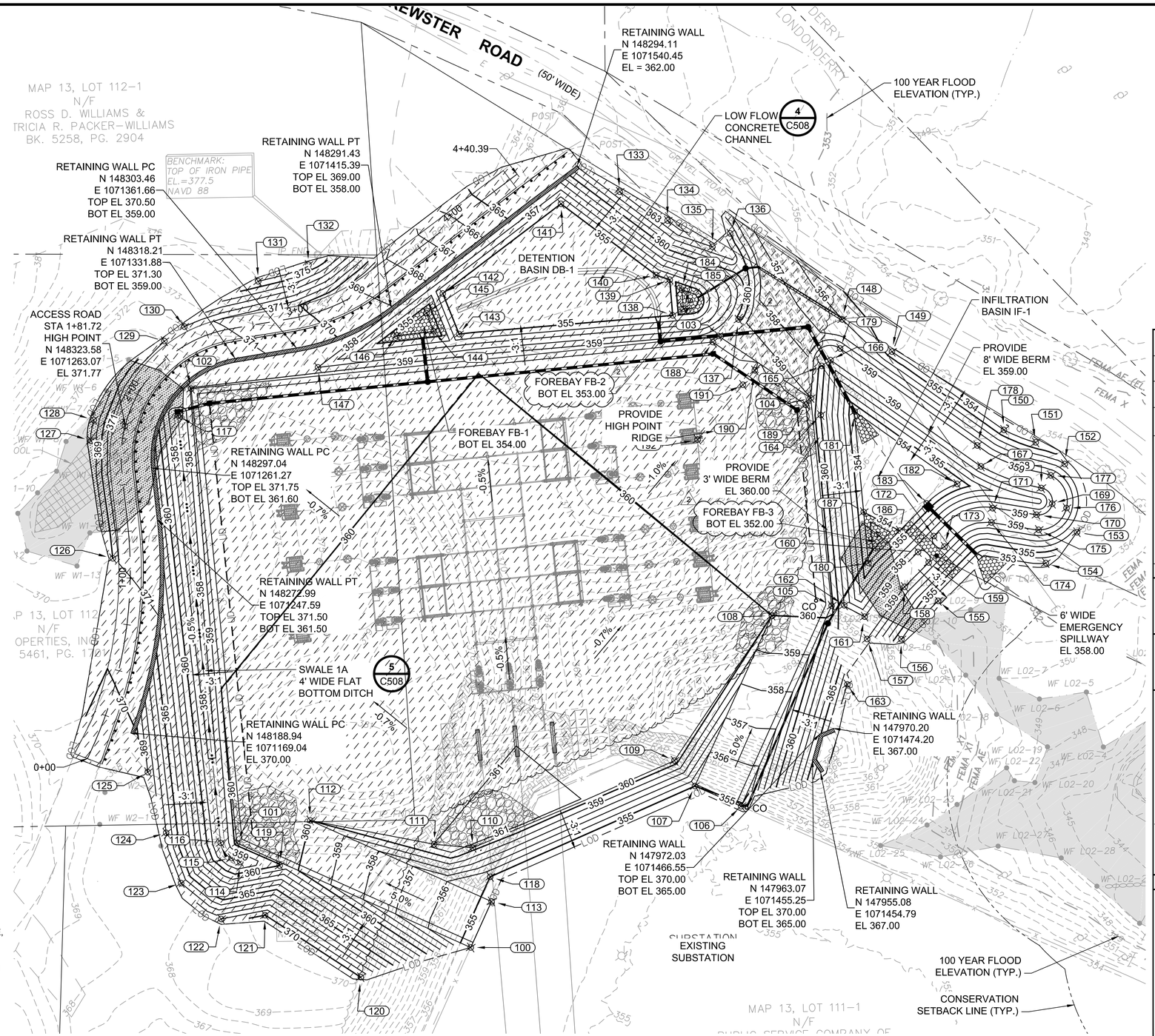
LAYOUT POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	147989.4189	1071248.5402	355.00	ACCESS ROAD
101	148108.1491	1071180.2580	360.42	APT PAD
102	148318.9061	1071303.3393	359.20	COR PAD
103	148176.1162	1071547.8852	359.32	APT PAD
104	148120.1716	1071568.2735	359.00	APT PAD
105	148023.8043	1071511.9954	359.84	APT PAD
106	147965.4931	1071409.8424	354.96	ACCESS ROAD
107	147988.7997	1071396.2115	355.00	ACCESS ROAD
108	148038.3750	1071483.0579	360.00	APT PAD
109	148006.1827	1071395.3555	360.66	APT PAD
110	148031.8800	1071280.8092	360.41	APT PAD
111	148045.5625	1071265.1811	361.00	APT PAD
112	148094.7827	1071219.0917	360.00	APT PAD
113	148002.7802	1071272.0027	355.00	ACCESS ROAD
114	148098.7900	1071175.7424	358.26	CL DITCH BEGIN
115	148103.2379	1071173.2316	358.23	CL DITCH PC
116	148113.1967	1071173.3047	358.22	CL DITCH PT
117	148311.5188	1071289.1251	357.39	CL DITCH END
118	148013.8469	1071279.1909	355.00	BSLOPE
119	148084.8915	1071191.7032	360.00	BSLOPE
120	148011.1253	1071191.6481	370.00	TSLOPE
121	148068.0289	1071169.7634	370.00	TSLOPE

LAYOUT POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
122	148080.2050	1071149.5840	369.00	TSLOPE
123	148108.2713	1071143.5619	367.00	TSLOPE
124	148134.7156	1071152.9343	367.00	TSLOPE
125	148166.7037	1071164.0896	369.00	TSLOPE
126	148270.1626	1071216.1750	370.00	TSLOPE
127	148327.9082	1071243.6436	368.00	TSLOPE
128	148336.0452	1071251.3419	368.00	TSLOPE
129	148347.9089	1071306.7210	371.00	TSLOPE
130	148347.9359	1071319.9027	372.00	TSLOPE
131	148344.2955	1071366.0993	376.00	TSLOPE
132	148335.6176	1071393.0196	376.00	TSLOPE
133	148269.4534	1071550.5248	363.00	TSLOPE
134	148241.9275	1071562.1695	364.00	TSLOPE
135	148216.5005	1071573.2756	363.00	TSLOPE
136	148216.7001	1071585.1216	360.00	TSLOPE
137	148176.8326	1071561.7252	367.00	TSLOPE
138	148199.2768	1071534.5905	355.00	B/POND
139	148215.6739	1071544.4974	355.00	B/POND
140	148221.9295	1071540.0890	355.00	B/POND
141	148282.6935	1071521.3144	355.00	B/POND
142	148280.9958	1071442.0576	355.00	B/POND
143	148258.3307	1071436.3658	355.00	B/POND

LAYOUT POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
144	148267.4596	1071426.2857	354.00	B/FB-1
145	148277.7125	1071428.8605	354.00	B/FB-1
146	148277.2842	1071408.8651	354.00	B/FB-1
147	148288.3042	1071364.8958	358.00	T/SLOPE
148	148144.3129	1071606.5842	356.00	B/SLOPE
149	148114.7097	1071617.9370	354.00	B/SLOPE
150	148045.6906	1071641.7716	354.00	B/LOPE
151	148030.3108	1071651.5652	354.00	B/SLOPE
152	148011.8389	1071657.2876	356.00	B/SLOPE
153	147978.5023	1071641.1698	356.00	B/SLOPE
154	147974.9568	1071618.0174	353.00	B/SLOPE
155	147992.4364	1071559.5848	353.00	B/SLOPE
156	147987.3668	1071531.6277	354.00	B/SLOPE
157	147998.2453	1071516.8751	359.00	T/SLOPE
158	148009.0319	1071549.4901	359.00	T/SLOPE
159	148011.9649	1071567.5362	359.00	T/SLOPE
160	148019.8613	1071566.2528	359.00	T/SLOPE
161	148008.6784	1071522.8371	359.00	T/SLOPE
162	148020.0144	1071517.5962	359.00	T/SLOPE
163	147984.8619	1071494.0484	367.00	T/SLOPE
164	148109.6928	1071567.2380	360.00	T/SLOPE
165	148130.6458	1071583.0890	360.00	T/SLOPE
166	148130.3847	1071588.7744	359.00	T/SLOPE
167	148037.1312	1071620.3571	359.00	T/SLOPE
168	148008.8281	1071639.6747	359.00	T/SLOPE

LAYOUT POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
169	147998.6369	1071639.4138	359.00	T/SLOPE
170	147998.7490	1071629.2199	359.00	T/SLOPE
171	148015.4281	1071612.1895	354.00	T/SLOPE
172	148021.7864	1071578.0974	359.00	T/SLOPE
173	148013.8900	1071579.3808	359.00	T/SLOPE
174	148009.5458	1071607.2310	359.00	T/SLOPE
175	147991.5570	1071625.3494	359.00	T/SLOPE
176	147992.2245	1071644.2442	359.00	T/SLOPE
177	148011.2860	1071647.7097	359.00	T/SLOPE
178	148047.3756	1071625.3339	359.00	T/SLOPE
179	148132.3838	1071596.5437	359.00	T/SLOPE
180	148030.7002	1071541.3616	354.00	B/POND
181	148100.5080	1071583.0560	354.00	B/POND
182	148036.9933	1071604.5669	354.00	B/POND
183	148038.1524	1071585.2911	354.00	B/POND
184	148207.5142	1071546.5775	354.00	FB-2
185	148198.7418	1071541.2773	354.00	FB-2
2 186	148034.8587	1071565.0258	354.00	FB-3
187	148054.2391	1071555.3069	354.00	FB-3
188	148175.2258	1071543.4606	359.20	COR FENCE
189	148118.8765	1071564.0430	359.20	COR FENCE
190	148149.7229	1071552.7759	359.30	PAD AT GATE
191	148147.2287	1071543.0920	359.20	PAD
192	148137.7550	1071506.2830	359.50	PAD



GRADING NOTES:

1. REFER TO SHEET NPTT702-G001 FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, AND LEGENDS.
2. REFER TO SHEETS NPTT709-C300 FOR GRADING CROSS SECTIONS.
3. NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM
   HORIZONTAL DATUM - NAD83
   VERTICAL DATUM - NAVD88
4. PROPOSED CONTOURS AND SPOT ELEVATIONS INDICATED REFER TO TOP OF FINISH SURFACE.
5. ALL FILL AND CUT SLOPES ARE 3-FT HORIZONTAL TO 1-FT VERTICAL (3:1) UNLESS NOTED OTHERWISE.
6. CONTRACTOR SHALL PLACE 4" TOPSOIL AND SEED ON ALL CUT AND FILL SLOPES AS SPECIFIED UNLESS ANOTHER SURFACE MATERIAL IS INDICATED. EROSION CONTROL BLANKETS (NORTH AMERICAN GREEN SC250 OR ENGINEER APPROVED EQUAL) SHALL BE PLACED OVER ALL SEEDED SIDE SLOPES.
7. CONTRACTOR SHALL PROTECT/REPAIR ALL SLOPES UNTIL FINAL VEGETATIVE OR STONE STABILIZATION.
8. AFTER COMPLETION OF YARD SUBGRADE WORK, THE SURFACE COURSE FOR THE SUBSTATION (INSIDE THE FENCE, 3-FT OUTSIDE THE FENCE, AND WHERE INDICATED ON THE PLANS) SHALL CONSISTS OF A 4-INCH LAYER OF CRUSHED BASALT (ANGULAR STONE) STONE MEETING THE GRADATION REQUIREMENTS EXPLAINED IN THE SPECIFICATIONS.
9. ALL EXCAVATIONS SHALL BE THOROUGHLY SECURED AND STABILIZED ON A DAILY BASIS BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION OPERATIONS.
10. STABILIZE ALL DITCHES, SWALES, AND PONDS PRIOR TO DIRECTING STORMWATER RUNOFF TO THEM.
11. TURF REINFORCEMENT MAT (TRM) SHALL BE INSTALLED ON ALL 3-FT HORIZONTAL TO 1-FT VERTICAL SLOPES (3:1) OR STEEPER, AND BE NORTH AMERICAN GREEN SC250 OR APPROVED EQUAL.
12. EARTHWORK AND COMPACTION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL ENGINEERING REPORT BY OTHERS.

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV.
2	REVISED PER PERMIT REVIEW COMMENTS	11/24/16	CJK	RLR	RLR
1	ISSUED FOR PERMITTING	10/10/15	FP	RLR	BSS

THE NORTHERN PASS
Transmission Business

SCOBIE POND SUBSTATION GRADING PLAN

SCALE: H 1" = 30'
DATE: 10/1/2015

DES: LRM | CHK: RLR
DRW: FP | APR: BSS
TOWN: LONDONDERRY, NH
TRANSMISSION LINE:
MILE NO:
SHEET 4 OF 20
NPTT704-C101
REVISION: 11/10/2013

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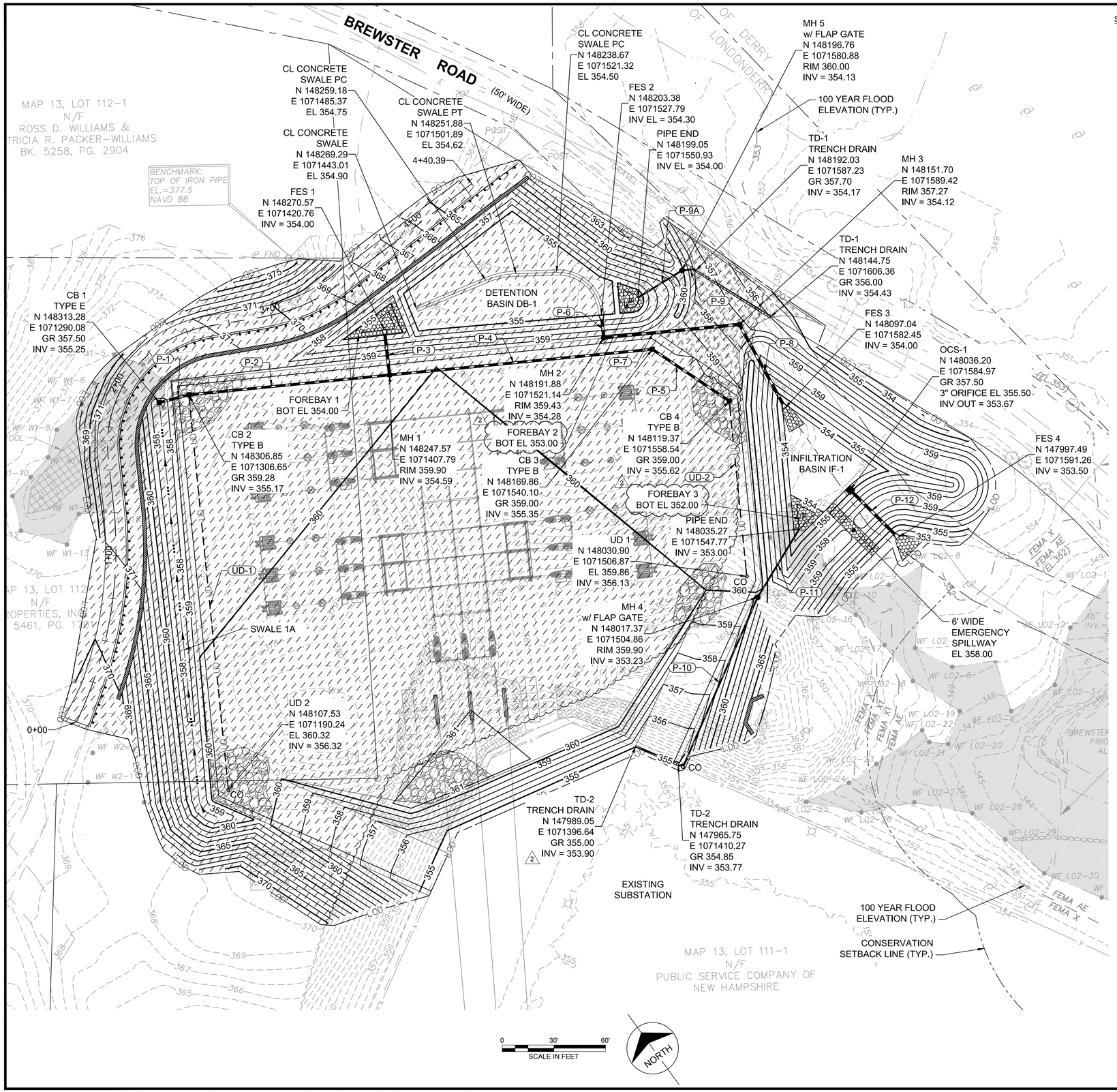

STORMWATER SYSTEM NOTES:

1. REFER TO SHEET NPTT702-G001 FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, AND LEGENDS.
2. THIS DRAWING IS INTENDED TO DESCRIBE THE STORMWATER SYSTEM ONLY.
3. NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM
   HORIZONTAL DATUM - NAD83
   VERTICAL DATUM - NAVD88
4. STORM DRAINAGE SYSTEM CONNECTIONS, MATERIALS, AND METHODS SHALL BE IN ACCORDANCE WITH THE NH DOT STANDARDS AND NH DOT SPECIFICATION SECTIONS 603 AND 604, AS WELL AS OTHER APPLICABLE INDUSTRY CODES AND GOVERNING AGENCY REQUIREMENTS.
5. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIES BY VARIOUS MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE PROPOSED STORM PIPING WILL CROSS EXISTING UTILITIES, AND THE HORIZONTAL AND VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT THE ENGINEER IN THE EVENT OF ANY DISCOVERED OR UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED SANITARY SEWERS, STORM PIPING AND UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.
6. MANHOLE RIMS AND CATCH BASIN GRATES SHALL BE SET TO ELEVATIONS SHOWN. SET ALL EXISTING MANHOLE RIMS, GRATES AND OTHER UTILITY TOPS TO BE RAISED OR LOWERED FLUSH WITH FINAL GRADE AS NECESSARY.
7. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH APPLICABLE REGULATORY AGENCIES FOR STORM DRAINAGE INSTALLATIONS AND CONNECTIONS.
8. THE CONTRACTOR SHALL COORDINATE WORK TO BE PERFORMED BY THE VARIOUS UTILITY PROVIDERS AND SHALL PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS, RELOCATIONS, INSPECTIONS, AND DEMOLITION UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATIONS MANUAL AND/OR GENERAL CONDITIONS OF THE CONTRACT.
9. ALL PIPES SHALL BE LAID ON STRAIGHT ALIGNMENTS AND EVEN GRADES USING A PIPE LASER OR OTHER ACCURATE METHOD.
10. ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION FOR APPROVAL PRIOR TO BACKFILLING, IN ACCORDANCE WITH THE APPROPRIATE OWNER, UTILITY PROVIDER, AND APPLICABLE REGULATORY AGENCY REQUIREMENTS.
11. A ONE-FOOT MINIMUM VERTICAL CLEARANCE BETWEEN ELECTRICAL AND TELEPHONE LINES TO STORM PIPING SHALL BE PROVIDED.
12. SITE CONTRACTOR SHALL PROVIDE ALL BENDS, FITTINGS, ADAPTERS, ETC., AS REQUIRED FOR PIPE CONNECTIONS.
13. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS WITHOUT INTERRUPTION UNLESS/UNTIL AUTHORIZED BY THE OWNER, THE ENGINEER, UTILITY PROVIDERS AND GOVERNING AUTHORITIES.
14. STORM DRAINAGE SHALL BE RATED FOR HS-20 LOADING.
15. PROVIDE MINIMUM 0.5% SLOPE ON ALL UNDERDRAINS. ADDITIONAL UNDERDRAINS MAY BE REQUIRED AS DEEMED NECESSARY BY THE OWNER, GEOTECHNICAL ENGINEER AND/OR ENGINEER BASED ON FINDINGS AFTER EARTHWORK AND EXCAVATION OPERATIONS COMMENCE. PROVIDE UNDERDRAIN CLEANOUTS AT A MINIMUM OF EVERY 200' OF PIPE OR ONE CLEANOUT PER PIPE RUN WHERE THE PIPE RUN IS LESS THAN 200'.

PIPE SCHEDULE

PIPE #	LENGTH (FT)	SLOPE	SIZE
P-1	16	0.005	15" HDPE
P-2	116	0.005	18" HDPE
P-3	22	0.026	24" HDPE
P-4	153	0.005	15" HDPE
P-5	53	0.005	15" HDPE
P-6	9	0.002	18" HDPE
P-7	79	0.002	18" RCP, CLASS V
P-8	51	0.002	18" RCP, CLASS V
P-9	8	0.005	8" PVC
P-9A	30	0.004	8" PVC
P-10	107	0.005	8" PVC
P-11	45	0.005	8" PVC
P-12	33	0.005	18" HDPE

UNDERDRAIN SCHEDULE

PIPE #	LENGTH (FT)	SLOPE
UD-1	230	0.005
UD-2	102	0.005

NOTE:
ALL UNDERDRAINS ARE
15" PERFORATED HDPE.

STORMWATER SYSTEM DETAILS REFERENCE LIST

1 C506	STORM MANHOLE / CATCH BASIN	3 C507	OUTLET CONTROL STRUCTURE	1,2 C509	INFILTRATION BASIN / SPILLWAY / SLOPE DETAILS
2 C506	MANHOLE FRAME & COVER	1,2,3 C508	END SECTIONS	3 C509	UNDER DRAIN
4 C506	TYPE B GRATE	4 C508	LOW FLOW CHANNEL	4 C509	CLEANOUT
5 C506	FLAP GATE	5 C508	GRASS DITCH	1 C510	INFILTRATION BASIN / CROSS SECTION
1 C507	TYPE E GRATE	6 C508	PIPE TRENCH	2 C510	ANTI SEEP COLLAR
2 C507	TRENCH DRAIN				

FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV
2	REVISED PER PERMIT REVIEW COMMENTS	11/29/16	CJK	RLR	RLR
1	ISSUED FOR PERMITTING	10/1/15	FP	RLR	BSS

THE NORTHERN PASS
Transmission Business

SCOBIE POND SUBSTATION
STORMWATER SYSTEM PLAN

SCALE: H: 1" = 30'
DATE: 10/1/2015

DES: LRM CHK: RLR
DRW: FP APR: BSS
TOWN: LONDONDERRY, NH
TRANSMISSION LINE:
MILE NO:
SHEET 7 OF 20
NPTT707-C104

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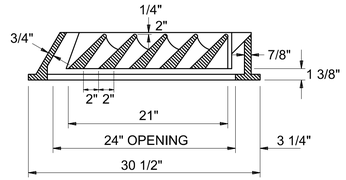
REVISION: 11/10/2013

NOTES:

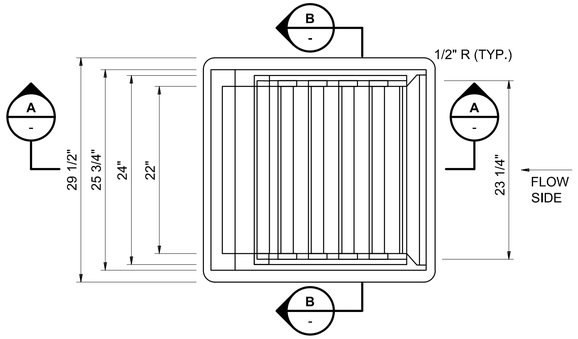
1. ALL DIMENSIONS ARE NOMINAL.
2. FREE OPEN AREA = 1.80 S.F.



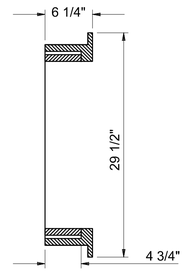
SECTION A-A

PIPE DIAMETER INCHES	THROAT DEPTH "A"INCHES	
	ONE THROAT	ONE THROAT
12"	8"	8"
15"	8"	8"
18"	16"	8"
24"	18"	16"

IN A SERIES OF CONNECTING C.B.'S OR D.I.'S, THE OUTLET PIPES MAY INCREASE IN DIAMETER, BUT THE SURFACE THROAT OPENINGS ARE NOT AFFECTED.

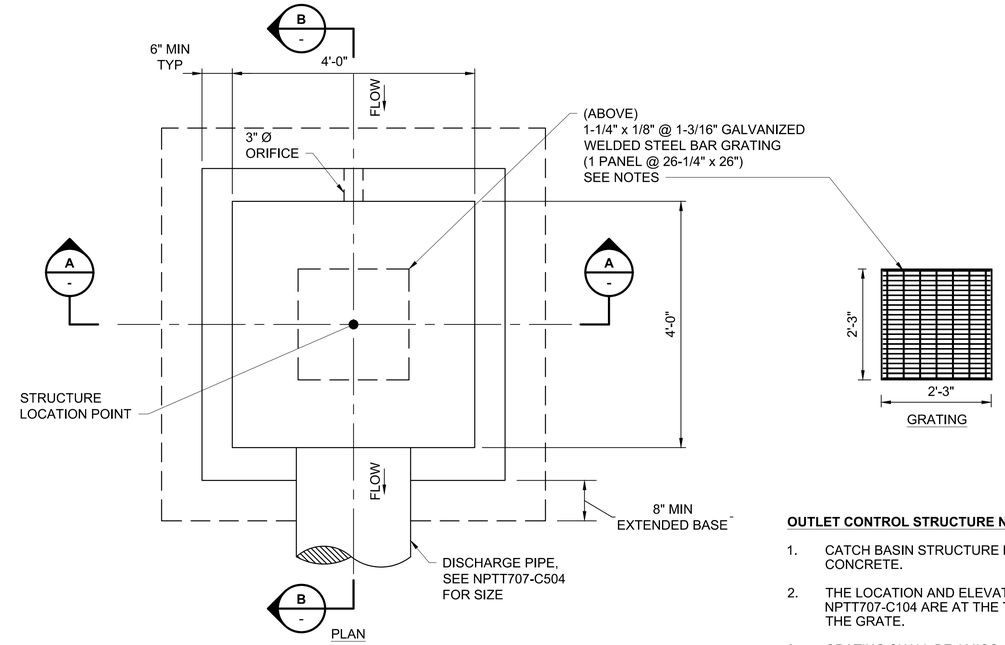


PLAN



SECTION B-B

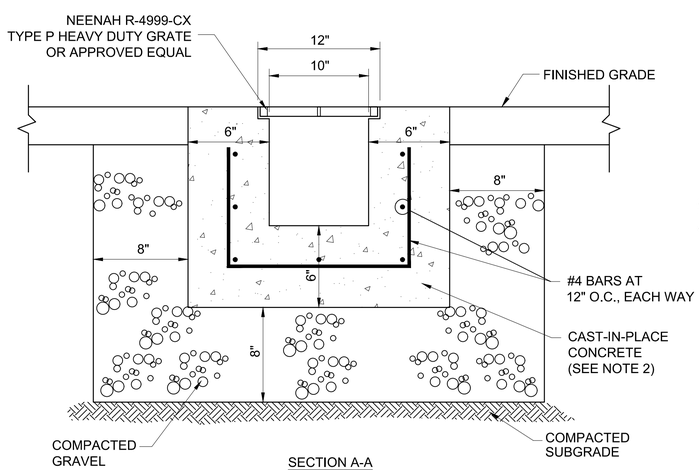
TYPE "E" GRATE (1 / C104)
NOT TO SCALE



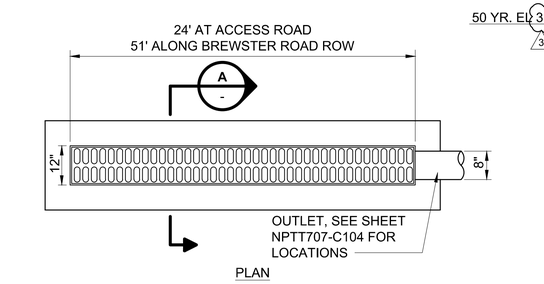
PLAN

OUTLET CONTROL STRUCTURE NOTES:

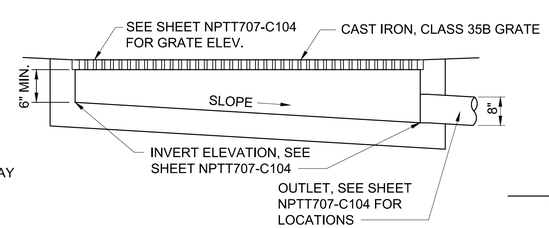
1. CATCH BASIN STRUCTURE IS TO BE PRECAST CONCRETE.
2. THE LOCATION AND ELEVATION INDICATED ON NPTT707-C104 ARE AT THE TOP CENTER OF THE GRATE.
3. GRATING SHALL BE AMICO STANDARD WELDED TYPE "W" 19W4 RESISTANCE WELDED GRATING AS MANUFACTURED BY ALABAMA METAL INDUSTRIES CORP. OR ENGINEERING APPROVED EQUAL.



SECTION A-A



PLAN

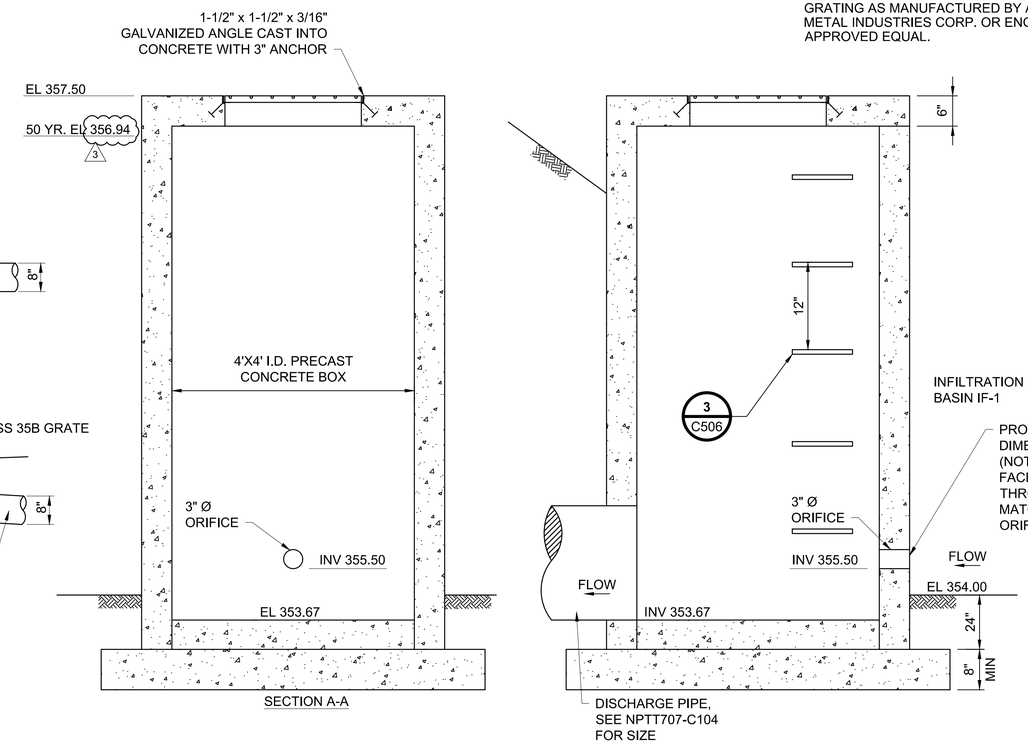


PROFILE

NOTES:

1. TRENCH DRAIN SHALL BE HEAVY DUTY TYPE DESIGNED FOR HS-20 LOADING.
2. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.

TRENCH DRAIN (2 / C104)
NOT TO SCALE



OCS-1
OUTLET CONTROL STRUCTURE (3 / C104)
NOT TO SCALE

FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV.
3	REISSUED FOR PERMITTING		-	-	-
2	REVISED PER PERMIT REVIEW COMMENTS	11/24/16	CJK	RLR	RLR
1	ISSUED FOR PERMITTING	6/28/16	BSS	BSS	BSS
-	-	-	FP	RLR	BSS
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

THE NORTHERN PASS
Transmission Business

SCOBIE POND SUBSTATION CONSTRUCTION DETAILS

DATE: 10/1/2015
SCALE: NTS

DES: LRM | CHK: RLR
DRW: FP | APR: BSS
TOWN: LONDONDERRY, NH
TRANSMISSION LINE:
MILE NO:
SHEET 17 OF 20
NPTT717-C507

REVISION: 11/10/2013

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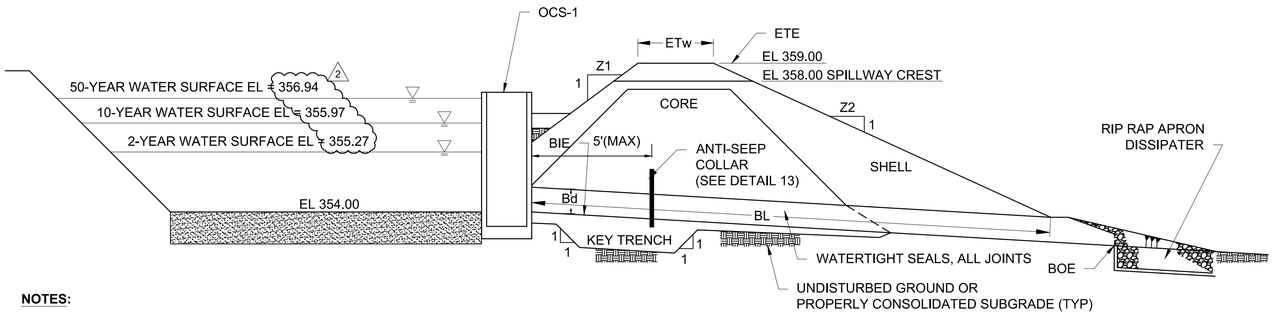


NOTES:

1. INFILTRATION BASIN BASE MATERIAL SHALL BE A 6" LAYER CONSISTING OF COARSE SAND OR 3/8" PEA GRAVEL.
2. AFTER THE BASIN IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
3. ABSOLUTELY NO RUNOFF IS TO ENTER INFILTRATION BASIN UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED. SURFACE OF BASIN SHALL BE LEVEL.

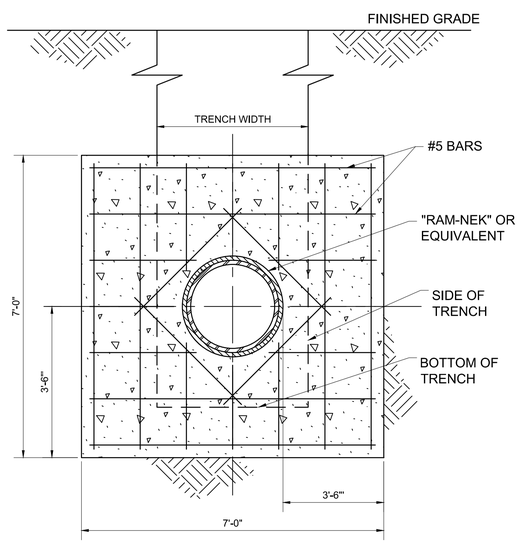
BASIN NO.	Z1 (FT)	Z2 (FT)	BARREL					EMBANKMENT		
			DIA Bd (IN)	INLET ELEV BIE (FT)	MAT'L	LENGTH BL (FT)	OUTLET ELEV BOE (FT)	TOP ELEV ETE (FT)	TOP WIDTH ETw (FT)	CREST (FT)
IF-1	3	3	18"	353.67	HDPE	18	353.50	359.00	8	14

INFILTRATION BASIN CROSS SECTION 1 — 1 / C104

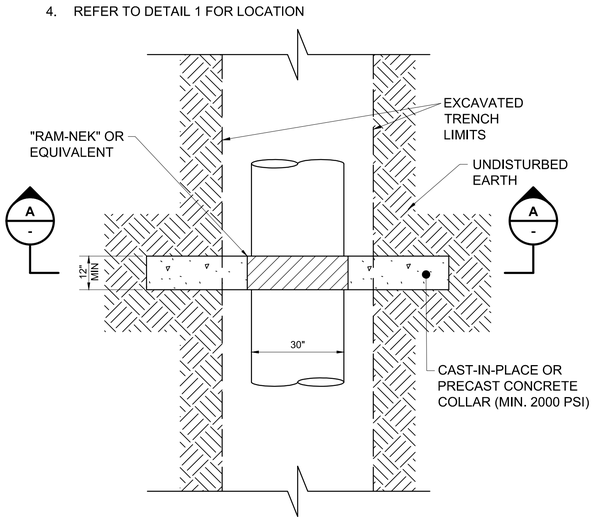
NOT TO SCALE

NOTES:

1. WRAP PIPE WITH "RAM-NEK" OR EQUIVALENT WHERE PIPE IS EXPOSED TO CONCRETE PRIOR TO POURING.
2. EXCAVATION & BACKFILL SHALL BE AS SPECIFIED.
3. DO NOT PLACE WITHIN 2 FEET OF A PIPE JOINT.
4. REFER TO DETAIL 1 FOR LOCATION



SECTION A-A



PLAN

ANTI SEEP COLLAR — 2 / C104

NOT TO SCALE

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV
2	REISSUED FOR PERMITTING	11/24/14	CJK	RLR	RLR
1	ISSUED FOR PERMITTING	10/1/15	FP	RLR	BSS

THE NORTHERN PASS

Transmission Business

SCOBIE POND SUBSTATION CONSTRUCTION DETAILS

DATE: 10/1/2015

SCALE: NTS

DES: LRM | CHK: RLR
DRW: FP | APR: BSS

TOWN: LONDONDERRY, NH

TRANSMISSION LINE:

MILE NO:

SHEET 20 OF 20

NPTT720-C510

REVISION: 11/10/2013

Z:\CLIENTS\TND\NUSC\58466_NPT\DESIGNS\SUBSTATION\700-SCOBIE_POND\CADD\CIVIL-SITE\NPTT720-C510.DWG 10/5/2015 9:43 AM KAMARX