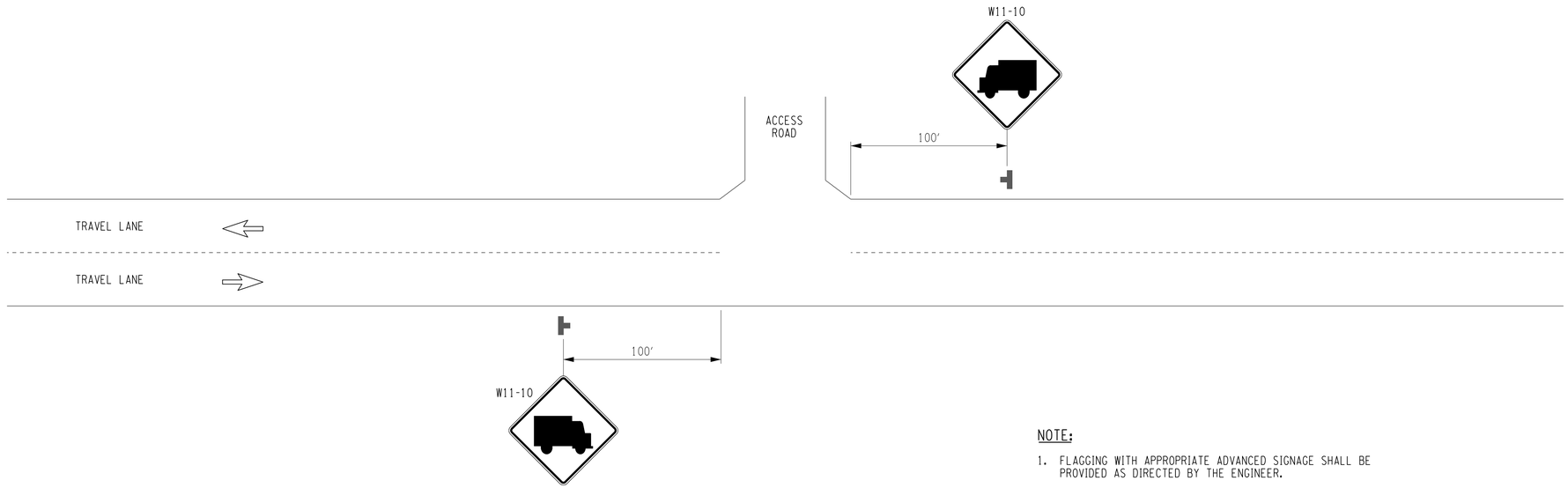
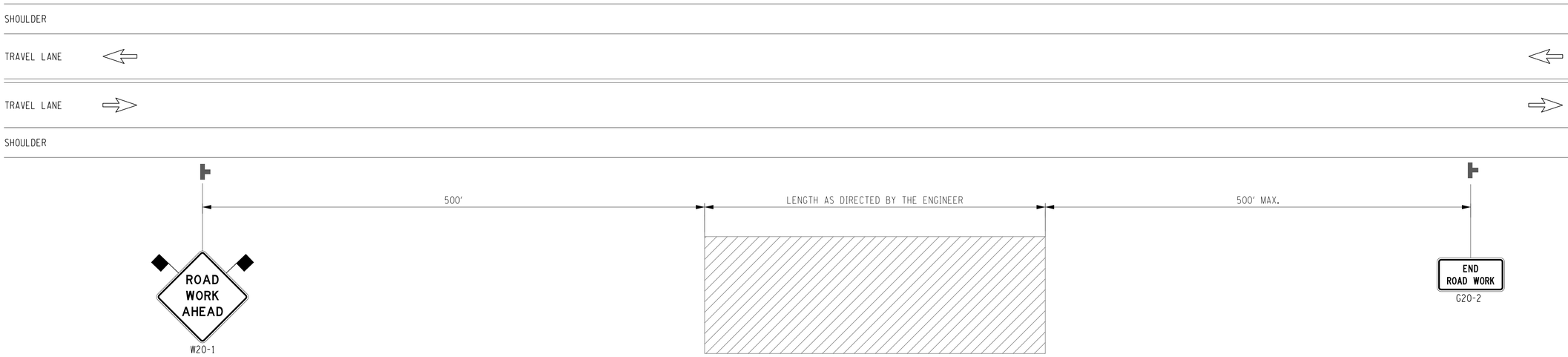


NOTE:

1. FLAGGING WITH APPROPRIATE ADVANCED SIGNAGE SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.

CONSTRUCTION ACCESS ROAD DETAIL
(NOT TO SCALE)



NOTE:

1. THIS WORK BEYOND SHOULDER DETAIL SUPPLEMENTS NYSDOT STANDARD SHEET 619-080. REFERENCE SHALL BE MADE TO NYSDOT STANDARD SHEET 619-080 FOR ALL NOTES AND TABLES. SEE NOTE 22 ON SHEET C-501

WZTC - WORK BEYOND SHOULDER
(NOT TO SCALE)

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LICENSED PROFESSIONAL ENGINEER — MICHAEL DOUGLAS HOLT — 079012 — STATE OF NEW YORK

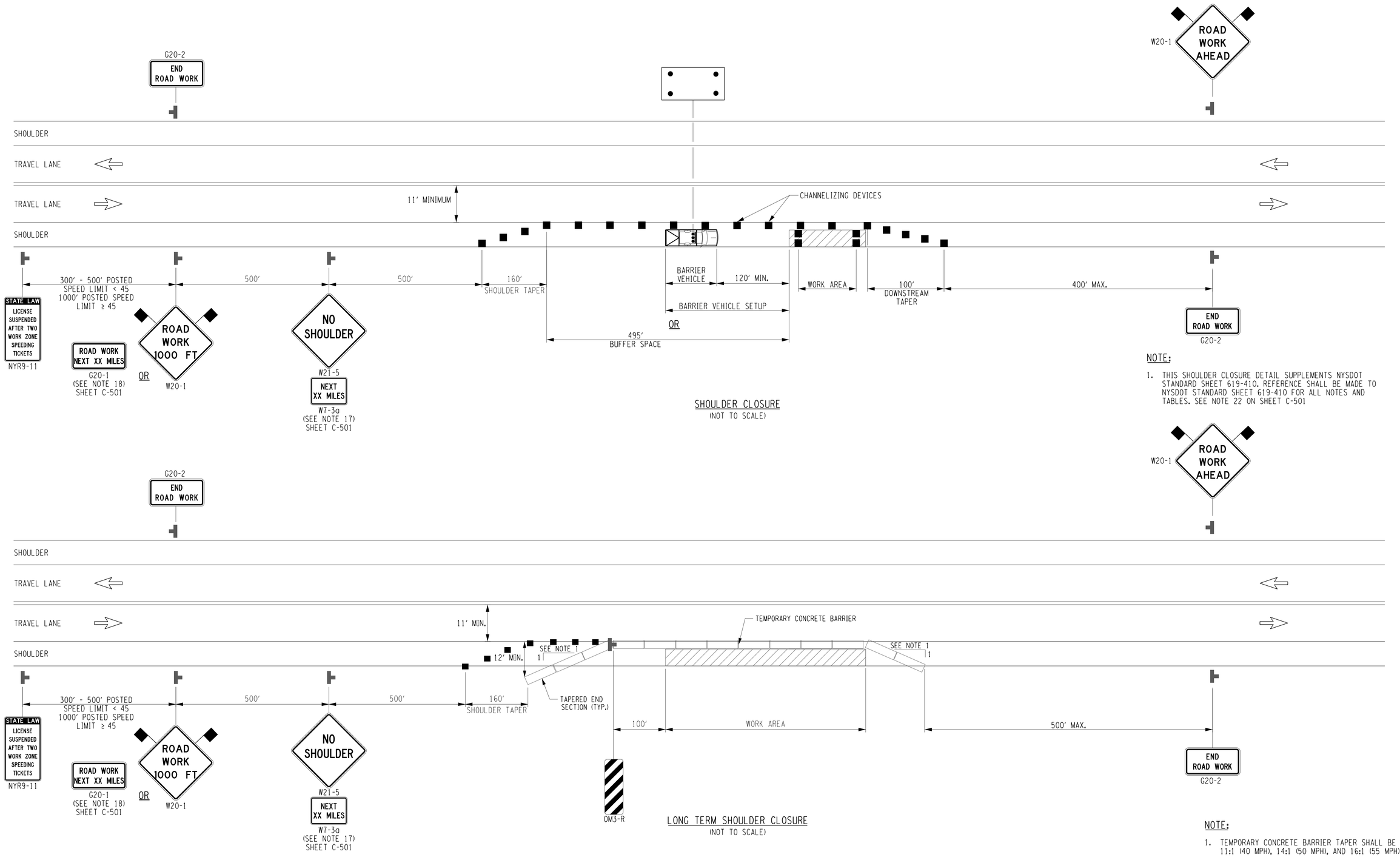
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	JS	MH

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
WORK ZONE TRAFFIC CONTROL DETAILS
SHEET 3 OF 4

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-505

DRAWN BY: JAH | DESIGNED BY: JPS | APPROVED BY: MDH | SCALE AS SHOWN | REV. NO. | DATE 03/22/2023

FILE NAME = V:\Projects\ANY\K6\066076.000\09_Design\Drawings\Hwy\Segment 3\P2\066076_cph_phase2_wztc_05.dgn



SHOULDER CLOSURE
(NOT TO SCALE)

NOTE:

1. THIS SHOULDER CLOSURE DETAIL SUPPLEMENTS NYSDOT STANDARD SHEET 619-410. REFERENCE SHALL BE MADE TO NYSDOT STANDARD SHEET 619-410 FOR ALL NOTES AND TABLES. SEE NOTE 22 ON SHEET C-501

LONG TERM SHOULDER CLOSURE
(NOT TO SCALE)

NOTE:

1. TEMPORARY CONCRETE BARRIER TAPER SHALL BE 8:1 (30 MPH), 11:1 (40 MPH), 14:1 (50 MPH), AND 16:1 (55 MPH).

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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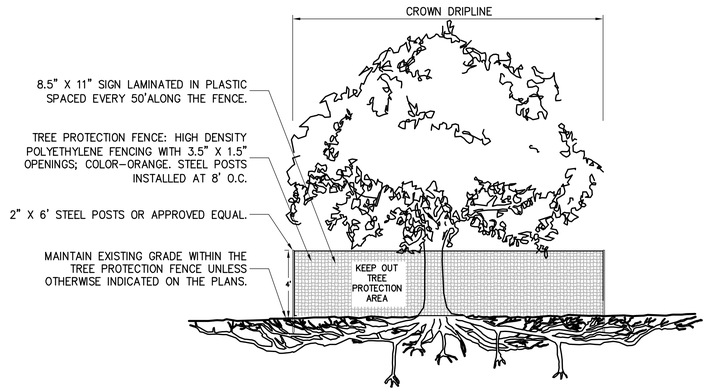
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY

WORK ZONE TRAFFIC CONTROL DETAILS
SHEET 4 OF 4

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-506

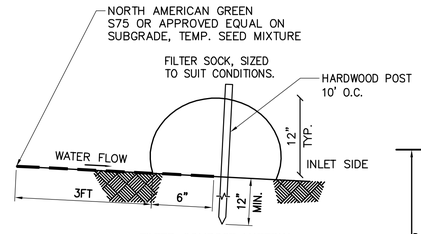
DRAWN BY: JAH | DESIGNED BY: JPS | APPROVED BY: MDH | SCALE AS SHOWN | REV. NO. | DATE 03/22/2023

FILE NAME = W:\Projects\ANY\KG\066076.000\09_Design\Drawings\Hwy\Segment 3\P2\066076_cph_phase2_wztc_06.dgn



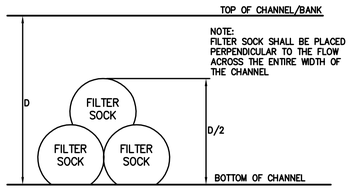
NOTES:
1. CONTRACTOR TO MAINTAIN INTEGRITY OF CONSTRUCTION FENCE FOR DURATION OF PROJECT.
2. NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
3. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
4. SEE EROSION CONTROL PLANS FOR LOCATIONS OF TREE PROTECTION AREAS.

1 TREE PROTECTION
NOT TO SCALE



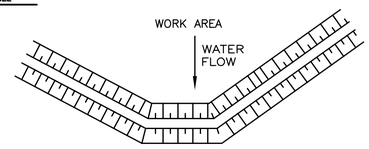
FILTER COMPOST MATERIAL AS PER SPECIFICATIONS.

NOTES:
1. ALL MATERIAL TO MEET MANUFACTURER SPECIFICATIONS.
2. ALL FILTER SOCKS SHALL BE 12" DIAMETER OR LARGER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTER BERM IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE ROUTINELY INSPECTED.
4. WHERE THE BERM REQUIRES REPAIR, IT WILL BE ROUTINELY REPAIRED.
5. THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE BERM WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE BERM, OR AS DIRECTED BY THE OWNERS.
6. THE COMPOST FILTER BERM WILL BE REMOVED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE OWNERS.
7. INSTALL PERPENDICULAR TO FLOW.



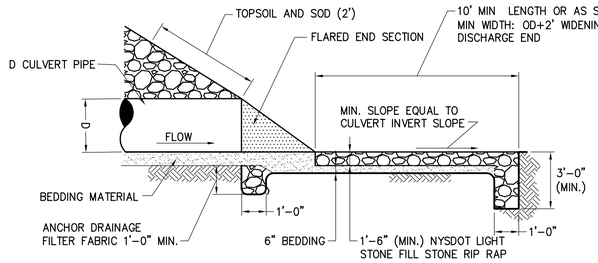
CHANNEL PLACEMENT

MAINTENANCE NOTES:
1. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
2. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES ½ OF THE EXPOSED HEIGHT OF THE PRACTICE AND DISPOSED OF IN ACCORDANCE WITH THE SWPPP.
3. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED IN THE MANNER REQUIRED BY THE MANUFACTURER OR REPLACED WITHIN 24 HOURS OF INSPECTION NOTIFICATION.
4. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTO-DEGRADABLE FILTER SOCKS AFTER 1 YEAR. POLY-PROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
5. UPON STABILIZATION OF THE AREA CONTRIBUTORY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK SHALL BE REMOVED. FOR REMOVAL THE MESH CAN BE CUT AND COMPOST SPREAD AS AN ADDITIONAL MULCH TO ACT AS A SOIL SUPPLEMENT.

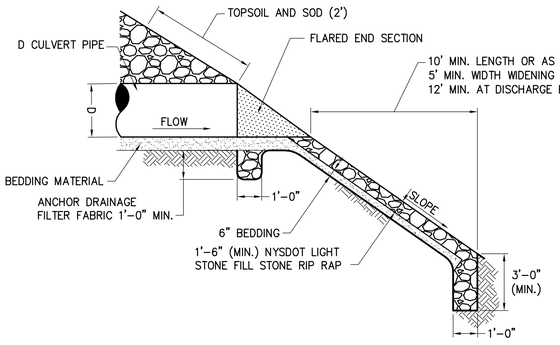


AT GRADE PLACEMENT

2 COMPOST FILTER SOCK DETAIL
SCALE: N.T.S.

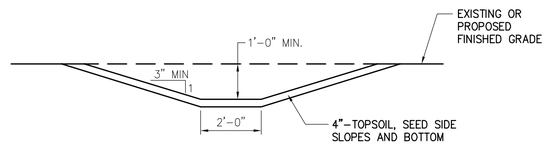


TYPICAL OUTFALL

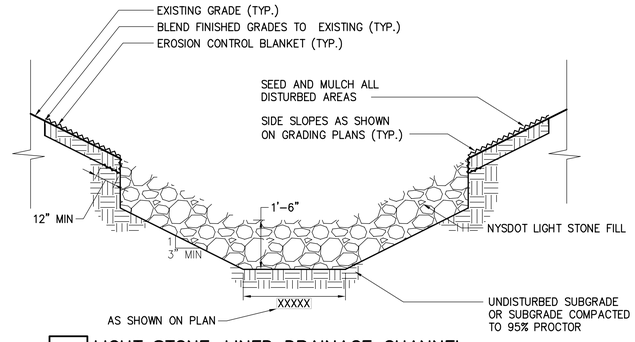


TYPICAL OUTFALL ON SLOPE

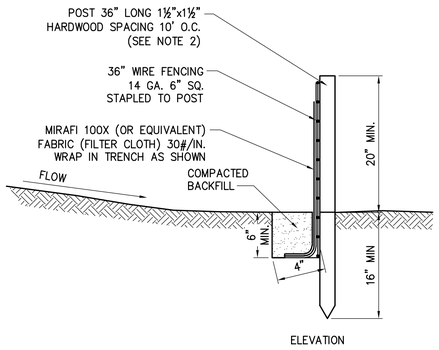
4 TYPICAL CULVERT OUTFALL RIP RAP
SCALE: N.T.S.



5 TYPICAL GRASS DRAINAGE SWALE
SCALE: N.T.S.



6 LIGHT STONE-LINED DRAINAGE CHANNEL
SCALE: N.T.S.



ELEVATION

NOTES:

1. TIE FABRIC TO WIRE FENCE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
2. IF EXTRA STRENGTH FABRIC (GREATER THAN 50#/INCH) IS USED, WIRE CAN BE DELETED IF POST SPACING IS REDUCED TO 6' O.C.
3. AT THE ENDS OF THE FENCING THE FIRST 20' SHALL BE TURNED UP THE SLOPE 2'.
4. POSTS SHOULD BE INCLINED TOWARD THE DIRECTION FLOW CAME FROM.
5. OVERLAP FABRIC A MINIMUM OF 6" AND FOLDED AT JOINTS. ATTACH FILTER FABRIC TO STAKES ALLOWING EXTENSION INTO TRENCH AS SHOWN; SECURE TO STAKES AS NOTED.
6. THE MAXIMUM AREA OF RUNOFF PER 100LF. OF FENCE SHALL NOT EXCEED 0.25 ACRES.
7. MAINTENANCE SHALL BE PERFORMED AS NECESSARY. THE FENCING SHALL BE CHECKED AFTER EVERY STORM TO ENSURE THEY'RE PROPER FUNCTIONING.
8. WHEN FENCE IS NO LONGER NEEDED, THE ACCUMULATED SILT, THE POSTS AND FABRIC SHALL BE REMOVED AND TRENCH BACK FILLED WITH TOPSOIL AND SEEDED.
9. FENCING SHOULD BE PLACED AS SHOWN ON THE DRAWING OR IF NOT SHOWN, 10' BEYOND THE TOE OF THE SLOPE AND AT A SPACING IN ACCORDANCE WITH THE TABLE.
10. EXCAVATE TRENCH AS PER DETAIL AND SET POSTS AT 10' O.C.
11. BACKFILL WITH COMPACTED, EXCAVATED SOIL FROM TRENCH.

3 SILT FENCE
SCALE: N.T.S.

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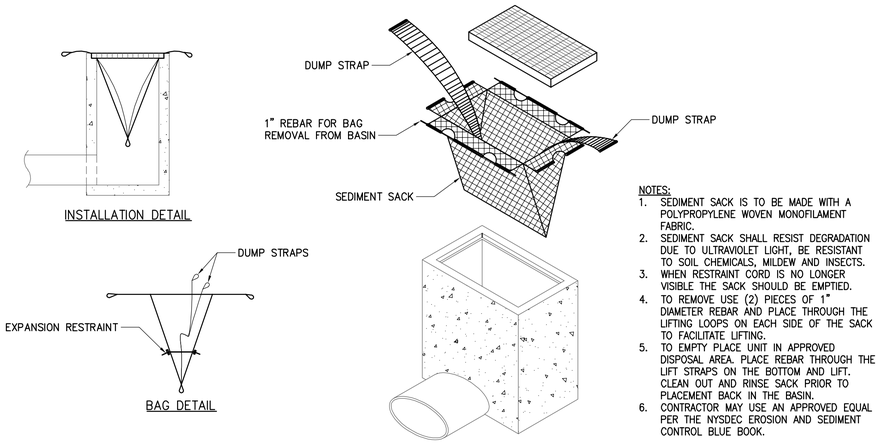
STATE OF NEW YORK JOSEPH P. ROMANO LICENSED PROFESSIONAL ENGINEER 081993

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	JJE	JPR

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
EROSION AND SEDIMENT CONTROL DETAILS

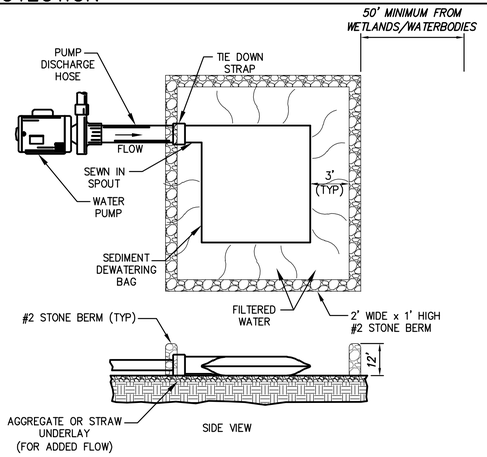
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-601

DRAWN BY: JJE | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE: AS NOTED | REV. NO.: X | DATE: 03/22/2023



NOTES:
1. SEDIMENT SACK IS TO BE MADE WITH A POLYPROPYLENE WOVEN MONOFILAMENT FABRIC.
2. SEDIMENT SACK SHALL RESIST DEGRADATION DUE TO ULTRAVIOLET LIGHT, BE RESISTANT TO SOIL CHEMICALS, MILDEW AND INSECTS.
3. WHEN RESTRAINT CORD IS NO LONGER VISIBLE THE SACK SHOULD BE EMPTIED.
4. TO REMOVE USE (2) PIECES OF 1" DIAMETER REBAR AND PLACE THROUGH THE LIFTING LOOPS ON EACH SIDE OF THE SACK TO FACILITATE LIFTING.
5. TO EMPTY PLACE UNIT IN APPROVED DISPOSAL AREA. PLACE REBAR THROUGH THE LIFT STRAPS ON THE BOTTOM AND LIFT. CLEAN OUT AND RINSE SACK PRIOR TO PLACEMENT BACK IN THE BASIN.
6. CONTRACTOR MAY USE AN APPROVED EQUAL PER THE NYSDEC EROSION AND SEDIMENT CONTROL BLUE BOOK.

1 INLET PROTECTION
SCALE: N.T.S.

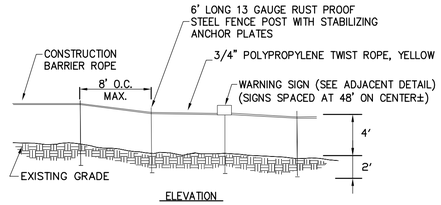


NOTE: THE SEDIMENT DEWATERING BAG WILL BE MANUFACTURED IN THE U.S.A. FROM A NONWOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

SEDIMENT DEWATERING BAG SPECIFICATIONS

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	0.9 (205) x 0.9 (205)
Grab Tensile Elongation	ASTM D 4632	%	50 x 50
Puncture Strength	ASTM D 4833	kN (lbs)	0.58 (130)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	2618 (380)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.36 (80) X 0.36 (80)
UV Resistence	ASTM D 4355	%	70
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.180 (80)
Flow Rate	ASTM D 4491	1/min/m² (gal/min/ft²)	3866 (95)
Permittivity	ASTM D 4491	Sec⁻¹	1.2

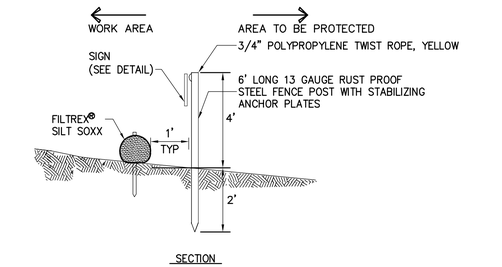
4 SEDIMENT DEWATERING BAG
SCALE: N.T.S.



ELEVATION

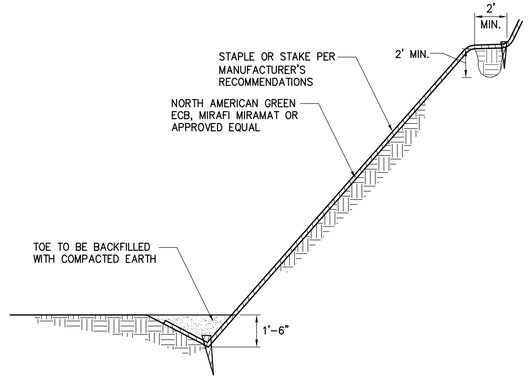
1. CONSTRUCTION BARRIER FENCE SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE PLANS PRIOR TO BEGINNING ANY WORK ADJACENT TO THESE AREAS.
2. THE CONTRACTOR SHALL INSTALL AT THE BEGINNING OF THE CONTRACT, AND MAINTAIN THROUGHOUT ITS DURATION.

2 WETLAND PROTECTION FENCE
SCALE: N.T.S.



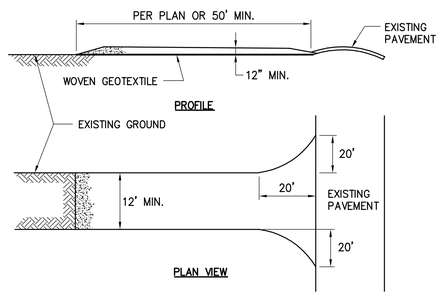
SECTION

WARNING SIGN DETAIL (OR APPROVED EQUAL)



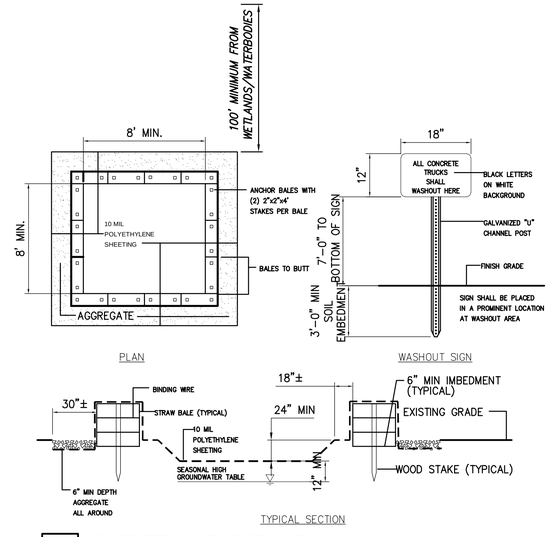
NOTE:
EROSION CONTROL BLANKETS TO BE INSTALLED ON SLOPES 3:1 OR GREATER (TYP.)

3 EROSION CONTROL BANK STABILIZATION DETAIL
SCALE: N.T.S.



1. STONE SIZE–USE AASHTO M43 SIZE 3 COARSE AGGREGATE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN 12".
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ACCESS TO SITE.
5. WOVEN GEOTEXTILE FABRIC WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. EXISTING ROAD SIDE DRAINAGE SHALL BE MAINTAINED.
7. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
8. MAINTENANCE–THE ACCESS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT OR STONE SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
9. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
10. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

5 STABILIZED CONSTRUCTION ACCESS
SCALE: N.T.S.



TYPICAL SECTION

MAINTENANCE NOTES:
1. ALL CONCRETE WASHOUT FACILITIES SHALL BE INSPECTED DAILY. DAMAGED OR LEAKING FACILITATES SHALL BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY. EXCESS RAINWATER THAT HAS ACCUMULATED OVER HARDENED CONCRETE SHALL BE PUMPED TO A STABILIZED AREA SUCH AS A GRASS FILTER STRIP.
2. ACCUMULATED HARDENED MATERIAL SHALL BE REMOVED WHEN 75% OF THE STORAGE CAPACITY OF THE STRUCTURE IS FILLED. ANY EXCESS WASH WATER SHALL BE PUMPED INTO A CONTAINMENT VESSEL AND PROPERLY DISPOSED OF OFF SITE.
3. DISPOSAL OF THE HARDENED MATERIAL SHALL BE OFF–SITE IN A CONSTRUCTION/DEMOLITION LANDFILL.
4. THE PLASTIC LINER SHALL BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.
5. INSPECT THE PROJECT SITE FREQUENTLY TO ENSURE THAT NO CONCRETE DISCHARGES ARE TAKING PLACE IN NON–DESIGNATED AREAS.
6. LOCATION(S) TO BE DETERMINED IN THE FIELD BY THE OWNER'S REPRESENTATIVE
7. CONCRETE WASHOUTS SHALL NOT BE LOCATED WITHIN 200' OF ANY KNOWN WELL.

6 CONCRETE WASHOUT AREA
SCALE: N.T.S.

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
EROSION AND SEDIMENT CONTROL DETAILS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-602

DRAWN BY: JJE | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE: AS NOTED | DATE: 03/22/2023 | REV. NO. X

DEWATERING PLAN:
CONSTRUCTION ACTIVITY WITHIN THE STREAM SHALL BE PROHIBITED BETWEEN OCTOBER 1 THROUGH MAY 31 FOR ALL STREAMS DESIGNATED AS TROUT WATER OR SUITABLE FOR TROUT SPAWNING.

DEWATERING PROCEDURES:
TRAPPED WATER WITHIN THE TRENCH SHALL BE DISCHARGED INTO A PORTABLE SEDIMENT TANK OR SEDIMENT FILTER BAGS LOCATED AWAY FROM THE WATERBODY TO PREVENT SILT-LADEN WATER FROM FLOWING INTO THE WATERBODY.

DAM AND PUMP CROSSING PROCEDURES:
BEFORE THE INITIATION OF ANY IN-STREAM ACTIVITIES, ALL MATERIAL ASSOCIATED WITH THE DAM AND PUMP SITE SET-UP MUST BE ON-HAND. THESE MATERIALS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
A)WATER BARRIERS
B)DOWNSTREAM SPLASH PLATE
C)PUMPS (PRIMARY AND SECONDARY) AND HOSES
D)FUEL FOR PUMPS (STORED AT LEAST ONE HUNDRED (100) FEET FROM WATERBODY)
E)SPILL PREVENTION AND CONTROL MATERIALS (INCLUDING SECONDARY CONTAINMENT FOR PUMPS LOCATED WITHIN ONE HUNDRED (100) FEET OF WETLAND OR WATERBODY)

ONCE THE NECESSARY MATERIALS ARE ON-LOCATION, SITE SET-UP MAY BEGIN. THE FIRST STEP IS TO SELECT AN APPROPRIATE LOCATION FOR THE PUMP INTAKE HOSE(S) TO BE POSITIONED. DEPENDING UPON THE CHANNEL CHARACTERISTICS, EITHER A NATURALLY OCCURRING DEEP SPOT OR CHANNEL WILL BE SELECTED AS A "SUMP"OR A SUMP MAY NEED TO BE CREATED TO PROVIDE SUFFICIENT WATER DEPTH FOR THE SCREENED HOSE INTAKE(S). IF A NATURAL SUMP IS NOT AVAILABLE FOR THE INTAKE HOSE, AN IN-STREAM SUMP WILL BE CREATED BY EXCAVATING WITHIN THE STREAM CHANNEL AND SURROUNDING THE EXCAVATION USING SANDBAGS.

THE FOLLOWING BMPS SHALL BE IMPLEMENTED AT THE INTAKE OR SUMP SITE:
A)ALL EQUIPMENT, MATERIAL, AND CONSTRUCTION PERSONNEL NECESSARY FOR THE CROSSING SHALL BE ON-SITE BEFORE SET-UP BEGIN
SB)UPON COMPLETION OF THE WATERBODY CROSSING ANY SANDBAGS UTILIZED FOR A SUMP SHALL BE REMOVED AND THE STREAM CHANNEL RESTORED TO PRE-CONSTRUCTION CONDITION
C)THE SUMP SHALL BE OF SUFFICIENT DEPTH TO PREVENT THE ENTRAINMENT OF EXCESSIVE AMOUNTS OF SEDIMENT INTO THE SUMP INTAKE, HOSE AND PUMP

DURING THE ASSEMBLY OF THE UPSTREAM AND DOWNSTREAM WATER BARRIERS, THE PUMPING NETWORK SHALL BE SETUP TO BEGIN THE TRANSFER OF WATER AROUND THE CONSTRUCTION WORK AREA.

THE PUMP INTAKE AND DISCHARGE HOSES SHALL BE APPROPRIATELY PLACED AND OF SUFFICIENT LENGTH, BASED UPON SITE-SPECIFIC CONDITIONS. THE INTAKE HOSE SHALL BE SCREENED TO PREVENT THE ENTRAINMENT OF FISH. DISCHARGE HOSES SHALL BE PROVIDED WITH SUPPORT OVER THE DITCH-LINE AS NEEDED TO PREVENT EXCESSIVE SAGGING AND REDUCTION OF PUMPING CAPACITY.

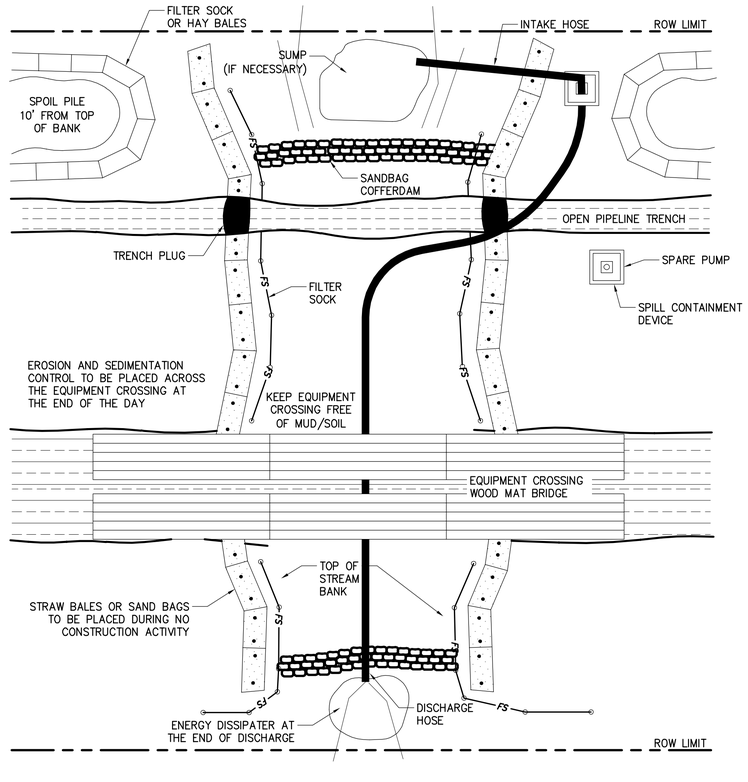
THE NUMBER AND SIZES OF PUMPS TO BE USED AT ANY CROSSING SHALL BE DEPENDENT UPON THE VOLUME OF WATER FLOWING AT THE TIME THE CROSSING IS MADE.

BMPS TO BE IMPLEMENTED DURING PUMP SET-UP INCLUDE:
A)PUMPS SHALL BE FUELED PRIOR TO PLACING THEM IN POSITION
B)IF IT IS NECESSARY TO REFUEL DURING THE PUMP OPERATION, EXTRA CARE SHALL BE TAKEN TO AVOID SPILLAGE AND SPILL CONTROL MATERIALS WILL BE READILY AVAILABLE ON SITE
C)SECONDARY CONTAINMENT SHALL BE PLACED UNDER THE PUMPS AS AN ADDITIONAL PRECAUTIONARY MEASURE TO PROTECT AGAINST ACCIDENTAL LEAKAGE OR SPILL
D)FUEL FOR FILLING THE PUMPS SHALL NOT BE STORED WITHIN ONE HUNDRED (100) FEET OF THE WATERBODY
E)THE INTAKE HOSE SHALL BE SCREENED TO PREVENT THE ENTRAINMENT OF FISH
F)THE END OF THE DISCHARGE HOSE SHALL BE MOUNTED UPON A SPLASH PLATE OR SIMILAR DEVICE OR IN A MANNER THAT WILL DISSIPATE THE ENERGY OF THE DISCHARGING WATER AND REDUCE OR ELIMINATE STREAMBED SCOUR
G)IF HOSES CROSS THE TEMPORARY ACCESS ROAD, THEY SHALL BE PROTECTED FROM TRAVELING EQUIPMENT
H)PUMP(S) SHALL BE OF SUFFICIENT CAPACITY TO TRANSFER TWICE THE CAPACITY OF THE ENTIRE STREAMFLOW AROUND THE CONSTRUCTION WORK AREA
I)RESERVE OR BACKUP PUMP(S) SHALL BE KEPT ON SITE AT ALL TIMES.

WATER BARRIER INSTALLATION

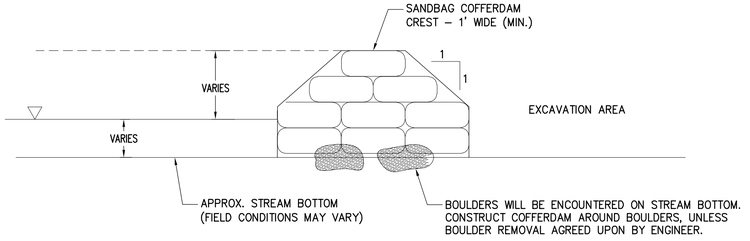
BETWEEN THE PUMP HOSE INTAKE OR SUMP HOLE AREA AND THE TRENCH, AS WELL AS DOWNSTREAM OF THE TRENCH, DAMS OF RELATIVELY IMPERVIOUS MATERIAL SHALL BE INSTALLED. THE UPSTREAM DAM SHALL BE COMPLETED FIRST. EVERY REASONABLE EFFORT SHALL BE MADE TO CONSTRUCT THE DAMS AS WATER TIGHT AS POSSIBLE.

THE FOLLOWING BMPS WILL BE IMPLEMENTED DURING WATER BARRIER INSTALLATION:
A)DAMS SHALL BE CONSTRUCTED OF EITHER SANDBAGS, WATER BLADDERS, STEEL PLATES, PORTA-DAMS OR EQUIVALENT OR "JERSEY BARRIERS"AND PLASTIC SHEETING OR A COMBINATION THEREOF
B)THE DAMS SHALL BE CONSTRUCTED OF SUFFICIENT HEIGHT TO ALLOW ADEQUATE FREEBOARD UNDER REASONABLY EXPECTED WATER LEVELS OR FLOWS AND PROVIDE FOR SOME IMPOUNDMENT OF WATER
C)PRIOR TO COMPLETION OF THE DAMS, THE PUMP(S) MUST BE STARTED IN ORDER TO PROVIDE DOWNSTREAM FLOW OF WATER AROUND THE CONSTRUCTION WORK AREA
D)THE RATE OF PUMPING SHALL BE MONITORED TO MINIMIZE DRAINING OF THE INTAKE SUMP AND THE RESULTING CESSATION IN FLOW. ALTERNATIVELY, PUMPING SHALL BE MONITORED AND INCREASED AS NECESSARY TO PREVENT OVERTOPPING OF THE DAMS.



1 DAM AND PUMP AROUND STREAM CROSSING
SCALE: N.T.S.

GENERAL SEQUENCE:
1. SCHEDULE CONSTRUCTION DURING LOW FLOW PERIOD, IF POSSIBLE.
2. SET UP PUMP AND HOSE AS SHOWN, OR USE PRACTICAL ALTERNATIVES. PUMP SHOULD HAVE TWICE THE PUMPING CAPACITY OR ANTICIPATED FLOW. HAVE STANDBY PUMP ON SITE. DEPENDING ON STREAM FLOW,DIG SUMP HOLE TO CONCENTRATE WATER AT INTAKE.
3. INSTALL UPSTREAM DAM COMPOSED OF SANDBAGS, METAL PLATING OR A COMBINATION OF BOTH. INSTALL DOWNSTREAM DAM, IF REQUIRED, TO KEEP STREAM BED DRY.
4. AFTER DAMS ARE IN PLACE, IT MAY BE NECESSARY TO USE ADDITIONAL PUMPS TO HANDLE STREAM FLOW.
5. EXCAVATE TRENCH AND LOWER IN PIPE UNDER HOSE. MOVE HOSE AS REQUIRED OR DISCONNECT, IF TEMPORARY FLOW BLOCKAGE IS ACCEPTABLE. BACKFILL TRENCH.
6. DISMANTLE DOWNSTREAM DAM, THEN UPSTREAM DAM. KEEP PUMP RUNNING TO MAINTAIN STREAM FLOW.
7. RESTORE STREAM BANKS AND APPROACHES FOR A MINIMUM DISTANCE OF AT LEAST 50 FEET FROM THE STREAM EDGES AND PERMANTENTLY STABLIZE WITHIN 1 DAY OF INITIAL RESTORATION.



2 SANDBAG COFFERDAM DETAIL
SCALE: N.T.S.

NOTES:
1. SAND BAGS SHALL BE FILTER FABRIC TYPE AND BE DOUBLE BAGGED.
2. PORTADAM, BY PORTADAM, INC. SHALL BE CONSIDERED ACCEPTABLE SUBSTITUTE TO SAND BAGS

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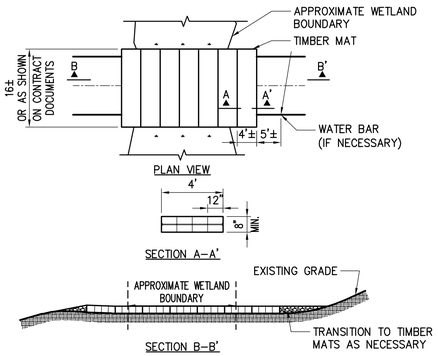
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	JE	JPR

DRAWN BY: JTM | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE AS NOTED | REV. NO. | DATE 03/22/2023

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
EROSION AND SEDIMENT CONTROL DETAILS

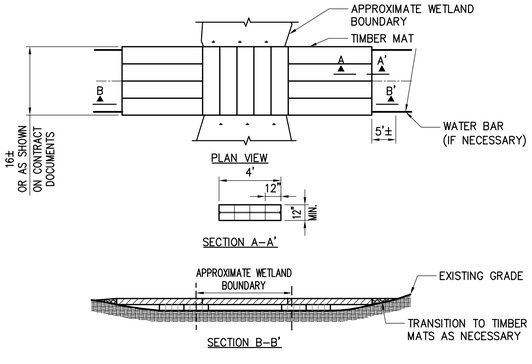
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-603



NOTES:
1. TIMBER MATS SHOULD BE INSTALLED IN WETLANDS AND OTHER AREAS IF NECESSARY TO PREVENT RUTTING.
2. BASED ON ACTUAL SITE CONDITIONS, MULTIPLE LAYERS OF TIMBER MATS MAY BE REQUIRED.
3. TIMBER MAT SURFACE SHOULD BE LEVEL TO PREVENT EQUIPMENT AND VEHICLES FROM SLIDING OFF DURING MUDDY OR ICING CONDITIONS, AND PREVENT TIMBERS FROM BREAKING.
4. SEDIMENT TRACKED ONTO TIMBER MATTING SHOULD BE REMOVED AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING WETLAND DURING RAIN EVENTS. SEDIMENT SHOULD BE REMOVED TO A STABILIZED SOIL STOCKPILE OR OTHER APPROVED LOCATION.
5. PERIMETER EROSION AND SEDIMENT CONTROLS ARE REQUIRED TO BE INSTALLED PRIOR TO PLACING TIMBER MATTING.
6. UNLESS PERMITTED FROM REMOVAL, STUMPS WITHIN THE WETLAND SHOULD REMAIN. THIS MAY REQUIRE ADDITIONAL TIMBERS TO BRIDGE ABOVE.
7. UPON REMOVAL OF TIMBER MATTING ALL SPLINTERED WOOD SHOULD BE REMOVED. IF EXPOSED SOILS ARE PRESENT STRAW MULCH SHOULD BE APPLIED.

NOTE: GEOTEXTILE FABRIC TO BE INSTALLED UNDER MATTING (TYP)

OPTION "A"
NOT TO SCALE



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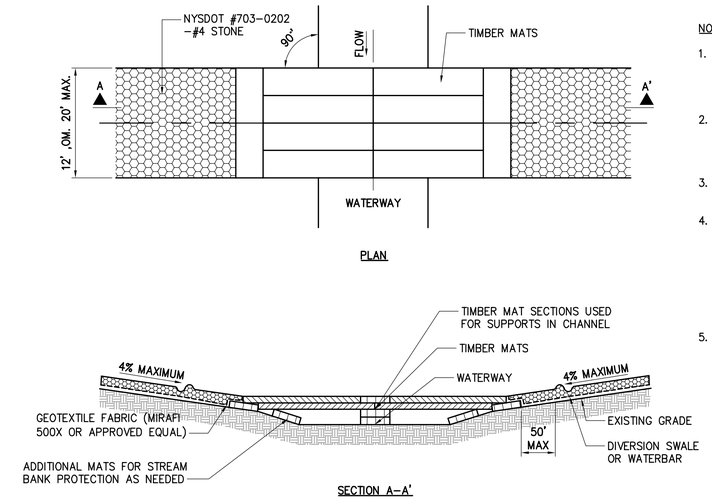
NOTE: GEOTEXTILE FABRIC TO BE INSTALLED UNDER MATTING (TYP)

OPTION "B"
NOT TO SCALE



NOTES:

1. IN–STREAM EXCAVATION SHOULD BE COMPLETED IN ACCORDANCE WITH "TEMPORARY ACCESS WATERWAY CROSSING" ON PAGE 2.32 OF THE 2016 NYSDEC STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (OR NEWEST VERSION) AND THE CERTIFICATE.
2. THE CONSTRUCTION OF ANY CROSSING SHOULD NOT CAUSE A SIGNIFICANT WATER LEVEL DIFFERENCE BETWEEN THE UPSTREAM AND DOWNSTREAM WATER SURFACE ELEVATIONS. IN–STREAM WORK WILL BE PROHIBITED WITHIN COLD WATER TROUT FISHERIES FROM OCTOBER 1 TO MAY 31.
3. ALL FILL MATERIALS ASSOCIATED WITH THE ROADWAY APPROACH SHOULD BE LIMITED TO A MAXIMUM HEIGHT OF 2 FEET ABOVE THE EXISTING FLOOD PLAIN ELEVATION.
4. A WATER DIVERTING STRUCTURE SUCH AS A SWALE OR WATER BAR SHOULD BE CONSTRUCTED (ACROSS THE ROADWAY ON BOTH ROADWAY APPROACHES) 50 FEET (MAXIMUM) ON EITHER SIDE OF THE WATERWAY CROSSING. THIS WILL PREVENT ROADWAY SURFACE RUNOFF FROM DIRECTLY ENTERING THE WATERWAY. THE 50 FEET MEASURED IS MEASURED FROM THE TOP OF THE WATERWAY BANK. IF THE ROADWAY APPROACH IS CONSTRUCTED WITH A REVERSE GRADE AWAY FROM THE WATERWAY, A SEPARATE DIVERTING STRUCTURE IS NOT REQUIRED.
5. ALL CROSSINGS SHOULD HAVE ONE TRAFFIC LANE. THE MINIMUM WIDTH SHOULD BE 12 FEET WITH A MAXIMUM WIDTH OF 20 FEET.

OPTION "C"
NOT TO SCALE

1 TIMBER MATTING
SCALE: N.T.S.

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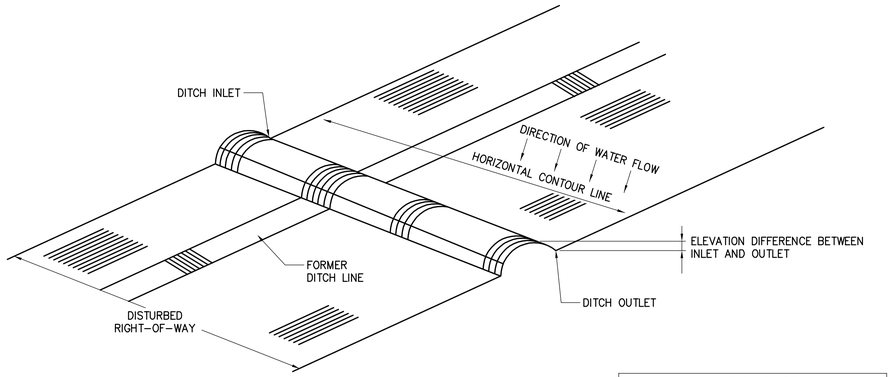
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
WETLAND CROSSING DETAILS

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. C-611



WATER SHALL BE DIVERTED OFF THE DISTURBED RIGHT-OF-WAY AT AN OUTSLOPE OF THREE TO FIVE PERCENT BY CONSTRUCTING DIVERSION DITCH ACCORDING TO THE FOLLOWING PROCEDURES:

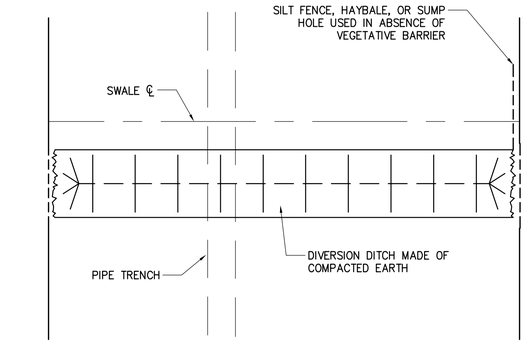
1. AT THE PROPOSED INTERCEPTOR DITCH LOCATION ESTABLISH A HORIZONTAL CONTOUR LINE (USING A POCKET TRANSIT OR HAND LEVEL) WHICH EXTENDS COMPLETELY ACROSS THE DISTURBED RIGHT-OF-WAY. THIS LINE WILL ALWAYS BE PERPENDICULAR TO THE DIRECTION OF WATER FLOW AND SHOULD BE PARALLEL TO THE MAP CONTOURS SHOWN ON THE PLAN DRAWINGS.
2. DETERMINE WHICH SIDE OF THE RIGHT-OF-WAY IS BEST SUITED FOR THE DITCH OUTLET (EVALUATE VEGETATION DENSITY, LOCAL TOPOGRAPHY, ETC.) AND DEVIATE DIKE AWAY FROM THE HORIZONTAL CONTOUR LINE SLIGHTLY DOWNWARD TOWARD THE SELECTED OUTLET SIDE MAINTAINING A THREE TO FIVE PERCENT SLOPE. AS AN EXAMPLE, THE CHART AT THE RIGHT SHOWS DIMENSIONS ASSUMING A FOUR PERCENT SLOPE.
3. WHEN OUTLETTING NEAR WATER BODIES, STREAMS, DITCHES, & CROP FIELDS, A FILTER FENCE OR STRAW BALE FENCE SHOULD BE PLACED ON OUTLET END OF THE DIVERSION DITCH.

4% FLOW CHART	
HORIZONTAL DISTANCE BETWEEN WATERBAR INLET & OUTLET (FEET)	ELEVATION DISTANCE BETWEEN WATERBAR INLET AND OUTLET (FEET)
75	3
100	4
125	5
150	6
175	7

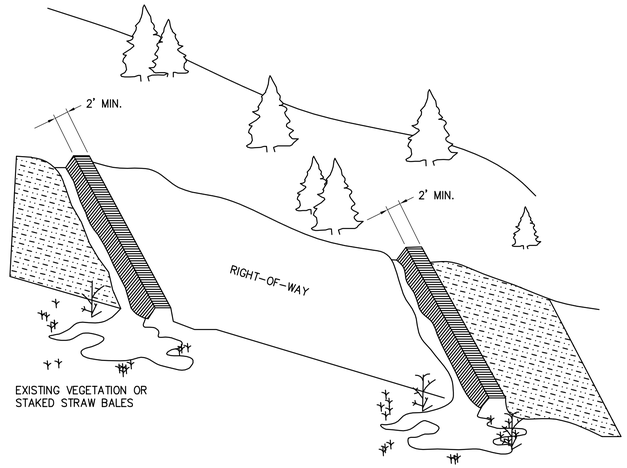
TEMPORARY DRAINAGE DITCH

NOTES:

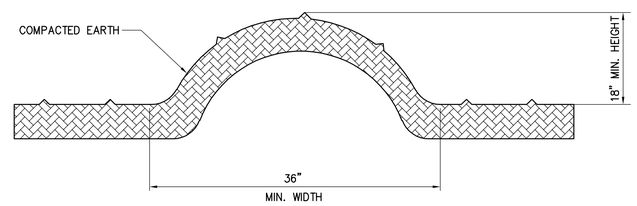
1. TEMPORARY DIVERSION DITCH SHOULD BE BUILT SIMILAR TO THE PERMANENT DITCH CONFIGURATION BUT THE DIMENSION CAN BE SCALED BACK.
2. MAXIMUM HEIGHT SHOULD BE 12" AND SHOULD BE COMPACTED.
3. SPACING BETWEEN DIVERSION DITCHES AND SKEW OF THE DIVERSION DITCHES CAN VARY FROM THE PERMANENT DIVERSION DITCHES.
4. WHEN CONSTRUCTING TEMPORARY DIVERSION DITCHES THEY SHOULD BE FUNCTIONAL, WHILE MAINLINE CONSTRUCTION IS PROCEEDING, UNTIL RESTORATION BEGINS AND PERMANENT DIVERSION DITCHES ARE THEN CONSTRUCTED.



OVERHEAD VIEW



1 PERMANENT DIVERSION DITCH DETAIL
SCALE: N.T.S.



2 MINIMAL HEIGHT & WIDTH DIMENSIONS FOR WATERBAR CONSTRUCTION
SCALE: N.T.S.

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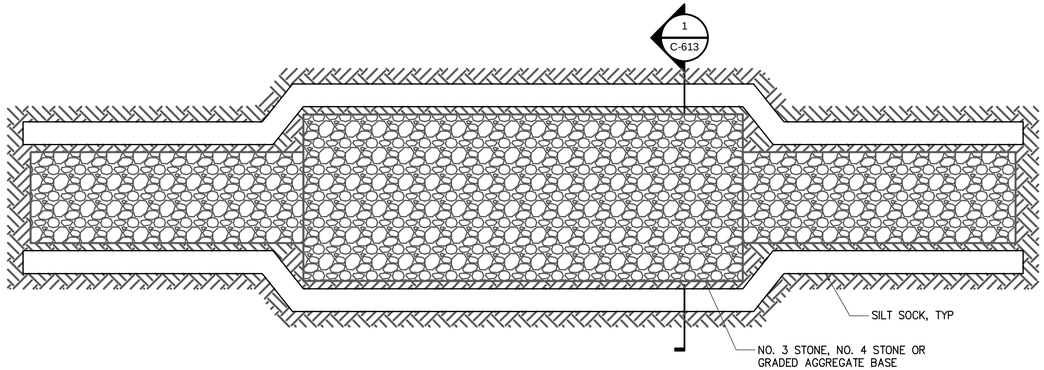
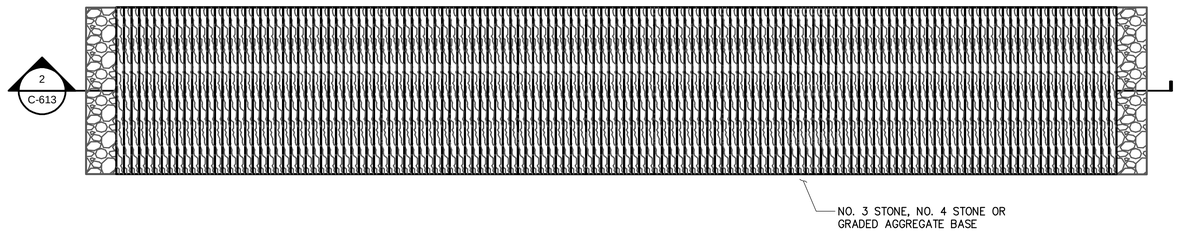
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
WATERBAR DETAILS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-612

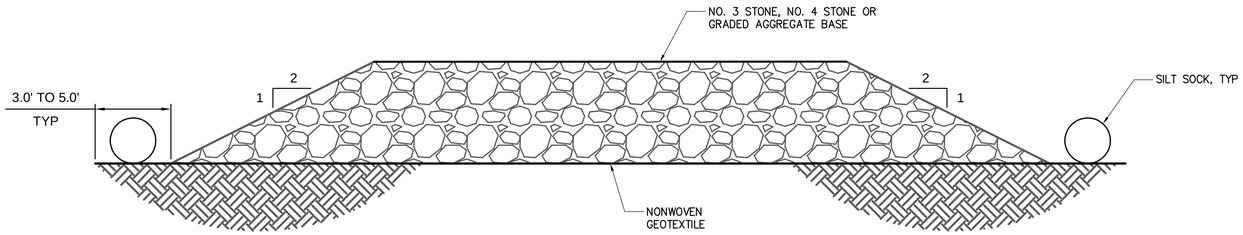
DRAWN BY: JTM | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE: AS NOTED | REV. NO. | DATE: 03/22/2023



WETLAND WORKING SURFACE PLAN – OPTION A
NOT TO SCALE



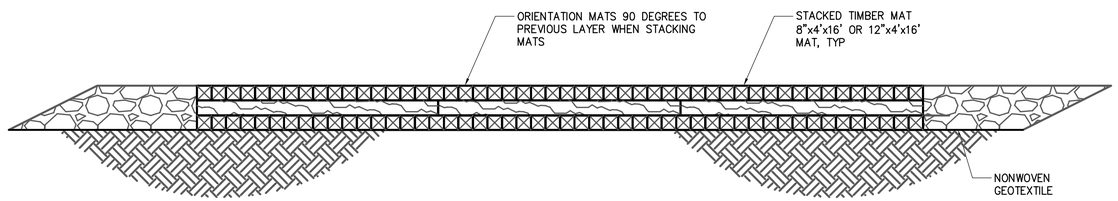
WETLAND WORKING SURFACE PLAN – OPTION B
NOT TO SCALE



1 SECTION
NOT TO SCALE

NOTES:

1. *UNDERCUT AND REMOVE TOP SOIL PRIOR TO PLACING GEOTEXTILE FABRIC.*
2. *A LAYER OF CLEAN CRUSHED STONE SHALL BE LAID ON TOP OF THE GEOTEXTILE FABRIC.*
3. *GEOTEXTILE FABRIC SHALL EXTEND AT LEAST 3 FT TO 5 FT BEYOND THE EDGE OF STONE PLACEMENT TO MINIMIZE STONE ENTERING THE WETLAND AND FACILITATE REMOVAL OF THE ROAD.*
4. *SUITABLE CROSS DRAINING SHALL BE PROVIDED ACROSS THE ROAD FOR STREAM CHANNELS AND SURFACE FLOW.*
5. *AREA TO BE RESTORED IN ACCORDANCE WITH THE EM&CP SECTION 14*



2 SECTION
NOT TO SCALE

NOTES:

1. *TIMBER MATS SHOULD BE INSTALLED IN WETLANDS AND OTHER AREAS IF NECESSARY TO PREVENT RUTTING.*
2. *BASED ON ACTUAL SITE CONDITIONS, NUMBER OF TIMBER MAT LAYERS TO BE DETERMINED ON SITE.*
3. *TIMBER MAT SURFACE SHOULD BE LEVEL TO PREVENT EQUIPMENT AND VEHICLES FROM SLIDING OFF DURING MUDDY OR ICING CONDITIONS, AND PREVENT TIMBERS FROM BREAKING.*
4. *SEDIMENT TRACKED ONTO TIMBER MATTING SHOULD BE REMOVED AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING WETLAND DURING RAIN EVENTS. SEDIMENT SHOULD BE REMOVED TO A STABILIZED SOIL STOCKPILE OR OTHER APPROVED LOCATION.*
5. *PERIMETER EROSION AND SEDIMENT CONTROLS ARE REQUIRED TO BE INSTALLED PRIOR TO PLACING TIMBER MATTING.*
6. *UNLESS PERMITTED FROM REMOVAL, STUMPS WITHIN THE WETLAND SHOULD REMAIN. THIS MAY REQUIRE ADDITIONAL TIMBERS TO BRIDGE ABOVE.*
7. *UPON REMOVAL OF TIMBER MATTING ALL SPLINTERED WOOD SHOULD BE REMOVED. IF EXPOSED SOILS ARE PRESENT STRAW MULCH SHOULD BE APPLIED.*
8. *IF DEEMED NECESSARY BY CONSTRUCTION IN THE FIELD, GEOTEXTILE FABRIC TO BE INSTALLED UNDER MATTING. (TYP)*
9. *AREA TO BE RESTORED IN ACCORDANCE WITH THE EM&CP SECTION 14.*

GENERAL NOTES:

1. *TIMBER:*
   A. TIMBER SHALL BE SELECT STRUCTURAL MIXED OAK WITH A MINIMUM BENDING STRESS OF 1250 PSI OR BETTER.
2. *CONTRACTOR TO VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. ANY ERRORS, OMISSIONS, OR UNUSUAL CONDITIONS ARE TO BE REPORTED TO THE TEMPORARY STRUCTURES AND CONSTRUCTION DEVICES ENGINEER IMMEDIATELY.*

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1	04/06/2023	REVISED PER DPS COMMENTS	JTM	JPR
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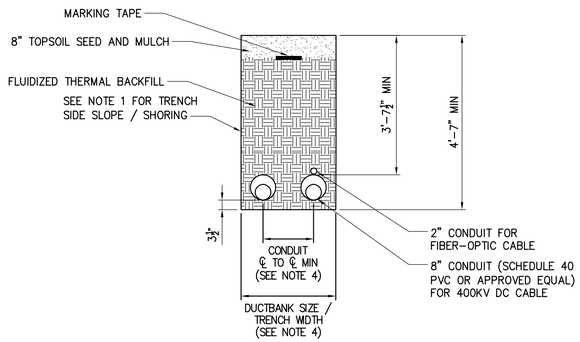
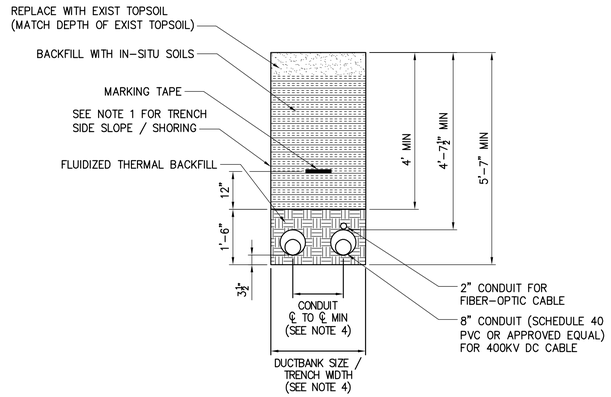
DRAWN BY: XXX DESIGNED BY: XXX APPROVED BY: XXX

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
WETLAND WORKING SURFACE PLAN

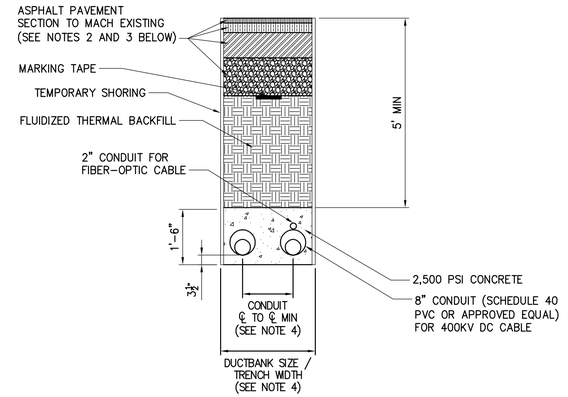
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-613
SCALE	AS NOTED
REV. NO.	X
DATE	03/22/2023
	XXX



OPEN TRENCH



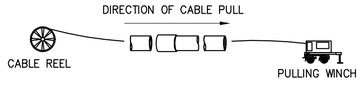
OPEN TRENCH WITHIN AGRICULTURAL LANDS

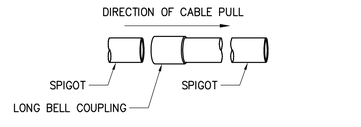


DUCTBANK IN ROADWAY

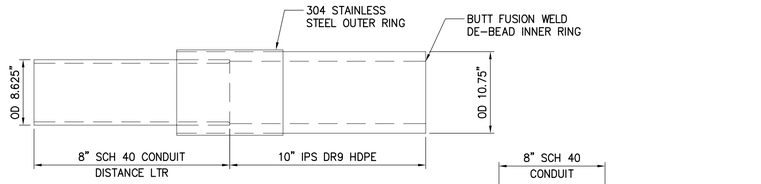
NOTES:
1. SLOPING, BENCHING, OR SHORING SHALL BE IN ACCORDANCE WITH OSHA EXCAVATION STANDARDS, 29 CFR PART 1926, SUBPART P. AT LOCATIONS WHERE THE TRENCH IS NOT SHORED, SLOPING AND/OR BENCHING WILL DEPEND ON TYPE OF SOILS ENCOUNTERED ON SITE. SLOPE FROM EDGE OF ROADWAY TO BOTTOM OF EXCAVATIONS MAY BE FLATTER THAN 2:1 (H:V) FOR AASHTO HS-20 LOADING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EVALUATING SLOPE STABILITY BASED ON ACTUAL EQUIPMENT FOR SITE OPERATIONS AS DETERMINED BY A GEOTECHNICAL ENGINEER.
2. SEE DETAIL 4 ON DETAIL SHEET C-631 FOR PAVEMENT TRANSITION DETAIL.
3. SEE SHEET C-631 FOR SURFACE RESTORATION DETAILS.
4. SEE PLAN AND PROFILE SHEETS FOR CONDUIT ℄ TO ℄ AND DUCTBANK SIZE TRENCH WIDTH (NOTE ABOVE PROFILE VIEW).

1 TYPICAL TRENCHING DETAILS
NOT TO SCALE





5 TYPICAL COUPLING DIRECTION OF PULL DETAIL
NOT TO SCALE



NOTE:
THIS TRANSITION COUPLING COMES ASSEMBLED AS A UNIT. POLY-CAM, ISCO INDUSTRIES P/N: 737-1008PVC40PVI09 TRANSITION COUPLING SHALL ARRIVE FROM VENDOR WITH NO ROUGH EDGES OR PROTRUSIONS ON INTERIOR. INTEGRITY OF COUPLING TO BE FIELD-VERIFIED PRIOR TO INSTALLATION. IF UNSATISFACTORY, CONTRACTOR TO SHAPE OR SAND MINOR IRREGULARITIES PRIOR TO INSTALLATION.

6 8"-10" PVC/HDPE TRANSITION COUPLING
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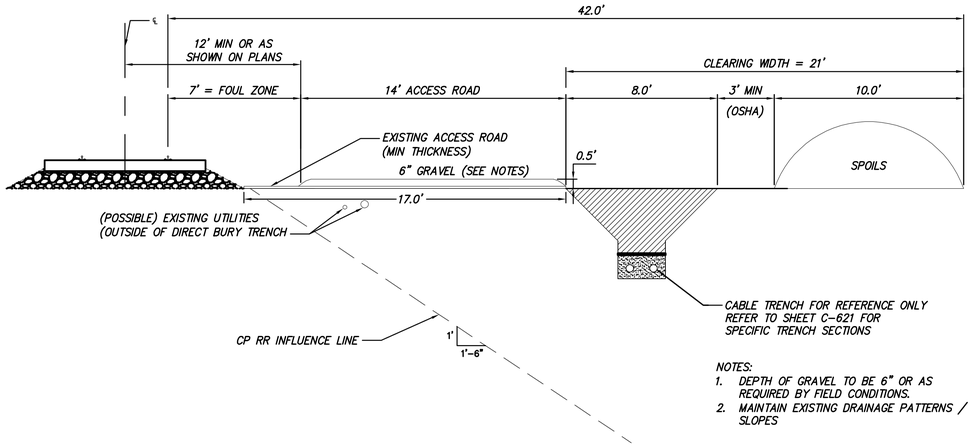
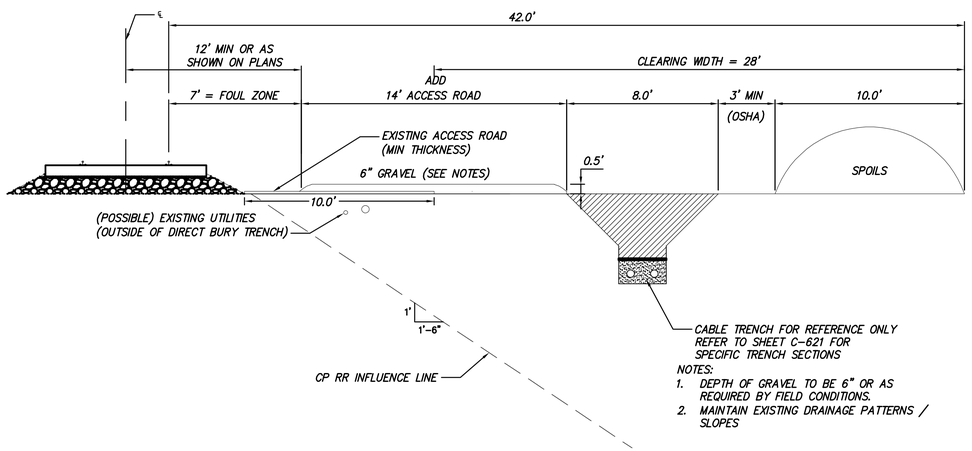
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
TRENCH CROSS SECTION DETAILS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-621
DRAWN BY: JJE	DESIGNED BY: JTM
APPROVED BY: JPR	SCALE AS NOTED
REV. NO. X	DATE 03/22/2023



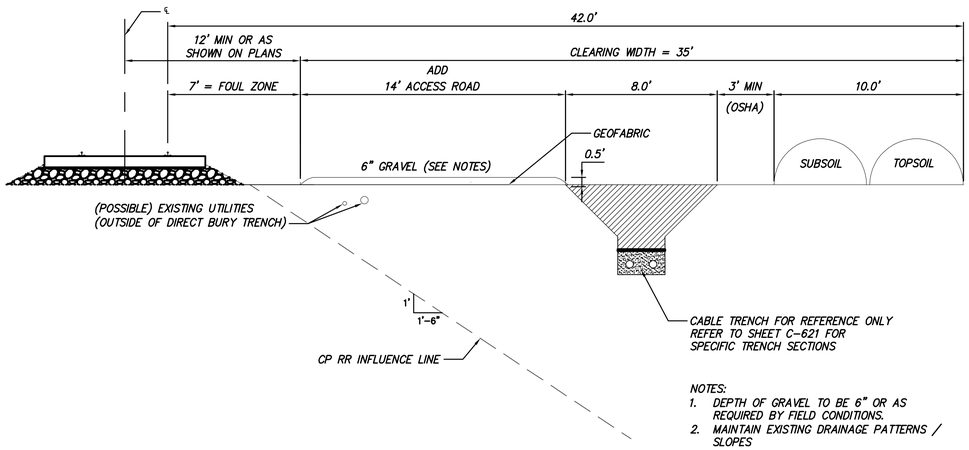
NOTES:
1. DEPTH OF GRAVEL TO BE 6" OR AS REQUIRED BY FIELD CONDITIONS.
2. MAINTAIN EXISTING DRAINAGE PATTERNS / SLOPES

TYPE 1
EXISTING, MINOR REFURBISHMENT



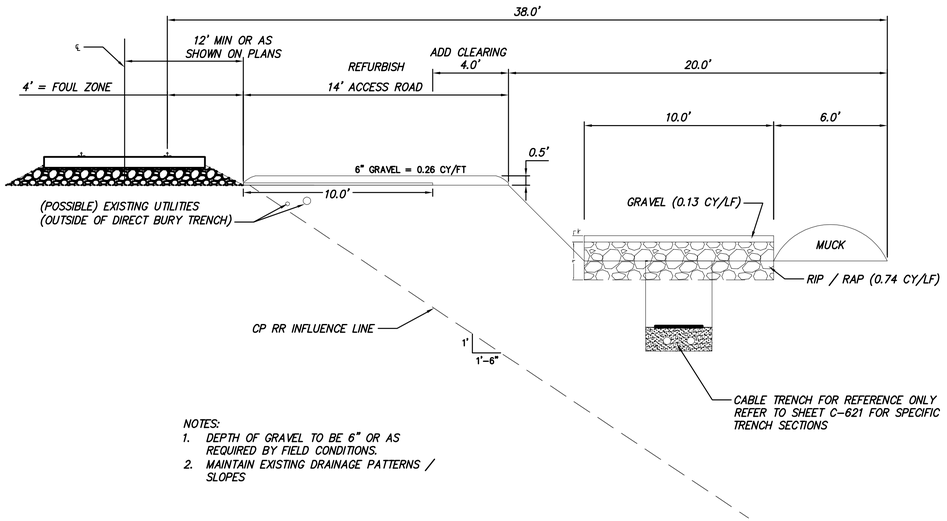
NOTES:
1. DEPTH OF GRAVEL TO BE 6" OR AS REQUIRED BY FIELD CONDITIONS.
2. MAINTAIN EXISTING DRAINAGE PATTERNS / SLOPES

TYPE 2
EXISTING, MAJOR REFURBISHMENT



NOTES:
1. DEPTH OF GRAVEL TO BE 6" OR AS REQUIRED BY FIELD CONDITIONS.
2. MAINTAIN EXISTING DRAINAGE PATTERNS / SLOPES

TYPE 3
BUILD NEW



NOTES:
1. DEPTH OF GRAVEL TO BE 6" OR AS REQUIRED BY FIELD CONDITIONS.
2. MAINTAIN EXISTING DRAINAGE PATTERNS / SLOPES

TYPE 4A
WETLAND

NOTE: CLEARING WIDTH DEPICTED ARE APPROXIMATE AND ASSUME THERE ARE NO ENVIRONMENTAL OR PROPERTY CONSTRAINTS. THE PROPOSED LIMITS OF WORK, CLEARING AND DISTURBANCE BASED ON FIELD CONDITIONS ARE DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

CHPE Champlain Hudson Power Express

Kiewit

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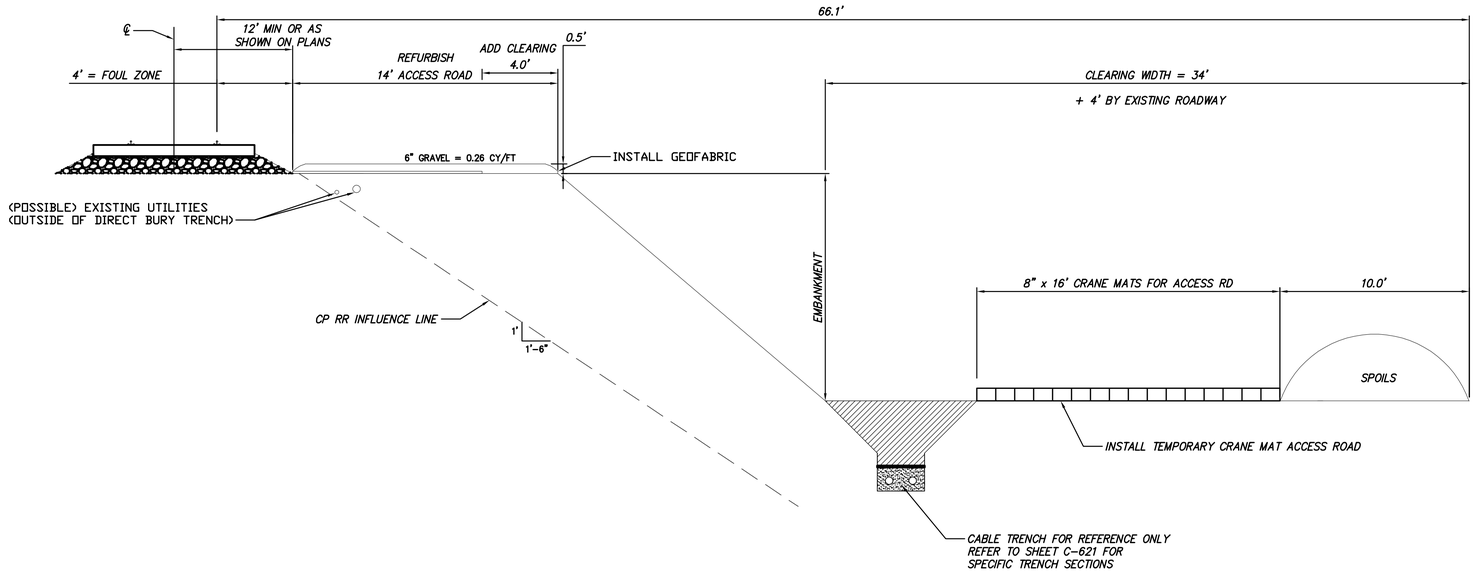
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	JJE	JPR

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
TYPICAL ACCESS ROAD CROSS SECTIONS

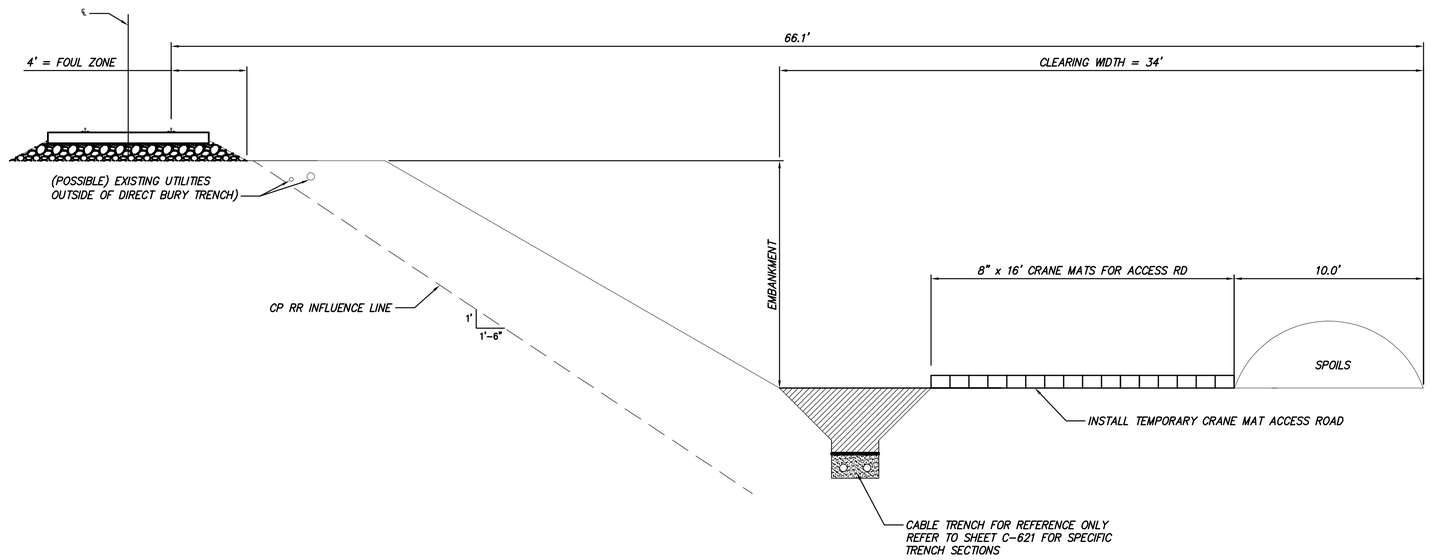
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-622

DRAWN BY: JJE | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE AS NOTED | DATE 03/22/2023 | REV. NO. X



TYPE 4

REFURBISH ACCESS NEXT TO RAIL. BUILD TEMP ACCESS AT TOE OF SLOPE



TYPE 5

BUILD TEMP ACCESS AT TOE OF SLOPE

NOTE: CLEARING WIDTHS DEPICTED ARE APPROXIMATE AND ASSUME THERE ARE NO ENVIRONMENTAL OR PROPERTY CONSTRAINTS. THE PROPOSED LIMITS OF WORK, CLEARING AND DISTURBANCE BASED ON FIELD CONDITIONS ARE DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

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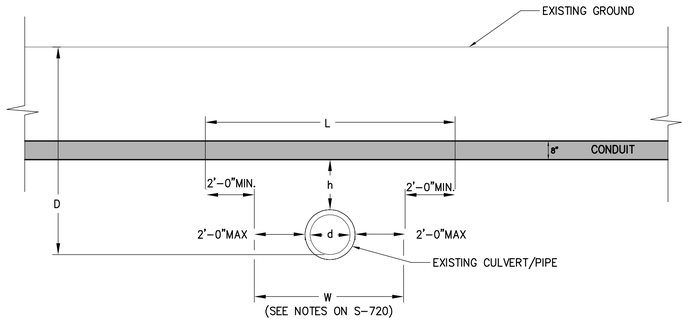
CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY

TYPICAL ACCESS ROAD CROSS SECTIONS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-623

DRAWN BY: JJE | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE AS NOTED | DATE 03/22/2023 | REV. NO. X



1 TYPICAL DUCTBANK SECTION OVER EXISTING CP RAIL CULVERT OUTLET

NOT TO SCALE

NOTES:
1. DUCT BANK TO BE 2.0' MIN ABOVE OR BELOW EXISTING CULVERTS.

Package	Sheet Number	CP Rail Mile Post	Station	Utility	Size "d"	Exist. Ground Elev. (ft.)*	Invert (ft.)*	D (ft.)*	h (ft.)	L (ft.)
Package 2	C-115	68.39	20217+20	Storm Drainage Pipe/Culvert	24"	137.6	121.5	16.1	6.53	10
Package 2	C-116	68.22	20225+96	Storm Drainage Pipe/Culvert	36" x 30"	135.3	124.7	10.6	2.76	11
Package 2	C-124	65.98	20345+93	Storm Drainage Pipe/Culvert	20"	137.4	125.8	11.6	6.3	20
Package 2	C-124	65.87	20351+16	Storm Drainage Pipe/Culvert	18"	137.8	128.1	9.7	4.4	5.5

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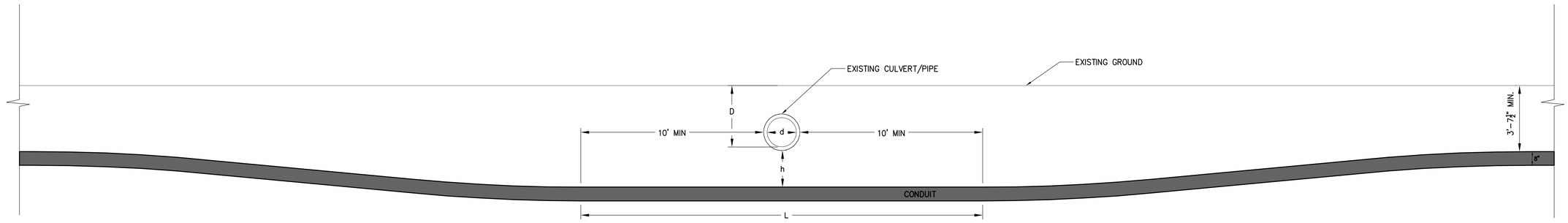
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
TYPICAL CULVERT SECTION (1 OF 3)

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-624

DRAWN BY: JJE | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE AS NOTED | REV. NO. X | DATE 03/22/2023



2 TYPICAL DUCTBANK SECTION UNDER EXISTING CP RAIL CULVERT OUTLET

NOT TO SCALE

NOTES:

1. DUCT BANK TO BE 2.0' MIN ABOVE OR BELOW EXISTING CULVERTS.

Package	Sheet Number	CP Rail Mile Post	Station	Utility	Size "d"	Exist. Ground Elev. (ft.)*	Invert (ft.)*	D (ft.)*	h (ft.)*	L (ft.)
Package 2	C-305/C-305.1/C-305A/C-305A.1	68.66	20203+20	Storm Drainage Pipe/Culvert	60"	140.6	126.1	14.7	22.3	25
Package 2	C-308/C-308A	66.92	20296+00	Storm Sewer	18"	136.8	137.2	-0.3	27.5	21.5
Package 2	C-127	65.1	20390+96	Storm Drainage Pipe/Culvert	48"	126.4	127.4	1.7	22.1	24
Package 2	C-311A	63	20501+97	Storm Drainage Pipe/Culvert	36"	142.4	133.9	13.8	20.6	34.5
Package 2	C-312/C-312A	62.11	20548+88-20549+00	Storm Drainage Pipe/Culvert	48"	136.2	137.7	8.4	17	34
Package 2	C-313A	60.15	20651+66	Storm Drainage Pipe/Culvert	UNKNOWN	142.1	140.5	1.6	22	30.5

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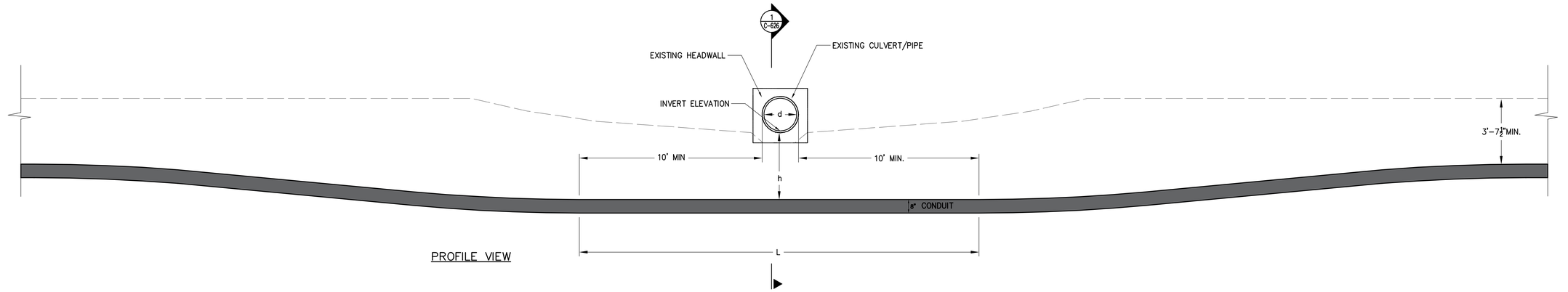
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
TYPICAL CULVERT SECTION (2 OF 3)

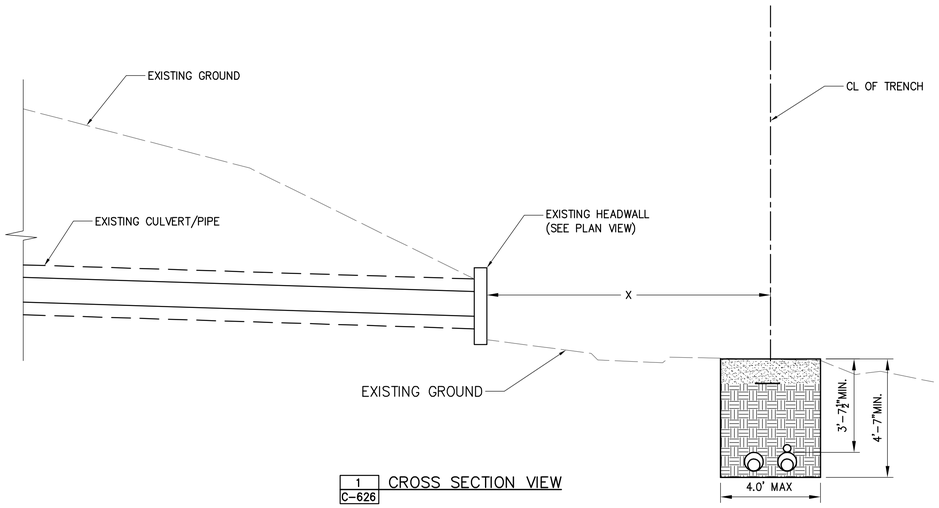
DRAWN BY: JJE | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE AS NOTED | REV. NO. X | DATE 03/22/2023

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. C-625

File: V:\PROJECTS\ANY\K6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\C-624 TYPICAL CULVERT OVER SECTION.DWG Saved: 2/21/2023 11:41:43 AM Plotted: 3/17/2023 10:20:41 AM Current User: McEnaney III, James LastSavedBy: 8314



PROFILE VIEW



1 / C-626 CROSS SECTION VIEW

Package	Sheet Number	CP Rail Mile Post	Station	Utility	Size "d"	Exist. Ground Elev. (ft.)*	Invert (ft.)*	h (ft.)	L (ft.)	x (ft.)
Package 2	C-306/C-306.1/C-306A/C-306A.1	67.66	20255+75	Storm Drainage Pipe/Culvert	12.5' x 10.4'	125.8	121.6	20.2	38.5	32.5
Package 2	C-121	66.8	20301+77	Storm Drainage Pipe/Culvert	18"	124.5	122.8	3.1	21.5	7.2
Package 2	C-122	66.52	20316+90	Storm Drainage Pipe/Culvert	12"	126.5	126.6	2	24.7	4.5
Package 2	C-310/C-310A	64.57	20421+25	Storm Drainage Pipe/Culvert	96"	127.9	120.7	5.2	28	5.2
Package 2	C-129	64.48	20425+91	Storm Drainage Pipe/Culvert	42"	130.5	128.8	8.5	23.5	10
Package 2	C-130	64.28	20436+53	Storm Drainage Pipe/Culvert	24"	130.3	129.7	3.2	22	10
Package 2	C-130	64.08	20446+84	Storm Drainage Pipe/Culvert	24"	129.9	128.5	3	22	8.3
Package 2	C-131	63.97	20451+81	Storm Drainage Pipe/Culvert	18"	132	130.9	2	21.5	14.1
Package 2	C-132	63.54	20473+68	Storm Drainage Pipe/Culvert	UNKNOWN SIZE	132.7	133	4.4	22	7.7
Package 2	C-133	63.23	20490+00	Arch Concrete Creek Crossing - North of Route 149	UNKNOWN SIZE	133.1	133.1	3.5	22	9.5
Package 2	C-135	62.63	20520+78	Storm Drainage Pipe/Culvert	36"	136.7	134.9	2.6	23	28.9
Package 2	C-136	62.38	20534+63	Storm Drainage Pipe/Culvert	36"	142.9	139.8	0.89	23	29.9
Package 2	C-139	61.54	20579+46	Storm Drainage Pipe/Culvert	48"	141.6	140.6	3.3	24	30
Package 2	C-140	61.37	20588+67-20588+30	Storm Drainage Pipe/Culvert	30", 36"	140.3	137.4	0.5	25.5	34.9
Package 2	C-141	60.89	20614+48	Storm Drainage Pipe/Culvert	24"	146.6	141	2.2	22	16.1
Package 2	C-314A	59.27	20700+03	Storm Drainage Pipe/Culvert	48"	140.1	137.7	23.3	24	12.8
Package 2	C-148	58.96	20716+83	Storm Drainage Pipe/Culvert	24"	142.6	141.1	3	22	30.5
Package 2	C-151	58.15	20760+68	Storm Drainage Pipe/Culvert	30"	134.6	132.7	22.3	22.5	197.8
Package 2	Not Available	57.75	20773+89	Storm Drainage Pipe/Culvert	36"	135.5	132.8	19.5	23	482.7

3 TYPICAL DUCTBANK SECTION NEAR EXISTING CP RAIL CULVERT OUTLET

NOT TO SCALE

NOTES:

1. DUCT BANK TO BE 2.0' MIN ABOVE OR BELOW EXISTING CULVERTS.

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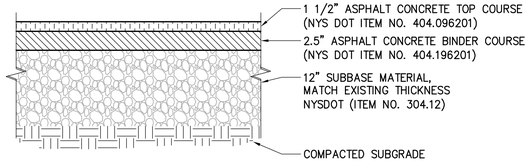
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
TYPICAL CULVERT SECTION (3 OF 3)

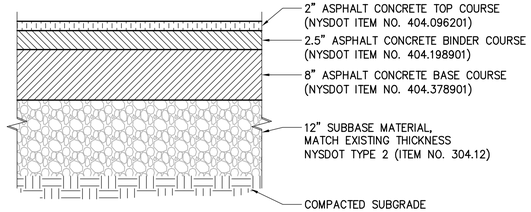
DRAWN BY: JJE | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE AS NOTED | REV. NO. X | DATE 03/22/2023

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. C-626



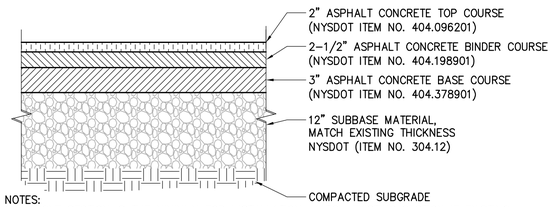
NOTES:
1. ABOVE SECTION IS THE MINIMUM FOR INSTALLATION. MATCH EXISTING SECTION IF EXISTING THICKNESS IS GREATER
2. ALL MATERIALS TO MEET NYSDOT STANDARD SPECIFICATIONS.
3. APPLY STRAIGHT TACK COAT BETWEEN PAVEMENT SECTIONS NYSDOT ITEM NO.407.0103
4. PRIVATE COMMERCIAL DRIVEWAYS TO UTILIZE COMMERCIAL DRIVEWAY SPECIFICATIONS AS SHOWN ON THE NYSDOT STANDARD SHEETS.

1 ASPHALT CONCRETE PAVEMENT DETAIL (PRIVATE DRIVEWAY)
SCALE: N.T.S.



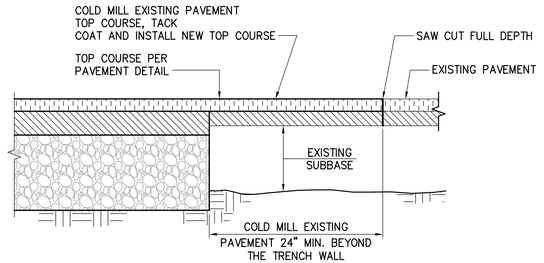
NOTES:
1. ABOVE SECTION IS THE MINIMUM FOR INSTALLATION. MATCH EXISTING SECTION IF EXISTING THICKNESS IS GREATER
2. ALL MATERIALS TO MEET NYSDOT STANDARD SPECIFICATIONS
3. APPLY STRAIGHT TACK COAT TO BETWEEN PAVEMENT SECTIONS NYSDOT ITEM NO.407.0103

2 ASPHALT CONCRETE PAVEMENT (WITHIN NYSDOT ROADWAYS)
SCALE: N.T.S.



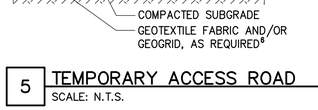
NOTES:
1. ABOVE SECTION IS THE MINIMUM FOR INSTALLATION. MATCH EXISTING SECTION IF EXISTING THICKNESS IS GREATER
2. ALL MATERIALS TO MEET NYSDOT STANDARD SPECIFICATIONS
3. SEE DETAIL 10 ON SHEET C-631
4. APPLY STRAIGHT TACK COAT TO BETWEEN PAVEMENT SECTIONS NYSDOT ITEM407.0103

3 ASPHALT CONCRETE PAVEMENT (WITHIN COUNTY OR TOWN ROADWAYS)
SCALE: N.T.S.



NOTE:
1. ALL MATERIALS TO MEET NYSDOT STANDARD SPECIFICATIONS

4 PAVEMENT TRANSITION DETAIL
SCALE: N.T.S.



TEMPORARY ACCESS ROAD SECTION[1,2,3,4]

CBR[5]	UNSTABILIZED	MIRAFI 180N GEOTEXTILE[6]	TENSAR BX1200 GEOGRID[6]	MIRAFI RSI SERIES GEOTEXTILE[6]
0.5	--	20 INCH RIP RAP[7] + 6 INCH AGGREGATE	--	20 INCH RIP RAP[7] + 4 INCH AGGREGATE (RS580I)
1.0	--	18 INCH AGGREGATE	12 INCH AGGREGATE	15 INCH AGGREGATE (RS280I)
1.5	--	12 INCH AGGREGATE	9 INCH AGGREGATE	9 INCH AGGREGATE (RS280I)
2.0	18 INCH AGGREGATE	11 INCH AGGREGATE	6 INCH AGGREGATE	9 INCH AGGREGATE (RS280I)
3.0+	15 INCH AGGREGATE	8 INCH AGGREGATE	6 INCH AGGREGATE	9 INCH AGGREGATE (RS280I)

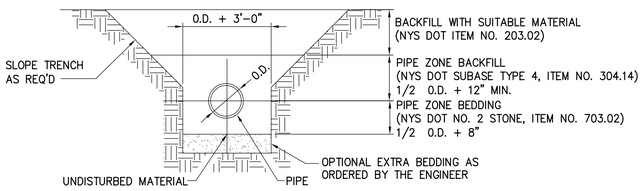
NOTES:
[1] TEMPORARY ACCESS ROAD SECTIONS PER KIEWIT ENGINEERING (NY) CORP.
[2] AGGREGATE SHALL BE NYSDOT TYPE 2 CRUSHED AGGREGATE OR APPROVED ALTERNATIVE.
[3] DESIGN CONSIDERS 1,000 PASSES OF MAXIMUM 22-KIP AXLE LOAD AND A DESIGN RUT DEPTH OF 3 INCHES. ADDITIONAL AXLE PASSES, HEAVIER AXLE LOADS, AND DETERIORATED SUBGRADE CONDITIONS MAY REQUIRE THICKER AGGREGATE SECTIONS OR ADDITIONAL MAINTENANCE.
[4] ALTERNATE TEMPORARY ACCESS ROAD DESIGNS MAY BE PROVIDED BY KIEWIT ENGINEERING, AS REQUIRED, BASED ON FIELD CONDITIONS AND TRAFFIC LOADING.
[5] ESTIMATE CBR IN THE FIELD USING A DYNAMIC CONE PENETROMETER OR ALTERNATIVE METHOD APPROVED BY GEOTECHNICAL ENGINEER OF RECORD (EOR). CBR OF IN-SITU SOIL MAY VARY SEASONALLY DUE TO FREEZE/THAW AND BASED ON MOISTURE CONDITIONS.
[6] GEOGRID AND GEOTEXTILE
  [A] GEOGRID AND GEOTEXTILES SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATION INCLUDING OVERLAP AND EDGE DETAILS.
  [B] SPECIFIED GEOTEXTILE OR GEOGRID MAY BE REPLACED BY EQUIVALENT MATERIAL APPROVED BY EOR.
  [C] GEOTEXTILE IS REQUIRED IN REGULATED WETLANDS AND AGRICULTURAL LANDS.
  [D] GEOTEXTILE SEPARATOR FABRIC IS REQUIRED BENEATH GEOGRID ON COHESIVE SUBGRADE
[7] RIP RAP
  [A] RIP RAP SHALL BE NYSDOT LIGHT STONE FILL OR APPROVED ALTERNATIVE.
  [B] A LAYER OF #57 STONE IS RECOMMENDED ON TOP OF GEOTEXTILE TO PREVENT DAMAGING OR PUNCHING OF THE GEOTEXTILE FABRIC WHERE RIP RAP IS USED.

5 TEMPORARY ACCESS ROAD
SCALE: N.T.S.

6 GRAVEL PAVEMENT
SCALE: N.T.S.

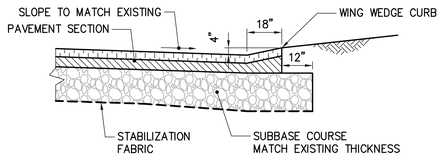
NOTES:
1. APPLY TACKCOAT TO MILLED SURFACE PRIOR TO PLACING ASPHALT CONCRETE TOP COURSE.
2. ALL MATERIALS TO MEET NYSDOT STANDARD SPECIFICATIONS

7 MILL AND OVERLAY ASPHALT CONCRETE PAVEMENT DETAIL
SCALE: N.T.S.



NOTES:
1. WHERE IDENTIFIED ON PLANS, CULVERT REPLACEMENTS AND/OR REPAIR TO BE COMPLETED IN ACCORDANCE WITH NYSDOT STANDARD SHEETS (NYSDOT STANDARD SHEET GROUP 603 CULVERTS AND STORM DRAINS AND NYSDOT BRIDGE DETAIL SHEETS BD-CB1 THRU BD-CB13)

8 CULVERT REPLACEMENT
SCALE: N.T.S.



NOTE:
1. ALL MATERIALS TO MEET NYSDOT STANDARD SPECIFICATIONS

9 WING WEDGE CURB DETAIL
SCALE: N.T.S.

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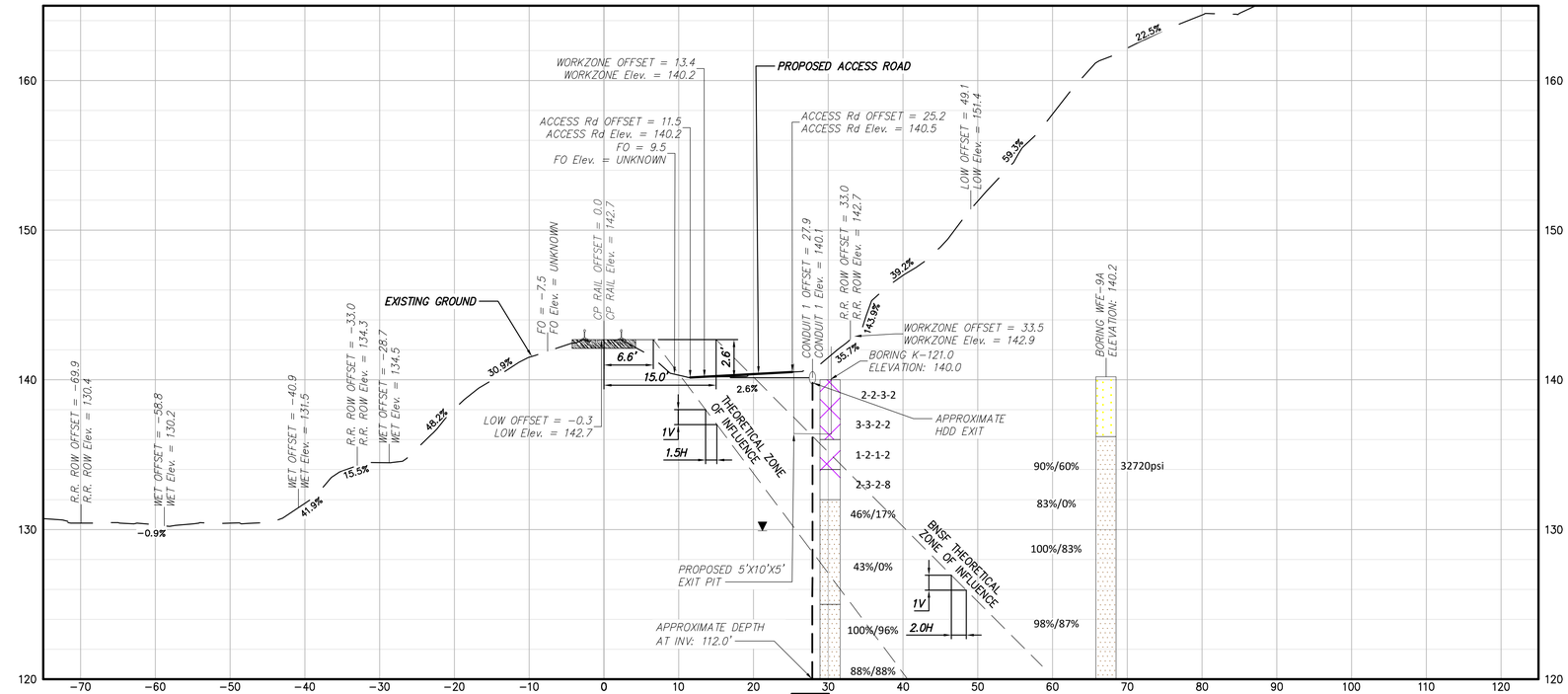
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
SURFACE RESTORATION DETAILS

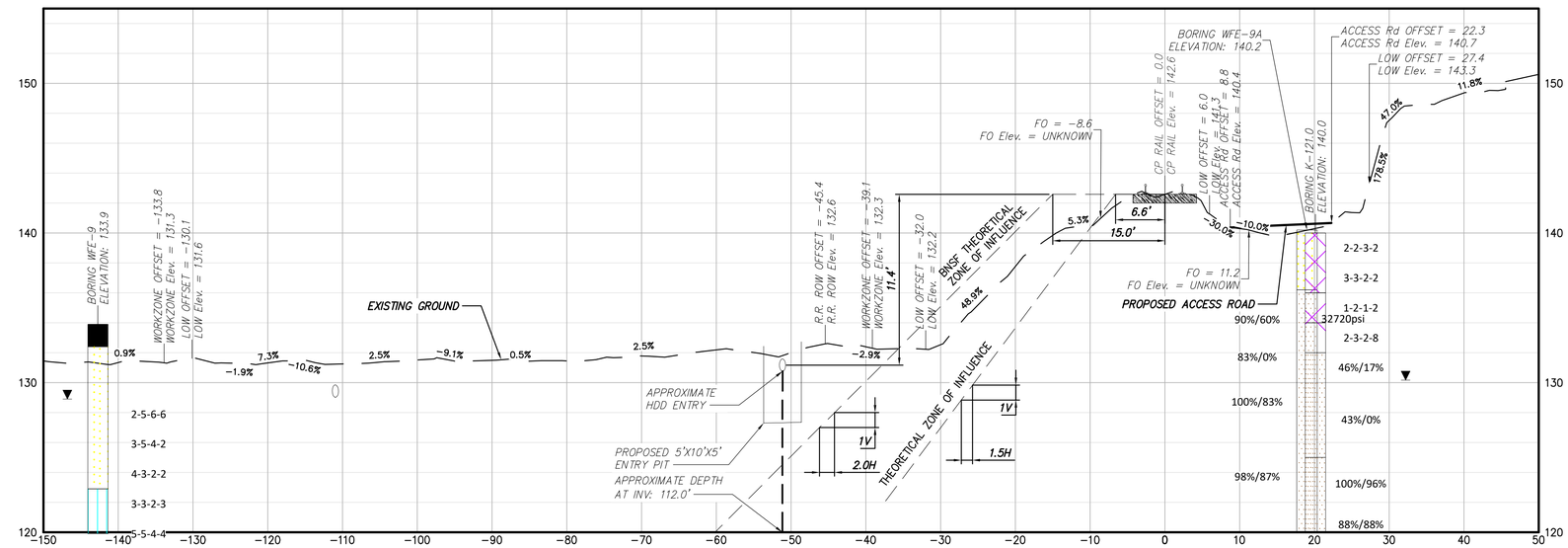
KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. C-631

DRAWN BY: JJE | DESIGNED BY: JTM | APPROVED BY: JPR | SCALE AS NOTED | REV. NO. X | DATE 03/22/2023



2 HDD #12 CONDUIT 1 EXIT PIT CUT SECTION; STA. 20185+56

CP RAIL CANADIAN MAINLINE MP: 69.00



1 HDD #12 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20178+68

P RAIL CANADIAN MAINLINE MP: 69.13

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	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

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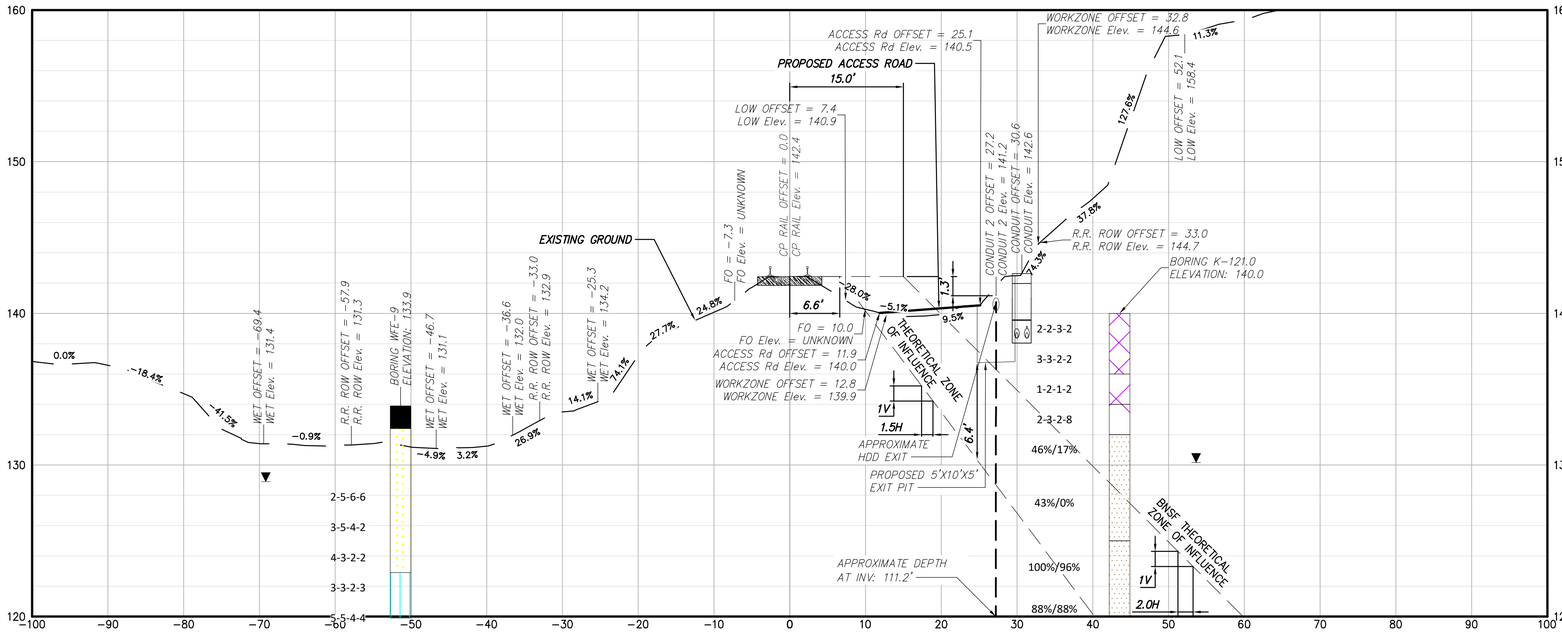
STATE OF NEW YORK — JEFFREY O'DONNELL — 087450 — LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 12 RAILROAD CROSS SECTION CUT

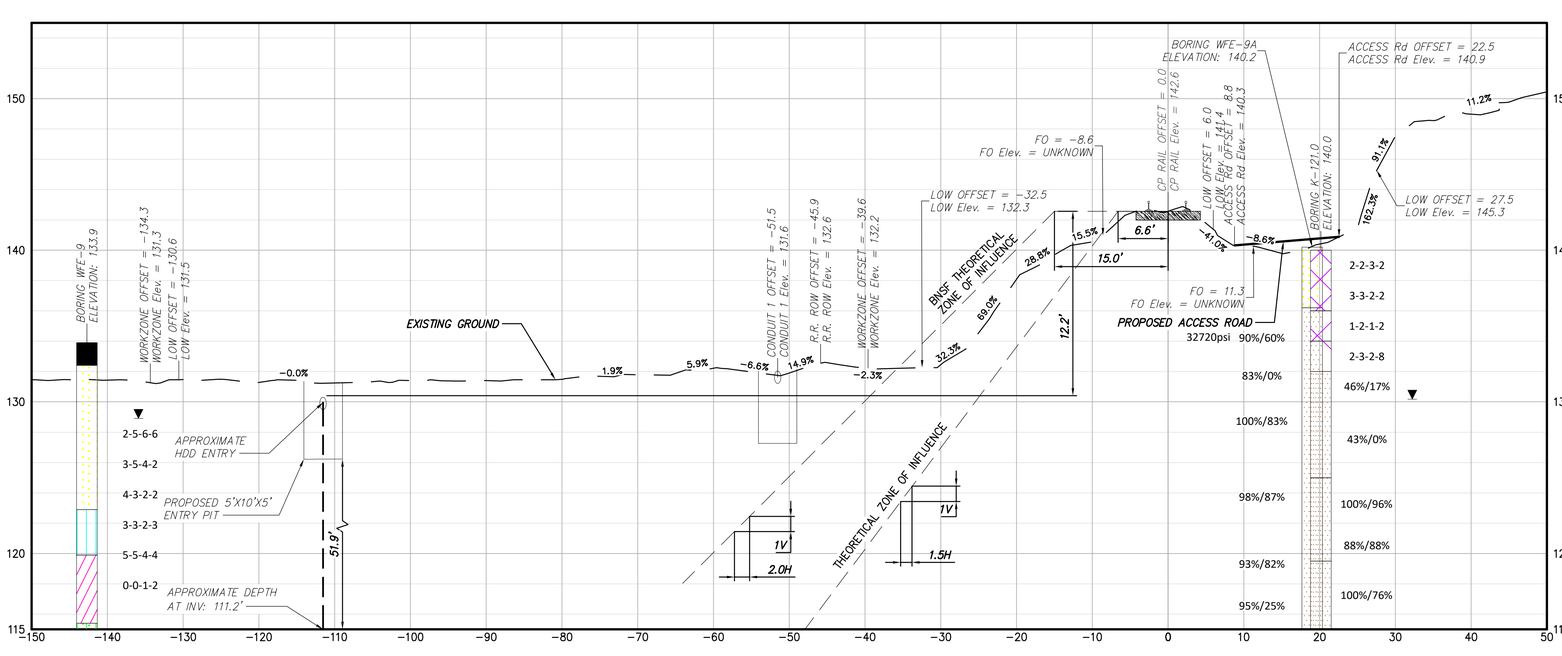
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-641

DRAWN BY: SK | DESIGNED BY: SK | APPROVED BY: JEO | SCALE AS NOTED | DATE 03/22/2023 | REV. NO. C



4 HDD #12 CONDUIT 2 EXIT PIT CUT SECTION; STA. 20187+59

CP RAIL CANADIAN MAINLINE MP: 68.96



3 HDD #12 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20178+53

CP RAIL CANADIAN MAINLINE MP: 69.13

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

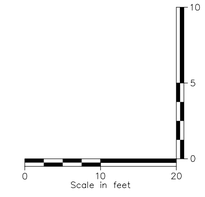
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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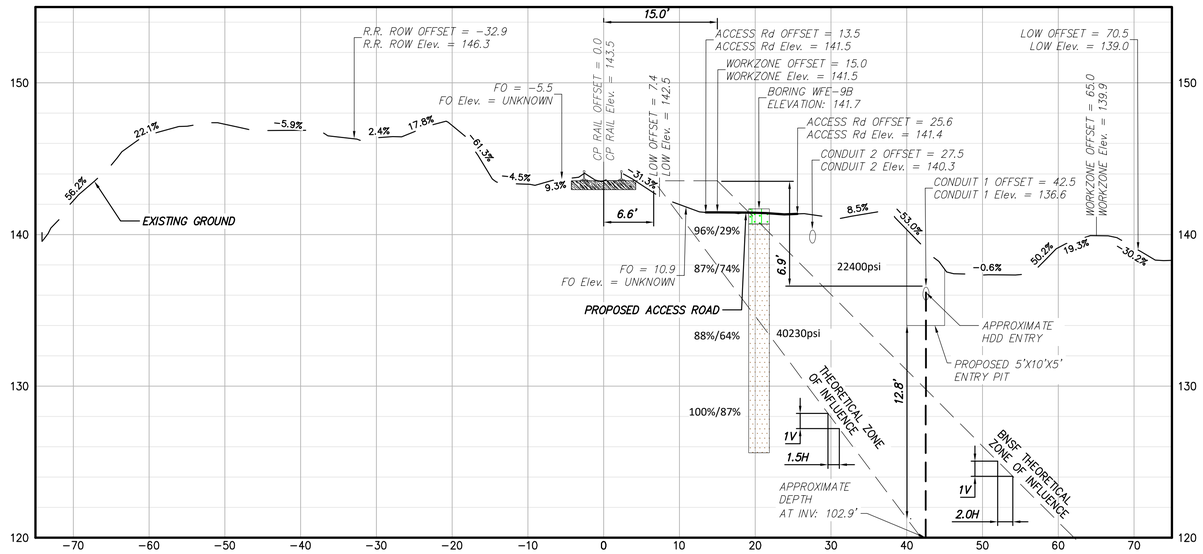
LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

DRAWN BY: SK | DESIGNED BY: SK | APPROVED BY: JEO

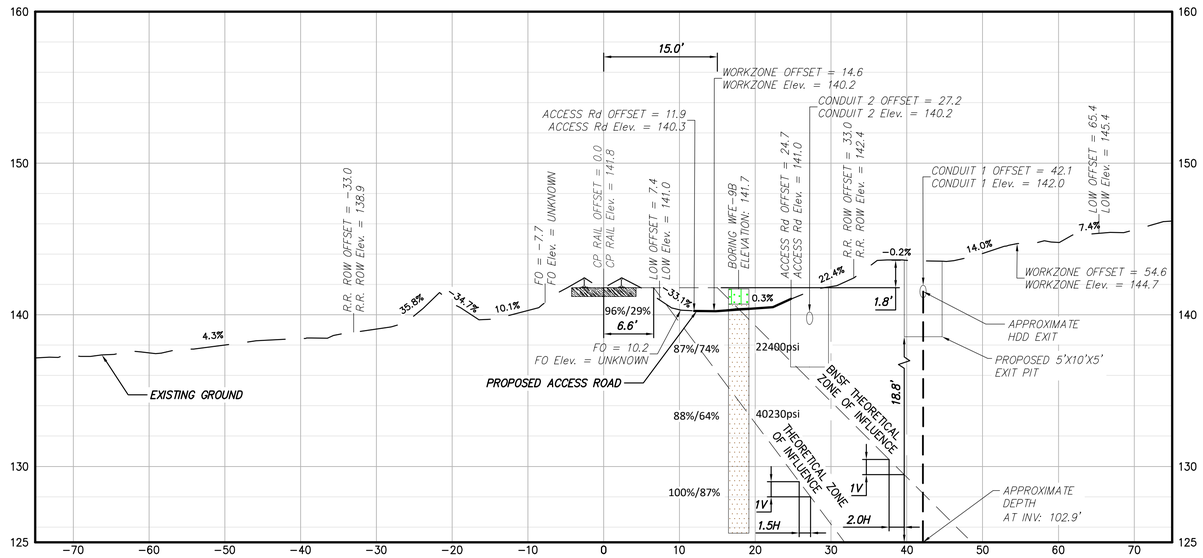
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 12 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-641.1
SCALE	AS NOTED
DATE	03/22/2023
REV. NO.	C



2 HDD #12A CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20207+98

CP RAIL CANADIAN MAINLINE MP: 68.53



1 HDD #12A CONDUIT 1 EXIT PIT CUT SECTION; STA. 20193+20

CP RAIL CANADIAN MAINLINE MP: 68.80

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

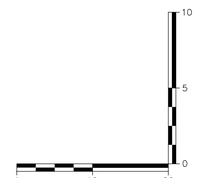
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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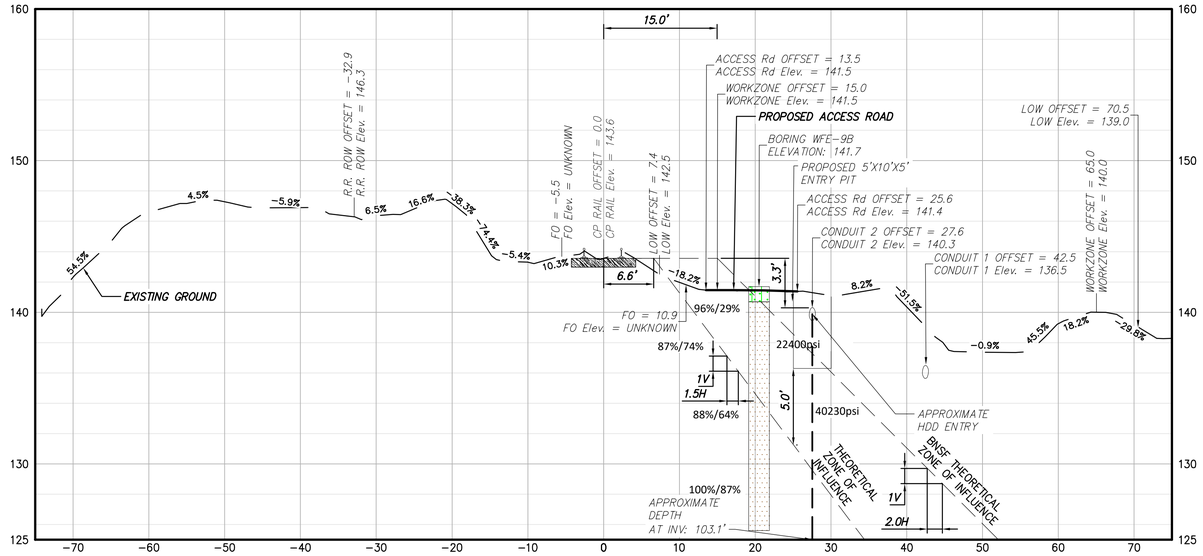
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 12A RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-642

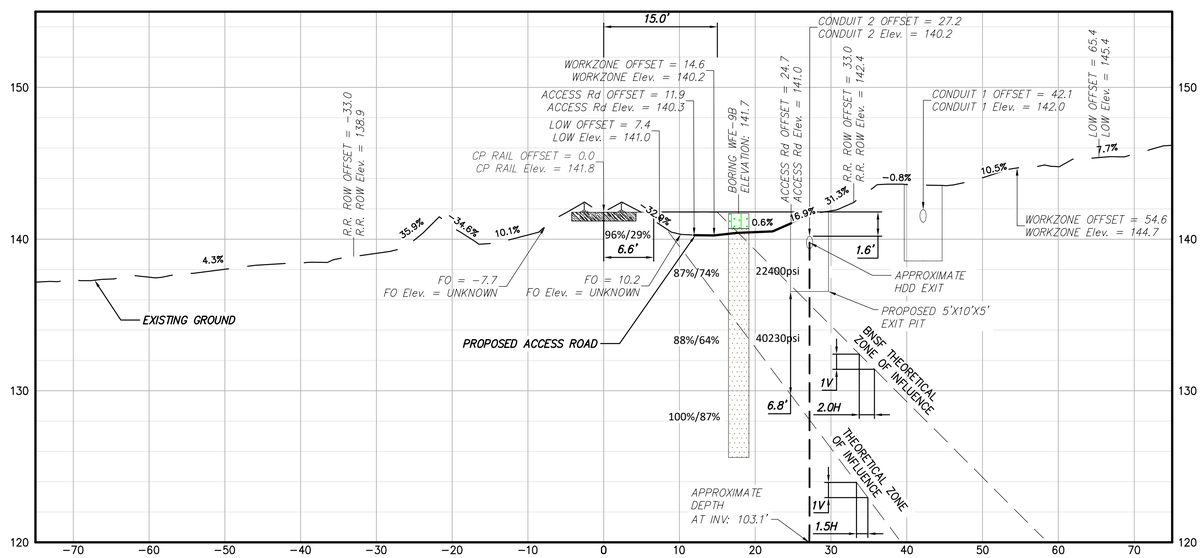
DRAWN BY: JAS | DESIGNED BY: JAS | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\305 HDD 12A PLAN AND PROFILE (LONGER).DWG Saved: 3/15/2023 1:11:09 PM Plotted: 3/17/2023 9:08:40 AM Current User: Snyder, Morgan LastSavedBy: 6043



4 HDD #12A CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20207+98

CP RAIL CANADIAN MAINLINE MP: 68.53



3 HDD #12A CONDUIT 2 EXIT PIT CUT SECTION; STA. 20193+20

CP RAIL CANADIAN MAINLINE MP: 68.80

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	Boulder
CH	Fat CLAY
CH-MH	SILTY Fat CLAY
CL	Lean CLAY
CL-ML	SILTY CLAY
CONCRETE	Concrete
Fill	Fill
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GC-GM	SILTY CLAYEY GRAVEL
GM	SILTY GRAVEL
GP	Poorly Graded GRAVEL
GP-GC	Poorly Graded Gravel with CLAY
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OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
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SM	SILTY SAND
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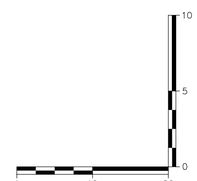
SP-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

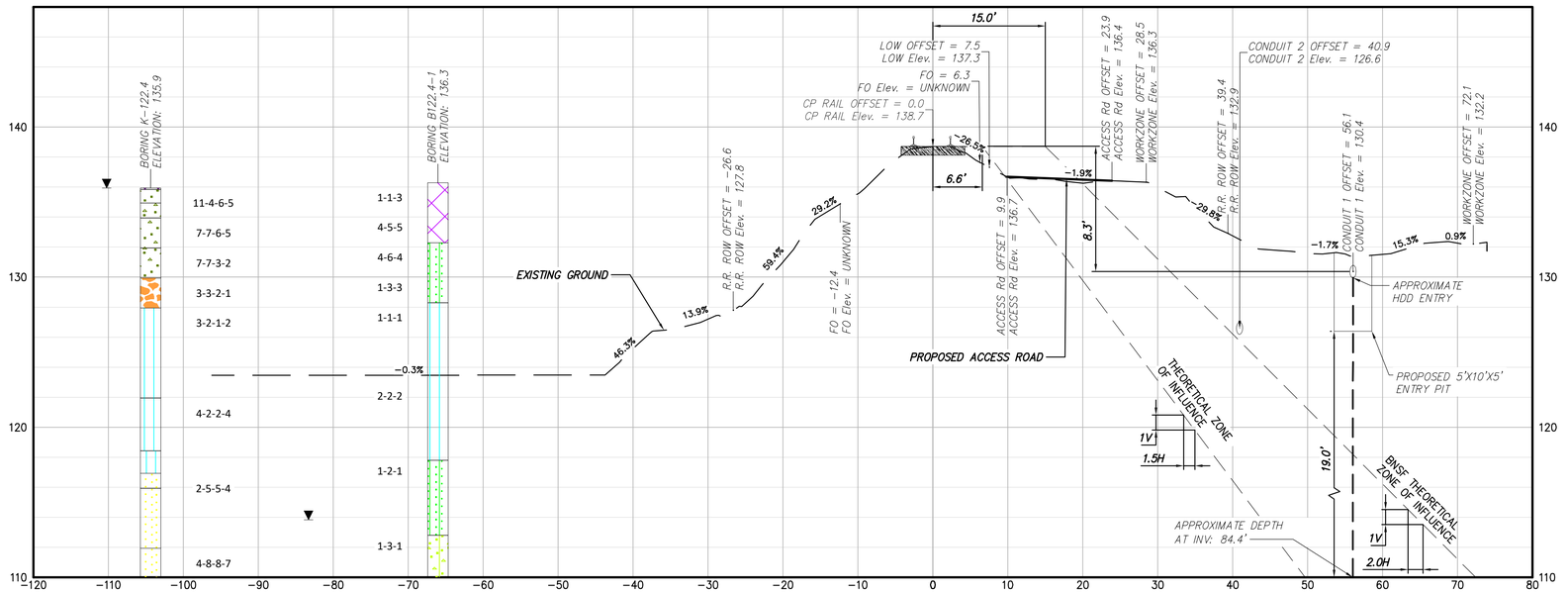
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 12A RAILROAD CROSS SECTION CUT

DRAWN BY: JAS | DESIGNED BY: JAS | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023

KIEWIT PROJECT NO. 21162

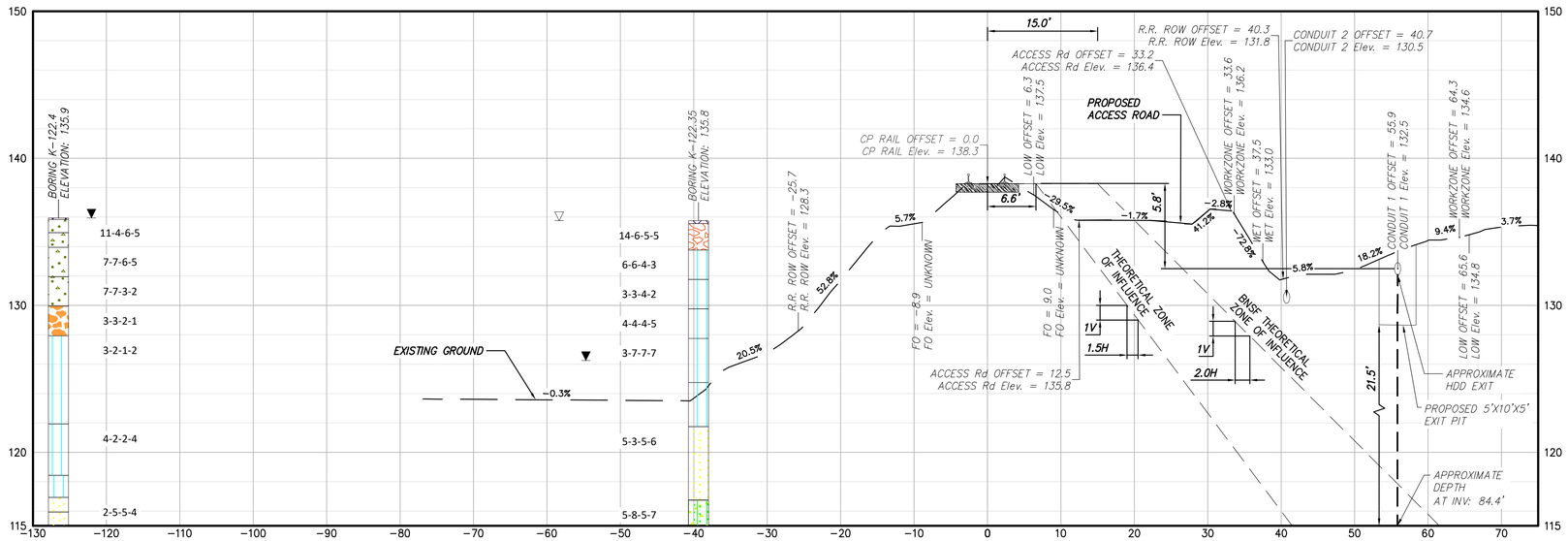
CHA PROJECT NO. 066076

DRAWING NO. **C-642.1**



2 HDD #13 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20263+63

CP RAIL CANADIAN MAINLINE MP: 67.52



1 HDD #13 CONDUIT 1 EXIT PIT CUT SECTION; STA 20248+70

CP RAIL CANADIAN MAINLINE MP: 67.80

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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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
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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
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SP-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
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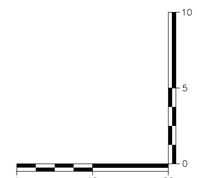
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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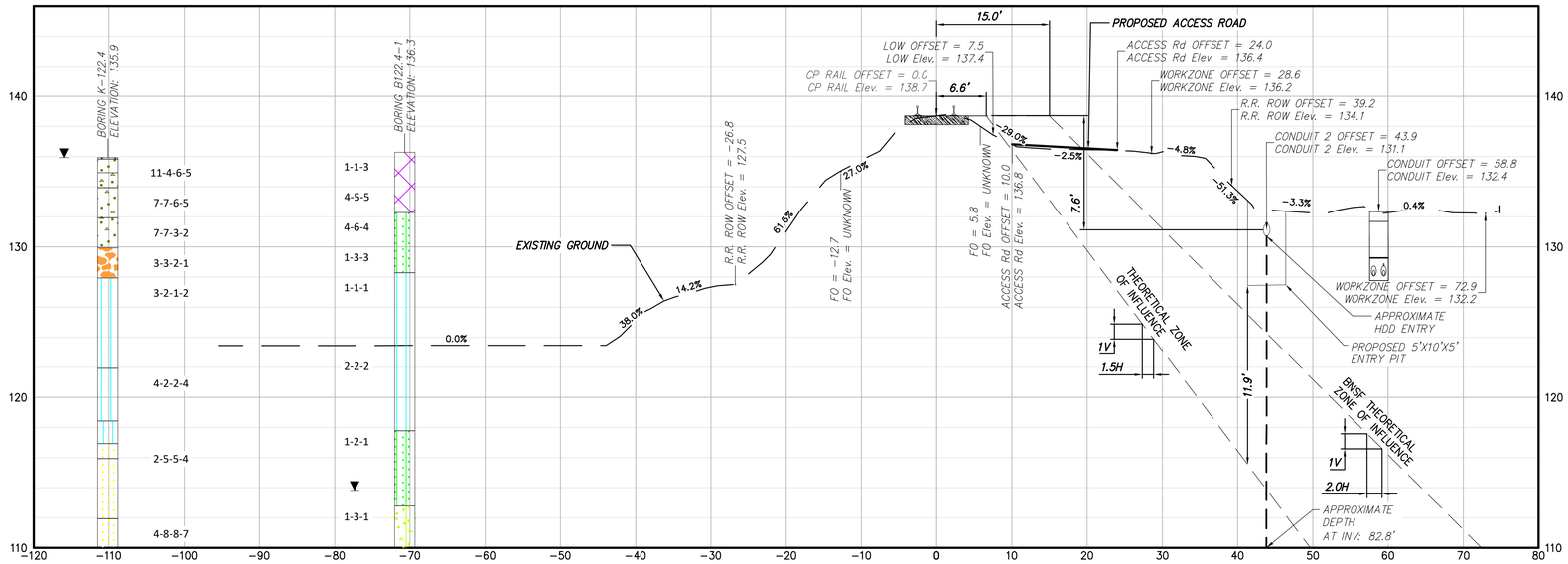
CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY

HDD 13 RAILROAD CROSS SECTION CUT

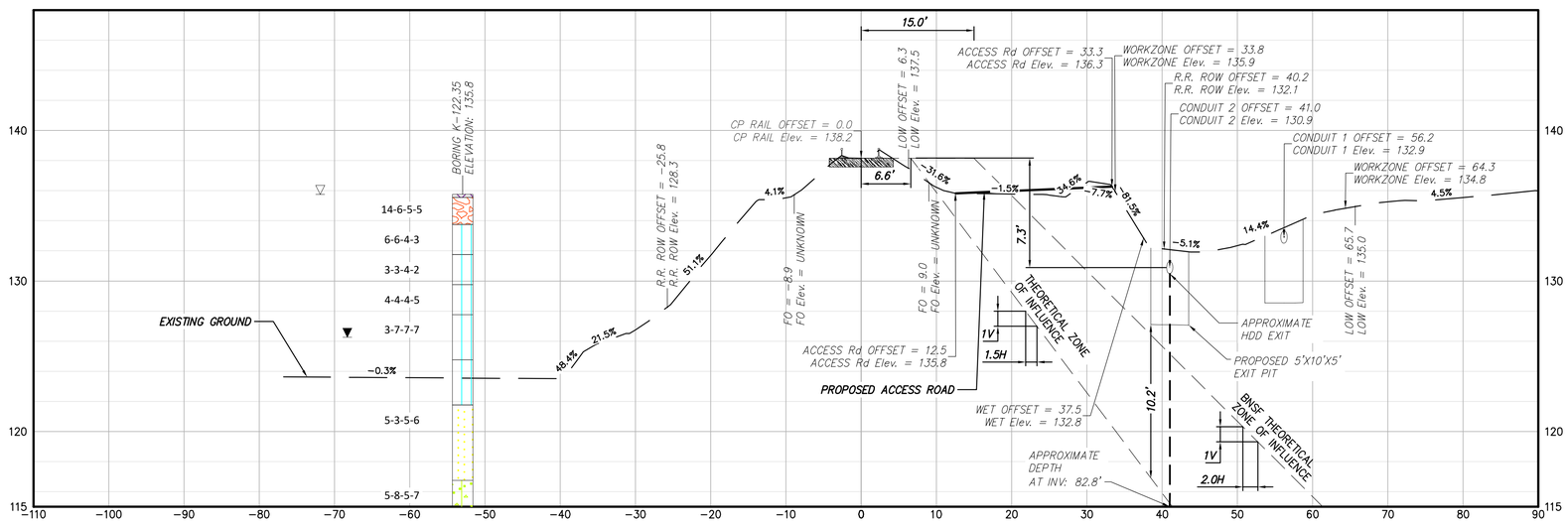
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-643

DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023



4 HDD #13 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20263+82

CP RAIL CANADIAN MAINLINE MP: 67.52



3 HDD #13 CONDUIT 2 EXIT PIT CUT SECTION; STA. 20248+70

CP RAIL CANADIAN MAINLINE MP: 67.80

BORING LOG STRIP LEGEND

Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%
11000psi =UCS

2D strip logs shown at 10x exaggeration
3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	Boulder
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CH-MH	SILTY Fat CLAY
CL	Lean CLAY
CL-ML	SILTY CLAY
CONCRETE	Concrete
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GC-GM	SILTY CLAYEY GRAVEL
GM	SILTY GRAVEL
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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-SC	Poorly Graded SAND with CLAY
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SW-SC	Well Graded SAND with CLAY
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USGS 654	Subgraywacke
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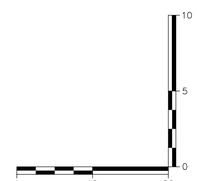
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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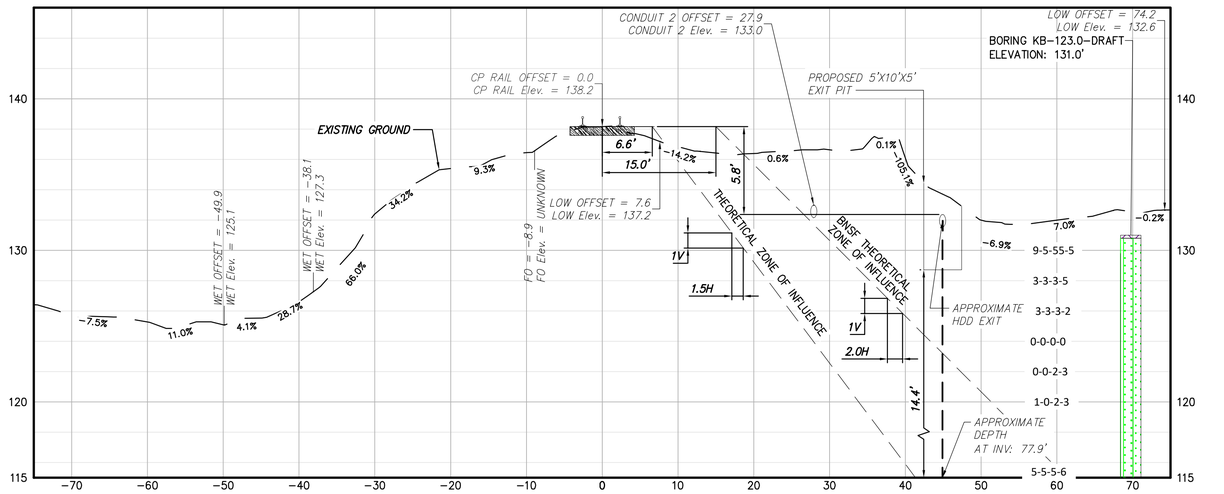
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 13 RAILROAD CROSS SECTION CUT

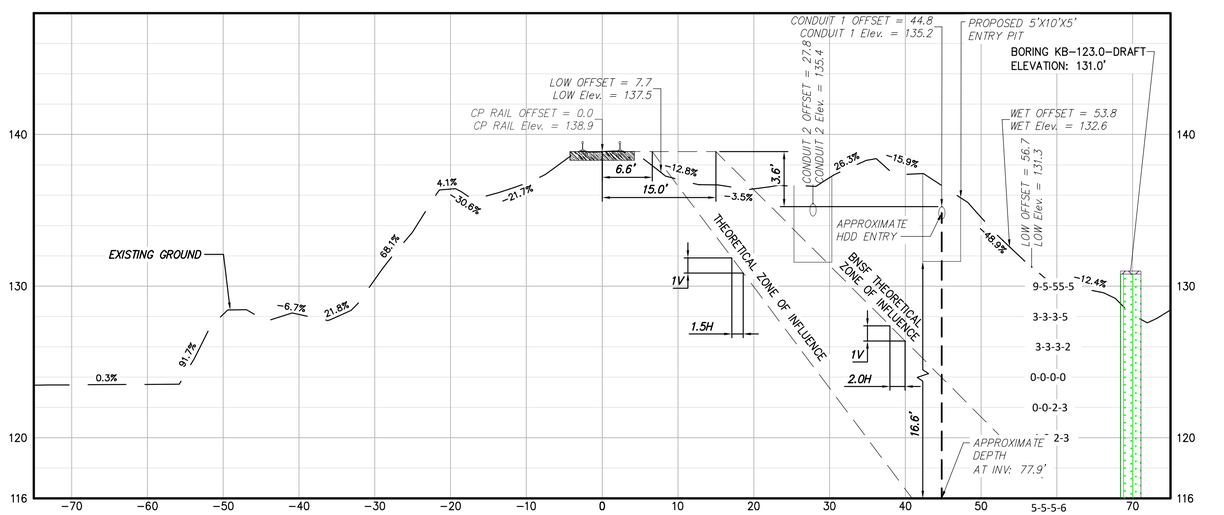
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-643.1

DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023



2 HDD #13A CONDUIT 1 EXIT PIT CUT SECTION; STA. 20290+12

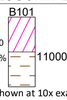
CP RAIL CANADIAN MAINLINE MP: 67.01



1 HDD #13A CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20281+11

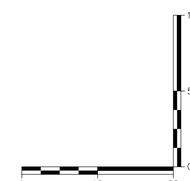
CP RAIL CANADIAN MAINLINE MP: 67.18

BORING LOG STRIP LEGEND



2D strip logs shown at 10x exaggeration
3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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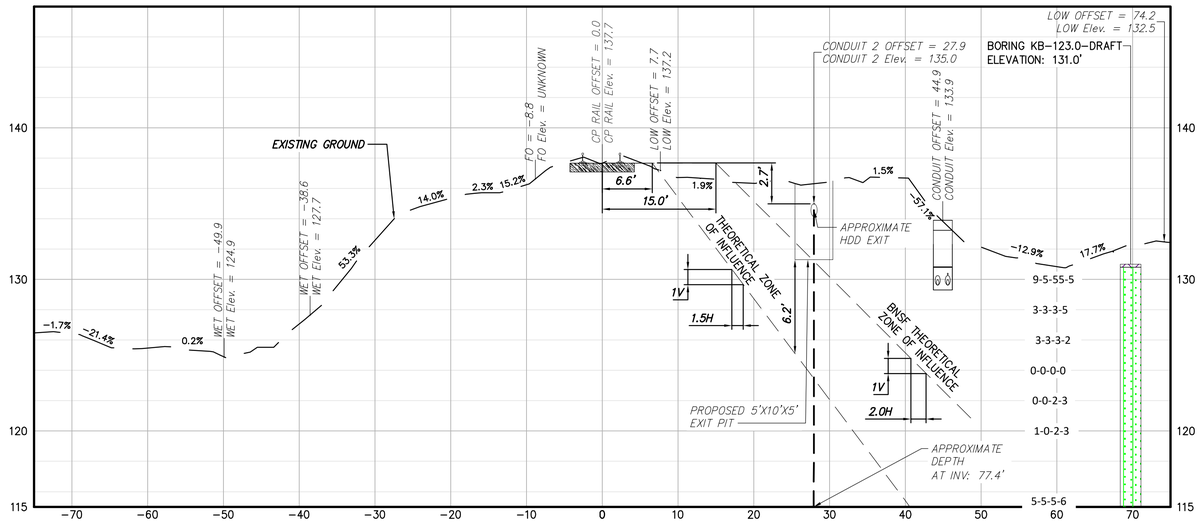
JEFFREY O'DONNELL
087450
LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 13A RAILROAD CROSS SECTION CUT

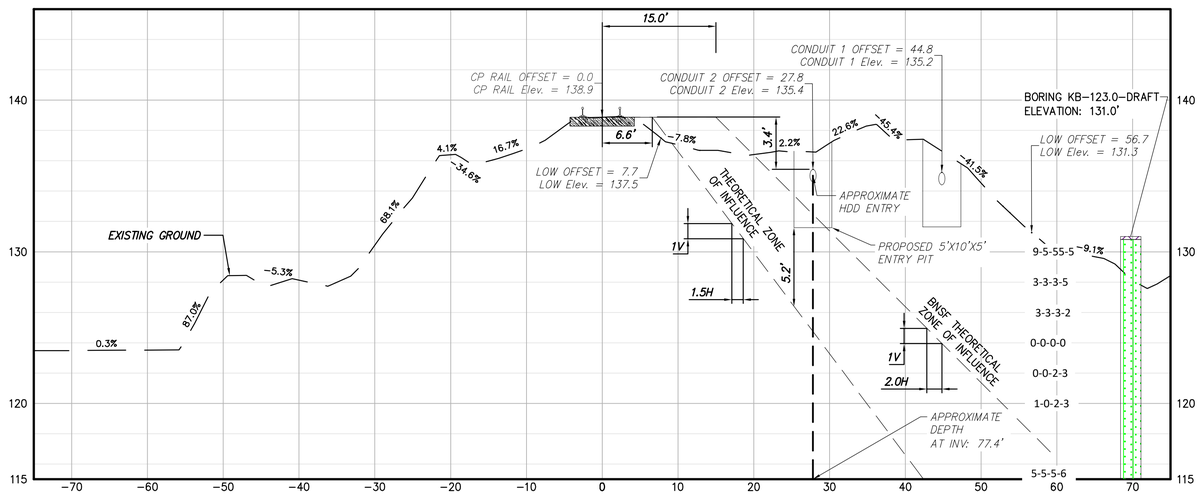
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-644

DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023



4 HDD #13A CONDUIT 2 EXIT PIT CUT SECTION; STA. 20290+23

CP RAIL CANADIAN MAINLINE MP: 67.01



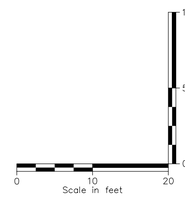
3 HDD #13A CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20281+11

CP RAIL CANADIAN MAINLINE MP: 67.18

BORING LOG STRIP LEGEND

2D strip logs shown at 10x exaggeration
3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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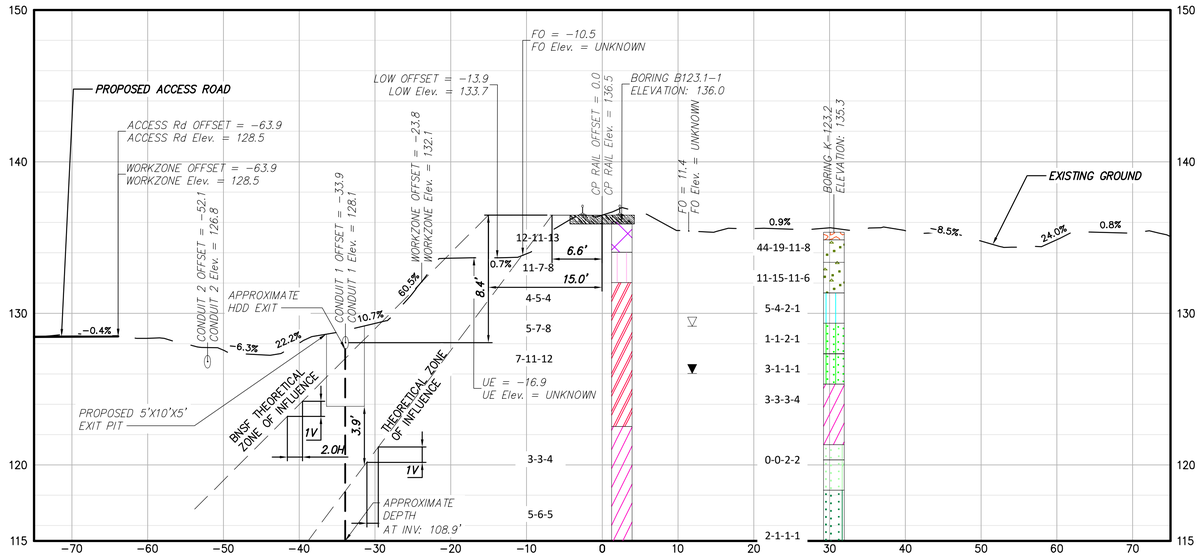
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 13A RAILROAD CROSS SECTION CUT

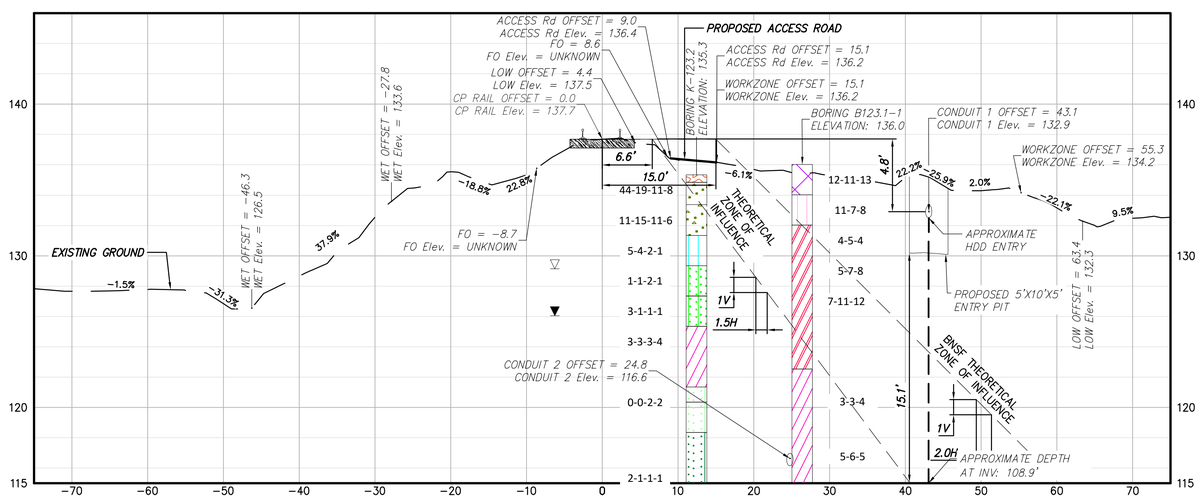
DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-644.1**

File: V:\PROJECTS\ANY\v6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\066076_P2_C-306.1-C-306.1-HDD13A.DWG Saved: 3/15/2023 7:13:50 AM Plotted: 3/17/2023 9:16:14 AM Current User: Snyder, Morgan LastSavedBy: 6043



2 HDD #14 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20300+09
CP RAIL CANADIAN MAINLINE MP: 66.85



1 HDD #14 CONDUIT 1 EXIT PIT CUT SECTION; STA. 20293+17
CP RAIL CANADIAN MAINLINE MP: 66.97

BORING LOG STRIP LEGEND

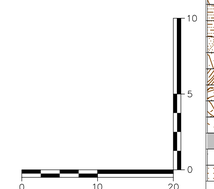
B101

Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration
3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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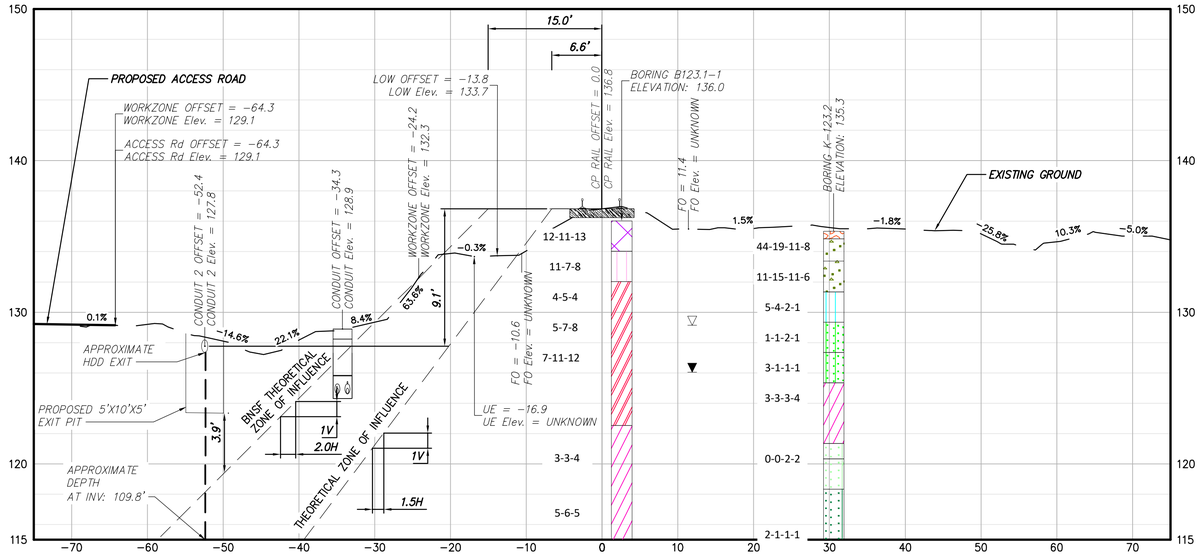
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 14 RAILROAD CROSSING SECTION CUT

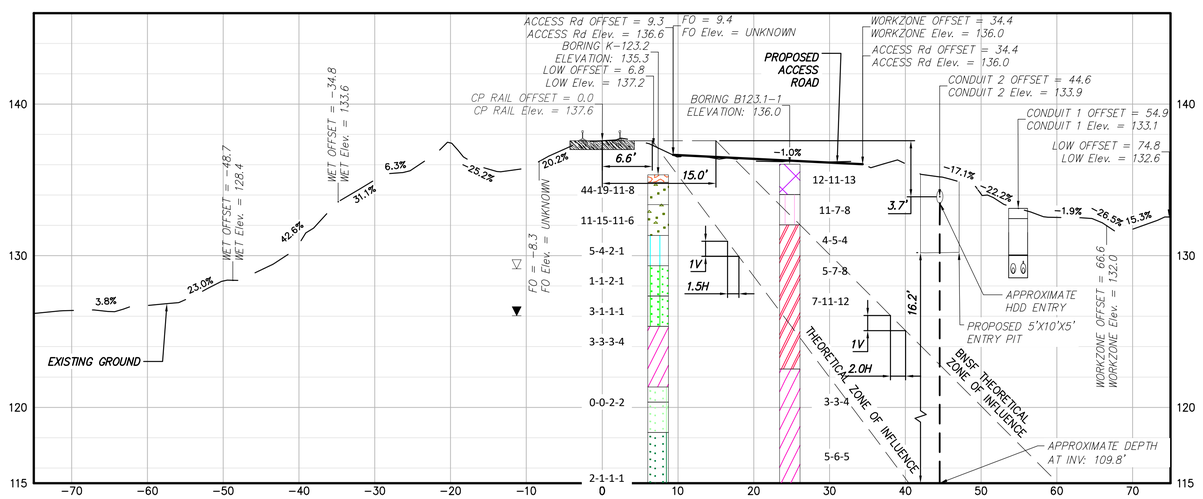
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-645

DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023



4 HDD #14 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20300+17

CP RAIL CANADIAN MAINLINE MP: 66.85



3 HDD #14 CONDUIT 2 EXIT PIT CUT SECTION; STA. 20292+09

CP RAIL CANADIAN MAINLINE MP: 66.98

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

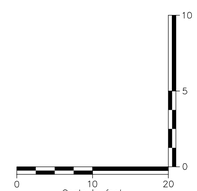
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 14 RAILROAD CROSSING SECTION CUT

DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023

KIEWIT PROJECT NO. 21162

CHA PROJECT NO. 066076

DRAWING NO. **C-645.1**

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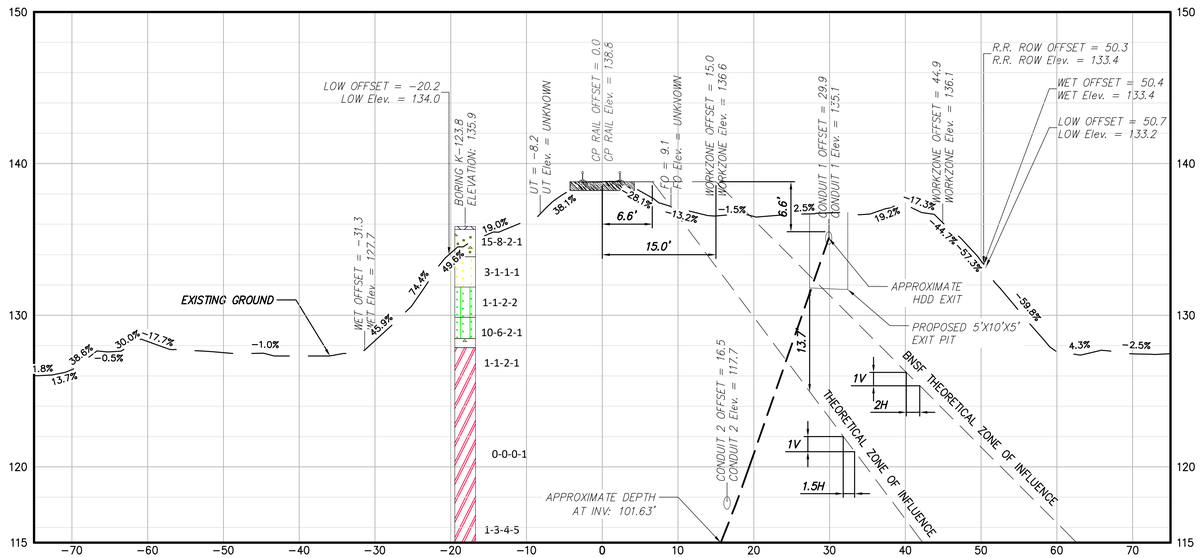
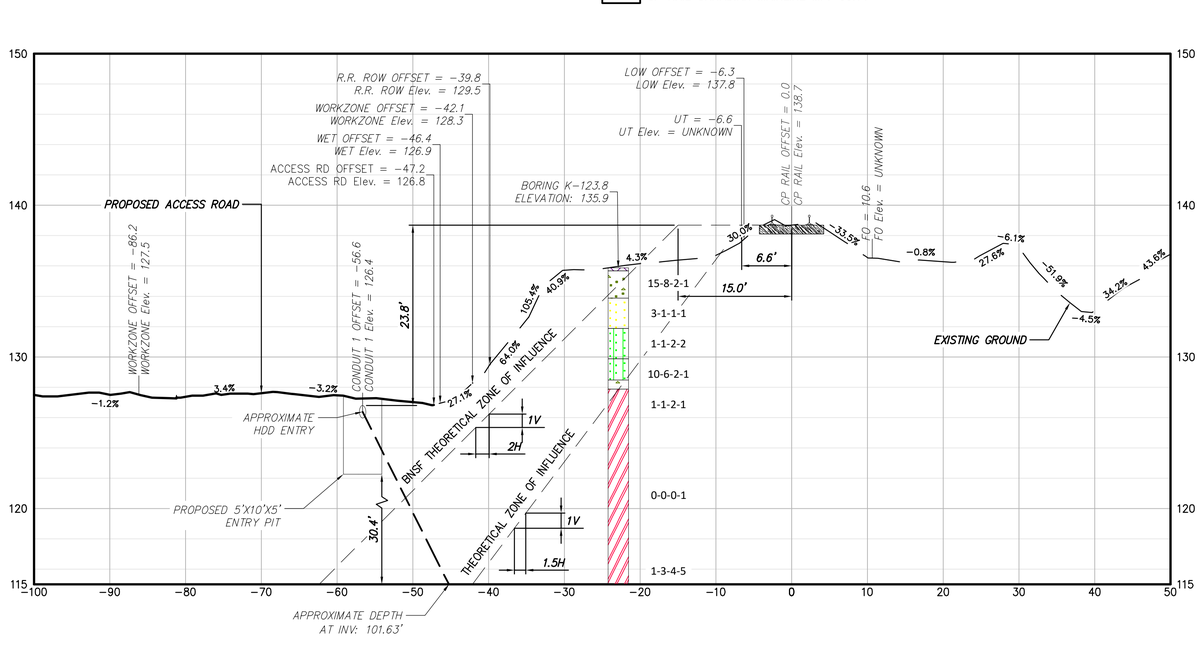


2 HDD #14A CONDUIT 1 EXIT PIT CUT SECTION; STA. 20337+37
CP RAIL CANADIAN MAINLINE MP: 66.14



1 HDD #14A CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20331+52
CP RAIL CANADIAN MAINLINE MP: 66.25

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%
11000psi =UCS

2D strip logs shown at 10x exaggeration
3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	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

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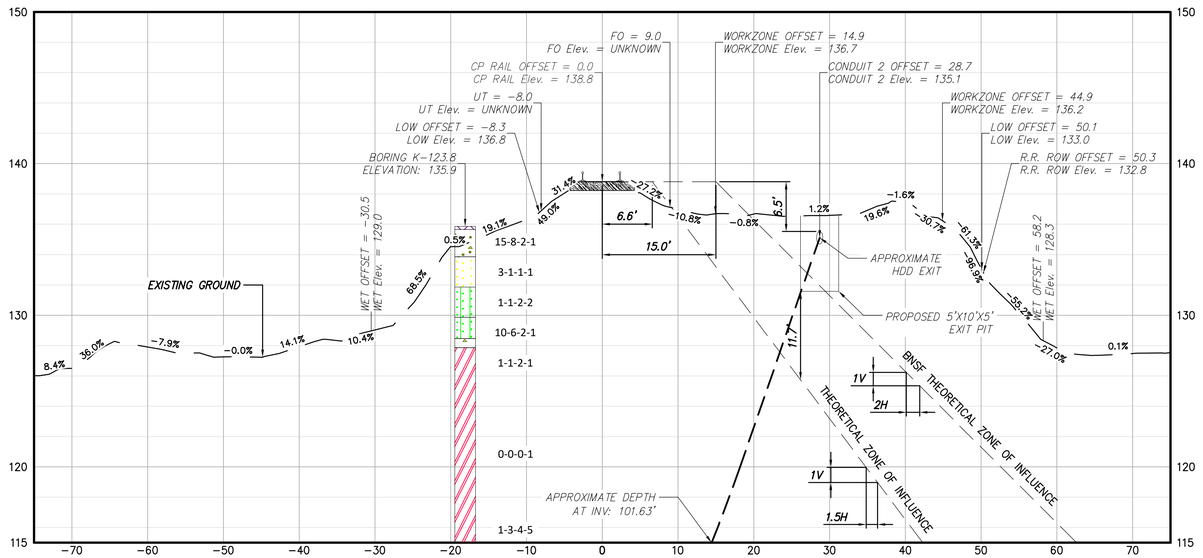
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 14A RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-646

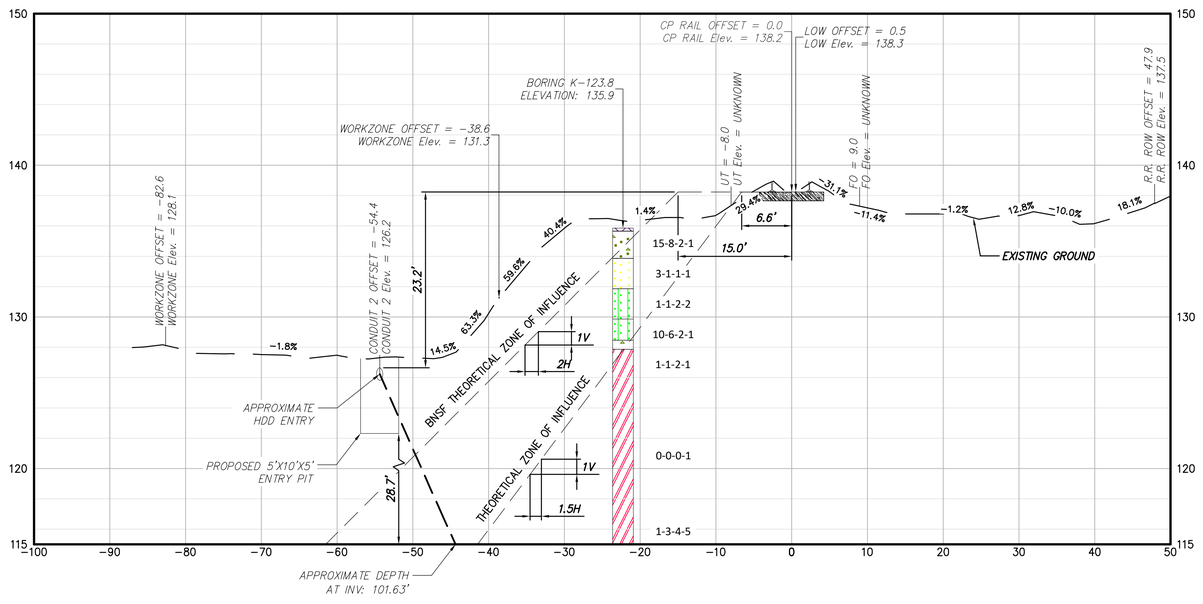
DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\066076_P2_C-307-C-307A.DWG Saved: 3/15/2023 7:28:14 AM Plotted: 3/17/2023 9:21:54 AM Current User: Snyder, Morgan LastSavedBy: 6043



4 HDD #14A CONDUIT 2 EXIT PIT CUT SECTION; STA. 20338+28

CP RAIL CANADIAN MAINLINE MP: 66.14



3 HDD #14A CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20332+37

CP RAIL CANADIAN MAINLINE MP: 66.23

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

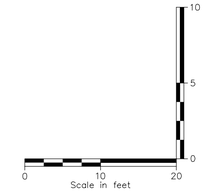
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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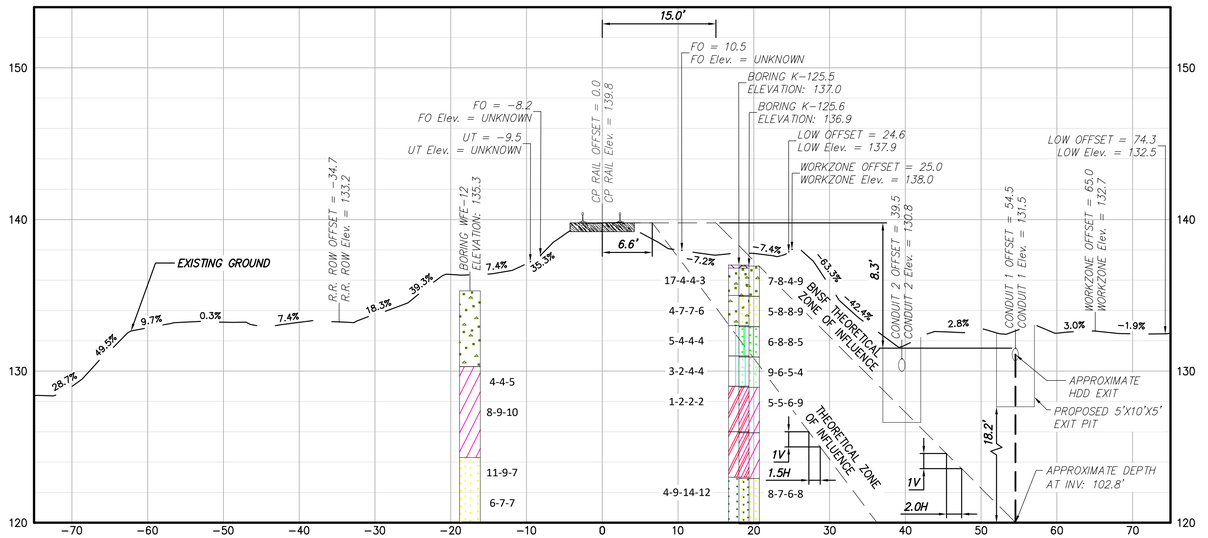
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 14A RAILROAD CROSS SECTION CUT

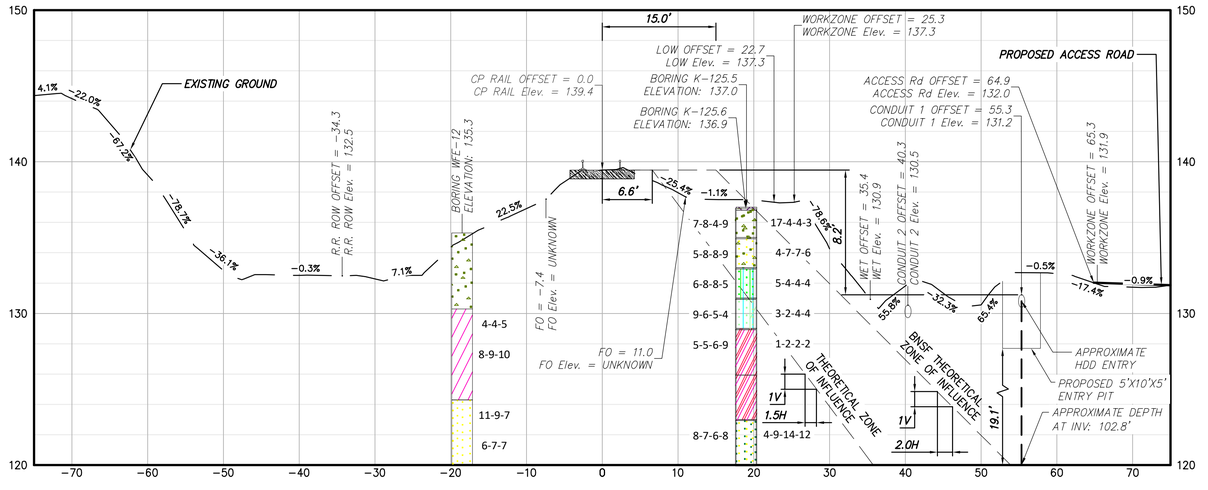
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-646.1

DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023



2 HDD #15 CONDUIT 1 EXIT PIT CUT SECTION; STA. 20424+31

CP RAIL CANADIAN MAINLINE MP: 64.51



1 HDD #15 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20418+18

CP RAIL CANADIAN MAINLINE MP: 64.60

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

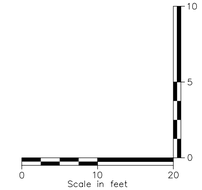
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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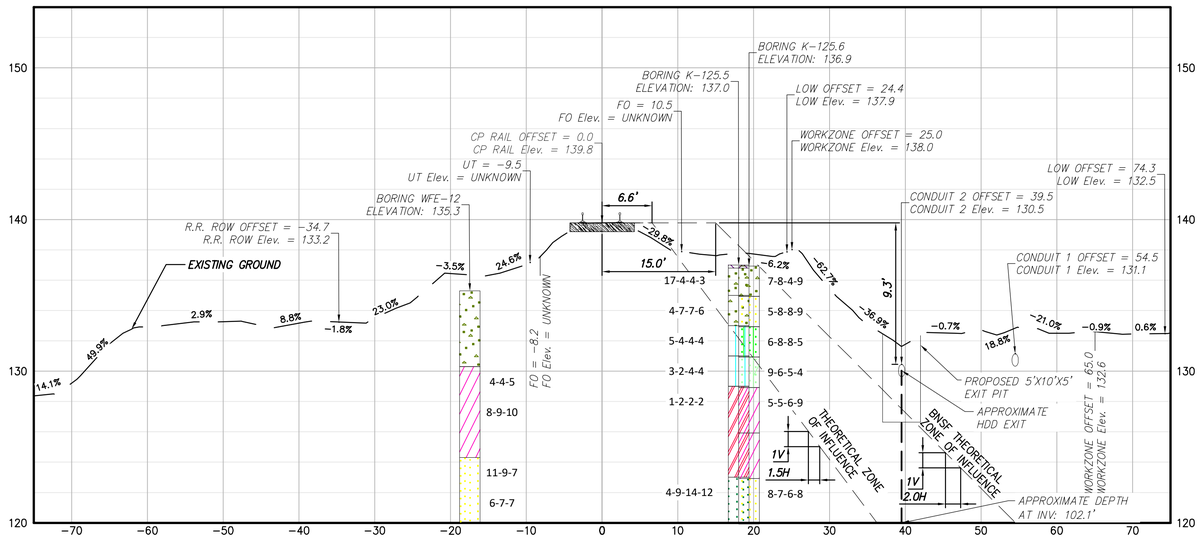
TREY O'DONNELL
087450
LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 15 RAILROAD CROSS SECTION CUT

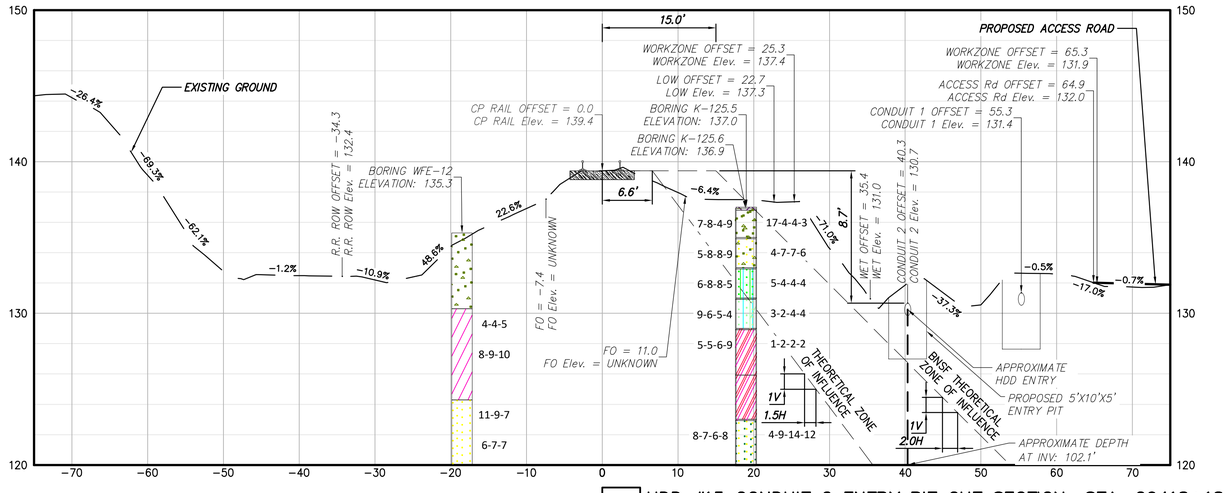
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-647

DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023



4 HDD #15 CONDUIT 2 EXIT PIT CUT SECTION; STA. 20424+29

CP RAIL CANADIAN MAINLINE MP: 64.51



3 HDD #15 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20418+18

CP RAIL CANADIAN MAINLINE MP: 64.63

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

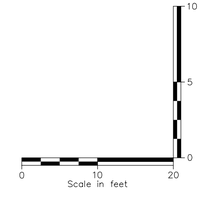
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS

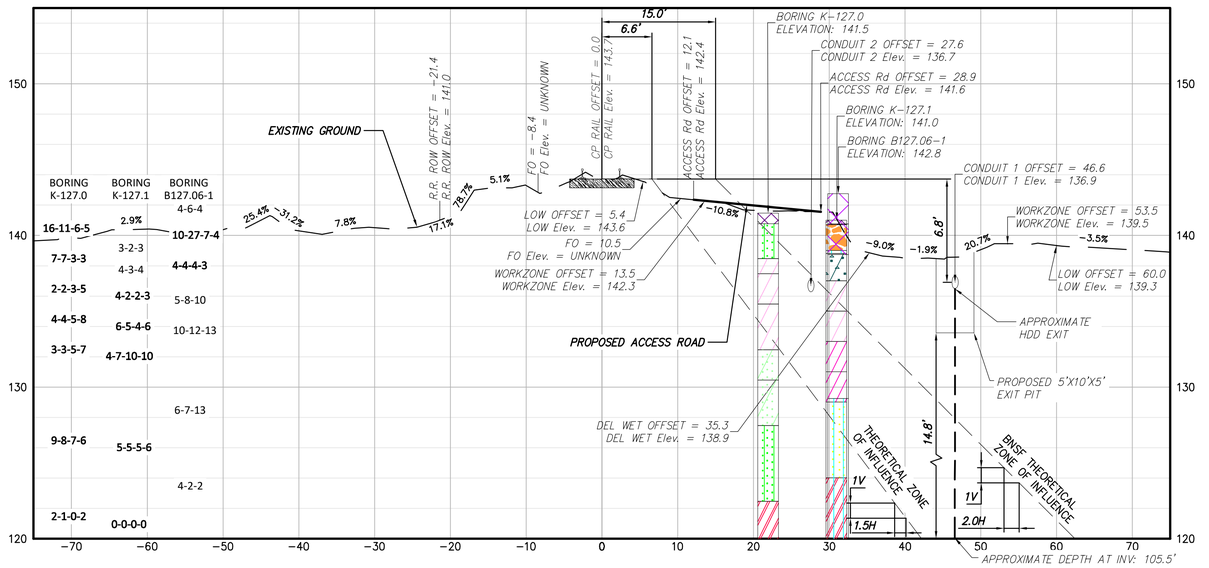
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY

HDD 15 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-647.1

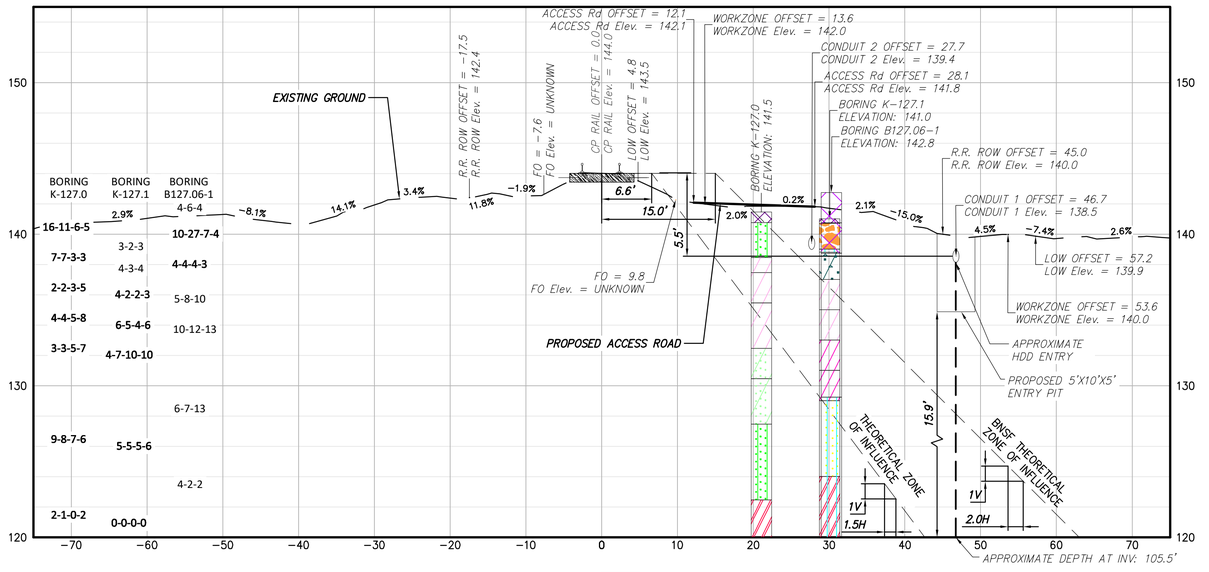
DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023

File: V:\PROJECTS\ANY\K6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\066076_P2_C-308-C-308A.DWG Saved: 3/15/2023 7:33:01 AM Plotted: 3/17/2023 9:25:56 AM Current User: Snyder, Morgan LastSavedBy: 6043



2 HDD #16 CONDUIT 1 EXIT PIT CUT SECTION; STA. 20505+08

CP RAIL CANADIAN MAINLINE MP: 62.94



1 HDD #16 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20499+04

CP RAIL CANADIAN MAINLINE MP: 63.06

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

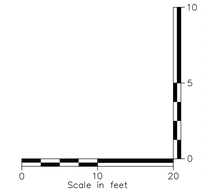
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
	Water Table	Water Table during drilling
	Delayed Water Table	Water Table after drilling



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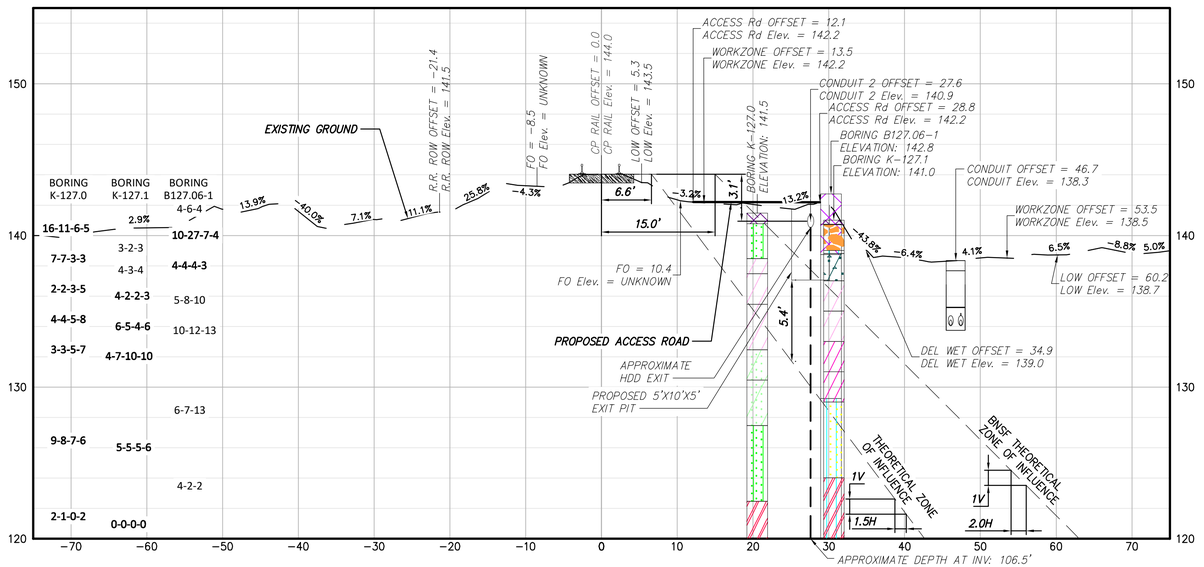
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

DRAWN BY: ES | DESIGNED BY: ES | APPROVED BY: JEO

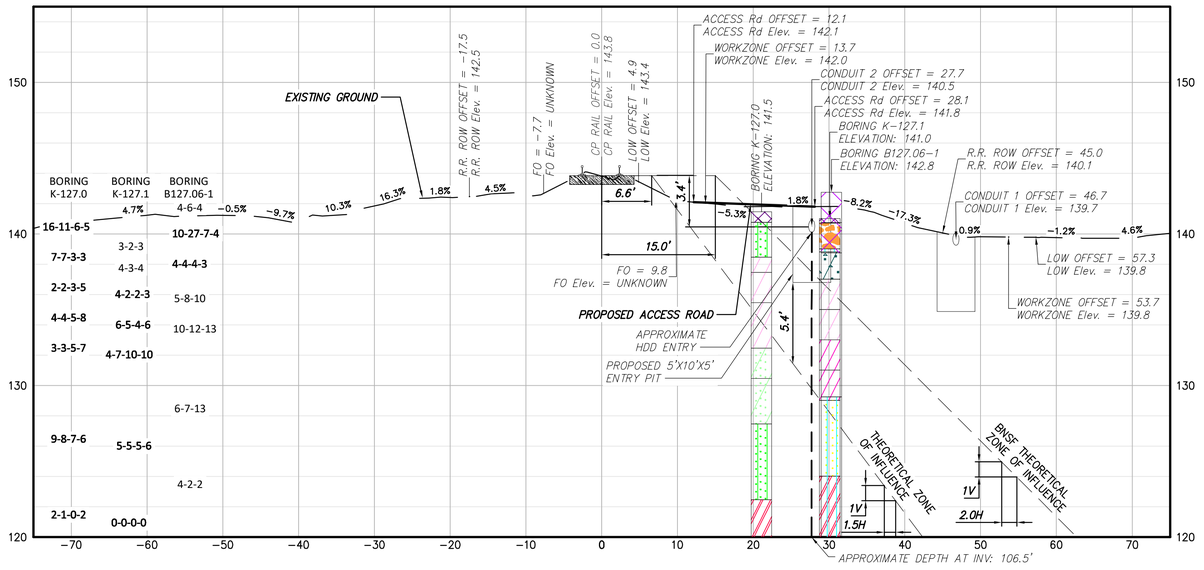
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 16 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-648
SCALE	AS NOTED
DATE	03/22/2023
REV. NO.	C



4 HDD #16 CONDUIT 2 EXIT PIT CUT SECTION; STA. 20505+32

CP RAIL CANADIAN MAINLINE MP: 62.94



3 HDD #16 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20498+99

CP RAIL CANADIAN MAINLINE MP: 63.06

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

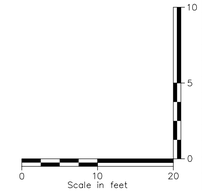
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
	Water Table	Water Table during drilling
	Delayed Water Table	Water Table after drilling



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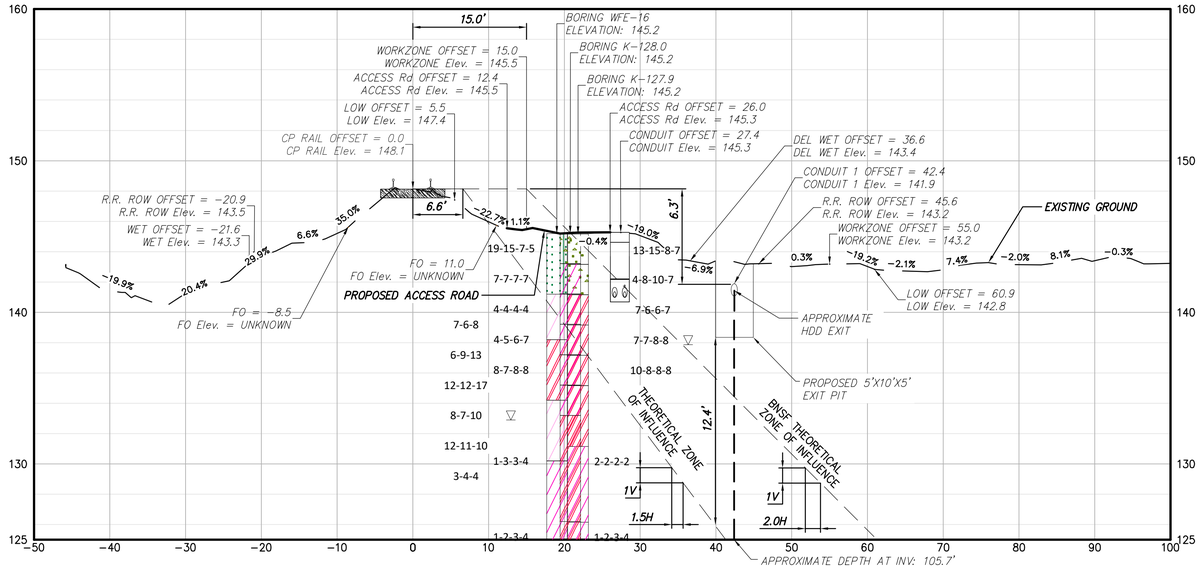
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

DRAWN BY: ES | DESIGNED BY: ES | APPROVED BY: JEO

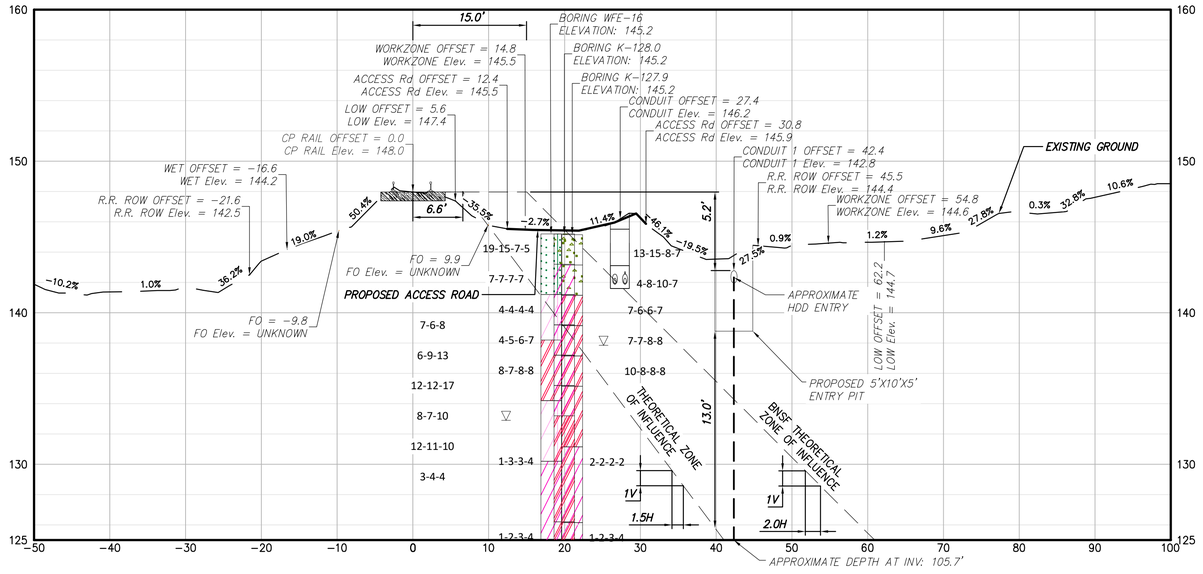
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 16 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-648.1
SCALE	AS NOTED
DATE	03/22/2023
REV. NO.	C



2 HDD #17 CONDUIT 1 EXIT PIT CUT SECTION; STA. 20552+15

CP RAIL CANADIAN MAINLINE MP: 62.05



1 HDD #17 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20545+66

CP RAIL CANADIAN MAINLINE MP: 62.17

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling

0 10 20 Scale in feet

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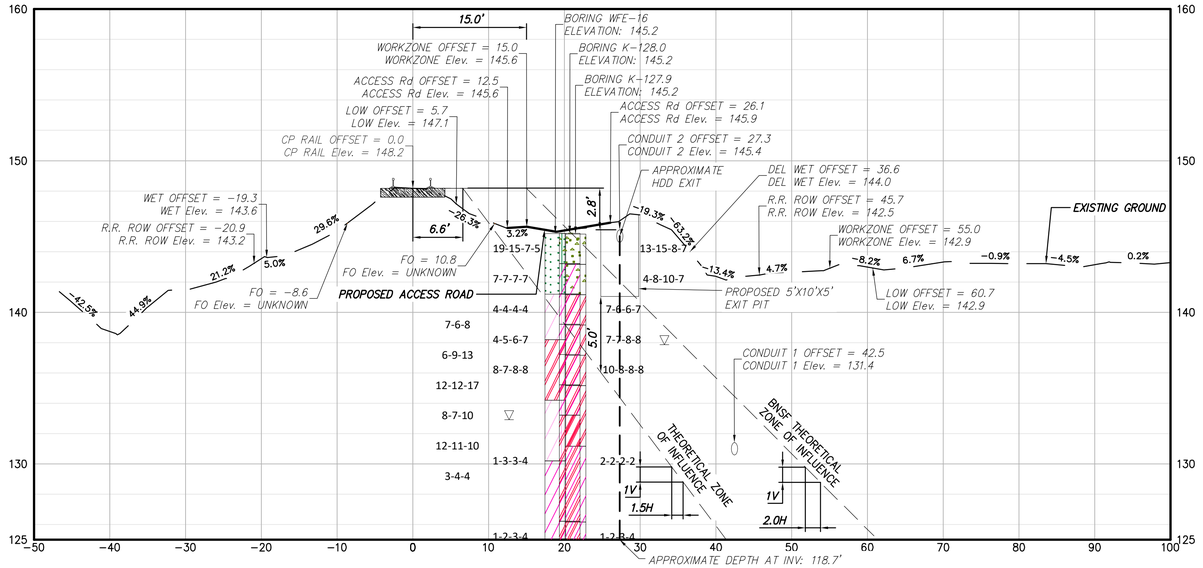
CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY

HDD 17 RAILROAD CROSS SECTION CUT

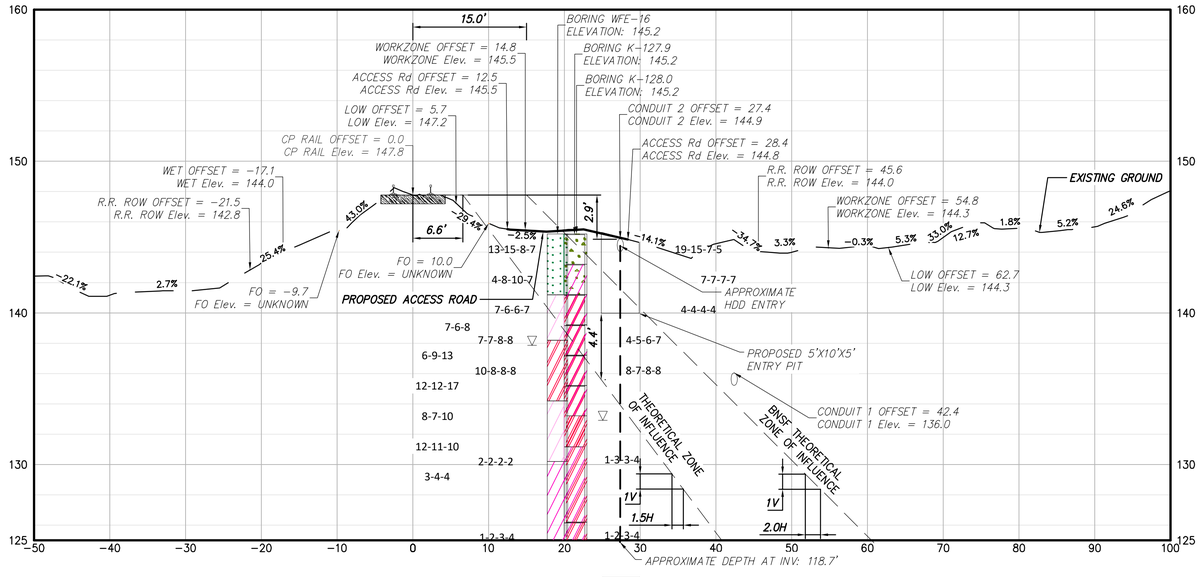
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-649

DRAWN BY: ES | DESIGNED BY: ES | APPROVED BY: JEO | SCALE AS NOTED | DATE 03/22/2023 | REV. NO. C



4 HDD #17 CONDUIT 2 EXIT PIT CUT SECTION; STA. 20551+62

CP RAIL CANADIAN MAINLINE MP: 62.06



3 HDD #17 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20545+97

CP RAIL CANADIAN MAINLINE MP: 62.16

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

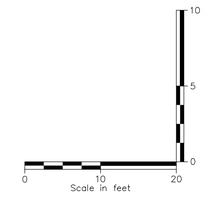
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY

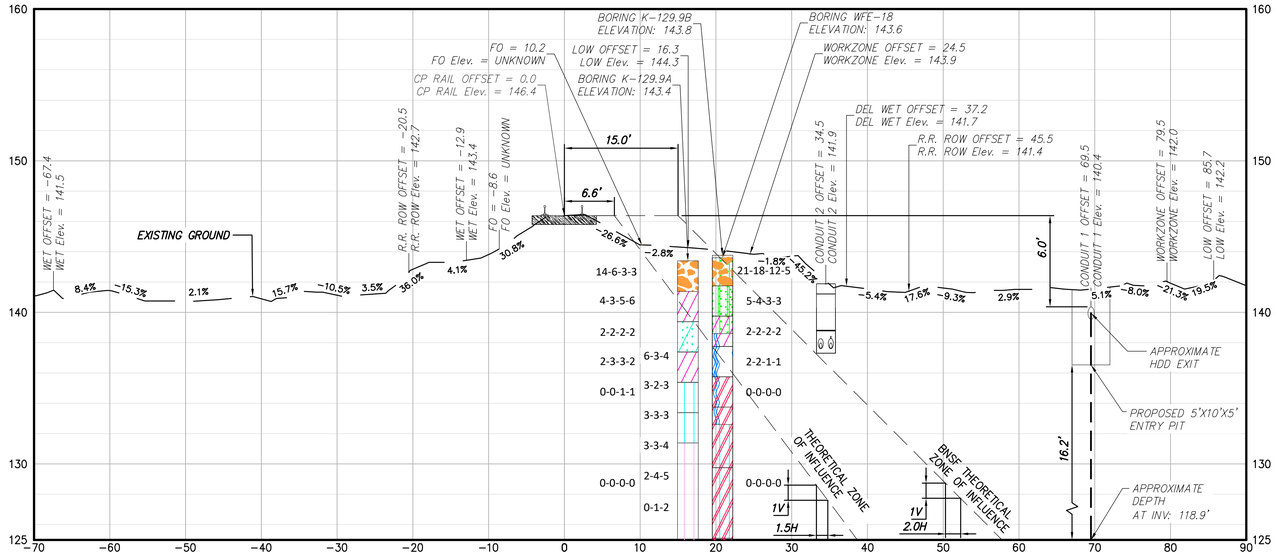
HDD 17 RAILROAD CROSS SECTION CUT

DRAWN BY: ES | DESIGNED BY: ES | APPROVED BY: JEO | SCALE AS NOTED | DATE 03/22/2023 | REV. NO. C

KIEWIT PROJECT NO. 21162

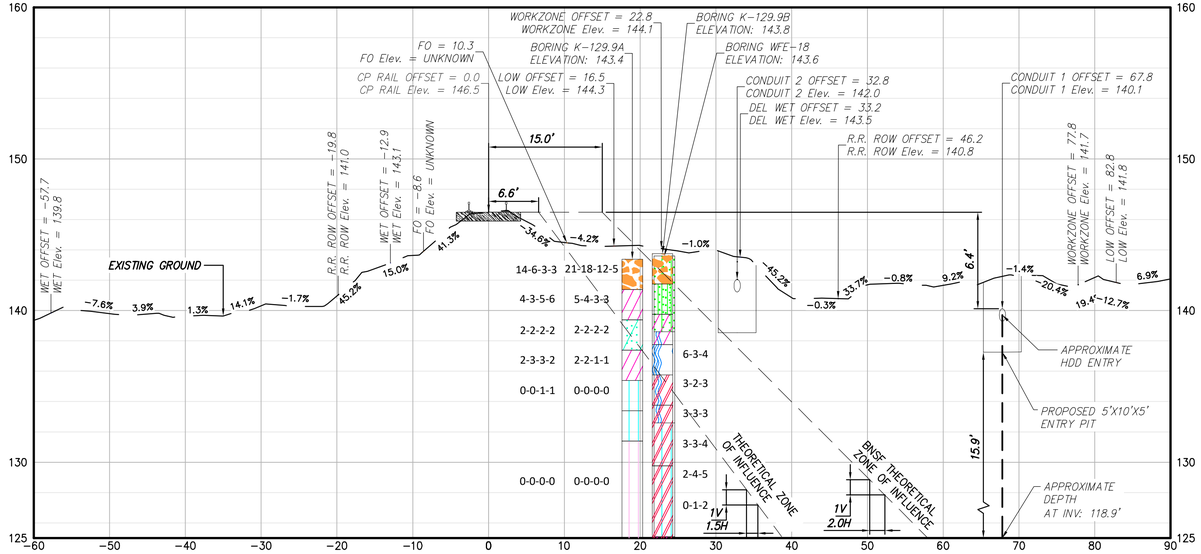
CHA PROJECT NO. 066076

DRAWING NO. **C-649.1**



2 HDD #18 CONDUIT 1 EXIT PIT CUT SECTION; STA. 20655+05

CP RAIL CANADIAN MAINLINE MP: 60.08



1 HDD #18 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20649+00

CP RAIL CANADIAN MAINLINE MP: 60.20

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

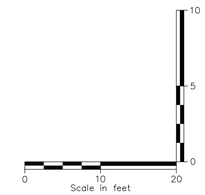
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS

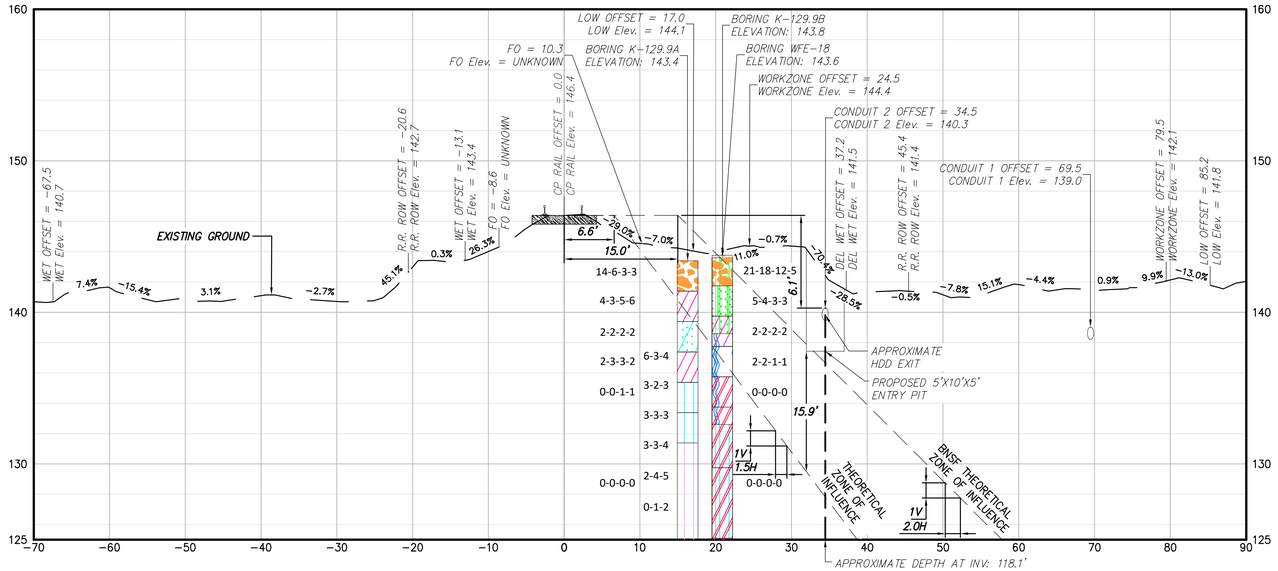
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY

HDD 18 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-650

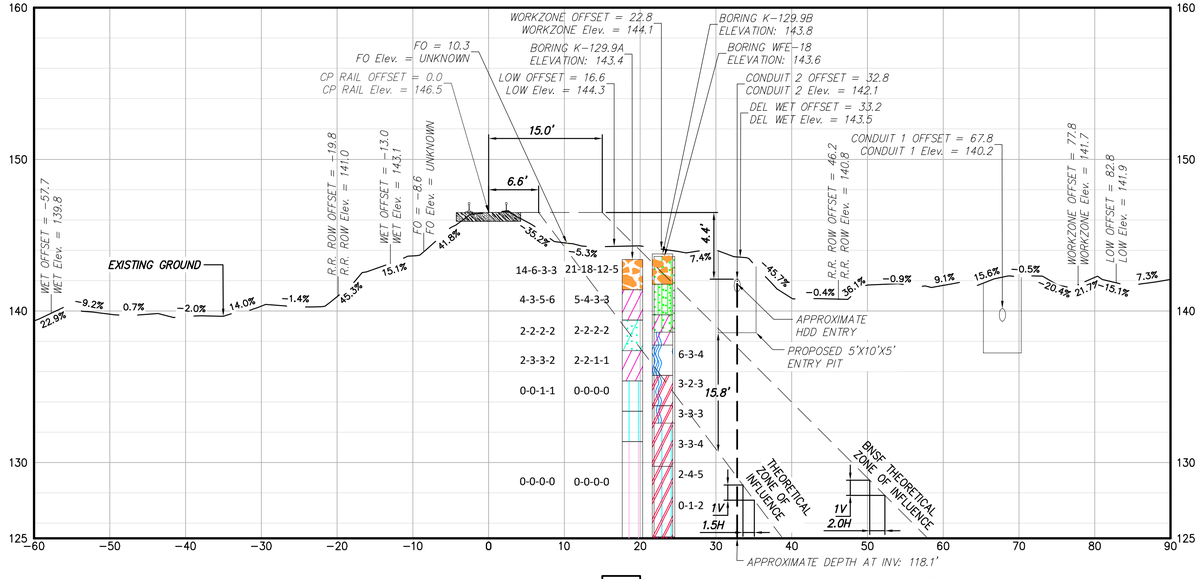
DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE: AS NOTED | DATE: 03/22/2023 | REV. NO.: C

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\066076_P2_C-311-C-311A.DWG Saved: 3/15/2023 7:59:33 AM Plotted: 3/17/2023 9:36:29 AM Current User: Snyder, Morgan LastSavedBy: 6043



4 HDD #18 CONDUIT 2 EXIT PIT CUT SECTION; STA. 20654+96

CP RAIL CANADIAN MAINLINE MP: 60.08



3 HDD #18 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20649+00

CP RAIL CANADIAN MAINLINE MP: 60.20

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling

0 10 20 Scale in feet

0 5 10

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CHAMPLAIN HUDSON POWER EXPRESS

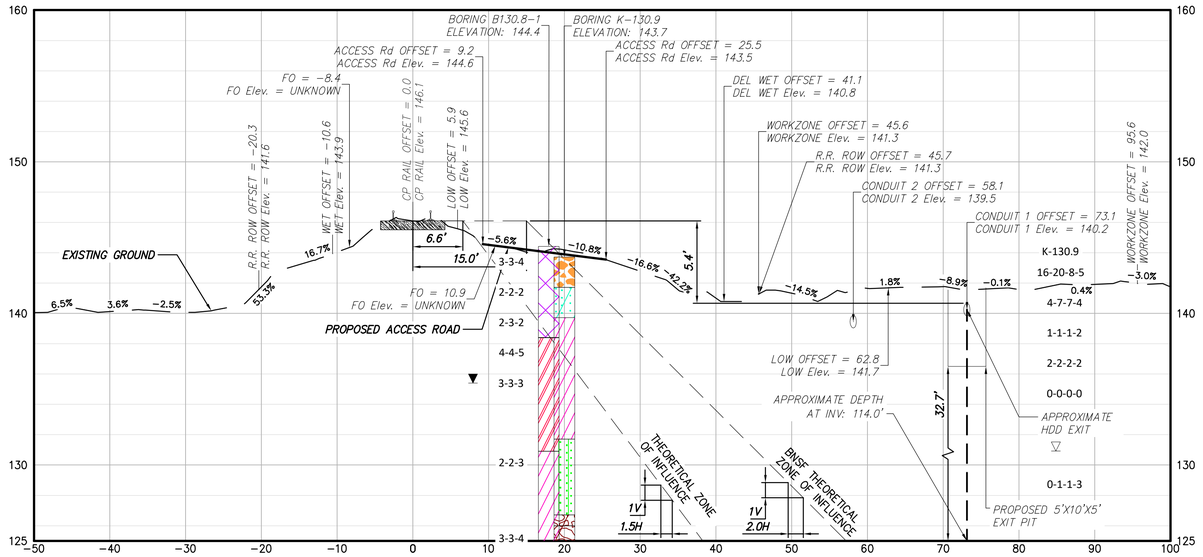
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY

HDD 18 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-650.1

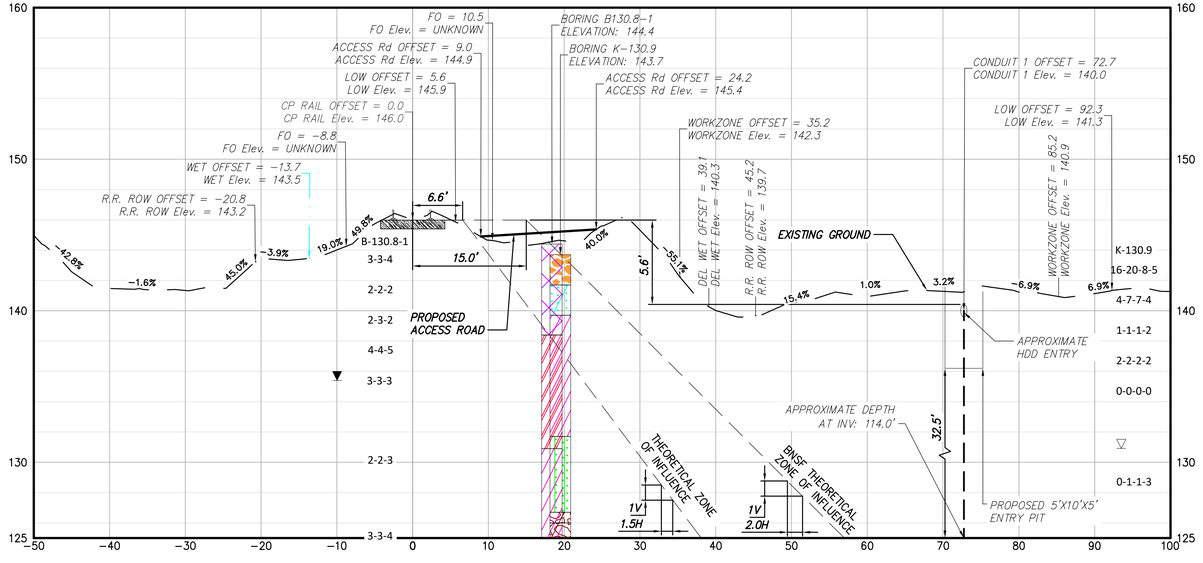
DRAWN BY: MAR | DESIGNED BY: MAR | APPROVED BY: JEO | SCALE: AS NOTED | DATE: 03/22/2023 | REV. NO.: C

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\066076_P2_C-311-C-311A.DWG Saved: 3/15/2023 7:59:33 AM Plotted: 3/17/2023 9:37:12 AM Current User: Snyder, Morgan LastSavedBy: 6043



2 HDD #19 CONDUIT 1 EXIT PIT CUT SECTION; STA. 20702+69

CP RAIL CANADIAN MAINLINE MP: 59.22



1 HDD #19 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20696+90

CP RAIL CANADIAN MAINLINE MP: 59.32

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

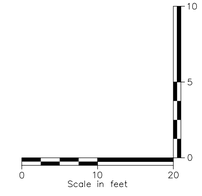
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
BR	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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087450
PROFESSIONAL ENGINEER

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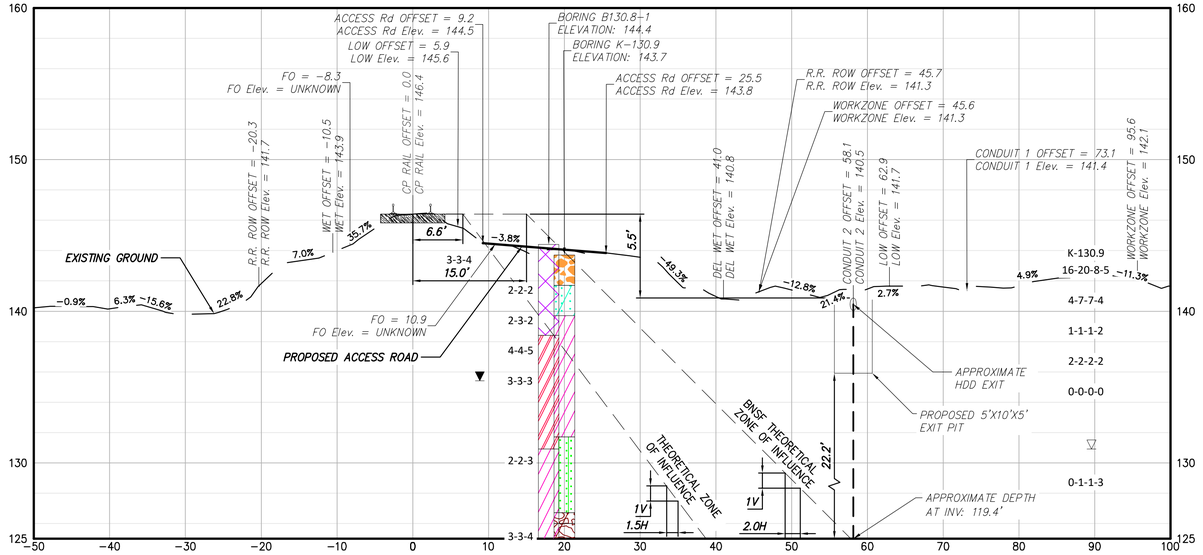
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 19 RAILROAD CROSSING SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-651

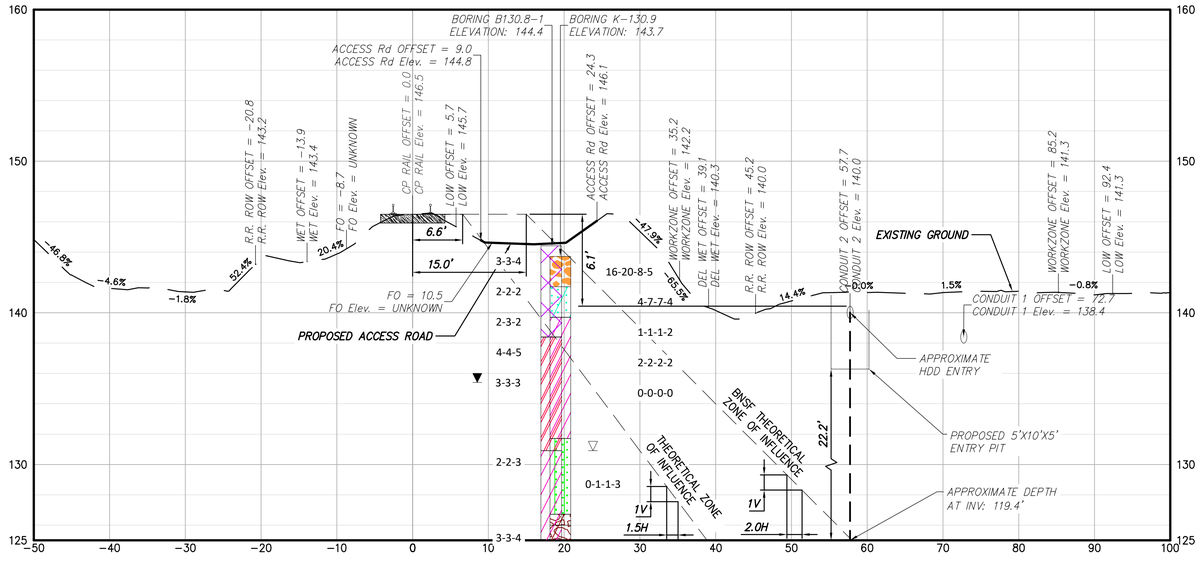
DRAWN BY: CZ | DESIGNED BY: CZ | APPROVED BY: JEO | SCALE AS NOTED | DATE 03/22/2023 | REV. NO. C

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\312 HDD 19 PLAN AND PROFILE - CONDUIT 1.DWG Saved: 3/15/2023 10:25:51 AM Plotted: 3/17/2023 9:39:38 AM Current User: Snyder, Morgan LastSavedBy: 6043



4 HDD #19 CONDUIT 2 EXIT PIT CUT SECTION; STA. 20702+76

CP RAIL CANADIAN MAINLINE MP: 59.22



3 HDD #19 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20696+99

CP RAIL CANADIAN MAINLINE MP: 59.32

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

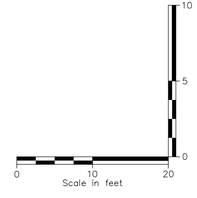
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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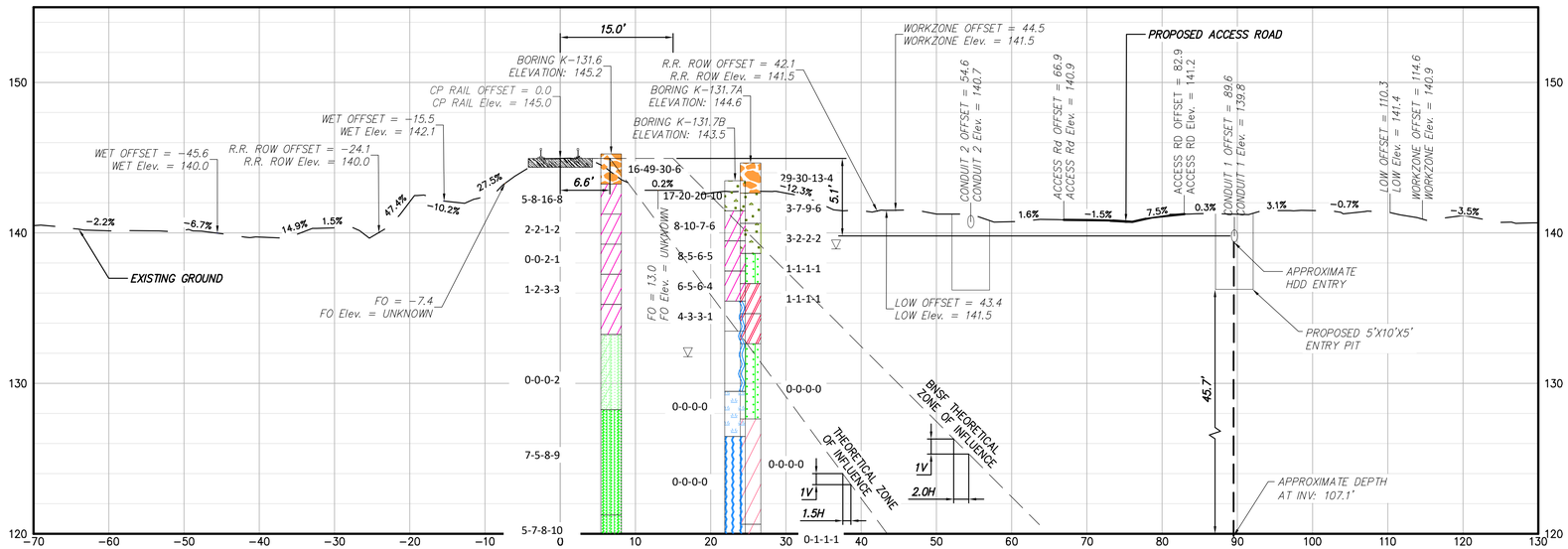
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 19 RAILROAD CROSSING SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-651.1

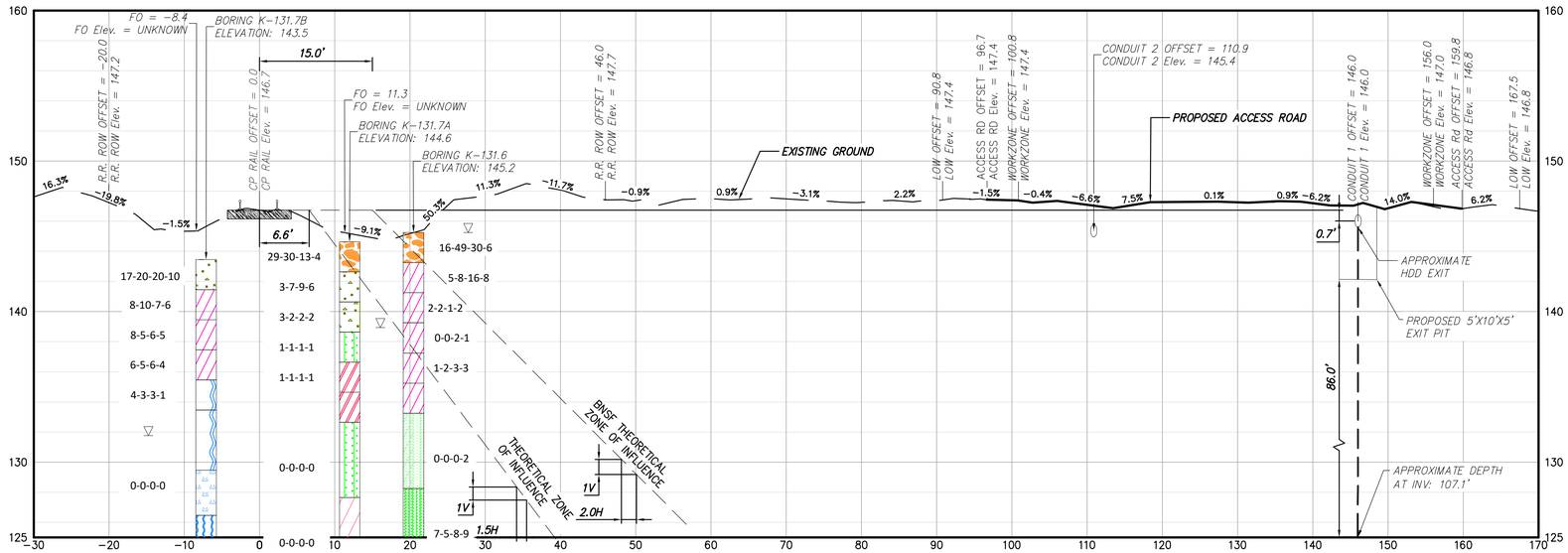
DRAWN BY: CZ | DESIGNED BY: CZ | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\312 HDD 19 PLAN AND PROFILE - CONDUIT 1.DWG Saved: 3/15/2023 10:25:51 AM Current User: Snyder, Morgan LastSavedBy: 6043 Plotted: 3/17/2023 9:40:34 AM



2 HDD #20 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20749+32

CP RAIL CANADIAN MAINLINE MP: 58.37



1 HDD #20 CONDUIT 1 EXIT PIT CUT SECTION; STA. 20737+42

CP RAIL CANADIAN MAINLINE MP: 58.60

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	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: 0, 10, 20; 0, 5, 10

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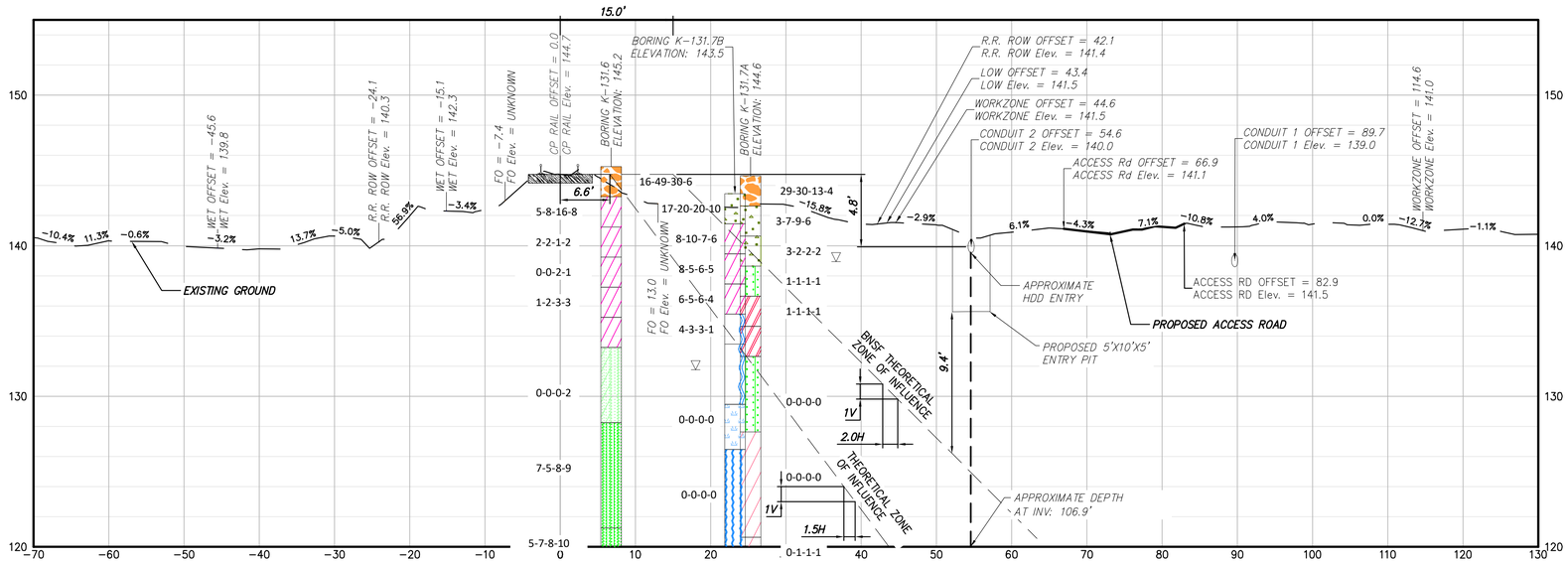
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

DRAWN BY: CJL | DESIGNED BY: CJL | APPROVED BY: JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 20 RAILROAD CROSS SECTION CUT

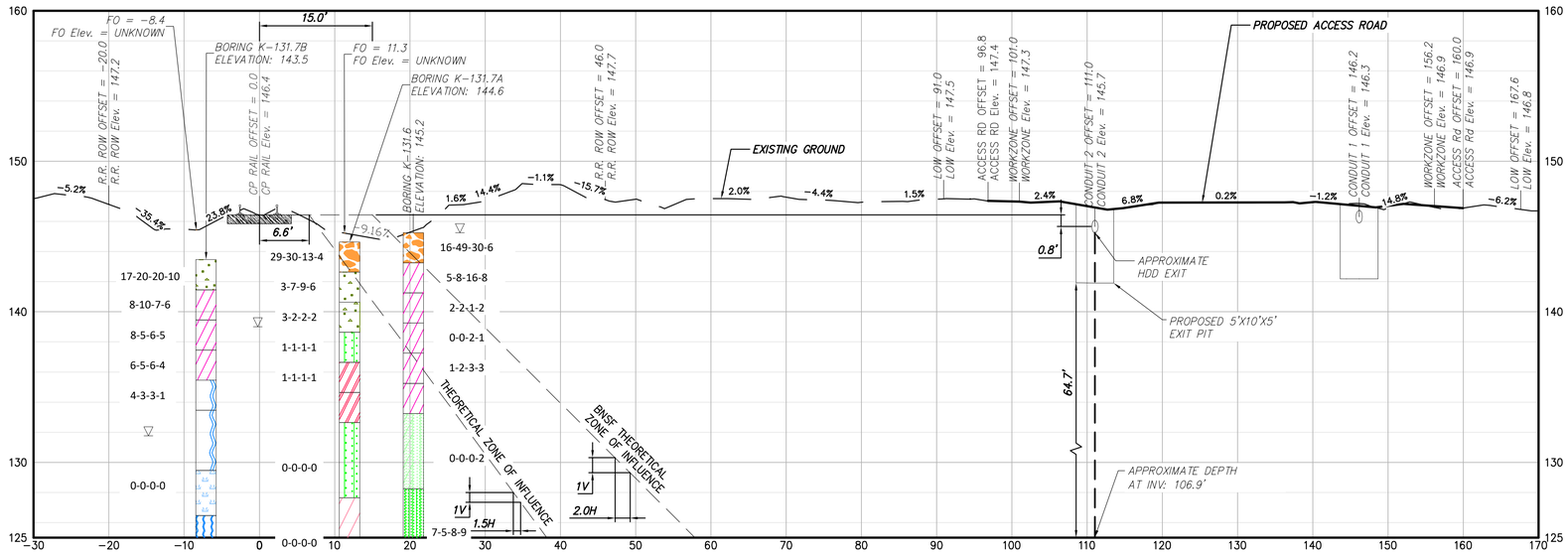
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-652
SCALE	AS NOTED
DATE	03/22/2023
REV. NO.	C

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\313 HDD 20 PLAN AND PROFILE – CONDUIT 1.DWG Saved: 3/15/2023 8:15:11 AM Plotted: 3/17/2023 9:43:13 AM Current User: Snyder, Morgan LastSavedBy: 6043



4 HDD #20 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20749+28

CP RAIL CANADIAN MAINLINE MP: 58.37



3 HDD #20 CONDUIT 2 EXIT PIT CUT SECTION; STA. 20737+43

CP RAIL CANADIAN MAINLINE MP: 58.60

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

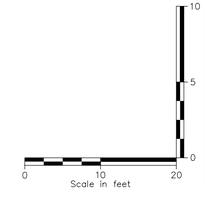
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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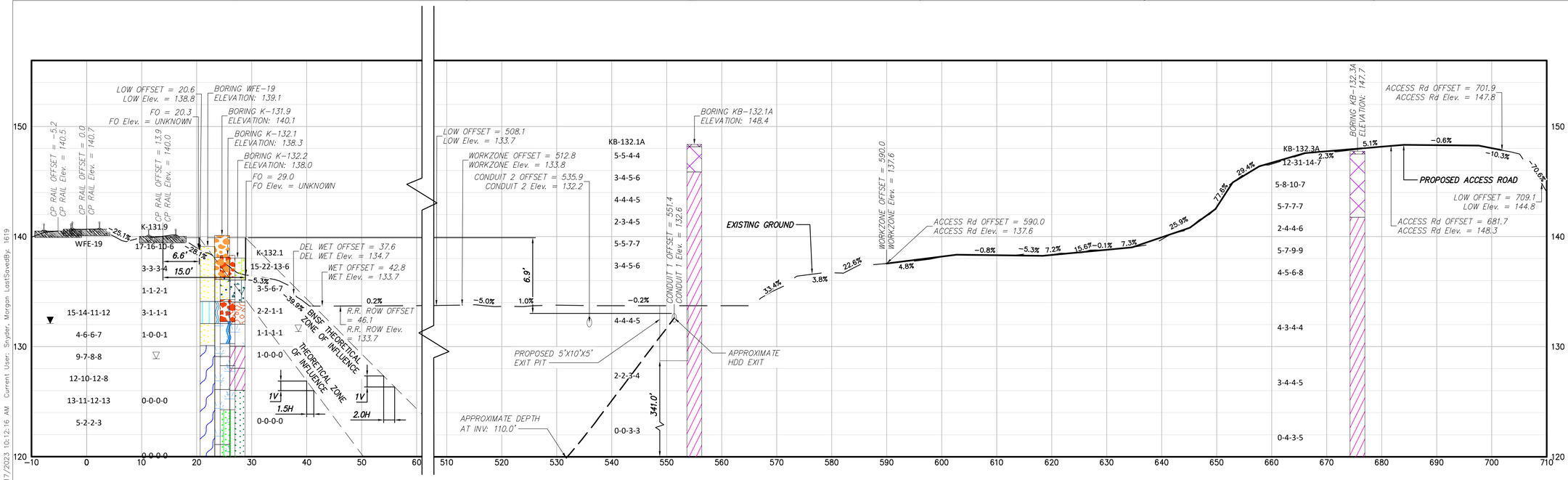
DRAWN BY: CJL | DESIGNED BY: CJL | APPROVED BY: JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 20 RAILROAD CROSS SECTION CUT

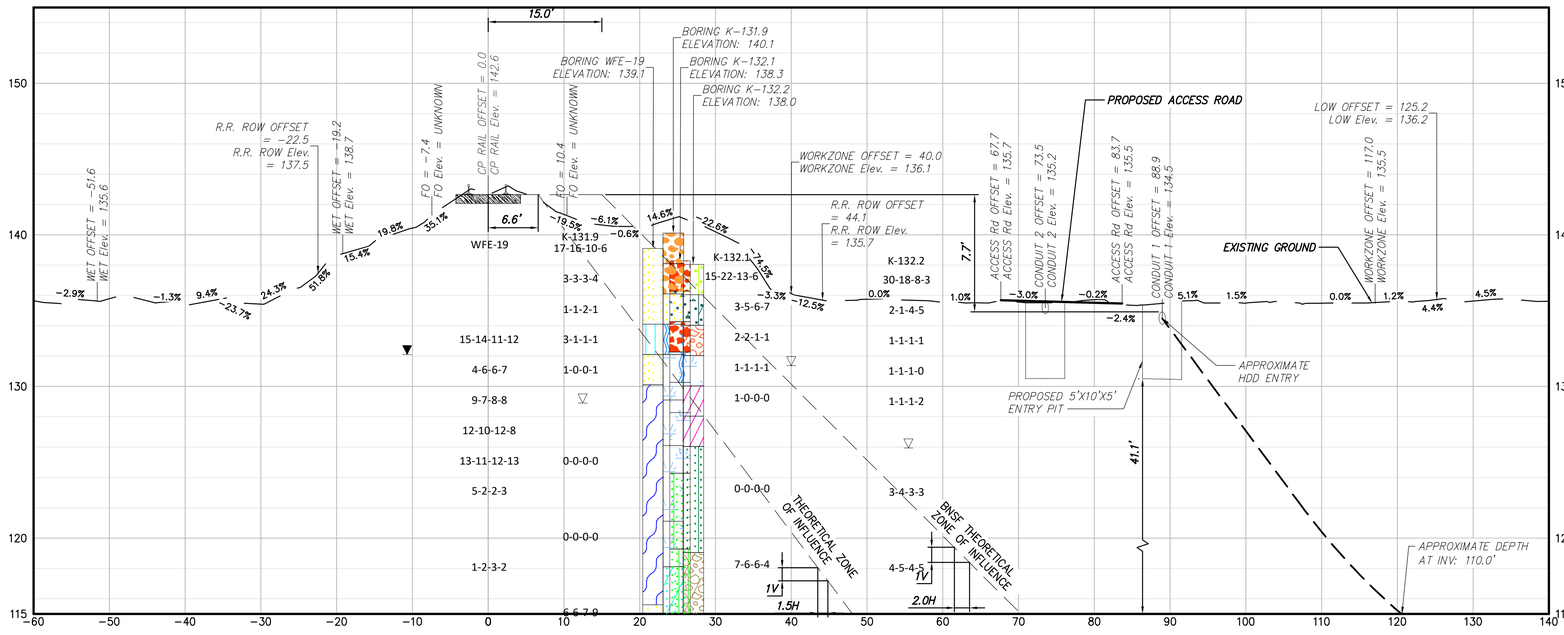
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-652.1
SCALE	AS NOTED
DATE	03/22/2023
REV. NO.	C

File: V:\PROJECTS\ANY\K6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\313 HDD 20 PLAN AND PROFILE – CONDUIT 1.DWG Saved: 3/15/2023 8:15:11 AM Plotted: 3/17/2023 9:44:05 AM Current User: Snyder, Morgan LastSavedBy: 6043



2 HDD #21 CONDUIT 1 EXIT PIT SECTION; STA. 20776+41

CP RAIL CANADIAN MAINLINE MP: 57.86



1 HDD #21 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20756+78

CP RAIL CANADIAN MAINLINE MP: 58.23

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

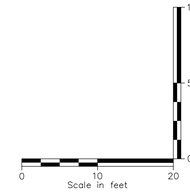
Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	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
	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-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 21 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-653

DRAWN BY: ES | DESIGNED BY: ES | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 03/22/2023

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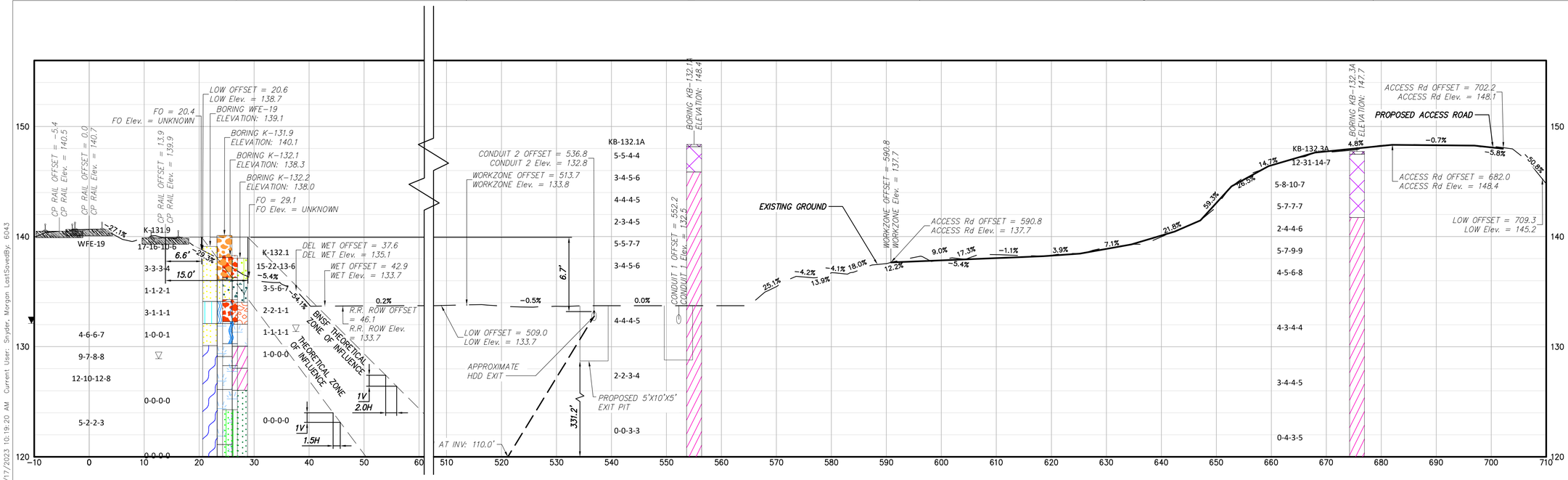
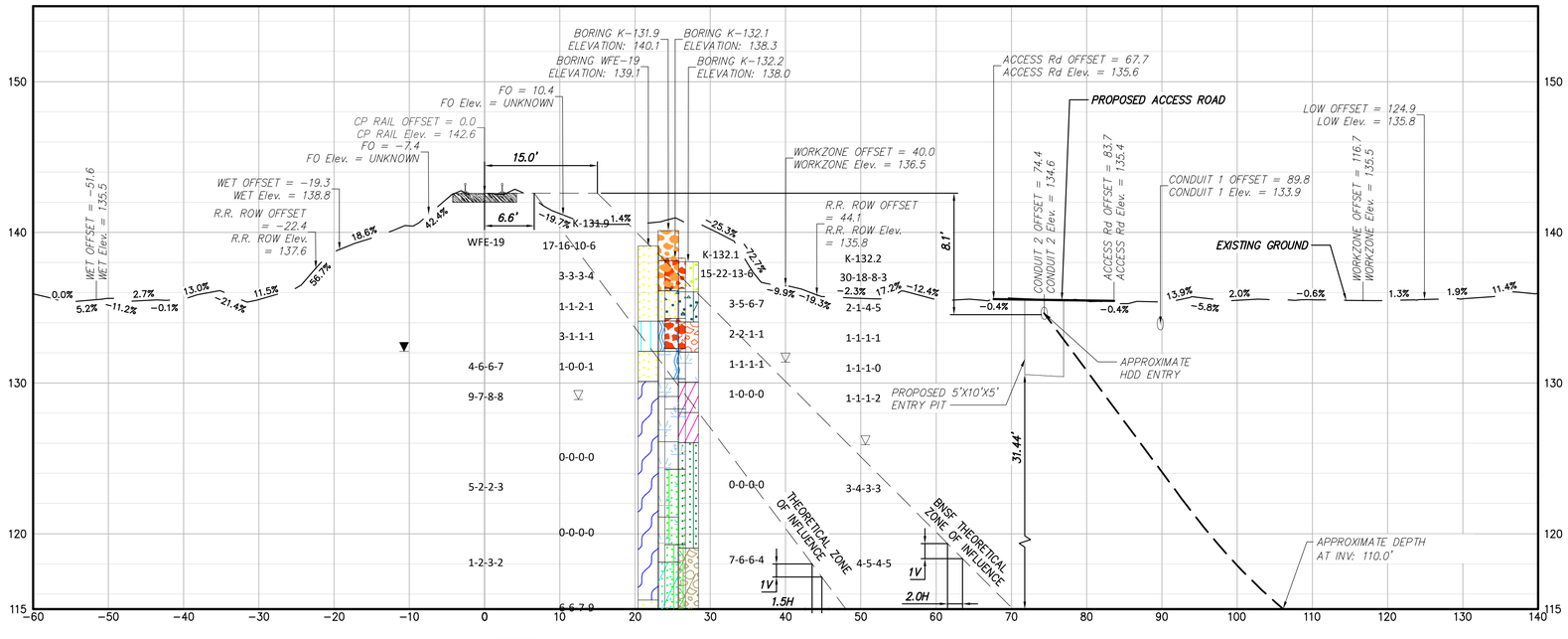


4 HDD #21 CONDUIT 2 EXIT PIT SECTION; STA. 20776+41
CP RAIL CANADIAN MAINLINE MP: 57.42



3 HDD #21 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20756+78
CP RAIL CANADIAN MAINLINE MP: 57.79

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%
11000psi =UCS

2D strip logs shown at 10x exaggeration
3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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GW-GM	Well Graded GRAVEL with SILT
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MH	Elastic SILT
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
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SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
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SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
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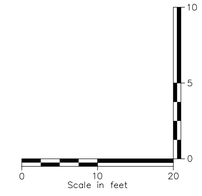
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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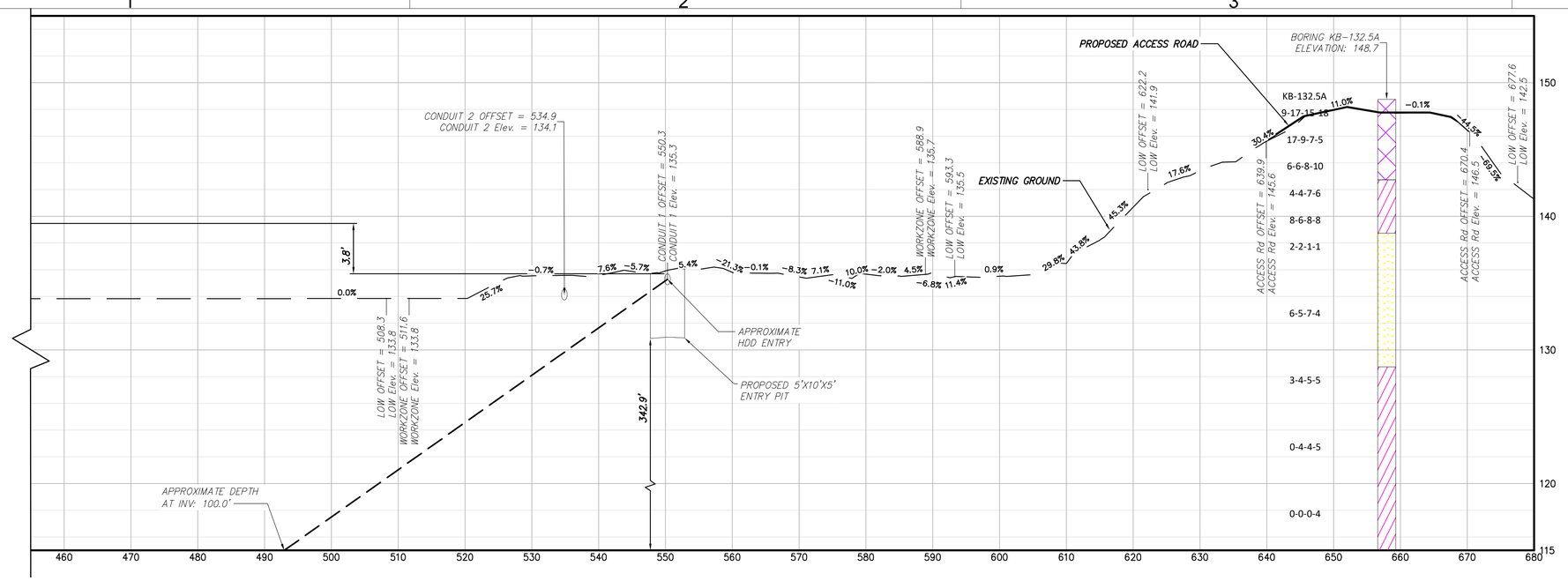
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 21 RAILROAD CROSS SECTION CUT

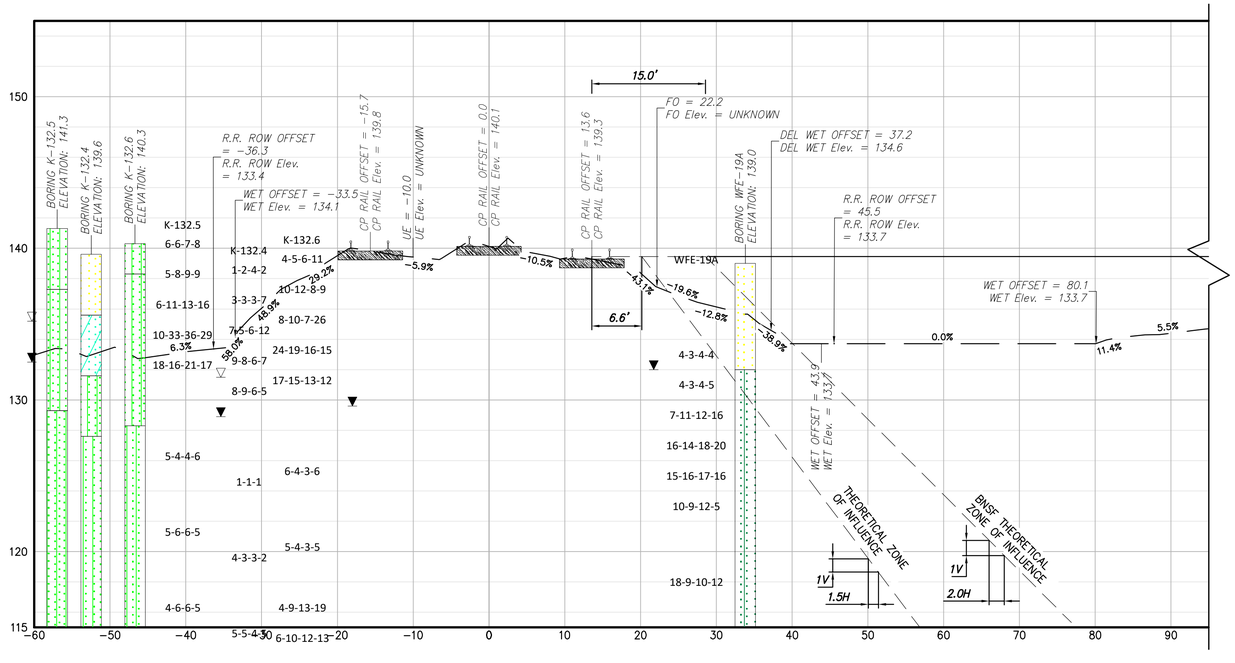
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-653.1

DRAWN BY: ES | DESIGNED BY: ES | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 03/22/2023

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 2\315 HDD 21 PLAN AND PROFILE - CONDUIT 1.DWG Saved: 3/17/2023 10:14:44 AM Plotted: 3/17/2023 10:19:20 AM Current User: Snyder, Morgan LastSavedBy: 6043



1 HDD #21A CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20780+25
CP RAIL CANADIAN MAINLINE MP: 58.23



1 HDD #21A CONDUIT 1 ENTRY PIT CUT SECTION; STA. 20780+25
CP RAIL CANADIAN MAINLINE MP: 58.23

BORING LOG STRIP LEGEND

B101
Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%
11000psi =UCS

2D strip logs shown at 10x exaggeration
3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
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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
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USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	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

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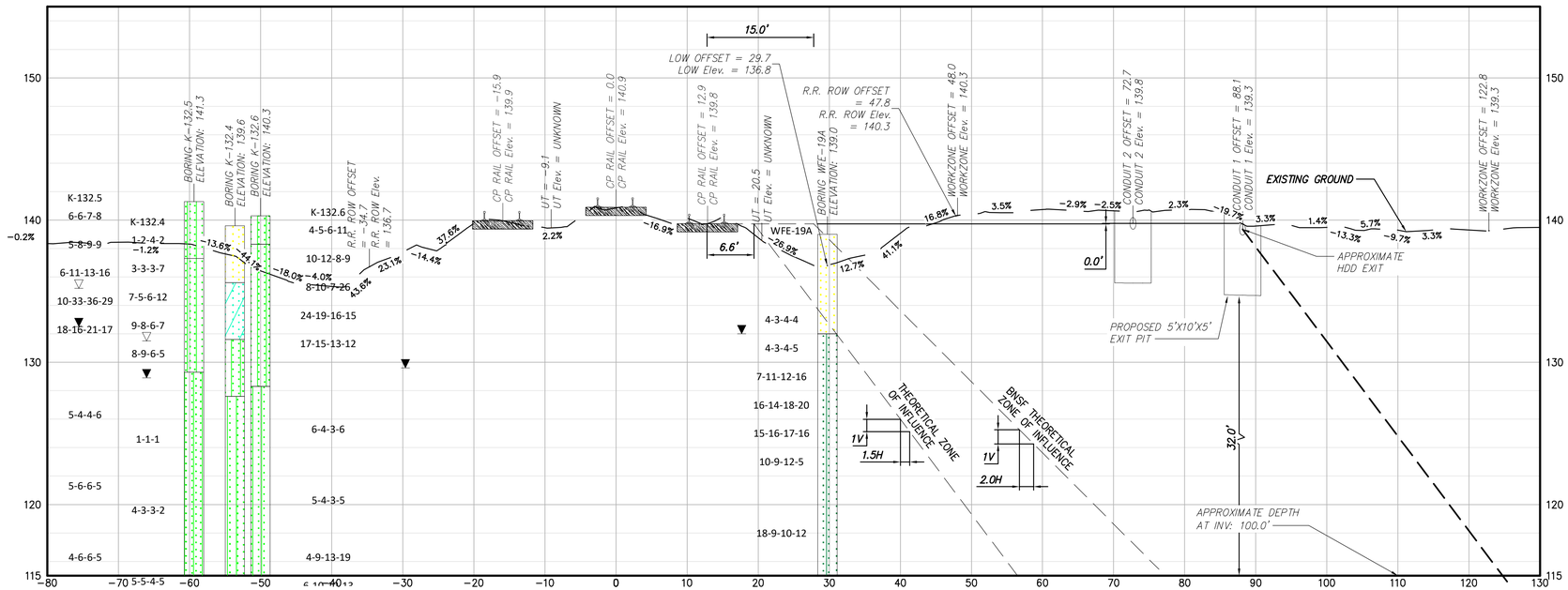
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY
HDD 21A RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-654
SCALE	AS NOTED
DATE	03/22/2023
REV. NO.	C



2 HDD #21A CONDUIT 1 EXIT PIT SECTION; STA. 20799+79

CP RAIL CANADIAN MAINLINE MP: 57.86

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	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
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OH	ORGANIC Fat CLAY
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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
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SW-SM	Well Graded SAND with SILT
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USGS 670	Interbedded Sandstone and Shale
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USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
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HDD 21A RAILROAD CROSS SECTION CUT

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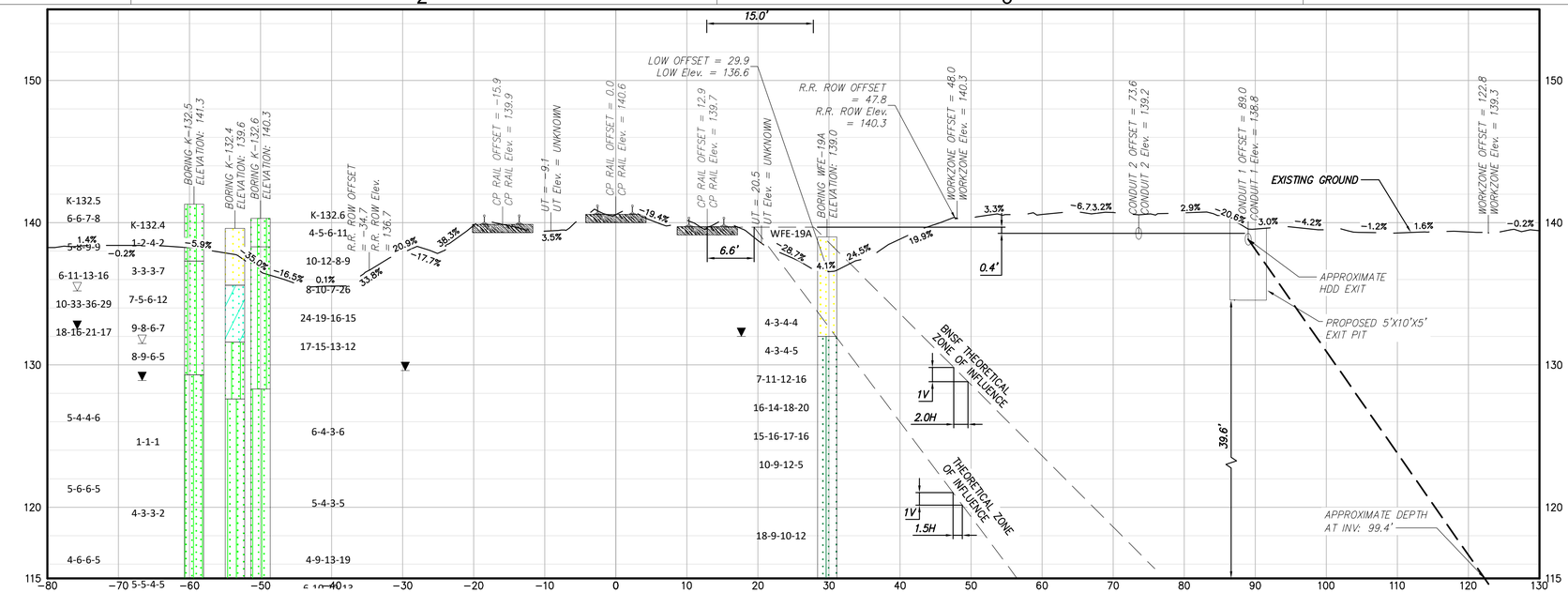
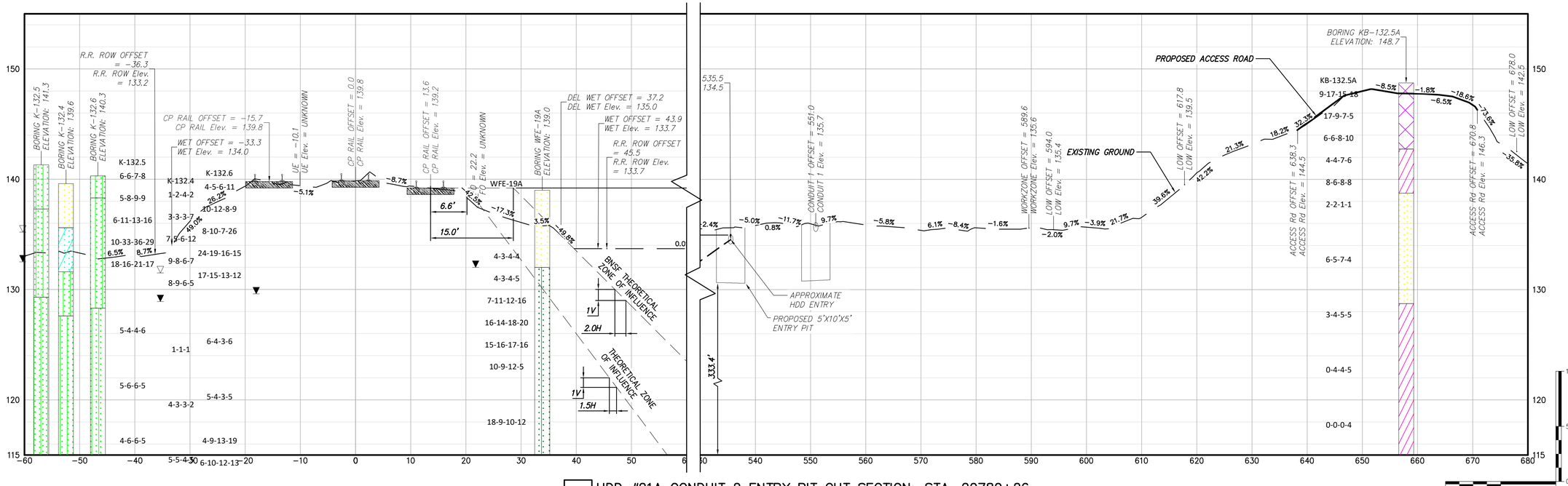
CHA PROJECT NO.	066076
DRAWING NO.	C-654.1

DRAWN BY: ES | DESIGNED BY: ES | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023



4 HDD #21A CONDUIT 2 EXIT PIT SECTION; STA. 20799+71

CP RAIL CANADIAN MAINLINE MP: 57.42



3 HDD #21A CONDUIT 2 ENTRY PIT CUT SECTION; STA. 20780+26

CP RAIL CANADIAN MAINLINE MP: 57.79

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

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Boulder	Boulder
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CL-ML	SILTY CLAY
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GC-GM	SILTY CLAYEY GRAVEL
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GW-GM	Well Graded GRAVEL with SILT
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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-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling

CHPE Champlain Hudson Power Express

Kiewit

CHA
111 Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 . www.chacompanies.com

STATE OF NEW YORK — JEFFREY O'DONNELL — 087450 — PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/22/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 3 - PACKAGE 2 - FORT ANN TO KINGSBURY

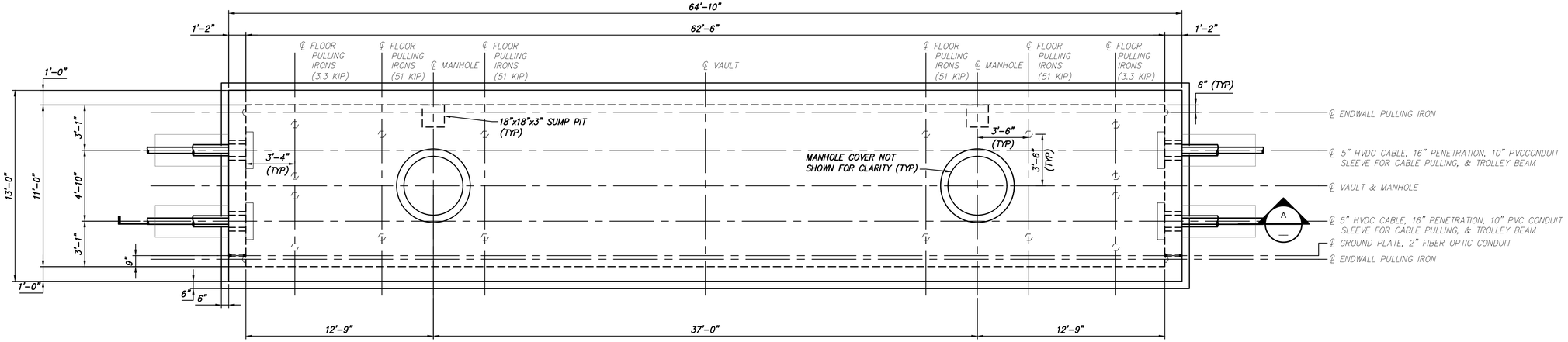
HDD 21A RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-654.2

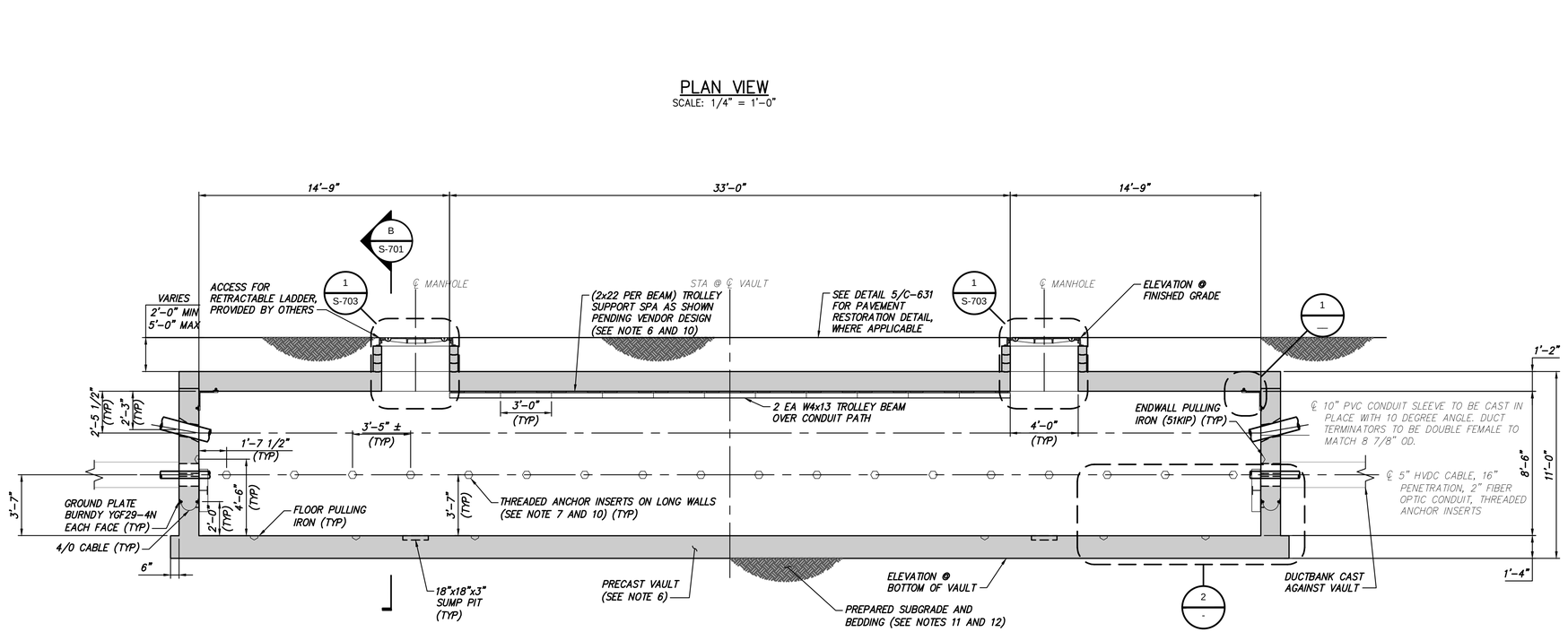
DRAWN BY: ES | DESIGNED BY: ES | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 03/22/2023

NOTES:

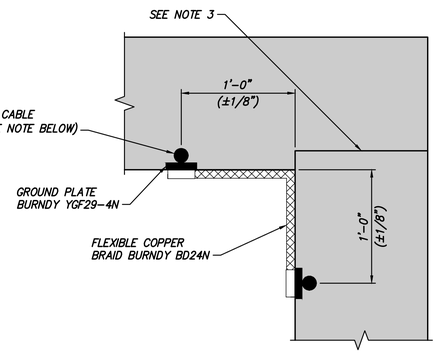
1. EACH ENDWALL (8.5 FT x 11 FT) IS DESIGNED FOR A SINGLE 51,000 LB PULLING IRON FORCE. THE FLOOR SLAB IS DESIGNED FOR FOUR CONCURRENT 3,300 LB PULLING IRON FORCES AND A SINGLE 51,000 LB PULLING IRON FORCE. SEE DETAIL 2 FOR RACKING FORCES AT EACH END.
2. DESIGN LIVE LOAD: HL-93.
3. EXTERIOR COATING & JOINT SEALERS/WATER STOPS TO BE USED BETWEEN PRECAST JOINTS, AS SPECIFIED.
4. MAXIMUM PRECAST PIECE PICK WEIGHT LIMITED TO 50,000 LB.
5. SEE ELECTRICAL DRAWINGS FOR CABLE RACKING DETAILS & GROUND WIRE DETAILS.
6. WALL THICKNESSES TO BE FINALIZED PER APPROVED VENDOR'S DESIGN. REFER TO APPROVED VENDOR SHOP DRAWINGS FOR WEIGHTS AND PICK POINTS.
7. THREADED ANCHOR WORKING LOAD SHALL BE 1,100 LB MINIMUM.
8. LINK SEAL TO BE USED BETWEEN CABLE CONDUIT AND PENETRATION SLEEVE, AS SPECIFIED.
9. ELECTRIC SUMP PUMP TO BE PROVIDED BY OTHERS.
10. SEE SHEET S-702 FOR ANCHOR AND EMBED LOCATIONS.
11. ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.
12. A MINIMUM BEDDING SECTION CONSISTING OF A 4-INCH THICK MUDMAT OR 4-INCH THICK SELECT GRANULAR FILL SHALL BE PLACED ON TOP OF PREPARED SUBGRADE. ADDITIONAL BEDDING MAY BE REQUIRED AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE BASED ON IN-SITU CONDITIONS.
13. PRECAST SUPPLIER TO COORDINATE WITH MANHOLE COVER SUPPLIER FOR FIT-UP ISSUES.
14. BACKFILL AREA AROUND VAULT WITH FLUIDIZED THERMAL BACKFILL (FTB) UP TO TOP OF TOP SLAB. ABOVE TOP SLAB, BACKFILL WITH SCREENED NATIVE SOIL TO BE COMPACTED PER EARTHWORK SPECIFICATION.
15. FOR LIMITS OF EXCAVATION, SEE CIVIL PLAN DRAWINGS.



PLAN VIEW
SCALE: 1/4" = 1'-0"

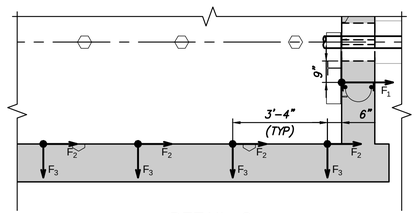


SECTION VIEW A
SCALE: 1/4" = 1'-0"



DETAIL 1
SCALE: 1 1/2" = 1'-0"

NOTE: USED TO ELECTRICALLY JOIN PRECAST CONCRETE SECTIONS TOGETHER. BY MEANS OF REBAR CONNECTIONS. TO BE APPLIED AT EACH PRECAST SECTION, SUCH THAT ALL SECTIONS ARE JOINED TOGETHER.



DETAIL 2
SCALE: 3/8" = 1'-0"

NOTE: FORCES PROVIDED IN DETAIL 2 ARE PER CABLE AND ARE THE RESULT OF POST-INSTALLED CABLE RACKING EQUIPMENT. FORCES ARE POSITIVE IN THE DIRECTION IN WHICH THEY ARE DRAWN AND ARE ALIGNED WITH ℄ HVDC CABLE. RACKING FORCES ARE NOT CONCURRENT WITH FLOOR PULLING IRON OR ENDWALL PULLING IRON FORCES. RACKING INSTALLED AT EACH END OF THE VAULT, FORCES APPLIED SYMMETRICALLY AT EACH END.

F_1 = 9.0 KIP F_2 = 2.3 KIP F_3 = 7.9 KIP

CHPE Champlain Hudson Power Express

Kiewit

STATE OF NEW YORK MARK WANCHUN JIN 090036 LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/17/2023	FINAL SUBMITTAL	JNK	OO

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO

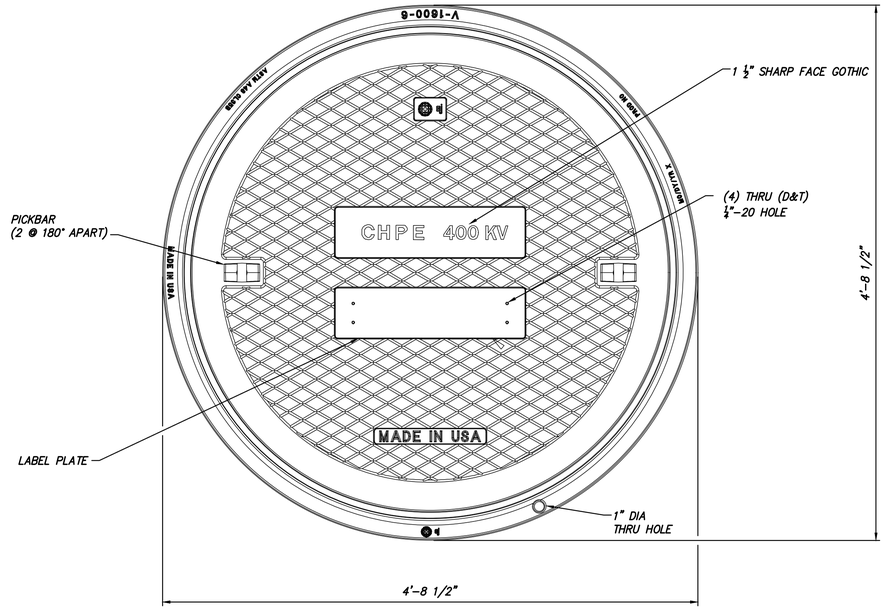
CHAMPLAIN HUDSON POWER EXPRESS

SPLICE VAULT PLAN AND ELEVATION

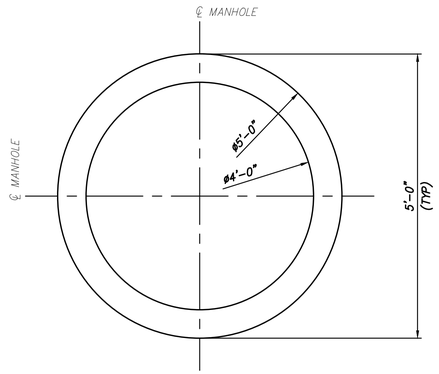
KIEWIT PROJECT NO. 21162

DRAWING NO. S-700

SCALE AS SHOWN | DATE | REV. NO. | SH.NO. XX



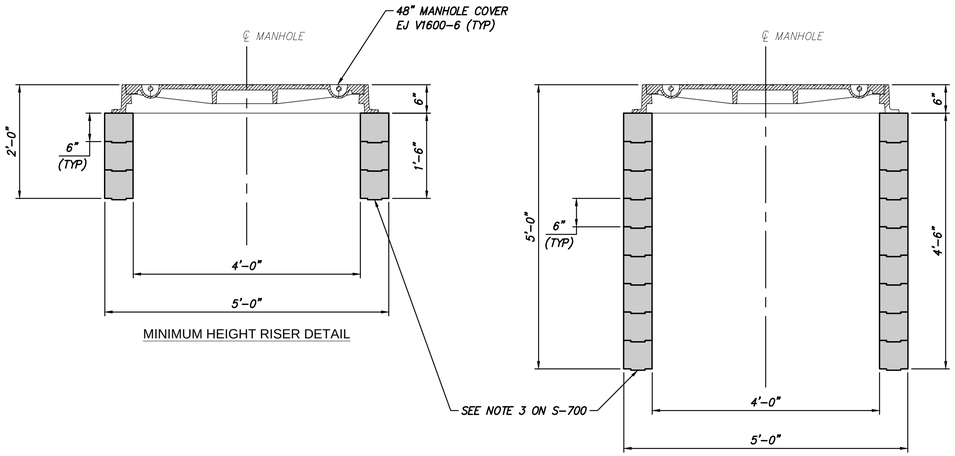
MANHOLE COVER
SCALE: 1 1/2" = 1'-0"



PRECAST CAP/RISER RINGS

NOTES:

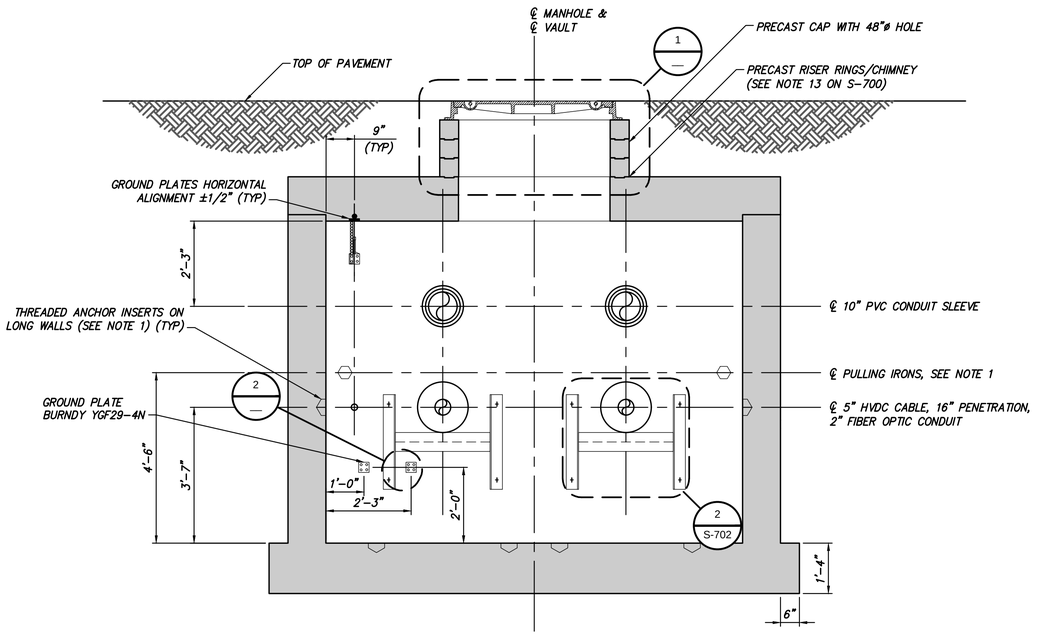
1. REFER TO NOTES ON SHEET S-700.
2. MANHOLE COVER SHALL BE RATED FOR HL-93 WHEEL LOADING MINIMUM.



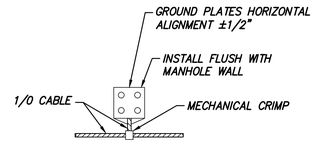
MINIMUM HEIGHT RISER DETAIL

MAXIMUM HEIGHT RISER DETAIL

DETAIL 1
SCALE: 3/4" = 1'-0"



SECTION B
SCALE: 1/2" = 1'-0"



DETAIL 2
SCALE: 1 1/2" = 1'-0"

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/17/2023	FINAL SUBMITTAL	JNK	OO

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO

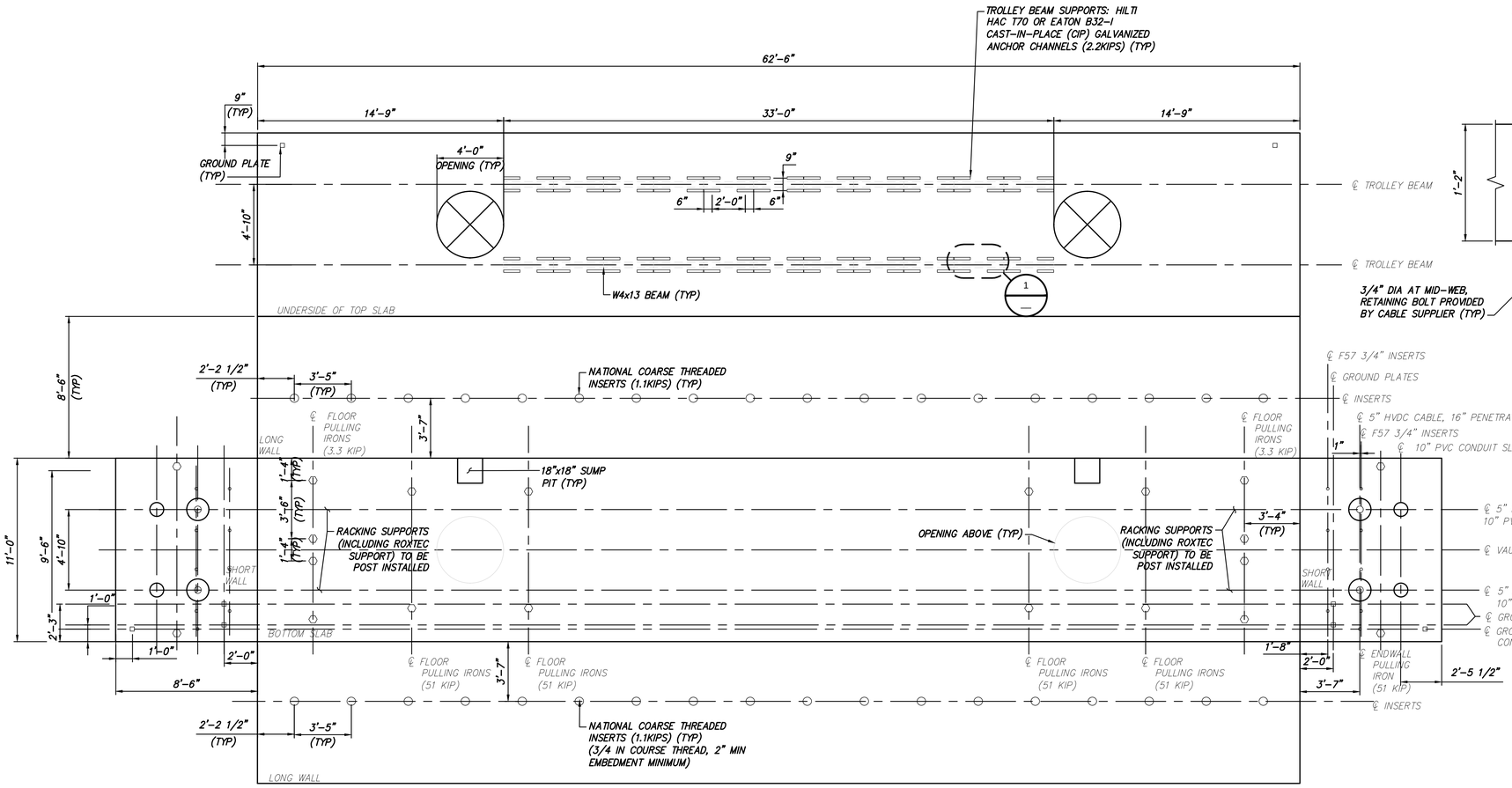
CHAMPLAIN HUDSON POWER EXPRESS

SPLICE VAULT SECTION AND DETAILS

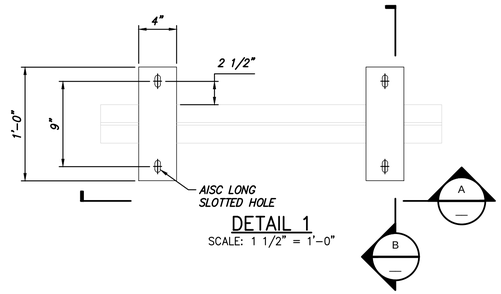
KIEWIT PROJECT NO. 21162

DRAWING NO. S-701

SCALE AS SHOWN | REV. NO. | DATE | SH.NO. XX



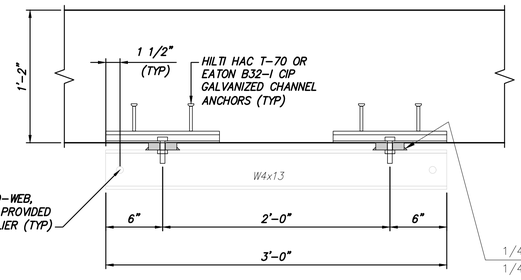
UNFOLDED INTERIOR VIEW
SCALE: 1/4" = 1'-0"



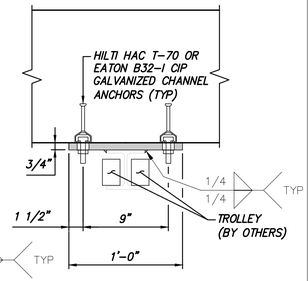
DETAIL 1
SCALE: 1 1/2" = 1'-0"

NOTES:

1. REFER TO NOTES ON SHEET S-700.



SECTION A
SCALE: 1 1/2" = 1'-0"



SECTION B
SCALE: 1 1/2" = 1'-0"

DETAIL 2
SCALE: 1 1/2" = 1'-0"

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STATE OF NEW YORK · MARK WANCHUN OO · 080036 · LICENSED PROFESSIONAL ENGINEER

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.

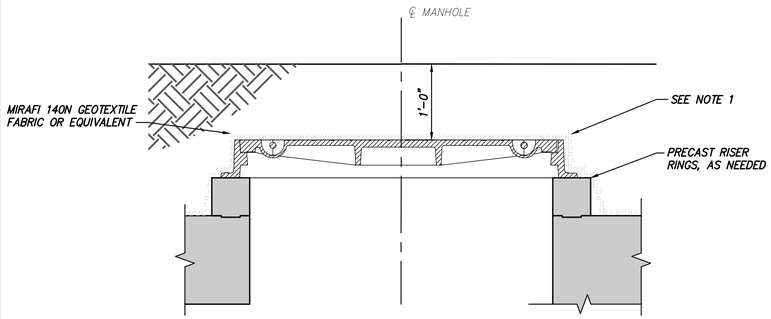
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/17/2023	FINAL SUBMITTAL	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

SPLICE VAULT ANCHOR AND EMBED DETAILS

KIEWIT PROJECT NO.	21162
DRAWING NO.	S-702

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO | SCALE AS SHOWN | REV. NO. | DATE | SH.NO. XX



FINAL POSITION OF MANHOLE
DETAIL 1
SCALE: 1" = 1'-0"

NOTES:

1. FOR ALL SPLICE VAULT MANHOLES IN PACKAGES 1A AND 1B: AFTER CABLE COMMISSIONING, RISERS TO BE REMOVED, MANHOLE FRAMES AND COVERS TO BE LOWERED TO FINAL POSITION. MANHOLE FRAMES AND COVERS TO BE COVERED WITH 8' X 8' MIRAFI 140N GEOTEXTILE FABRIC OR EQUIVALENT. FULL DEPTH PAVEMENT WILL BE RESTORED PRIOR TO MILL AND OVERLAY AFTER CABLE COMMISSIONING.

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0	03/17/2023	FINAL SUBMITTAL	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

SPLICE VAULT DETAILS

KIEWIT PROJECT NO. 21162

DRAWING NO. S-703

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO | SCALE AS SHOWN | REV. NO. | DATE | SH.NO. XX

DESIGN SPECIFICATIONS

1. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020
2. NYSDOT LRFD BRIDGE DESIGN SPECIFICATIONS, 2021
3. NYSDOT LRFD BLUE PAGES, 2021
4. AREMA MANUAL FOR RAILWAY ENGINEERING, VOLUME 2 STRUCTURES, 2016
5. ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES

DESIGN LOADS

1. DEAD LOADS
   - 1.1. CONCRETE UNIT WEIGHT = 150 PCF
   - 1.2. STEEL UNIT WEIGHT = 490 PCF
2. SUPERIMPOSED DEAD LOADS
   - 2.1. WEIGHT OF TWO HVDC CABLES + ONE FIBER OPTIC CABLE AND ASSOCIATED CONDUIT = 47.53 PLF
   - 2.2. WEIGHT OF CABLE TRAY = 20.57 PLF
   - 2.3. PULLING IRON, TROLLEY BEAM, ANCHORAGE, EMBED FORCES NOTED ON DRAWINGS WHERE APPLICABLE.
3. EARTH LOADS
   - 3.1. SOIL BACKFILL UNIT WEIGHT = 125 PCF
4. LIVE LOAD SURCHARGE
   - 4.1. 100 PSF MINIMUM
5. LIVE LOADS
   - 5.1. 300 PSF MINIMUM AT GROUND SURFACE OF TRENCH SECTIONS AND VAULTS.
   - 5.2. HL-93
   - 5.3. COOPER E-80
6. WIND LOADS
   - 6.1. 50 PSF TRANSVERSE
   - 6.2. 10 PSF LONGITUDINAL
7. SNOW LOADS
   - 7.1. 50 PSF
8. WATER
   - 8.1. STRUCTURES ARE ASSUMED TO BE SUBMERGED.
9. THERMAL LOADS
   - 9.1. STRUCTURES ARE SUBJECT TO THERMOMECHANICAL LOADING FROM HVDC CABLES.
   - 9.2. TEMPERATURE GRADIENT.
10. SEISMIC LOADING
    - 10.1. BURIED STRUCTURES ARE NOT SUBJECT TO SEISMIC PROVISIONS.

MATERIALS:

1. REINFORCED CONCRETE
   - 1.1. f'c = 5,000 PSI AT 28 DAYS, UNO
   - 1.2. F3 FREEZE-THAW CATEGORY WHERE NOTED
2. REINFORCING STEEL
   - 2.1. ASTM A706, GRADE 60, UNO
3. STRUCTURAL STEEL
   - 3.1. ASTM A36, UNO
4. BOLTS
   - 4.1. ASTM A325, UNO
5. NUTS
   - 5.1. ASTM A563, UNO
6. WASHERS
   - 6.1. ASTM F436, UNO
7. POLYMER CONCRETE
   - 7.1. ANSI/SCTE 77 2013
8. REINFORCED THERMOSETTING RESIN CONDUIT
   - 8.1. NEC 355
9. PVC
   - 9.1. SCH 40

ABBREVIATIONS:

APPR	APPROACH
BRG	BEARING
CIP	CAST IN PLACE
CL	CENTERLINE
CLR	CLEAR COVER
DIA	DIAMETER
EL	ELEVATION
G	GIRDER
HS	HIGH STRENGTH
ICS	INTERMEDIATE CONDUIT SUPPORT
ID	INSIDE DIAMETER
IPS	IRON PIPE SIZE
KSI	KIPS PER SQUARE INCH
LLV	LONG LEG VERTICAL
NOM	NOMINAL
OD	OUTSIDE DIAMETER
PC	PRECAST
PL	PLATE
PROT	PROTECTIVE
PVC	POLYVINYL CHLORIDE
RT	ROUTE
STA	STATION
SW	STANDARD WALL
T	THICKNESS
UNO	UNLESS NOTED OTHERWISE

CHPE Champlain Hudson Power Express

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STATE OF NEW YORK · MARK WANCHUN JEE · 090036 · LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/17/2023	FINAL SUBMITTAL	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

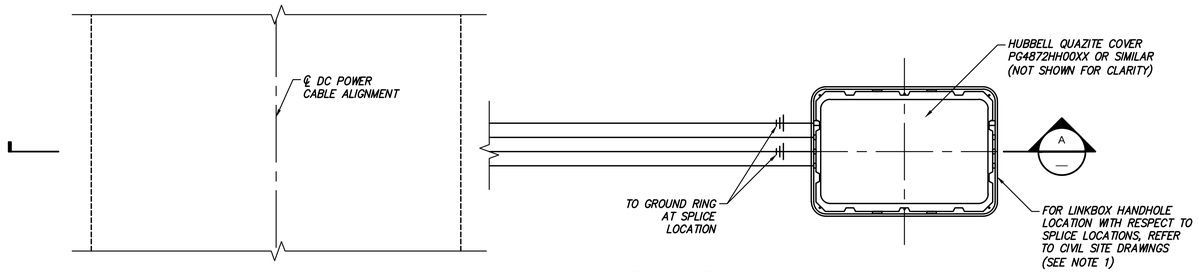
STRUCTURAL GENERAL NOTES AND ABBREVIATIONS

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO | SCALE AS SHOWN | REV. NO.

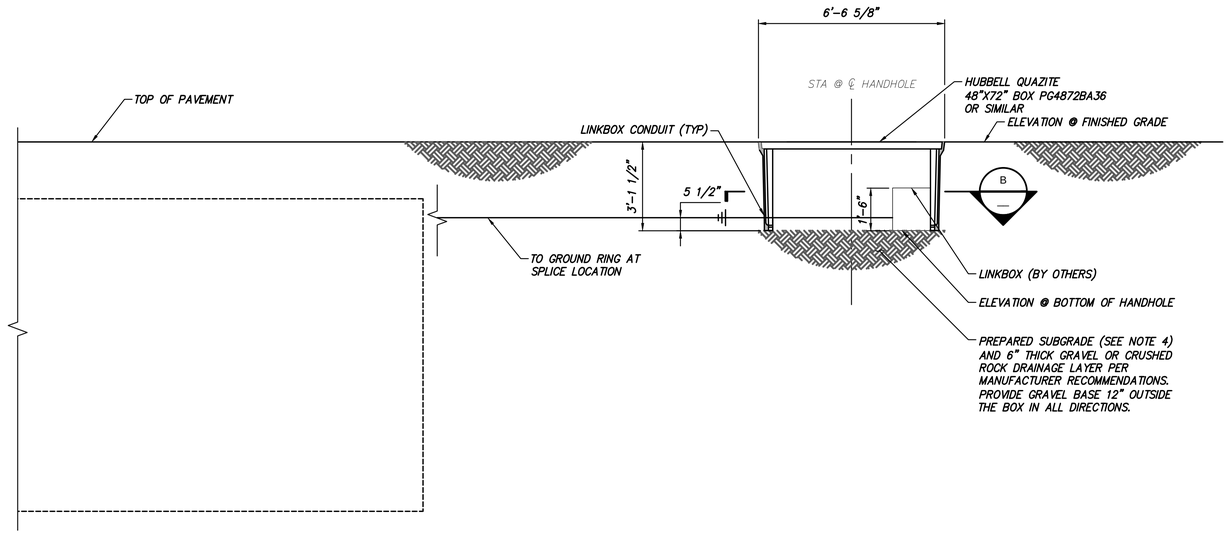
KIEWIT PROJECT NO. 21162

DRAWING NO. S-705

DATE | SH.NO. XX



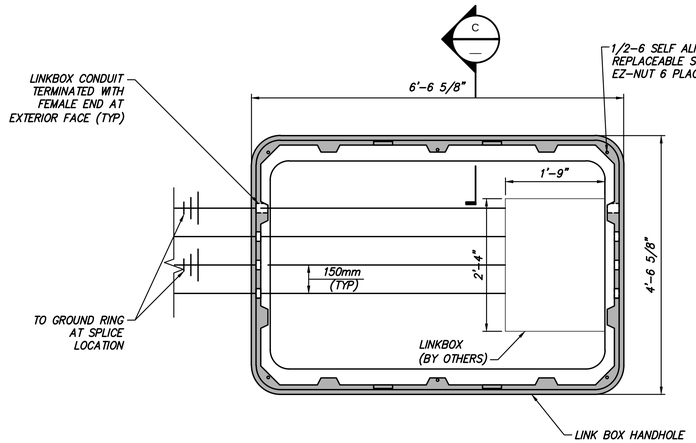
PLAN VIEW
SCALE: 3/8" = 1'-0"



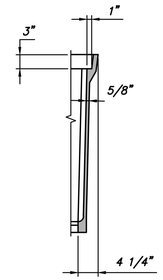
SECTION A
SCALE: 3/8" = 1'-0"

NOTES:

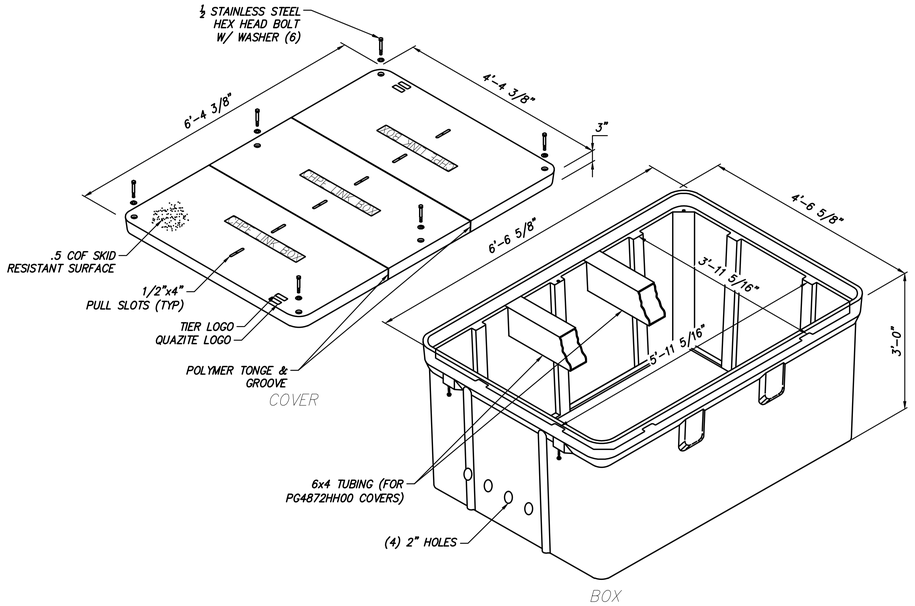
1. FOR LINK BOX DETAILS SEE ELECTRICAL DRAWINGS.
2. DESIGN LIVE LOAD: ANSI TIER 22 (OCCASIONAL NON-DELIBERATE HEAVY VEHICULAR TRAFFIC).
   VERTICAL DESIGN LOAD= 22,500 LBS;
   LATERAL DESIGN LOAD= 800 PSF.
   QUAZITE OR SIMILAR.
3. APPROXIMATE DEMANDS FROM COOPER E-80 LIVE LOADING AT 25 FT DISTANCE, 6 FT BELOW GROUND:
   LATERAL DESIGN LOAD= 270 PSF.
4. ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.



SECTION B
SCALE: 3/4" = 1'-0"



SECTION C
SCALE: 3/4" = 1'-0"



ISOMETRIC VIEW
SCALE: NTS

HUBBELL QUAZITE 48"x72" CORRUGATED WALL ASSEMBLY
PART NO. PG4872HH00XX AND PG4872BA36

CHPE Champlain Hudson Power Express

Kiewit

STATE OF NEW YORK ANDREA F. GRUNAU LICENSED PROFESSIONAL ENGINEER 094103

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	12/16/2022	FINAL EM&CP SUBMISSION	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

FRP LINK BOX HANDHOLES

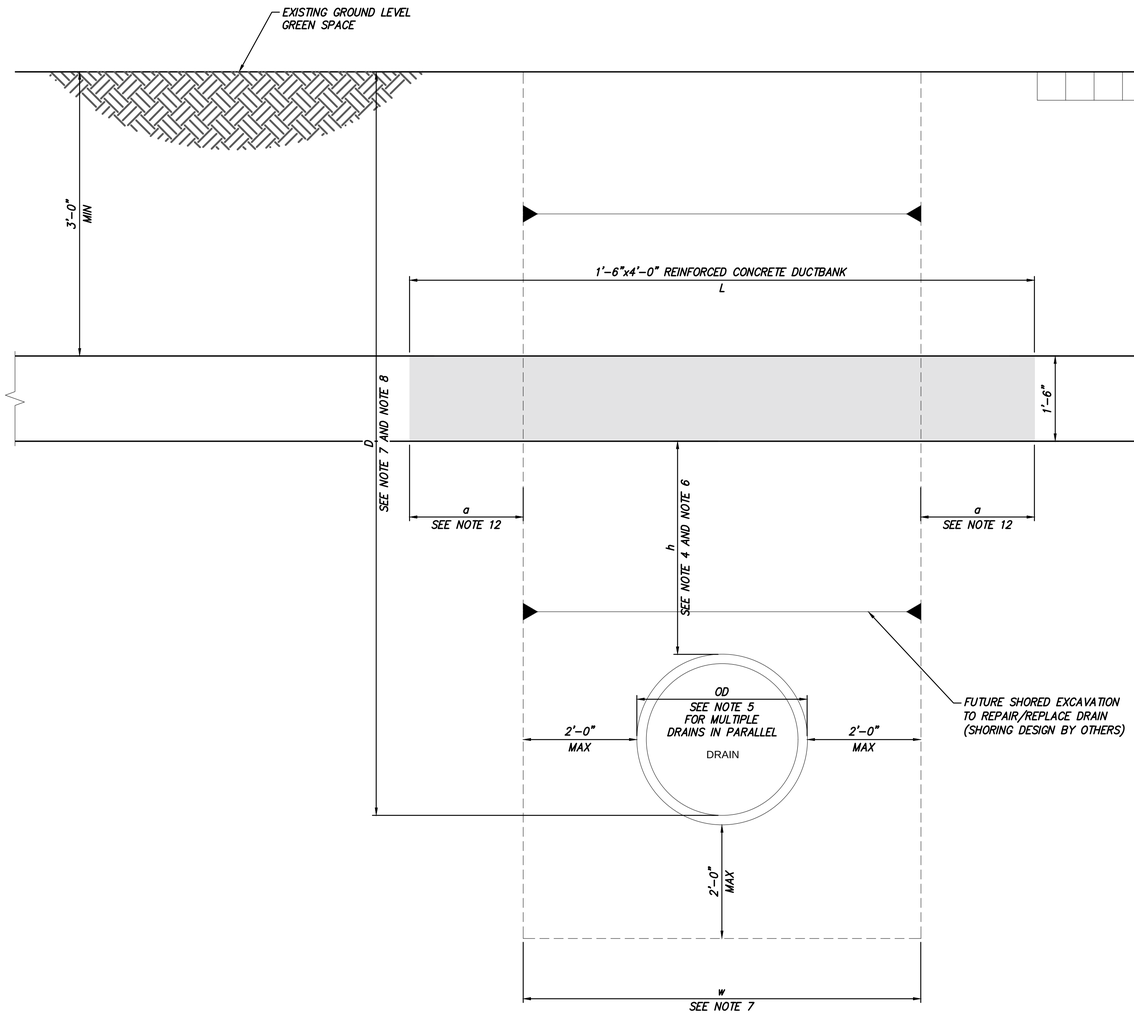
DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO

KIEWIT PROJECT NO. 21162

DRAWING NO. S-711

SCALE AS SHOWN | DATE 12/16/2022

REV. NO. 0 | SH.NO.



TYPICAL DUCT BANK SECTION OVER UTILITIES
(FOR D < 14FT)
SCALE: NTS

NOTES:

1. TYPICAL SECTION AND FOLLOWING NOTES PROVIDED PROPOSED DESIGN CRITERIA TO BE APPLIED FOR DRAINS LOCATED BELOW THE DUCT BANK WITHIN THE NYSDOT RIGHT OF WAY, PENDING APPROVAL.
2. EXCAVATION FOR / CONSTRUCTION OF FUTURE DRAIN REPAIRS/REPLACEMENTS, AND RELATED SHORING CALCULATIONS BY OTHERS.
3. D = DISTANCE FROM EXISTING GROUND LEVEL TO DRAIN INVERT.
4. h = DISTANCE FROM BOTTOM OF TRENCH PROTECTIVE CONCRETE/BOTTOM OF BRIDGING SUPPORT, TO TOP OF EXISTING DRAINAGE PIPE.
5. FOR SINGLE PIPE, OD = OUTSIDE DIAMETER OF PIPE; FOR MULTIPLE PIPES IN PARALLEL, OD = DISTANCE BETWEEN OUTSIDE EDGES OF EXTERIOR PIPES.
6. REFER TO CIVIL PLAN & PROFILE DRAWINGS FOR VALUE OF "h".
7. FOR D≤14FT, ALL FUTURE EXCAVATIONS TO REPAIR/REPLACE EXISTING DRAINAGE PIPES WILL BE SHORED EXCAVATION, WITH MAXIMUM EXCAVATION WIDTH OF w=2FT+OD+2FT (DESIGN/CONSTRUCTION BY OTHERS).
8. FOR D>14FT, TRENCH-LESS METHOD WILL BE USED TO REPAIR/REPLACE EXISTING DRAINAGE PIPES (DESIGN/CONSTRUCTION BY OTHERS).
9. BRIDGING SUPPORT IS PROVIDED OVER LENGTH L = w+2a.
10. BRIDGING SUPPORT IS NOT PROVIDED WHEN D>14FT.
11. BRIDGING SUPPORT IS DESIGNED TO CARRY DUCT BANK WEIGHT, ONLY. SOIL ABOVE THE DUCT BANK IS REMOVED BEFORE EXCAVATING UNDER THE DUCT BANK.
12. "a" DIMENSION IS 2'-0" MINIMUM.

CHPE Champlain Hudson Power Express

Kiewit

STATE OF NEW YORK
ANDREA F. GRUNAU
LICENSED PROFESSIONAL ENGINEER
094103

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
1	12/05/2022	REVISED NYSDOT HWP SUBMISSION	JNK	OO
0	09/21/2022	FINAL EM&CP SUBMISSION	JNK	OO

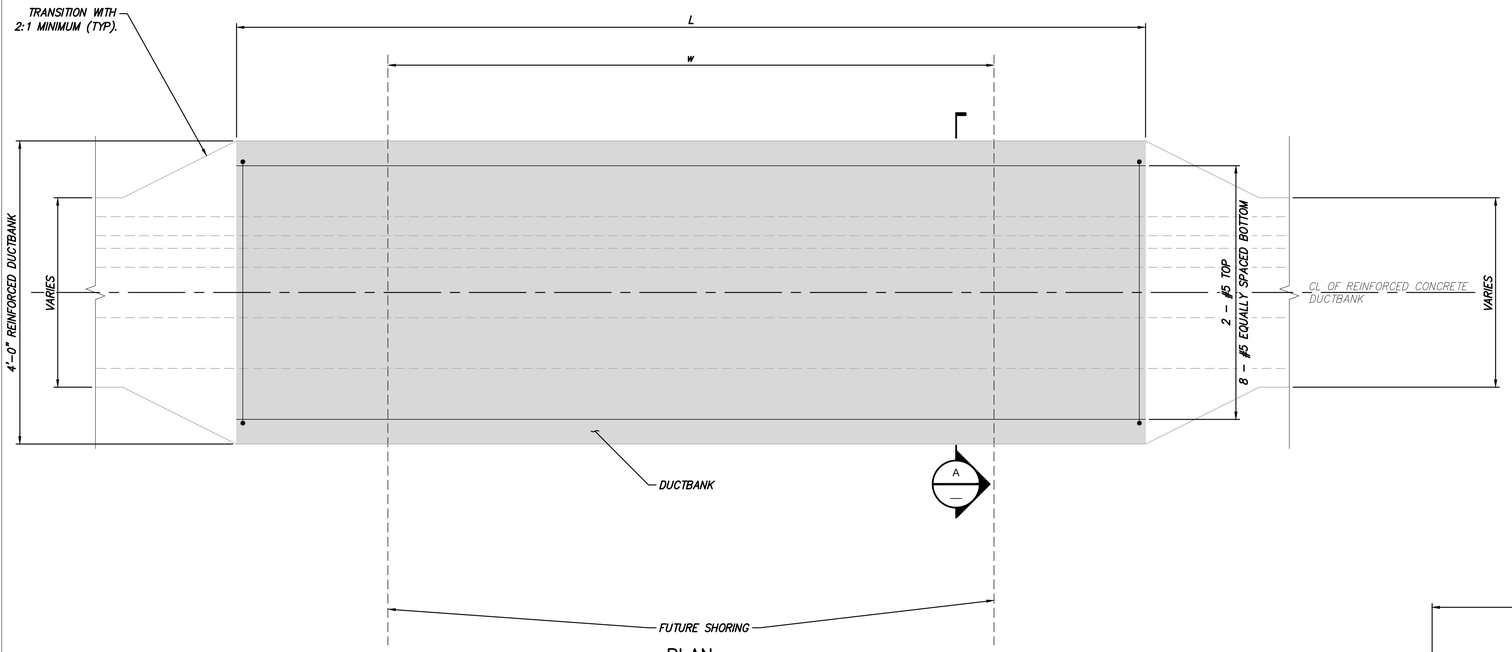
CHAMPLAIN HUDSON POWER EXPRESS

REINFORCING TRAY OVER UTILITIES

KIEWIT PROJECT NO. 21162

DRAWING NO. S-720

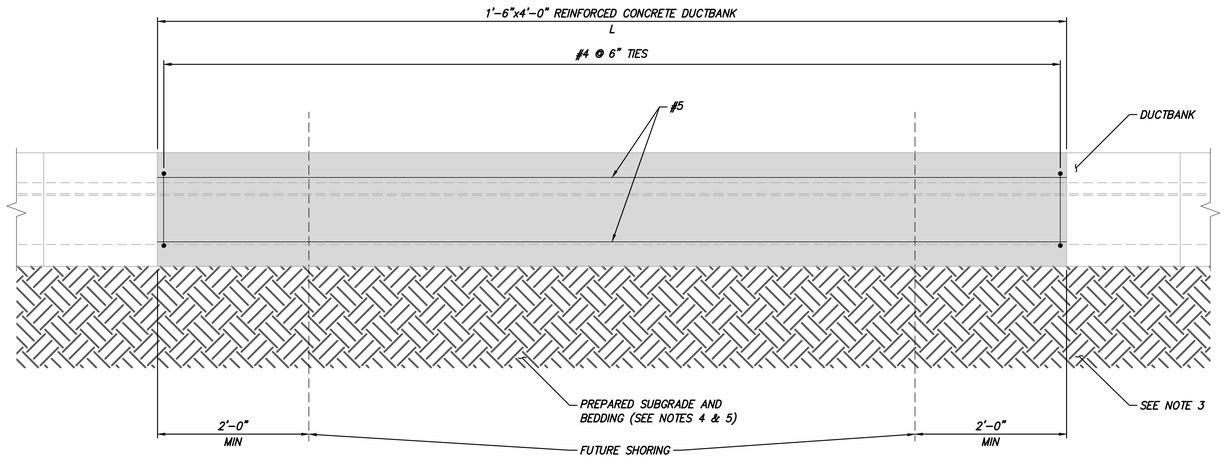
DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO | SCALE AS SHOWN | REV. NO. | DATE 06/09/2022 | SH.NO. XX OF XXX



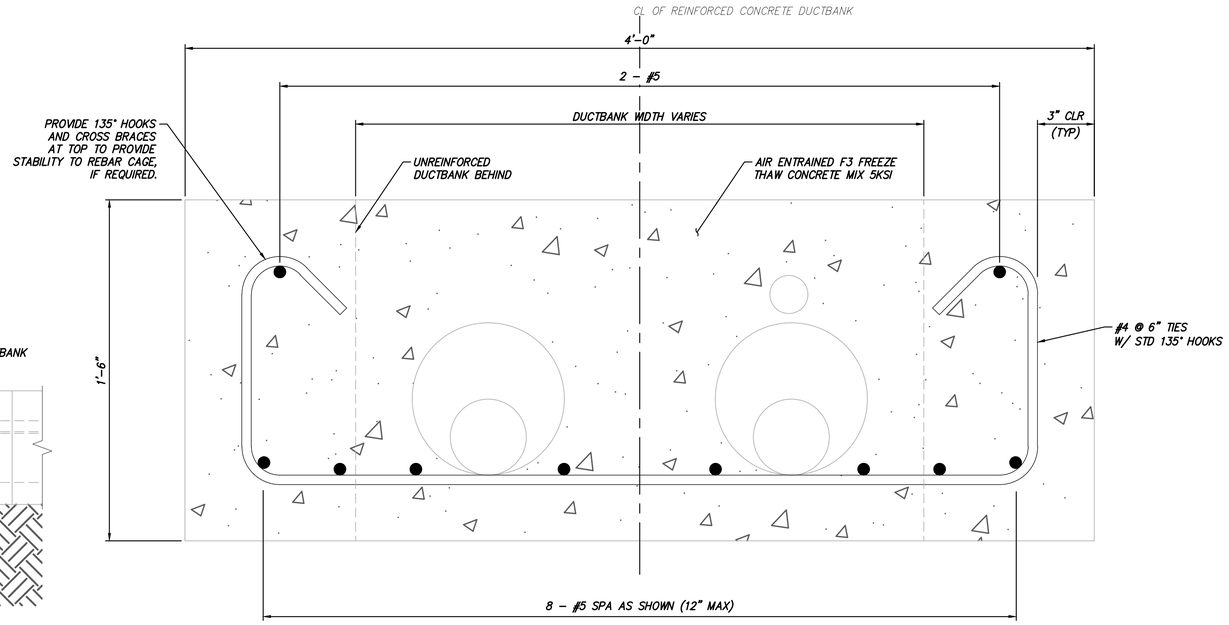
PLAN
SCALE: 1" = 1'-0"

NOTES:

1. DESIGNED PER AASHTO LRFD. THIS IA A BURIED STRUCTURE NOT EXPOSED TO DAILY TEMPERATURE CHANGES.
2. REINFORCED CONCRETE DUCTBANK IS TO SUPPORT THE SELF WEIGHT OF THE DUCTBANK WITH 1'-6" HEIGHT. USE FOLLOWING FOR DESIGN:
   SELF WEIGHT=1'-6"x150PCF=225PSF
   CONSTRUCTION LIVE LOAD=30PSF
3. COMPLETELY REMOVE SOIL ABOVE THE DUCTBANK, BEFORE EXCAVATING UNDER DUCTBANK. DO NOT EXCAVATE UNDERNEATH DUCTBANK IF SOIL IS PRESENT ABOVE THE DUCTBANK.
4. PREPARE SUBGRADE & FILL SIDES OF DUCTBANK SECTION BEFORE CASTING TRENCH CONCRETE.
5. ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.
6. A MINIMUM BEDDING SECTION CONSISTING OF A 4-INCH THICK SELECT GRANULAR FILL SHALL BE PLACED ON TOP OF PREPARED SUBGRADE. ADDITIONAL BEDDING MAY BE REQUIRED AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE BASED ON IN-SITU CONDITIONS.
7. SEE SHEET S-720 FOR DEFINITION OF VARIABLES.
8. MINIMUM CONCRETE STRENGTH F'C=5.0 KSI FOR F3 CATEGORY FREEZE-THAW EXPOSURE. GRADE 60 UNCOATED REBAR.
9. THE DESIGN SIMPLE SPAN FOR REINFORCEMENT IS CONSIDERED AS "w + a" WITH A TOTAL LENGTH OF "w + 2a". SUPPORTS ARE ASSUMED AT a/2 AT EACH END OF THE REINFORCED DUCTBANK.
10. THE REINFORCEMENT IN SECTION-A CONSIDERS A MAXIMUM VALUE OF w=23'-0", IN ORDER TO SAFELY CARRY ITS OWN WEIGHT (+30 PSF LIVE LOAD).



ELEVATION
SCALE: 1" = 1'-0"



SECTION A
SCALE: 3" = 1'-0"

CHPE Champlain Hudson Power Express

Kiewit

STATE OF NEW YORK · ANDREA F. GRUNDA · LICENSED PROFESSIONAL ENGINEER · 094103

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
2	12/16/2022	FINAL EM&CP SUBMISSION	JNK	OO
1	12/05/2022	REVISED NYSDOT HWP SUBMISSION	JNK	OO
0	9/21/2022	FINAL EM&CP SUBMISSION	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

REINFORCING TRAY DETAILS

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO

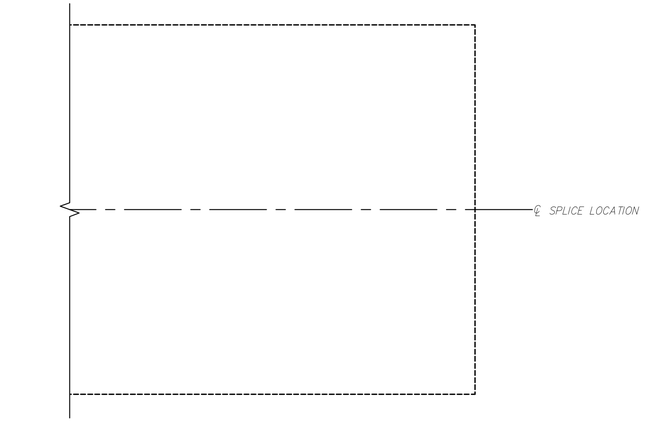
KIEWIT PROJECT NO. 21162

DRAWING NO. S-721

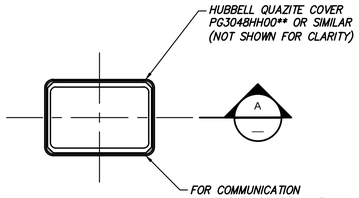
SCALE AS SHOWN | DATE | REV. NO. | SH.NO. XX

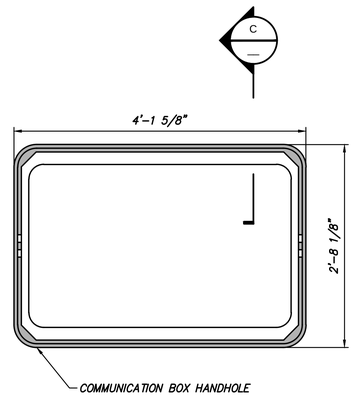
NOTES:

1. DESIGN LIVE LOAD: ANSI TIER 22 (OCCASIONAL NON-DELIBERATE HEAVY VEHICULAR TRAFFIC).
   VERTICAL DESIGN LOAD= 22,500 LBS;
   LATERAL DESIGN LOAD= 800 PSF.
   QUAZITE OR SIMILAR.
2. ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.

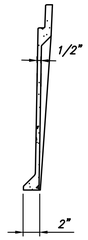


PLAN VIEW
SCALE: 3/8" = 1'-0"

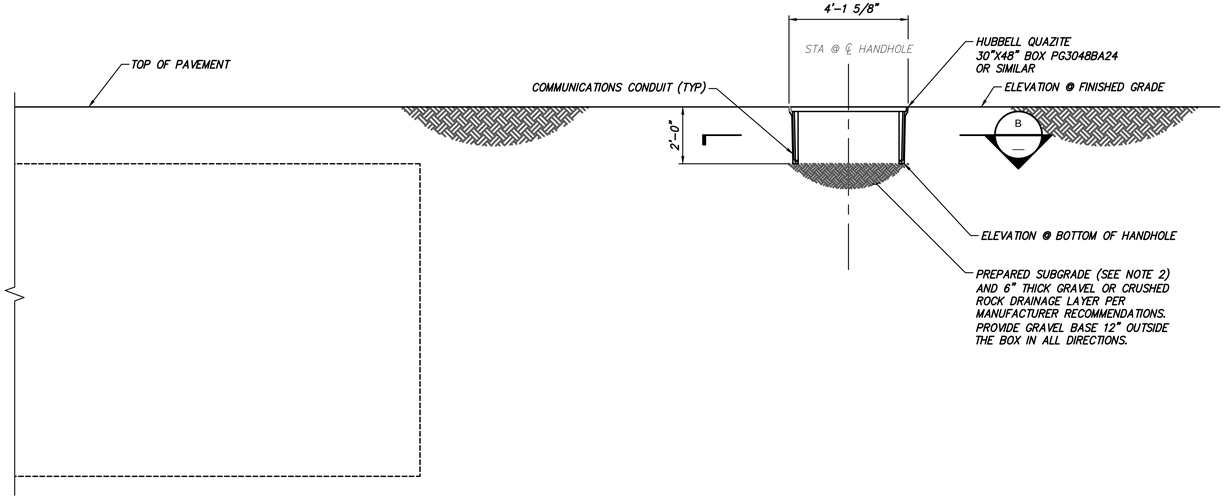




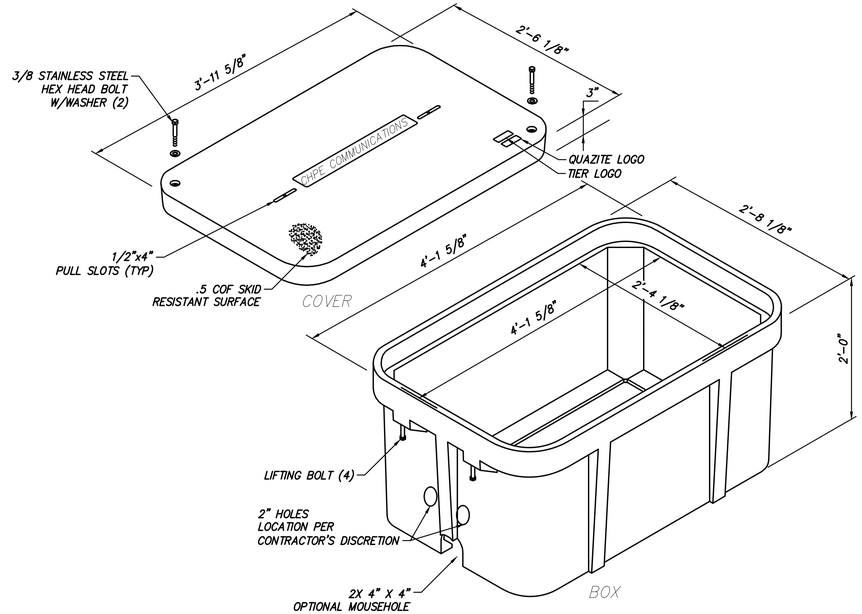
SECTION B
SCALE: 1" = 1'-0"



SECTION C
SCALE: 1" = 1'-0"



SECTION A
SCALE: 3/8" = 1'-0"



ISOMETRIC VIEW
SCALE: NTS

HUBBELL QUAZITE 30"x48" CORRUGATED WALL ASSEMBLY
PART NO. PG3048HH00** AND PG3048BA24

CHPE Champlain Hudson Power Express

Kiewit

STATE OF NEW YORK · ANDREA F. GRUNDA · 094103 · LICENSED PROFESSIONAL ENGINEER

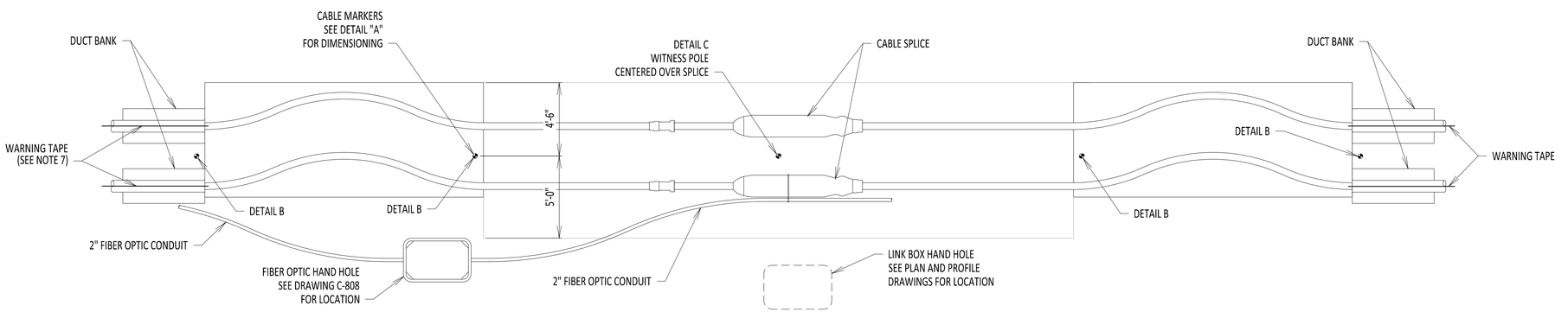
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	12/05/2022	REVISED NYSDOT HWP SUBMISSION	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

FRP COMMUNICATION HANDHOLES

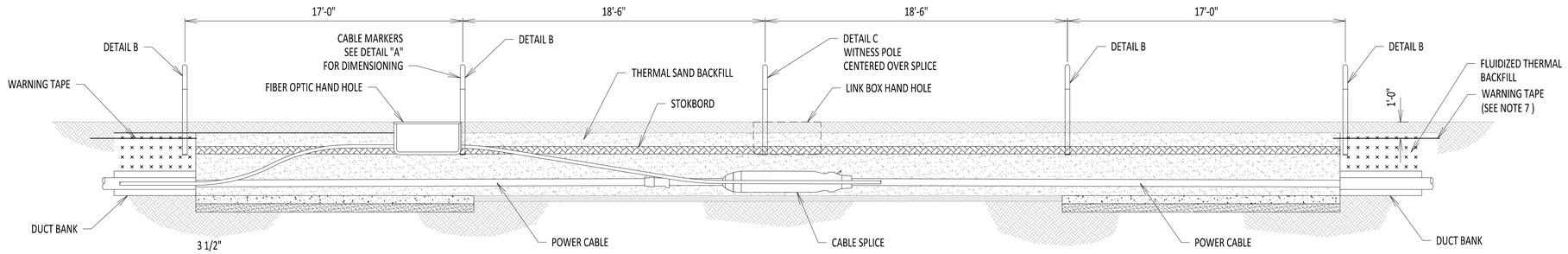
KIEWIT PROJECT NO.	21162
DRAWING NO.	S-771

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO | SCALE AS SHOWN | REV. NO. | DATE 06/09/2022 | SH.NO. XX OF XXX



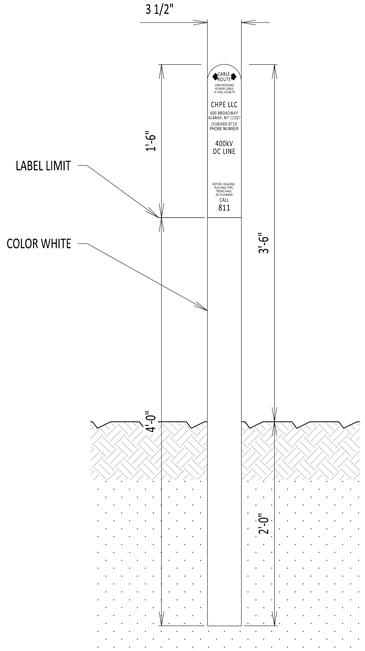
TYPICAL SPLICE LOCATION PLAN VIEW

NOT TO SCALE



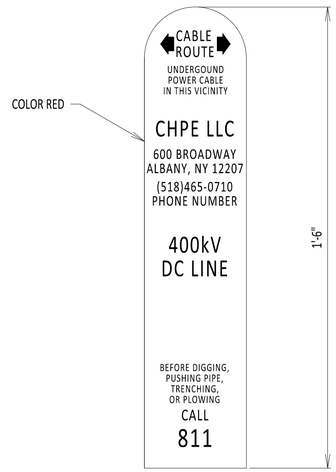
TYPICAL SPLICE LOCATION ELEVATION

NOT TO SCALE



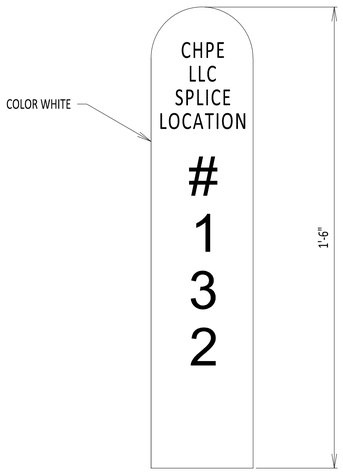
DETAIL A

NOT TO SCALE



DETAIL B

NOT TO SCALE



DETAIL C

NOT TO SCALE

NOTES:

1. POLES TO BE INSTALLED AT A DEPTH OF 2'-0" MINIMUM TO OPTIMIZE STABILITY.
2. IN PAVED AREAS, USE A-TAG PAVEMENT MARKERS OR APPROVED EQUAL
3. EXCLUDING ROAD SURFACES, CONDUIT LOCATED WITHIN RAILROAD RIGHT-OF-WAY SHALL BE MARKED USING POLE MARKERS LOCATED ABOVE THE CENTERLINE OF THE CONDUIT. CROSSINGS SHALL BE MARKED ON BOTH SIDES OF THE TRACK.
4. POLE SHALL DISPLAY THE FOLLOWING: NAME AND ADDRESS OF OWNER, CONTENTS OF CONDUIT, CONDUIT DEPTH BELOW GRADE, AND EMERGENCY TELEPHONE NUMBER.
5. POLES AND NEW CONSTRUCTION ELECTRIC A-TAG PAVEMENT MARKERS OR APPROVED EQUAL SHALL BE PLACED OVER THE PIPE AT ALL CHANGES IN DIRECTION OF THE CONDUIT. IN NO EVENT SHALL THEY BE PLACED MORE THAN 500 FEET APART.
6. OWNER MUST MAINTAIN SIGNS ON RAILWAY RIGHT-OF-WAY.
7. CABLE MARKERS PER AREMA CHAPTER 1 SECTION 5.5.2.i. A 6 INCH WIDE WARNING TAPE SHALL BE INSTALLED 1 FOOT BELOW NATURAL GRADE AND DIRECTLY OVER THE UNDERGROUND WIRELINE WITHIN THE RAILROAD RIGHT-OF-WAY. WARNING TAPE IS NOT REQUIRED FOR HORIZONTAL DIRECTION DRILLING ROUTES LOCATED ON RAILROAD PROPERTY. WITNESS POLES MUST BE PLACED AT RAILROAD RIGHT-OF-WAY FOR CROSSINGS AND PLACED EVERY 500 FEET FOR PARALLEL WIRELINES.
8. POLE MARKER LABEL SHALL BE VISIBLE 360 DEGREES AROUND POST. USE AT LEAST TWO LABELS PER POLE, AND ADD MORE AS NECESSARY TO MEET THIS REQUIREMENT.

CHPE Champlain Hudson Power Express

Kiewit

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/15/2023	ISSUED FOR CONSTRUCTION	DLM	ASM

CHAMPLAIN HUDSON POWER EXPRESS

ABOVE GROUND MARKING DETAILS

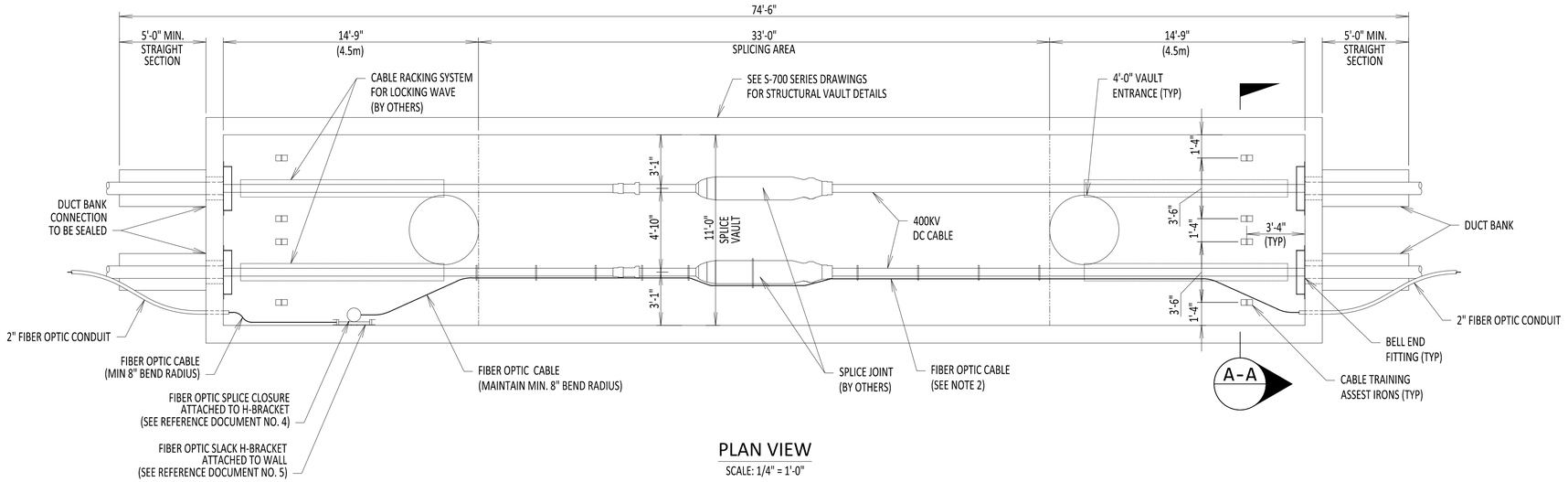
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	**C-801**
DRAWN BY: DLM	DESIGNED BY: SD
APPROVED BY: ASM	SCALE
REV. NO. 0	DATE 03/15/2023
SH.NO. OF	

NOTES:

1. ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.
2. A MINIMUM BEDDING SECTION CONSISTING OF A 4-INCH THICK MUDMAT OR 4-INCH THICK SELECT GRANULAR FILL SHALL BE PLACED ON TOP OF PREPARED SUBGRADE. ADDITIONAL BEDDING MAY BE REQUIRED AS DIRECTED BY GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE BASED ON IN-SITU CONDITIONS.

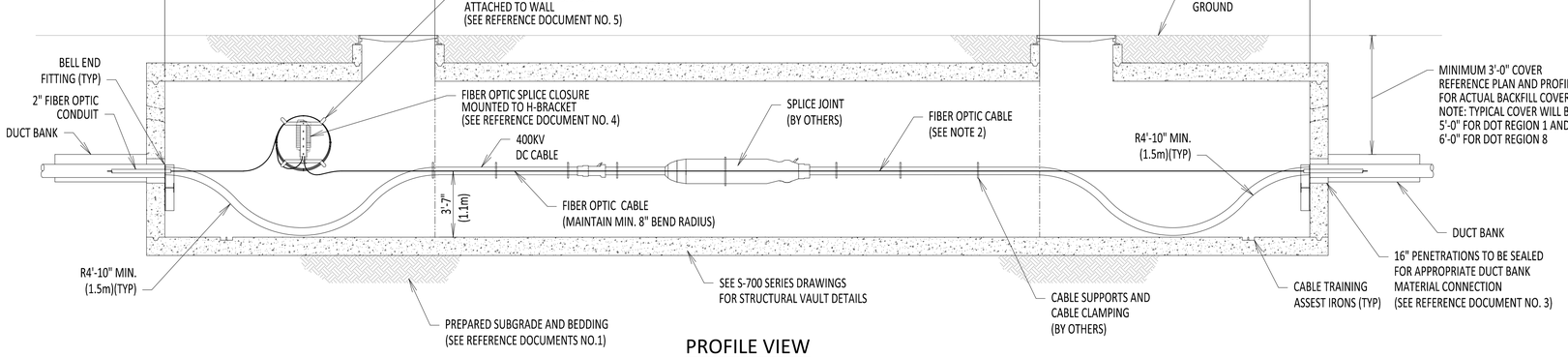
REFERENCE DOCUMENTS

LIST NO.	DOCUMENT NAME	DOCUMENT NO.
1	STRUCTURAL VAULT DRAWING	S-700
2	TYPICAL VAULT GROUNDING DETAILS	C-803
3	DUCT BANK CONNECTION DETAILS	C-812
4	FIBER OPTIC SPLICE DETAILS	C-855
5	FIBER OPTIC H-FRAME BRACKET DETAIL	C-856



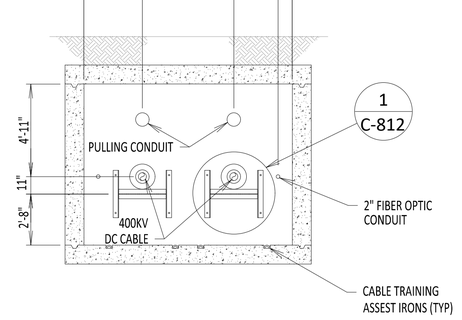
PLAN VIEW

SCALE: 1/4" = 1'-0"



PROFILE VIEW

SCALE: 1/4" = 1'-0"



SECTION A-A

SCALE: 1/4" = 1'-0"

CHPE Champlain Hudson Power Express

Kiewit

STATE OF NEW YORK · DONGKAI CHEN · 106996 · LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/15/2023	ISSUED FOR CONSTRUCTION	DLM	ASM

CHAMPLAIN HUDSON POWER EXPRESS

TYPICAL VAULT DETAILS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	**C-802**
DATE	03/15/2023
SH.NO.	OF

DRAWN BY: DLM | DESIGNED BY: SD | APPROVED BY: ASM | SCALE | REV. NO. 0