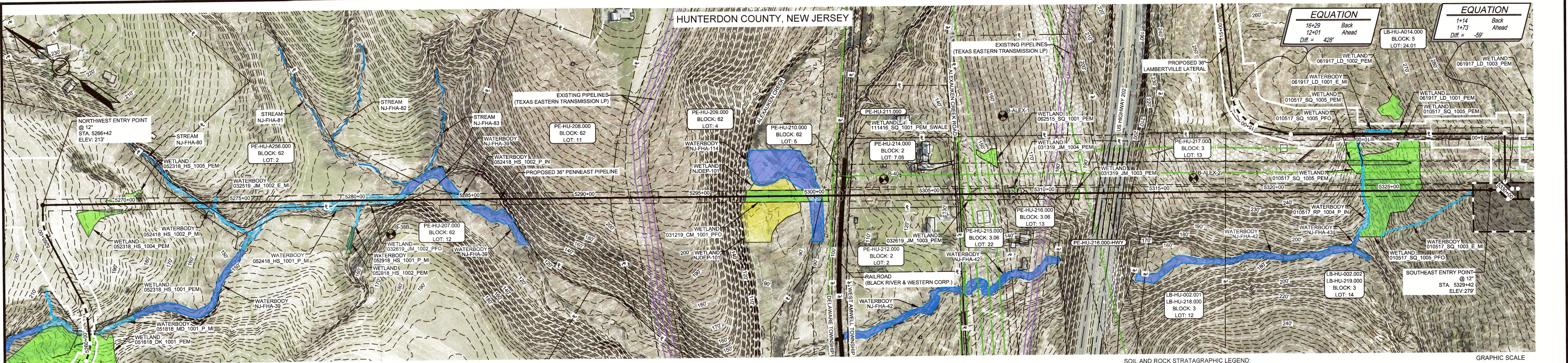




CROSSING SPECIFIC HDD NOTES:

- ALL DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS OTHERWISE SPECIFIED.
- ALL STATIONING IS HORIZONTAL.
- CONTRACTOR SHALL DETERMINE FINAL LOCATIONS AND DIMENSIONS OF ALL MUD PITS NECESSARY TO ACCOMMODATE THEIR MEANS AND METHODS.
- CONTRACTOR TO STAGE ALL PERSONNEL AND EQUIPMENT WITHIN THE PERMITTED LIMIT OF DISTURBANCE AS DEPICTED ON THIS DRAWING, UNLESS OTHERWISE AUTHORIZED BY THE CLIENT.
- CONTRACTOR SHALL DETERMINE DIAMETER, GRADE, WALL THICKNESS AND ADDITIONAL LENGTH OF TEMPORARY CONDUCTOR CASINGS IF DEEMED NECESSARY BY THE CONTRACTOR. ANY INSTALLED TEMPORARY CONDUCTOR CASING SHALL BE FULLY REMOVED UPON COMPLETION OF PULLBACK OPERATIONS.
- THE MINIMUM ALLOWABLE DRILLING RADIUS SHALL BE 2,800 FEET BASED ON A 3-JOINT AVERAGE.
- EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING PRIVATE SERVICES, ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION OPERATIONS. NEW JERSEY LAW REQUIRES AT LEAST 72 HOURS AND NO MORE THAN TEN (10) BUSINESS DAYS NOTICE BEFORE EXCAVATION OR DEMOLITION.
- HDD OPERATIONS SHALL BE CONDUCTED IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.

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.

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 KARST FEATURES ARE ENCOUNTERED AND/OR EXCESSIVE DRILLING FLUID LOSSES OCCUR.

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.

PILOT BORE SHALL BE CONTINUOUSLY TRACKED AT ALL TIMES. CONTRACTOR SHALL USE A GYROSCOPIC GUIDANCE SYSTEM TO COMPLETE THE PILOT BORE INSTALLATION. NO BLIND SECTIONS SHALL BE PERMITTED, EVEN WHEN THE DRILL BIT IS UNDER WATER.

CONTRACTOR SHALL USE THE DRILL AND INTERSECT INSTALLATION STRATEGY TO COMPLETE THIS INSTALLATION.

14. NOT USED.

15. NOT USED.

16. PILOT BORE DRILLING TOLERANCES SHALL BE AS FOLLOWS:

Item	Tolerance
Riser entry angle	Increase angle up to 1° (steeper), but no decrease in angle allowed.
Riser entry location	As staked by Owner, no changes without Owner approval.
Riser exit angle	Decrease angle up to 2° (flatter), but no increase in exit angle allowed.
Riser exit location	Up to ten (10) feet shorter or longer.
Riser depth	Up to three (3) feet shallower depth allowed. Up to ten (10) feet increase in pipe design depth (deeper) allowed.
Riser alignment	Up to ten (10) feet left or right of the Owner survey centerline but not within five (5) feet of the right of way/assessment boundary or any below-grade utility or structure.

17. CROSS SECTIONS PRESENTS SUMMARY BOREHOLE LOG GRAPHICS, SEE FULL BOREHOLE LOG FOR DETAILS.

18. NOT USED.

19. SUMMARY OF SOIL TO BEDROCK INTERFACE TAKEN FROM SEISMIC REFRACTION SURVEY, SEE FULL REPORT FOR DETAILS.

ALEXAUKEN CREEK HDD PLAN VIEW
SCALE: 1" = 200'

BOREING LEGEND

EXPLORATION DESIGNATION: B-01

GROUND SURFACE ELEVATION: EL. 100'

OFFSET FROM PIPELINE LEFT (LT) AND RIGHT (RT): 13' LT

STRATA BOUNDARY

DEPTH OF VOID/COAL STRATA AND TOP OF STRATA ELEVATION

10' VOID - EL. 750'

BOTTOM OF EXPLORATION (ELEVATION): B.O.E. 100.1'

UNMODIFIED FIELD STANDARD PENETRATION TEST (SPT) N-VALUE: S-1 (69), S-2 (102), S-3 (102), S-4 (102), S-5 (102), S-6 (102), S-7 (102), S-8 (69)

ROCK CORE RUN NUMBER: R-1 (100/62), R-2 (100/60), R-3 (100/60), R-4 (100/62)

PERCENT RECOVERY / ROD: R-1 (100/62), R-2 (100/60), R-3 (100/60), R-4 (100/62)

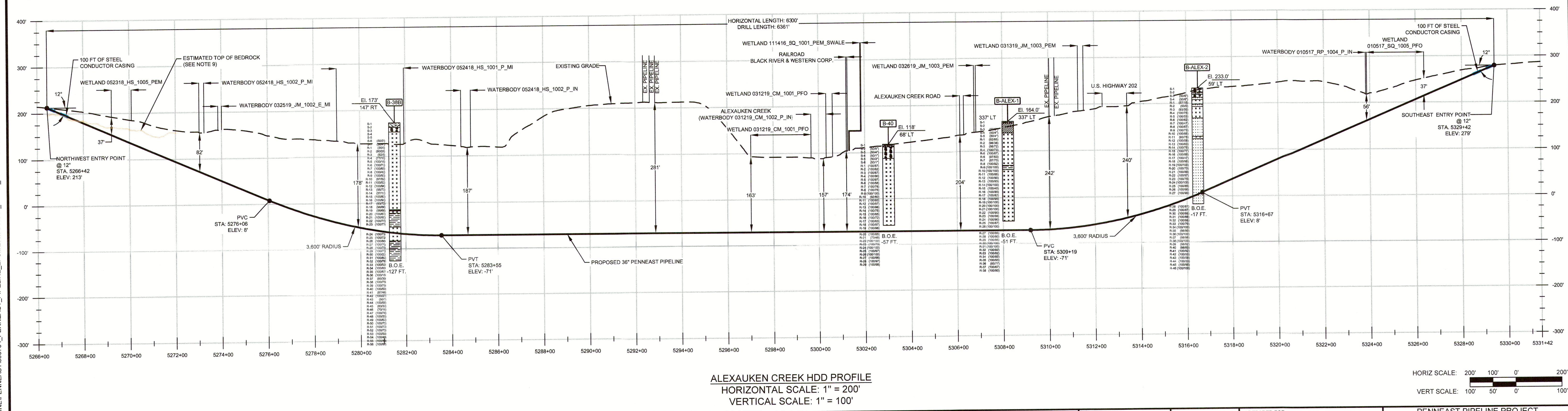
SOIL AND ROCK STRATAGRAPHIC LEGEND:

BRECCIA	CL	DECOMPOSED ROCK	SAND
SC	SHALE	SILTSTONE	SM
VOID	SANDSTONE	TOPSOIL	

MICHAEL A. WILCOX
PROFESSIONAL ENGINEER
N.J. LIC. NO. 24GE04673700

Michael A. Wilcox
SIGNATURE

08/01/2019
DATE



REFERENCE: 1. EXISTING CONTOURS WERE PROVIDED BY PICTOMETRY, 2015. ADDITIONAL CONTOURS WERE SUPPLEMENTED FROM USGS. 2. SITE TOPOGRAPHIC AND FEATURE SURVEY PERFORMED BY MOTT MACDONALD 2015 THRU 2019. 3. PROPERTY INFORMATION ON THIS PLAN BASED ON GIS TAX MAP DATA AND RECTIFIED PROPERTY LINES AND ARE NOT THE RESULT OF A BOUNDARY SURVEY. 4. WETLAND AND WATERBODY DELINEATION SURVEYS COMPLETED BY AMY S. GREENE ENVIRONMENTAL CONSULTANTS. 5. THE HORIZONTAL COORDINATE SYSTEM IS THE NEW JERSEY STATE PLANE COORDINATE SYSTEM (NAD83) AND VERTICAL DATUM IS THE NORTH AMERICAN DATUM OF 1988 (NAVD88).	REFERENCE DRAWINGS		REVISIONS					APPROVALS		PREPARED FOR  PREPARED BY  111 WOOD AVENUE SOUTH, ISELIN, NJ, 08830 CERTIFICATE NO. 24GA28016600	PENNEAST PIPELINE PROJECT SOIL EROSION AND SEDIMENT CONTROL DRAWINGS PROPOSED 36" PIPELINE HDD EXHIBIT PLAN AND PROFILE ALEXAUKEN CREEK HDD HUNTERDON COUNTY, NEW JERSEY				
	DWG. NO.	TITLE	NO.	REVISIONS	DATE	DRAWN	CK	APPR	DRAWN BY		DATE	CLIENT APPROVAL	DATE		
	000-03-01-200	ALIGNMENT SHEET	A	SUBMITTED TO SOIL CONSERVATION DISTRICT	07/2019	DOW (MM)	AJD (MM)	MAW (MM)	DOW (MM)		07/2019				
	000-03-01-201	ALIGNMENT SHEET							CHECKED BY		DATE				
	000-03-01-202	ALIGNMENT SHEET							AJD (MM)		07/2019				
	000-03-01-203	ALIGNMENT SHEET							ENG. APPROVAL		DATE				
									MAW (MM)		07/2019				
								P.M. APPROVAL	DATE						
								MAW (MM)	07/2019						
SCALE: AS SHOWN												DRAWING NO. 000-03-07-012		REVISION: A	