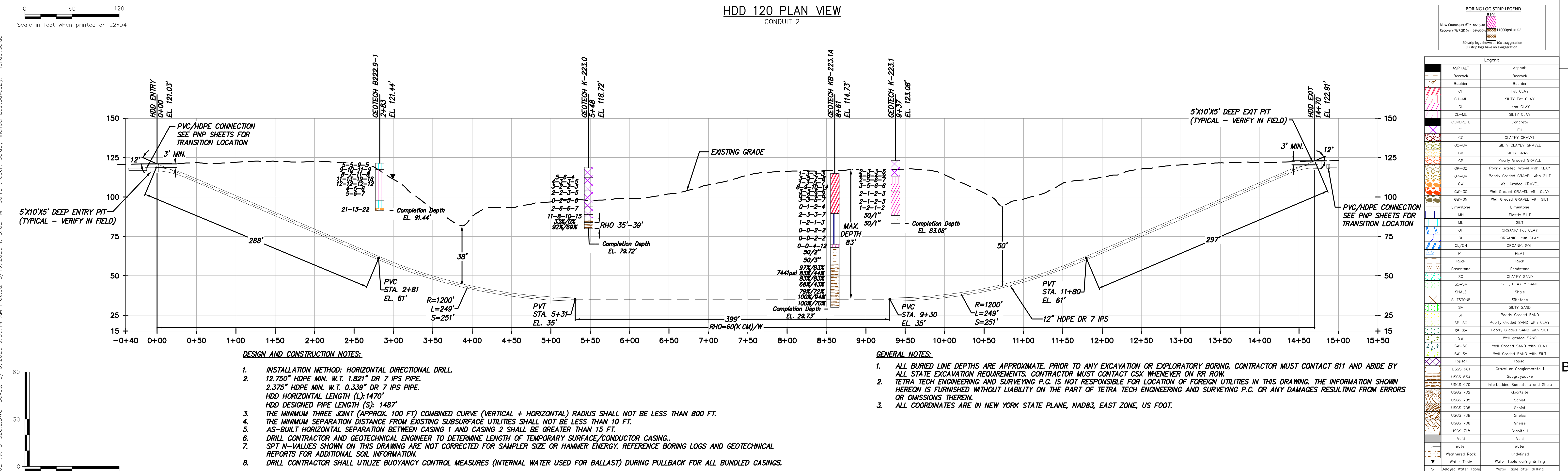


HDD 120 PLAN VIEW  
CONDUIT 2



HDD 120 PROFILE VIEW  
CONDUIT 2

**DESIGN AND CONSTRUCTION NOTES:**

1. INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
2. 12.750" HDPE MIN. W.T. 1.821" DR 7 IPS PIPE.
3. 2.375" HDPE MIN. W.T. 0.339" DR 7 IPS PIPE.
4. HDD HORIZONTAL LENGTH (L): 1470'
5. HDD DESIGNED PIPE LENGTH (S): 1487'
6. THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.
7. THE MINIMUM SEPARATION DISTANCE FROM EXISTING SUBSURFACE UTILITIES SHALL NOT BE LESS THAN 10 FT.
8. AS-BUILT HORIZONTAL SEPARATION BETWEEN CASING 1 AND CASING 2 SHALL BE GREATER THAN 15 FT.
9. DRILL CONTRACTOR AND GEOTECHNICAL ENGINEER TO DETERMINE LENGTH OF TEMPORARY SURFACE/CONDUCTOR CASING.
10. SPT N-VALUES SHOWN ON THIS DRAWING ARE NOT CORRECTED FOR SAMPLER SIZE OR HAMMER ENERGY. REFERENCE BORING LOGS AND GEOTECHNICAL REPORTS FOR ADDITIONAL SOIL INFORMATION.
11. DRILL CONTRACTOR SHALL UTILIZE BUOYANCY CONTROL MEASURES (INTERNAL WATER USED FOR BALLAST) DURING PULLBACK FOR ALL BUNDLED CASINGS.

**GENERAL NOTES:**

1. ALL BURIED LINE DEPTHS ARE APPROXIMATE. PRIOR TO ANY EXCAVATION OR EXPLORATORY BORING, CONTRACTOR MUST CONTACT 811 AND ABIDE BY ALL STATE EXCAVATION REQUIREMENTS. CONTRACTOR MUST CONTACT CSX WHENEVER ON RR ROW.
2. TETRA TECH ENGINEERING AND SURVEYING P.C. IS NOT RESPONSIBLE FOR LOCATION OF FOREIGN UTILITIES IN THIS DRAWING. THE INFORMATION SHOWN HEREON IS FURNISHED WITHOUT LIABILITY ON THE PART OF TETRA TECH ENGINEERING AND SURVEYING P.C. OR OMISSIONS THEREIN.
3. ALL COORDINATES ARE IN NEW YORK STATE PLANE, NAD83, EAST ZONE, US FOOT.

**BORING LOG STRIP LEGEND**

Blow Counts per 6" = 10-10-10  
Recovery %/RQD % = 80%/80%  
11000psi UCS  
3D strip logs show no exaggeration  
3D strip logs have no exaggeration

**Legend**

ASPHALT	Asphalt
Bedrock	Bedrock
Bloulder	Bloulder
CL	Fat CLAY
CL-MH	SILTY Fat CLAY
CL	Lean CLAY
CL-ML	SILTY CLAY
CONCRETE	Concrete
Fill	Fill
GC	CLAYEY GRAVEL
GC-GM	SILTY CLAYEY GRAVEL
GM	SILTY GRAVEL
GP	Poorly Graded GRAVEL
GP-GC	Poorly Graded Gravel with CLAY
GP-GM	Poorly Graded GRAVEL with SILT
GW	Well Graded GRAVEL
GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
Limestone	Limestone
MH	Elastic SILT
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
SP	Poorly Graded SAND
SP-SG	Poorly Graded SAND with SILT
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SG	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoll	Topsoll
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgravel
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 716	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



TETRA TECH ENGINEERING AND SURVEYING P.C.  
(A NEW YORK PROFESSIONAL CORPORATION)

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
D	03/17/2023	FINAL SUBMISSION	MRS	EJK
C	01/24/2023	DRAFT FINAL SUBMISSION	MRS	EJK
B	11/16/2022	PRELIMINARY DRAFT FINAL SUBMISSION	MRS	EJK
A	04/29/2022	60% DESIGN SUBMISSION	MRS	EJK

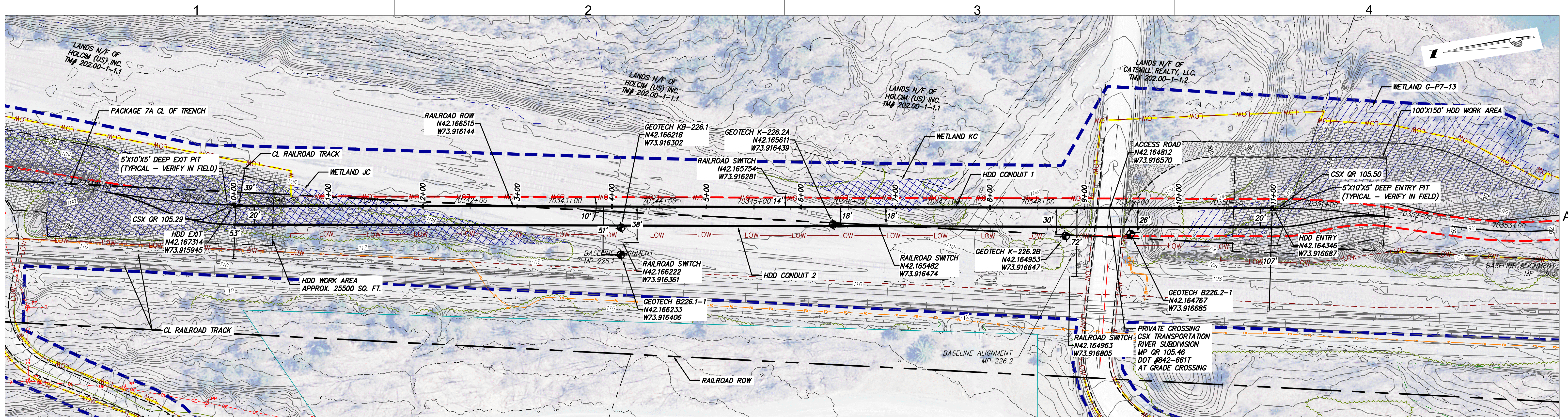
**CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL**  
PLAN AND PROFILE - HDD 120  
RAILROAD CULVERT CROSSING - CONDUIT 2  
GREENE COUNTY, NY

KIEWIT PROJECT NO.  
21162  
TT PROJECT NO.  
204-3701  
DRAWING NO.  
**C-320.2**

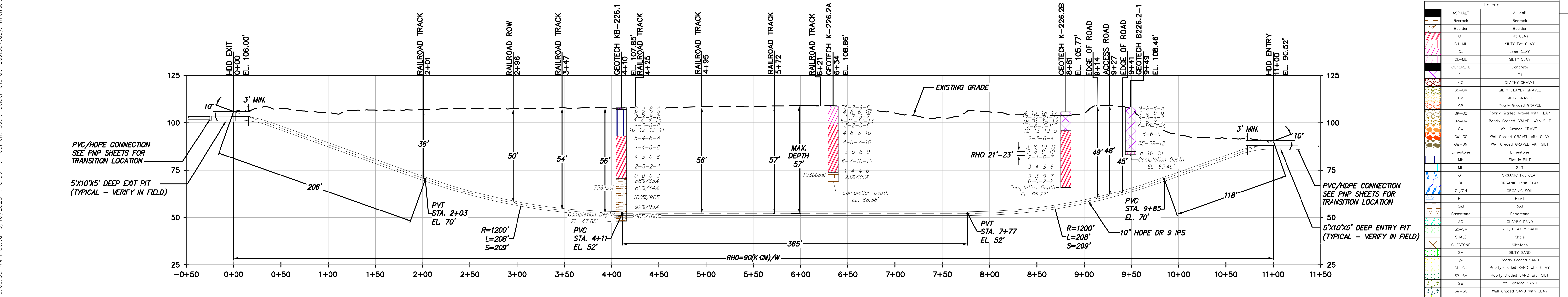
DRAWN BY: MRS DESIGNED BY: AMC APPROVED BY: EJK SCALE AS SHOWN DATE 03/17/2023  
REV. NO. D SH. NO. 1 OF 1

File: C:\P\WORKING\REV\DM55141\21162\_7A\_C-320.2.DWG Saved: 3/16/2023 9:05:14 AM Plotted: 3/16/2023 1:13:02 PM Current User: Seidel, Michael LastSavedBy: michael.seidel





HDD 122 PLAN VIEW  
CONDUIT 1



HDD 122 PROFILE VIEW  
CONDUIT 1

**DESIGN AND CONSTRUCTION NOTES:**

1. INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
2. 10.750" HDPE MIN. W.T. 1.194" DR 9 IPS PIPE.  
2.375" HDPE MIN. W.T. 0.339" DR 7 IPS PIPE.  
HDD HORIZONTAL LENGTH (L): 1100'  
HDD DESIGNED PIPE LENGTH (S): 1107'
3. THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.  
THE MINIMUM SEPARATION DISTANCE FROM EXISTING SUBSURFACE UTILITIES SHALL NOT BE LESS THAN 10 FT.
4. DRILL CONTRACTOR AND GEOTECHNICAL ENGINEER TO DETERMINE LENGTH OF TEMPORARY SURFACE/CONDUCTOR CASING.
5. SPT N-VALUES SHOWN ON THIS DRAWING ARE NOT CORRECTED FOR SAMPLER SIZE OR HAMMER ENERGY. REFERENCE BORING LOGS AND GEOTECHNICAL REPORTS FOR ADDITIONAL SOIL INFORMATION.
6. DRILL CONTRACTOR SHALL UTILIZE BUOYANCY CONTROL MEASURES (INTERNAL WATER USED FOR BALLAST) DURING PULLBACK FOR ALL BUNDLED CASINGS.

**GENERAL NOTES:**

1. ALL BURIED LINE DEPTHS ARE APPROXIMATE. PRIOR TO ANY EXCAVATION OR EXPLORATORY BORING, CONTRACTOR MUST CONTACT 811 AND ABIDE BY ALL STATE EXCAVATION REQUIREMENTS. CONTRACTOR MUST CONTACT CSX WHENEVER ON RR ROW.
2. TETRA TECH ENGINEERING AND SURVEYING P.C. IS NOT RESPONSIBLE FOR LOCATION OF FOREIGN UTILITIES IN THIS DRAWING. THE INFORMATION SHOWN HEREON IS FURNISHED WITHOUT LIABILITY ON THE PART OF TETRA TECH ENGINEERING AND SURVEYING P.C. OR ANY DAMAGES RESULTING FROM ERRORS OR OMISSIONS THEREIN.
3. ALL COORDINATES ARE IN NEW YORK STATE PLANE, NAD83, EAST ZONE, US FOOT.



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
D	03/17/2023	FINAL SUBMISSION	MRS	EJK
C	01/24/2023	DRAFT FINAL SUBMISSION	MRS	EJK
B	11/16/2022	PRELIMINARY DRAFT FINAL SUBMISSION	MRS	EJK
A	04/29/2022	60% DESIGN SUBMISSION	MRS	EJK

**CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL**

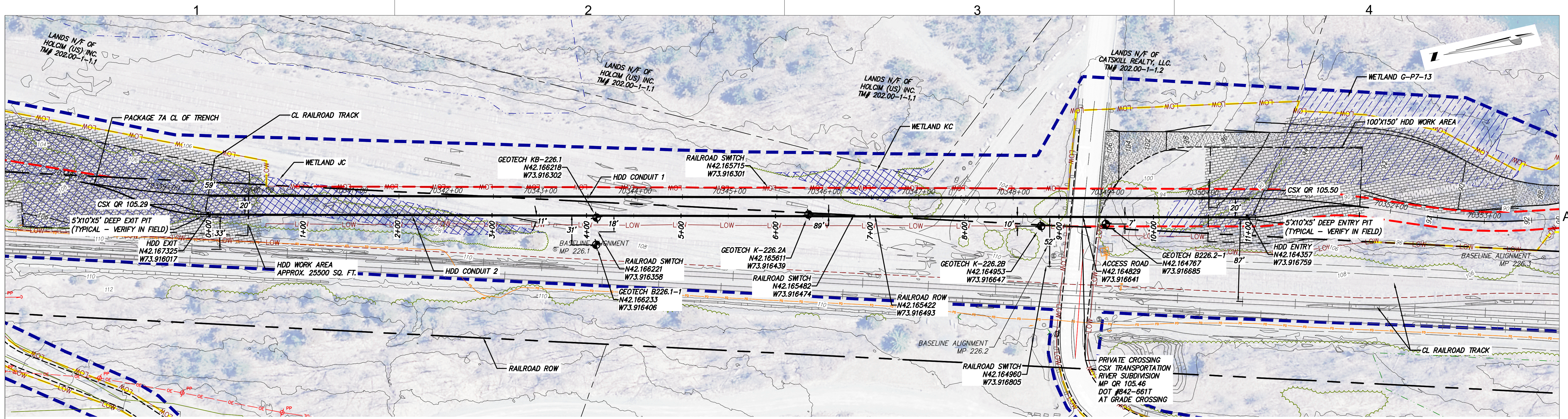
PLAN AND PROFILE - HDD 122  
RAILROAD CROSSING - CONDUIT 1  
GREENE COUNTY, NY

KIEWIT PROJECT NO. 21162  
TT PROJECT NO. 204-3701  
DRAWING NO. **C-322**

DRAWN BY: MRS DESIGNED BY: AMC APPROVED BY: EJK SCALE AS SHOWN DATE 03/17/2023  
REV. NO. D SH. NO. 1 OF 1

File: C:\P\WORKING\REV\DM55141\21162\_7A\_C-322.DWG Saved: 3/16/2023 9:09:35 AM Plotted: 3/16/2023 11:18:36 PM Current User: Seiden, Michael\_LastSavedBy: michael.seiden





HDD 122 PLAN VIEW  
CONDUIT 2

**BORING LOG STRIP LEGEND**

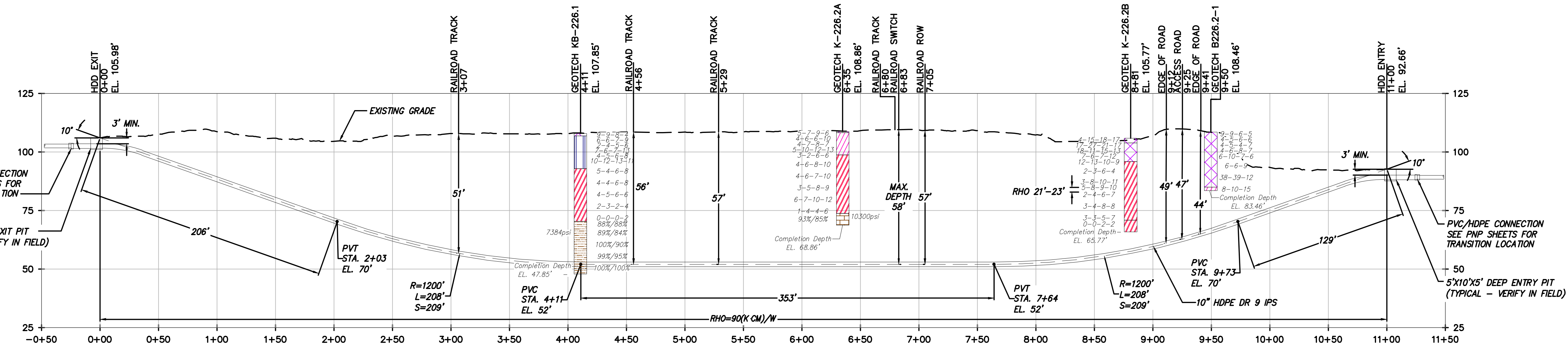
Blow Counts per 6" = 10-15-10  
Recovery %/RQD % = 85%/90%

20 strip logs shown for illustration  
3D strip logs have no exaggeration

**Legend**

ASPHALT	Asphalt
Bedrock	Bedrock
Bloulder	Boulder
CH	Fat CLAY
CH-MH	SILTY Fat CLAY
CL	Lean CLAY
CL-ML	SILTY CLAY
CONCRETE	Concrete
FILL	Fill
GC	CLAYEY GRAVEL
GC-GM	SILTY CLAYEY GRAVEL
GM	SILTY GRAVEL
GP	Poorly Graded GRAVEL
GP-GC	Poorly Graded GRAVEL with CLAY
GP-GM	Poorly Graded GRAVEL with SILT
GW	Well Graded GRAVEL
GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
Limestone	Limestone
MH	Elastic SILT
MH	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
SP	Poorly Graded SAND
SP-SG	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SG	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoll	Topsoll
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgravel
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 716	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling

Scale in feet when printed on 22x34



**DESIGN AND CONSTRUCTION NOTES:**

1. INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
2. 10.750" HDPE MIN. W.T. 1.194" DR 9 IPS PIPE.  
2.375" HDPE MIN. W.T. 0.339" DR 7 IPS PIPE.  
HDD HORIZONTAL LENGTH (L): 1100'  
HDD DESIGNED PIPE LENGTH (S): 1107'
3. THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.  
THE MINIMUM SEPARATION DISTANCE FROM EXISTING SUBSURFACE UTILITIES SHALL NOT BE LESS THAN 10 FT.
4. DRILL CONTRACTOR AND GEOTECHNICAL ENGINEER TO DETERMINE LENGTH OF TEMPORARY SURFACE/CONDUCTOR CASING.
5. SPT N-VALUES SHOWN ON THIS DRAWING ARE NOT CORRECTED FOR SAMPLER SIZE OR HAMMER ENERGY. REFERENCE BORING LOGS AND GEOTECHNICAL REPORTS FOR ADDITIONAL SOIL INFORMATION.
6. DRILL CONTRACTOR SHALL UTILIZE BUOYANCY CONTROL MEASURES (INTERNAL WATER USED FOR BALLAST) DURING PULLBACK FOR ALL BUNDLED CASINGS.

**GENERAL NOTES:**

1. ALL BURIED LINE DEPTHS ARE APPROXIMATE. PRIOR TO ANY EXCAVATION OR EXPLORATORY BORING, CONTRACTOR MUST CONTACT 811 AND ABIDE BY ALL STATE EXCAVATION REQUIREMENTS. CONTRACTOR MUST CONTACT CSX WHENEVER ON RR ROW.
2. TETRA TECH ENGINEERING AND SURVEYING P.C. IS NOT RESPONSIBLE FOR LOCATION OF FOREIGN UTILITIES IN THIS DRAWING. THE INFORMATION SHOWN HEREON IS FURNISHED WITHOUT LIABILITY ON THE PART OF TETRA TECH ENGINEERING AND SURVEYING P.C. OR ANY DAMAGES RESULTING FROM ERRORS OR OMISSIONS THEREIN.
3. ALL COORDINATES ARE IN NEW YORK STATE PLANE, NAD83, EAST ZONE, US FOOT.

HDD 122 PROFILE VIEW  
CONDUIT 2



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
D	03/17/2023	FINAL SUBMISSION	MRS	EJK
C	01/24/2023	DRAFT FINAL SUBMISSION	MRS	EJK
B	11/16/2022	PRELIMINARY DRAFT FINAL SUBMISSION	MRS	EJK
A	04/29/2022	60% DESIGN SUBMISSION	MRS	EJK

**CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL**

PLAN AND PROFILE - HDD 122  
RAILROAD CROSSING - CONDUIT 2  
GREENE COUNTY, NY

KIEWIT PROJECT NO. 21162  
TT PROJECT NO. 204-3701  
DRAWING NO. **C-322.2**

SCALE AS SHOWN DATE 03/17/2023  
REV. NO. D SH. NO. 1 OF 1



