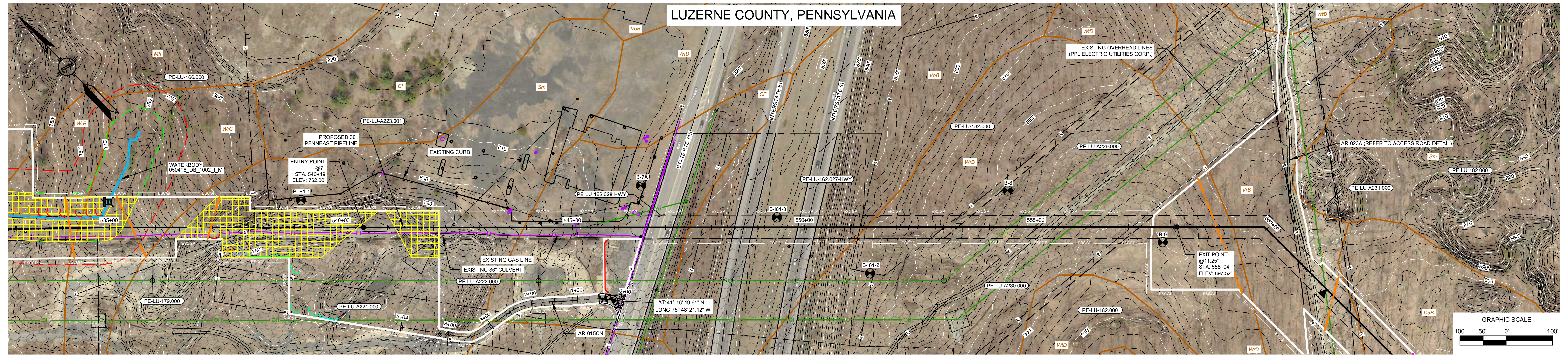


LUZERNE COUNTY, PENNSYLVANIA

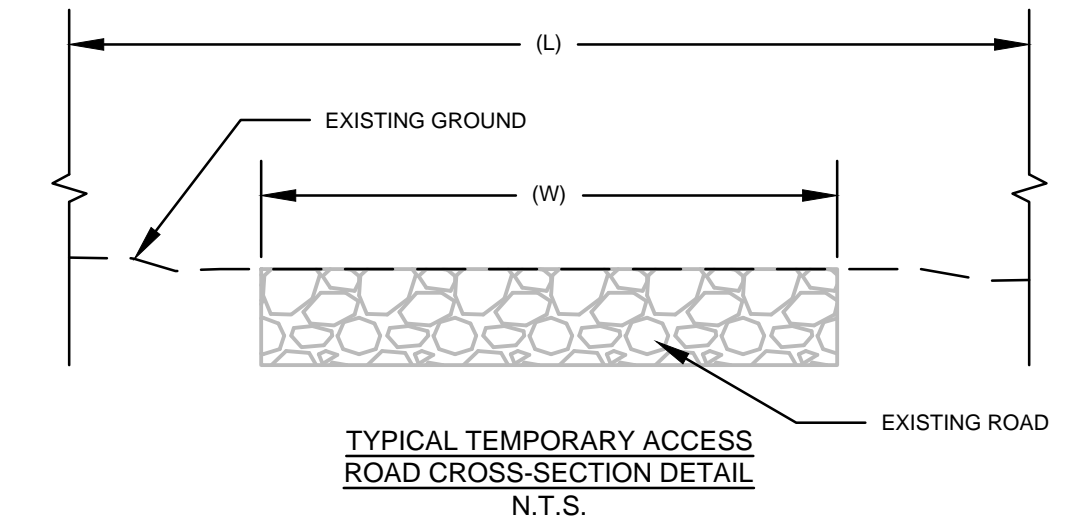


- CROSSING SPECIFIC HDD NOTES:
1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS OTHERWISE SPECIFIED.
  2. ALL CHAINAGES ARE HORIZONTAL.
  3. CONTRACTOR SHALL DETERMINE FINAL LOCATIONS AND DIMENSIONS OF ALL MUD PITS NECESSARY TO ACCOMMODATE THEIR MEANS AND METHODS.
  4. CONTRACTOR TO STAGE ALL PERSONNEL AND EQUIPMENT WITHIN THE PERMITTED LIMIT OF DISTURBANCE AS DEPICTED ON THIS DRAWING, UNLESS OTHERWISE AUTHORIZED BY THE CLIENT.
  5. CONTRACTOR SHALL DETERMINE DIAMETER, GRADE, WALL THICKNESS AND ADDITIONAL LENGTH OF TEMPORARY CONDUCTOR CASINGS IF DEEMED NECESSARY BY THE CONTRACTOR. ANY INSTALLED TEMPORARY CONDUCTOR CASINGS SHALL BE FULLY REMOVED UPON COMPLETION OF PULLBACK OPERATIONS.
  6. THE MINIMUM ALLOWABLE DRILLING RADIUS SHALL BE 2,600 FEET BASED ON A 3-JOINT AVERAGE.
  7. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING PRIVATE SERVICES, ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION OPERATIONS. PENNSYLVANIA LAW REQUIRES AT LEAST 48 HOURS AND NO MORE THAN TEN (10) WORKING DAYS NOTICE BEFORE EXCAVATION OR DEMOLITION.

8. HDD OPERATIONS SHALL BE CONDUCTED IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.
9. DOWNHOLE ANNUAL DRILLING FLUID PRESSURES SHALL BE MONITORED AT ALL TIMES DURING THE PILOT BORE DRILLING PROCESS. LOCATION OF MONITORING SHALL BE AS CLOSE TO THE DRILL BIT AS POSSIBLE.
10. HDD CONTRACTOR SHALL BE PREPARED TO PUMP A CEMENT GROUT DOWNHOLE TO HELP SEAL LARGE PREFERENTIAL FLOW PATHWAYS AND RESTORE DRILLING FLUID FLOW WITHIN THE HDD BORE IN THE EVENT HISTORIC MINE WORKINGS ARE ENCOUNTERED AND EXCESSIVE DRILLING FLUID LOSSES OCCUR.
11. PILOT BORE SHALL BE CONTINUOUSLY TRACKED AT ALL TIMES. CONTRACTOR SHALL USE A GEOSCOPE GUIDANCE SYSTEM TO COMPLETE THE PILOT BORE INSTALLATION. NO BLIND SECTIONS SHALL BE PERMITTED, EVEN WHEN THE DRILL BIT IS UNDER WATER.
12. IF THE CONTRACTOR ENCOUNTERS AN OBSTRUCTION THAT PREVENTS THE INSTALLATION ACCORDING TO THE PROJECT SPECIFICATIONS, THE CONTRACTOR SHALL PLACE A CEMENT BASED GROUT WITHIN THE BORE. WORK SHALL NOT RESUME UNTIL REVISED PLANS AND PROCEDURES HAVE BEEN SUBMITTED TO AND ACCEPTED BY THE OWNER.

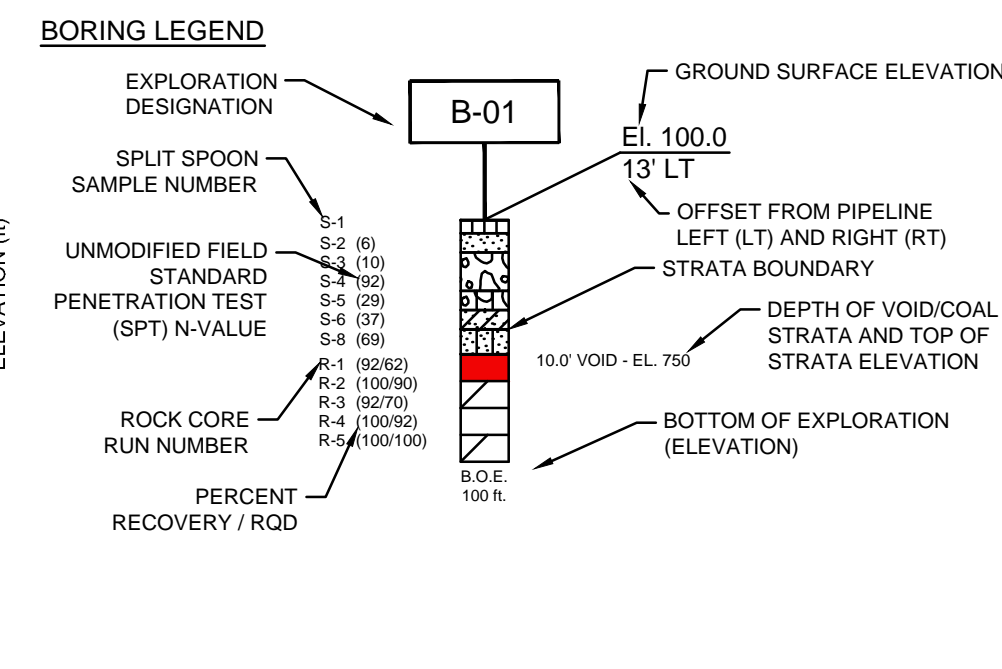
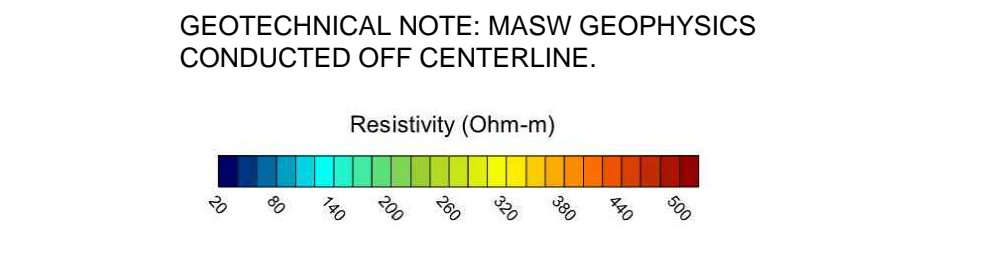
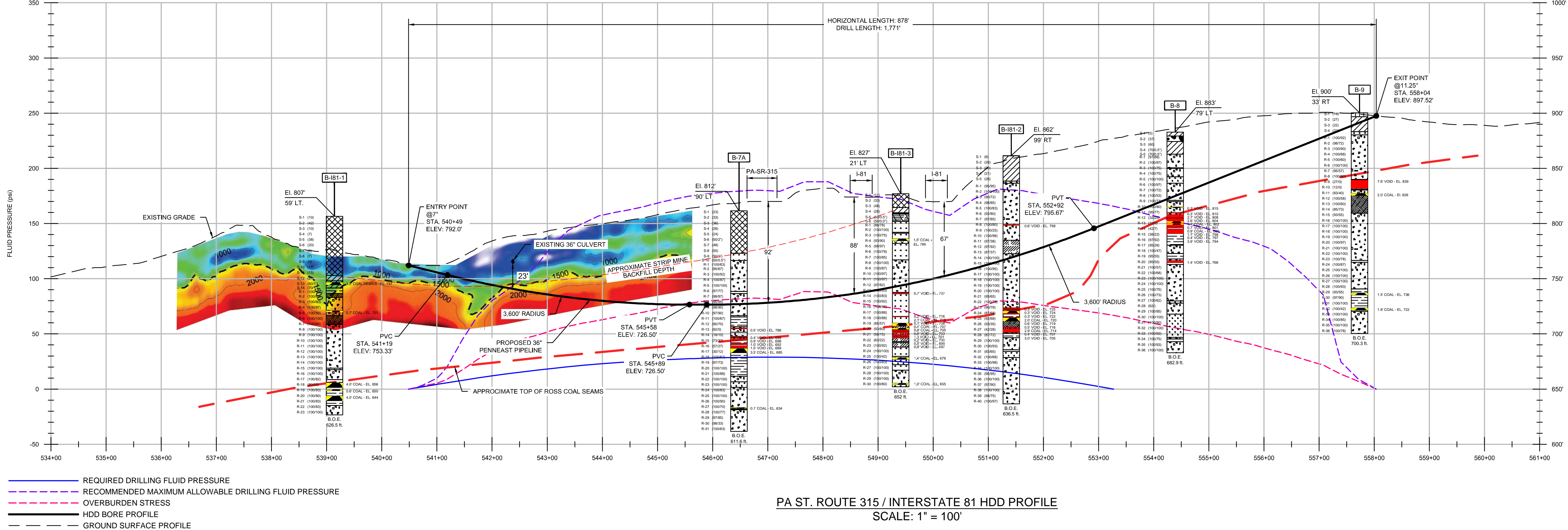
13. PILOT BORE DRILLING TOLERANCES SHALL BE AS FOLLOWS:
- | Item               | Tolerance                                     |
|--------------------|---|
| Wdr entry location | ±0.50' (150 feet) maximum in either direction |
| Wdr exit location  | ±0.50' (150 feet) maximum in either direction |
| Wdr depth          | ±0.50' (150 feet) maximum in either direction |
| Wdr diameter       | ±0.50' (150 feet) maximum in either direction |
14. CROSS SECTIONS PRESENTS SUMMARY BOREHOLE LOG GRAPHICS, SEE FULL BOREHOLE LOG FOR DETAILS.
  15. ROSS COAL SEAMS WERE WORKED VIA ROOM AND PILLAR MINING METHODS IN THE 1930S AND 1940S. DASHED RED LINE INDICATES APPROXIMATE LOCATION OF TOP OF WORKINGS. FRACTURING DUE TO MINING DISTURBANCE WILL EXIST ABOVE THIS ELEVATION. ADDITIONAL WORKED COAL SEAMS EXIST BELOW THE ROSS COAL SEAMS.
  16. SUMMARY GEOPHYSICAL PROFILE DISPLAYED, SEE FULL REPORT FOR DETAILS.

PA ST. ROUTE 315 / INTERSTATE 81 HDD PLAN VIEW  
SCALE: 1" = 100'



ACCESS ROAD #	STATION RANGE	EXISTING ROAD WIDTH (W) (FT)	ROAD SURFACE	LIMITS OF DISTURBANCE WIDTH (L) (FT)
AR-015CN	0+00 - 0+50	APRON	GRAVEL	APRON
AR-015CN	0+50 - 1+50	16	GRAVEL	20
AR-015CN	1+50 - 3+30	13	GRAVEL	20
AR-015CN	3+30 - 4+00	N/A	GRASS	20
AR-015CN	4+00 - 5+04	N/A	GRASS	VARIES

NOTES:  
1. A TYPICAL LOD WIDTH OF 30' WAS UTILIZED FOR ACCESS ROADS WHERE POSSIBLE. LOD WIDTHS SHOWN DO NOT INCLUDE NECK DOWNS FOR CULVERTS.



SOIL AND ROCK STRATAGRAPHIC LEGEND:

ML	CL	GW	GP
FILL	SANDSTONE	SC	SM
SP	TOPSOIL	COAL	DECOMPOSED ROCK
VOID	MUDSTONE	SHALE	CONGLOMERATE
SLATE	QUARTZITE	SILTSTONE	GRAVEL-STONE

PA ST. ROUTE 315 / INTERSTATE 81 HDD PROFILE  
SCALE: 1" = 100'

- NOTES:
1. THE CONTOURS AND IMAGERY SHOWN WERE PROVIDED BY PICTOMETRY, 2015. ADDITIONAL CONTOURS AND IMAGERY SUPPLEMENTED FROM PASDA.
  2. EXISTING FEATURE SURVEYED PERFORMED BY MOTT MACDONALD 2015 THRU 2018. ADDITIONAL FEATURES DIGITIZED FROM IMAGERY. ALL LOCATIONS ARE APPROXIMATE AND SHALL BE VERIFIED BY CONTRACTOR.
  3. PROPERTY LINES DEPICTED ON THIS PLAN ARE BASED ON GIS TAX MAP DATA AND RECTIFIED PROPERTY LINES AND ARE NOT THE RESULT OF A BOUNDARY SURVEY.
  4. WATERBODY INFORMATION PROVIDED BY AECOM 2015 THRU 2018.

REFERENCE DRAWINGS				REVISIONS				APPROVALS		
DWG. NO.	TITLE	DATE	BY	DATE	BY	DATE	BY	DATE	DATE	DATE
000-03-01-021	ALIGNMENT SHEET									
000-03-01-022	ALIGNMENT SHEET									
000-03-01-023	ALIGNMENT SHEET									
000-03-03-012.1	ACCESS ROAD DETAIL									

PREPARED FOR

PENNEAST PIPELINE PROJECT  
SOIL EROSION AND SEDIMENT CONTROL PLAN  
PROPOSED 36" PIPELINE  
HDD EXHIBIT PLAN AND PROFILE  
PA ST. ROUTE 315 / INTERSTATE 81 HDD  
LUZERNE COUNTY, PENNSYLVANIA

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-07-001	A

G:\PENNEAST\035754\_PENNEAST\_PIPELINE\_EPC\DATA\PROD\_STATE\_PERMIT\WORK\PA\DRAWING\EROSION\_SEDIMENT\_CONTROL\_PLAN\HDD\_DETAILS\000-03-07-001.DWG DIM 6/4/19