,890,376.00 / LANE MILE	\$71,582,919.00
EXCAVATION	10,807,729	\$5.00 / CY	\$54,038,645.00
WASTE	9,767,392	/ CY	
UTILITY RELOCATION	1.0	\$400,000.00 / LS	\$400,000.00
MAJOR DRAINAGE STRUCTURES		\$2,520.00 / LF	
BRIDGES (Includes substructure to accommodate future widening)			
Structure No.1 (6 LANES)	178,807	\$400.00 / SF	\$71,522,800.00
Structure No.2 (7 LANES)	252,938	\$400.00 / SF	\$101,175,200.00
Wildlife Crossing			
Crossing No. 1 (100 Ft. Wide Bridge)	21,200	\$300.00 / SF	\$6,360,000.00
Crossing No. 2 (100 Ft. Wide Bridge)	21,200	\$300.00 / SF	\$6,360,000.00
CONTINGENCY		12%	\$37,372,748.00
OPERATION & MAINTENANCE COSTS			
State Police	23.1	\$15,000.00 / LANE MILE	\$346,500.00
Roadway Maintenance	23.1	\$27,000.00 / LANE MILE	\$623,700.00
RIGHT-OF-WAY	191	\$4,200.00 / ACRE	\$802,200.00
WASTE AREA RIGHT-OF-WAY	55	\$4,200.00 / ACRE	\$231,000.00

CONSTRUCTION COSTS	\$348,900,000
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RIGHT-OF-WAY COSTS	\$1,100,000
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DESIGN COST	\$34,900,000
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TOTAL COST	\$384,900,000
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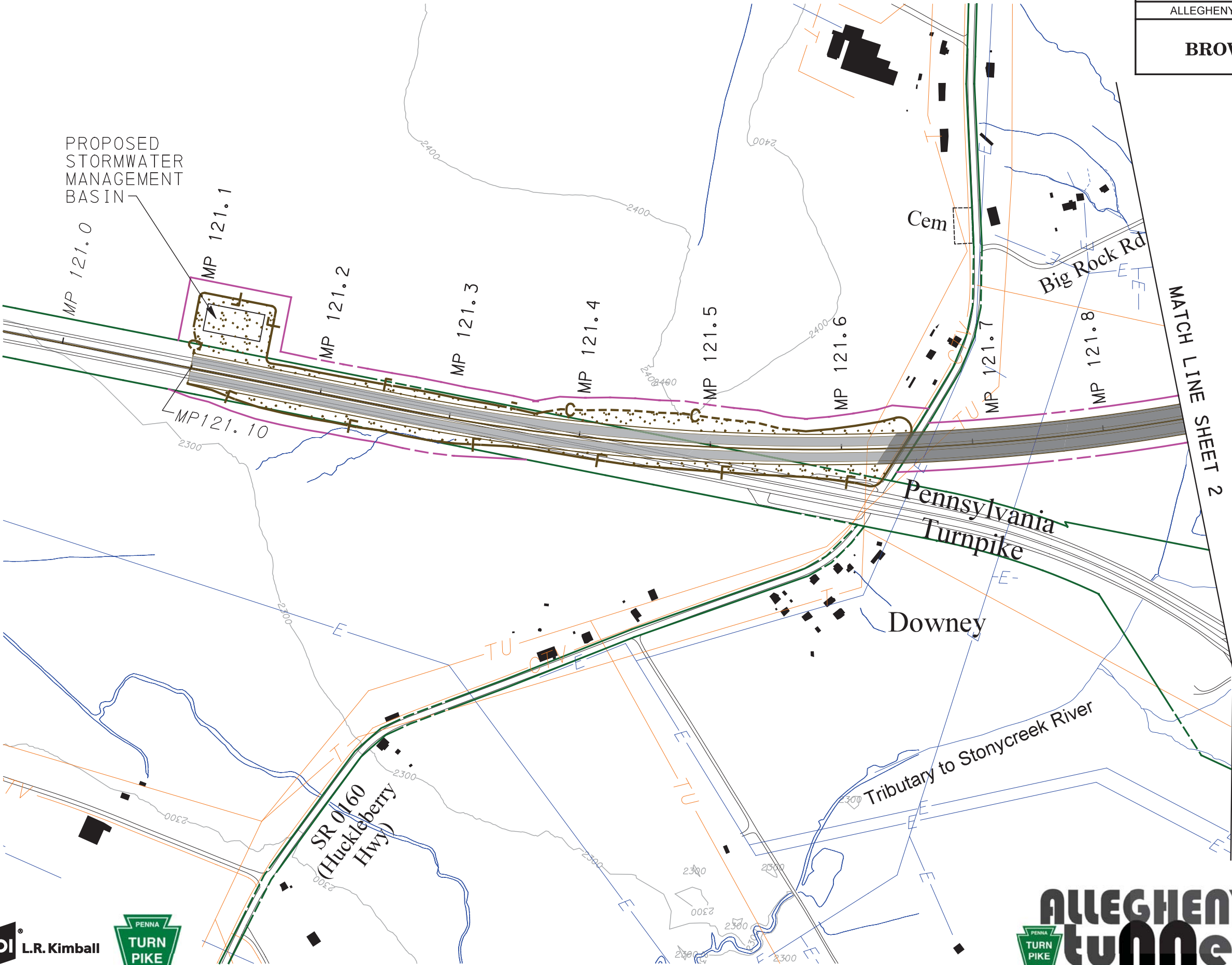
**OPERATION & MAINTENANCE COSTS / YEAR	\$1,000,000
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** NOTE: Operation & Maintenance Costs/Year Are Not Included In Total Cost



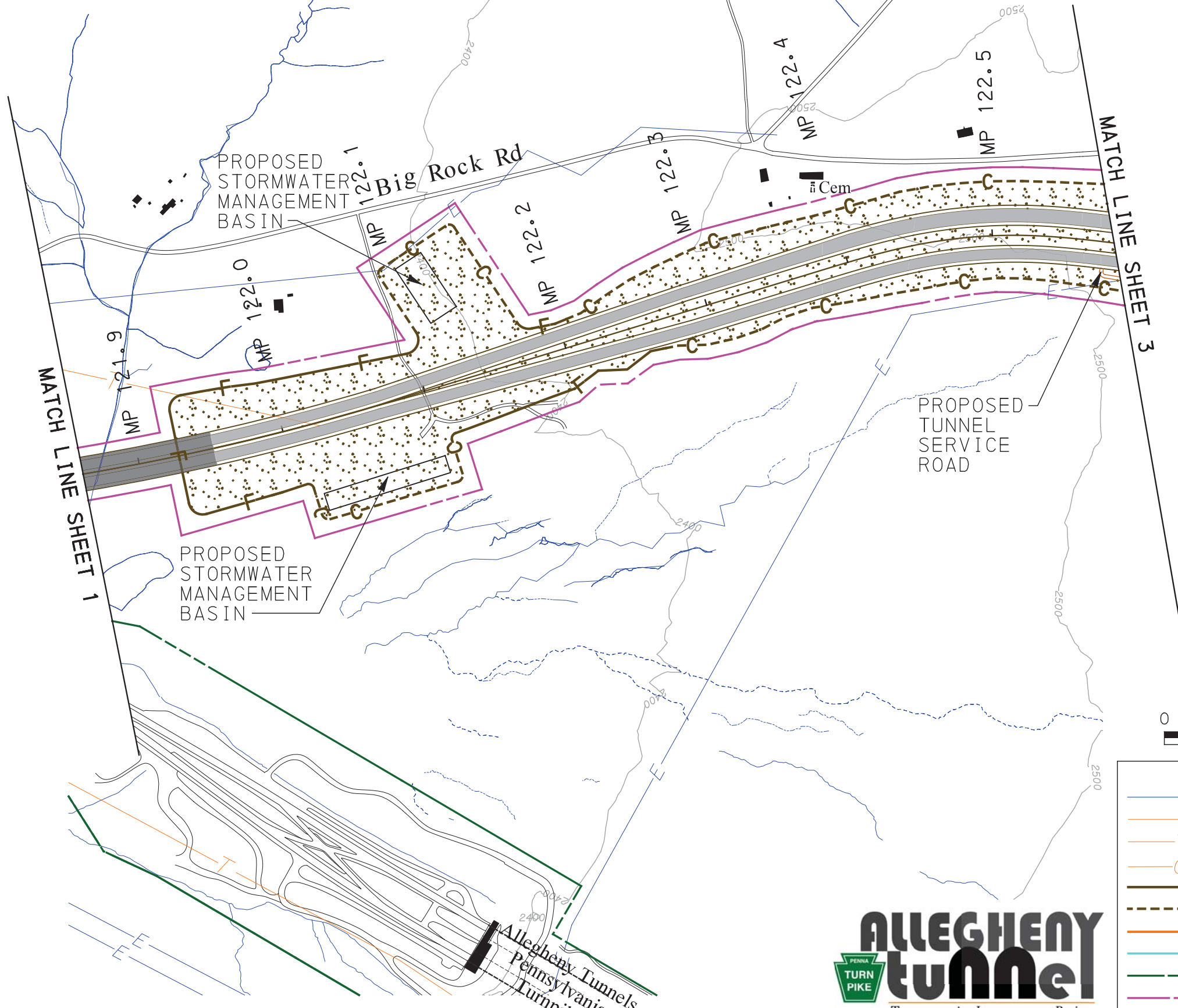
Figure B-6

Brown Tunnel Alternative Plan and Profile



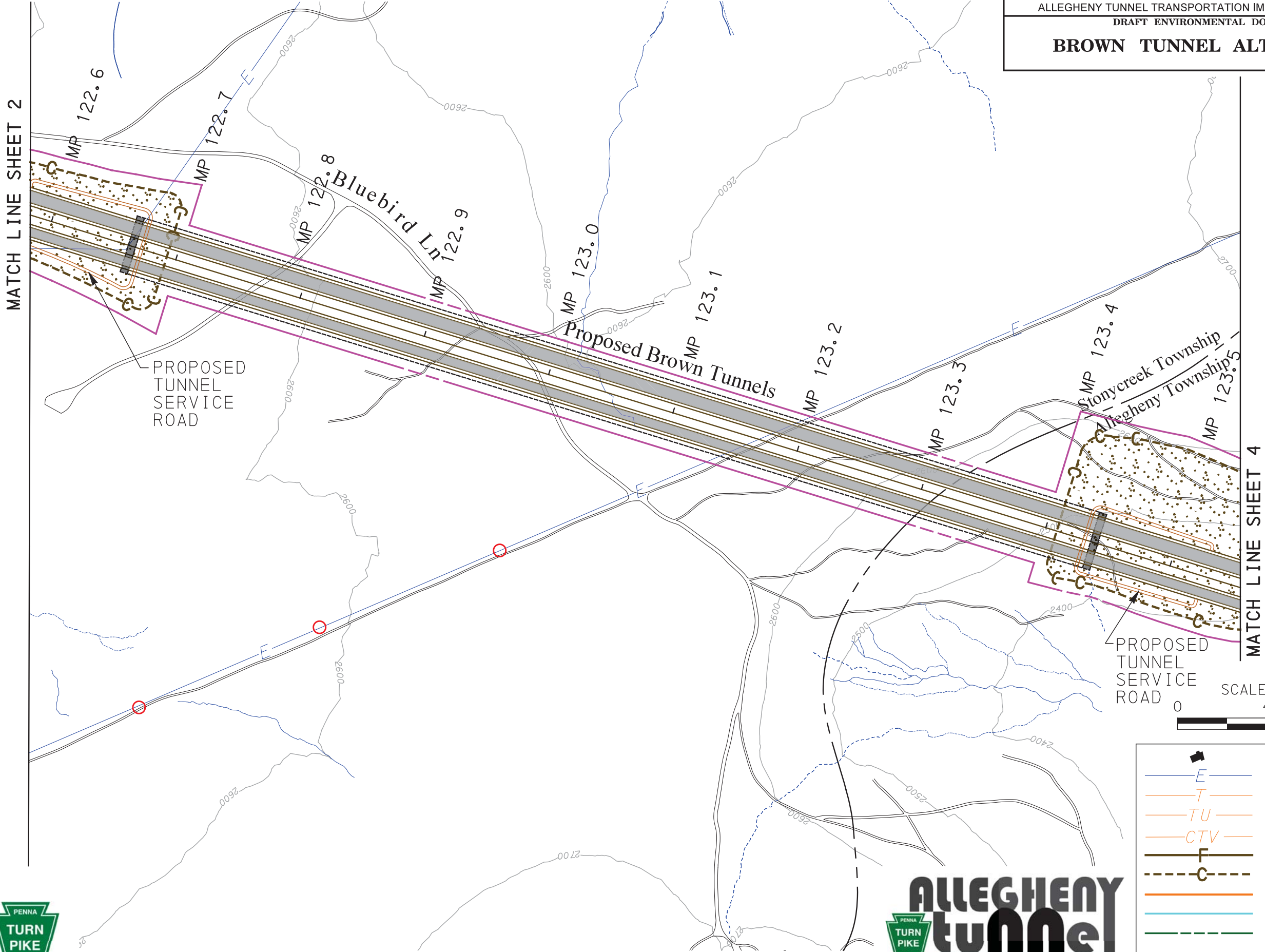
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| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |





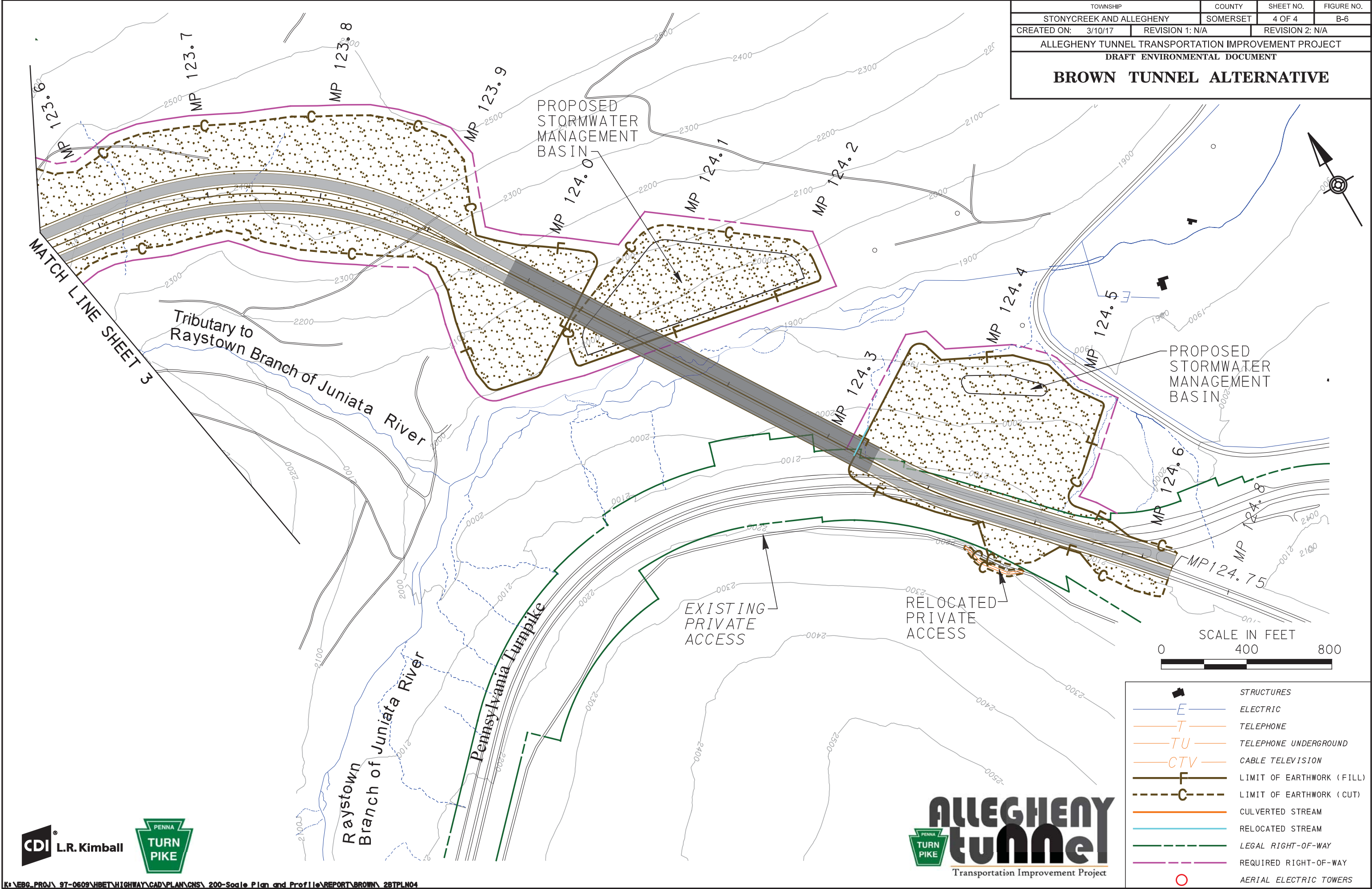
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| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |





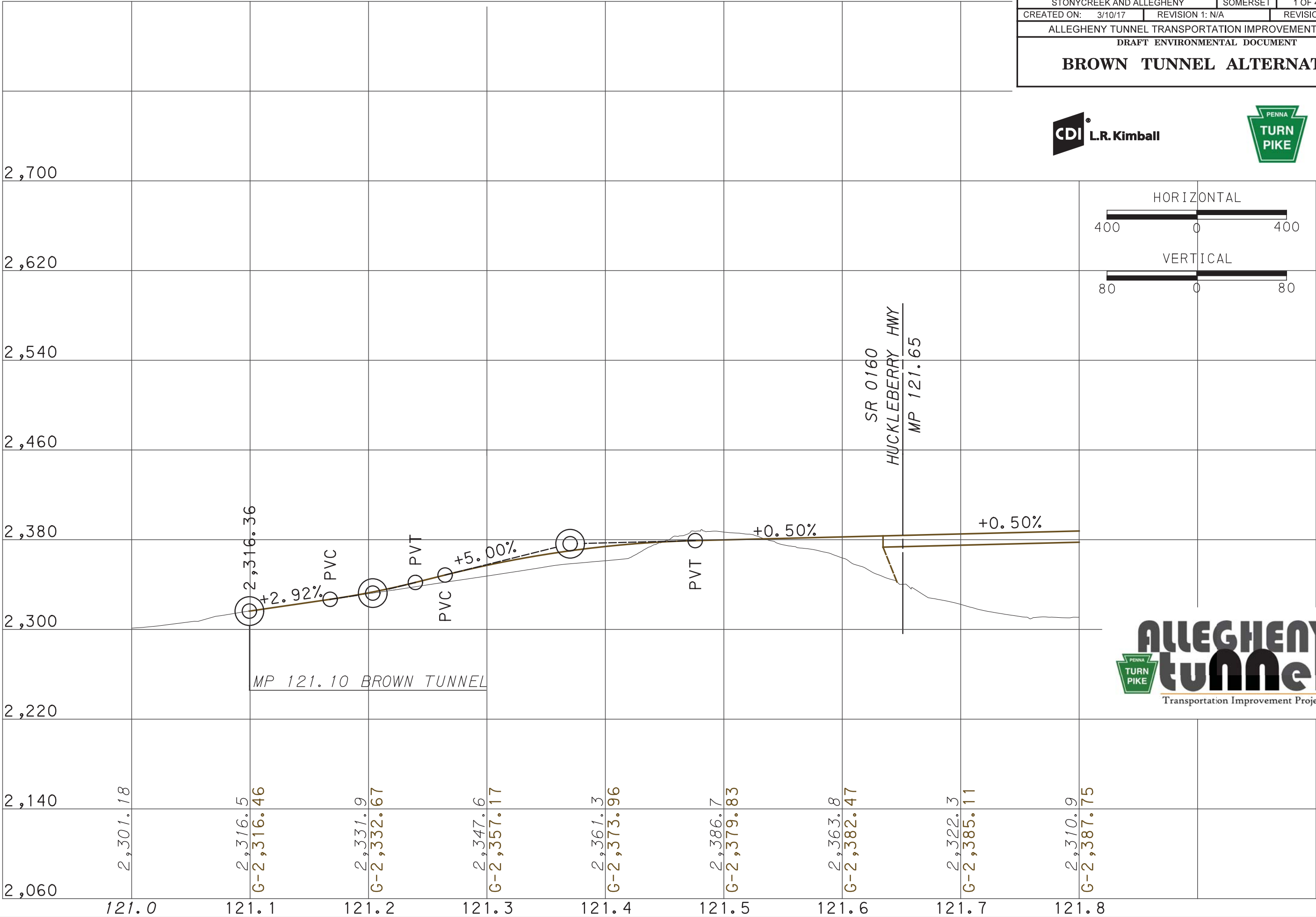
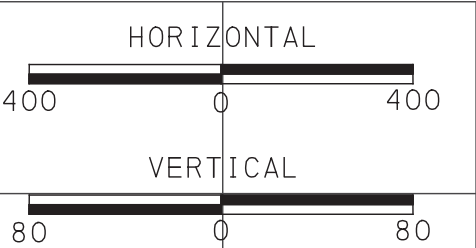
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| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |

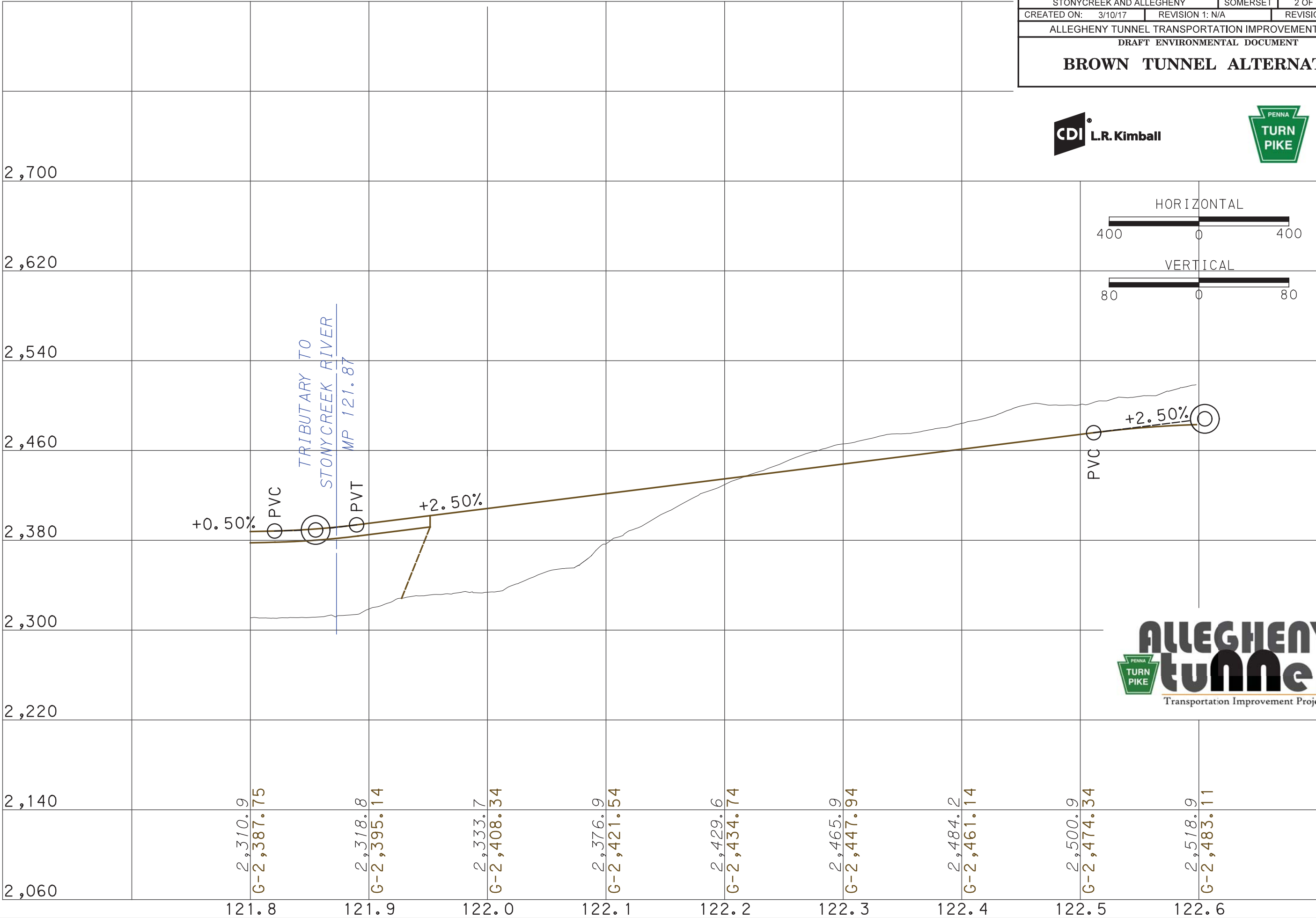
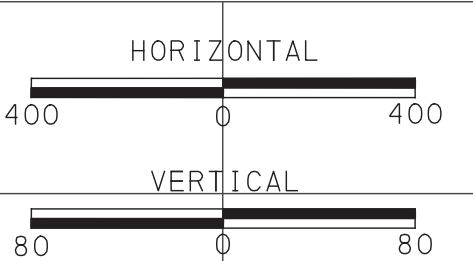


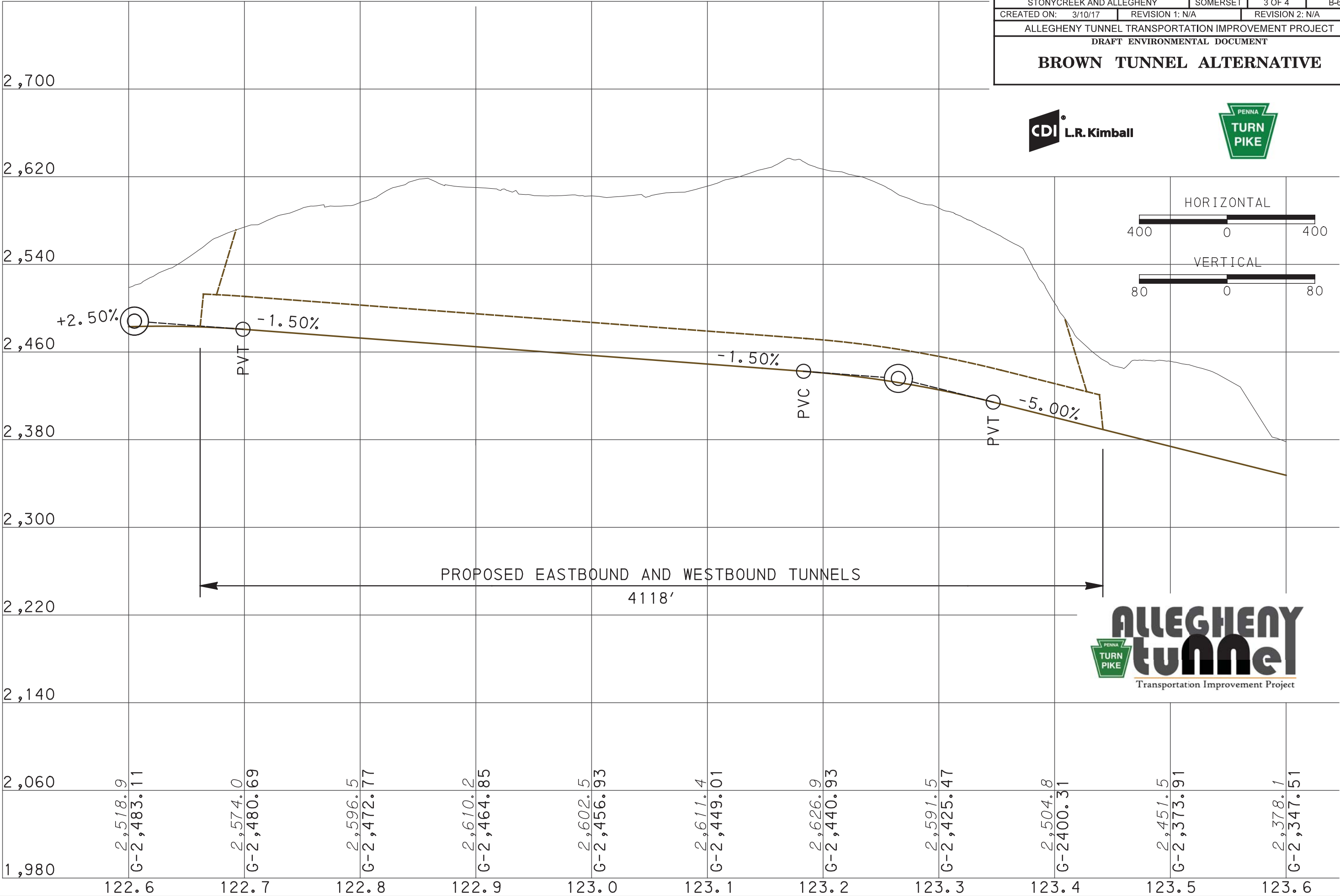
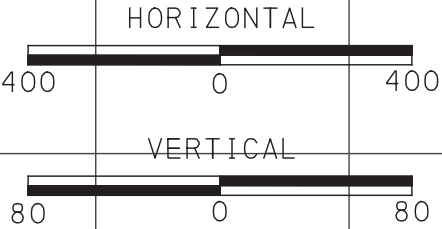


- | STRUCTURES | |
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| | TELEPHONE |
| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |









REVISION: 97-0609 TURNPIKE HIGHWAY ADVANCE PLANS 200-SCALE PLAN AND PROFILE REPORT BROWN 2B1PRO03

Figure B-6A

Brown Tunnel Alternative Estimated Construction,
Operation, and Maintenance Costs

	<p align="center">Allegheny Tunnel Transportation Improvement Project Detailed Alternative Analysis Somerset County, Pennsylvania</p>
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Cost Estimate

Brown Alignment (7 Lane Tunnel Option) 26' Median with Swale and Westbound Climbing Lane

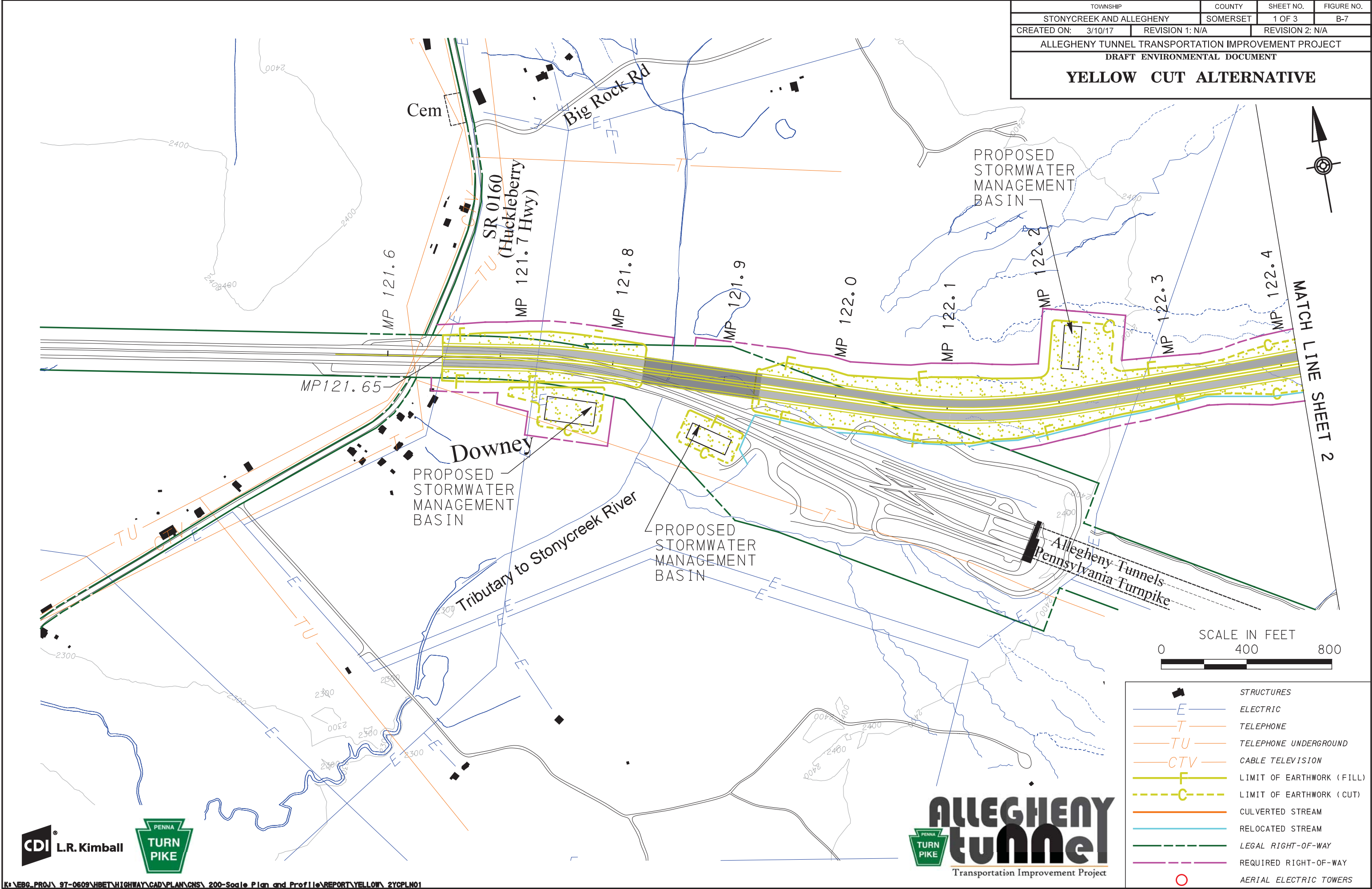
ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL
ROADWAY (Includes clearing and grubbing, mobilization, field office, engineering surveys, right-of-way fence, pavements, shoulders, drainage, e&s, stormwater management, signing, pavement markings and delineators, landscaping, guiderail & tunnel conc. barrier)	20.6	\$3,890,376.00 / LANE MILE	\$80,141,746.00
EXCAVATION	4,198,969	\$5.00 / CY	\$20,994,845.00
WASTE	3,786,127	/ CY	
UTILITY RELOCATION	1.0	\$400,000.00 / LS	\$400,000.00
MAJOR DRAINAGE STRUCTURES		\$2,520.00 / LF	
BRIDGES (Includes substructure to accommodate future widening) Structure No.1 (6 LANES) Structure No.2 (7 LANES)	178,807 228,832	\$400.00 / SF \$400.00 / SF	\$71,522,800.00 \$91,532,800.00
TUNNELS (Ultimate Conditions) Eastbound (3 LANES) Westbound (4 LANES)	4,118 4,118	\$42,778.00 / LF \$42,778.00 / LF	\$176,159,804.00 \$176,159,804.00
CONTINGENCY		12%	\$74,029,416.00
OPERATION & MAINTENANCE COSTS State Police Roadway Maintenance Tunnel Maintenance	31.1 25.1 6.0	\$15,000.00 / LANE MILE \$27,000.00 / LANE MILE \$421,400.00 / TUNNEL LANE MILE	\$466,500.00 \$677,700.00 \$2,528,400.00
RIGHT-OF-WAY WASTE AREA RIGHT-OF-WAY	172 63	\$4,200.00 / ACRE \$4,200.00 / ACRE	\$722,400.00 \$264,600.00

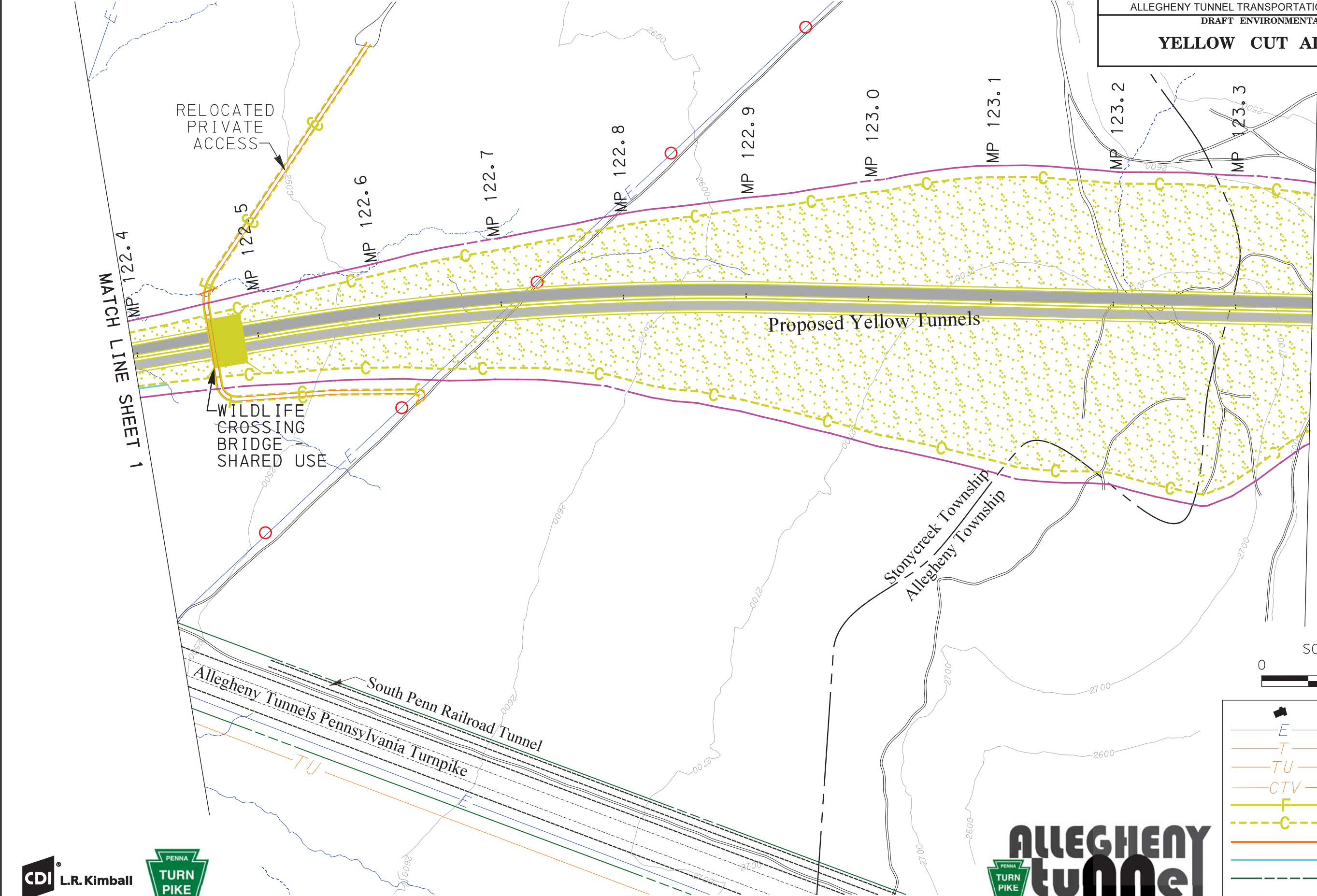
CONSTRUCTION COSTS	\$691,000,000
RIGHT-OF-WAY COSTS	\$1,000,000
DESIGN COST	\$69,100,000
TOTAL COST	\$761,100,000
**OPERATION & MAINTENANCE COSTS / YEAR	\$3,700,000

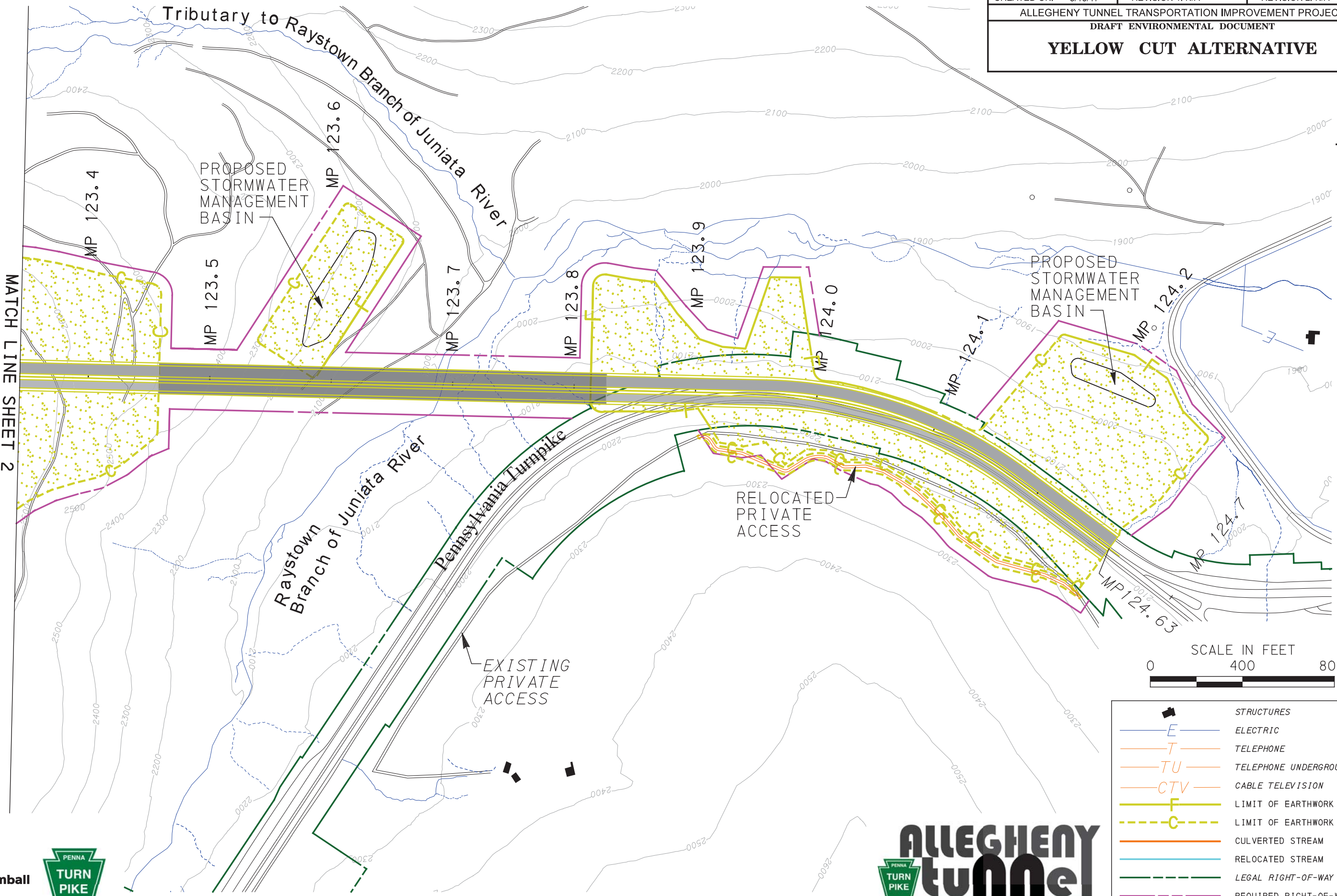
** NOTE: Operation & Maintenance Costs/Year Are Not Included In Total Cost



Figure B-7
Yellow Cut Alternative Plan and Profile

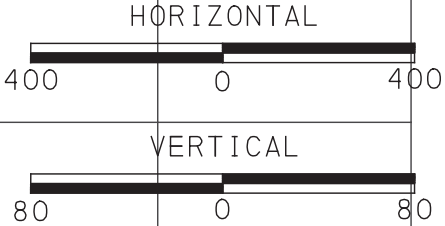
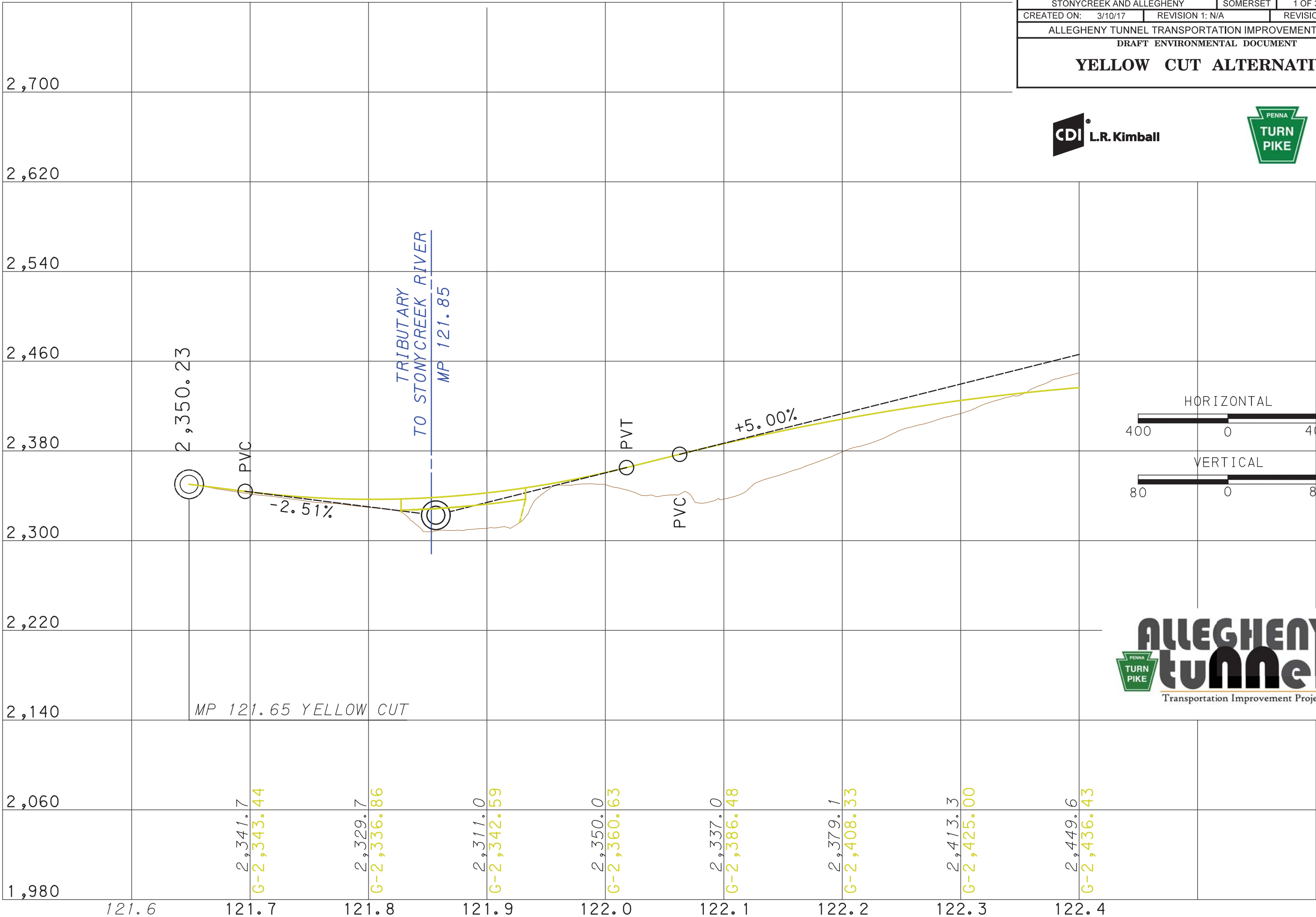




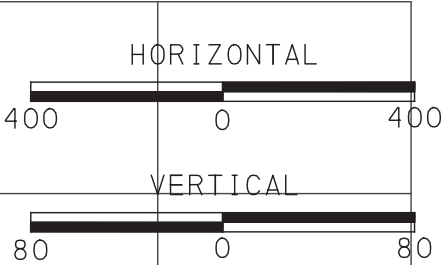


- | STRUCTURES | |
|------------|---------------------------|
| | ELECTRIC |
| | TELEPHONE |
| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |





REVISED: 9/7/06 BY: HCH/AYC/AD/PL/CH/ST/200-SCALE PLAN AND PROFILE REPORT YELLOW 2YCR002



REVERSE: PROJ. 97-0609 TURNPIKE HIGHWAY ADV PLANS 200-SCALE PLAN AND PROFILE REPORT YELLOW CUT 2003

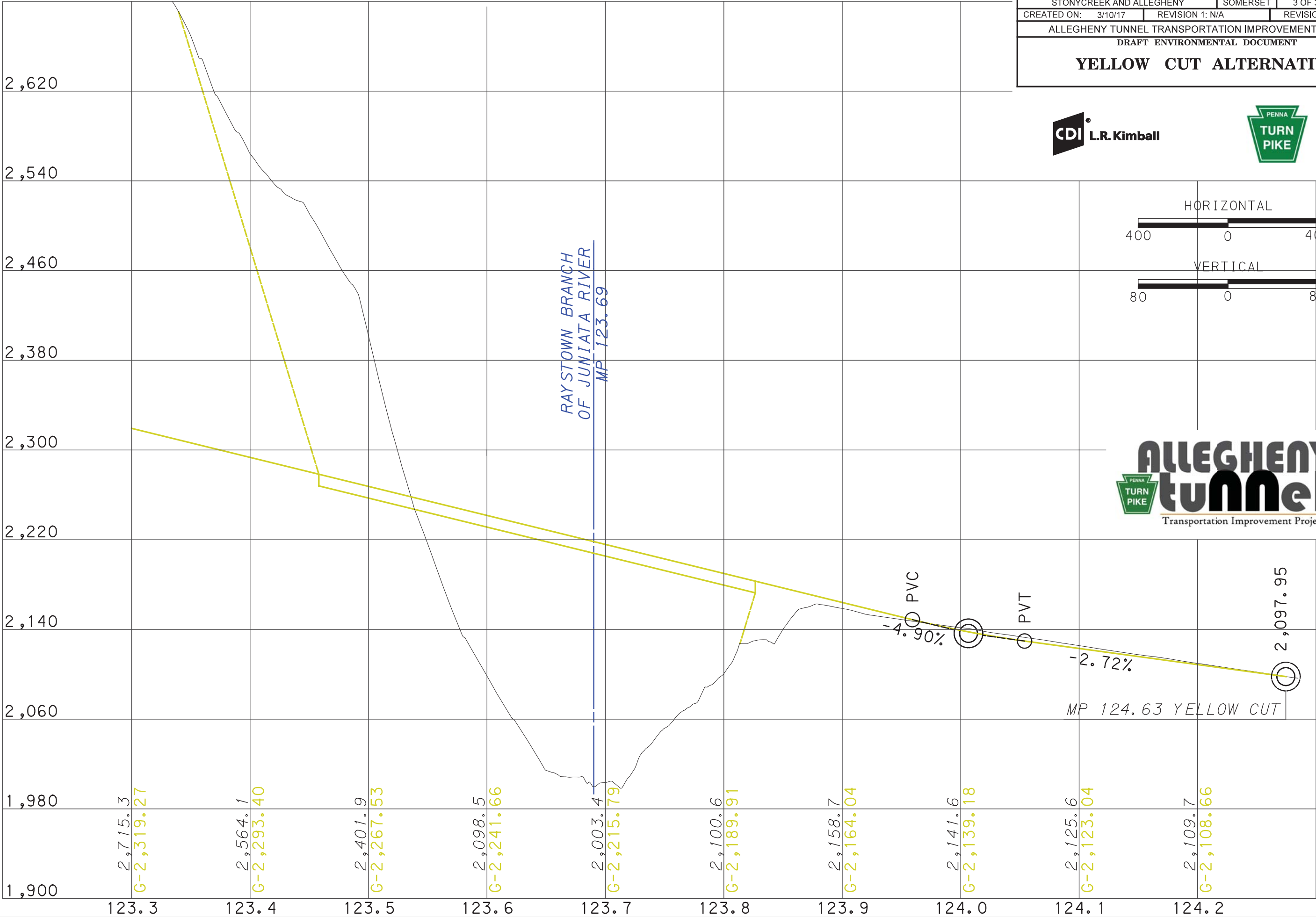


Figure B-7A
**Yellow Cut Alternative Estimated Construction,
Operation, and Maintenance Costs**

	<p align="center">Allegheny Tunnel Transportation Improvement Project Detailed Alternative Analysis Somerset County, Pennsylvania</p>
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Cost Estimate**Yellow Alignment (7 Lane Cut Option) 26' Median with Swale and Westbound Climbing Lane**

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL
ROADWAY (Includes clearing and grubbing, mobilization, field office, engineering surveys, right-of-way fence, pavements, shoulders, drainage, e&s, stormwater management, signing, pavement markings and delineators, landscaping & guiderail)	14.5	\$3,890,376.00 / LANE MILE	\$56,410,452.00
EXCAVATION	26,247,454	\$5.00 / CY	\$131,237,270.00
WASTE	25,399,084	/ CY	
UTILITY RELOCATION	1.0	\$400,000.00 / LS	\$400,000.00
MAJOR DRAINAGE STRUCTURES		\$2,520.00 / LF	
BRIDGES (Includes substructure to accommodate future widening)			
Structure No.1 (6 LANES)	59,247	\$300.00 / SF	\$17,774,100.00
Structure No.2 (7 LANES)	231,088	\$400.00 / SF	\$92,435,200.00
Wildlife Crossing Crossing No. 1 (100 Ft. Wide Bridge)	21,200	\$300.00 / SF	\$6,360,000.00
CONTINGENCY		12%	\$36,554,043.00
OPERATION & MAINTENANCE COSTS			
State Police	17.7	\$15,000.00 / LANE MILE	\$265,500.00
Roadway Maintenance	17.7	\$27,000.00 / LANE MILE	\$477,900.00
RIGHT-OF-WAY	186	\$4,200.00 / ACRE	\$781,200.00
WASTE AREA RIGHT-OF-WAY	417	\$4,200.00 / ACRE	\$1,751,400.00

CONSTRUCTION COSTS	\$341,200,000
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RIGHT-OF-WAY COSTS	\$2,600,000
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DESIGN COST	\$34,200,000
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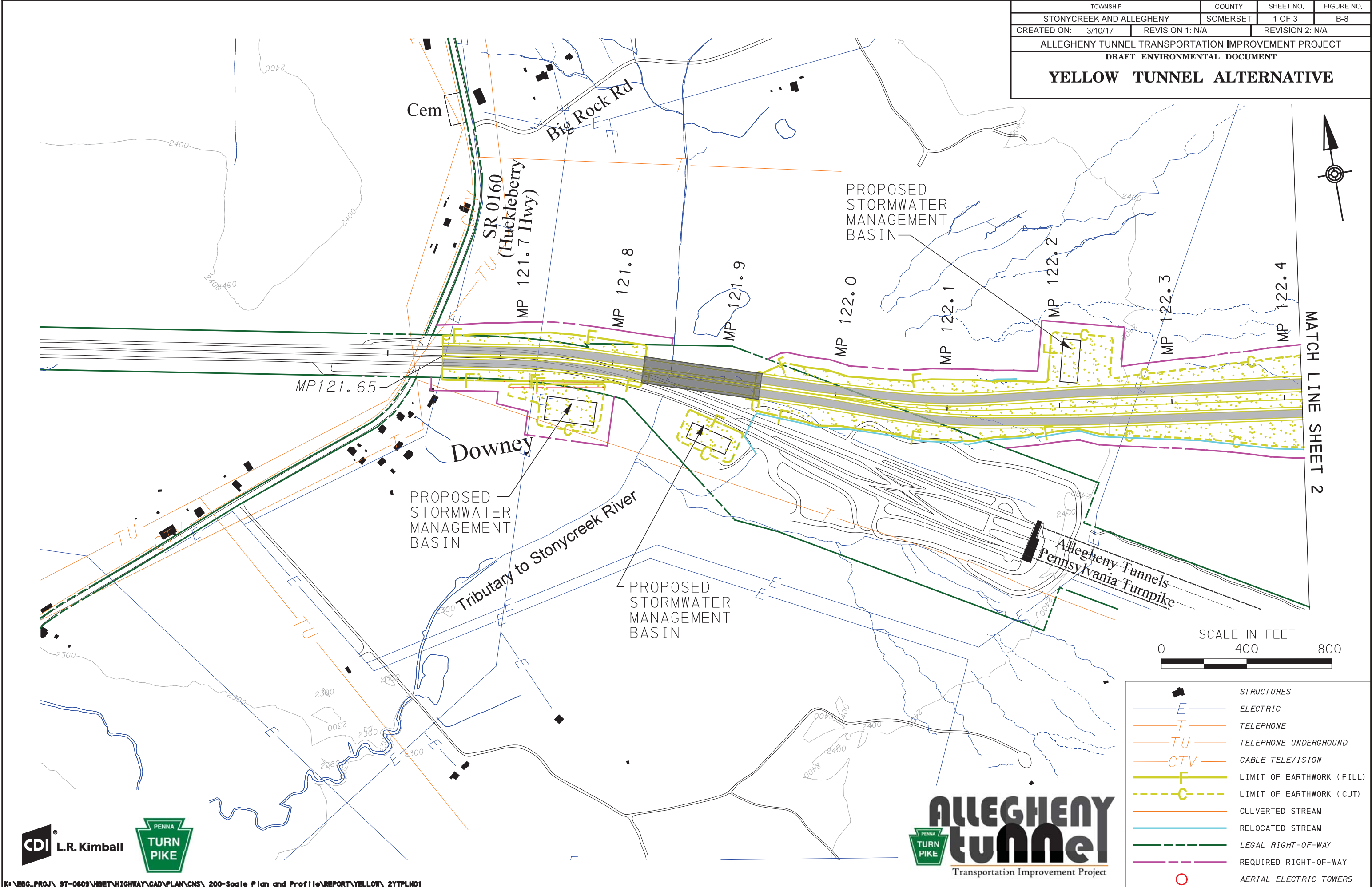
TOTAL COST	\$378,000,000
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**OPERATION & MAINTENANCE COSTS / YEAR	\$800,000
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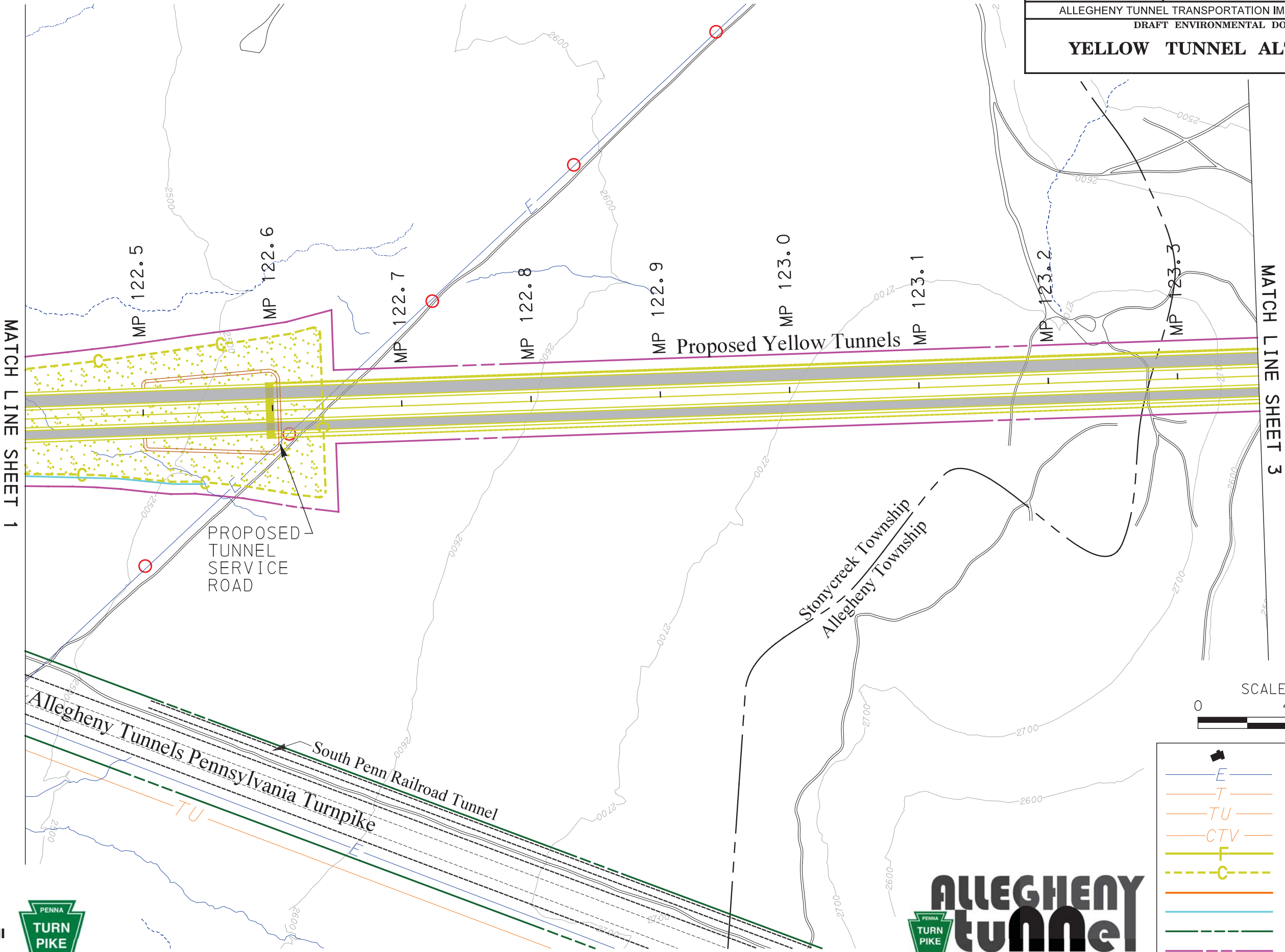
** NOTE: Operation & Maintenance Costs/Year Are Not Included In Total Cost



Figure B-8
Yellow Tunnel Alternative Plan and Profile

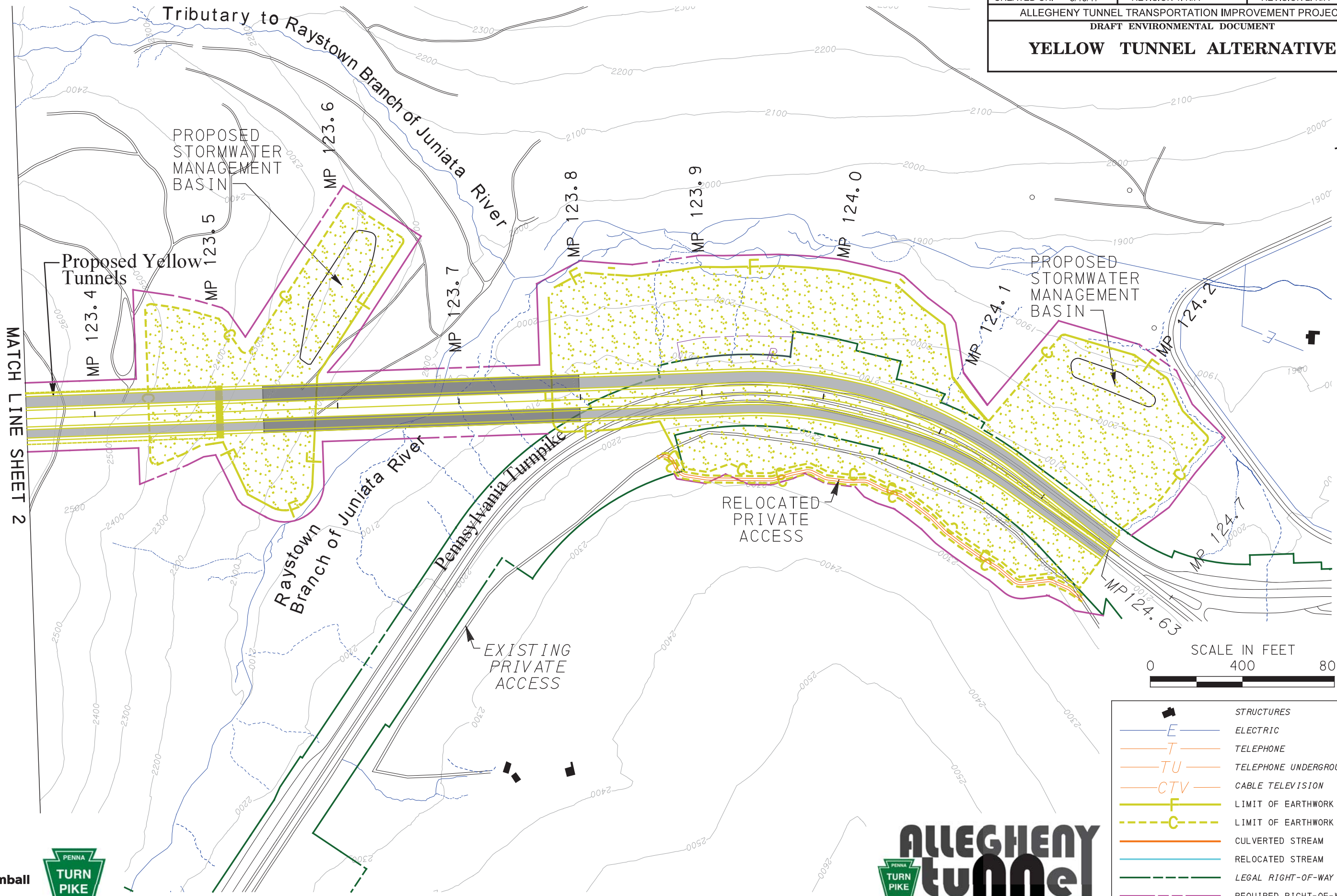


TOWNSHIP	COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY	SOMERSET	2 OF 3	B-8
CREATED ON: 3/10/17	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT			
DRAFT ENVIRONMENTAL DOCUMENT			
YELLOW TUNNEL ALTERNATIVE			



STRUCTURES	
ELECTRIC	
TELEPHONE	
TELEPHONE UNDERGROUND	
CABLE TELEVISION	
LIMIT OF EARTHWORK (FILL)	
LIMIT OF EARTHWORK (CUT)	
CULVERTED STREAM	
RELOCATED STREAM	
LEGAL RIGHT-OF-WAY	
REQUIRED RIGHT-OF-WAY	
AERIAL ELECTRIC TOWERS	



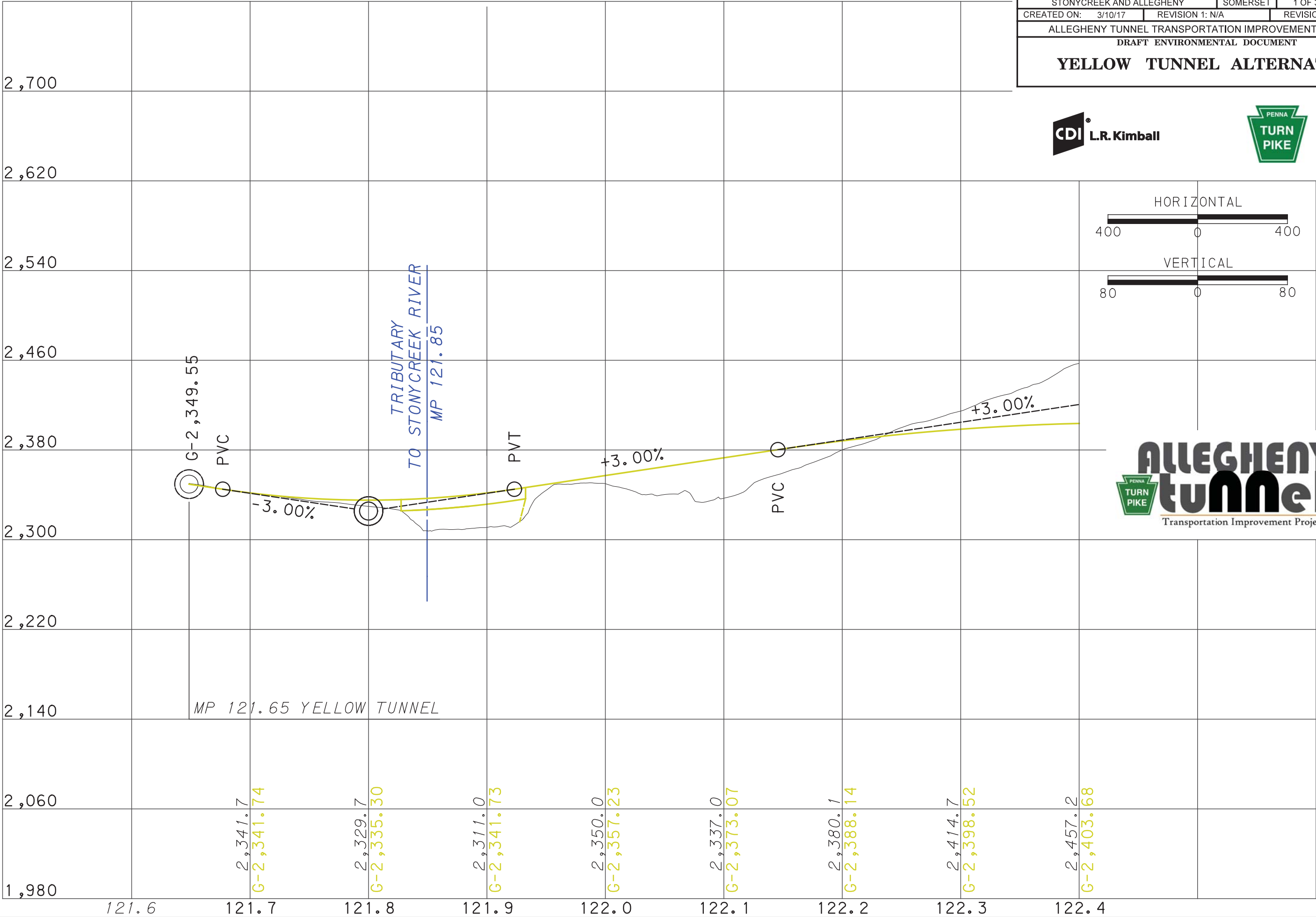
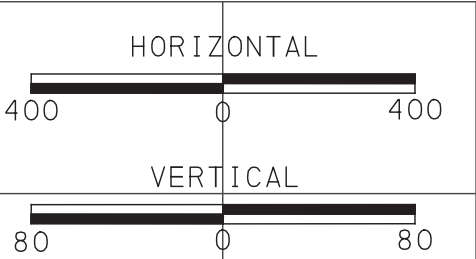


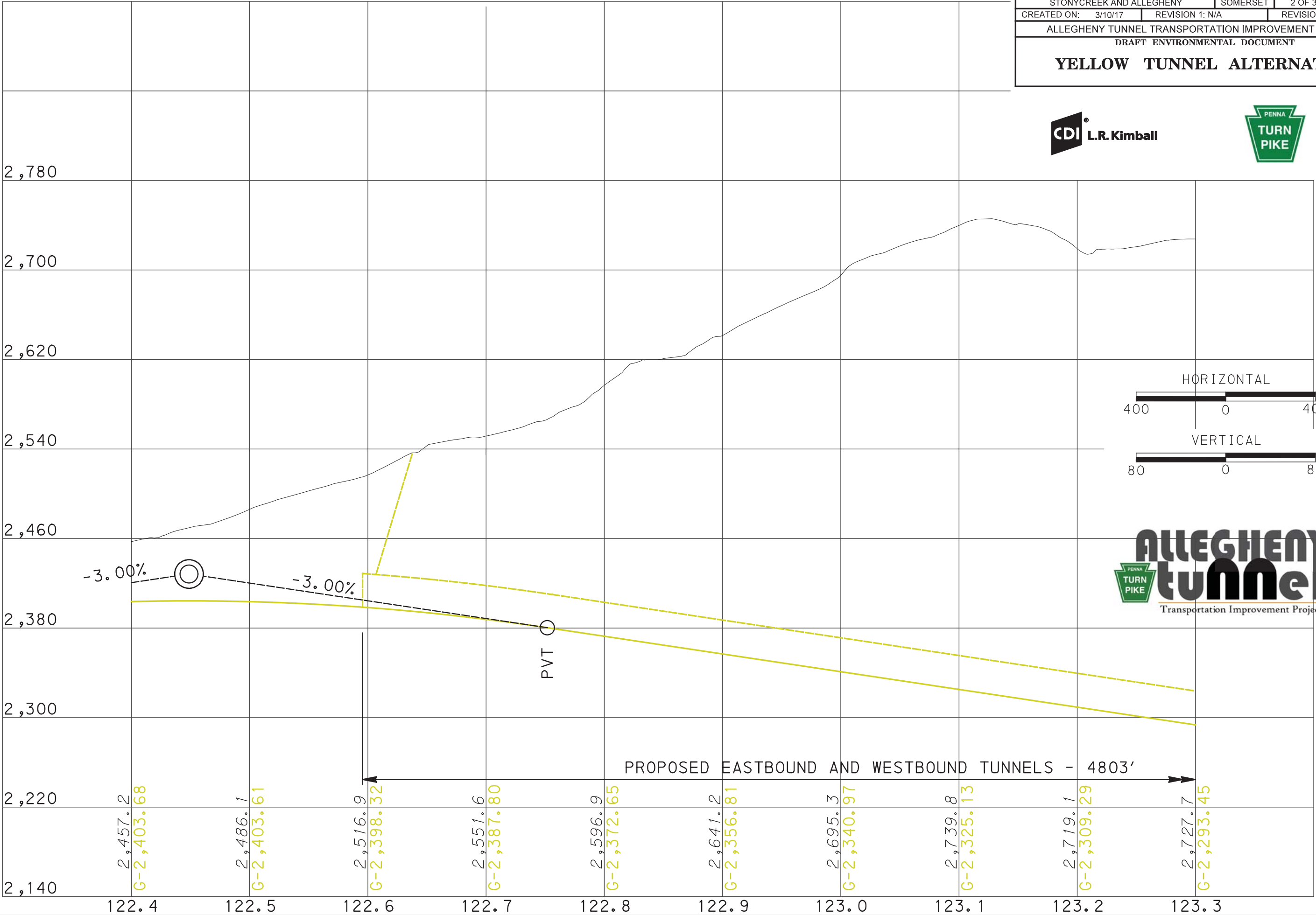
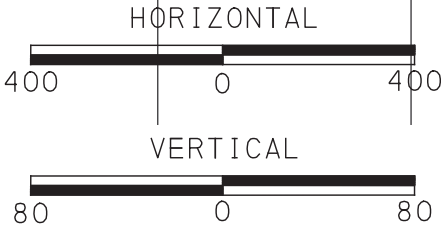
MATCH LINE SHEET 2



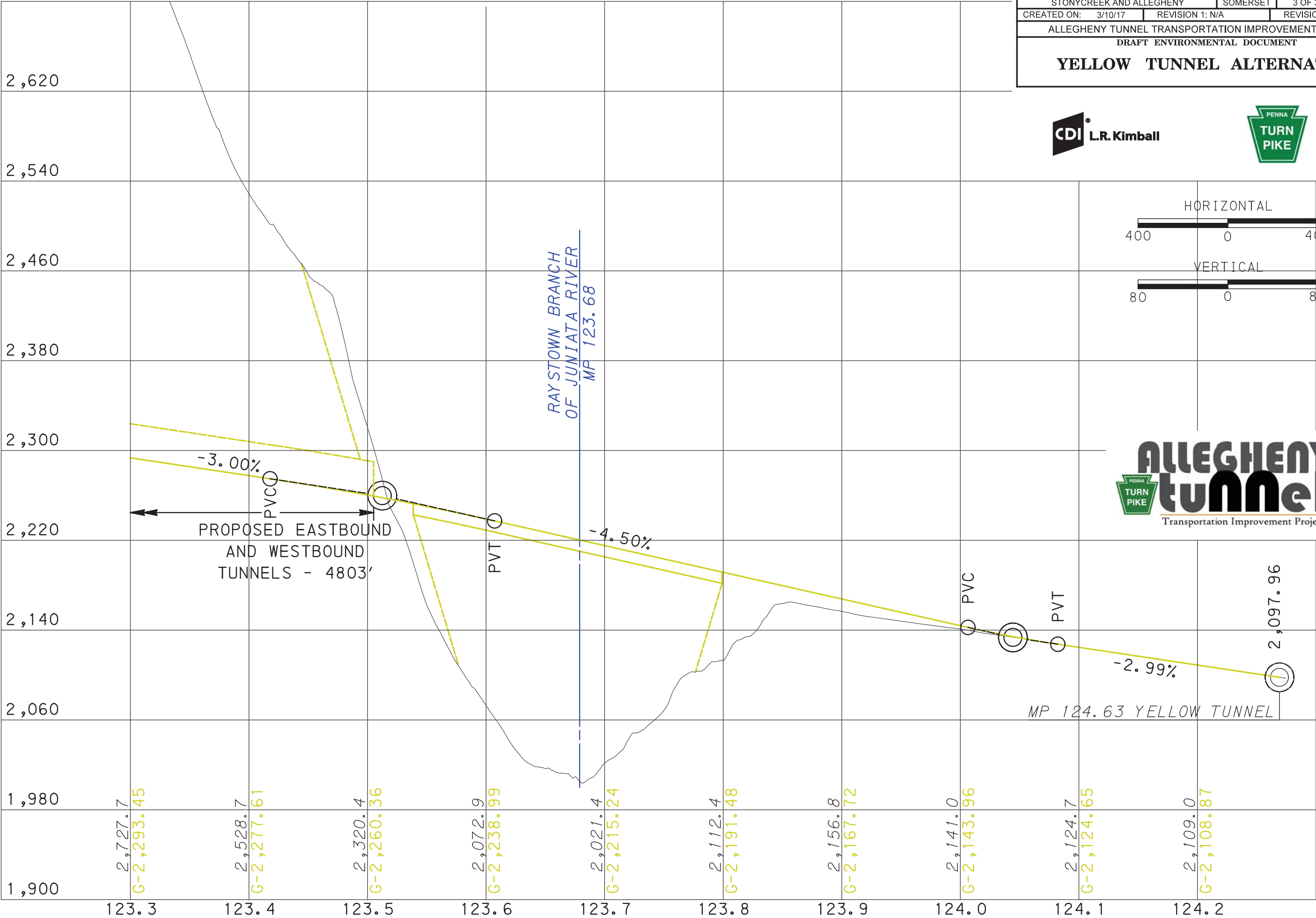
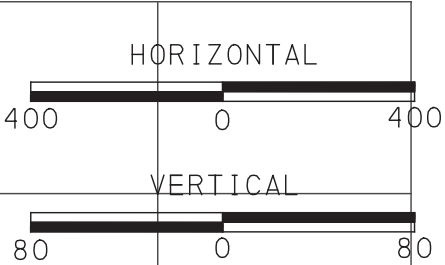
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| | TELEPHONE |
| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |








REVISION: 01/17/2017 09:00 AM 200-SCALE PLAN AND PROFILE REPORT YELLOW TUNNEL ALTERNATIVE



REVISION: 97-0609 TURNPIKE HIGHWAY ADV PLANS 200-SCALE PLAN AND PROFILE REPORT YELLOW 2YTPR003

Figure B-8A
**Yellow Tunnel Alternative Estimated Construction,
Operation, and Maintenance Costs**

	<p align="center">Allegheny Tunnel Transportation Improvement Project Detailed Alternative Analysis Somerset County, Pennsylvania</p>
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Cost Estimate

Yellow Alignment (7 Lane Tunnel Option) 26' Median with Swale and Westbound Climbing Lane

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL
ROADWAY (Includes clearing and grubbing, mobilization, field office, engineering surveys, right-of-way fence, pavements, shoulders, drainage, e&s, stormwater management, signing, pavement markings and delineators, landscaping, guiderail & tunnel conc. barrier)	17.0	\$3,890,376.00 / LANE MILE	\$66,136,392.00
EXCAVATION	1,746,514	\$5.00 / CY	\$8,732,570.00
WASTE	969,547	/ CY	
UTILITY RELOCATION	1.0	\$400,000.00 / LS	\$400,000.00
MAJOR DRAINAGE STRUCTURES		\$2,520.00 / LF	
BRIDGES (Includes substructure to accommodate future widening) Structure No.1 (6 LANES) Structure No.2 (7 LANES)	59,247 163,282	\$300.00 / SF \$400.00 / SF	\$17,774,100.00 \$65,312,800.00
TUNNELS (Ultimate Conditions) Eastbound (3 LANES) Westbound (4 LANES)	4,803 4,803	\$42,778.00 / LF * \$42,778.00 / LF *	\$205,462,734.00 \$205,462,734.00
CONTINGENCY		12%	\$68,313,760.00
OPERATION & MAINTENANCE COSTS State Police Roadway Maintenance Tunnel Maintenance	26.5 19.5 7.0	\$15,000.00 / LANE MILE \$27,000.00 / LANE MILE \$421,400.00 / TUNNEL LANE MILE	\$397,500.00 \$526,500.00 \$2,949,800.00
RIGHT-OF-WAY WASTE AREA RIGHT-OF-WAY	141 16	\$4,200.00 / ACRE \$4,200.00 / ACRE	\$592,200.00 \$67,200.00

CONSTRUCTION COSTS	\$637,600,000
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RIGHT-OF-WAY COSTS	\$700,000
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DESIGN COST	\$63,800,000
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TOTAL COST	\$702,100,000
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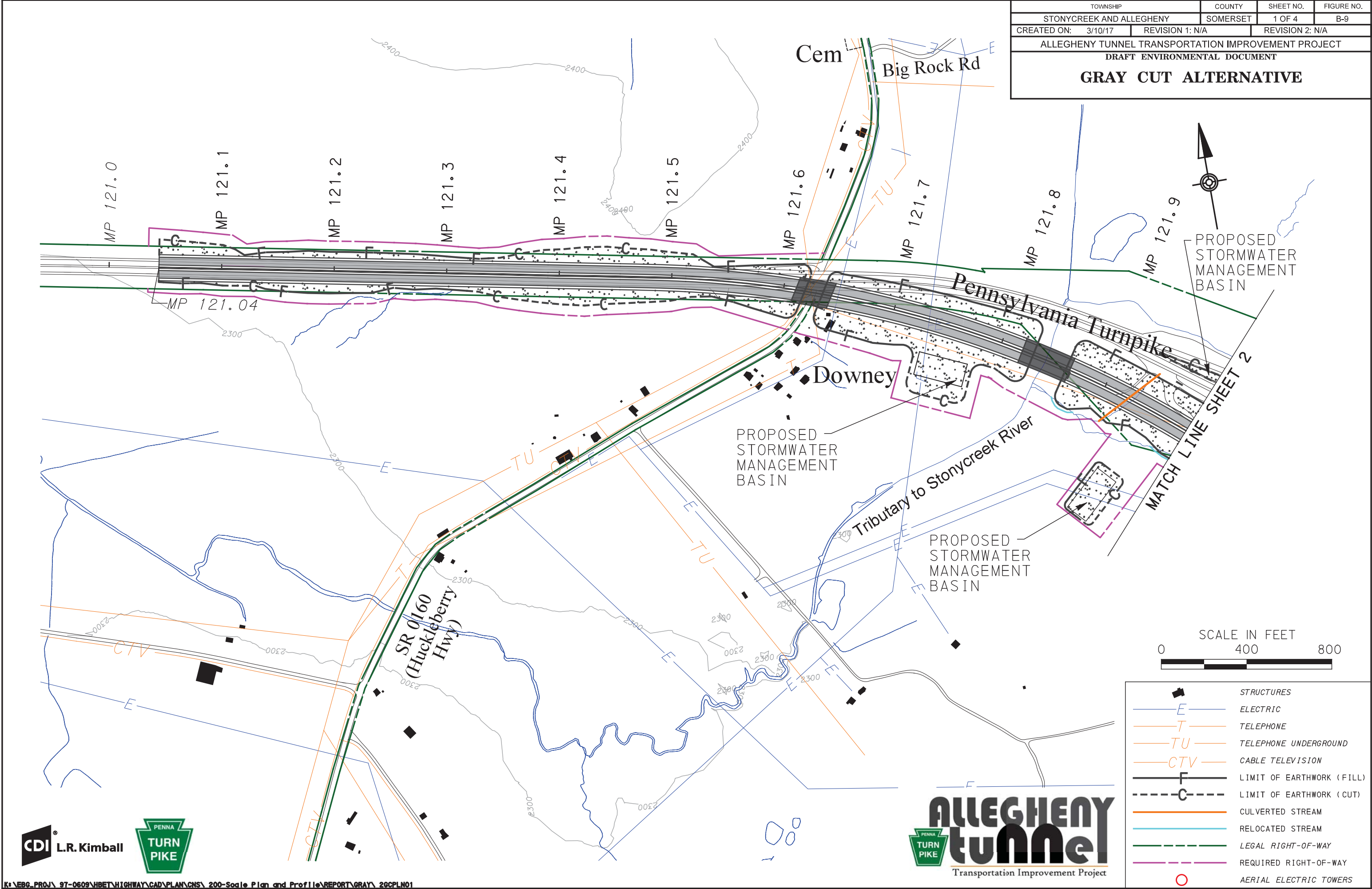
**OPERATION & MAINTENANCE COSTS / YEAR	\$3,900,000
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** NOTE: Operation & Maintenance Costs/Year Are Not Included In Total Cost

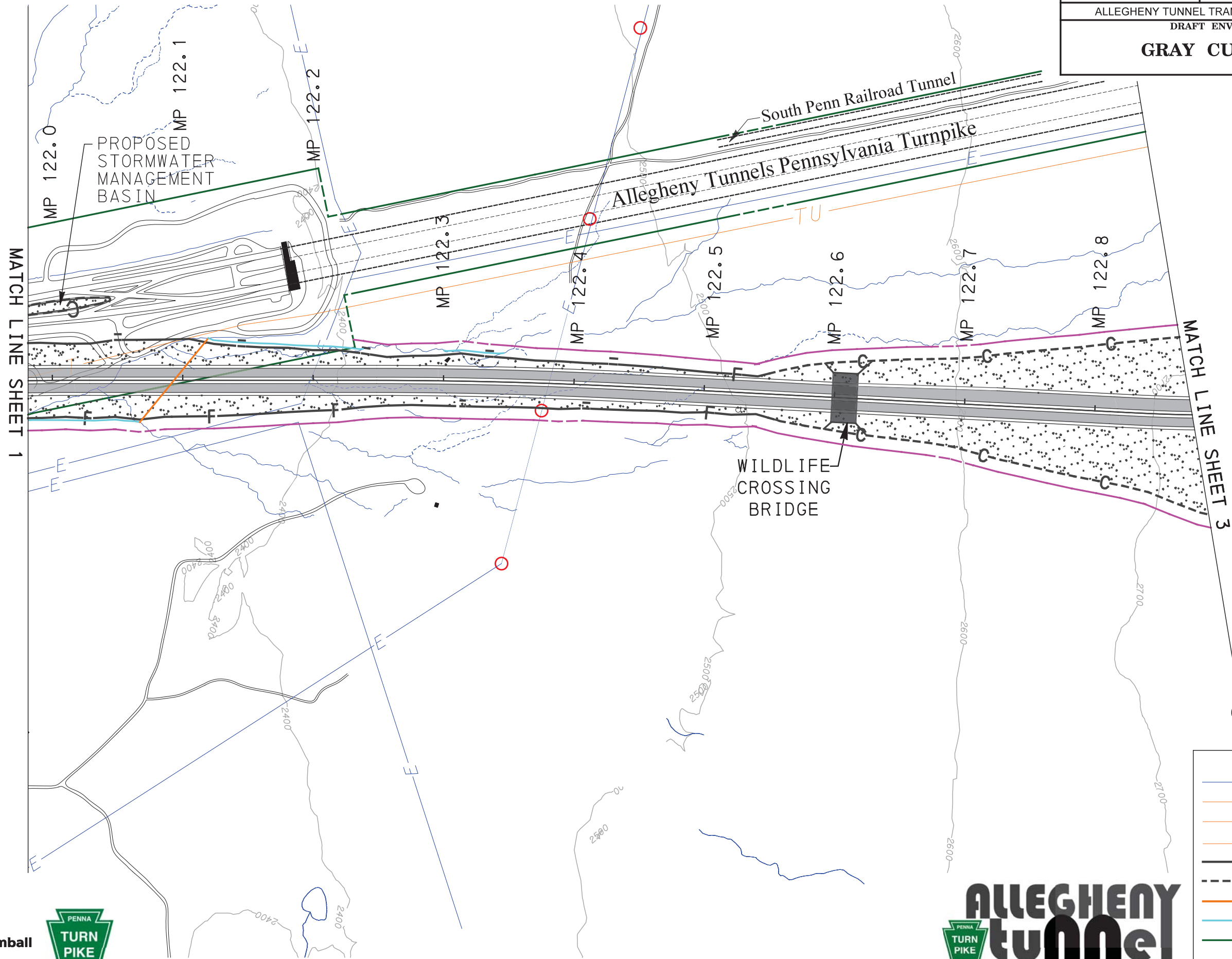


Figure B-9
Gray Cut Alternative Plan and Profile

TOWNSHIP	COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY	SOMERSET	1 OF 4	B-9
CREATED ON: 3/10/17	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT			
DRAFT ENVIRONMENTAL DOCUMENT			
GRAY CUT ALTERNATIVE			

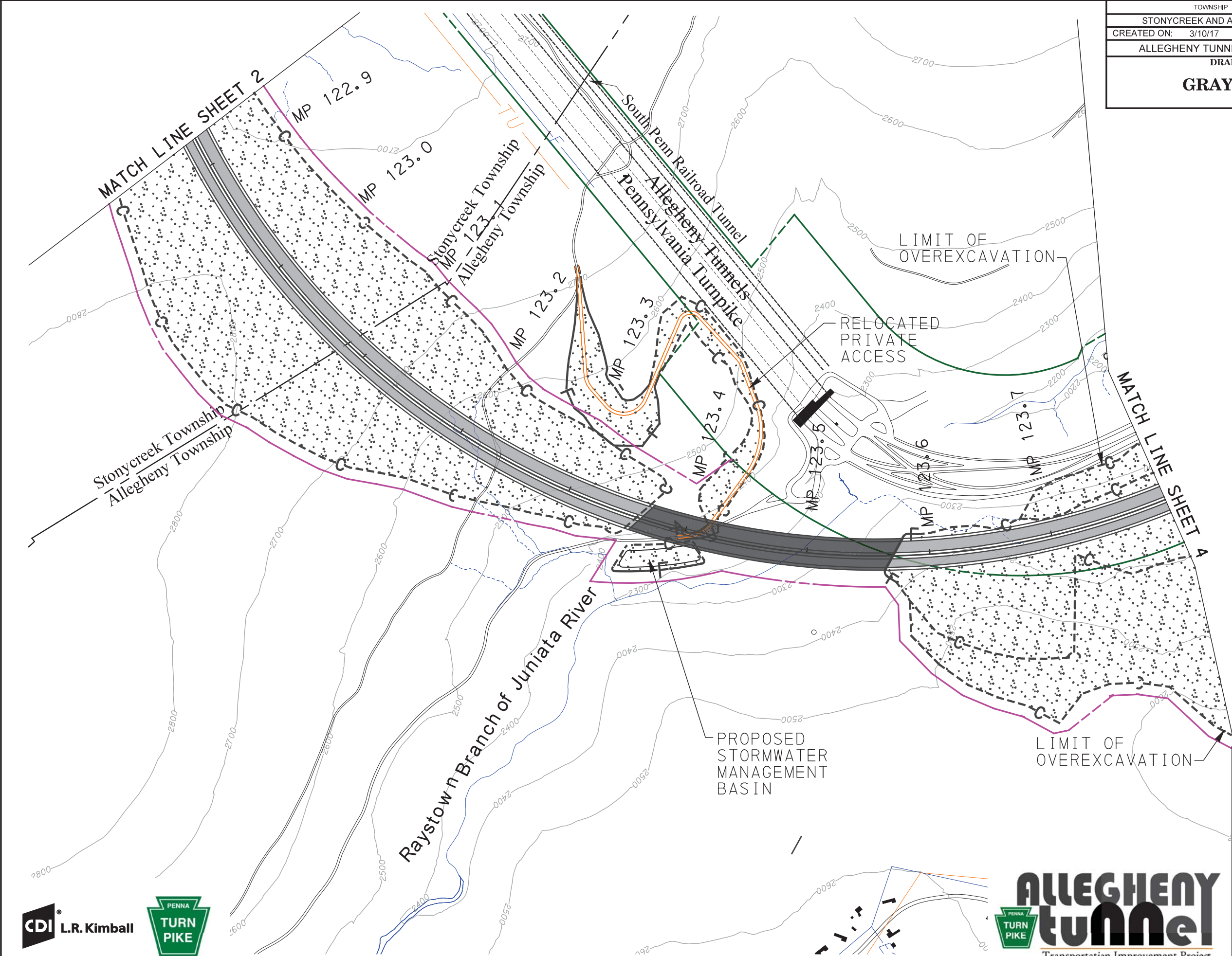


- STRUCTURES
- ELECTRIC
- TELEPHONE
- TELEPHONE UNDERGROUND
- CABLE TELEVISION
- LIMIT OF EARTHWORK (FILL)
- LIMIT OF EARTHWORK (CUT)
- CULVERTED STREAM
- RELOCATED STREAM
- LEGAL RIGHT-OF-WAY
- REQUIRED RIGHT-OF-WAY
- AERIAL ELECTRIC TOWERS



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| | STRUCTURES |
| | ELECTRIC |
| | TELEPHONE |
| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |

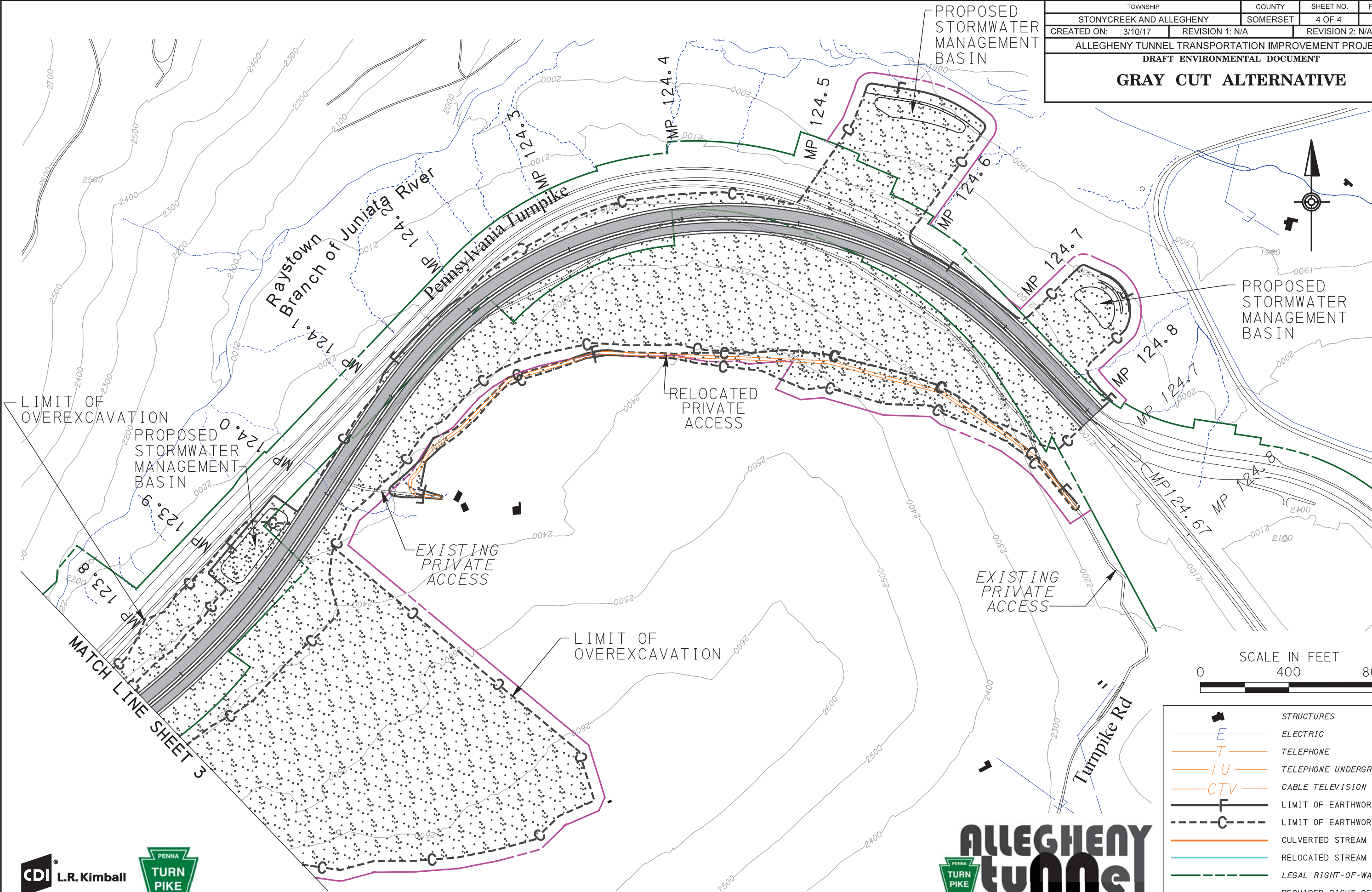


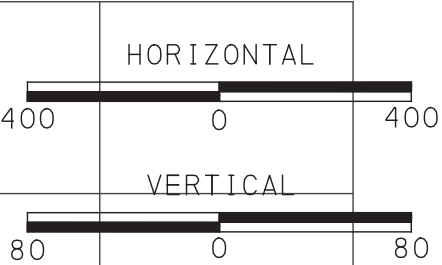


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| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |

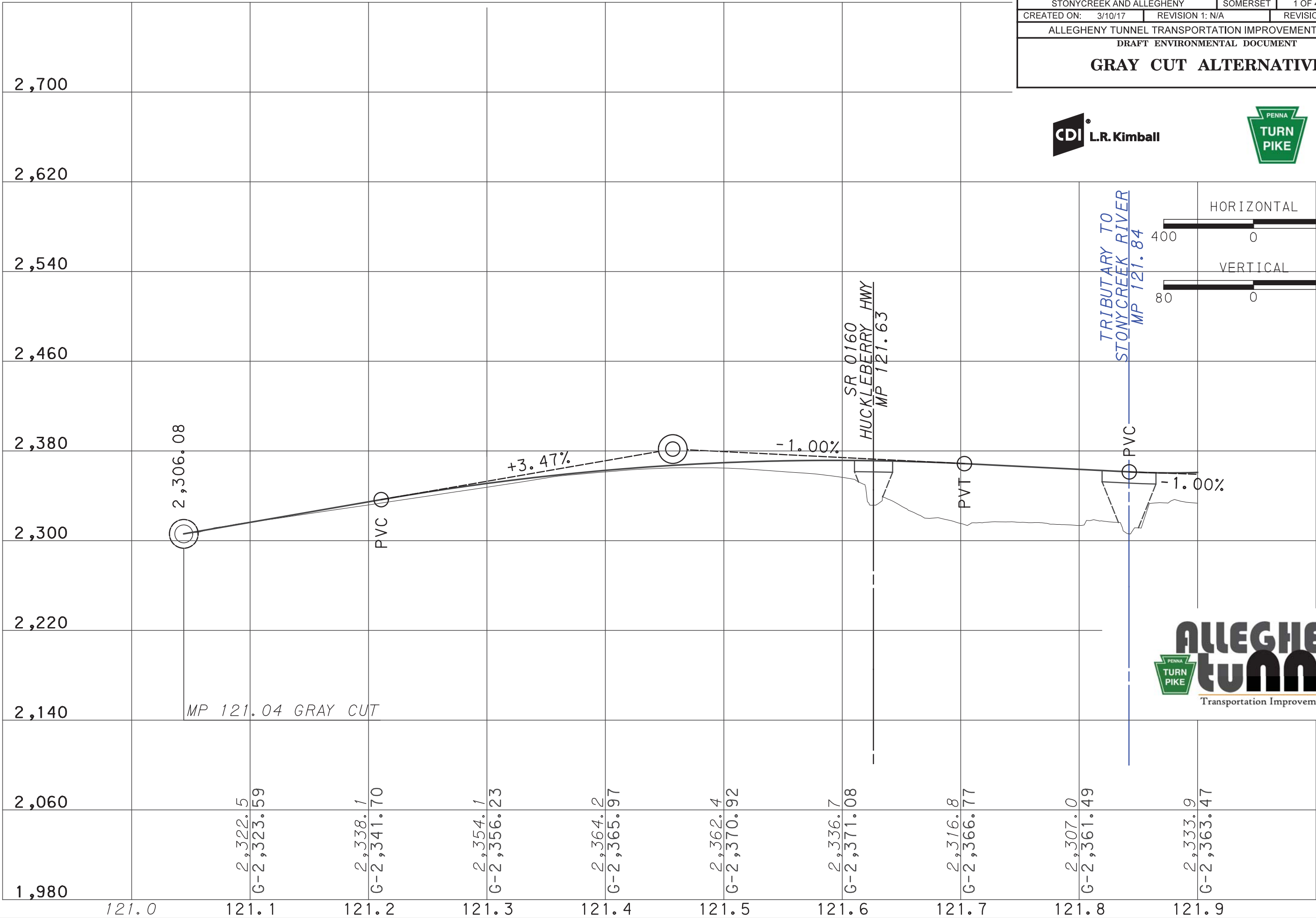


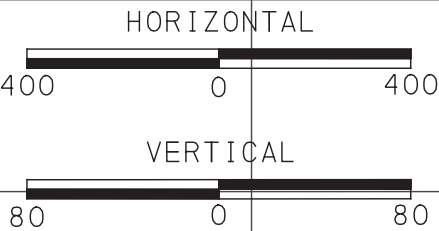
TOWNSHIP	COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY	SOMERSET	4 OF 4	B-9
CREATED ON: 3/10/17	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT			
DRAFT ENVIRONMENTAL DOCUMENT			
GRAY CUT ALTERNATIVE			





TRIBUTARY TO
STONYCREEK RIVER
MP 121.84





2,780

2,700

2,620

2,540

2,460

2,380

2,300

2,220

2,140

-1.00%

+5.00%

PVT

WILDLIFE CROSSING BRIDGE

PVC

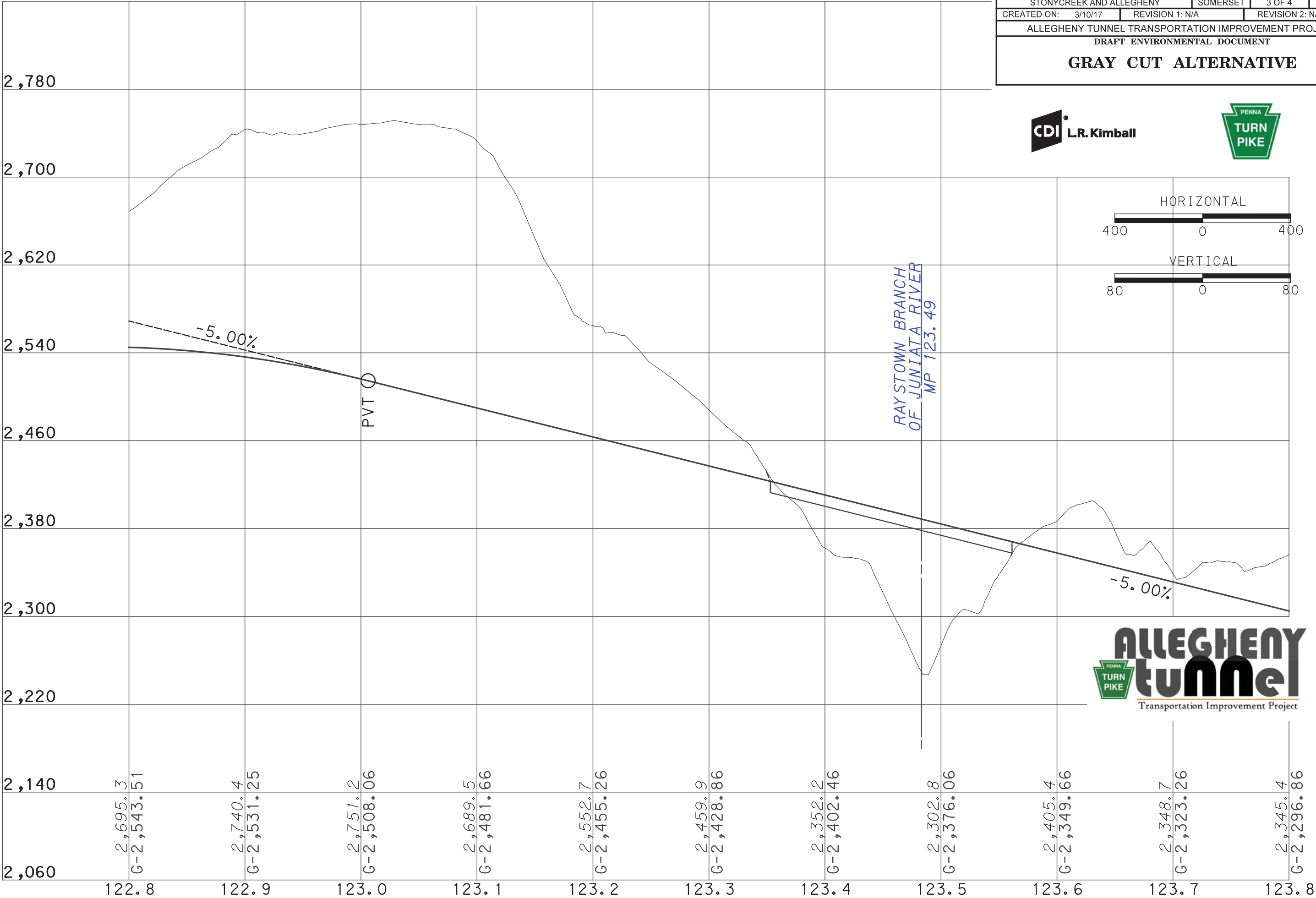
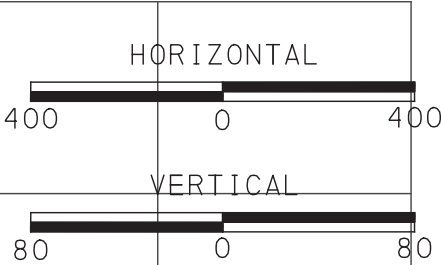
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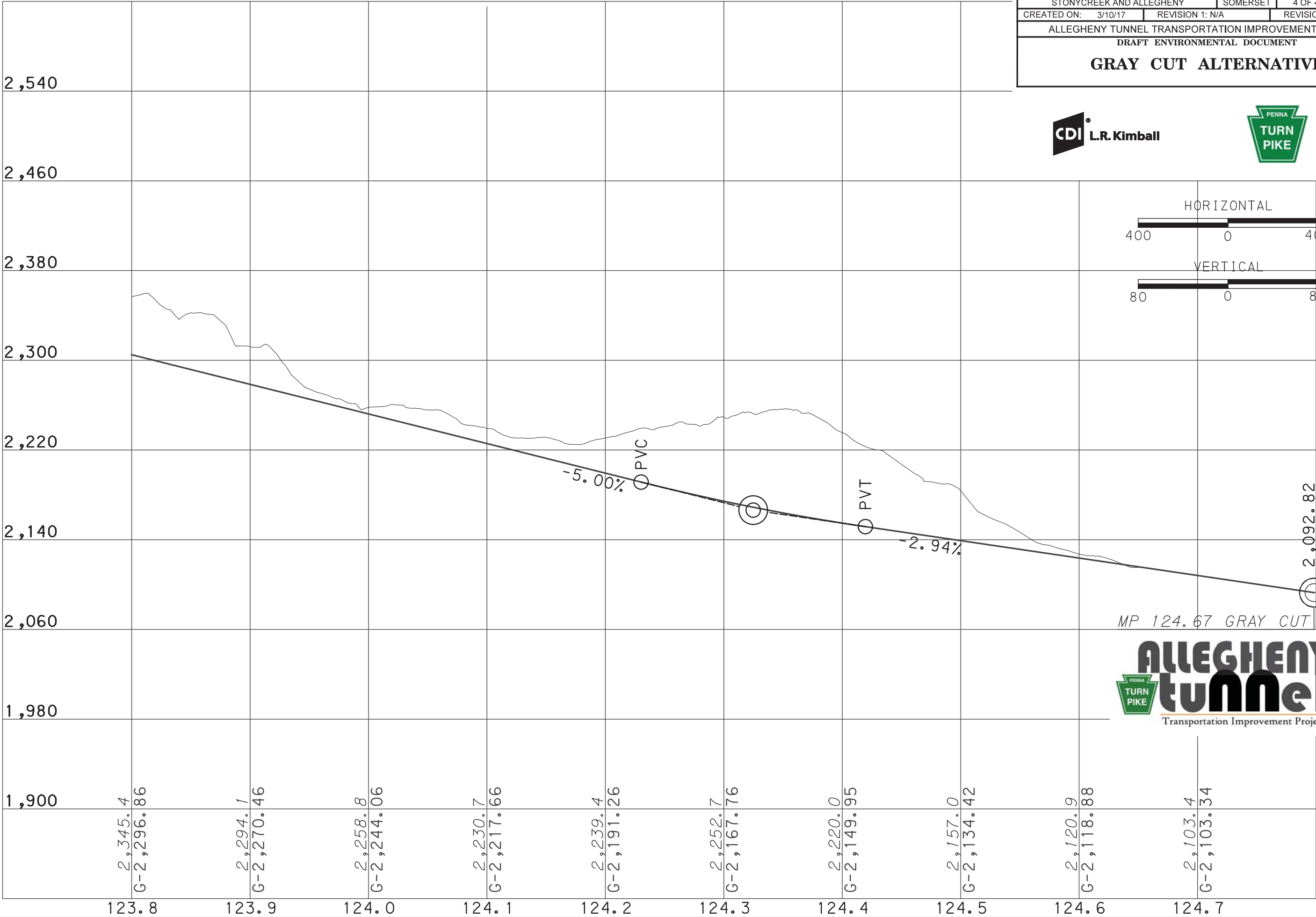
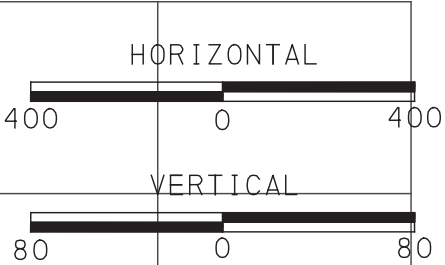
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121.9	122.0	122.1	122.2	122.3	122.4	122.5	122.6	122.7	122.8
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G-2,363.47	G-2,380.79	G-2,407.12	G-2,433.52	G-2,459.92	G-2,486.32	G-2,512.72	G-2,534.23	G-2,544.50	G-2,543.51

REVISION: 97-0609 TURNPIKE HIGHWAY ADV PLANS 200-SCALE PLAN AND PROFILE REPORT GRAY 266PR002





REVISION: 97-0609 TURNPIKE HIGHWAY ADV PLANS 200-SCALE PLAN AND PROFILE REPORT GRAY 266PR004

Figure B-9A
**Gray Cut Alternative Estimated Construction,
Operation, and Maintenance Costs**

 Transportation Improvement Project	Allegheny Tunnel Transportation Improvement Project Detailed Alternative Analysis Somerset County, Pennsylvania
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Cost Estimate

Gray Alignment (7 Lane Cut Option) 26' Median with Swale and Westbound Climbing Lane

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL
ROADWAY (Includes clearing and grubbing, mobilization, field office, engineering surveys, right-of-way fence, pavements, shoulders, drainage, e&s, stormwater management, signing, pavement markings and delineators, landscaping & guiderail)	22.9	\$3,890,376.00 / LANE MILE	\$89,089,611.00
EXCAVATION	13,496,804	\$5.00 / CY	\$67,484,020.00
WASTE	12,286,557	/ CY	
OVEREXCAVATION	6,163,075	\$8.25 / CY	\$50,845,369.00
UTILITY RELOCATION	1.0	\$400,000.00 / LS	\$400,000.00
MAJOR DRAINAGE STRUCTURES		\$2,520.00 / LF	
BRIDGES (Includes substructure to accommodate future widening)			
Structure No.1 (6 LANES)	18,148	\$250.00 / SF	\$4,537,000.00
Structure No.2 (6 LANES)	25,620	\$300.00 / SF	\$7,686,000.00
Structure No.3 (7 LANES)	130,625	\$325.00 / SF	\$42,453,125.00
Wildlife Crossing Crossing No. 1 (100 Ft. Wide Bridge)	20,000	\$300.00 / SF	\$6,000,000.00
CONTINGENCY		12%	\$32,219,415.00
OPERATION & MAINTENANCE COSTS			
State Police	24.8	\$15,000.00 / LANE MILE	\$372,000.00
Roadway Maintenance	24.8	\$27,000.00 / LANE MILE	\$669,600.00
RIGHT-OF-WAY	222	\$4,200.00 / ACRE	\$932,400.00
WASTE AREA RIGHT-OF-WAY	129	\$4,200.00 / ACRE	\$541,800.00

CONSTRUCTION COSTS	\$300,800,000
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RIGHT-OF-WAY COSTS	\$1,500,000
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DESIGN COST	\$30,100,000
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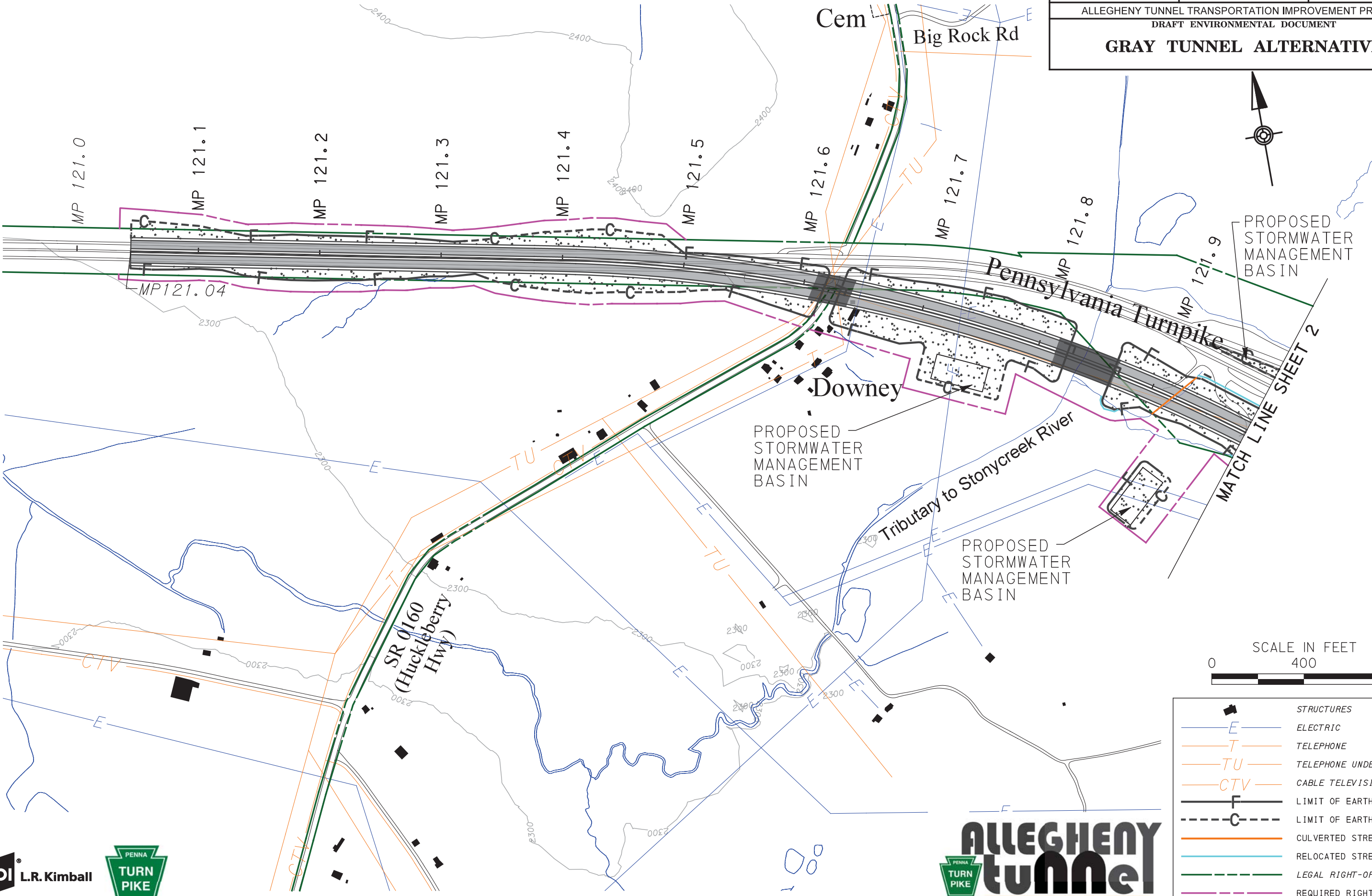
TOTAL COST	\$332,400,000
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**OPERATION & MAINTENANCE COSTS / YEAR	\$1,100,000
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** NOTE: Operation & Maintenance Costs/Year Are Not Included In Total Cost

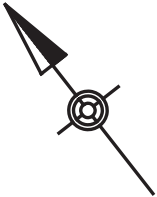
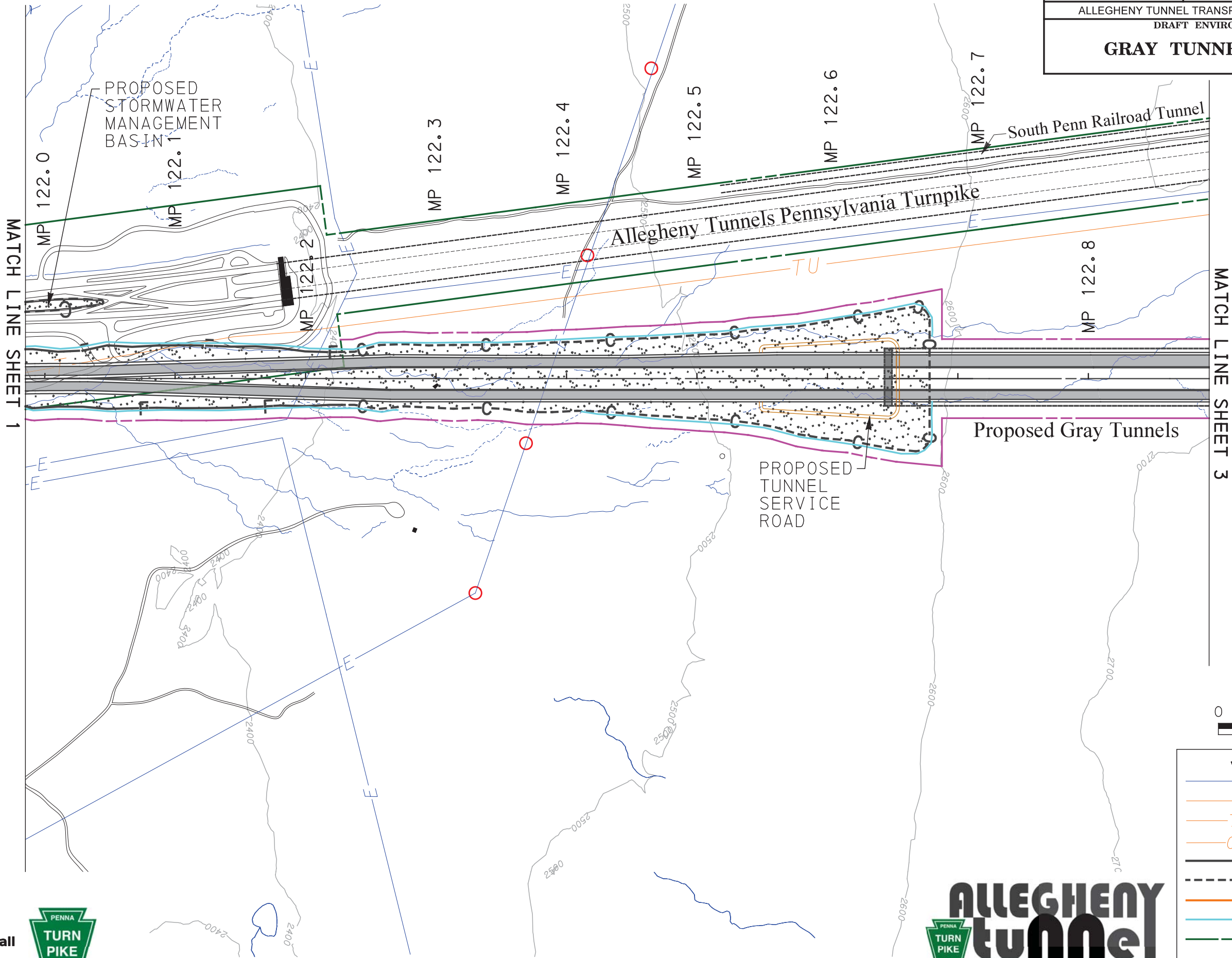


Figure B-10
Gray Tunnel Alternative Plan and Profile



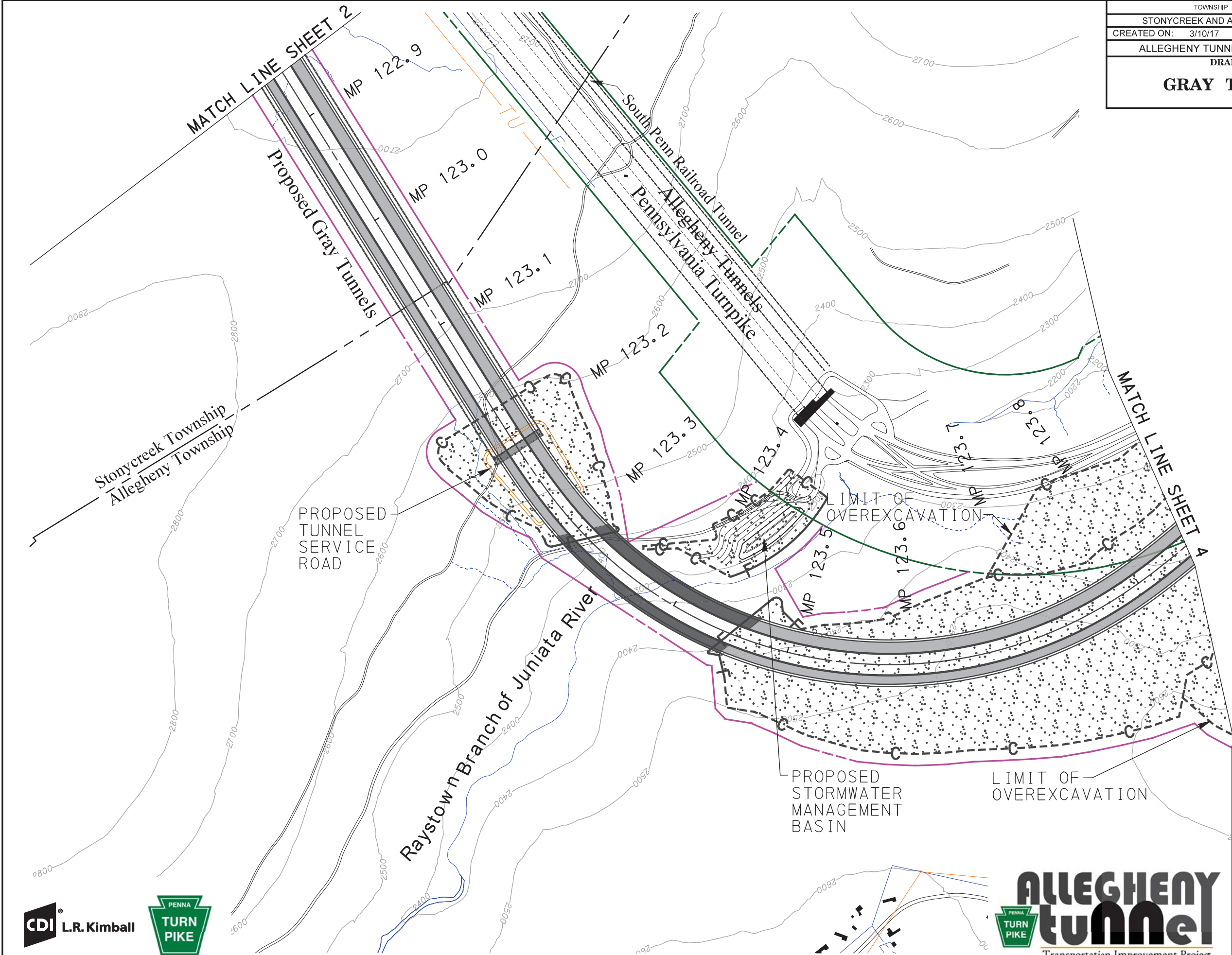
- STRUCTURES
- ELECTRIC
- TELEPHONE
- TELEPHONE UNDERGROUND
- CABLE TELEVISION
- LIMIT OF EARTHWORK (FILL)
- LIMIT OF EARTHWORK (CUT)
- CULVERTED STREAM
- RELOCATED STREAM
- LEGAL RIGHT-OF-WAY
- REQUIRED RIGHT-OF-WAY
- AERIAL ELECTRIC TOWERS





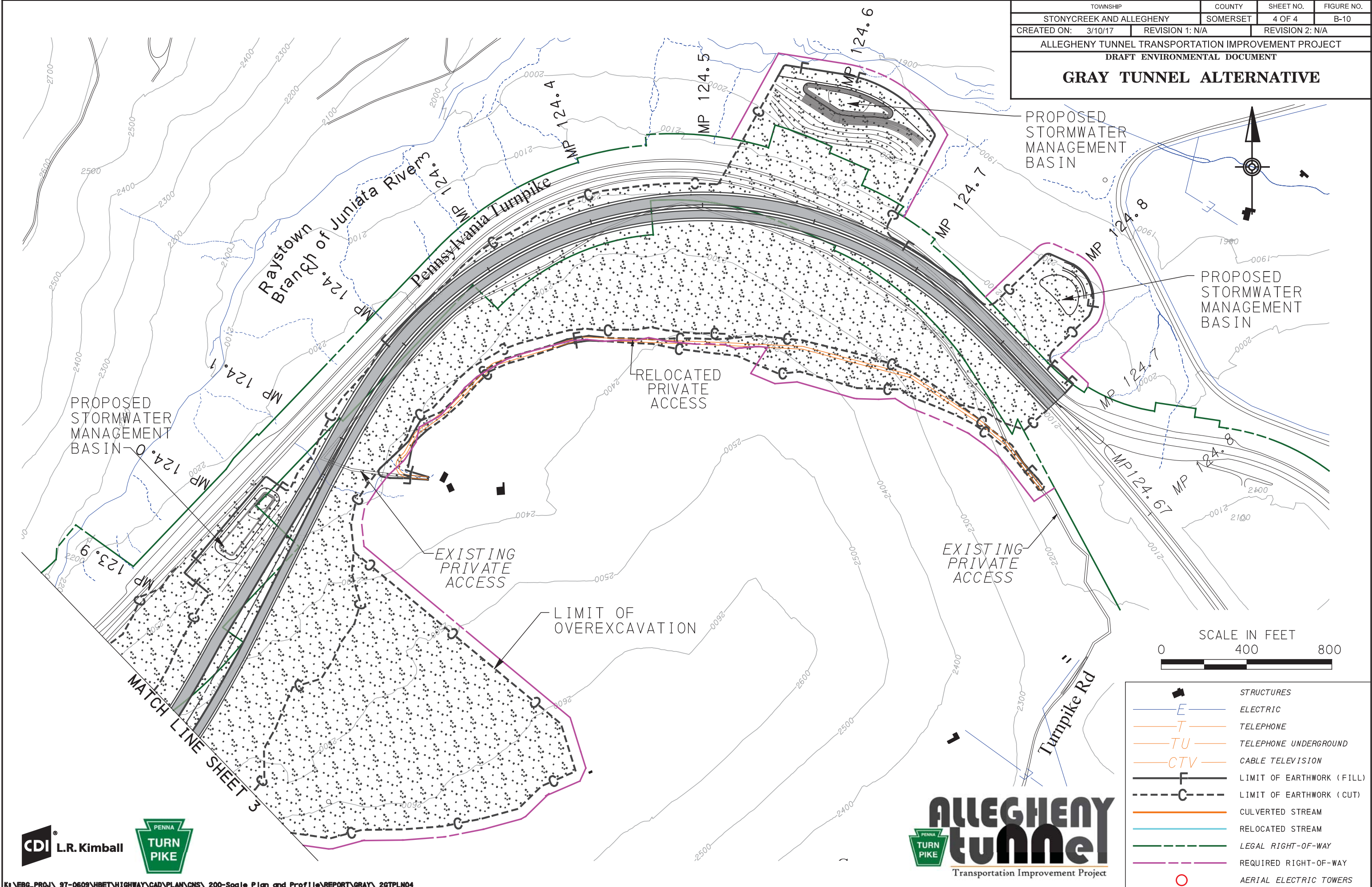
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| | TELEPHONE |
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| | RELOCATED STREAM |
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| | AERIAL ELECTRIC TOWERS |





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| | STRUCTURES |
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| | TELEPHONE |
| | TELEPHONE UNDERGROUND |
| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |

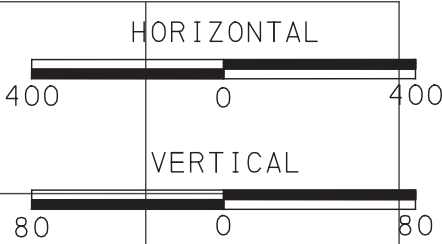




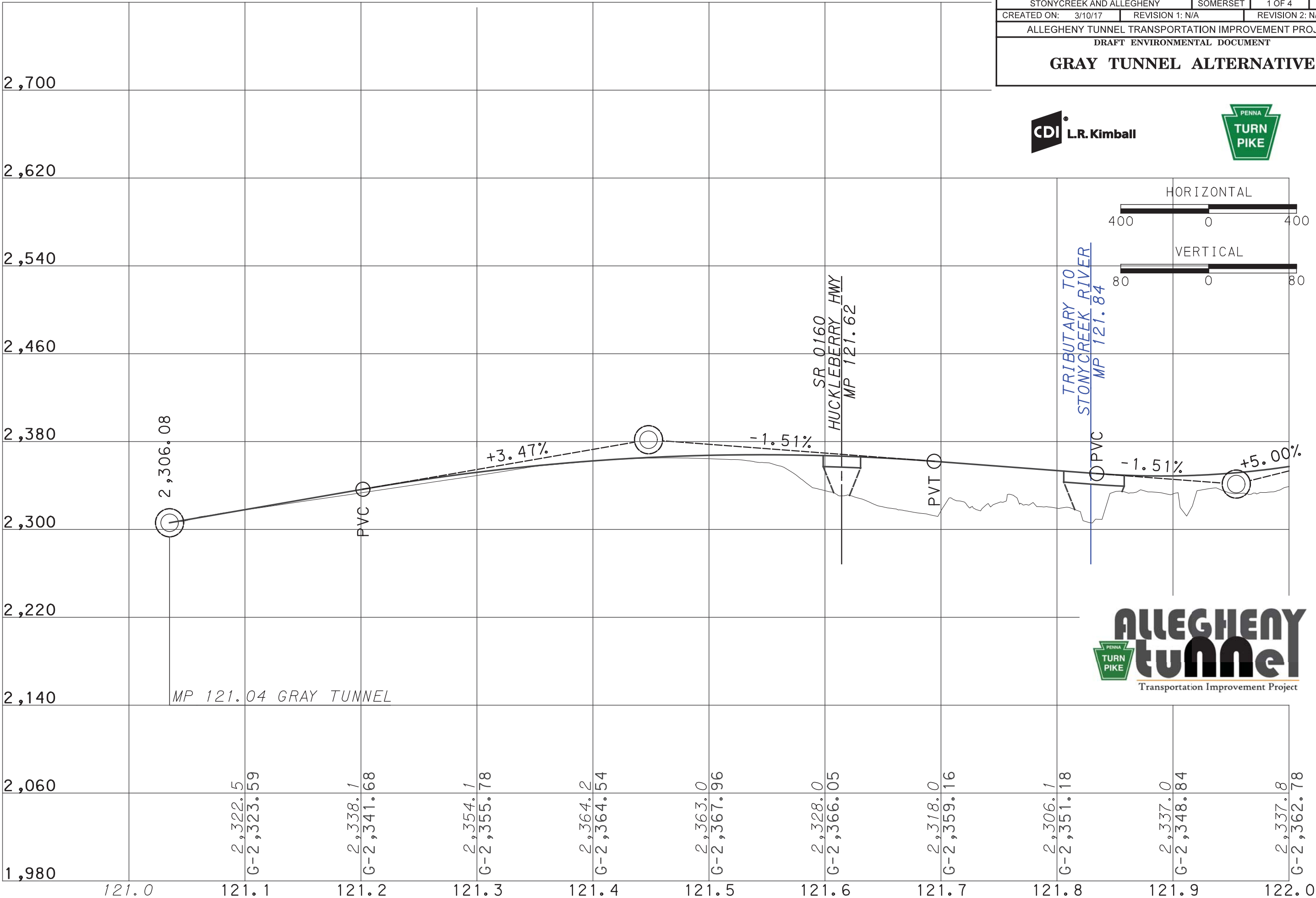
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| | TELEPHONE |
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| | CABLE TELEVISION |
| | LIMIT OF EARTHWORK (FILL) |
| | LIMIT OF EARTHWORK (CUT) |
| | CULVERTED STREAM |
| | RELOCATED STREAM |
| | LEGAL RIGHT-OF-WAY |
| | REQUIRED RIGHT-OF-WAY |
| | AERIAL ELECTRIC TOWERS |



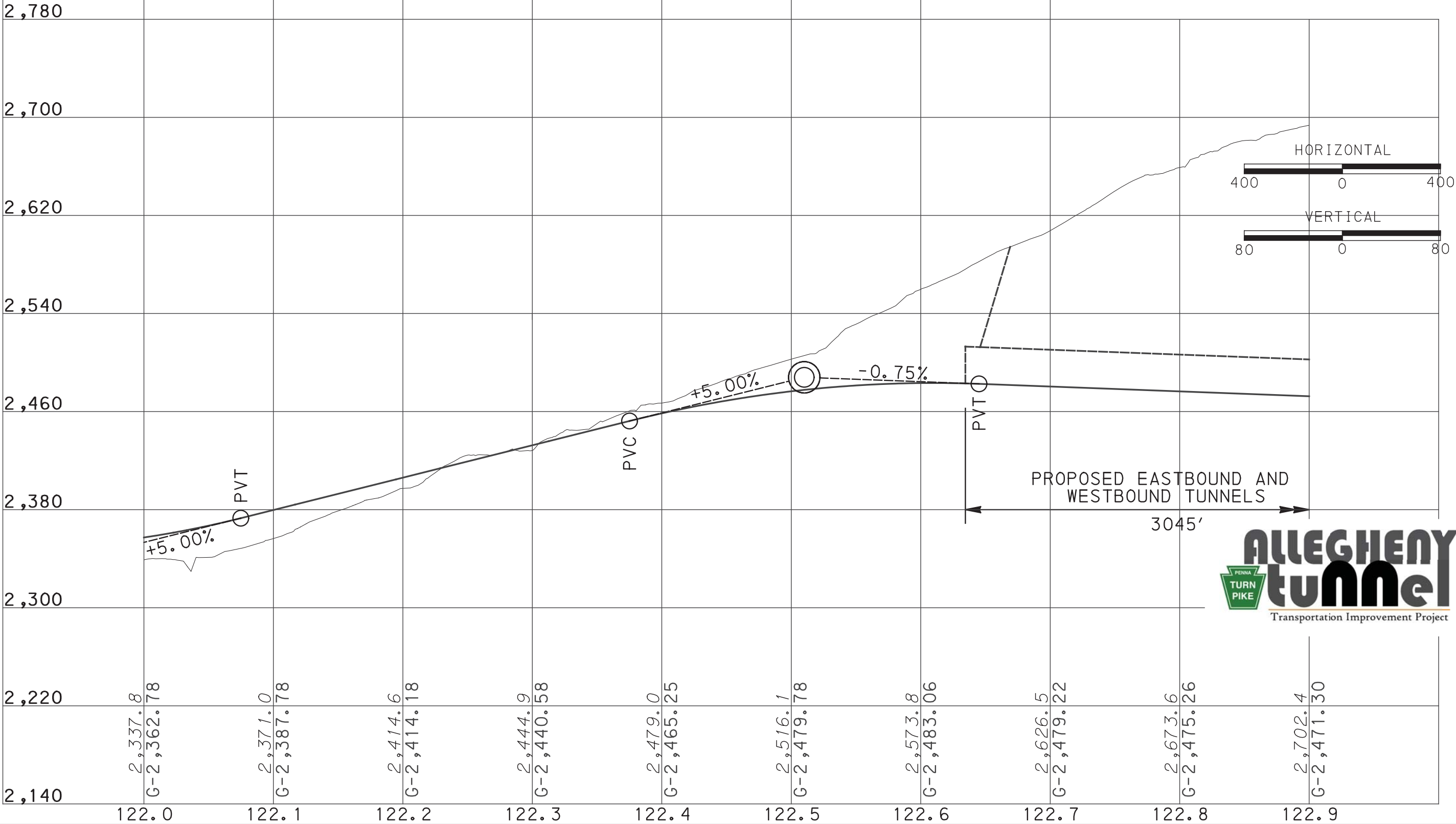
TOWNSHIP		COUNTY	SHEET NO.	FIGURE NO.
STONYCREEK AND ALLEGHENY		SOMERSET	1 OF 4	B-10
CREATED ON:	3/10/17	REVISION 1: N/A	REVISION 2: N/A	
ALLEGHENY TUNNEL TRANSPORTATION IMPROVEMENT PROJECT				
DRAFT ENVIRONMENTAL DOCUMENT				
GRAY TUNNEL ALTERNATIVE				



TRIBUTARY TO
STONYCREEK RIVER
MP 121.84



REVISION: 97-0609 TURNPIKE HIGHWAY PLANS 200-SCALE PLAN AND PROFILE REPORT GRAY 2017001



REVISION: 97-0609 TURNPIKE HIGHWAY PLANS, 200-SCALE PLAN AND PROFILE REPORT GRAY, 2017P002

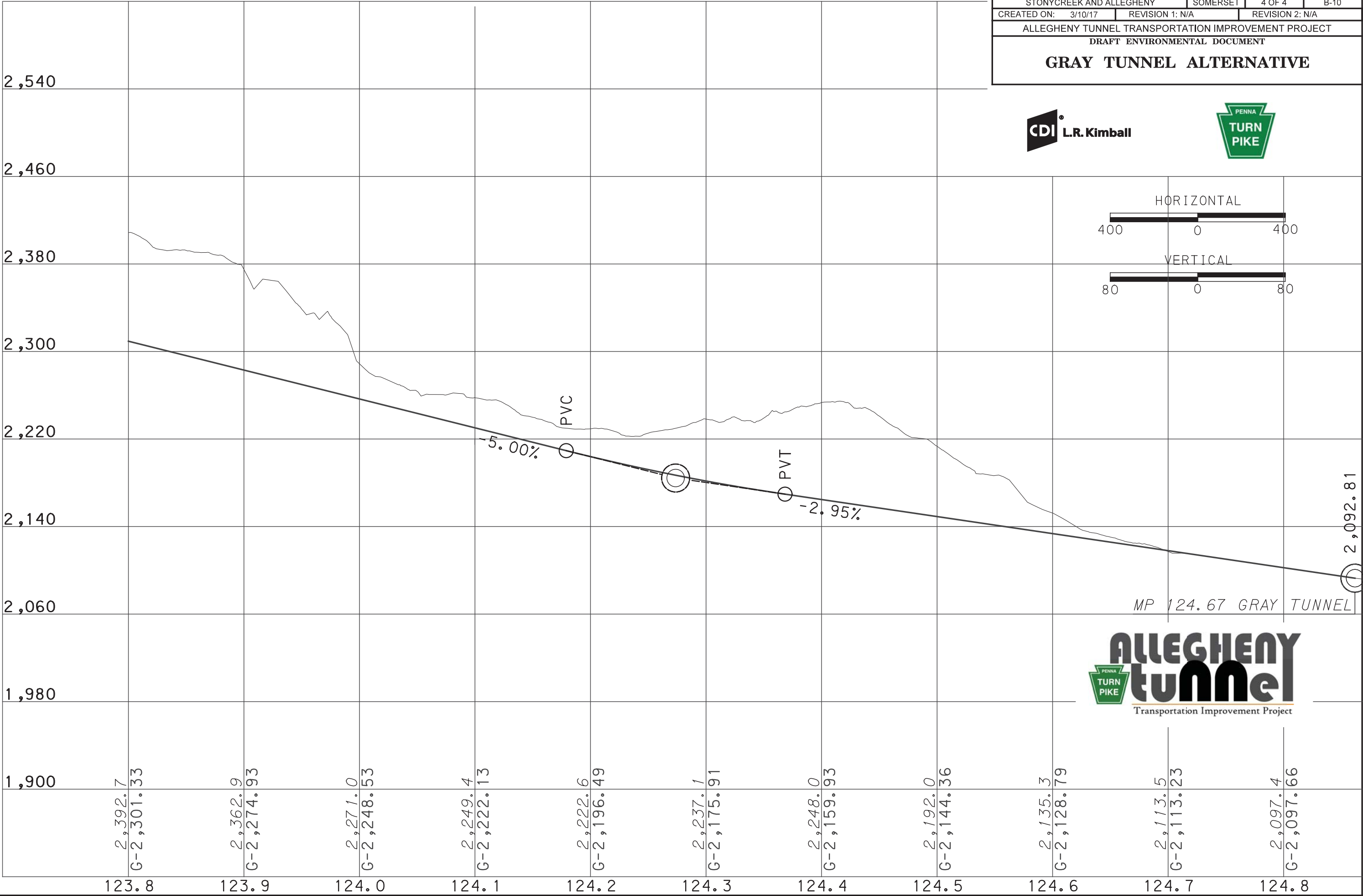
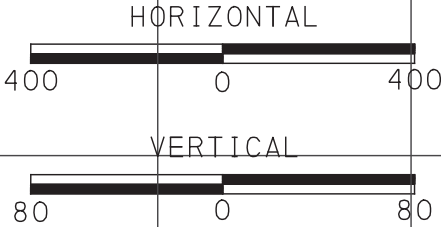



Figure B-10A

**Gray Tunnel Alternative Estimated Construction,
Operation, and Maintenance Costs**

	<p align="center">Allegheny Tunnel Transportation Improvement Project Detailed Alternative Analysis Somerset County, Pennsylvania</p>
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Cost Estimate

Gray Alignment (7 Lane Tunnel Option) 26' Median with Swale and Westbound Climbing Lane

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL
ROADWAY (Includes clearing and grubbing, mobilization, field office, engineering surveys, right-of-way fence, pavements, shoulders, drainage, e&s, stormwater management, signing, pavement markings and delineators, landscaping, guiderail & tunnel conc. barrier)	24.9	\$3,890,376.00 / LANE MILE	\$96,870,363.00
EXCAVATION	9,419,405	\$5.00 / CY	\$47,097,025.00
WASTE	9,076,488	/ CY	
OVEREXCAVATION	7,050,974	\$8.25 / CY	\$58,170,536.00
UTILITY RELOCATION	1.0	\$400,000.00 / LS	\$400,000.00
MAJOR DRAINAGE STRUCTURES		\$2,520.00 / LF	
BRIDGES (Includes substructure to accommodate future widening) Structure No.1 (6 LANES) Structure No.2 (6 LANES) Structure No.3 (7 LANES)	18,148 29,357 97,969	\$250.00 / SF \$300.00 / SF \$325.00 / SF	\$4,537,000.00 \$8,807,100.00 \$31,839,925.00
TUNNELS (Ultimate Conditions) Eastbound (3 LANES) Westbound (4 LANES)	3,045 3,045	\$42,778.00 / LF \$42,778.00 / LF	\$130,259,010.00 \$130,259,010.00
CONTINGENCY		12%	\$60,988,797.00
OPERATION & MAINTENANCE COSTS State Police Roadway Maintenance Tunnel Maintenance	31.5 26.5 5.0	\$15,000.00 / LANE MILE \$27,000.00 / LANE MILE \$421,400.00 / TUNNEL LANE MILE	\$472,500.00 \$715,500.00 \$2,107,000.00
RIGHT-OF-WAY WASTE AREA RIGHT-OF-WAY	215 149	\$4,200.00 / ACRE \$4,200.00 / ACRE	\$903,000.00 \$625,800.00

CONSTRUCTION COSTS	\$569,300,000
RIGHT-OF-WAY COSTS	\$1,600,000
DESIGN COST	\$57,000,000
TOTAL COST	\$627,900,000
**OPERATION & MAINTENANCE COSTS / YEAR	\$3,300,000

** NOTE: Operation & Maintenance Costs/Year Are Not Included In Total Cost



Figure B-11
Wildlife Crossings

