

# FROST BRIDGE TO CAMPVILLE 115-kV PROJECT



TRANSMISSION LINE
DEVELOPMENT AND
MANAGEMENT PLAN
VOLUME 3

JANUARY 2017



(Revisions to Approved July 2016 Version)







### **CROSS SECTION SHEET**

CROSS SECTIONS DESCRIPTION

XS 1-6 FROST BRIDGE SS LINE EXIT

FROST BRIDGE SS LINE EXIT TO PURGATORY JCT

PURGATORY JCT. TO WALNUT HILL JCT.

WALNUT HILL JCT. TO S. BANK OF NAUGATUCK RIVER

S. BANK OF NAUGATUCK RIVER TO N. BANK OF NAUGATUCK RIVER

N. BANK OF NAUGATUCK RIVER TO CAMPVILLE SUBSTATION

### **MAPSHEETS**

MAPSHEETS DESCRIPTION

INDEX MAPS 1-3 USGS 1:24,000 SCALE

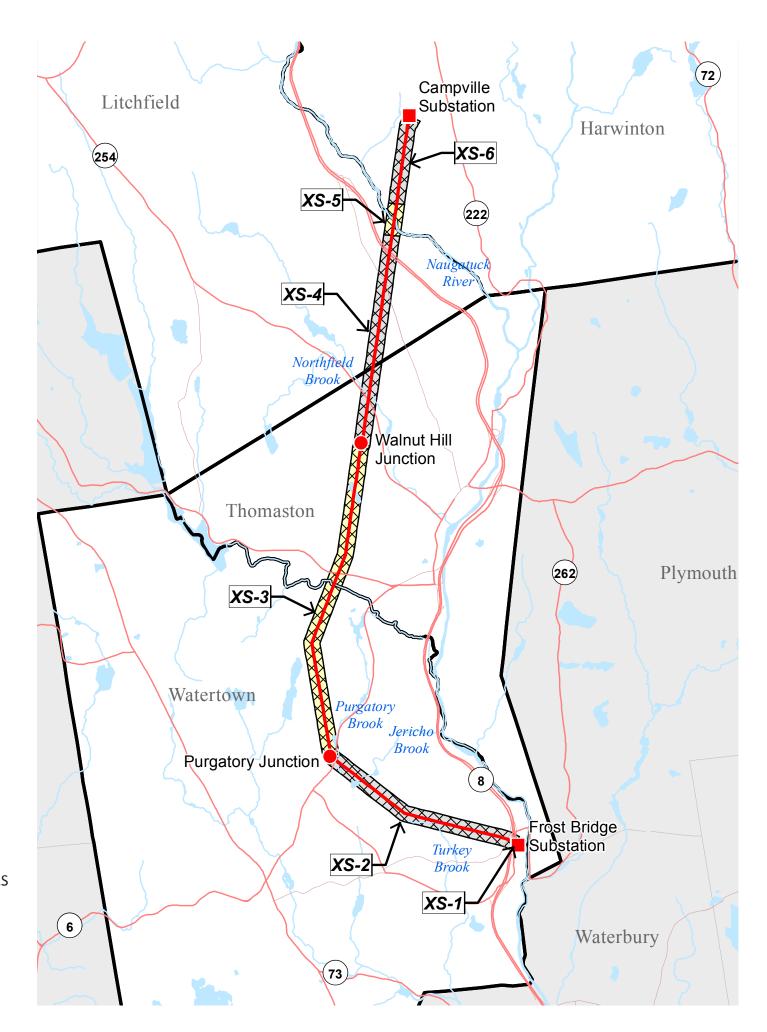
SHEETS 1-35 FROST BRIDGE TO CAMPVILLE 115-KV PROJECT

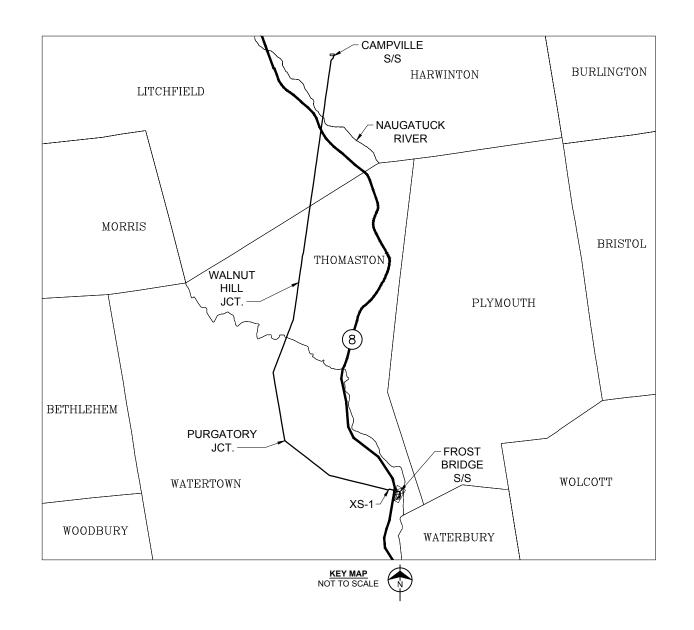
**DEVELOPMENT & MANAGEMENT PLAN** 

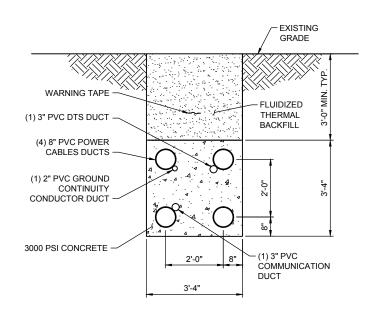
### **DETAIL SHEETS**

### SHEET DESCRIPTION

- 1 PERMITTED WATER RESOURCE IMPACTS
- 2 WATER RESOURCE PROTOCOLS
- 3 VERNAL POOL PROTOCOLS
- 4 RARE SPECIES AVOIDANCE & MINIMIZATION MEASURES
- 5 FARMLAND PROTECTION MEASURES & SOIL EROSION AND SEDIMENT CONTROL
- 6 TYPICAL DETAILS SHEET 1 OF 2
- 7 TYPICAL DETAILS SHEET 2 OF 2
- 8 TYPICAL STRUCTURE CONFIGURATIONS
- 9 TYPICAL FOUNDATION AND GROUNDING DETAILS
- 10 WATERCOURSE S-F11 CULVERT REPLACEMENT PLAN
- 11 WATERCOURSE S-F11 CULVERT REPLACEMENT CROSS SECTION AND DETAILS







### TYPICAL 115-kV DUCT BANK SECTION

NOT TO SCALE

### PROPOSED ORIENTATION

FROST BRIDGE SUBSTATION LINE EXIT

IN THE TOWN OF WATERTOWN

LOOKING SOUTH, EAST AND NORTH

(0.1 MILE)

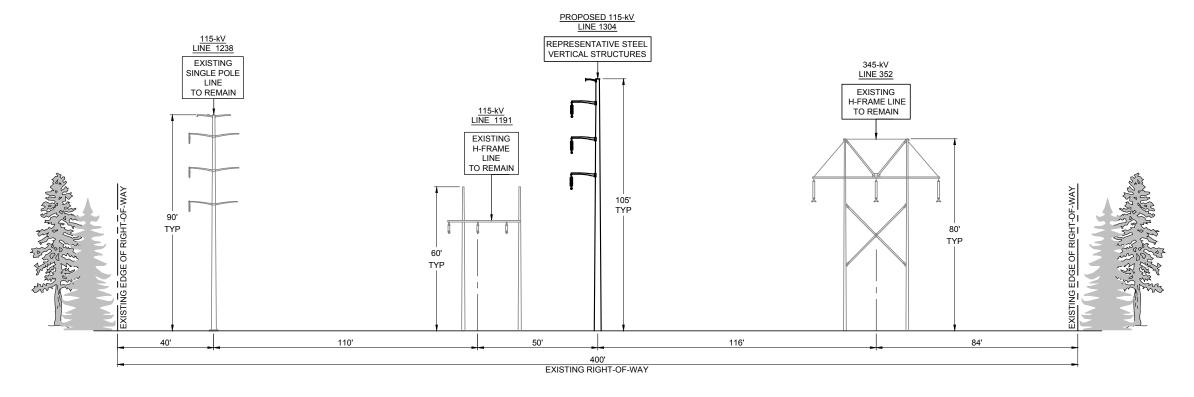
### NOTES:

- 1. NEW TRANSMISSION LINE ALIGNMENT ON EVERSOURCE-OWNED PROPERTY.
- 2. DOES NOT INCLUDE THE LENGTH OF THE OVERHEAD TRANSMISSION LINE FROM THE SUBSTATION TERMINAL STRUCTURE TO THE TRANSITION STRUCTURE OUTSIDE THE FENCE LINE. THE LINE EXIT IS SHOWN IN FIGURE 3-2 OF VOLUME 1 AND EXHIBIT 1 AND 2 OF VOLUME 5.

## FROST BRIDGE TO CAMPVILLE 115-kV PROJECT FROST BRIDGE SUBSTATION LINE EXIT

BY C. KUNTZ	CHKD D. GOGOL	APP	APP
DATE 12/4/15	DATE 12/4/15	DATE	DATE
SCALE NONE	MICROFILM DATE	DWG. NO.	KS-1
P.A. #	110 1		
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Z\CLIENTS\TND\NUSC\81960 GHCC\DESIGN\FROST BRIDGE-CAMPVILLE\CADD\WORKING\UG\GHCC X-SECT DUCTBANK.DWG 12/18/2015 10:08 AM DAGOGOL



### PROPOSED CONFIGURATION VERTICAL DESIGN

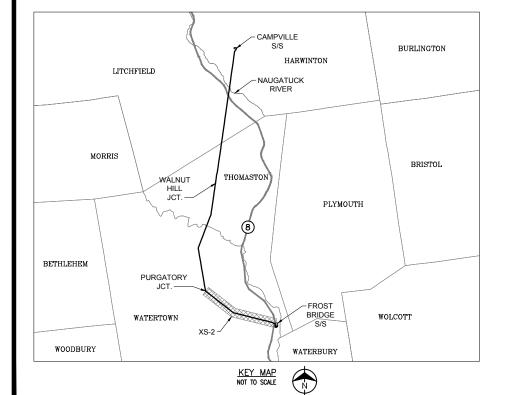
FROST BRIDGE SUBSTATION LINE EXIT

PURGATORY JUNCTION

IN THE TOWN OF WATERTOWN

LOOKING WEST

(2.5 MILES)

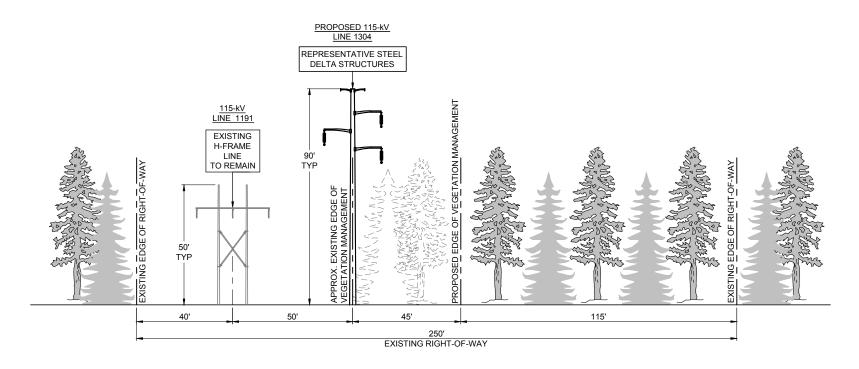


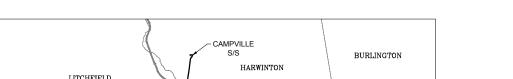
### NOTES:

- 1. EXISTING LINES TO REMAIN.
- 2. PRELIMINARY STRUCTURE SPOTTING IS BASED ON STRUCTURE-FOR-STRUCTURE INSTALLATION.
- 3. EXISTING VEGETATION MANAGEMENT EDGES ARE TYPICAL.
- 4. AFTER THE CONDUCTORS HAVE BEEN INSTALLED, A REFERENCE IS ESTABLISHED THAT MAY IDENTIFY ADDITIONAL DANGER TREES OUTSIDE THE INITIALLY CLEARED AREA THAT MIGHT NEED TO BE REMOVED.
- 5. DEPICTED REPRESENTATIVE STRUCTURES ARE STEEL TANGENT STRUCTURES UTILIZING DIRECT EMBEDDED FOUNDATIONS. ANGLE AND DEADEND STRUCTURES WILL DIFFER AND BE PLACED ON CONCRETE FOUNDATIONS.

TITLE F	ROST	BRIDGE	то	CAM	PVILL	<b>.E</b> 1	115-kV	PRO	)JECT	1
		PR	OPOS	ED CF	ROSS	SEC	TIONS			
	FROST	BRIDGE	S/S	LINE	<b>EXIT</b>	TO	<b>PURGAT</b>	ORY	JCT.	

BY D. LAURSEN	CHKD V. MONTEMURRO	APP	
DATE 12/16/15	DATE 12/16/15	DATE	DATE
SCALE NONE	MICROFILM DATE	DWG. NO.	DATE  KS-2
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### PROPOSED CONFIGURATION

**DELTA DESIGN** 

PURGATORY JUNCTION WALNUT HILL JUNCTION

IN THE TOWNS OF WATERTOWN & THOMASTON

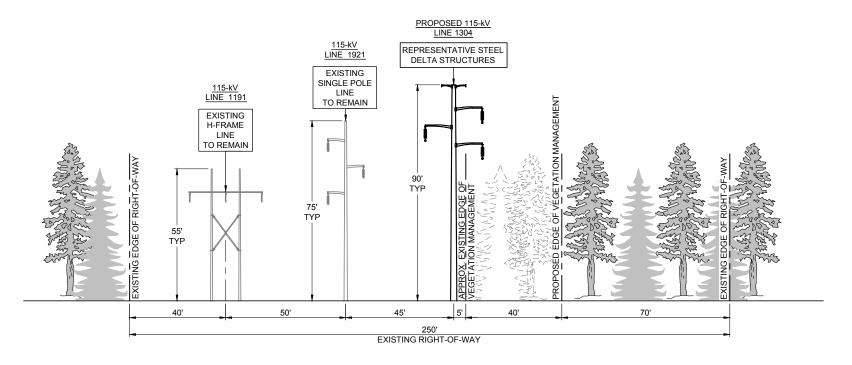
LOOKING NORTH

(3.8 MILES)

- 1. EXISTING LINES TO REMAIN.
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- 4. AFTER THE CONDUCTORS HAVE BEEN INSTALLED, A REFERENCE IS ESTABLISHED THAT MAY IDENTIFY ADDITIONAL DANGER TREES OUTSIDE THE INITIALLY CLEARED AREA THAT MIGHT NEED TO BE REMOVED.
- 5. DEPICTED REPRESENTATIVE STRUCTURES ARE STEEL TANGENT STRUCTURES UTILIZING DIRECT EMBEDDED FOUNDATIONS. ANGLE AND DEADEND STRUCTURES WILL DIFFER AND BE PLACED ON CONCRETE FOUNDATIONS.

### FROST BRIDGE TO CAMPVILLE 115-kV PROJECT PROPOSED CROSS SECTIONS PURGATORY JCT. TO WALNUT HILL JCT.

BY D. LAURSEN	CHKD V. MONTEMURRO	APP	APP
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SCALE NONE	MICROFILM DATE	DWG. NO.	KS-3
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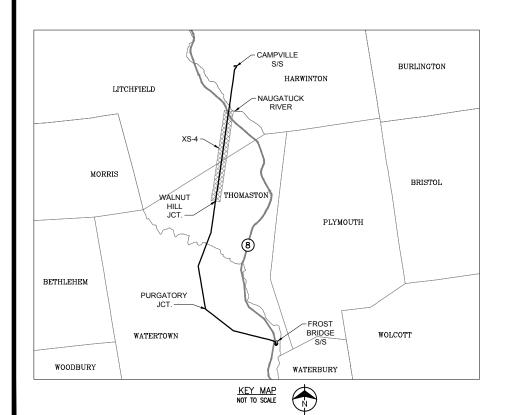


WALNUT HILL JUNCTION TO SOUTH BANK OF NAUGATUCK RIVER

IN THE TOWNS OF THOMASTON & LITCHFIELD

LOOKING NORTH

(2.5 MILES)

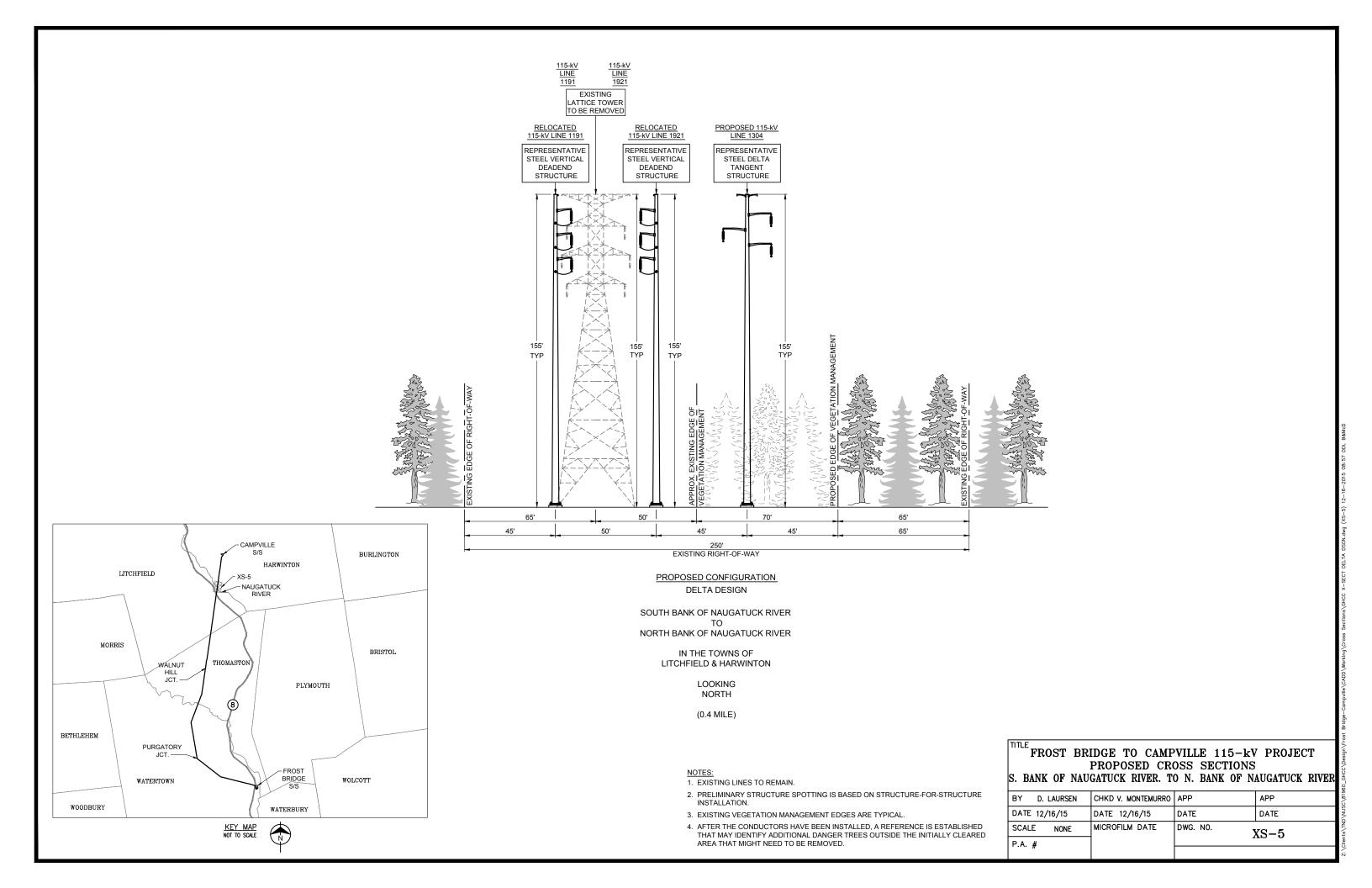


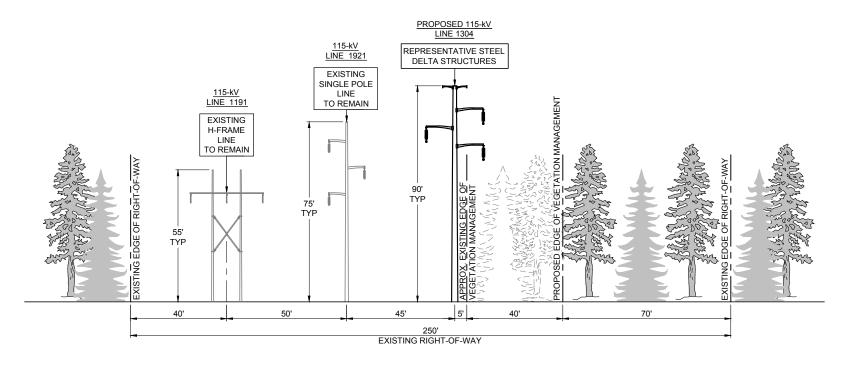
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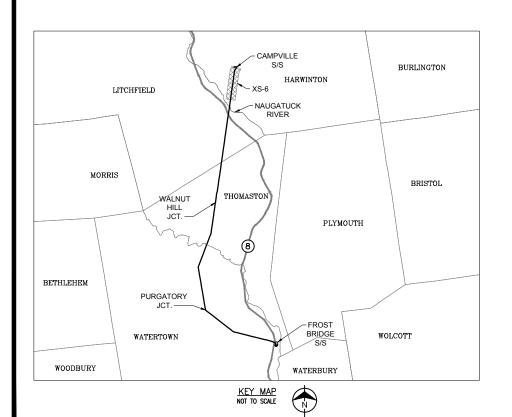


NORTH BANK OF NAUGATUCK RIVER TO CAMPVILLE SUBSTATION

> IN THE TOWN OF HARWINTON

> > LOOKING NORTH

(1.0 MILES)

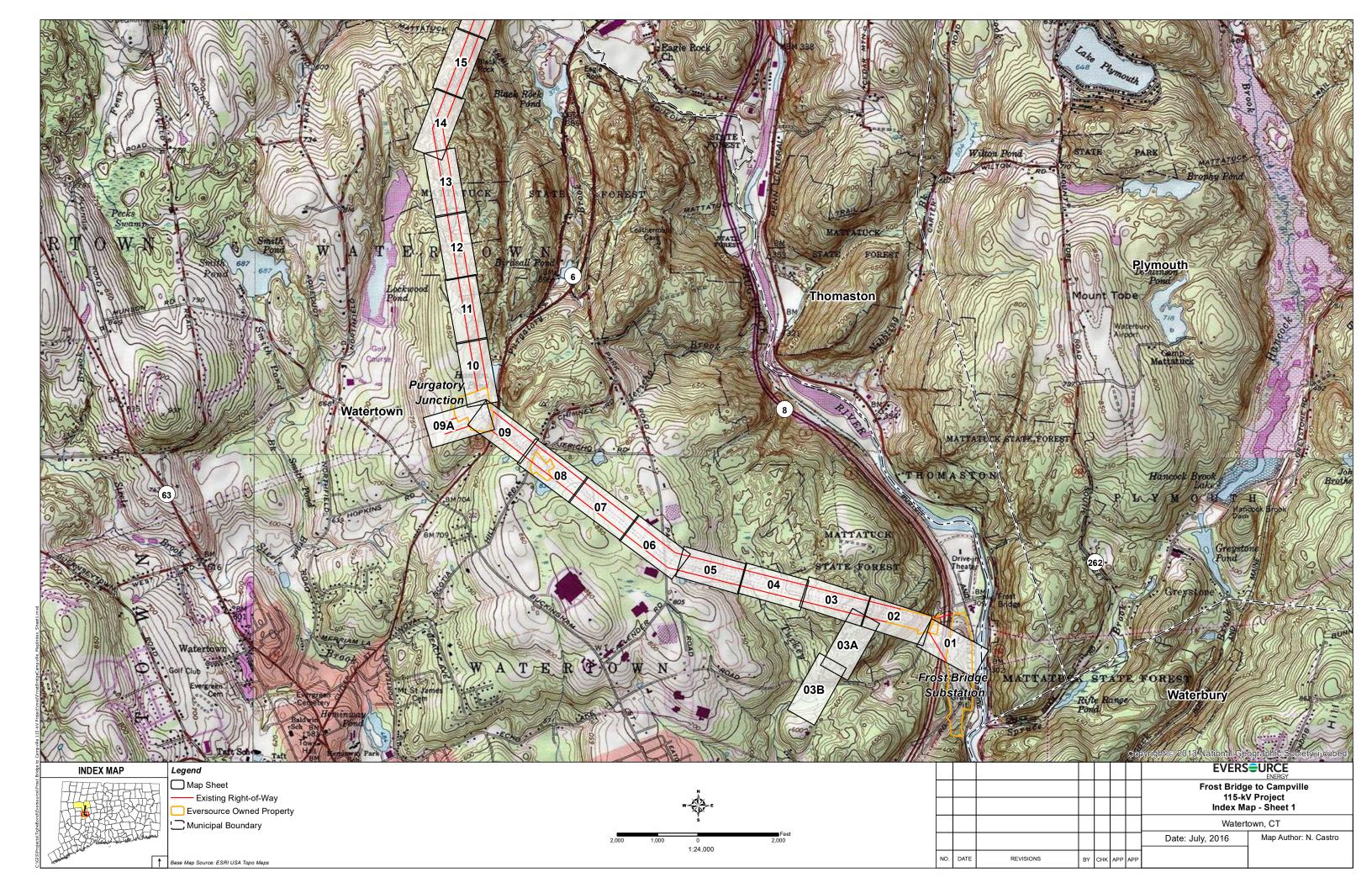


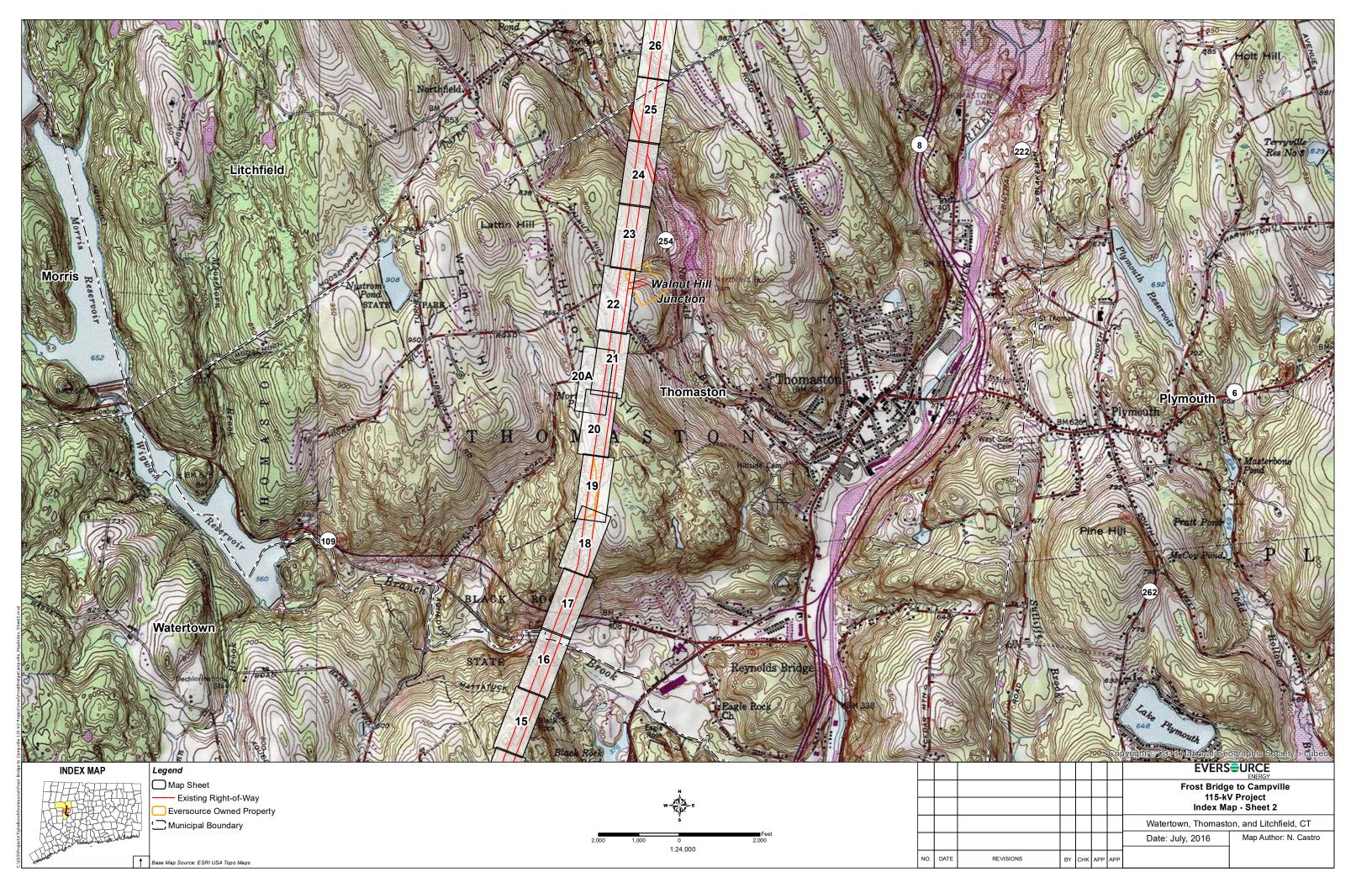
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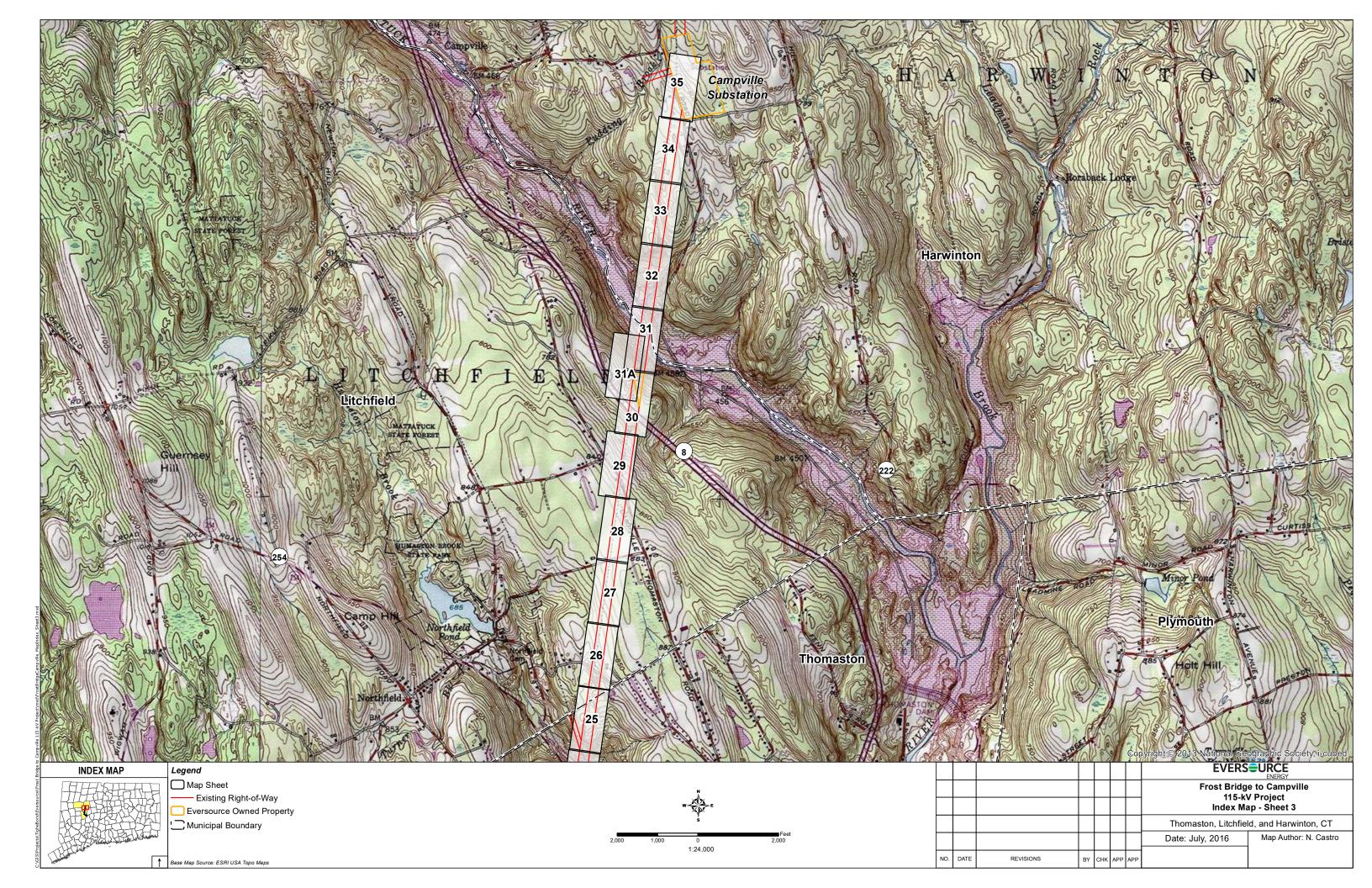
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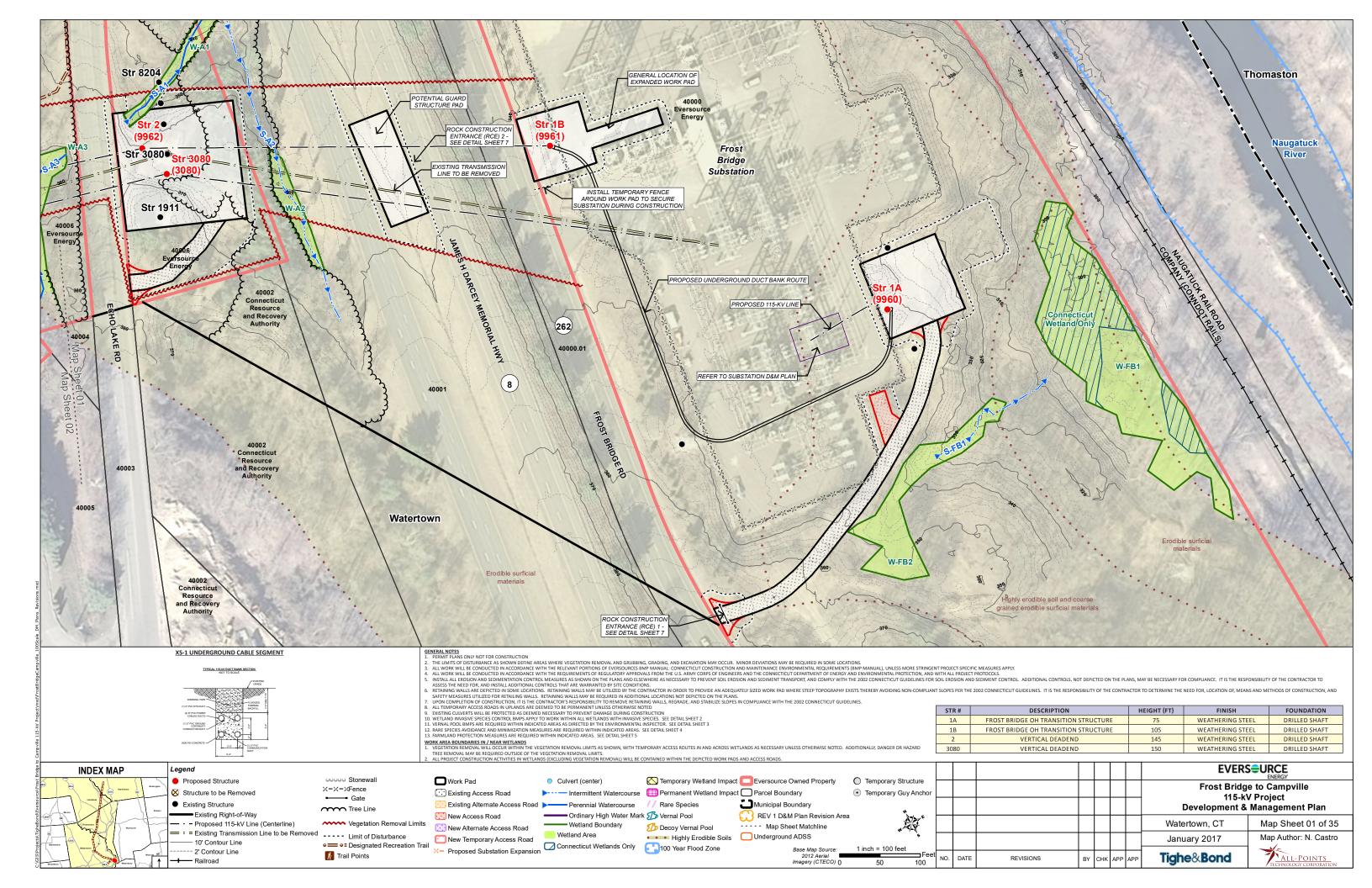
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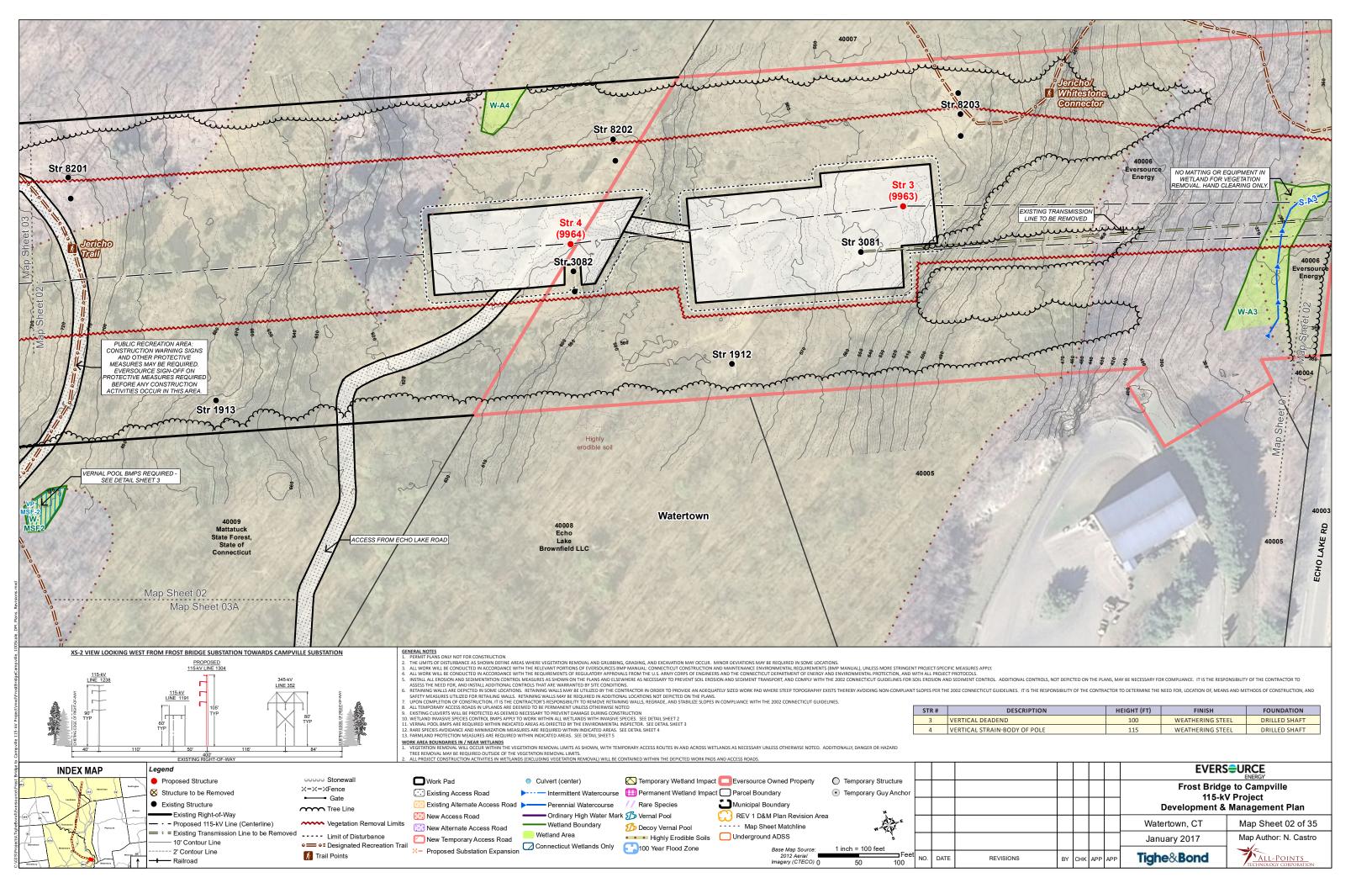
BY D. LAURSEN	CHKD V. MONTEMURRO	APP	APP
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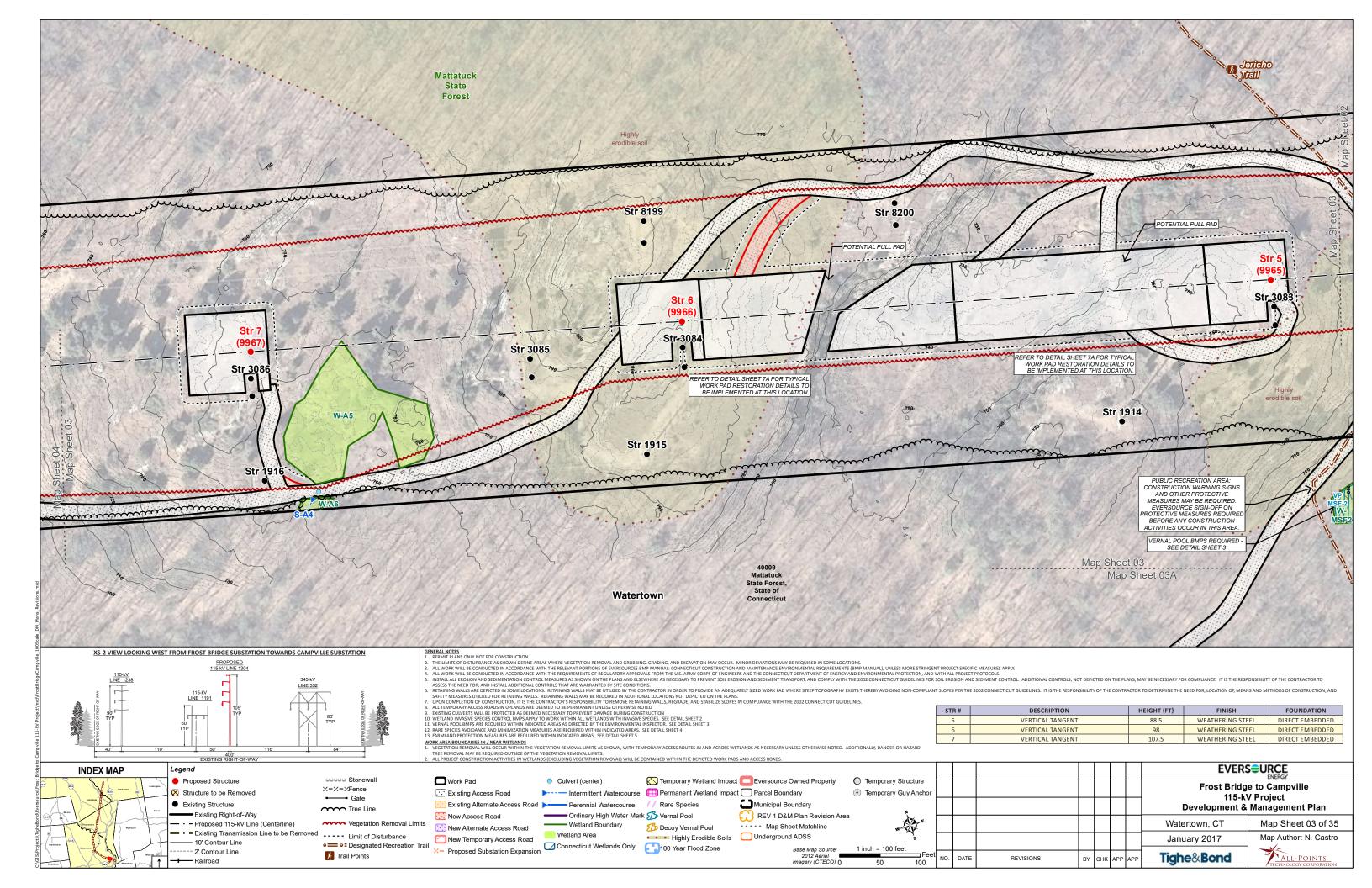


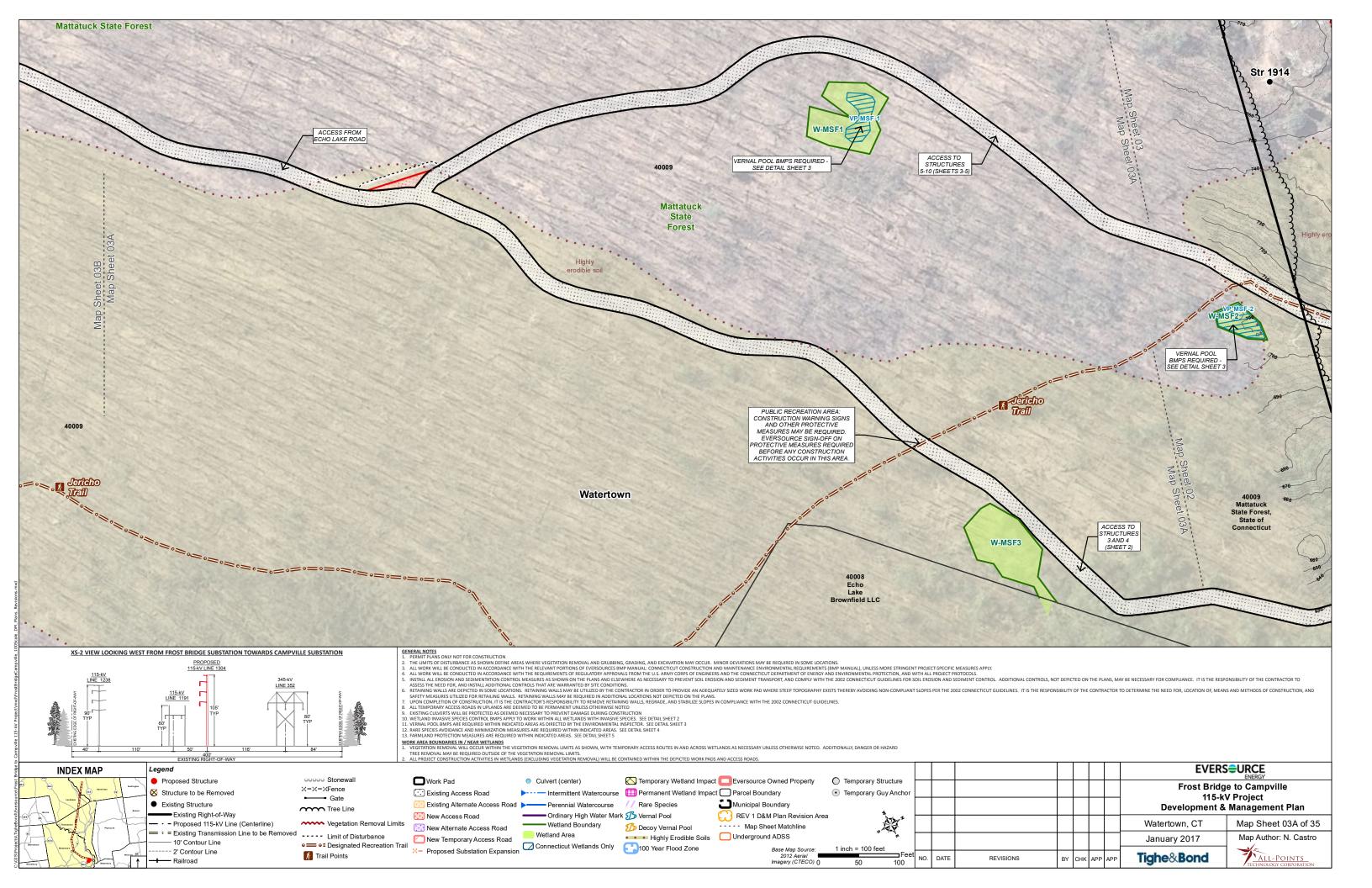


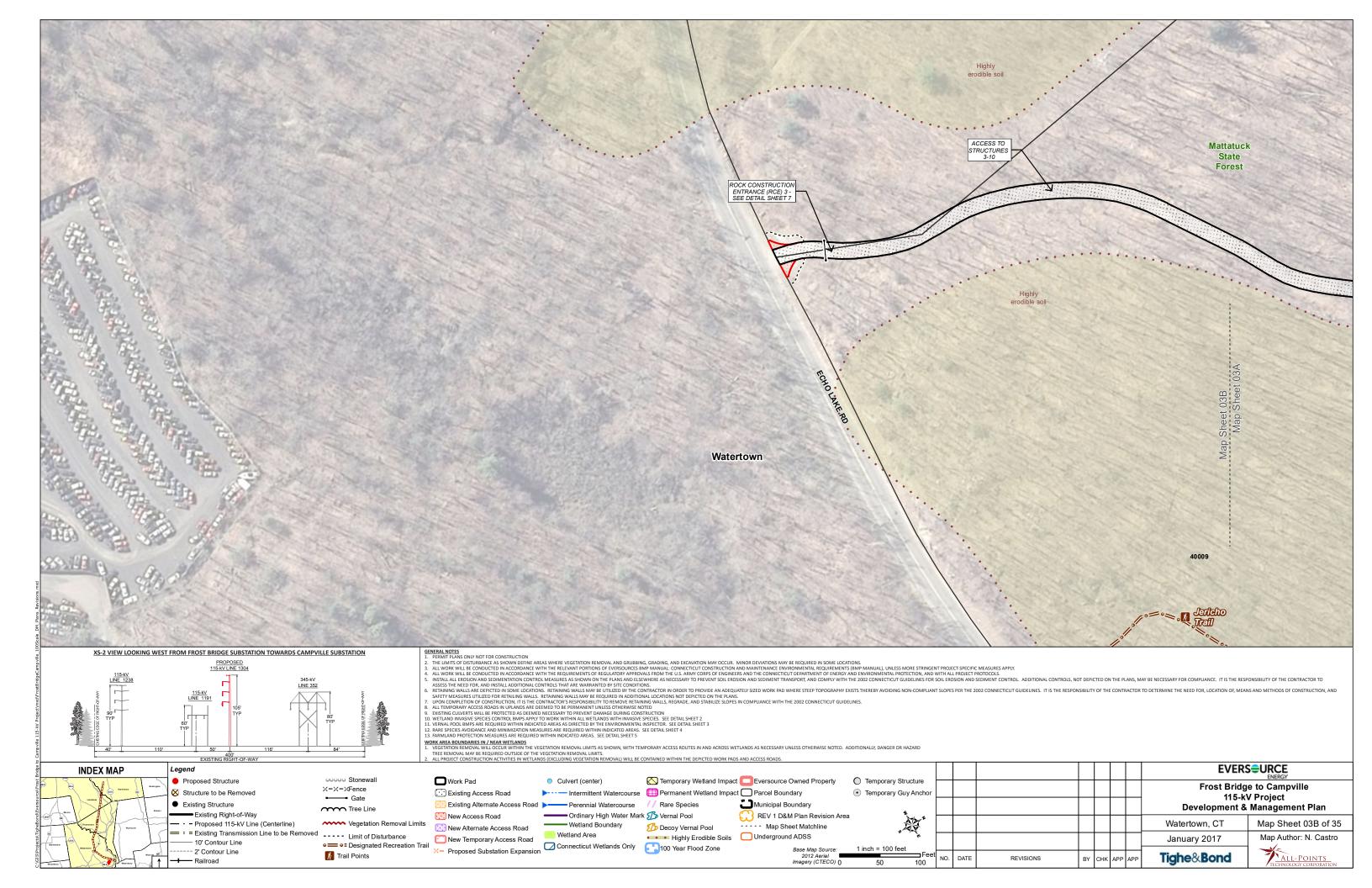


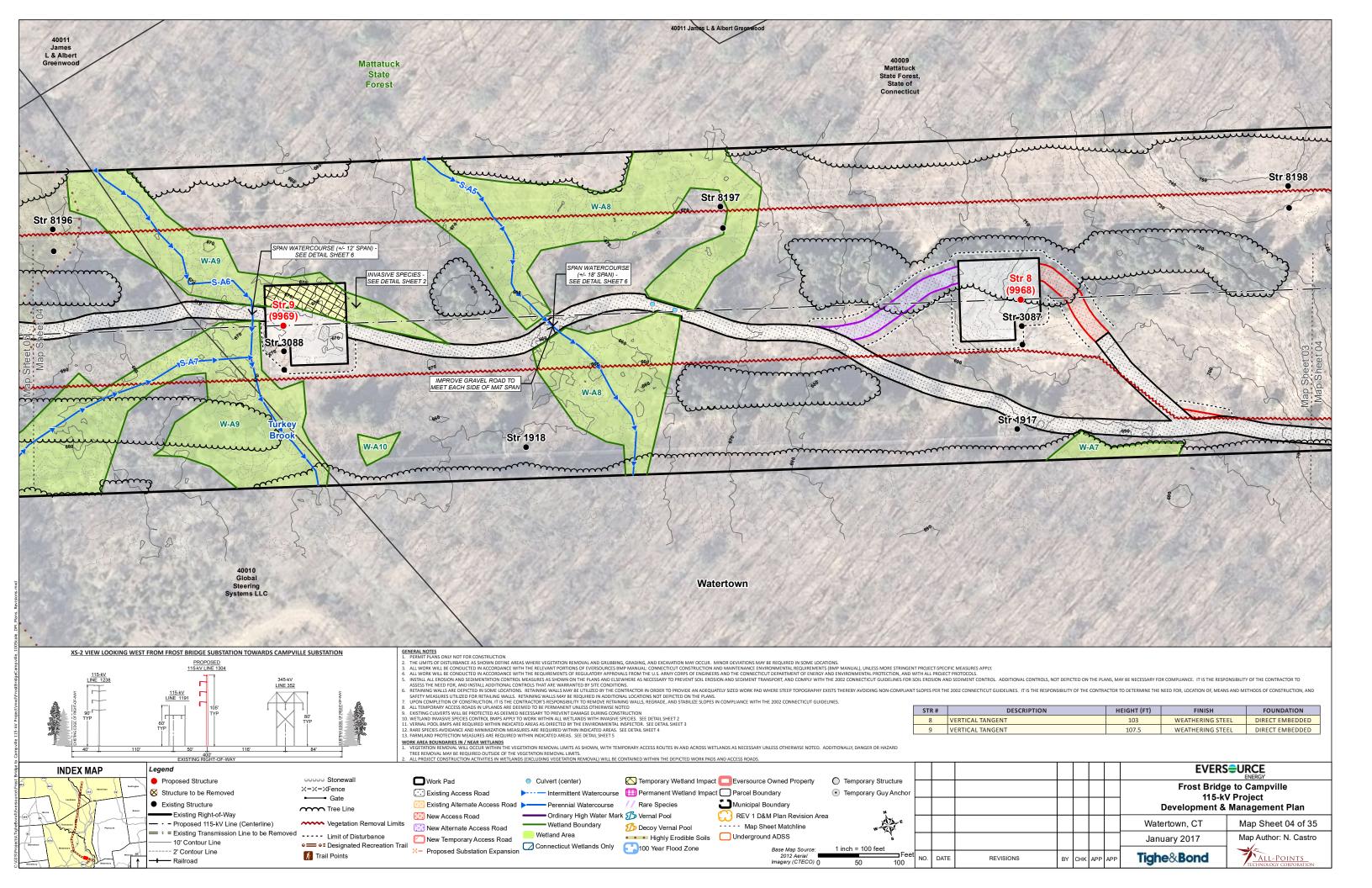


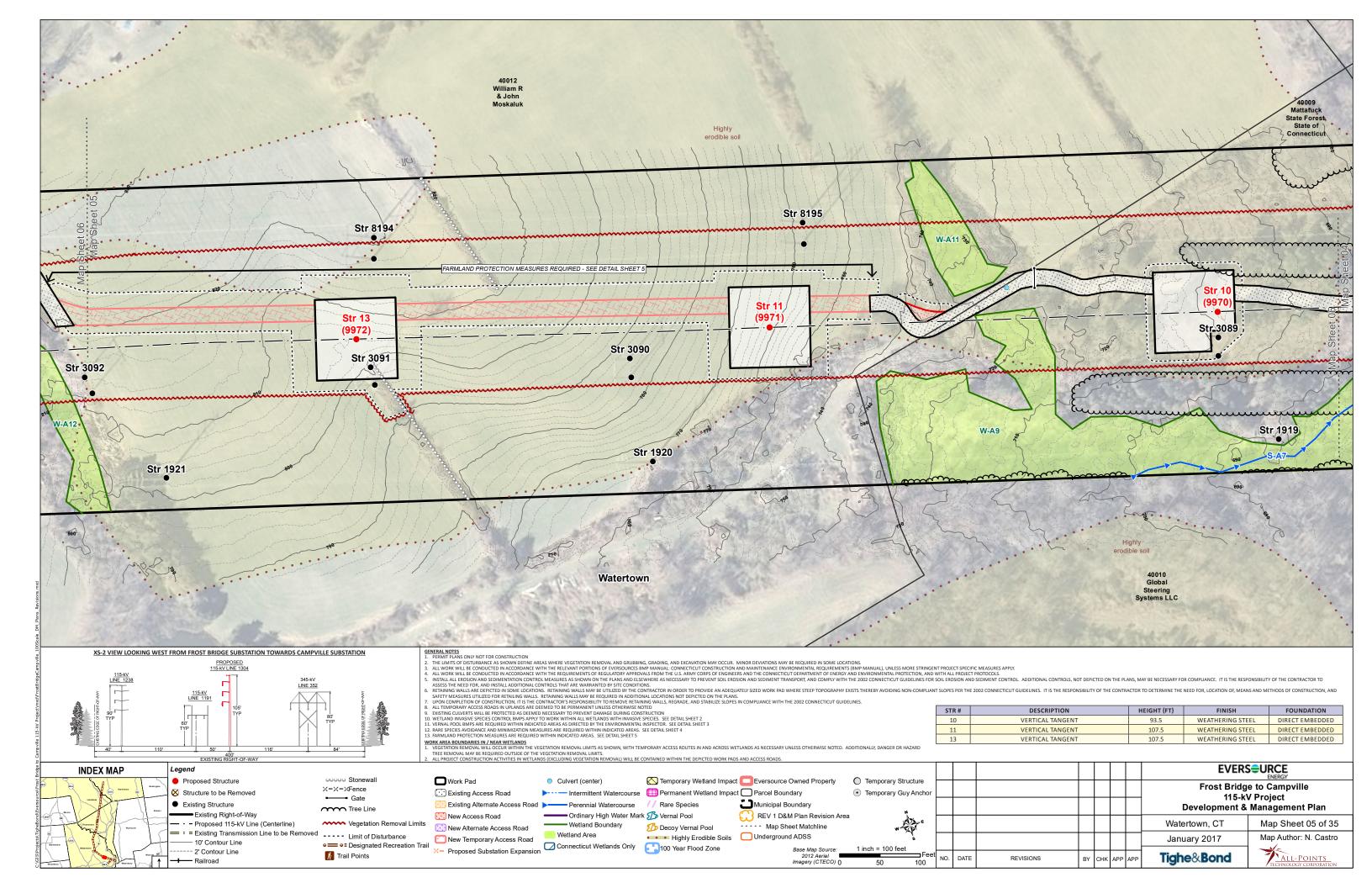


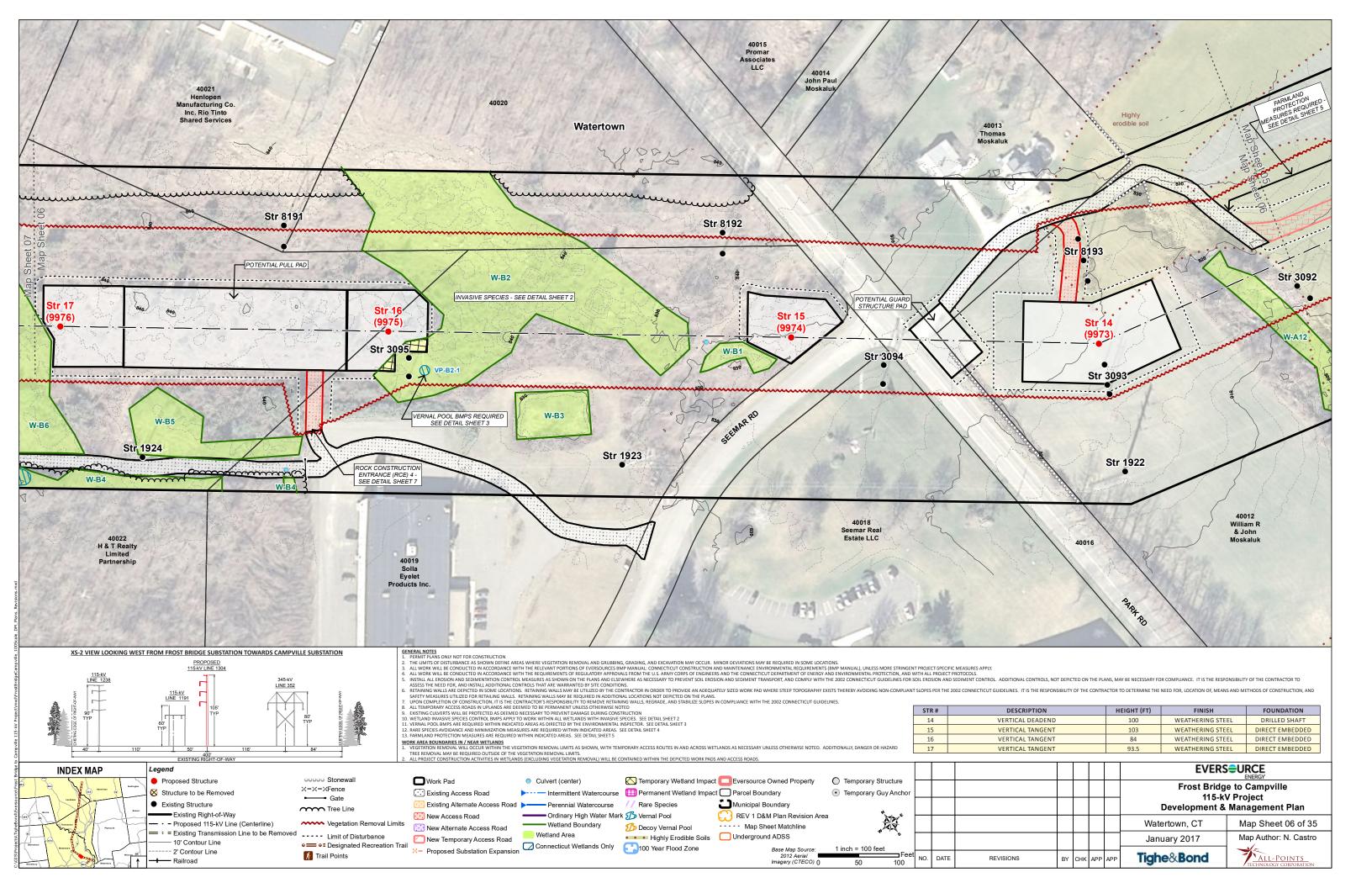


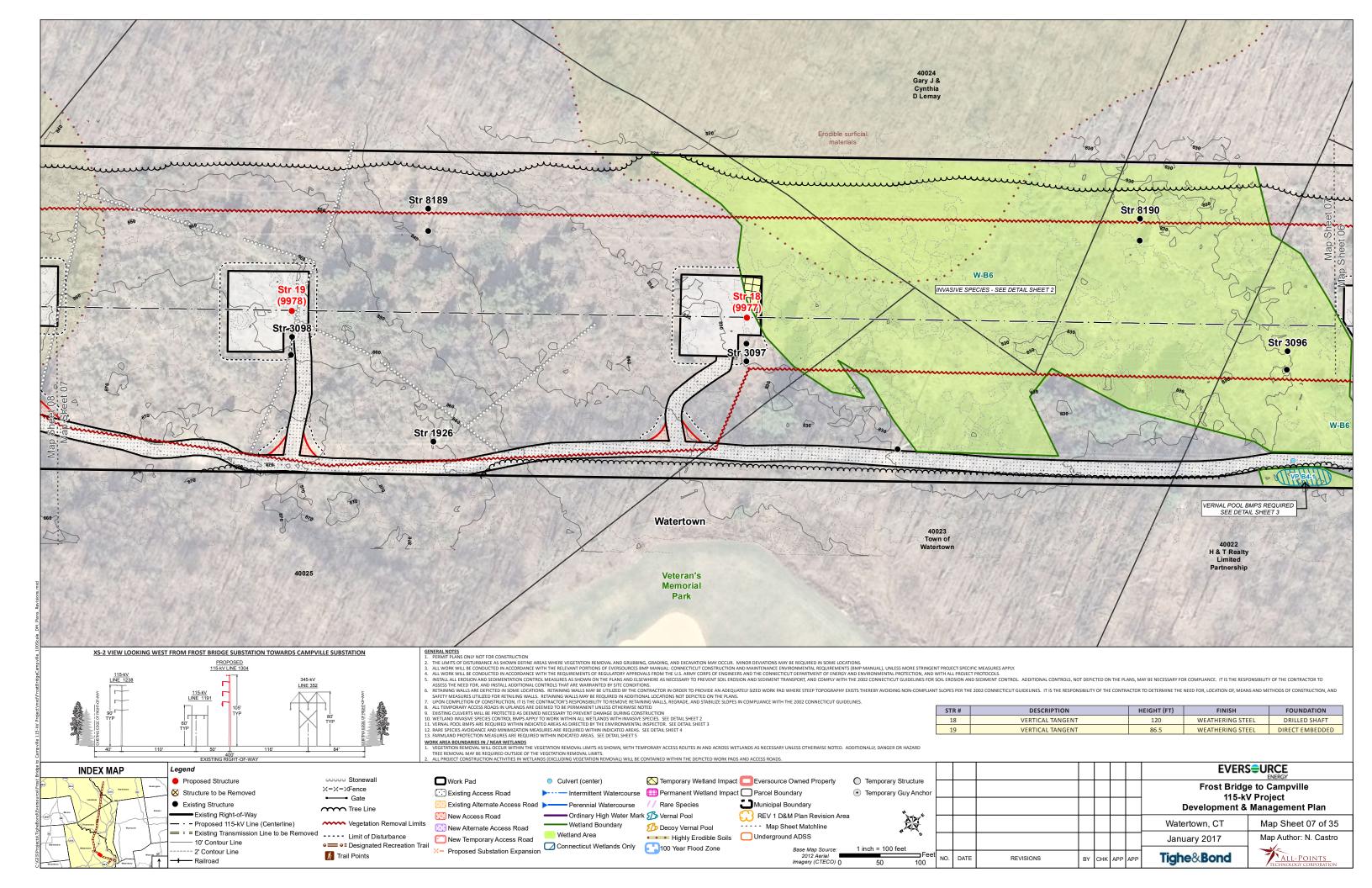


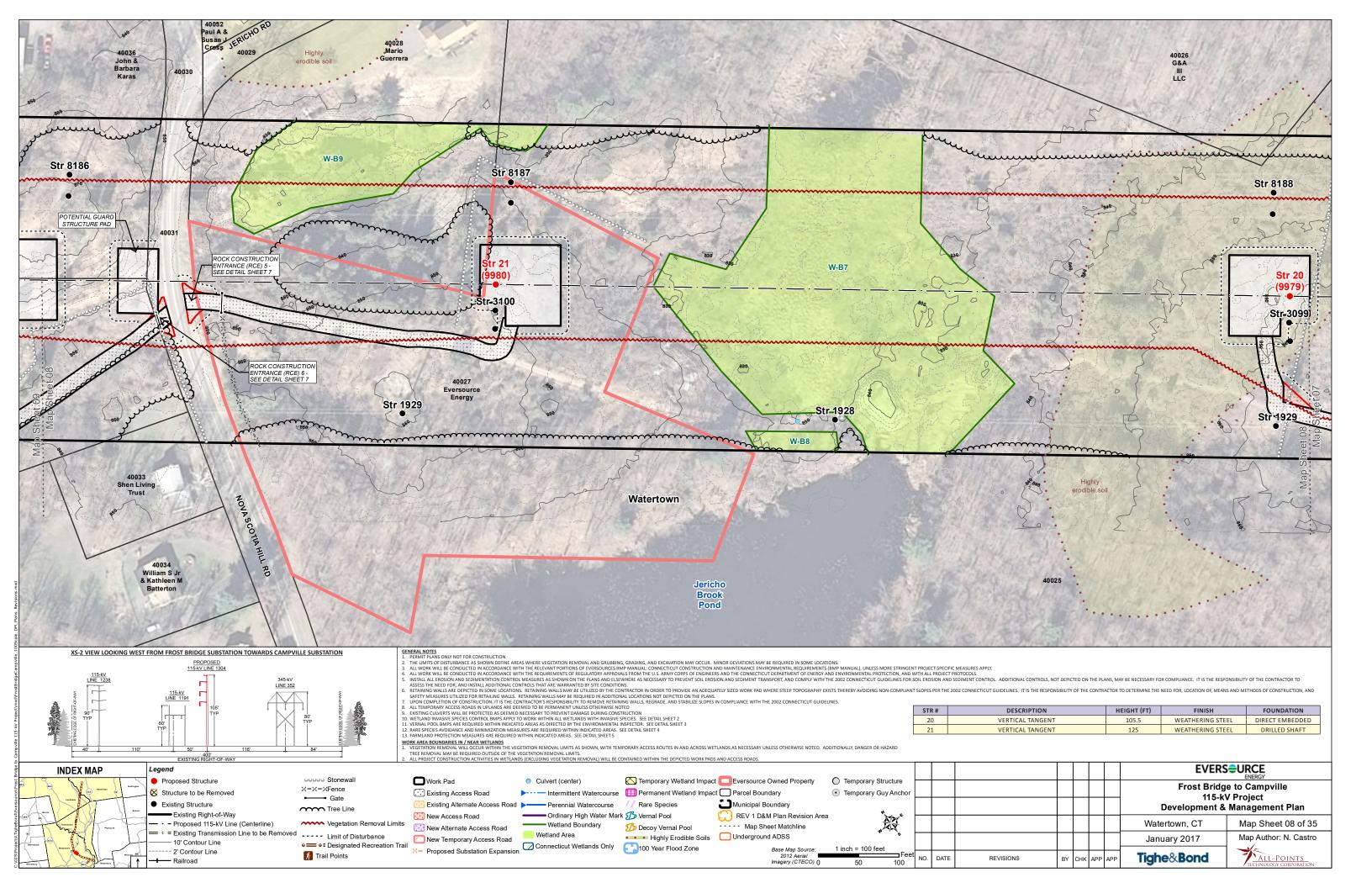


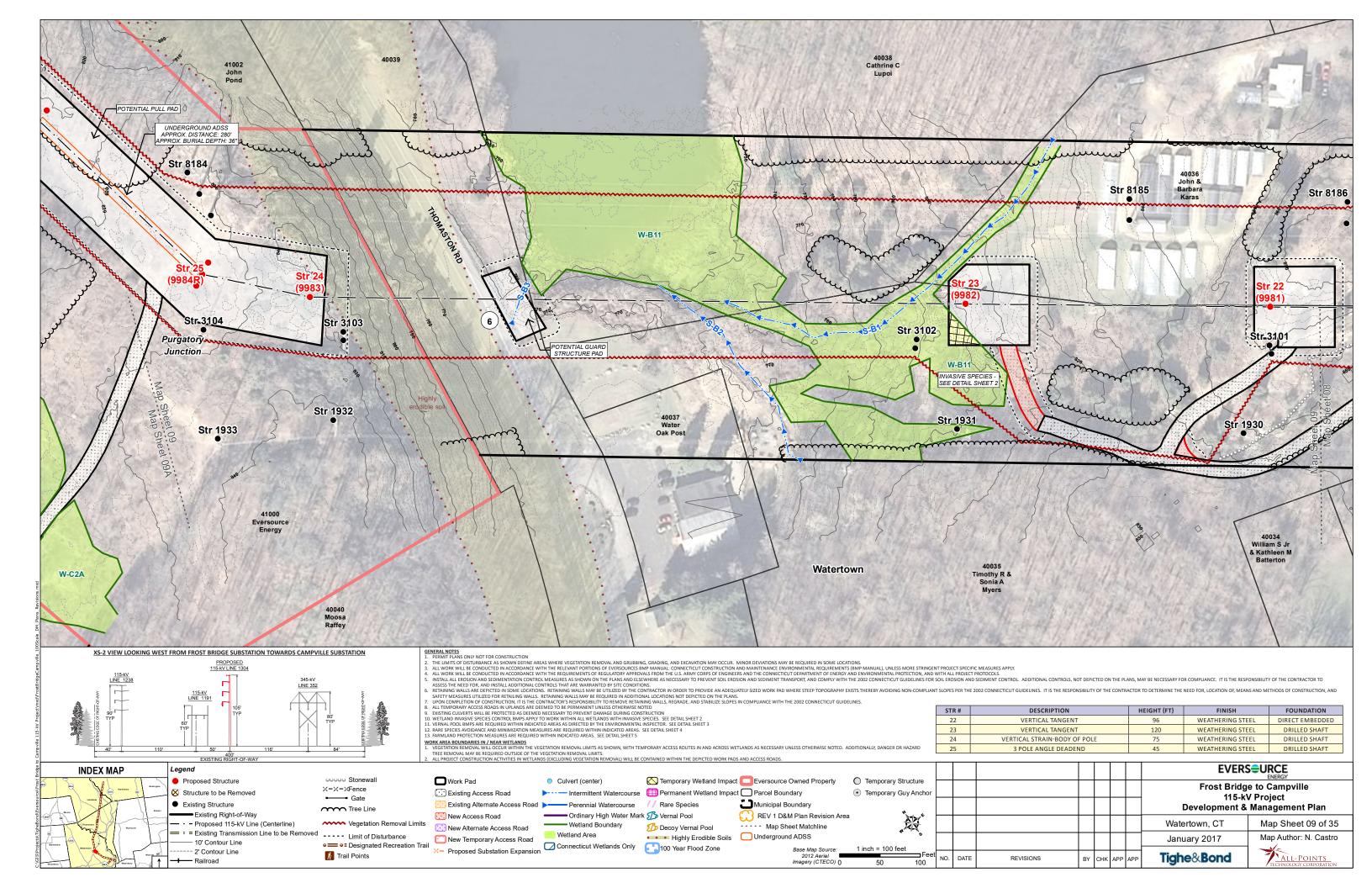


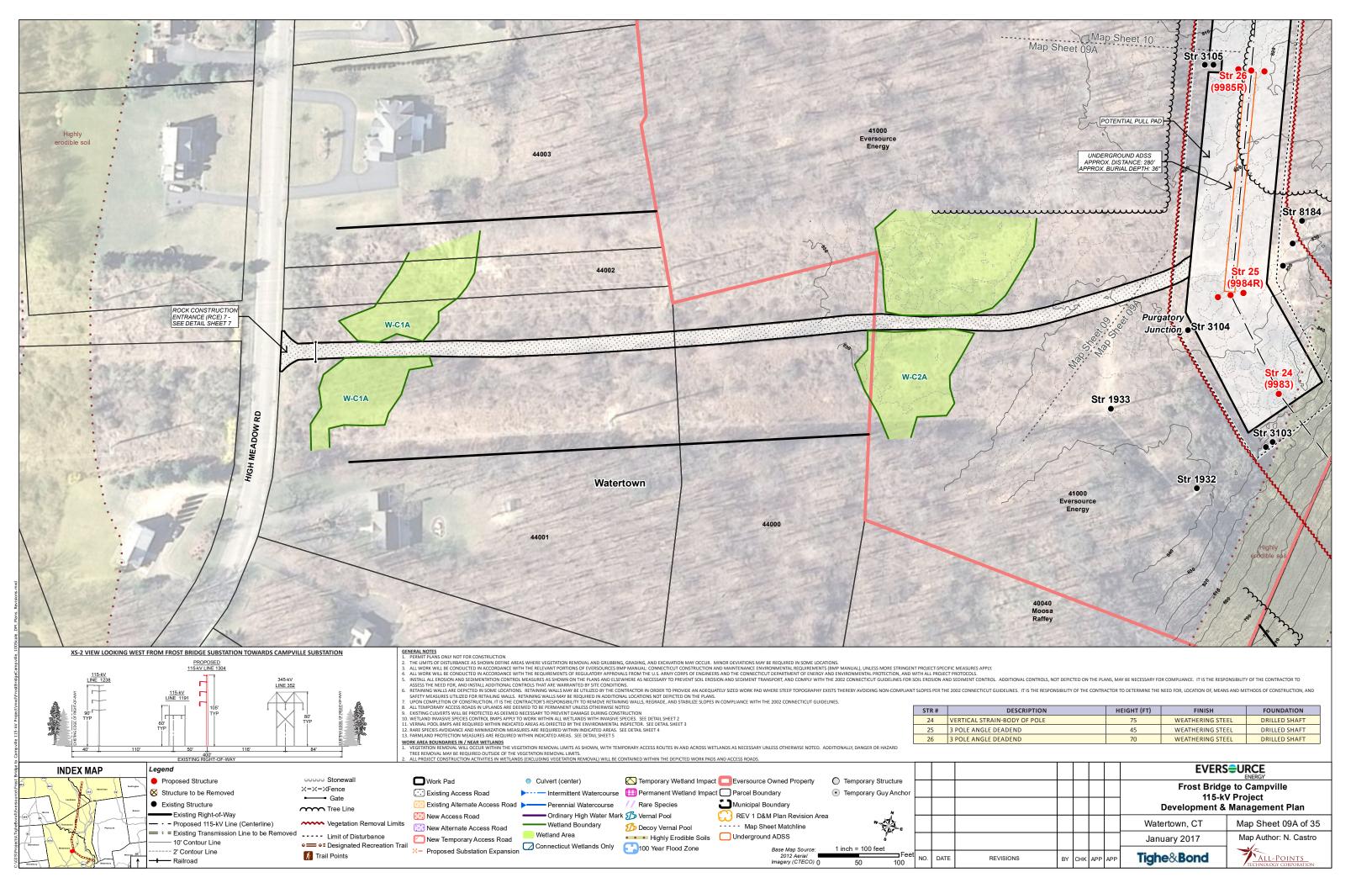


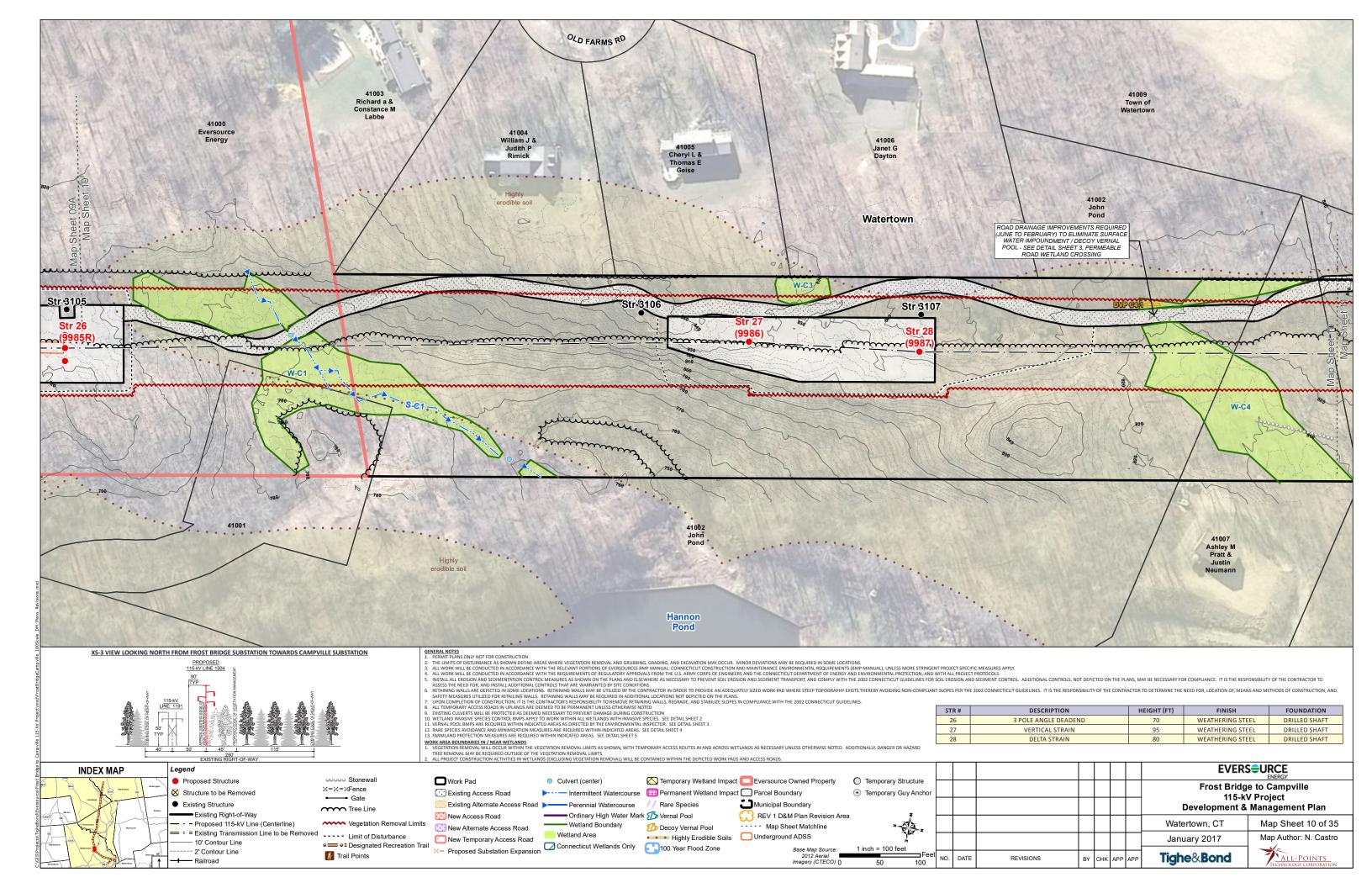


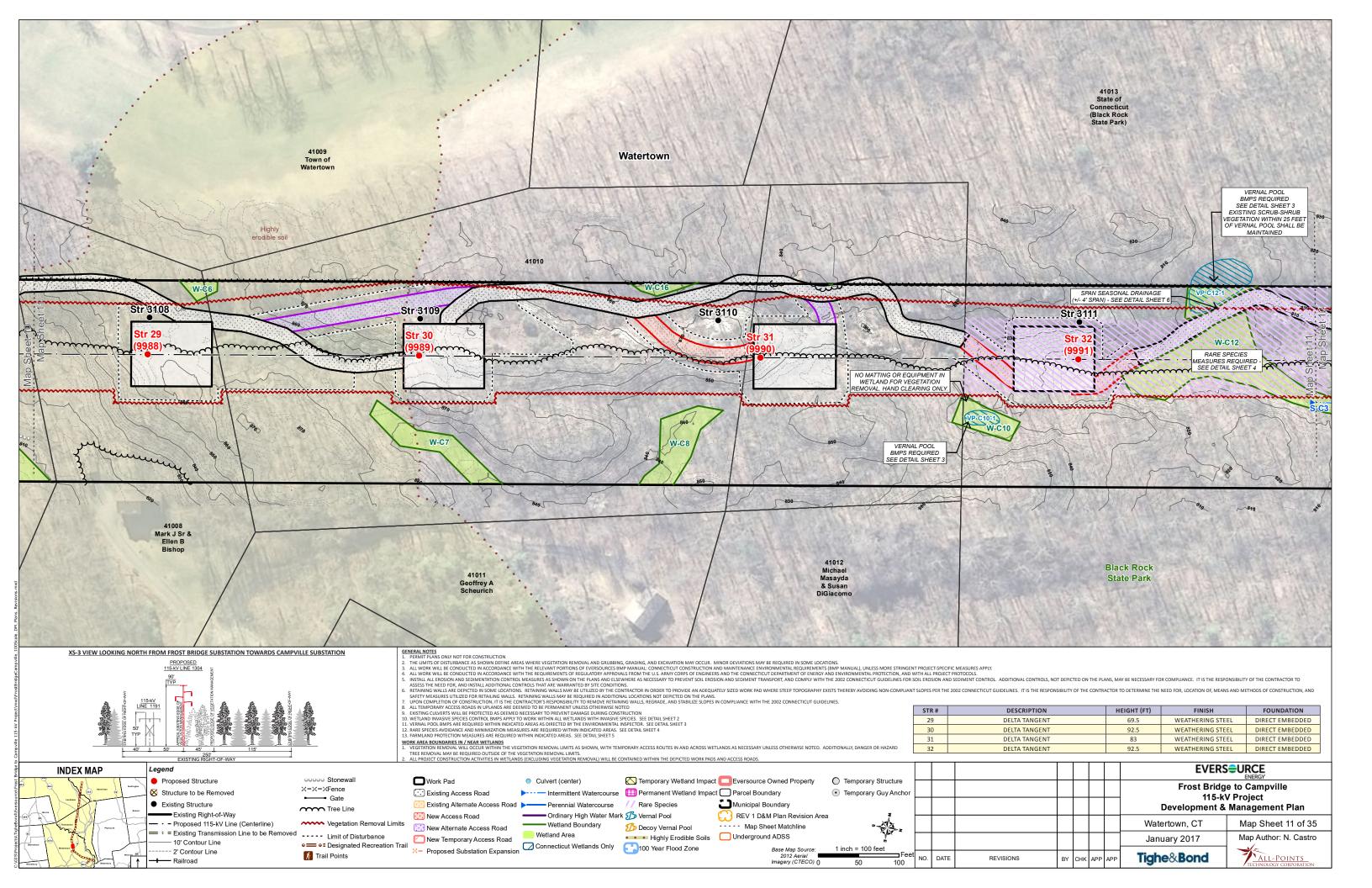


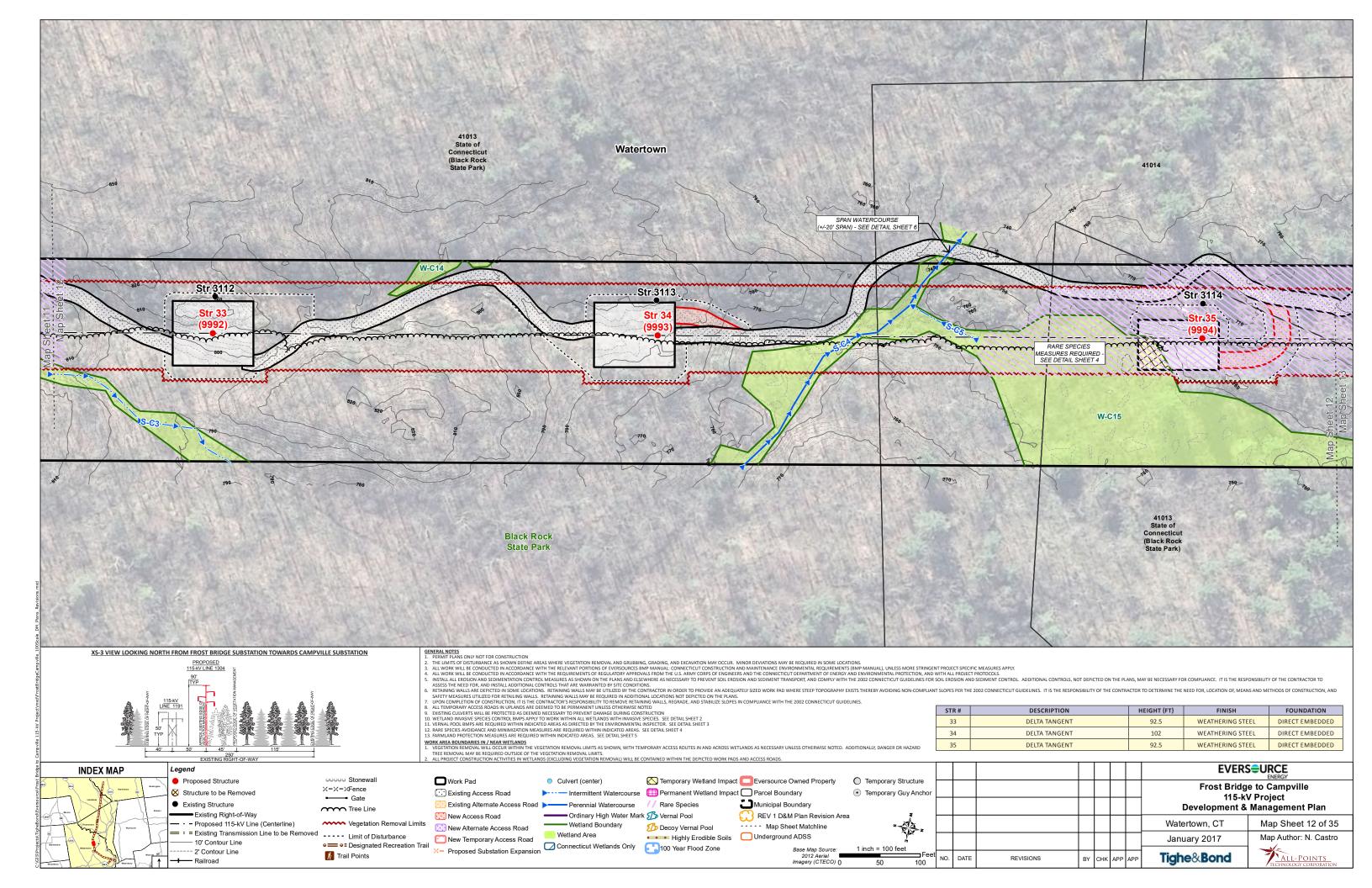


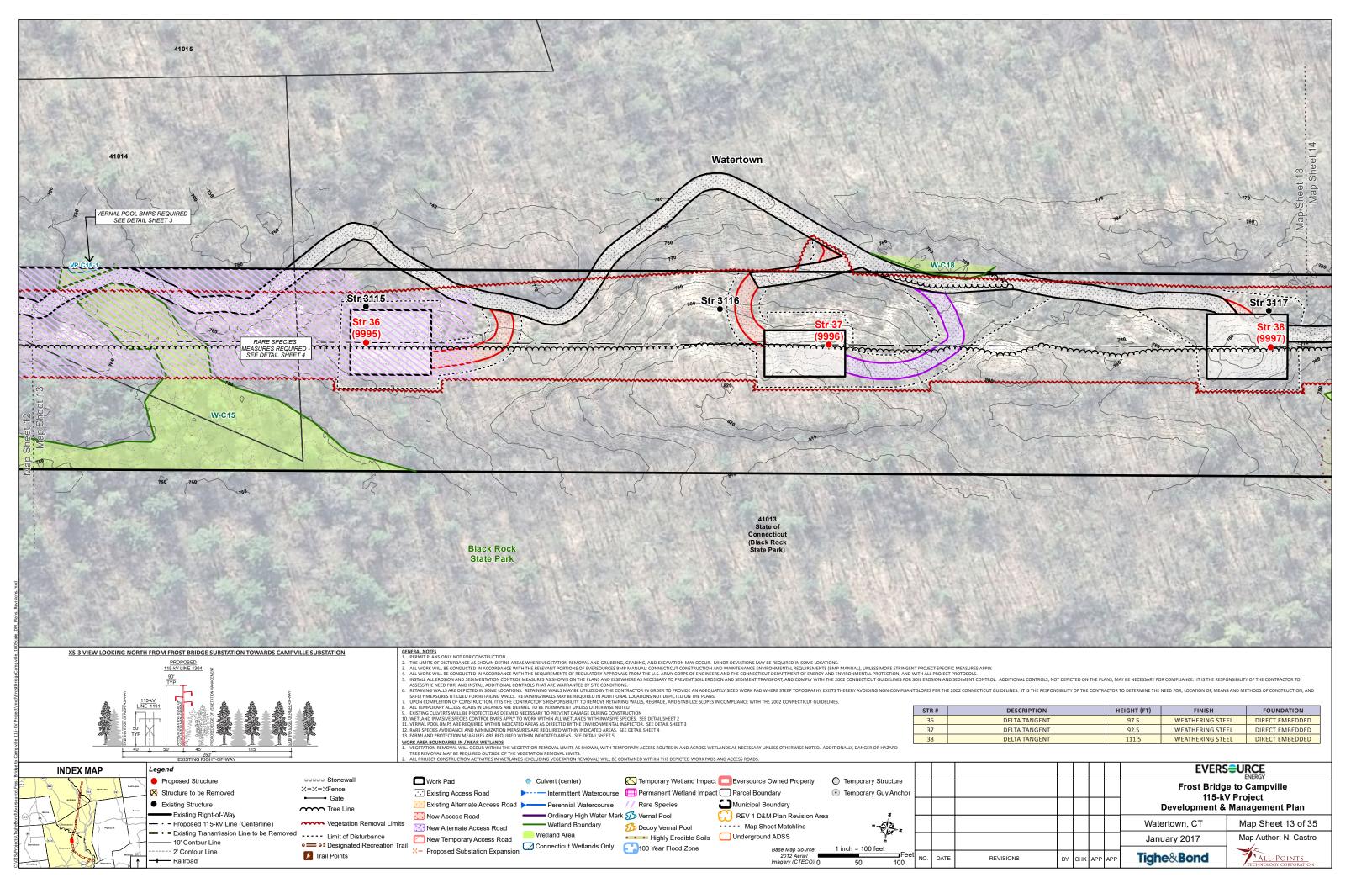


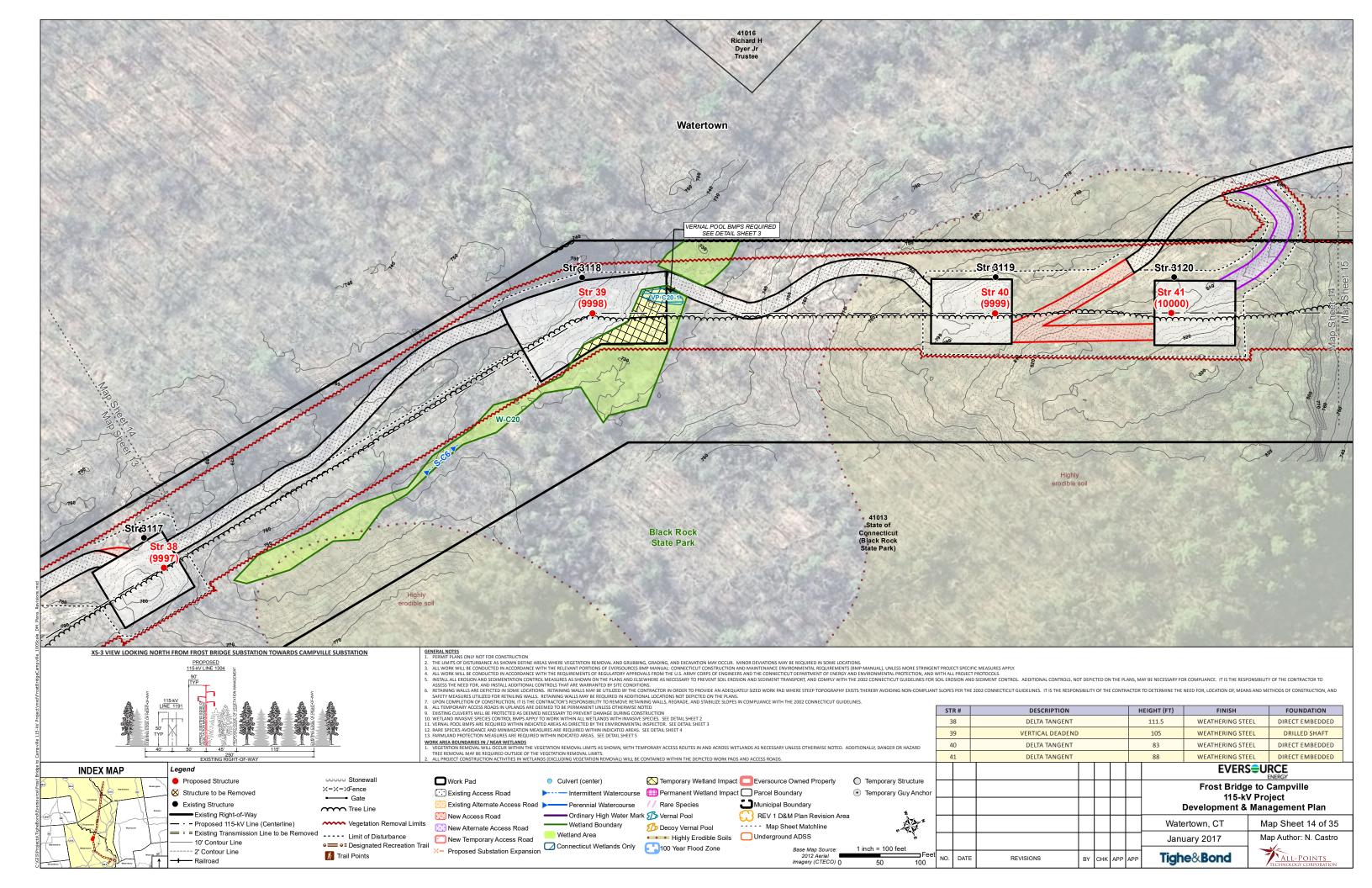


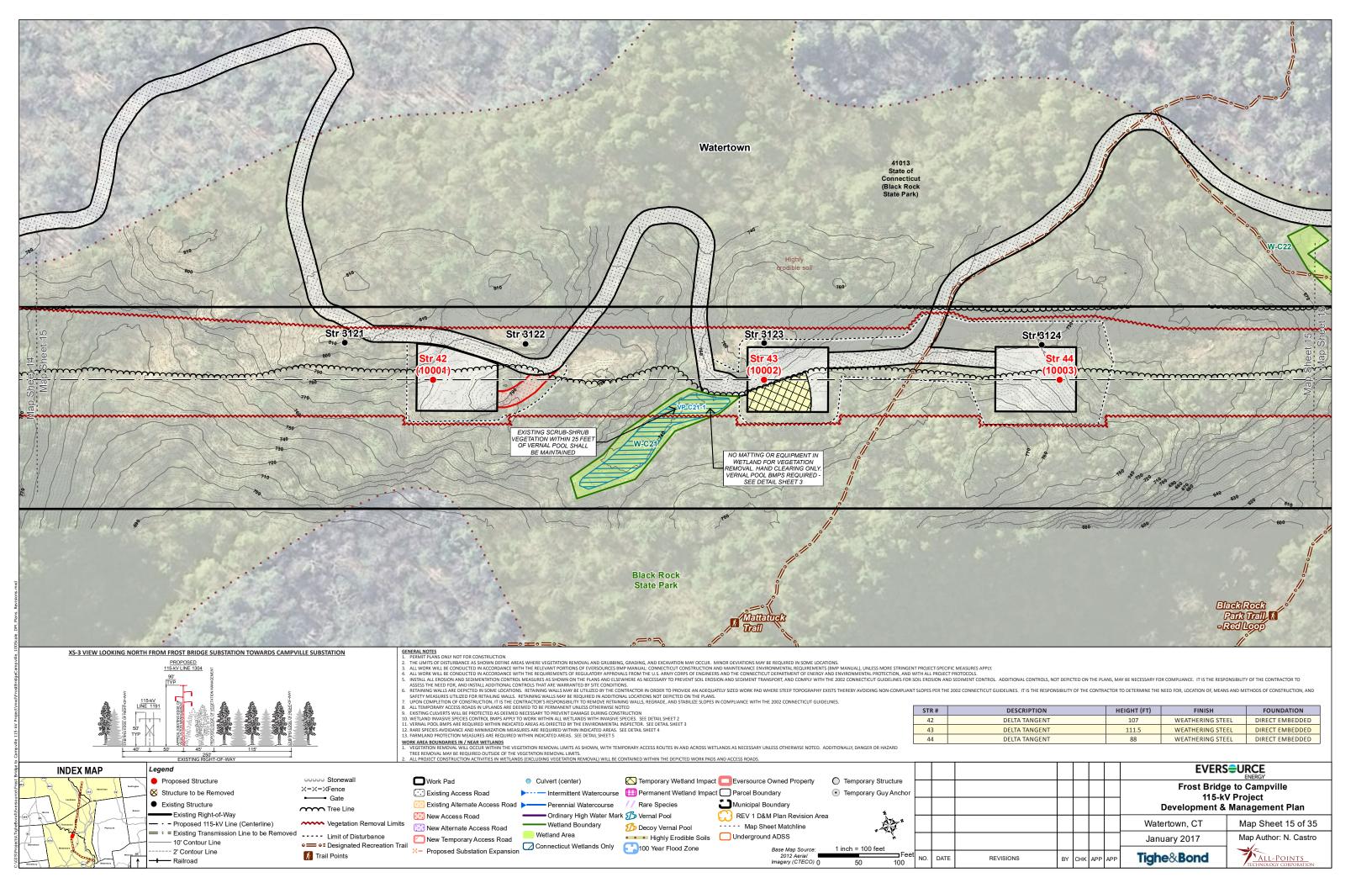


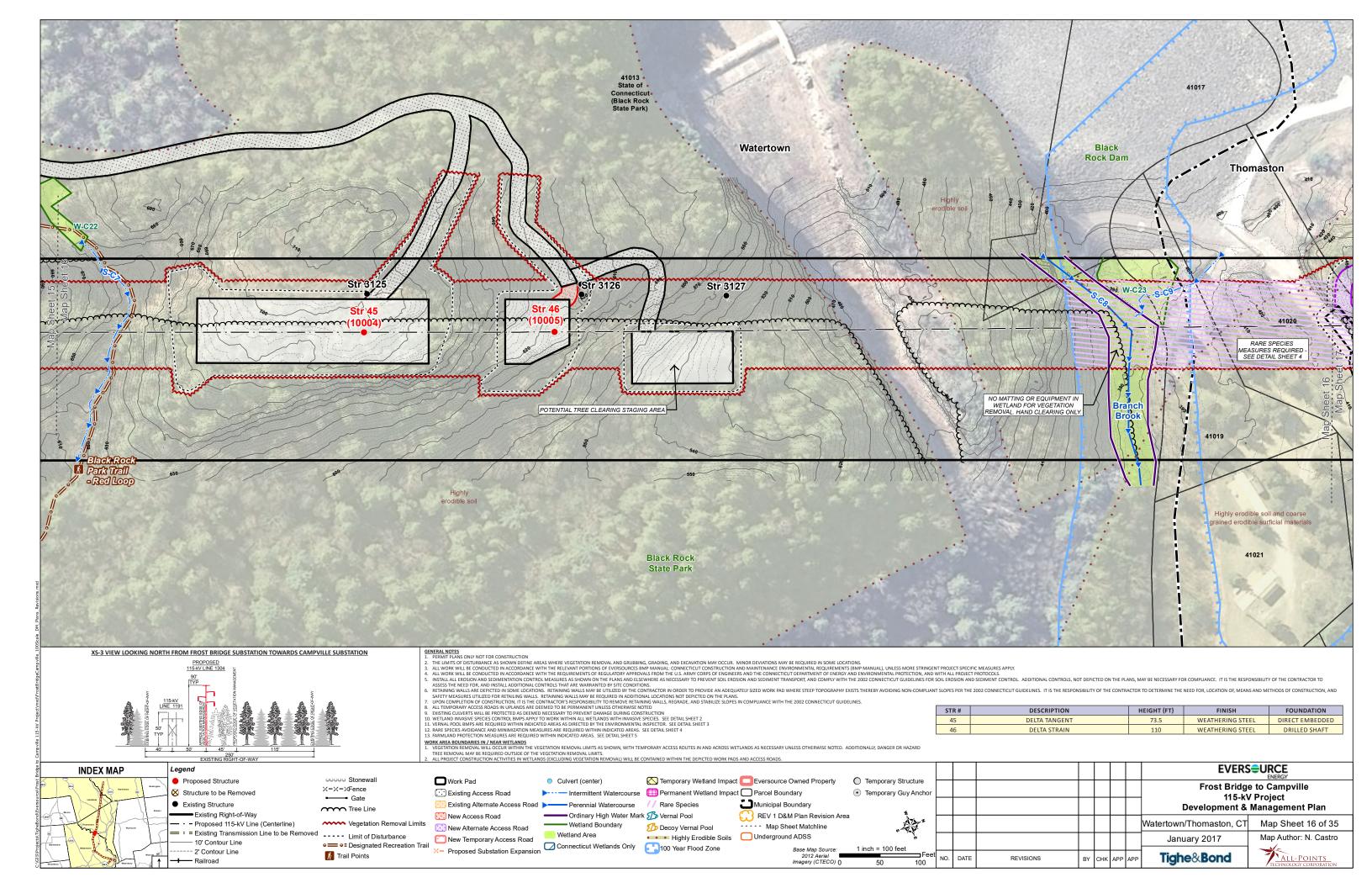


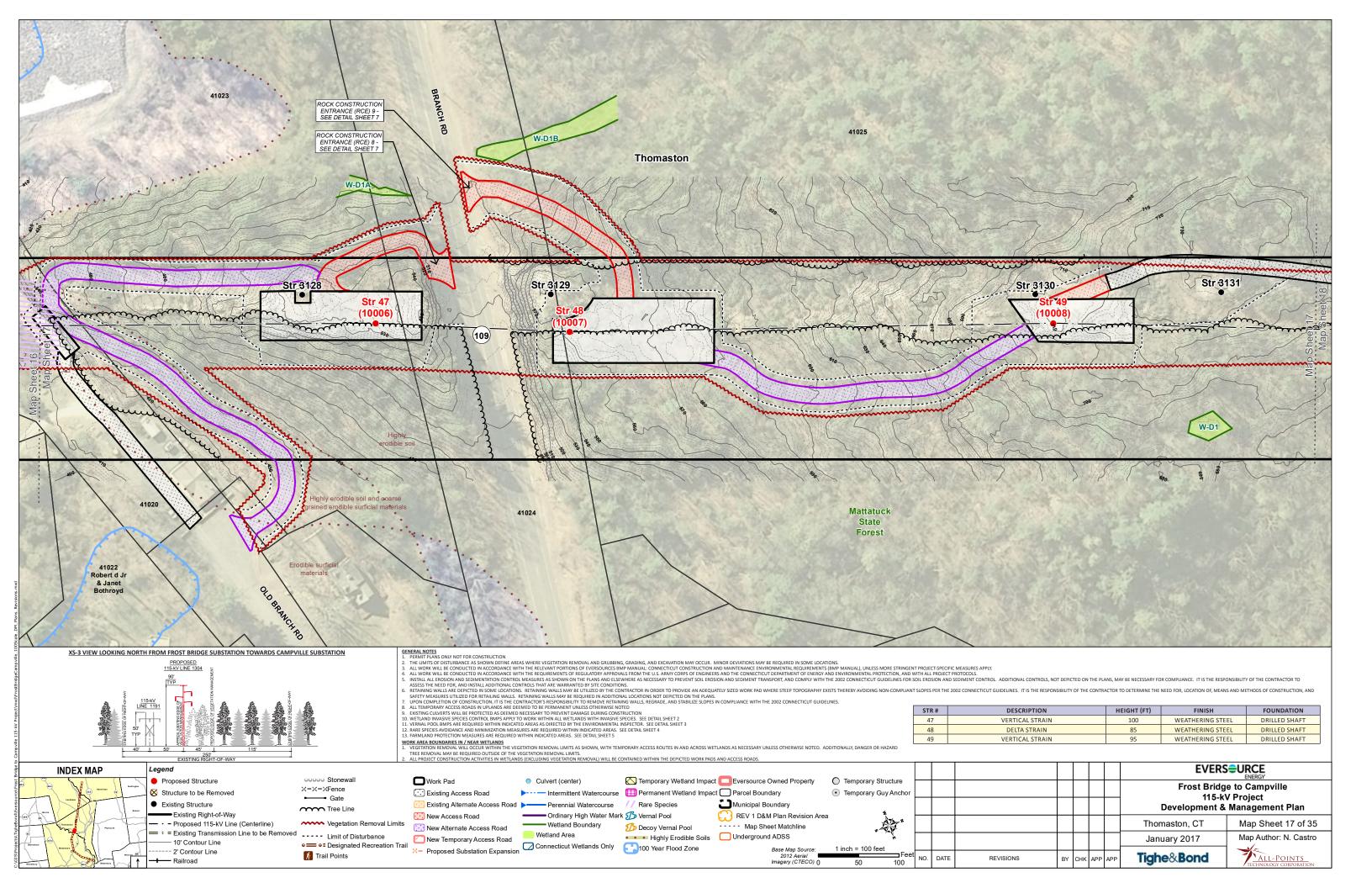


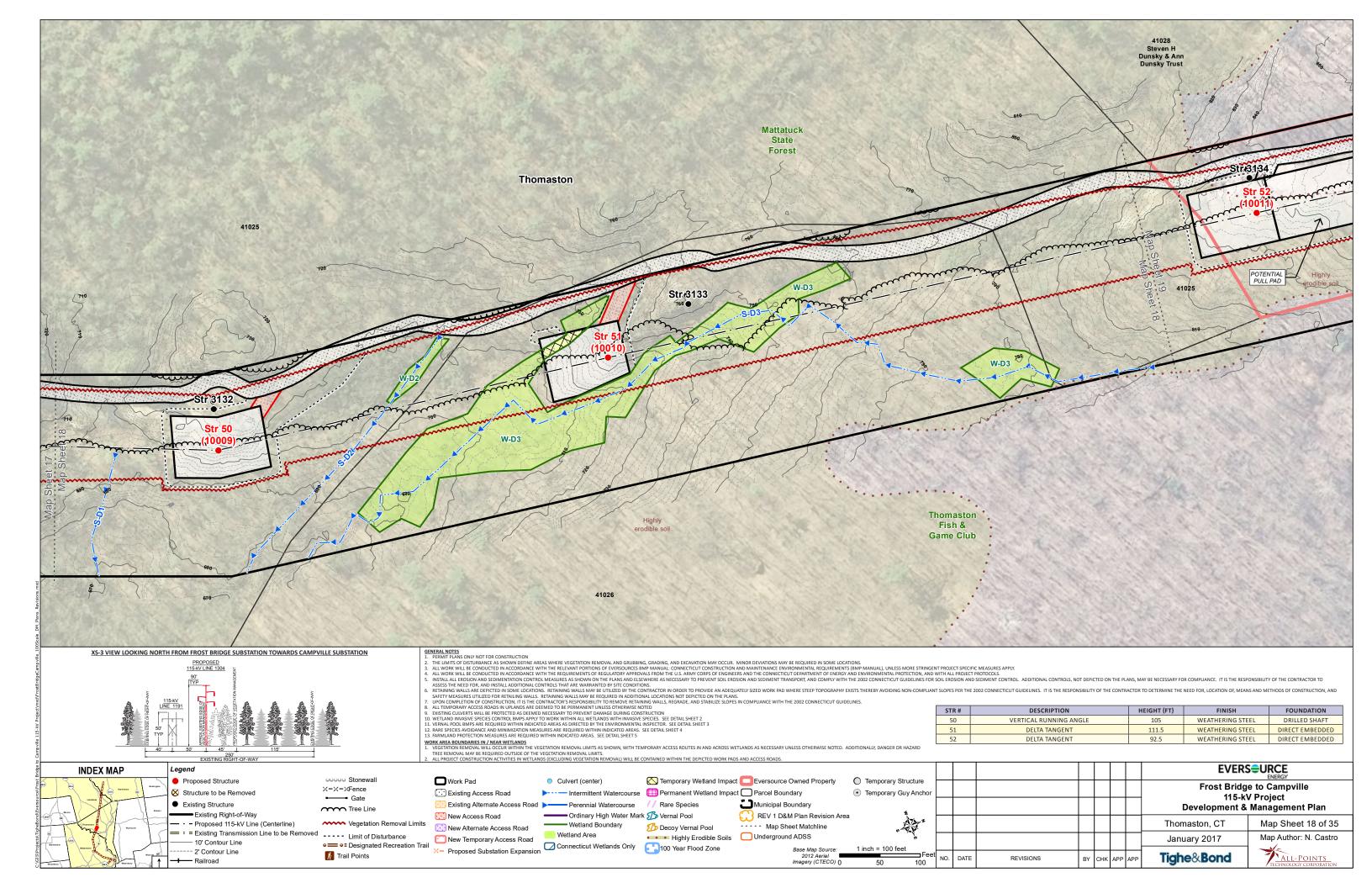


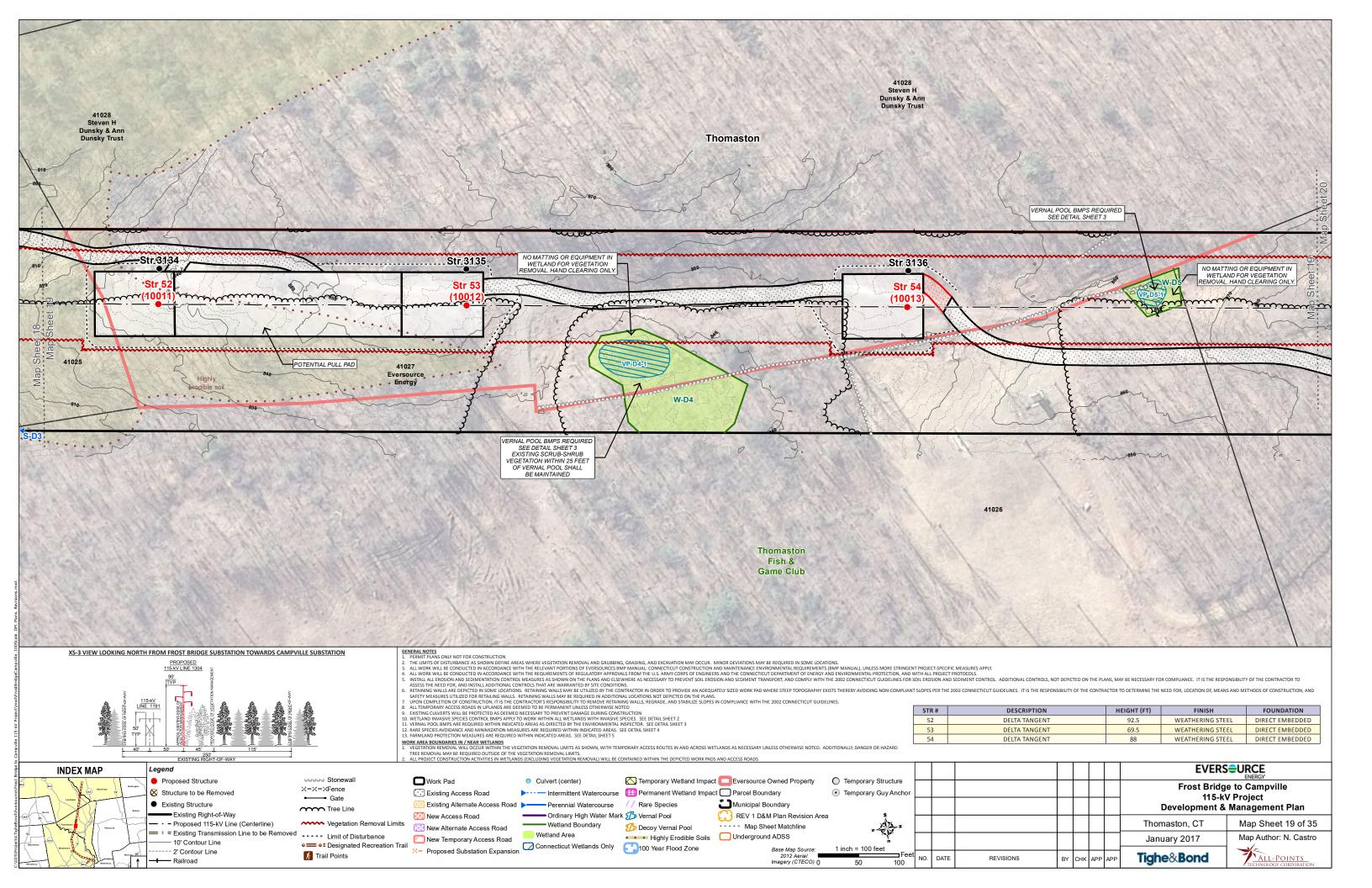


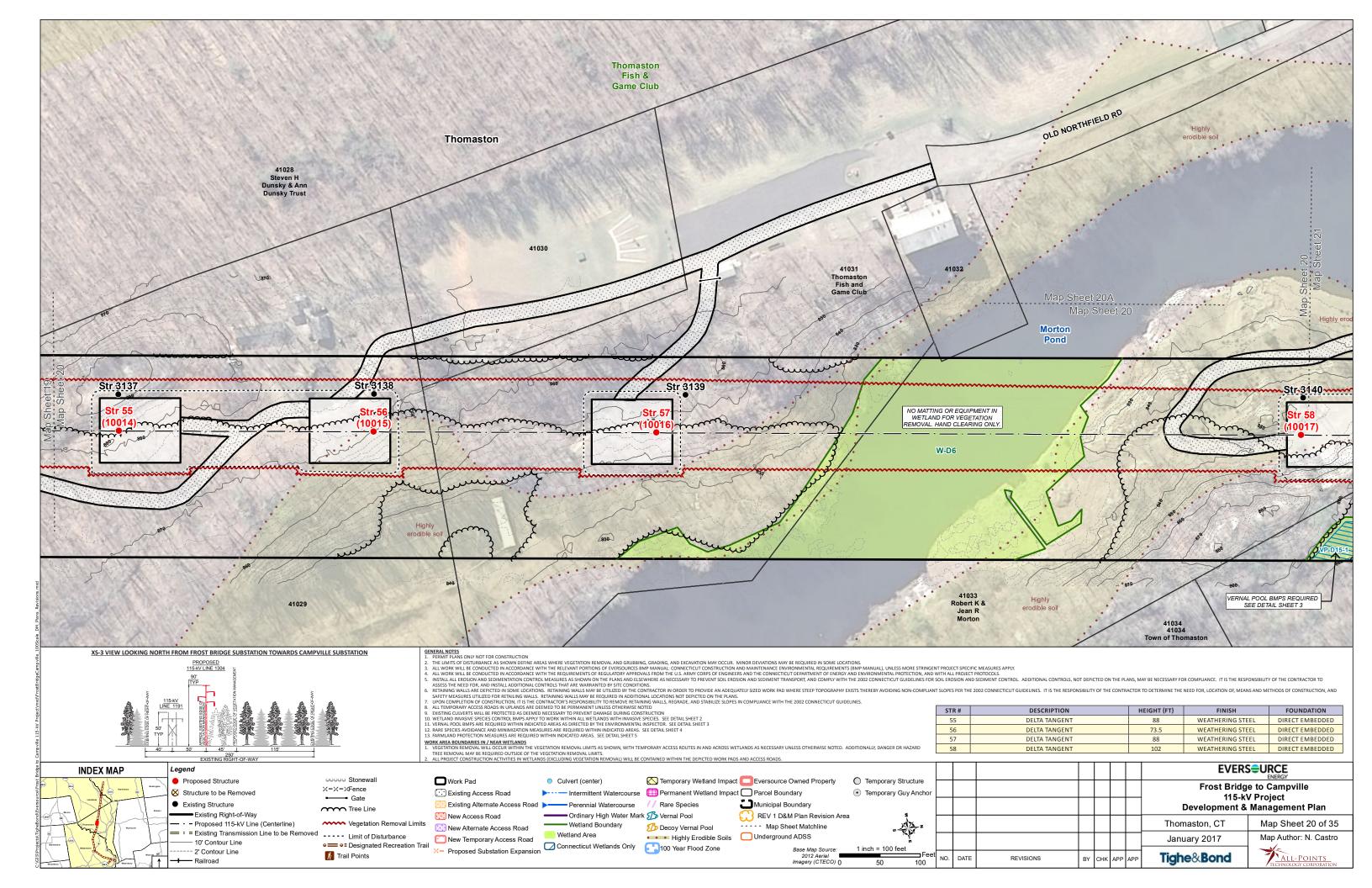


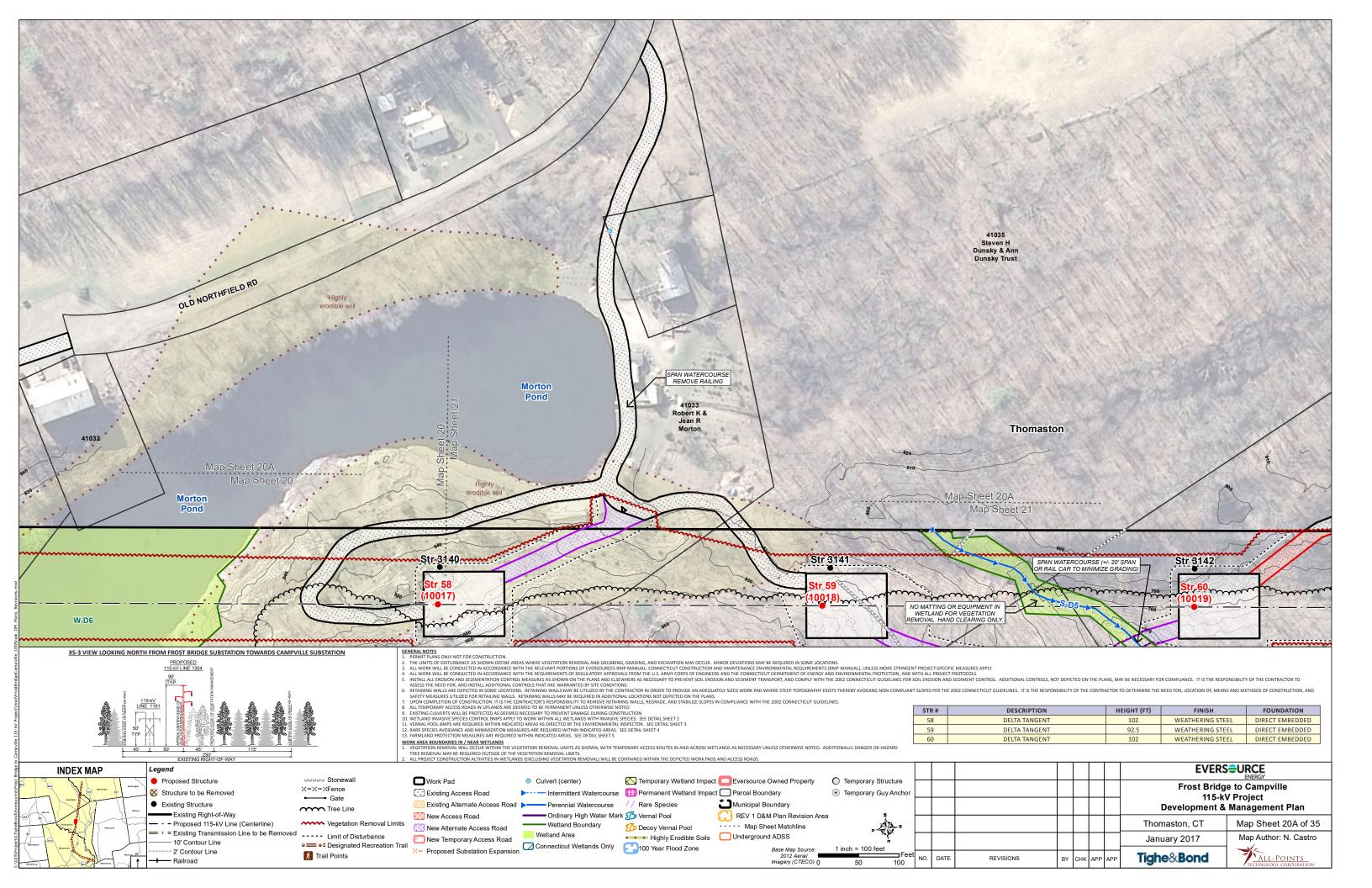


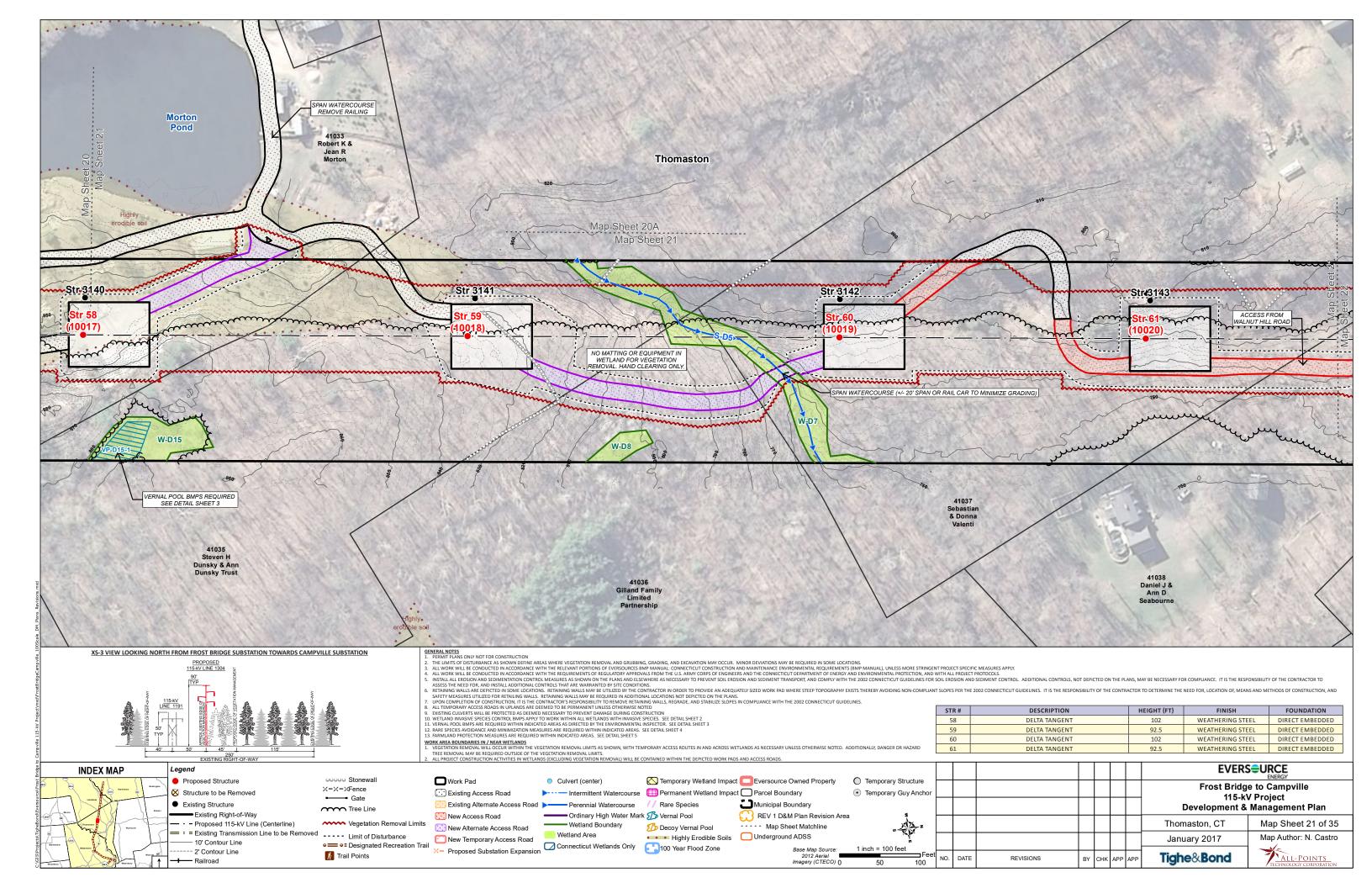


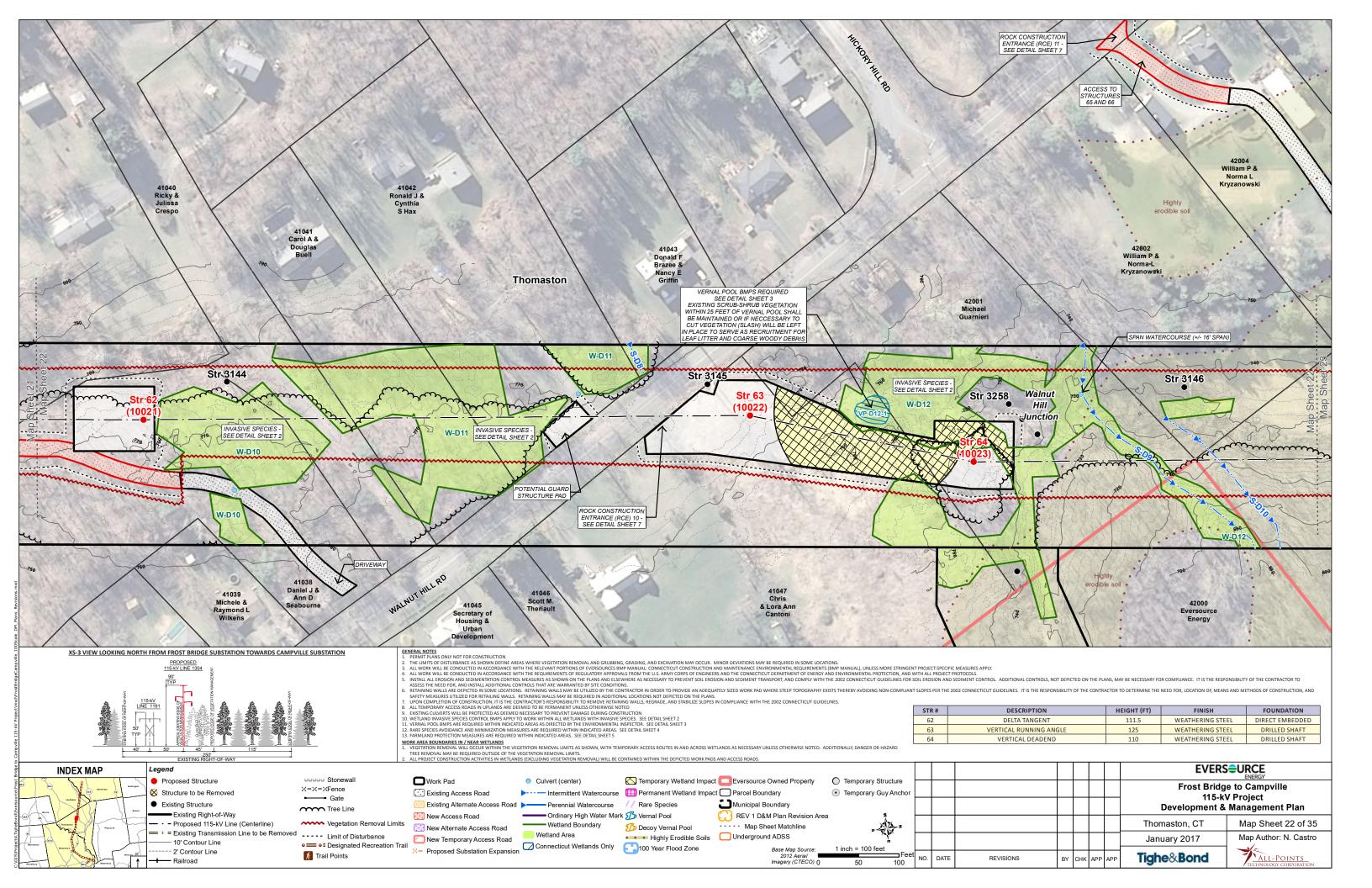


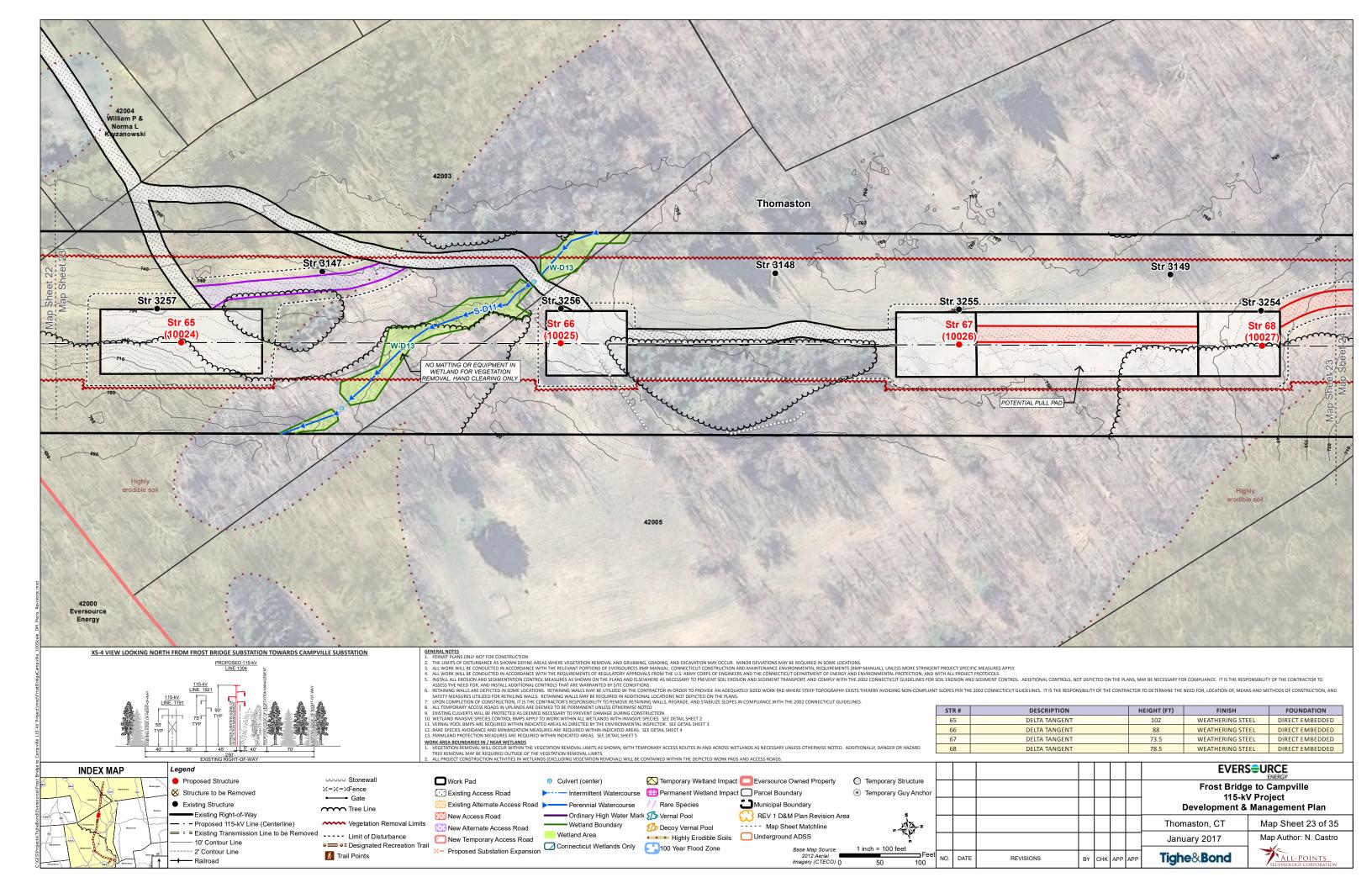


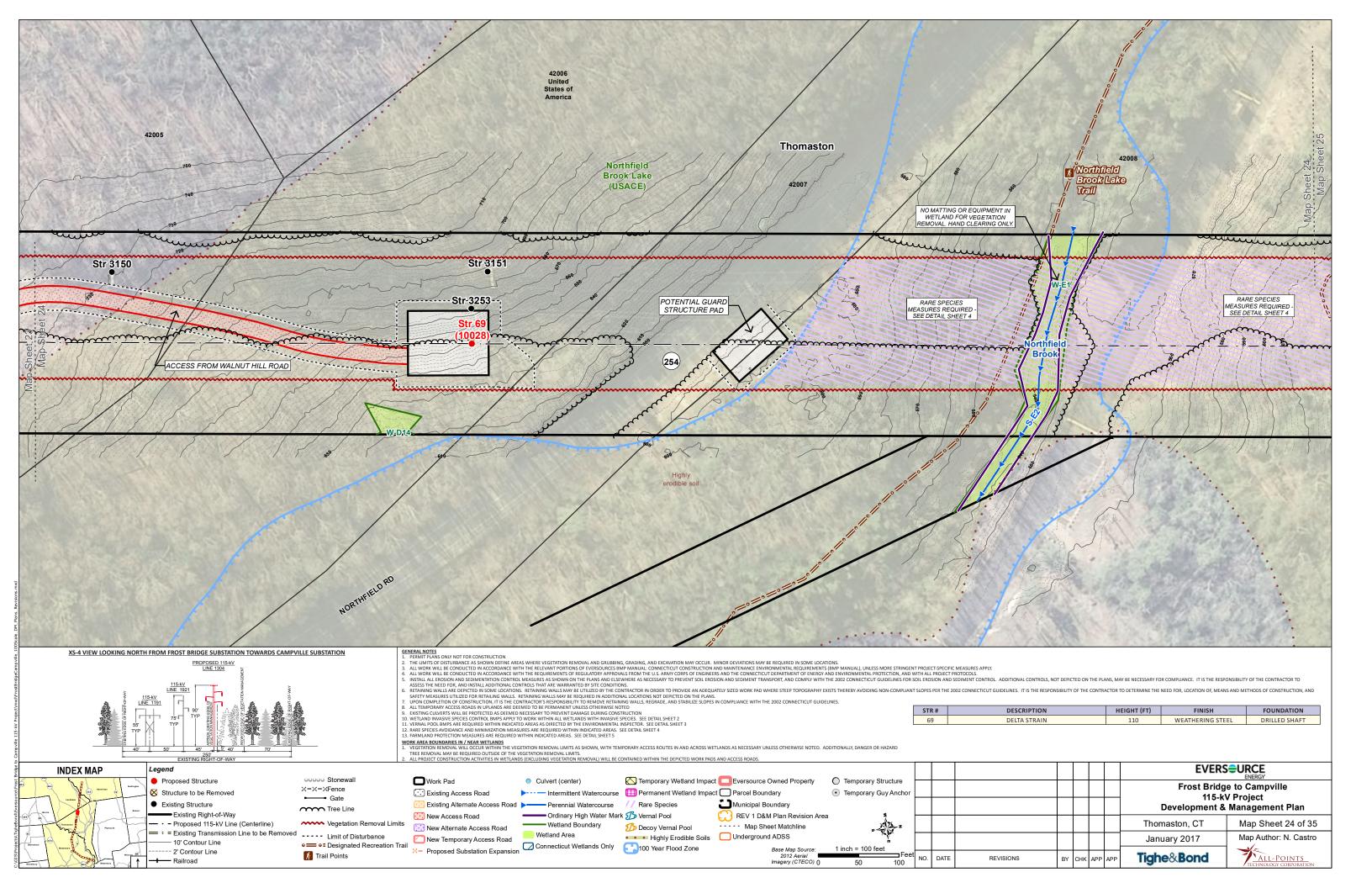


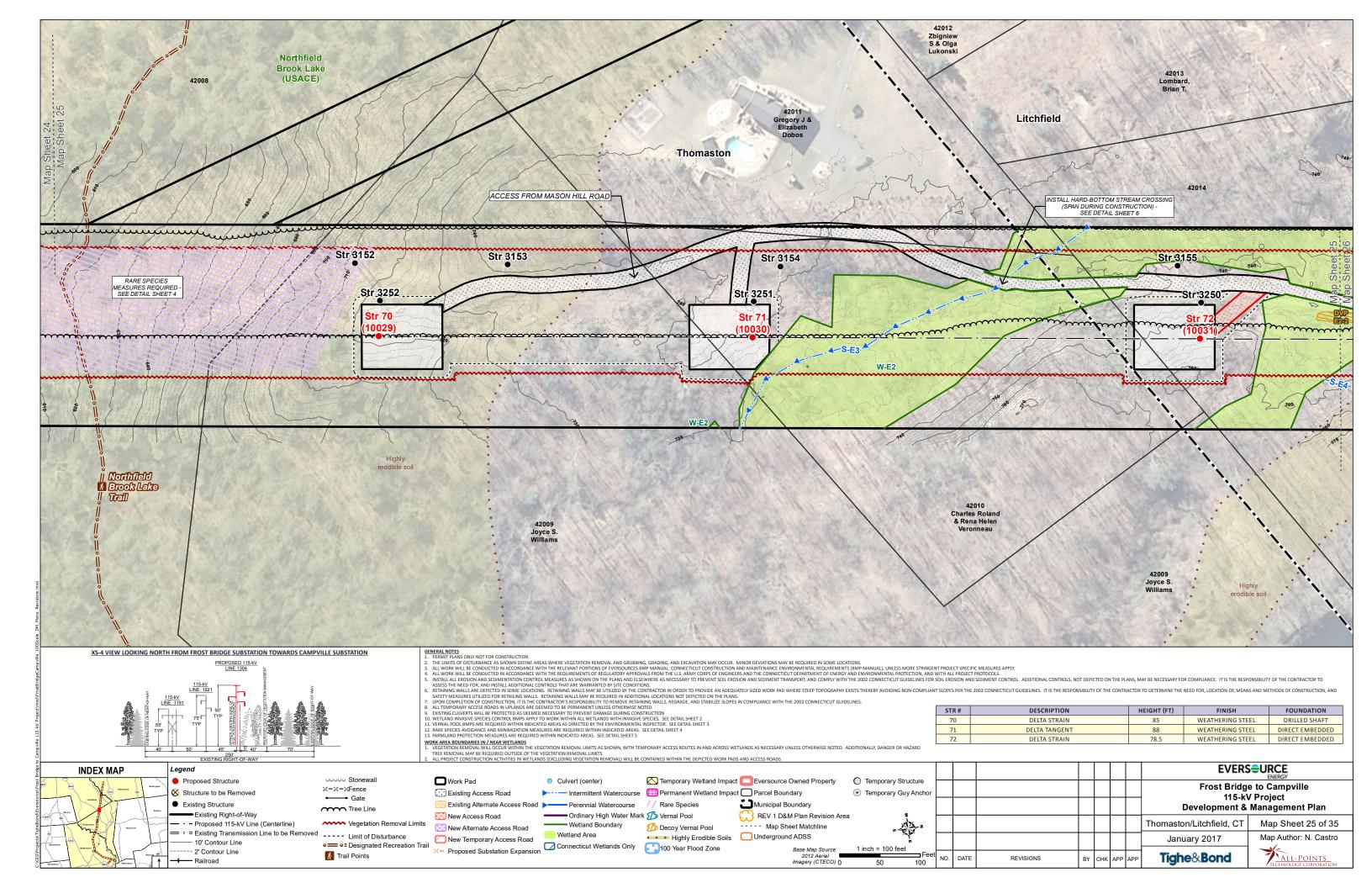


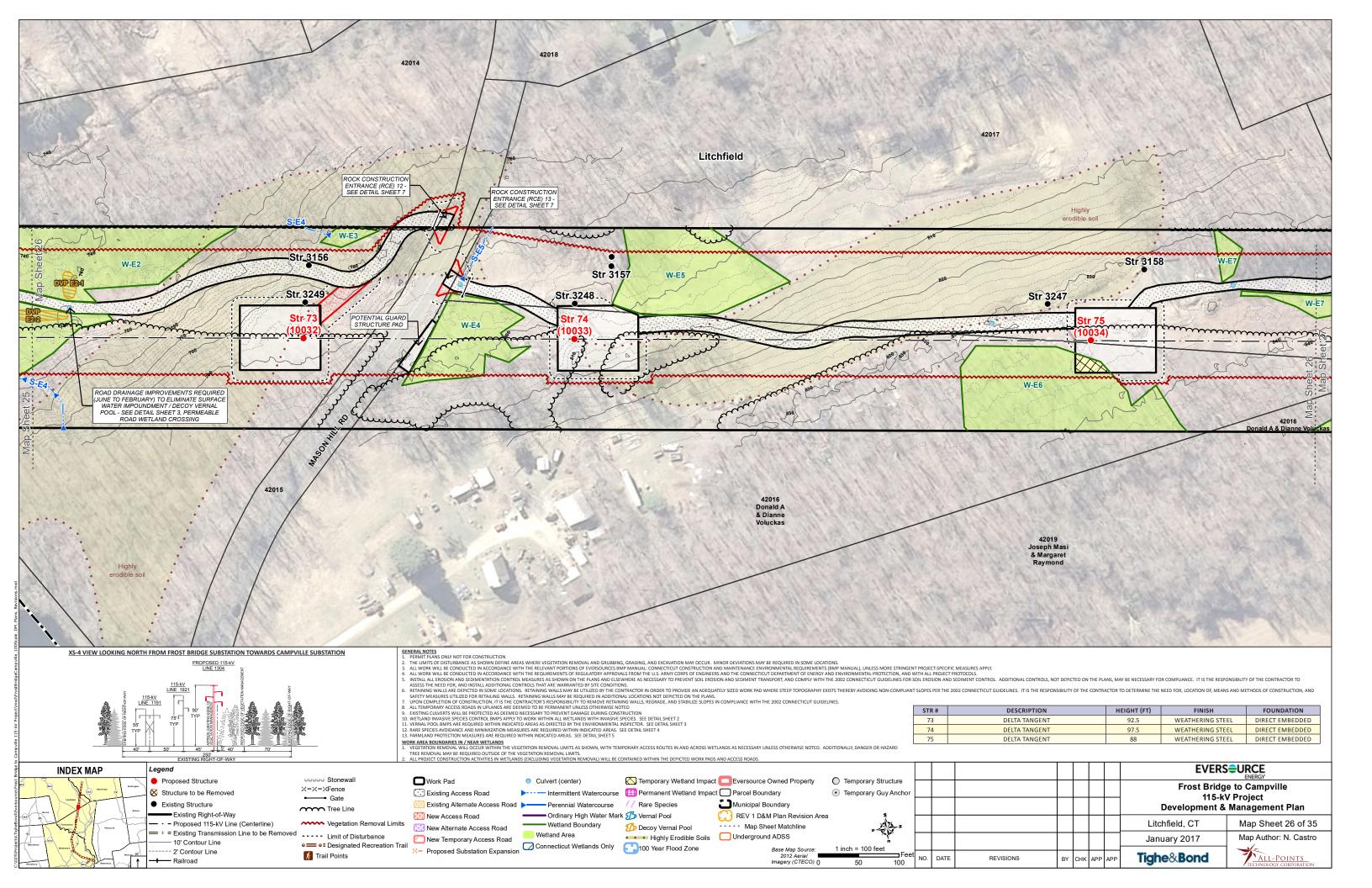


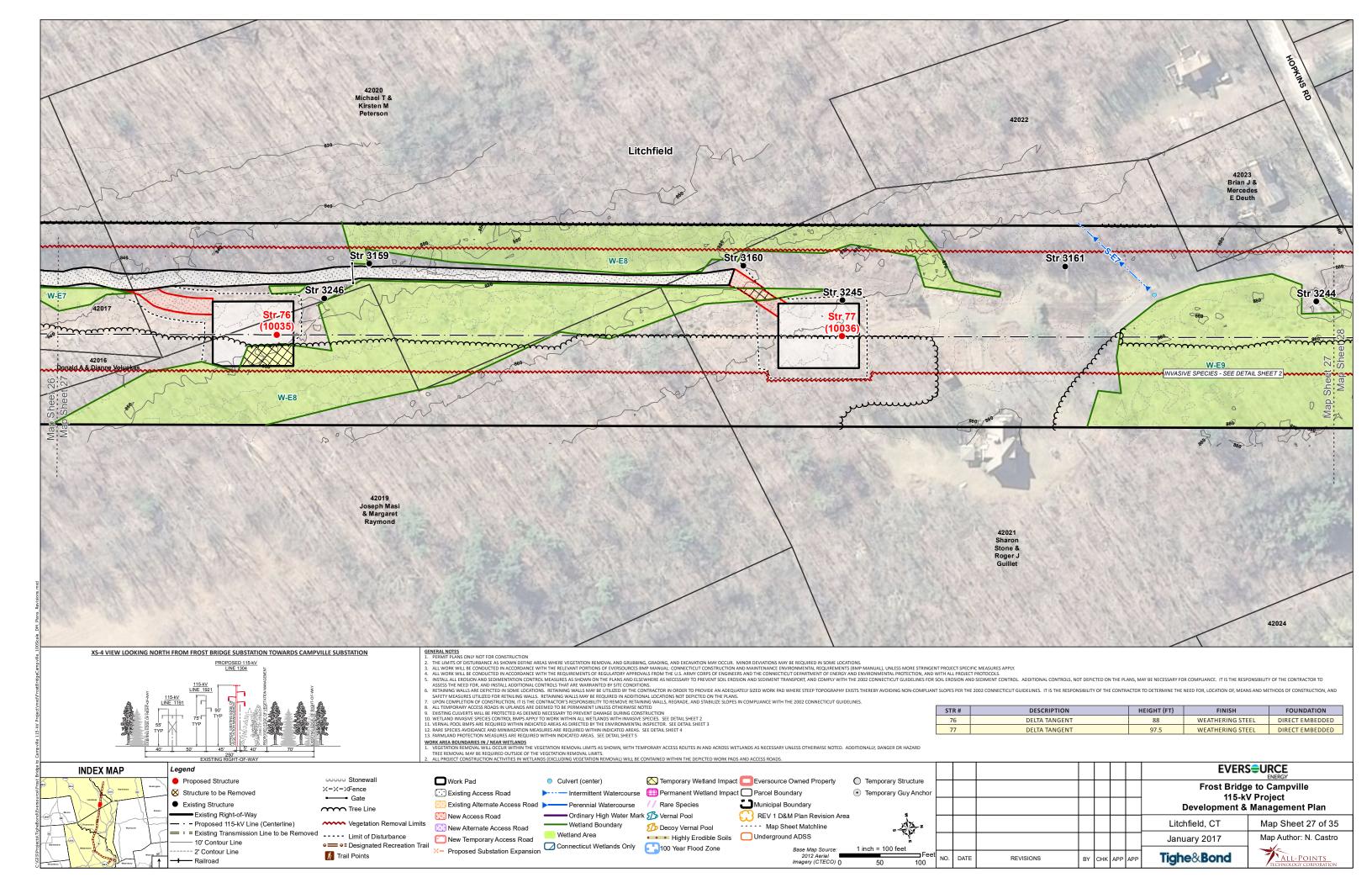


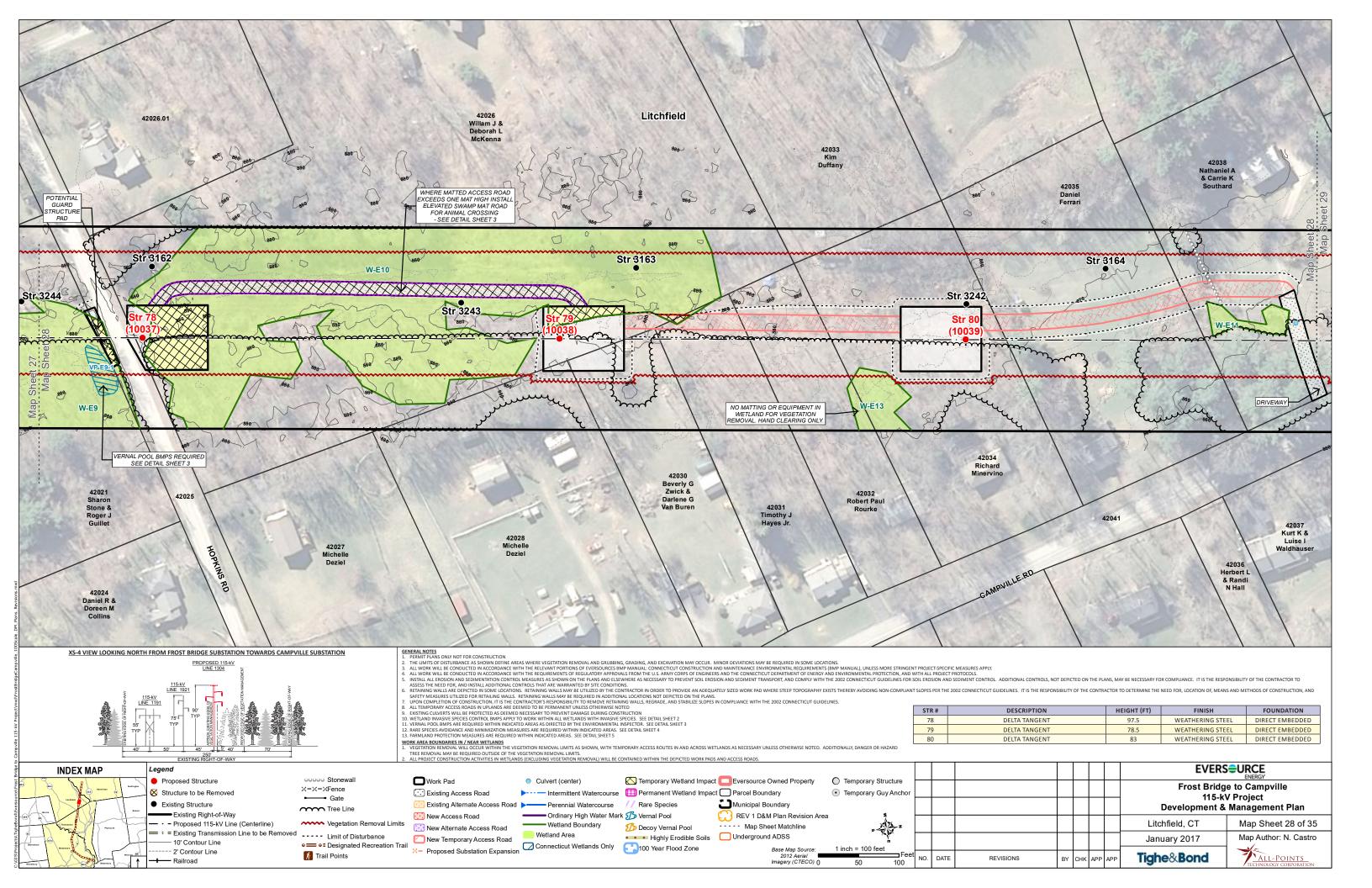


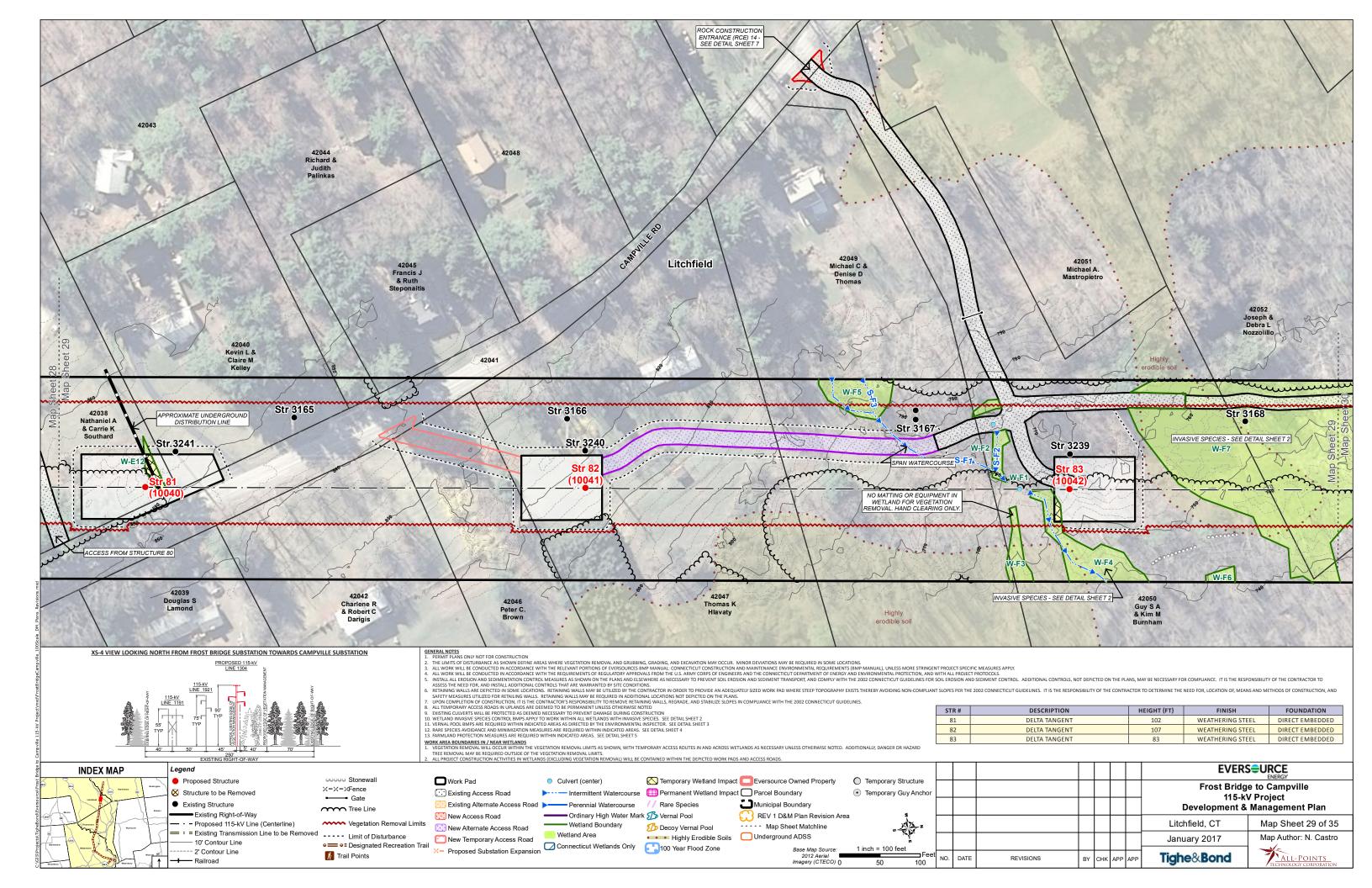


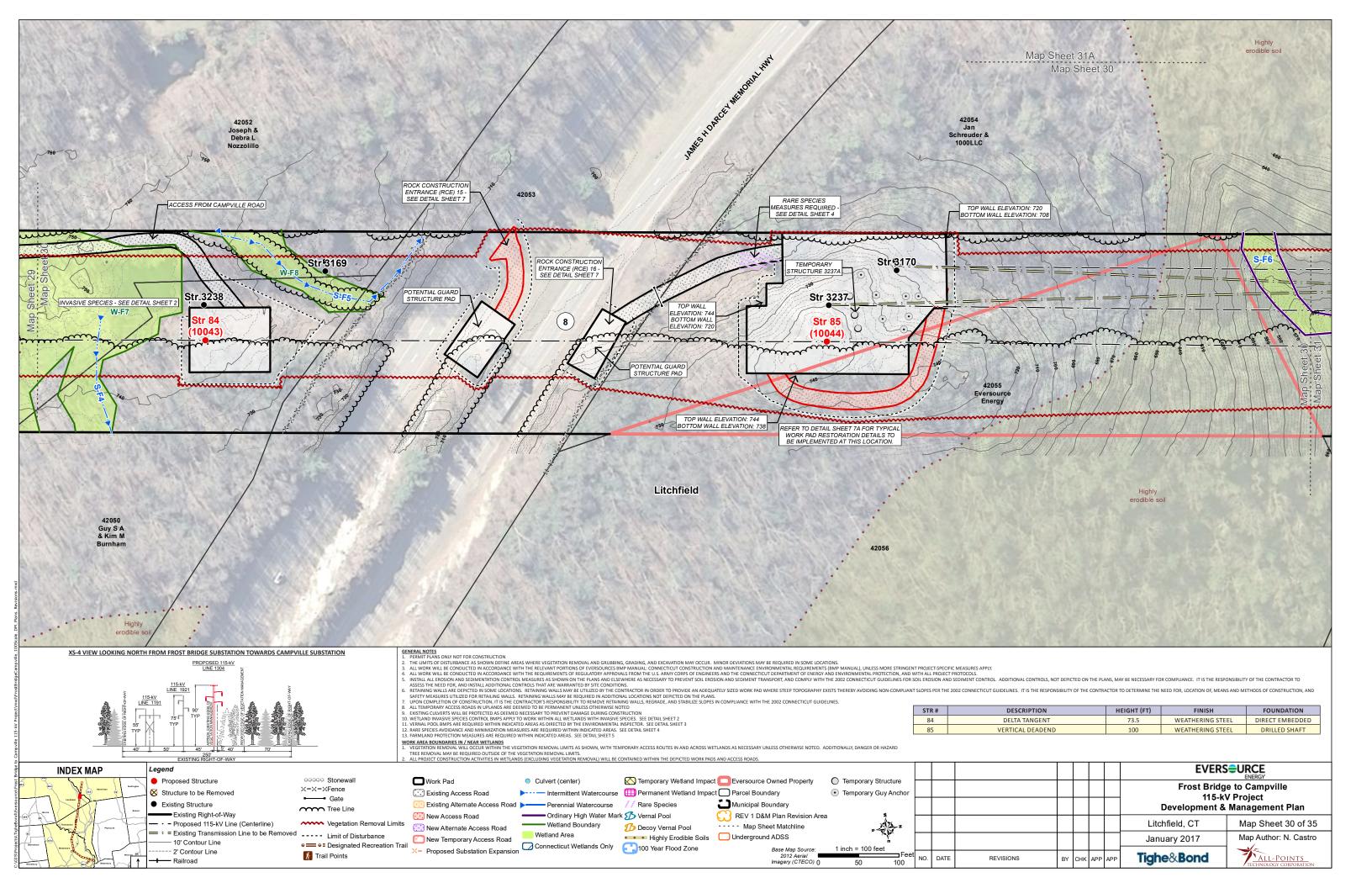


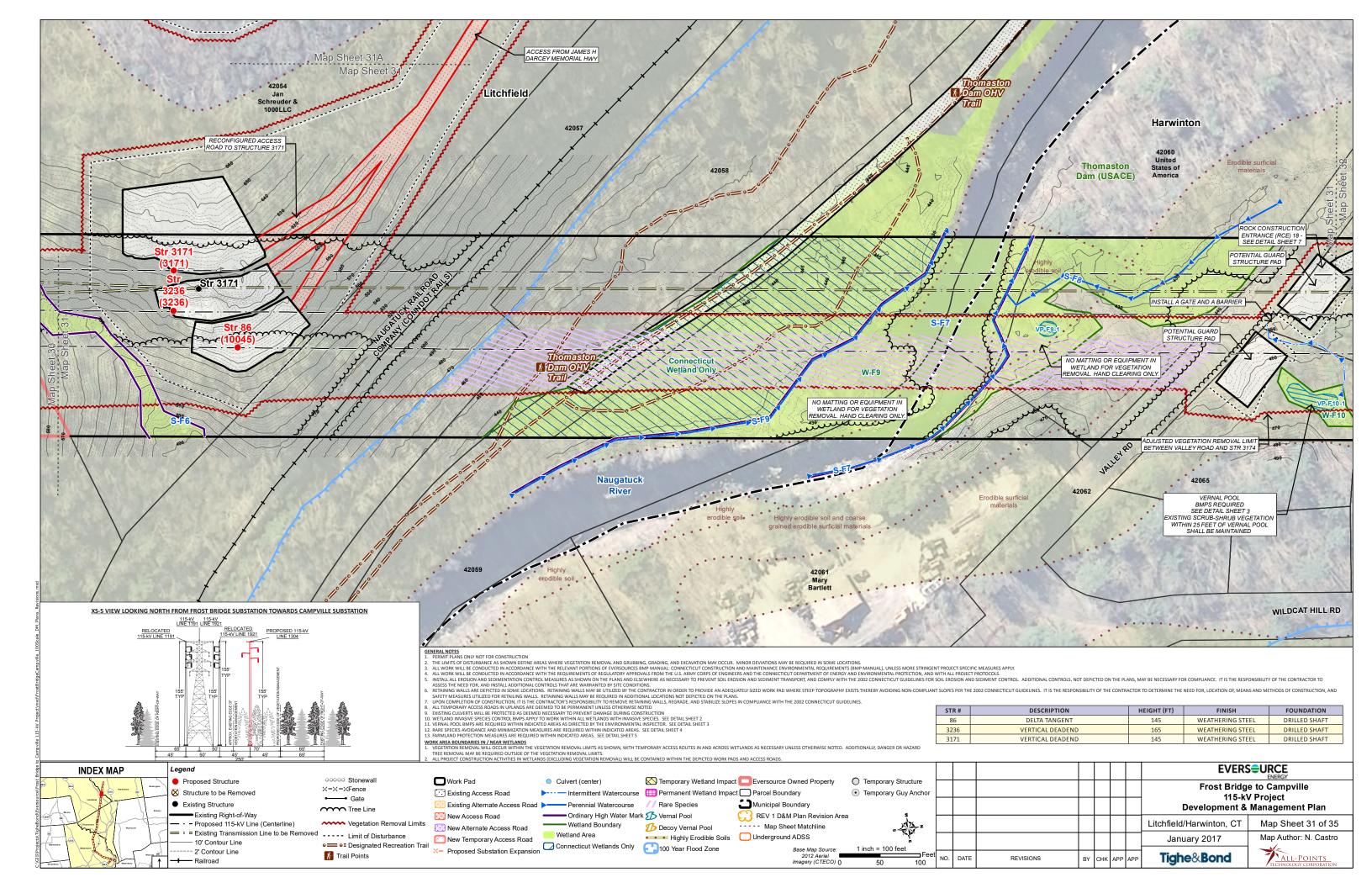


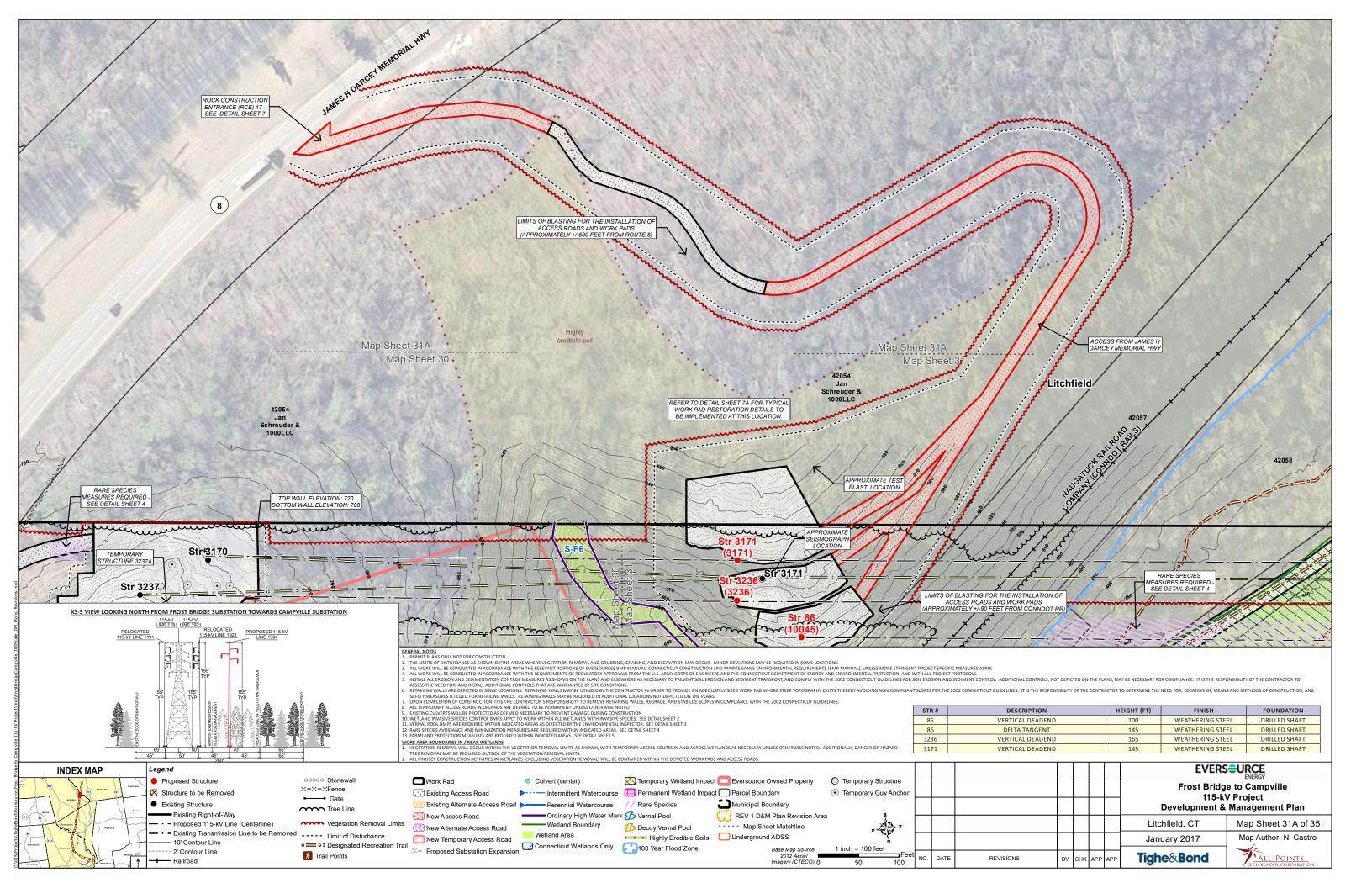


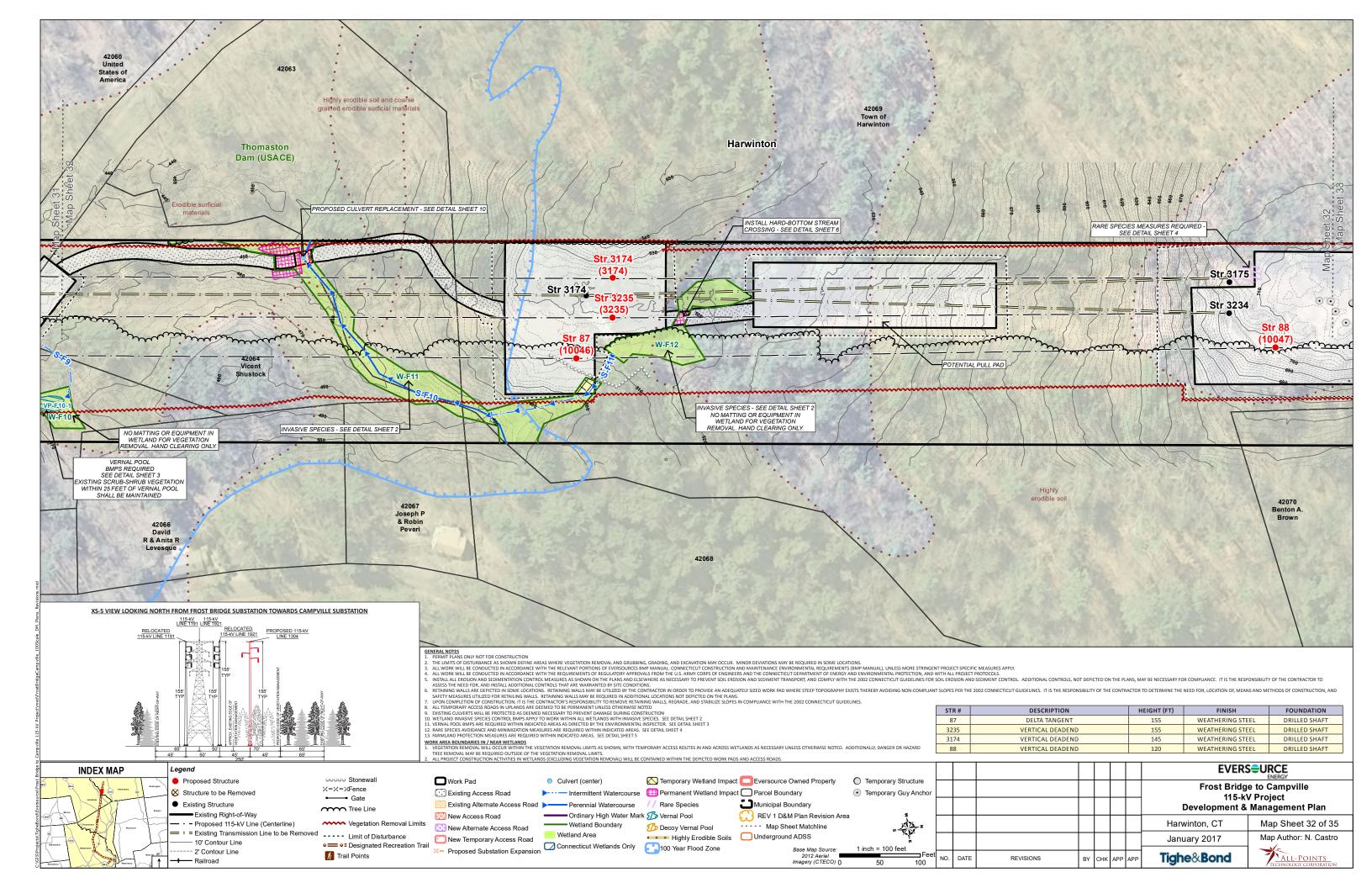


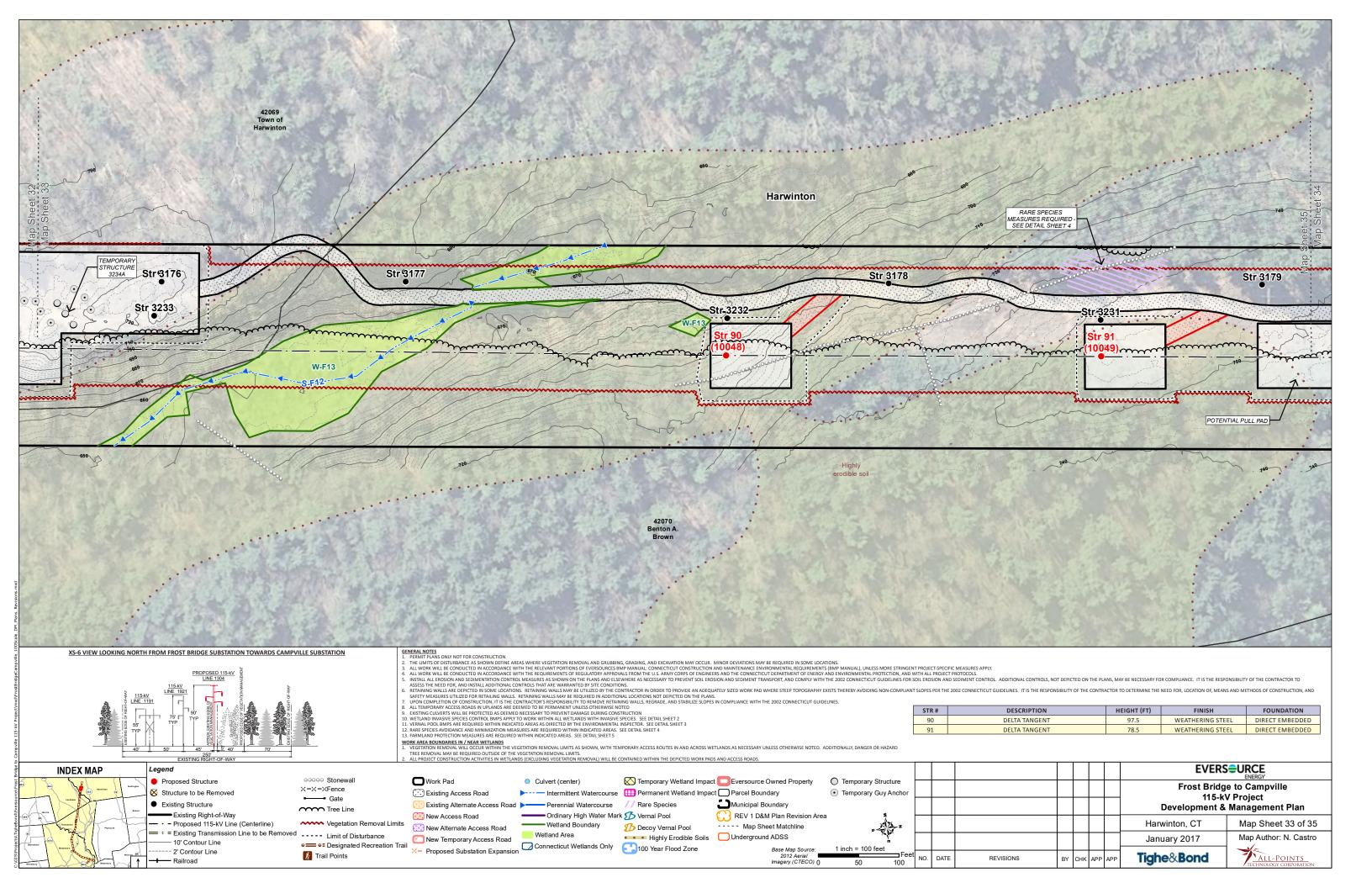


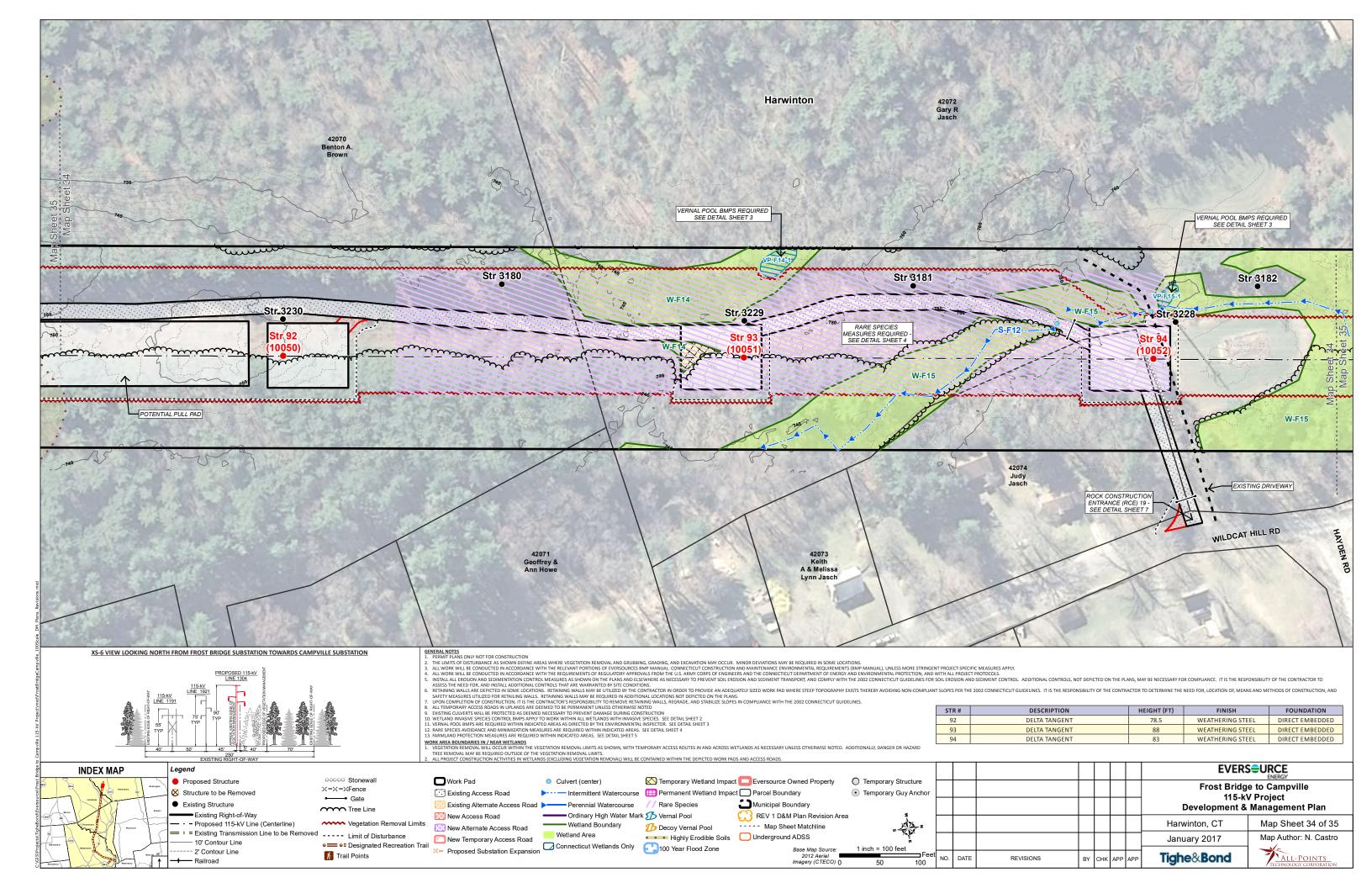


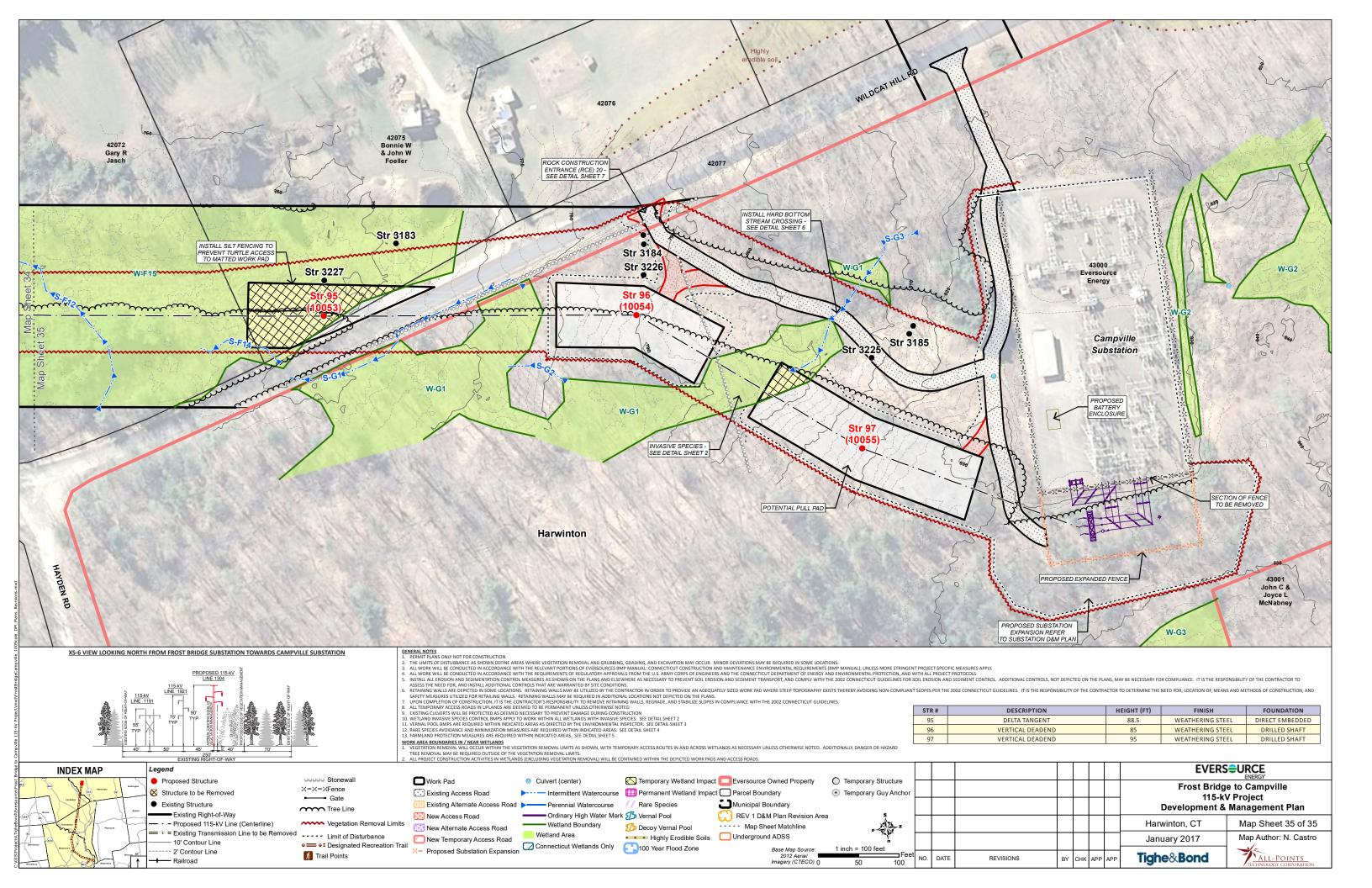












#### PERMITTED WATER RESOURCE IMPACTS

											Activity Type						
										harge of Fill Mate Temporary Sq. F			Fill Materials ent Sq. Ft)		harge of Fill Mat (Summary Acres		Forested Wetland Tree Clearing- Secondary Impacts - Acres (note that in some areas discharge of fill
Permit Area	Wetland / Stream ID	Vernal Pool ID	D&M Map Sheet No.	Cowardin Code(s)/ Stream Type	HGM Code(s)	Waters Type(s)	Latitude	Longitude	Work Pad	Access Road	Clearing Access	Structure Foundation	Access Road	Temporary	Permanent	Total	and secondary impacts are overlapping [impacts not cumulative])
N/A	W-A1	-	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02*
1	W-A9	-	04	PSS1	RIVERINE	RPW/RPWWD	41.6166	-73.0790	3,335	-	-	-	-	0.08	-	0.08	-
	W-B2	VP B2-1	06	PSS1	DEPRESS	RPWWN	41.6193	-73.0893	712	-	-	-	-	0.02	-		
2	W-B6		07	PSS1	SLOPE/ DEPRESS	RPWWN	41.6214	-73.0925	877	-	-	-	-	0.02	-	0.04	-
3	W-B11	-	09	PSS1/ POW	SLOPE/ DEPRESS	RPW/RPWWD	41.6262	-73.1011	855	-	-	-	-	0.02	-	0.02	-
4	W-C1	-	10	PFO1/ PSS1	SLOPE	RPWWN	41.6296	-73.1040	-	-	2,913	-	-	0.07	-	0.07	0.16
5	W-C4	DVP C4-1	10	PFO1/PSS1	SLOPE	RPWWN	41.6325	-73.1046	-	-	2,277	-	-	0.05	-	0.05	0.16
N/A	W-C10	VP C10-1	11	-	-	-	-	-	-	-	-	-	-	-	-	-	0.006*
6	W-C12	VP C12-1	11, 12	PSS1/ PFO1	SLOPE/ DEPRESS	RPWWD	41.6368	-73.1057	-	-	2,315	-	-	0.05	-	0.05	0.11
7	W-C15	VP C15-1	12. 13	PFO1/ PSS1	SLOPE/ DEPRESS	RPW/RPWWD	41.6398	-73.1064	1,184	-	6,879	-	-	0.19	-	0.19	0.31
8	W-C20	VP C20-1	14	PFO1/PSS1	SLOPE/ DEPRESS	RPWWN	41.6474	-73.1079	3,929	-	-	-	-	0.09	-	0.09	0.09
N/A	W-C21	VP C21-1	15	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07* (.054 VP depression**)
9	W-D3	-	18	PFO1/PSS1	SLOPE	RPW/RPWWD	41.1003	-73.1003	1,026	-	2,580	-	-	0.08	-	0.08	0.18
N/A	W-D4	VP D4-1	19	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05* (.021 VP Depression**)
N/A	W-D5	VP C5-1	19	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01*
N/A	W-D7	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10*
10	W-D10 W-D11	-	22	PFO1 PFO1/PSS1	SLOPE SLOPE/ DEPRESS	RPWWN NRPWW	41.6787 41.6797	-73.0975 -73.0974	-	-	3,184 2,384	-	-	0.07	-	0.13	0.58
11	W-D12	VP D12-1	22	PSS1/PFO1	SLOPE	RPW/RPWWD	41.6814	-73.0969	4,197	5,892	_	_	_	0.23	_	0.23	0.05
N/A	W-D13	-	23	-	-	-	-	-	-	-	_	_	_	-	_	-	0.08*
12	W-E2	DVP E2-1/ E2-1	25, 26	PSS1/ PFO1	SLOPE/ DEPRESS	RPW/RPWWD	41.6935	-73.0945	-	-	6,203	-	-	0.14	-	0.14	0.50
13	W-E4	-	26	PFO1/PSS1	SLOPE	RPWWN	41.6969	-73.0938	-	-	1,201	-	-	0.03	-	0.03	0.08
14	W-E6	-	26	PFO1	SLOPE	RPWWN	41.6989	-73.0935	672	-	2,190	-	-	0.07	-	0.07	0.13
15	W-E8	-	27	PSS1/ PFO1	SLOPE	RPWWN	41.7004	-73.0932	2,055	478	3,665	-	-	0.14	-	0.14	0.27
16	W-E9	VP E9-1	27, 28	PFO1/ PSS1	DEPRESS	RPW/RPWWD	41.7042	-73.0926	739		5,670	-	-	0.13	-	0.13	0.31 (.17 VP Depression**)
17	W-E10	-	28	PSS1/ PFO1	DEPRESS	RPWWN	41.7045	-73.0926	7,442	8,672	5,487	-	-	0.50	-	0.50	0.44
N/A	W-E13	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02*
18	W-E12	-	29	PEM2	SLOPE	RPWWN	41.7092	-73.0919	636	-	-	-	-	0.01	-	0.01	-
N/A	W-F3	_	29	-	_	-	-	-	-	-	-	-	-	-	-	-	0.006*
19	W-F4	-	29	PFO1	SLOPE	RPW/RPWWD	41.7113	-73.0913	221	-	- 2.105	-	-	0.005	-	0.08	0.25
N/A	W-F7	- VP E10-1	29, 30	PEM1/ PFO1/ POW	SLOPE/ DEPRESS	RPW/RPWWD	41.7129	-73.0909	-	-	3,195	-	-	0.07	-		002*
N/A	W-F10	VP F10-1	31, 32	PEO1/PSS1	- SLODE	PDW/PDW/WD	41 7220	72 0007	- 225	-	-	-	1 505	- 0.008	- 0.03	-	.002*
30	W-F11 W-F12	-	32	PFO1/PSS1	SLOPE	RPW/RPWWD RPWWD	41.7220	-73.0897	335	-	-	-	1,505	0.008	0.03	0.04	0.10
20	W-F12 S-F11	-	32	PSS1/ PEM2  Perennial	DEPRESS _	RPW	41.7233	-73.0893 -73.0897	-	440	-	-	232	0.01	0.005	0.04	0.18
21	W-F13	-	33	PEM2/ PFO1	DEPRESS	RPW/RPWWD	41.7268	-73.0884	_	-	2,986	_	_	0.07	_	0.07	0.28
22	W-F14	VP F14-1	34	PSS1/PFO1	DEPRESS	NRPWW	41.7320	-73.0874	894	-	-	_	-	0.02	-	0.02	-
23	W-F15	VP F15-1	34, 35	PFO1/ PSS1/ PEM2	RIVERINE/ DEPRESS	RPW/RPWWD	41.7351	-73.0868	9.364	-	7,199	28	-	0.38	0.0006	0.38	0.75
24	W-G1	-	35	PFO1/PSS1	SLOPE	RPW/RPWWD	41.7366	-73.7366	1,223	-	2,433	-	-	0.08	-	0.08	0.24
													TOTAL	2.68 acres	0.04 acres	2.72 acres	5.43 acres
										TOTAL	EVCLUDING NO	ON-JURISDICTION		2.68 acres	0.04 acres	2.72 acres	5.07 acres

EVERS=URCE ENERGY							
Frost Bridge to Campville 115-kV Project							
Development & Management Plan							
PERMITTED WATER RESOURCE IMPACTS							
Detail Sheet 01 of 11							
	_		-		-		
Tighe&Bond ALL-POINTS	APP	APP	CHK	BY	REVISIONS	DATE	NO.

<sup>\*</sup> Impacts are not associated with a discharge of fill material (not subject to jurisdiction under the current Connecticut General Permit)

\*\*Tree clearing in vernal pool depression is included in the total secondary impact number, but provided separately for distinction

#### WETLANDS AVOIDANCE AND MINIMIZATION MEASURES

- A. COMPLY WITH RELEVANT PORTIONS OF EVERSOURCE'S BEST MANAGEMENT PRACTICES (BMP) MANUAL: CONNECTICUT CONSTRUCTION AND MAINTENANCE ENVIRONMENTAL REQUIREMENTS. (REFER TO VOLUME 2, ATTACHMENT D)
- B. COMPLY WITH THE CONDITIONS OF THE COUNCIL'S CERTIFICATE AND FEDERAL AND STATE PERMITS RELATED TO WETLANDS, INCLUDING THE IMPLEMENTATION OF WETLAND INVASIVE SPECIES CONTROL MEASURES DURING CONSTRUCTION. REFER TO WETLAND INVASIVE SPECIES CONTROL PLAN IN VOLUME 1. APPENDIX B.
- C. USE LOW-IMPACT EQUIPMENT AND INSTALL TEMPORARY TIMBER MATS (OR EQUIVALENT) TO MINIMIZE RUTTING DURING VEGETATION REMOVAL ACTIVITIES IN WETLANDS. REFER TO THE VEGETATION CLEARING PLAN IN VOLUME 1, APPENDIX A.
- D. MINIMIZE THE REMOVAL OF STUMPS WITHIN WETLANDS. STUMPS WILL ONLY BE REMOVED IF INTACT STUMPS POSE A SAFETY CONCERN FOR THE INSTALLATION OF ACCESS ROADS, WORK PADS, OR STRUCTURES: THE MOVEMENT OF EQUIPMENT: OR THE SAFETY OF PERSONNEL.
- E. INSTALL EROSION AND SEDIMENTATION CONTROLS AROUND WORK SITES IN OR NEAR WETLANDS TO DEFINE THE LIMITS OF CONSTRUCTION ACTIVITY AND TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION. NO CONSTRUCTION ACTIVITIES WILL BE ALLOWED IN WETLANDS OUTSIDE OF THE WORK LIMITS DEFINED BY THE EROSION AND SEDIMENTATION CONTROLS.
- F. INSPECT AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS THROUGHOUT CONSTRUCTION. SEDIMENT THAT ACCUMULATES BEHIND THESE CONTROLS WILL PERIODICALLY BE REMOVED AND PLACED IN UPLAND AREAS, IN A MANNER THAT WILL PRECLUDE THE POTENTIAL FOR SUBSEQUENT DEPOSITION INTO WATERCOURSES OR OTHER WATERS OF THE U.S., OR WILL OTHERWISE BE DISPOSED OF OFF-SITE.
- G. INSTALL TEMPORARY CONSTRUCTION MATTING (TIMBER MATS OR EQUIVALENT) FOR ACCESS ROADS ACROSS WETLANDS OR TO ESTABLISH SAFE AND STABLE CONSTRUCTION WORK AREAS / WORK PADS WITHIN WETLANDS, WHERE NECESSARY.
- H. AVOID OR MINIMIZE ACCESS THROUGH WETLANDS, WHERE POSSIBLE. WHERE ACCESS ROADS MUST BE IMPROVED OR DEVELOPED, THE ROADS WILL BE DESIGNED, WHERE PRACTICAL, SO AS NOT TO INTERFERE WITH SURFACE WATER FLOW OR THE WETLAND FUNCTIONS.
- I. IMPLEMENT PROCEDURES TO AVOID OR MINIMIZE THE POTENTIAL FOR SPILLS INTO WETLANDS (REFER TO THE SPILL PREVENTION AND CONTROL PLAN IN VOLUME 2, ATTACHMENT B). NO FUEL WILL BE STORED OR EQUIPMENT REFUELED WITHIN 25 FEET OF ANY WETLAND, EXCEPT UNDER THE FOLLOWING CIRCUMSTANCE: EQUIPMENT THAT IS NOT READILY MOBILE OR MUST REMAIN ON-SITE FOR PROLONGED PERIODS TO SAFELY COMPLETE A CONSTRUCTION TASK (E.G., DRILLING RIGS OR CRANES FOR STRUCTURE INSTALLATION) MAY BE REFUELED IN WETLANDS, PROVIDING PROPER TEMPORARY SPILL PREVENTION, CONTROL, AND CONTAINMENT PROCEDURES ARE FOLLOWED.
- J. PROHIBIT VEHICLES OR EQUIPMENT FROM BEING PARKED OVERNIGHT ON ACCESS ROADS OR WORK PADS IN WETLANDS, EXCEPT FOR EQUIPMENT THAT CANNOT BE PRACTICALLY MOVED, SUCH AS CRANES OR DRILL RIGS.
- K. PROHIBIT MIXING, TESTING, STORAGE, OR DISPOSAL OF CONCRETE (USED FOR SOME STRUCTURE FOUNDATIONS) WITHIN 25 FEET OF WETLANDS.
- L. PROHIBIT STOCKPILING OF EXCESS SOIL GENERATED AS A RESULT OF STRUCTURE / FOUNDATION INSTALLATION WORK WITHIN WETLANDS, EXCEPT THAT SOILS OR OTHER EXCAVATED MATERIAL MAY BE TEMPORARILY STOCKPILED AND CONTAINED ON THE WORK PAD LOCATED WITHIN A WETLAND PRIOR TO TRANSPORT OFF-SITE. EXCESS SOIL WILL BE REMOVED FROM WETLAND WORK AREAS AND SPREAD IN UPLAND AREAS.
- M. REMOVE, FOLLOWING THE COMPLETION OF TRANSMISSION LINE WORK, TEMPORARY FILL MATERIALS FROM WORK SITES IN WETLANDS, INCLUDING ALL GEOTEXTILE FABRIC, AND TIMBER MATS USED FOR WORK PADS AND TEMPORARY ACCESS ROADS.
- N. RESTORE WETLANDS, AFTER TRANSMISSION FACILITY CONSTRUCTION, TO PRE-CONSTRUCTION CONFIGURATIONS AND CONTOURS TO THE EXTENT PRACTICABLE AND REVEGETATE WITH ANNUAL RYEGRASS, AN APPROPRIATE WETLAND SEED MIX, OR EQUIVALENT.
- O. INSPECT AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS UNTIL RESTORATION HAS BEEN DETERMINED TO BE EFFECTIVE AS DEFINED BY CONFORMANCE TO THE CT DEEP GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS ASSOCIATED WITH CONSTRUCTION ACTIVITIES (REFER TO VOLUME 2, ATTACHMENT E).

#### WATERCOURSE AND WATERBODIES AVOIDANCE AND MINIMIZATION MEASURES

THE FOLLOWING MEASURES WILL BE TAKEN TO AVOID OR MINIMIZE IMPACTS TO WATERCOURSES AND WATERBODIES DURING PROJECT ACTIVITIES. ALL WORK IN OR NEAR WATERCOURSES AND WATERBODIES WILL BE IN ACCORDANCE WITH PROJECT MAPPING, EVERSOURCE'S BMP MANUAL, AND THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.

- A. PERFORM UNCONFINED IN-WATER ACTIVITIES DURING LOW-FLOW PERIODS (JUNE 1 THROUGH SEPTEMBER 30), UNLESS PRIOR WRITTEN APPROVAL FROM CT DEEP IS RECEIVED OR MANAGEMENT TECHNIQUES SUCH AS INSTALLATION OF TIMBER MATS TO SPAN THE CROSSING, TEMPORARY FLUME PIPES, CULVERTS, COFFERDAMS, ETC. ARE UTILIZED TO MAINTAINS NORMAL FLOWS WITHIN THE STREAM BOUNDARY'S CONFINES SO THE WORK DOES NOT OCCUR IN FLOWING WATERS.
- B. INSTALL AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS ALONG THE ROW WHERE CONSTRUCTION ACTIVITIES DISTURB SOILS NEAR WATERCOURSES. THESE CONTROLS WILL BE INSTALLED AND MAINTAINED TO PREVENT SEDIMENTATION INTO WATER RESOURCES. SEDIMENT THAT ACCUMULATES BEHIND THESE CONTROLS WILL PERIODICALLY BE REMOVED AND PLACED IN UPLAND AREAS, IN A MANNER THAT WILL PRECLUDE THE POTENTIAL FOR SUBSEQUENT DEPOSITION INTO WATERCOURSES OR OTHER WATERS OF THE U.S., OR WILL OTHERWISE BE DISPOSED OF OFF-SITE.
- C. ACCESS ROADS ACROSS WATERCOURSES WILL BE INSTALLED, WHERE PRACTICABLE, SO AS TO AVOID OR MINIMIZE DIRECT ADVERSE IMPACTS TO STREAM BANKS AND STREAM-BOTTOM SEDIMENTS, AS WELL AS TO PROVIDE UNOBSTRUCTED AMBIENT FLOW IN PERENNIAL STREAMS (E.G., SPAN CROSSINGS WILL PROVIDE ADEQUATE CLEARANCE ABOVE THE WATERCOURSE TO CONVEY FLOWS).
- D. MAJOR CONSTRUCTION EQUIPMENT WILL BE PROHIBITED FROM FORDING STREAMS. HOWEVER, DEPENDING ON SITE-SPECIFIC CONDITIONS, EQUIPMENT USED BY VEGETATION CLEARING CREWS MAY NEED TO CROSS SMALL WATERCOURSES TO ACCESS CLEARING AREAS. CLEARING CREWS MAY USE TIMBER MATS, OR CORDUROY, DEPENDING ON SITE SPECIFIC CONDITIONS. REFER TO THE VEGETATION CLEARING PLAN IN VOLUME 1, APPENDIX A.
- E. WHERE TEMPORARY CONSTRUCTION WORK PADS MUST BE CONSTRUCTED OVER WATERCOURSES, THE WORK PAD DESIGN WILL INCORPORATE MEASURES DESIGNED TO MAINTAIN FLOWS AND MINIMIZE AOUATIC HABITAT DISTURBANCE DURING THE CONSTRUCTION PERIOD.
- F. EXISTING RIPARIAN VEGETATION ALONG THE ROW WITHIN 25 FEET OF WATERCOURSE BANKS WILL BE MAINTAINED, TO THE EXTENT PRACTICABLE AND CONSISTENT WITH ROW VEGETATION MANAGEMENT REQUIREMENTS.
- G. APPROPRIATE BMPS WILL BE USED, AS DETERMINED BY SITE-SPECIFIC CONDITIONS, TO PREVENT OR MINIMIZE THE POTENTIAL FOR SEDIMENTATION INTO WATERCOURSES.
- H. MAT SPANS OR EQUIVALENT ACCESS ACROSS WATERCOURSES WILL BE PERIODICALLY SWEPT, AS APPROPRIATE, TO MINIMIZE THE POTENTIAL FOR SOIL DEPOSITION INTO WATERCOURSES AS A RESULT OF VEHICLE / EQUIPMENT MOVEMENTS.
- I. MIXING, TESTING, STORAGE, AND DISPOSAL OF CONCRETE (USED FOR SOME STRUCTURE FOUNDATIONS) SHALL BE CONDUCTED IN A MANNER THAT PREVENTS DISCHARGE TO WATERCOURSES.
- J. EXCEPT FOR EQUIPMENT THAT IS NOT READILY MOBILE OR MUST REMAIN ON-SITE FOR PROLONGED PERIODS TO SAFELY COMPLETE A CONSTRUCTION TASK, CONSTRUCTION VEHICLES AND EQUIPMENT WILL NOT BE REFUELED WITHIN 25 FEET OF A WATERCOURSE. FOR REFUELING THAT MUST BE PERFORMED LESS THAN 25 FEET FROM A WATERCOURSE, APPROPRIATE SPILL PREVENTION MEASURES, AS DETAILED IN PROJECT SPILL PREVENTION AND CONTROL PLAN (REFER TO VOLUME 2, ATTACHMENT B), WILL BE APPLIED.
- K. NO BULK PETROLEUM PRODUCTS WILL BE STORED WITHIN 25 FEET OF A WATERCOURSE.
- L. AT THE FINAL PHASE OF CONSTRUCTION, TEMPORARY MAT SPANS ACROSS WATERCOURSES WILL BE REMOVED AND THE AFFECTED AREA OF EACH WATERCOURSE WILL BE RESTORED. TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE REMOVED UPON THE STABILIZATION OF EXPOSED SOILS NEAR WATERCOURSES.

#### WETLAND RESTORATION

IF NECESSARY, WETLAND AREAS AFFECTED BY CONSTRUCTION WILL BE STABILIZED WITH ANNUAL RYE GRASS, A WETLAND SEED MIX, OR AN EQUIVALENT MIX AT THE LABEL RECOMMENDED SEEDING RATE, WHICH WILL SERVE TO PROVIDE A TEMPORARY VEGETATIVE COVER UNTIL WETLAND SPECIES BECOME

IF FINE GRADING IS NECESSARY, IT SHOULD BE DONE IN THE GROWING SEASON AND IN A MANNER THAT RETAINS THE EXISTING WETLAND TOPSOIL AND ROOT MASS TO THE EXTENT PRACTICABLE. ONCE COMPLETE, DISTURBED AREAS AFFECTED BT GRADING SHOULD BE SEEDED IMMEDIATELY

TEMPORARY EROSION AND SEDIMENT CONTROLS WILL BE LEFT IN PLACE AND MAINTAINED UNTIL FINAL STABILIZATION IS ACHIEVED. RESTORATION TYPICALLY WILL BE DEEMED SUCCESSFUL BASED ON THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER. BASED ON THE RESULTS OF POST-CONSTRUCTION INSPECTIONS OF ROW STABILIZATION, EVERSOURCE WILL DETERMINE THE APPROPRIATE TIMEFRAME FOR REMOVING TEMPORARY EROSION CONTROLS.

#### WETLAND INVASIVE SPECIES CONTROL BMPS

TO CONTROL THE SPREAD OF WETLAND INVASIVE PLANT SPECIES, EVERSOURCE WILL REQUIRE CONSTRUCTION CONTRACTORS TO IMPLEMENT THE PROCEDURES DESCRIBED BELOW, AS APPROPRIATE TO THE CONSTRUCTION ACTIVITY BEING PERFORMED:

- A. ALL CONSTRUCTION EQUIPMENT, VEHICLES, AND MATERIALS (E.G., EQUIPMENT MATS) MUST BE CLEAN AND FREE OF EXCESS SOIL, DEBRIS, AND VEGETATION BEFORE BEING MOBILIZED TO THE PROJECT ROWS.
- B. TIMBER MATS OR EQUIVALENT (E.G., CORDUROY ROADS) WILL BE USED IN WETLANDS DURING CLEARING OPERATIONS TO MINIMIZE SPREAD OF INVASIVE SPECIES WITHIN A WETLAND BY THE CLEARING EQUIPMENT ITSELF.
- C. TO MINIMIZE THE POTENTIAL FOR SPREADING INVASIVE PLANT SPECIES FROM WETLAND-TO-WETLAND ALONG THE ROW, ANY EQUIPMENT WORKING IN OR TRAVERSING A WETLAND CONTAINING INVASIVE PLANT SPECIES WILL BE CLEANED PRIOR TO RELOCATING TO ANOTHER WORK SITE. CLEANING OF VEHICLES AND OTHER EQUIPMENT (INCLUDING THE TRACKS AND TIRES) WILL INVOLVE REMOVAL OF VISIBLE DIRT, DEBRIS AND VEGETATION THROUGH THE USE OF BROOMS, SHOVELS, AND, IF NEEDED, COMPRESSED AIR.
- D. TIMBER MATS OR EQUIVALENT WILL BE USED AT WETLAND CROSSINGS SO CONSTRUCTION VEHICLES THAT FREQUENTLY TRAVEL ALONG ON-ROW ACCESS ROADS, SUCH AS PICKUPS CARRYING PERSONNEL OR MATERIAL DELIVERY TRUCKS, CAN AVOID DIRECT WETLAND INTERACTION.
- E. MATS USED IN WETLANDS CONTAINING INVASIVE SPECIES WILL BE CLEANED PRIOR TO RELOCATION TO OTHER WORK AREAS OR WETLANDS. CLEANING OF MATTING WILL INVOLVE DROPPING MATS ONE ON TOP OF ANOTHER TO SHAKE LOOSE ANY SEDIMENT AND DEBRIS.
- F. FINAL RESTORATION OF THE ROW IS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT VERSION OF THE EVERSOURCE BEST MANAGEMENT PRACTICES MANUAL CONSTRUCTION AND MAINTENANCE ENVIRONMENTAL REQUIREMENTS. IF "HAY BALE" EROSION CONTROLS ARE REQUIRED ON SITE, THE CONTRACTOR WILL BE REQUIRED TO USE ALTERNATIVE MEASURES, TO THE EXTENT PRACTICABLE AND IF LOCAL SOURCES ARE AVAILABLE, UTILIZE STRAW BALES, WATTLES, COCONUT ROLLS, WOOD CHIP BAGS OR SILT FENCE IN LIEU OF TRADITIONAL HAY BALES WHICH MAY CONTAIN NOXIOUS OR INVASIVE SEED STOCK OR PLANT MATTER. THIS IS ESPECIALLY IMPORTANT WHEN EROSION CONTROLS ARE INSTALLED ADJACENT TO WETLANDS.EFFORTS WILL BE MADE DURING CONSTRUCTION, TO THE EXTENT PRACTICABLE, TO MINIMIZE EQUIPMENT MOBILITY IN AREAS CONTAINING INVASIVE SPECIES SO AS TO AVOID DRAGGING INVASIVE PLANT MATERIAL BACK AND FORTH FROM ESTABLISHED STANDS INTO OTHER WETLANDS.

							EVERS URCE ENERGY
							Frost Bridge to Campville 115-kV Project
							Development & Management Plan
							WATER RESOURCE PROTOCOLS
							Detail Sheet 02 of 11
NO.	DATE	REVISIONS	BY	CHK	ΔPP	APP	Tighe&Bond
NO.	DAIL	REVIOIONO		OFFIC	Λι.	ALL	TECHNOLOGY CORPORATION

#### POTENTIAL PROJECT EFFECTS TO AND BMPS FOR VERNAL POOLS

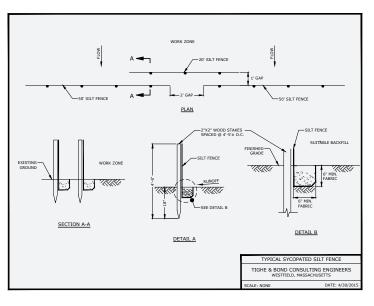
				POTENTIAL PROJECT EI	FFECTS TO AND	DIVIPS FOR VERNAL	POOLS
Map Sheet # / Town	Wetland #	Vernal Pool#	Work Proposed in 100' Vernal Pool Envelope (Access Roads and Work Pads	Tree Clearing Required in 100' Vernal Pool Envelope of Potential Tier 1 Pool (acres / approximate # trees)²	Work Proposed in Vernal Pool Depression	Tree Clearing Required in Vernal Pool Depression (acres)	Best Management Practices to Minimize Impacts to Vernal Pools (Refer to D&M Mapsheets)
Watertowi	n						
3A	W-MSF2	VP MSF-2	Access Road Improvements.	No tree clearing is anticipated, however side trimming may be necessary along the existing access road.	None	None	Syncopated silt fence and/or straw wattles on the south side of the existing access road – March through June
3A	W-MSF1	VP MSF-1	Access Road Improvements	No tree clearing is anticipated, however side trimming may be necessary along the existing access road.	None	None	Syncopated silt fence and/or straw wattles on the south side of the existing access road – March through June
6	W-B2	VP B2-1	Work Pad	Tier 2	None	None	Exclusion (silt) fencing around work pad – March through June
7	W-B4	VP B4-1	Access Road Improvements	No tree clearing is anticipated. The portion of vernal pool envelope within the Project ROW is presently cleared and maintained as scrub-shrub habitat.	None	None	If E&S controls are deemed necessary along the existing access road, syncopated silt fence and/or straw wattles – March through June
10	W-C4	DVP C4-1	Access Road Improvements	Decoy Pool	None	None	Road drainage improvements to eliminate surface water impoundment / decoy vernal pool – July through February
11	W-C10	VP C10-1	Tree Clearing, New Access Road, Work Pad	Tier 2	None	None	Where feasible, minimize new gravel fill within 100 feet of vernal pool Syncopated silt fence and/or straw wattles – March through June
11	W-C12	VP C12-1	Access Road Improvements	.08/±13	None	None	Syncopated silt fence and/or straw wattles – March through June Minimize the removal of shrub cover around vernal pool
13	W-C15	VP C15-1	Access Road Improvements	.02 / ±3	None	None	Syncopated silt fence and/or straw wattles – March through June Minimize the removal of shrub cover around vernal pool
14	W-C20	VP C20-1	Access Road Improvements, Work Pad	Tier 2	Work Pad (temporary matting)	None	If feasible, avoid matting in vernal pool depression Exclusion (silt) fencing around work pad – March through June
15	W-C21	VP C21-1	Access Road Improvements, Work Pad	.40 /±61	Tree Clearing	.054	No equipment or matting in vernal pool depression Felling of trees into vernal pool should be avoided Minimize the removal of shrub cover around vernal pool Where feasible, minimize new gravel fill within 100 feet of vernal pool Syncopated silt fence and/or straw wattles – March through June
Thomasto	n						
19	W-D4	VP D4-1	Access Road Improvements	.27 / ±42	Tree Clearing	.021	No equipment or matting in vernal pool depression Felling of trees into vernal pool should be avoided Minimize the removal of shrub cover around vernal pool Where feasible, minimize new gravel fill within 100 feet of vernal pool. Syncopated silt fence and/or straw wattles – March through June and September through October
19	W-D5	VP D5-1	Access Road Improvements, Tree Clearing	Tier 2	None	None	Syncopated silt fence and/or straw wattles – March through June
21	W-D15	VP D15-1	Work Pad	0.17 / ±26	None	None	Exclusion (silt) fencing around work pad – March through June
22	W-D12	VP D12-1	Work Pad	.06 /±6	None	None	Minimize the removal of shrub cover around vernal pool Where construction options allow, provide for amphibian access to and from vernal pool – March through June
Litchfield							
25, 26	W-E2	DVP E2-1 / E2-2	Access Road Improvements, Tree Clearing	Decoy Pools	None	None	Road drainage improvements to eliminate surface water impoundment / decoy vernal pool – July through February
28	W-E9	VP E9-1	Work Pad, Tree Clearing	Tier 3	Tree Clearing	0.17	No equipment or matting in vernal pool depression Felling of trees into vernal pool should be avoided Minimize the removal of shrub cover around vernal pool
Harwinton	,						
31	W-F9	VP F9-1	None anticipated	None	None	None	None
31, 32	W-F10	VP F10-1	Guard Structure Work Pad	.45 / ±76	Tree Clearing	.002	Felling of trees into vernal pool should be avoided
34	W-F14	VP F14-1	Access Road, Work Pad	None	None	None	No removal of shrub cover within 25' of vernal pool
34	W-F15	VP F15-1	Work Pad	None	None	None	No removal of shrub cover within 20' vernal pool
NOTES:							

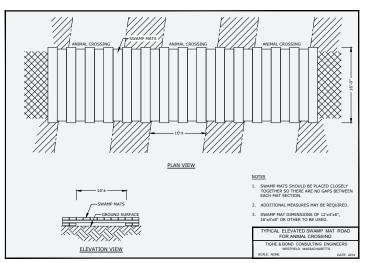
- Distance measured horizontally from closest edge of vernal pool depression to new line
- 2 Point sampling using a basal area 10 factor prism within the affected areas was utilized to determine tree density

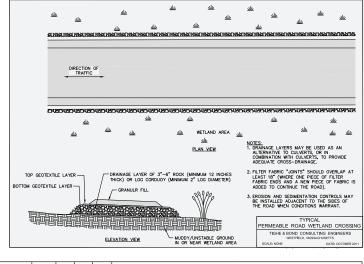
#### VERNAL POOL AVOIDANCE AND MINIMIZATION MEASURES

THE FOLLOWING MEASURES WILL BE TAKEN TO AVOID OR MINIMIZE IMPACTS ON VERNAL POOL BREEDING HABITAT DURING CONSTRUCTION. ALL VERNAL POOLS WITHIN THE ROW ARE ILLUSTRATED ON THE MAPS. REFER TO POTENTIAL EFFECTS TO VERNAL POOLS, AND SITE SPECIFIC BMPS. THESE MEASURES WILL BE IMPLEMENTED TO THE EXTENT PRACTICABLE, TAKING INTO CONSIDERATION TERRAIN, SAFETY, AND CONSTRUCTION REOUIREMENTS:

- A. DURING TREE CLEARING AND VEGETATION REMOVAL ALONG THE ROW, ACCESS THROUGH VERNAL POOLS WILL BE AVOIDED.
- B. TREES THAT MUST BE REMOVED FROM THE ROW WILL NOT BE INTENTIONALLY FELLED INTO VERNAL POOLS. DIRECTIONAL FELLING, EXTENDED CABLE WINCHING, AND OTHER FORESTRY PRACTICES WILL BE USED IF APPROPRIATE AND FEASIBLE. IF TREES ARE FELLED INTO A VERNAL POOL, WHETHER OUT OF NECESSITY OR INADVERTENTLY, AND REMOVAL IS LIKELY TO CAUSE ADVERSE IMPACTS. THE TREES OR PARTS OF THE TREES MAY BE LEFT IN PLACE.
- C. EXCEPT IN AREAS WHERE ACCESS ROADS AND WORK PADS MUST BE INSTALLED, EXISTING SCRUB-SHRUB VEGETATION WITHIN 25 FEET OF VERNAL POOLS, THE CUT VEGETATION (SLASH) WILL BE LEFT IN PLACE TO SERVE AS RECRUITMENT FOR LEAF LITTER AND COARSE WOODY DEBRIS.
- D. FROSION AND SEDIMENTATION CONTROL REST MANAGEMENT PRACTICES WILL BE INSTALLED AND MAINTAINED ALONG CONSTRUCTION ACCESS ROADS AND AROLIND WORK PADS AS NECESSARY TO PROTECT WATER OLIVILITY AND TO LIMIT THE POTENTIAL FOR SOIL DEPOSITION INTO VERNAL POOLS. SEDIMENT RUILIT LIP AGAINST THESE DEVICES WILL PERIODICALLY BE REMOVED AND PLACED IN UPLAND AREAS, IN A MANNER THAT WILL PRECLUDE THE POTENTIAL FOR SUBSEQUENT DEPOSITION INTO THE FIELD, IN ACCORDANCE WITH EVERSOURCE'S BMP MANUAL AND CONSISTENT WITH STORMWATER MANAGEMENT
- E. PLASTIC NETTING, WHICH MAY BE FOUND IN A VARIETY OF EROSION CONTROL PRODUCTS (E.G., EROSION CONTROL BLANKETS, STRAW WATTLES, AND REINFORCED SILT FENCE), WILL NOT BE USED.
- F. DECOY VERNAL POOLS IN THE FORM OF SURFACE WATER IMPOUNDMENTS ALONG EXISTING ON-ROW ACCESS ROADS ARE SHOWN ON THE D&M PLAN MAPS (VOLUME 3). THESE FEATURES GENERALLY CONTAIN LITTLE VEGETATION FOR EGG MASS ATTACHMENT AND INSUFFICIENT HYDROPERIOD FOR SUCCESSFUL LARVAL DEVELOPMENT. EVERSOURCE WILL ATTEMPT TO PERFORM IMPROVEMENTS TO ACCESS ROADS AT THESE LOCATIONS OUTSIDE OF THE BREEDING AND MIGRATION SEASONS OF VERNAL POOL SPECIES TO ELIMINATE THESE FEATURES. IMPROVEMENTS SHOULD ATTEMPT TO IMPROVE DRAINAGE THROUGH THE SUBJECT ACCESS ROADS TO ELIMINATE OR REDUCE IMPOUNDMENT. FILLING OF DECOY POOLS IS NOT AUTHORIZED UNDER THE PROJECTS PERMIT APPROVALS.
- G. WHERE FEASIBLE, MINIMIZE THE USE OF GRAVEL FILL ASSOCIATED WITH ACCESS ROADS, CONSTRUCTION WORK PADS OR PULL PADS WITHIN VERNAL POOL ENVELOPES (0-100 FEET).
- H. TO THE EXTENT THAT CIRCUIT OUTAGE AND OTHER CONSTRUCTION TIMING CONSTRAINTS ALLOW, EVERSOURCE WILL ATTEMPT TO SCHEDULE THE INSTALLATION OF ACCESS ROADS AND WORK PADS IN AND AROUND VERNAL POOL HABITATS SO AS NOT TO INTERFERE WITH AMPHIBIAN BREEDING AND MIGRATION SEASONS (MARCH THROUGH JUNE FOR ALL VERNAL POOLS AND SEPTEMBER THROUGH OCTOBER FOR VERNAL POOL D4-1). FOR PROJECT ACTIVITIES THAT MUST OCCUR ADJACENT TO OR WITHIN VERNAL POOLS DURING AMPHIBIAN MIGRATION PERIODS, (MARCH THROUGH JUNE FOR ALL VERNAL POOLS AND SEPTEMBER THROUGH OCTORER FOR VERNAL POOL D4-1). MEASURES WILL RE IMPLEMENTED ON A SITE-SPECIFIC RASIS AS NECESSARY TO FACILITATE LINENCLIMRERED AMPHIRIAN ACCESS TO AND FROM VERNAL POOL S. MITIGATION MEASURES WILL RE IMPLEMENTED ON A SITE-SPECIFIC CONDITIONS, INCLUDING THE TYPE OF CONSTRUCTION ACTIVITY IN PROXIMITY TO A VERNAL POOL, THE AMPHIBIAN SPECIES KNOWN TO OCCUR IN THE VERNAL POOL, AND SEASONAL CONDITIONS. OPTIONS TO BE EVALUATED TO ALLOW AMPHIBIAN ACCESS TO VERNAL POOLS MAY INCLUDE, BUT NOT BE LIMITED TO SYNCOPATED SEDIMENTATION CONTROL FENCING OR WATTLES IN THE IMMEDIATE VICINITY OF VERNAL POOLS, ELEVATED CONSTRUCTION MATTING, AND ALIGNING EROSION AND SEDIMENTATION CONTROLS TO AVOID BIFURCATING VERNAL POOL HABITAT. INSTALLATION OF ANY MITIGATION DEVICES WILL BE BASED ON FIELD AND SEASONAL CONDITIONS, AND WILL DEPEND ON SPECIES-SPECIFIC REQUIREMENTS. FURTHER, IN SOME CASES, THE OBJECTIVE MAY BE TO FENCE OFF CONSTRUCTION AREAS NEAR VERNAL POOLS, ALLOWING AMPHIBIAN ACCESS AROUND SUCH AREAS ENTIRELY.
- I. EROSION AND SEDIMENTATION CONTROL DEVICES WILL BE PROMPTLY REMOVED UPON FINAL REVEGETATION AND STABILIZATION OF THE ROW.







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#### WOOD TURTLE (GLYPTEMYS INSCULPTA)

**SPECIES DESIGNATION: SPECIAL CONCERN** 

#### PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

#### SITE-SPECIFIC IMPACT AVOIDANCE AND MINIMIZATION MEASURES:

EVERSOURCE DOES NOT ANTICIPATE ANY WORK ASSOCIATED WITH THE CONSTRUCTION OF THE NEW TRANSMISSION LINES TO OCCUR WITHIN WATERBODIES KNOWN TO, OR POTENTIALLY SUPPORTING THIS SPECIES (BRANCH BROOK, NORTHFIELD BROOK, OR THE NAUGATUCK RIVER). ALTHOUGH THE CONSTRUCTION OF THE PROPOSED PROJECT IS UNLIKELY TO AFFECT TURTLES DURING THE HIBERNATING PERIOD, IT IS POSSIBLE THAT ACTIVITIES (E.G., VEGETATION REMOVAL AND GRADING) PERFORMED IN TERRESTRIAL HABITATS ALONG THE ROW DURING THE TURTLES ACTIVE PERIOD (APRIL THROUGH OCTOBER) COULD ADVERSELY AFFECT INDIVIDUAL TURTLES. FOR EXAMPLE, TURTLES COULD BE KILLED OR TEMPORARILY DISPLACED AS A RESULT OF CONSTRUCTION ACTIVITIES. HOWEVER, WHEN CONSTRUCTION IS COMPLETE. THE TURTLES WOULD ONCE AGAIN UTILIZE THESE HABITATS.

IN ORDER TO MINIMIZE THE POTENTIAL FOR ADVERSE EFFECTS TO WOOD TURTLES, THE FOLLOWING ARE PROTECTION STRATEGIES AND TECHNIQUES PROPOSED FOR THE PROTECTION OF THIS SPECIES DURING PROJECT CONSTRUCTION ACTIVITIES:

#### GENERAL:

1. A CONTRACTOR AWARENESS PROGRAM WILL BE DEVELOPED AND IMPLEMENTED TO ENSURE THAT CONTRACTORS WORKING IN THE AREA HAVE BEEN INSTRUCTED ON THE PROPER RESPONSE IN THE EVENT THAT A WOOD TURTLE IS ORSERVED IN THE WORK AREA

#### FOR CONSTRUCTION ACTIVITIES DURING THE WOOD TURTLE'S INACTIVE SEASON (NOVEMBER 1 TO APRIL 1):

- 2. THE REMOVAL OF LOW-GROWTH VEGETATION AND TREE STUMPS ADJACENT TO THE BANKS OF IDENTIFIED SUITABLE RIPARIAN HABITAT WILL BE AVOIDED AND MINIMIZED TO THE GREATEST EXTENT POSSIRIE
- MOWING IN PREPARATION OF PROJECT CONSTRUCTION ACTIVITIES WILL BE LIMITED TO WORK AREAS AND, TO THE EXTENT PRACTICABLE. CONDUCTED IN THE INACTIVE SEASON. BETWEEN NOVEMBER 1 AND APRIL 1.

#### FOR CONSTRUCTION ACTIVITIES DURING THE WOOD TURTLE'S ACTIVE SEASON (APRIL 1 TO NOVEMBER 1):

- A SWEEP OF THE WORK AREA SHALL BE CONDUCTED PRIOR TO HEAVY MACHINERY ACCESS, CONSTRUCTION, AND/OR MOWING TO LOOK FOR BASKING TURTLES.
- IF MOWING DURING THE ACTIVE SEASON IS REQUIRED, VEGETATION WILL BE MOWED TO NO LOWER THAN 7 INCHES. FLAIL-TYPE MOWERS WILL NOT BE USED FOR MOWING IN THE ACTIVE SEASON.
- 6. ANY TURTLE ENCOUNTERED DURING CONSTRUCTION WILL BE MOVED, UNHARMED, TO AN AREA IMMEDIATELY OUTSIDE OF THE WORK AREA, AND POSITIONED IN THE SAME DIRECTION THAT IT WAS HEADING WHEN DISCOVERED. WORKERS WILL BE INFORMED THAT TURTLES SHOULD NEVER BE MOVED OFF SITE.
- ALL SILT FENCING WILL BE REMOVED AFTER WORK IS COMPLETED AND SOILS ARE STABLE SO THAT REPTILE AND AMPHIBIAN MOVEMENT IS NOT RESTRICTED.
- 8. ANY CONFIRMED SIGHTINGS OF THIS SPECIES WILL BE REPORTED TO THE CT DEEP NDDB.

#### NORTHERN SPRING SALAMANDER (GYRINOPHILUS PORPHYRITICUS)

#### **SPECIES DESIGNATION:** THREATENED

#### PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

#### SITE-SPECIFIC IMPACT AVOIDANCE AND MINIMIZATION MEASURES:

THE FOLLOWING MEASURES ARE PROPOSED FOR THE PROTECTION OF THIS SPECIES DURING CONSTRUCTION ACTIVITIES:

- IMPLEMENT EROSION AND SEDIMENTATION CONTROLS THAT INCORPORATE BEST MANAGEMENT PRACTICES TO MINIMIZE
   OR AVOID SEDIMENT DEPOSITION INTO WETLANDS DRAINING TO THE SPRING SALAMANDER'S STREAM HABITAT; AND/OR
- CONDUCT CONSTRUCTION-PHASE STORMWATER MONITORING TO DOCUMENT THE CONDITION AND, AS NECESSARY,
  THE MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS AND BEST MANAGEMENT PRACTICES. PROMPT
  CONTRACTOR RESPONSE TO REPAIR / MAINTAIN THESE CONTROLS, AS REQUIRED PURSUANTTO REGULATORY APPROVALS,
  WILL AVOID OR MINIMIZE THE POTENTIAL FOR DISCHARGE OF SEDIMENT TO WETLANDS AND WATERCOURSES, OR
  DEGRADATION OF WATER QUALITY, WHICH MIGHT ADVERSELY AFFECT THIS SPECIES.

#### RARE SPECIES AVOIDANCE AND MINIMIZATION MEASURES

#### SMOOTH GREEN SNAKE (LIOCHLOROPHIS VERNALIS)

**SPECIES DESIGNATION: SPECIAL CONCERN** 

#### PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

#### SITE-SPECIFIC IMPACT AVOIDANCE AND MINIMIZATION MEASURES:

THE FOLLOWING ARE PROTECTION STRATEGIES AND TECHNIQUES PROPOSED FOR THE PROTECTION OF THIS SPECIES DURING PROJECT CONSTRUCTION ACTIVITIES:

- A CONTRACTOR AWARENESS PROGRAM WILL BE DEVELOPED AND IMPLEMENTED TO ENSURE THAT CONTRACTORS WORKING IN THE AREA HAVE BEEN INSTRUCTED ON THE PROPER RESPONSE IN THE EVENT THAT A SMOOTH GREEN SNAKE IS OBSERVED IN THE WORK AREA.
- IF ANY SNAKES ARE OBSERVED, CONSTRUCTION PERSONNEL WILL SAFELY RELOCATE THEM TO AN AREA IMMEDIATELY
  OUTSIDE OF THE CONSTRUCTION FOOTPRINT.
- 3. ANY SILT FENCE UTILIZED WILL BE REMOVED AFTER CONSTRUCTION IS COMPLETE AND SOILS ARE STABILIZED.
- 4. ANY CONFIRMED SMOOTH GREEN SNAKE SIGHTINGS WILL BE REPORTED TO THE CT DEEP NDDB.

#### FROSTED ELFIN BUTTERFLY (CALLOPHRYS IRUS)

**SPECIES DESIGNATION: THREATENED** 

#### **PROJECT ROW HABITAT:**

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

#### SITE-SPECIFIC IMPACT AVOIDANCE AND MINIMIZATION MEASURES:

THE FOLLOWING CONSERVATION MEASURES ARE PROPOSED TO AVOID AND MINIMIZE IMPACTS TO HOST PLANTS AND POTENTIAL INDIRECT EFFECTS ON FROSTED ELFIN:

- PRIOR TO COMMENCEMENT OF CONSTRUCTION IN THE HOST PLANT AREAS, THE BOUNDARIES OF HOST PLANT COMMUNITIES WILL BE FLAGGED IN THE FIELD;
- 2. A CONTRACTOR AWARENESS PROGRAM WILL BE DEVELOPED AND IMPLEMENTED TO ENSURE THAT CONTRACTORS HAVE KNOWLEDGE OF THE PRESENCE OF THE HOST PLANT COMMINITIES NEAR WORK AREAS:
- 3. TEMPORARY IMPACTS TO IDENTIFIED HOST PLANT COMMUNITIES WILL BE REDUCED TO THE EXTENT PRACTICABLE BY MINIMIZING MOWING AND GROUND DISTURBANCE OUTSIDE OF THE AREAS REQUIRED TO SAFELY COMPLETE THE NECESSARY CONSTRUCTION ACTIVITIES:
- 4. CONSTRUCTION-PHASE ENVIRONMENTAL MONITORING BY QUALIFIED PERSONNEL WILL BE PROVIDED DURING CONSTRUCTION; AND
- WHERE STABILIZED VEGETATION REPLACING BARE SOIL IS NECESSARY FOLLOWING CONSTRUCTION, ONLY ANNUAL SEED
  MIXTURES SHALL BE USED TO PREVENT THE INTRODUCTION AND ESTABLISHMENT OF NON-NATIVE SPECIES.

#### SPOTTED TURTLE (CLEMMYS GUTTATA)

SPECIES DESIGNATION: SPECIAL CONCERN

#### PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

#### SITE-SPECIFIC IMPACT AVOIDANCE AND MINIMIZATION MEASURES:

THE FOLLOWING MEASURES ARE PROPOSED FOR THE PROTECTION OF SPOTTED TURTLE IN PROXIMITY TO VERNAL POOL

- A CONTRACTOR AWARENESS PROGRAM WILL BE DEVELOPED AND IMPLEMENTED TO ENSURE THAT CONTRACTORS
  WORKING IN THE AREA HAVE BEEN INSTRUCTED ON THE PROPER RESPONSE IN THE EVENT THAT A SPOTTED TURTLE IS
  OBSERVED IN THE WORK AREA.
- THE REMOVAL OF LOW-GROWTH VEGETATION AND TREE STUMPS ADJACENT TO THE BANKS OF IDENTIFIED HABITAT WILL BE AVOIDED AND MINIMIZED TO THE GREATEST EXTENT POSSIBLE.
- B. TO THE EXTENT PRACTICABLE, MOWING IN PROXIMITY TO CONSTRUCTION ACTIVITIES WILL BE LIMITED TO WORK AREAS AND CONDUCTED IN THE INACTIVE SEASON, BETWEEN NOVEMBER 1 AND MARCH 1.

#### FOR CONSTRUCTION ACTIVITIES DURING THE SPOTTED TURTLE'S ACTIVE SEASON (MARCH 1 TO NOVEMBER 1):

- 4. EXCLUSION FENCING WILL BE INSTALLED AROUND THE WORK PAD FOR PROPOSED STRUCTURE IN A MANNER THAT PRECLUDES ACCESS BY SPOTTED TURTLES.
- 5. IF NECESSARY, EROSION CONTROL MEASURES INSTALLED ALONG THE EXISTING ACCESS ROAD BETWEEN PROPOSED STRUCTURES SHOULD BE DESIGNED IN A MANNER THAT ALLOWS UNENCUMBERED MOVEMENT BY SPOTTED TURTLES. SUCH MEASURES MAY INCLUDE, BUT NOT BE LIMITED TO THE USE OF SYNCOPATED SILT FENCING AND/OR STRAW WATTLES, AND THE ALIGNMENT OF EROSION AND SEDIMENTATION CONTROLS TO AVOID BIFURCATING SUITABLE WETLAND HABITAT.
- 6. A SWEEP OF THE WORK AREAS NEAR STRUCTURES SHALL BE CONDUCTED PRIOR TO HEAVY MACHINERY ACCESS, CONSTRUCTION, AND/OR MOWING TO LOOK FOR BASKING TURTLES.
- IN THE VICINITY OF STRUCTURES IF MOWING DURING THE ACTIVE SEASON IS REQUIRED, VEGETATION WILL BE MOWED TO NO LOWER THAN 7 INCHES. FLAIL-TYPE MOWERS WILL NOT BE USED FOR MOWING IN THE ACTIVE SEASON.
- 3. ANY TURTLE ENCOUNTERED DURING CONSTRUCTION WILL BE MOVED, UNHARMED, TO AN AREA IMMEDIATELY OUTSIDE OF THE WORK AREA, AND POSITIONED IN THE SAME DIRECTION THAT IT WAS HEADING WHEN DISCOVERED. WORKERS WILL BE INFORMED THAT TURTLES SHOULD NEVER BE MOVED OFF SITE.
- ALL EROSION CONTROL MEASURES AND EXCLUSION FENCING WILL BE REMOVED AFTER WORK IS COMPLETED AND SOILS
  ARE STABLE SO THAT REPTILE AND AMPHIBIAN MOVEMENT IS NOT RESTRICTED.
- 10. ANY CONFIRMED SIGHTINGS OF THIS SPECIES WILL BE REPORTED TO THE CT DEEP NDDB

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							Development & Management Plan
							RARE SPECIES AVOIDANCE & MINIMIZATION MEASURES
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#### **FARMLAND PROTECTION MEASURES**

THE FOLLOWING MEASURE SHOULD BE USED IF INSTALLATION OF TEMPORARY GRAVEL ACCESS THROUGH ACTIVE FARMLAND IS FOUND PREFERABLE TO PLACEMENT OF TEMPORARY SWAMP MATS:

- A. NO NEW PERMANENT ACCESS ROADS WILL BE LOCATED IN ACTIVE FARMLAND UNLESS APPROVED BY THE LANDOWNER.
- B. TEMPORARY ACCESS ROADS AND WORK PADS WILL BE SITED, TO THE EXTENT PRACTICABLE, TO AVOID OR MINIMIZE DISRUPTIONS TO ACTIVE FARM USES.
- C. EXCEPT FOR EQUIPMENT THAT CANNOT PRACTICALLY BE MOVED ONCE IN PLACE (E.G., CRANES), NO EQUIPMENT OR VEHICLE REFUELING WILL BE PERFORMED IN ACTIVE FARMLAND. IF EQUIPMENT REFUELING MUST BE CONDUCTED IN ACTIVE FARMLANDS, APPROPRIATE LEAK AND SPILL PREVENTION MEASURES WILL BE USED AS SPECIFIED IN THE PROJECT SPILL PREVENTION AND COUNTERMEASURES PLAN (REFER TO VOLUME 2. ATTACHMENT B).
- D. AGRICULTURAL DRAINAGE AND EROSION CONTROL FEATURES (E.G., DITCHES, SWALES) WILL BE AVOIDED DURING CONSTRUCTION TO THE EXTENT PRACTICABLE. IF AVOIDANCE IS NOT POSSIBLE, THE CONSTRUCTION CONTRACTOR WILL TAKE APPROPRIATE MEASURES TO MAINTAIN THE EFFECTIVENESS OF THE EXISTING FEATURES. ANY DRAINAGE FEATURES DISTURBED BY CONSTRUCTION ACTIVITIES WILL BE REPAIRED.
- E. HAY BALES (WHICH MAY CONTAIN SEEDS INAPPROPRIATE TO FARM USE) WILL NOT BE USED FOR TEMPORARY EROSION AND SEDIMENTATION CONTROL IN ACTIVE FARMLANDS UNLESS SPECIFICALLY APPROVED BY THE FARMER. INSTEAD, STRAW BALES, WEED-FREE HAY, OR OTHER TYPES OF EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE USED AS APPROPRIATE.
- F. NO VEHICLES OR EQUIPMENT WILL BE ALLOWED OUTSIDE THE IDENTIFIED WORK AREAS (VEGETATION REMOVAL LIMITS), EXCEPT TO REMOVE, STOCKPILE, AND PROCESS FOREST VEGETATION AS MAY BE NECESSARY TO MAINTAIN MANDATED CLEARANCE FROM THE TRANSMISSION LINE CONDUCTORS, OR TO INSTALL COUNTERPOISE AS NEEDED.
- G. IF THE CONSTRUCTION WORK AREA DIVIDES AN ACTIVE FARMLAND AREA, UPON THE FARMER'S REQUEST, APPROPRIATE ACCESS WILL BE PROVIDED ACROSS THE CONSTRUCTION ZONE FOR FARM USES AND TEMPORARY FENCING AND GATES WILL BE INSTALLED IF NEFDED.
- H. ACCESS ROADS AND WORK PADS WILL BE BUILT IN ACCORDANCE WITH THE SPECIFICATIONS FOR WORK IN FARMLANDS
- ACCESS ROADS WILL BE MAINTAINED THROUGHOUT CONSTRUCTION TO ALLOW SAFE USE AND, IF REQUESTED BY THE FARMER, CROSSING BY FARM MACHINERY.
- J. SILT FENCE OR SIMILAR MEASURES WILL BE INSTALLED ALONG BOTH SIDES OF GRAVEL ACCESS ROADS AND AROUND GRAVEL WORK PADS TO PREVENT THE MIXING OF GRAVEL WITH SUBSOIL OR WITH ADJACENT TOPSOIL.
- K. CONSTRUCTION EQUIPMENT AND VEHICLES WILL USE ONLY DESIGNATED ACCESS ROADS. NO VEHICLE OR EQUIPMENT PARKING WILL BE ALLOWED OUTSIDE OF THE IDENTIFIED AC-CESS ROADS AND WORK PADS.
- L. EXCAVATED SUBSOIL AND ROCK WILL NOT BE STOCKPILED OR SPREAD ON ACTIVE FARMLAND OR ON TOPSOIL STOCKPILES. EXCESS EXCAVATED SUBSOIL AND ROCK WILL BE REMOVED FROM ACTIVE FARMLANDS AND RELOCATED TO AN APPROPRIATE AREA WITHIN THE ROW ON THE SAME PROPERTY FROM WHICH IT WAS REMOVED.
- M. CONCRETE TRUCKS WILL BE RESTRICTED TO DESIGNATED ACCESS ROADS AND WORK PADS. CONCRETE TRUCK WASHOUT AREAS WILL NOT BE LOCATED WITHIN ACTIVE FARMLANDS.
- N. TO THE EXTENT PRACTICAL, GUY WIRES AND ANCHORS WILL BE PLACED OUTSIDE OF ACTIVE FARMLAND.
- O. ALL GUY WIRES WILL BE SHIELDED WITH HIGHLY VISIBLE GUARDS.
- P. GROUND RINGS, GROUND RODS, AND COUNTERPOISE WILL BE BURIED TO PROVIDE A MINIMUM DEPTH OF 24 INCHES.
- Q. IN AREAS WHERE TOPSOIL HAS BEEN REMOVED (E.G., WITHIN THE FOOTPRINT OF WORK PADS AND ACCESS ROADS WHERE GRAVEL IS USED), GROUND RINGS, GROUND RODS, AND COUNTERPOISE MAY BE INSTALLED PRIOR TO THE REPLACEMENT OF TOPSOI
- R. IN AREAS WHERE TOPSOIL HAS NOT BEEN REMOVED, GROUNDING SYSTEMS WILL BE DIRECTLY EMBEDDED THROUGH TOPSOIL AND SUBSOIL LAYERS.

#### SOIL EROSION AND SEDIMENT CONTROL

EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES WILL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND MAINTAINED THROUGHOUTTO AVOID OR MINIMIZE THE POTENTIAL FOR SURFACE WATER RUNOFF, EROSION, AND SEDIMENTATION TO OCCUR OUTSIDE OF WORK LIMITS. THESE MEASURES WILL COMPLY WITH THE 2002 CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL (http://www.ct.gov/deep/lib/deep/water inland/sesc/secs\_chapter\_1\_5.pdf), with eversource's BMP Manual (http://www.transmission-nu.cinstom/contractors/pdf/ct\_bmp.pdf), as well as CT DEEP AND USACE PERMIT CONDITIONS. THE FOLLOWING ARE OBJECTIVES OF THE E&S MEASURES:

- A. INSTALLING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION:
- B. PROTECTING WATER RESOURCE AREAS DURING CONSTRUCTION;
- C. MINIMIZING THE QUANTITY AND DURATION OF SOIL EXPOSURE (STABILIZE EXPOSED SOILS IMMEDIATELY UPON COMPLETION OF GRADING OR STOCKPILING):
- D. INSPECTING THE WORK AREAS AND MAINTAINING EROSION AND SEDIMENT CONTROLS AS NECESSARY UNTIL FINAL STABILIZATION AND INSPECTION ARE ACHIEVED

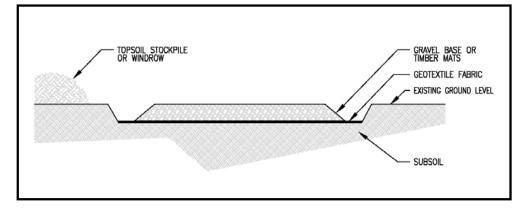
THE APPLICATION OF THE TECHNIQUES IN THE FIELD WILL BE DETERMINED BY THE PROFESSIONAL JUDGMENT OF COMPLIANCE MONITORS AND FIELD CONSTRUCTION PERSONNEL AND WILL DEPEND ON SITE-SPECIFIC CONDITIONS. FACTORS THAT MAY BE CONSIDERED IN THE SELECTION OF EROSION AND SEDIMENT CONTROLS FOR SITE-SPECIFIC AREAS MAY INCLUDE:

- A. SIZE OF THE AREA AFFECTED;
- B. TYPE OF PROPOSED CONSTRUCTION ACTIVITIES;
- C. TYPE AND TEXTURE OF SOIL (HIGHLY ERODIBLE SOILS ARE DEPICTED ON THE VOLUME 3 MAPSHEETS);
- D. AMOUNT OF ROCK PRESENT:
- E. STEEPNESS AND LENGTH OF SLOPE;
- F. AMOUNT AND TYPE OF VEGETATIVE COVER;
- G. PROXIMITY AND DIRECTION TO WATERCOURSES OR WETLANDS;
- H. ANTICIPATED WEATHER CONDITIONS AND GROUND CONDITIONS.

#### **EROSION AND SEDIMENT CONTROL NOTES**

- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS
  AND SPECIFICATIONS OF THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL", CTDEEP
  BULLETIN NO. 34, AND ALL AMENDMENTS AND ADDENDA THERETO AS PUBLISHED BY THE CONNECTICUT DEPARTMENT
  OF ENERGY AND ENVIRONMENTAL PROTECTION.
- 2. LAND DISTURBANCE SHALL BE KEPT TO THE MINIMUM NECESSARY FOR CONSTRUCTION OPERATIONS.
- 3. INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE Development & Management Plan AND ELSEWHERE AS NECESSARY TO PREVENT SOIL EROSION AND SEDIMENT TRANSPORT TO RESOURCE AREAS. ADDITIONAL CONTROLS, NOT DEPICTED ON THE PLANS, MAY BE NECESSARY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSESS THE NEED FOR, AND INSTALL ADDITIONAL CONTROLS THAT ARE WARRANTED BY SITE CONDITIONS.
- 4. RETAINING WALLS ARE DEPICTED IN SOME LOCATIONS ON THE DEVELOPMENT & MANAGEMENT PLAN IN ORDER TO PROVIDE A LEVEL WORK AREA WHERE STEEP TOPOGRAPHY EXISTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT LOCATION OF RETAINING WALLS, METHODS OF CONSTRUCTION, AND SAFETY MEASURES UTILIZED. RETAINING WALLS MAY BE REQUIRED IN ADDITIONAL LOCATIONS NOT DEPICTED ON THE PLANS.
- UPON COMPLETION OF CONSTRUCTION, IT IS THE CONTRACTORS RESPONSIBILITY TO REMOVE RETAINING WALLS, REGRADE AND STABILIZE SLOPES IN COMPLIANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.
- 6. EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. INSPECTIONS SHALL BE CONDUCTED AFTER EACH RAINSTORM AND DURING MAJOR STORM EVENTS TO DETERMINE IF ALL CONTROL MEASURES ARE ADEQUATELY IN PLACE AND EFFECTIVE.
- 7. SEDIMENT REMOVED SHALL BE PROPERLY DISPOSED OF IN AN APPROPRIATE UPLAND AREA WITHIN THE DEFINED LIMITS OF DISTURBANCE
- 8. STOCKPILE TOPSOIL IN LEVEL UPLAND AREAS AND CONTAIN USING STRAW BALES AND/OR SILT FENCE AROUND THE PERIMETER.
- 9. STOCKPILING OF EXCESS SOIL GENERATED AS A RESULT OF STRUCTURE / FOUNDATION INSTALLATION WORK WITHIN WETLANDS IS PROHIBITED, EXCEPT THAT SOILS OR OTHER EXCAVATED MATERIAL MAY BE TEMPORARILY STOCKPILED AND CONTAINED ON THE WORK PAD LOCATED WITHIN A WETLAND PRIOR TO TRANSPORT TO AN UPLAND AREA.
- 10. STABILIZATION OF OPEN SOIL SURFACES WILL BE IMPLEMENTED WITHIN 14 DAYS AFTER GRADING OR CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, UNLESS WEATHER PROHIBITS SEED GERMINATION.
- 11. WHERE NECESSARY, SUITABLE TOPSOIL, SEEDBED PREPARATION, AND WATER SHALL BE PROVIDED FOR EFFECTIVE ESTABLISHMENT OF VEGETATIVE COVER.
- 12. THE CONSTRUCTION CONTRACTOR SHALL KEEP ALL PAVED ROADWAYS CLEAN.
- 13. EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED AND MAINTAIN UNTIL RESTORATION HAS BEEN DETERMINED TO BE EFFECTIVE AS DEFINED BY CONFORMANCE TO THE CT DEEP GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS ASSOCIATED WITH CONSTRUCTION ACTIVITIES.

## TYPICAL GRAVEL ACCESS ROAD AND WORK PAD CONSTRUCTION ACTIVE FARMLAND (Topsoil Relocation)

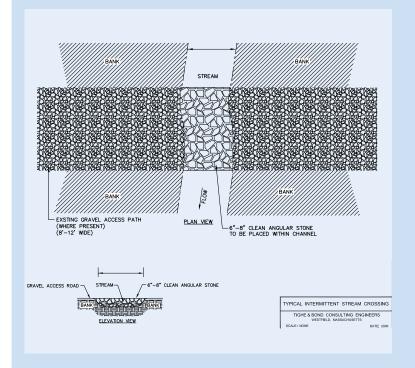


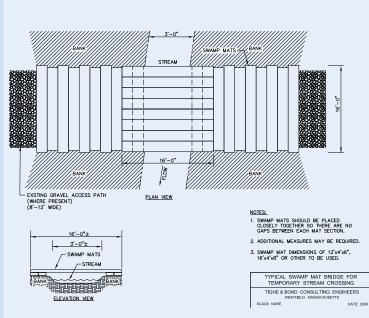
#### NOTES:

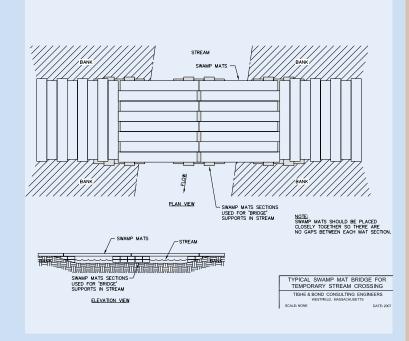
- TOPSOIL WILL BE REMOVED FROM WORK AREAS BUT REMAIN ON PROPERTY, AND WILL BE STOCKPILED OR WINDROWED
  IN UPLAND AREAS.
- PROPOSED ACCESS ROADS AND WORK PADS ARE NOT CONSIDERED A PERMANENT IMPROVEMENT AND WILL BE REMOVED AT THE END OF THE PROJECT.
- ACTUAL DIMENSIONS OF WORK PADS AND ACCESS ROADS WILL VARY, DEPENDING ON SITE CHARACTERISTICS AND ON THE TYPES OF STRUCTURES TO BE INSTALLED.
- TYPICAL ACCESS ROAD WIDTHS IN UPLANDS ARE 20 TO 25 FEET MAXIMUM WITH SHOULDERS WITH A TRAVEL SURFACE WIDTH OF 16 FEET.
- TYPICAL WORK PAD DIMENSIONS ARE 100 FEET WIDE BY 100 FEET LONG FOR IN-LINE (TANGENT) STRUCTURES, AND 100 FEET BY 200 FEET FOR ANGLE STRUCTURES AND DEADENDS.
- AFTER REMOVAL OF GRAVEL ROAD, TOPSOIL WILL BE SPREAD OVER WORK AREAS TO PRE-CONSTRUCTION CONTOURS TO THE EXTENT PRACTICABLE.
- IF ANY PART OF THE PROPOSED ROAD WIDTH IS WITHIN AN AGRICULTURAL AREA, THE ENTIRE ROAD WIDTH SHALL BE CONSTRUCTED AS IF IT WERE IN AN AGRICULTURAL AREA.
- 8. DRAWING IS NOT TO SCALE.

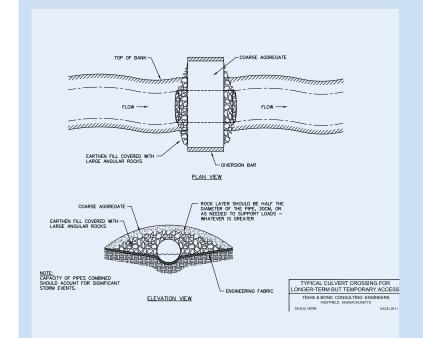
							EVERS⊕URCE
							ENERGY
							Frost Bridge to Campville 115-kV Project Development & Management Plan
							FARMLAND PROTECTION MEASURES & SOIL EROSION AND SEDIMENT CONTROL
							Detail Sheet 05 of 11
NO.	DATE	REVISIONS	BY	СНК	APP	APP	Tighe&Bond ALL-POINTS LICENSIGN CORPORATION

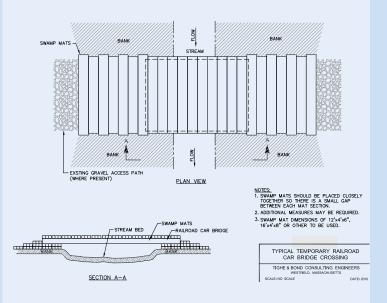
### **STREAM CROSSING TYPICAL DETAILS**

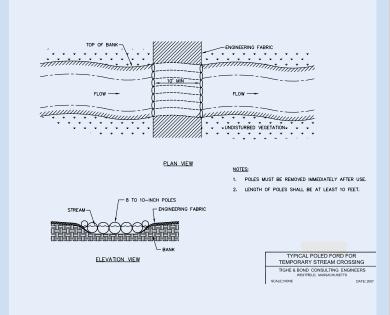




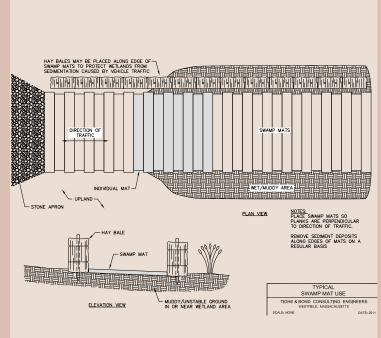


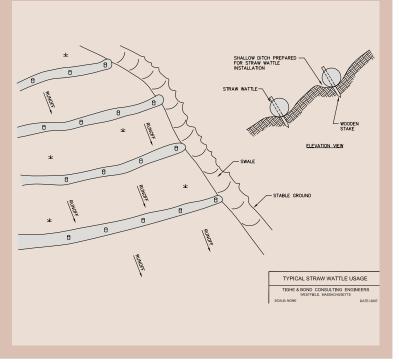






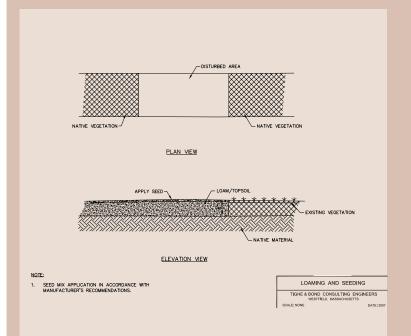
## EROSION AND SEDIMENTATION CONTROL TYPICAL DETAILS

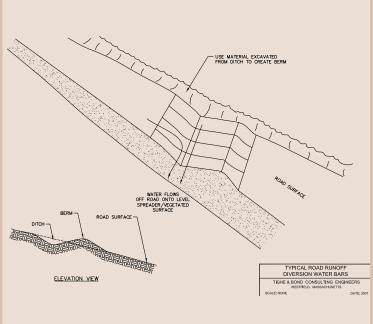


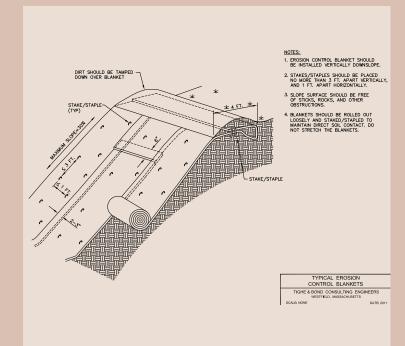


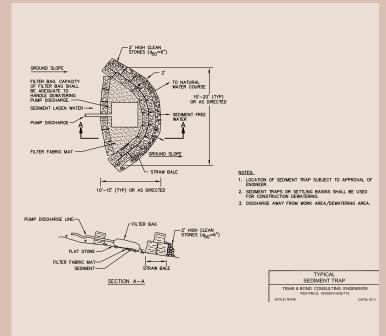
							EVERS=URCE ENERGY
							Frost Bridge to Campville 115-kV Project Development & Management Plan
							TYPICAL DETAILS SHEET 1 OF 2
							Detail Sheet 06 of 11
NO.	DATE	REVISIONS	BY	СНК	APP	APP	Tighe&Bond

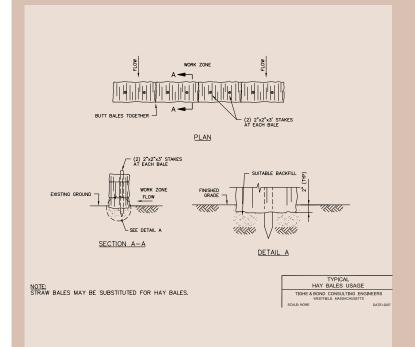
# EROSION AND SEDIMENTATION CONTROL TYPICAL DETAILS

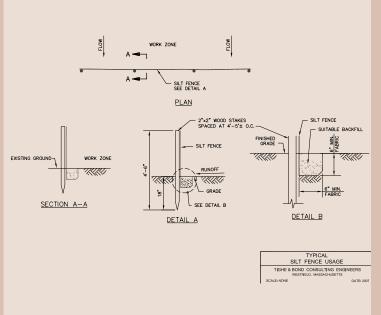


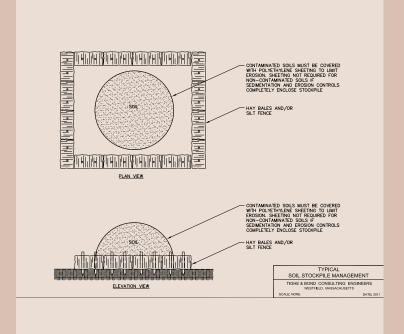


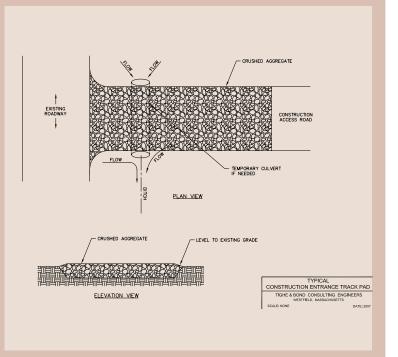




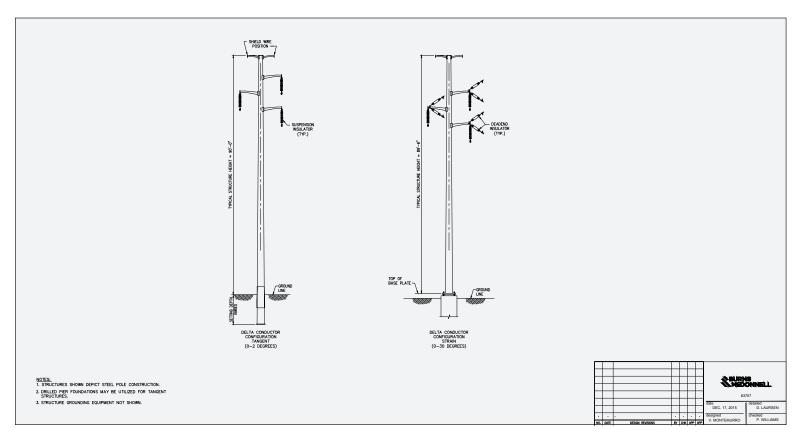


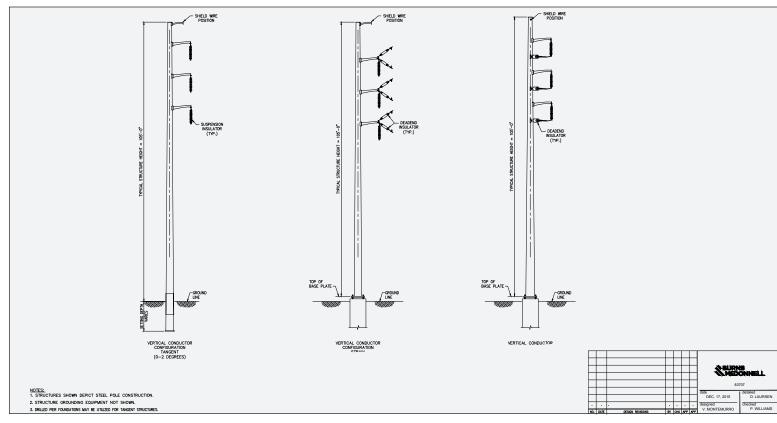


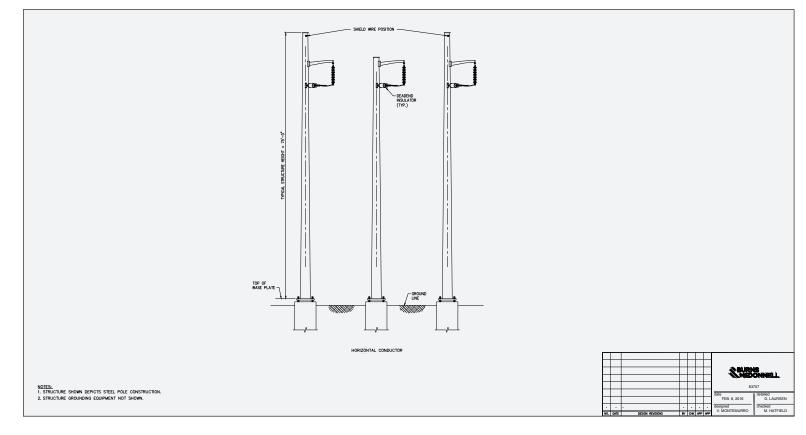


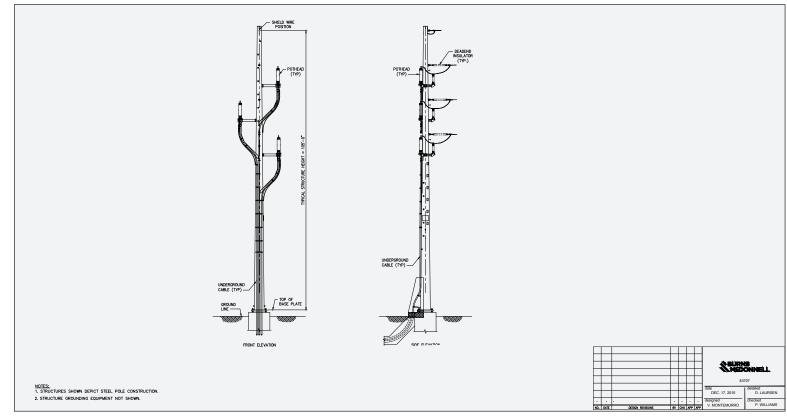


							EVERS=URCE.
							Frost Bridge to Campville 115-kV Project Development & Management Plan
							TYPICAL DETAILS SHEET 2 OF 2
							Detail Sheet 07 of 11
NO.	DATE	REVISIONS	BY	CHK	APP	APP	Tighe&Bond Jall-Points

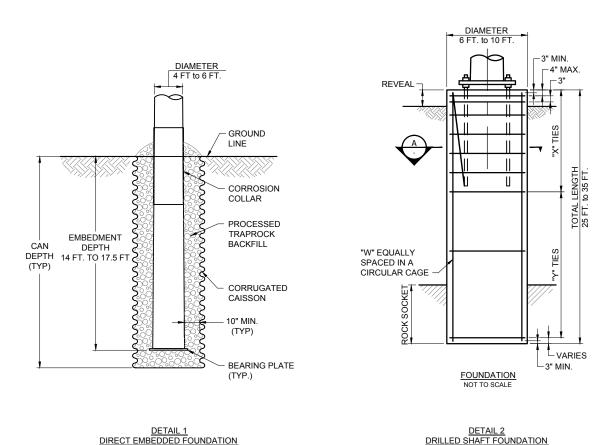


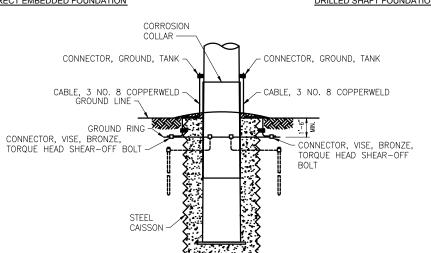


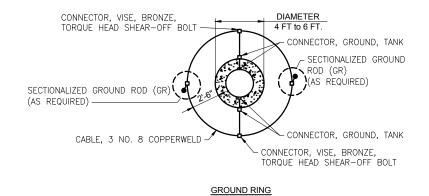




							EVERS URCE ENERGY
							Frost Bridge to Campville 115-kV Project
							Development & Management Plan
							TYPICAL STRUCTURE CONFIGURATIONS
							Detail Sheet 08 of 11
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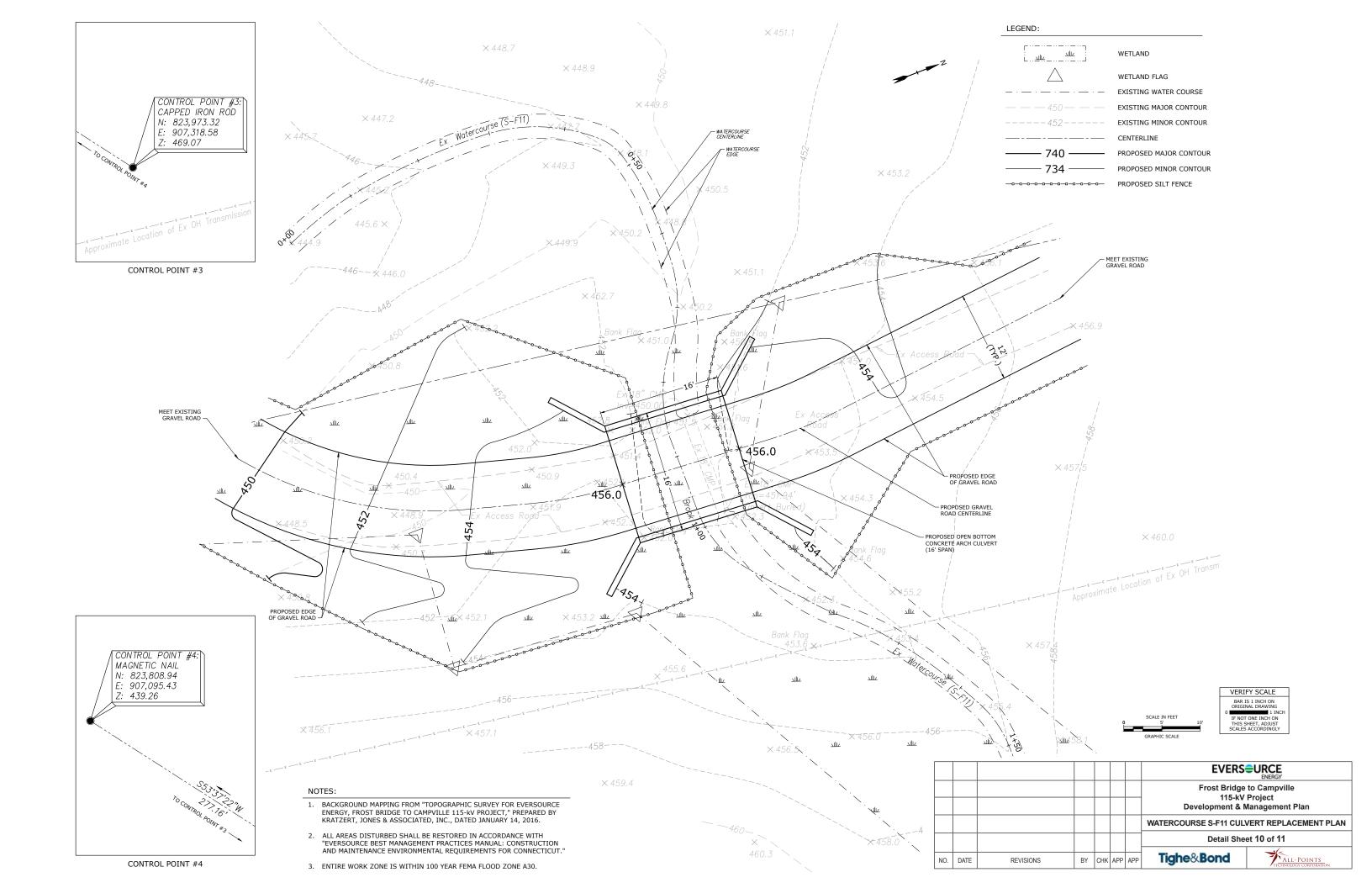
STEEL POLES

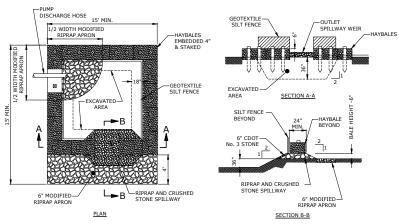
CONNECTOR, GROUND, TANK CONNECTOR, VISE, BRONZE, **ANCHOR** CABLE, 3 NO. 8 COPPERWELD "W" BARS IN TWO BAR BUNDLES EQUALLY SPACED CABLE, 3 NO. 8 COPPERWELD -RING -TORQUE HEAD SHEAR-OFF BOLT BOLT GROUND LINE CIRCLE - CABLE, 3 NO. 8 COPPERWELD IN A CIRCULAR CAGE CONNECTOR, GROUND CABLE GROUND RING TO 5/8" ROD SECTION A
(FOR DOUBLE BUNDLED BARS) CONNECTOR, VISE, BRONZE, -CONNECTOR, VISE, BRONZE, TORQUE HEAD SHEAR—OFF BOLT TORQUE HEAD SHEAR-OFF BOLT-DIAMETER - ROD, GROUND SECTIONAL, 6 FT. to 10 FT. COPPERBOND, 5/8" X 8' CONNECTOR, VISE, BRONZE, TORQUE HEAD SHEAR-OFF BOLT — DIAMETER 6 FT. to 10 FT. <u>GR</u> SECTIONALIZED GROUND ROD - CABLE, 3 NO. 8 COPPERWELD "W" BARS EQUALLY SPACED **ANCHOR** IN A CIRCULAR CAGE BOLT - CONNECTOR, GROUND, TANK CIRCLE SECTION A (FOR SINGLE BARS) SECTIONALIZED GROUND ROD (GR) - SECTIONALIZED GROUND ROD (GR) (AS REQUIRED) -(AS REQUIRED) ANCHOR BOLT SIZE, € ANCHOR BOLT THREADED LENGTH STUD, DRIVING FOR 5/8" (PROJECTION) AND SPACING AS NOTED - BASE ON MFGR'S DWG. PLATE COUPLING ROD TOP OF CONNECTOR, GROUND, TANK CONCRETE -CONNECTOR, VISE, BRONZE, TORQUE HEAD SHEAR—OFF BOLT └3" MAX. ROD, GROUND SECTIONAL, COPPERBOND, 5/8" X 8' TYPICAL ANCHOR BOLT DETAIL GROUND RING
FOUNDATION-MOUNTED
STEEL POLES SECTIONALIZED GROUND ROD EXTENSION

#### INSTALLATION NOTES:

- 1. CONSTRUCTION CONTRACTOR TO INSTALL BASE GROUND RING ASSEMBLY (SEE GROUND RING DETAILS) AT EVERY STRUCTURE LOCATION.
- 2. CONSTRUCTION CONTRACTOR TO TAKE RESISTIVITY MEASUREMENTS IF THE READINGS ARE ACCEPTABLE, THEN DONE.
  3. IF THE RESISTIVITY READINGS ARE UNACCEPTABLE (TOO HIGH) AND THE SOIL PROFILE ALLOWS; INSTALL GROUND
- RODS (ASSEMBLY GR) PER DETAIL AND NOTES. TAKE RESISTIVITY MEASUREMENTS IF ACCEPTABLE, THEN DONE.
- 4. IN LOCATIONS WHERE THE STRUCTURE IS LOCATED IN A WETLAND AREA, THE PREFERRED METHOD OF GROUNDING IS THE GROUND RING AND GROUND RODS.

									EVERS=URCE ENERGY	
<b>♦</b> BURN	IS ONNELL								Frost Bridge to Campville	
MSD	ONNELL								115-kV Project Development & Management Plan	
83	707								TYPICAL FOUNDATION AND GROUNDING DET	AILS
date APR. 25, 2016	detailed M. PEPICH								Detail Sheet 09 of 11	
designed V. MONTEMURRO	checked M. HATFIELD	NO.	DATE	REVISIONS	BY	CHK	APP	APP	Tighe&Bond ALL-POINTS	

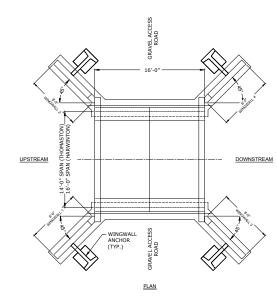


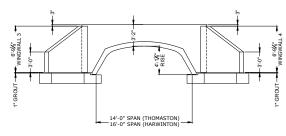


#### NOTES:

- VOLUME OF SETTLING BASIN (IN CUBIC FEET)
   SHALL BE EQUAL TO THE PEAK PUMP DISCHARGE (IN GPM; MIII TIPI IED BY 16.
- LOCATE SETTLING BASIN SUCH THAT SURFACE WATER IS DIRECTED AROUND IT.
- 3. VOLUME IS MEASURED FROM CREST OF SPILLWAY.

### PUMPING SETTLING BASIN INTERMEDIATE VOLUME NO SCALE



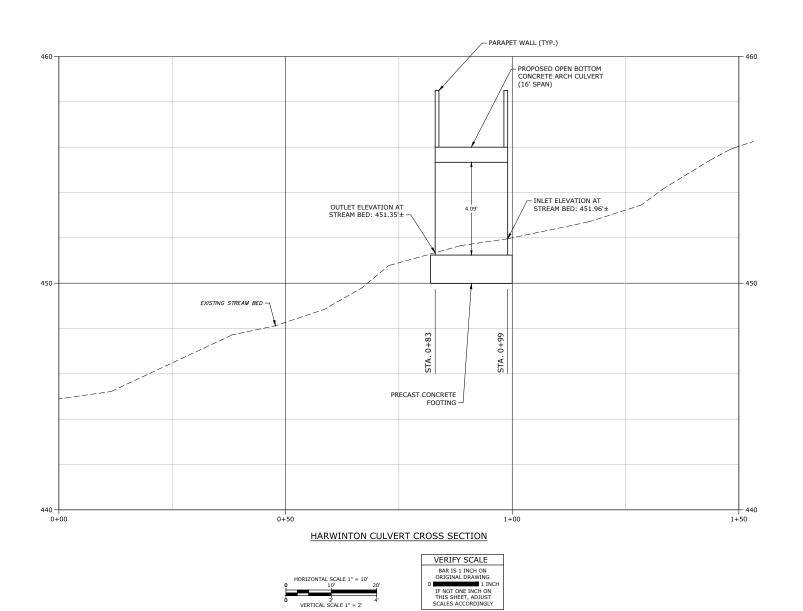


#### DOWNSTREAM ELEVATION

#### NOTE

CONSPAN O-SERIES STRUCTURE OR EQUAL.

OPEN BOTTOM CONCRETE <u>ARCH CULVERT</u> SCALE: 3/16" = 1'-0"



NO. DATE

REVISIONS

**EVERSURCE** 

Frost Bridge to Campville 115-kV Project Development & Management Plan

WATERCOURSE S-F11 CULVERT REPLACEMENT CROSS SECTION AND DETAILS Detail Sheet 11 of 11

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BY CHK APP APP

ALL-POINTS