APPENDIX B
Wetland Environmental Report

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1.0 Introduction

The New York Power Authority (NYPA) and Niagara Mohawk Power Corporation (Niagara Mohawk) propose to upgrade the existing Tri-Lakes Region electric delivery facilities by installing a new 46 kV line in the Adirondack State Park within St. Lawrence County called the "Tri-Lakes Reliability Project." This project will be approximately 25-30 miles in length. To determine the most appropriate route approximately 60 miles of alternate routes were studied. The resulting Preferred and Alternate Routes were evaluated in detail.

The Preferred Route begins at a new Stark Falls Substation and extends through the community of Sevey, near the intersection of State Routes 3 and 56, and ends at the existing Piercefield Substation. The Alternate Route begins at a new substation at Newton Falls and also extends through Sevey Corners, continuing to the Piercefield Substation. Therefore, both routes share a segment route from Sevey Corners to Piercefield. Project Area maps (Figure B-1) are provided in Attachment 1. This report provides descriptions of freshwater wetlands and surface water bodies that have been delineated along or in the vicinity of the project.

Wetlands fall under the jurisdiction of the Adirondack Park Agency (APA) and the U.S. Army Corp of Engineers (ACOE). The APA defines wetlands as:

> (1) lands and submerged lands, commonly called marshes, swamps, sloughs, bogs, and flats which are seasonally or permanently flooded or contain sufficiently water- logged soils to support and give a competitive advantage to the aquatic or semi- aquatic vegetation set forth by common name, genus and species in the individual definitions of "artificial mudflats," "bog," "coniferous swamp," "deciduous swamp," "deep water marsh," "emergent marsh," "shrub swamp," or "wet meadow" in this section;
>
> (2) lands and submerged lands containing remnants of any nonaquatic or semiaquatic vegetation that has died because of prolonged wet conditions not exceeding a maximum seasonal water depth of six feet and which, barring human intervention, can be expected to persist indefinitely;
>
> (3) lands and open water substantially enclosed by the aquatic or semi-aquatic vegetation referred to in paragraph (1) or by the dead vegetation referred to in paragraph (2) of this definition, the regulation of which is necessary to protect and preserve the aquatic or semi-aquatic vegetation; and
>
> (4) the waters overlying the lands referred to in clauses (1) and (2) and the lands underlying the open waters referred to in paragraph (3) of this definition. The agency will determine whether wetlands are present, and delineate their boundaries.

The ACOE defines wetlands as:

> Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (ACOE, 1987).

Wetlands provide critical habitat to a variety of plants and animals, which are often dependant upon the characteristic attributes of wetland ecosystems. These areas are typically abundant with vegetation that offers food, nesting substrates, and essential cover for numerous species during breeding seasons, migration, and winter months.

In addition to wildlife value, wetlands offer hydrological benefits such as water quality improvement, floodwater retention, and erosion control. Water quality is improved through the removal and retention of

nutrients, the processing of organic and chemical wastes, and the reduction of sediment load. During flood periods, wetlands act to alleviate rising storm waters by serving as temporary storage areas and protecting downstream areas from flood damage. Also, because wetlands serve as buffers between land and water, they significantly decrease stream-bank and shoreline erosion. Therefore, alterations or the destruction of wetlands may result in a decline in water quality downstream or in adjacent lakes.

In addition, wetlands have a recreational significance as they contribute to the aesthetic value of the landscape as well as provide habitat to numerous game species of fish and wildlife. For example, these areas provide important hunting, fishing, bird watching, photography and other recreational opportunities.

2.0 Materials and Methods

Information reviewed prior to field mobilization included USGS 7.5-minute topographic maps for Piercefield, Mount Matumbla, Childwold, Brother Ponds, Cranberry Lake, Newton Falls, Oswegatchie, and Stark. National Wetland Inventory maps based on USGS topographic maps are currently unavailable for the region in which the Tri-Lakes Reliability Project occurs. St. Lawrence County soils maps are currently under revision and were also unavailable during field delineations.

Wetlands within the project area were determined by either field delineation or aerial photo interpretation. The protocol for field delineation (Attachment 2) included methods described the 1987 Corps of Engineers Wetlands Delineation Manual and the 1985 New York State Freshwater Wetlands Delineation Manual (Brown *et al.* 1995). Approximately 40 miles of the proposed ROW was field delineated, the remaining 15 miles were photo interpreted (unable to gain access). Photo interpretation was accomplished using 1:200 scale color infra red aerial photography flown in 2003. Cover classes for wetlands were based on the National Wetland Inventory classification hierarchy (Cowardin *et al*. 1979). Regardless of whether a wetland was field delineated or photo interpreted, cover classes were assigned by determining the most abundant cover class in the wetland. A wetland was assigned multiple cover classes if more than one class comprised at least 30 percent areal coverage.

2.1 Field Delineation Methods

Wetland delineation of the Tri-Lakes Reliability Project Preferred and Alternate Routes was conducted between Monday, May 9, 2005 and Friday, May 27, 2005. For wetland crossings greater than 50 feet in length, delineation followed the protocol detailed in the ACOE 1987 Wetland Delineation Manual using the routine on-site wetland determination method. This method incorporates a three-parameter approach using vegetation, soils and hydrology to identify the presence of freshwater wetlands. Wetlands less than 50 feet in length were delineated using the parameters of vegetation and hydrology as per Browne *et al*., (1995). Wetland crossings that were between 50 feet and 100 feet in length along the ROW were inspected for all three parameters using one wetland sample station and one upland sample station. Wetlands crossings greater than 100 feet were delineated using a pair of sample stations at each side of the crossings. Wetland boundaries were identified in the field with pink surveyor flagging, and corresponding GPS waypoints were recorded using Trimble© GeoXT™ handheld units.

Wetland boundaries were initially identified through visual assessment of vegetation and hydrology. This visual boundary was used to establish two sample points (one wetland and one upland) to verify the boundary of the wetland by analyzing dominant vegetation, soil classification, and hydrology at each sample point. Dominant vegetation in each strata (tree, shrub, herbaceous) was identified using an appropriate regional field guide (Newcomb 1977) and assigned a wetland indicator status obtained from Reed, 1988. The plant communities of each wetland sample and corresponding upland sample were categorized according to a list of ecological communities known to occur in New York State as described in Reschke, 1990.

Soil samples were collected using a hand auger or spade shovel at depths no less than 18 inches unless the auger or spade was refused due to shallow bedrock. Soil characteristics were recorded in standard soil log format using a Munsell Soil Color Chart (Kollmorgen Corporation 1975). A visual assessment of primary (*e.g*., inundation or soil saturation), and secondary (*e.g*., oxidized rhizospheres or water-stained leaves) features of wetland hydrology was conducted. Sketch maps and site photographs were recorded concurrent with sample station data. Sample station data sheets (including sketch maps), and wetland photographs recorded during the field efforts are provided in Attachments 4, and 5, respectively.

Delineators characterized all wetlands within 50 feet of either side of the centerline of the proposed ROWs. Several sections of the Project occurred immediately adjacent to unimproved roads or jeep trails. In these circumstances, teams conducted delineations from the edge of the unimproved road/jeep trail to a boundary line 100 feet from the ROW. In other sections, existing paved roads fell within the ROW limits and no adjustment to survey width was made.

Since the segment of ROW between Sevey Corners and Piercefield is common to both the Preferred and Alternate Routes, delineators labeled wetlands and surface waterbodies according to three route segments: Stark Falls – Sevey Corners, Newton Falls – Sevey Corners, and Sevey Corners – Piercefield. This was necessary to maintain unique wetland identification nomenclature for each wetland. Therefore, the Preferred Route contains the wetlands delineated on the Stark Falls and Piercefield routes, while the Alternate Route contains the wetlands that were delineated on the Newton Falls and Piercefield routes. Wetland nomenclature consisted of alphanumeric coding and included the route and reference marker on which it was located, the team responsible for delineation, and wetland identification letter and flag number. For example, Wetland N3-2C-1 is located within reference marker 3 of the proposed Newton Falls route and was delineated by Team 2. It is labeled as wetland C, flag 1 within this mile marker.

2.2 Function and Value Determination Methods

A functions and values indicator was calculated for each wetland based on various parameters as described in the APA regulations Part 578: Special Provisions Relating to Freshwater Wetlands. Wetland characteristics including covertype, heterogeneity, relation to surface water systems, species diversity, and cultural and geological significance were investigated during this analysis. Each wetland was scored a value between one and four according to the presence of one or more of these characteristics. An overall wetland value was then calculated. Where a wetland contains multiple values based upon more than one characteristic:

(a) The overall wetland value cannot be lower than its highest associated value.

(b) Three or more medium value characteristics (3) raise a wetland's associated value to high (2).

(c) Three or more high value characteristic (2) raise a wetland's associated value to highest (3).

2.3 Stream Delineation Methods

Streams and waterbodies as shown in Attachment 6, that cross the Preferred or Alternate Routes were identified in the field and recorded on stream datasheets (Attachment 7). Characteristics including width, depth, substrate and bankside vegetation were noted. Wetland drainages were noted on sketch maps but not recorded on stream sheets unless definite features of streambed and bank were observed. Stream and waterbody boundaries were flagged with surveyor flagging and GPS waypoints were recorded. Streams and waterbodies located in areas that were restricted for access during field efforts were delineated by aerial photograph interpretation by the same method used for wetlands located in no access areas. Waterbody nomenclature was similar to that established for wetlands with the addition of "-ST" at the terminal end to indicate the presence of a stream versus a wetland.

3.0 Results

The Tri-Lakes Reliability Project largely falls within the St. Lawrence River watershed, but portions also occur in the Oswegatchie and Black watersheds. On a watershed basis wetlands cover 12.8 percent of the St. Lawrence watershed (Karasin *et al*. 2002), and 15.2 percent of the area in the Oswegatchie and Black watersheds (Roy *et al*. 1996). Wetlands within the St. Lawrence River watershed are ecologically unusual because of the concentration of large peatland complexes. This watershed contains nearly all the low elevation boreal habitat found in the Adirondack Park. Three quarters of the land in this watershed basin is wilderness, wild forest or resource management, resulting in large contiguous forest areas.

3.1 Wetlands

Approximately 47 miles of ROW were delineated for wetlands during field efforts. Aerial photograph interpretation was used to delineate wetlands along approximately eight miles of ROW with restricted access areas. All wetlands delineated during field efforts and through aerial photograph interpretation are classified as palustrine; however, specific vegetation covertypes of wetlands delineated from aerial photography could not be determined. A list of all delineated wetlands is available in Table 3-1, Wetlands Crossings. Figure B-2 (Attachment 3) depicts delineated wetlands.

The route from Sevey Corners to Piercefield is common to both the Preferred Route and the Alternate Route. This portion of the Project Area contains the lowest number of wetlands (28) and as a result has the lowest observed total wetland crossing distance (4,379 feet). The ROW along the Preferred Route (Stark Falls to Piercefield) crosses 97 wetlands. This is a total of 15,683 linear feet of wetland crossings, occupying an area of 13.7 acres within the ROW. Approximately 48 percent of the wetland landscape (6,498 linear feet, 6.6 acres) is classified as entirely forested (Table 3-2, Summary of Wetlands Crossings by Cover Class), although additional wetlands contain forested community characteristics in combination with emergent and/or scrub shrub communities, as discussed below. The forested wetland covertypes encountered during field delineation that occupy the most significant percentage of wetland area along the Preferred Route include balsam fir-tamarack swamp (21 percent or 3.4 acres), spruce-fir swamp (8 percent or 1.1 acres), red maple hardwood swamp (7 percent or 1.0 acre), and black spruce-tamarack bog (5 percent or 1.0 percent). Specific community characteristics of all vegetation covertypes encountered during field efforts are detailed in Section 3.4.

Emergent wetlands constitute approximately 9 percent of the total wetland area delineated along the Preferred Route, occupying a total area of 1.3 acres of the ROW. Persistent and non-persistent grasses, rushes, sedges, and forbs dominate these areas. Shallow emergent marsh and wet meadow are the most significant covertypes of emergent marshes along this route. However, this may under-represent the actual amount of emergent wetlands, because emergent wetlands are commonly found in combination with forested wetland areas; as a result, there is a relatively high percentage of wetlands along this route that are classified as forested/emergent (24 percent or 3.3 acres). Forested/emergent wetlands are typical of areas with breaks in canopy coverage as a result of beaver activity, downed trees associated with shallow root systems, and forest edge related to streams or human disturbance, where there is sufficient light to support emergent vegetation.

Table 3-1. Wetlands Crossings						
ID	**Route[1]**	**Class**	**Covertype[2]**	**Overall Functions/ Values Score[3]**	**Average Crossing Length (Feet)**	**Acres of New ROW**
Stark Falls Segment						
S2-2A	P	PFO/PEM	spruce-fir swamp	2	103	0.08
S2-2B	P	PFO/PSS	balsam fir bog	2	171	0.11
S2-2D/E	P	PSS	alder thicket	3	124	0.08
S2-3A	P	PFO/PEM	spruce-fir swamp/shallow emergent marsh	2	293	0.20
S2-3B	P	PFO	spruce-fir swamp	4	161	0.10
S3-3A/B	P	PFO	red maple hardwood swamp	2	228	0.20
S3-3C/D	P	PFO	red maple hardwood swamp	2	427	0.26
S3-3E	P	PFO	red maple hardwood swamp	2	164	0.09
S3-3F	P	PFO	emergent meadow/mixed forest	3	273	0.19
S3-3H	P	PFO/PEM	red maple hardwood swamp/shallow emergent marsh	1	36	0.02
S3-3I	P	PEM	shallow emergent marsh	2	11	0.01
S3-3J/K	P	PFO/PSS	spruce-fir swamp	2	307	0.30
S3-3L	P	PEM	shallow emergent marsh	2	10	0.00
S4-3A	P	PFO	red maple hardwood swamp	2	160	0.09
S4-3B	P	PFO	red maple hardwood swamp	2	60	0.01
S5-3A	P	PSS	dead snags	2	241	0.19
S5-3B/C	P	PEM	floodplain forest	2	20	0.01
S5-3D/E	P	PFO	floodplain forest	2	717	0.49
S5-3F/G	P	PFO/PEM	emergent meadow/mixed forest	1	357	0.17
S6-3A	P	PFO/PEM	emergent meadow/coniferous forest	2	162	0.11
S6-3B/C	P	PFO/PEM	emergent meadow/coniferous forest	2	353	0.27
S6-3D	P	PEM	wet meadow	2	138	0.07
S6-3E	P	PEM	wet meadow	2	37	0.00
S7-3A/B	P	PEM	wet meadow	2	666	0.35
S7-3C	P	PEM	wet meadow	2	202	0.11
S7-3D	P	PEM	disturbed field/graded wetland	2	31	0.02
S7-3E	P	PEM	wet meadow	2	117	0.09
S7-3F	P	PSS	graded roadside ditch	3	105	0.08

Table 3-1. Wetlands Crossings						
ID	Route[1]	Class	Covertype[2]	Overall Functions/ Values Score[3]	Average Crossing Length (Feet)	Acres of New ROW
S7-3G	P	PEM	graded roadside ditch	2	92	0.08
S7-3H/I	P	PFO	maple-aspen-hemlock	2	87	0.05
S7-3J/K	P	PEM	wet meadow	2	571	0.07
S8-3A	P	PEM	wet meadow	2	202	0.16
S8-3B	P	PEM	wet meadow	2	46	0.04
S8-3C	P	PFO/PEM	wet meadow/coniferous forest	2	125	0.08
S8-3D	P	PFO/PEM	wet meadow/coniferous forest	2	126	0.08
S8-3E/F	P	PFO/PEM	wet meadow/coniferous forest	2	816	0.60
S9-2E/F	P	PFO	spruce-fir swamp	3	122	0.08
S9-2J	P	PFO/PEM	maple-fir-black spruce	1	84	0.06
S9-2L/M	P	PFO	mixed conifers	4	66	0.04
ALT1-2A/B	P	PFO/PEM	spruce-fir swamp	2	253	0.44
ALT1-2C	P	PEM	red maple hardwood swamp	2	11	0.00
ALT2-2A/B	P	PEM	shallow emergent marsh	2	40	0.06
ALT2-6A/B	P	PFO/PEM	shallow emergent marsh/balsam fir swamp	2	58	0.10
ALT2-6C/D	P	PFO/PEM	spruce-fir swamp	2	32	0.05
ALT2-6E/F	P	PFO/PEM	spruce-fir swamp	2	195	0.34
ALT2-6G/ALT3-6A	P	PFO/PEM	spruce-fir swamp	2	168	0.29
ALT3-6C/D	P	PEM	shallow emergent marsh	2	63	0.11
ALT3-4B	P	PFO/PSS	black-spruce-tamarack bog	1	23	0.04
ALT3-4C	P	PFO/PSS	black-spruce-tamarack bog	1	16	0.03
ALT3-2A/B	P	PFO/PEM	black-spruce-tamarack bog	1	195	0.06
ALT4-2B	P	PEM	successional red maple hardwood swamp	2	16	0.00
ALT4-2D/E	P	PFO/PEM	spruce-fir swamp	2	89	0.01
ALT4-2F/G	P	PFO	spruce-fir swamp	2	394	0.63
ALT4-2H	P	PFO	black spruce-tamarack bog	2	53	0.03
ALT5-2A through K	P	PFO/PSS/PEM	northern white cedar swamp/shrub swamp	1	18	0.01
ALT5-2M/N	P	PSS/PEM	yellow birch-sphagnum bog peatland	1	71	0.01
ALT5-2O/P	P	PFO/PEM	yellow birch-sphagnum bog peatland	1	32	0.01
ALT5-2Q/R	P	PFO/PEM	hemlock-hardwood swamp	1	22	0.00

Table 3-1. Wetlands Crossings						
ID	**Route[1]**	**Class**	**Covertype[2]**	**Overall Functions/ Values Score[3]**	**Average Crossing Length (Feet)**	**Acres of New ROW**
ALT5-2T/U	P	POW	spruce-fir swamp	2	43	0.03
ALT5-2V/W	P	PFO/PEM	successional red maple hardwood swamp	1	35	0.02
ALT5-2X/Y	P	PFO	red maple hardwood swamp	2	32	0.00
ALT5-3A/B	P	PFO	black spruce-tamarack bog	1	388	0.61
ALT6-3A	P	PFO/PSS	tamarack swamp	2	68	0.02
ALT6-3B	P	PSS	shrub swamp	2	70	0.06
S13-1A/B	P	PFO	hemlock-hardwood swamp	3	84	0.14
S13-1C/D	P	PFO/PEM	hemlock-hardwood swamp/emergent marsh	2	88	0.15
S13-1E/F	P	PFO/PEM	hemlock-hardwood swamp/emergent marsh	2	88	0.15
S13-3A	P	PFO	shrub swamp	4	33	0.06
S13-3B/C/D	P	PFO	balsam fir-tamarack swamp	2	929	1.61
Piercefield Segment						
P1-3A/B	P/A	PFO/PSS	balsam fir-tamarack swamp	2	65	0.08
P1-3C/D	P/A	PSS	shrub swamp	3	80	0.09
P1-3E	P/A	PFO/PSS	red maple hardwood swamp	2	32	0.01
P2-3A/B/C	P/A	PFO/PSS	red maple hardwood swamp	2	30	0.01
P2-3F/G	P/A	PFO/PSS	red maple hardwood swamp	2	40	0.04
P2-3H/I/J	P/A	PSS	disturbed/brushy cleared land	3	181	0.22
P2-3K	P/A	PSS	forest edge/mowed right-of-way	3	192	0.24
P3-1A/B/C	P/A	PFO	balsam fir-tamarack swamp	2	1061	1.19
P5-3A/B	P/A	PSS/PEM	shrub swamp	2	11	0.01
P6-3A	P/A	PFO	brushy cleared land	4	77	0.06
P6-3B/C	P/A	PFO	red maple hardwood swamp	2	448	0.30
P7-1A	P/A	PSS/PEM	shrub swamp	2	319	0.13
P7-1B	P/A	PSS/PEM	shrub swamp	2	2	0.00
P7-1C	P/A	PSS/PEM	shrub swamp	2	85	0.03
P8-1A	P/A	PEM	emergent marsh	2	141	0.04
P8-1B	P/A	PFO	spruce-fir swamp	3	451	0.30
P8-1C	P/A	PFO	spruce-fir swamp	4	57	0.02
P8-2A	P/A	PFO/PEM	shallow emergent marsh	2	29	0.01

Table 3-1. Wetlands Crossings						
ID	**Route[1]**	**Class**	**Covertype[2]**	**Overall Functions/ Values Score[3]**	**Average Crossing Length (Feet)**	**Acres of New ROW**
P8-2B	P/A	PEM	shallow emergent marsh	2	62	0.05
P8-2C	P/A	PFO	not recorded	3	26	0.00
P8-2D	P/A	PSS/PEM	shrub swamp	2	19	0.01
P9-2A	P/A	PEM	shallow emergent marsh	2	33	0.02
P9-2B/C/D	P/A	PSS	alder thicket/tamarack swamp	3	514	0.45
P9-2F	P/A	PSS	alder thicket	3	7	0.00
P9-2H	P/A	PSS	alder thicket/willow	3	84	0.03
P9-2I	P/A	PFO/PSS	spruce-fir swamp	2	104	0.06
P11-4A	P/A	PFO/PSS	red maple hardwood swamp	3	171	0.15
P11-4C	P/A	PFO/PSS/PEM	red maple hardwood swamp/emergent marsh	3	57	0.09
Newton Falls Segment						
N1-1A	A	PSS	shrub swamp	2	35	0.04
N1-1B	A	PSS/PEM	shrub swamp	2	353	0.28
N1-1C/D	A	PSS/PEM	shrub swamp	2	568	0.66
N1-1G	A	PSS	shrub swamp	3	60	0.05
N1-1H/I	A	PEM	emergent marsh	2	127	0.09
N1-1J/K	A	PEM	emergent marsh	2	11	0.01
N1-1L	A	PFO/PEM	red maple hardwood swamp/emergent marsh	1	39	0.02
N1-1M	A	PEM	emergent marsh	2	53	0.04
N2-1A/B	A	PFO	beech-maple	2	9	0.01
N2-1C/D	A	PFO	red maple hardwood swamp	2	41	0.07
N2-1E/F	A	PFO	red maple hardwood swamp	2	21	0.03
N2-1G/H	A	PSS	shrub swamp	3	28	0.05
N2-1I/J	A	PFO	red maple hardwood swamp	2	61	0.09
N2-1K	A	PSS	red maple hardwood swamp	2	43	0.07
N3-3A	A	PFO	beech-maple	2	10	0.02
N3-3B/C	A	PFO	spruce-fir swamp	4	90	0.15
N3-3D/E	A	PFO	red maple hardwood swamp	2	45	0.07
N3-3F/G	A	PFO	spruce-fir swamp	4	301	0.51
N3-3H/I/J/K	A	PFO/PEM	red maple hardwood swamp/shallow emergent marsh	1	297	0.53

Table 3-1. Wetlands Crossings						
ID	Route[1]	Class	Covertype[2]	Overall Functions/ Values Score[3]	Average Crossing Length (Feet)	Acres of New ROW
N4-2A/B	A	PFO	red maple hardwood swamp	2	12	0.02
N4-2C/D	A	PFO/PEM	maple-birch-hemlock	1	198	0.24
N4-3D/E	A	PFO	red maple hardwood swamp	2	67	0.11
N4-3F/G	A	PFO	red maple hardwood swamp	2	78	0.13
N5-2A/B	A	PFO/PEM	spruce-fir swamp	2	640	1.10
N5-2D	A	PFO/PSS/PEM	spruce-fir swamp	2	32	0.06
N5-2G/H	A	PFO/PSS	hemlock-hardwood swamp	2	88	0.16
N5-2I/J	A	PFO	spruce-fir swamp	4	223	0.38
N5-2K/L	A	PFO/PEM	red maple hardwood swamp	1	63	0.11
N6-2A/B	A	PFO	spruce-fir swamp	3	347	0.57
N6-2C/D	A	PSS/PEM	beech-maple	1	65	0.12
N6-2E/F	A	PSS/PEM	shrub swamp	2	208	0.30
N6-2G/H	A	PFO	successional beech-maple	2	83	0.15
N6-ALT-1A	A	PEM	shallow emergent marsh	2	128	0.20
N6-2N	A	PFO/PSS	not recorded	2	29	0.06
N7-1A/B	A	PFO	red maple hardwood swamp	2	47	0.08
N7-1E/F/G	A	PFO/PSS/PEM	red maple hardwood swamp	1	223	0.41
N7-2A	A	PFO	successional beech-maple	2	8	0.00
N7-4A	A	PSS/PEM	not determined	2	45	0.02
ALTC-1A/B	A	PFO	red maple hardwood swamp	2	16	0.02
ALTC-1C/D	A	PFO	red maple-tamarack peat swamp	2	141	0.24
ALTC-1E/F	A	PSS	spruce-fir swamp	3	257	0.44
ALTC-1G/H/I	A	PFO	red maple hardwood swamp	2	427	0.70
ALTC-1J/K	A	PFO/PSS/PEM	spruce-fir swamp/fen	2	657	1.13
N9-1A	A	PSS	tamarack-fir swamp	3	125	0.04
N9-1B/C	A	PFO	beech-maple	2	26	0.02
N9-1E	A	PSS/PEM	shrub swamp	2	58	0.05
N9-1F	A	PSS	alder thicket	3	123	0.11
N9-1G	A	PSS	alder thicket	3	145	0.14
N9-1H/I	A	PFO	red maple hardwood swamp	2	18	0.03

Table 3-1. Wetlands Crossings						
ID	Route[1]	Class	Covertype[2]	Overall Functions/ Values Score[3]	Average Crossing Length (Feet)	Acres of New ROW
N10-1A/B	A	PFO/PSS/PEM	tamarack swamp	2	270	0.19
N10-2A/B	A	PFO/PSS/PEM	tamarack-shrub swamp	2	205	0.17
N11-2A/B	A	PFO/PSS	tamarack swamp	2	129	0.11
N11-2C/D	A	PFO/PSS	tamarack swamp	2	324	0.27
N11-2E/F	A	PSS	alder thicket	3	19	0.01
N11-2H/I	A	PSS	red maple-tamarack peat swamp	2	131	0.09
N11-2J/K	A	PSS	tamarack swamp	3	705	0.60
N12-3A/B	A	PSS/PEM	shrub swamp	2	325	0.30
N12-3C/D	A	PFO	spruce-fir swamp	4	227	0.18
N12-3E	A	PFO	spruce-fir swamp	4	49	0.01
N12-3F	A	PFO	spruce-fir swamp	4	34	0.01
N12-3G/H	A	PFO	spruce-fir swamp	4	269	0.20
N13-3A/B	A	PEM	spruce-fir swamp	2	102	0.09
N14-3A	A	PEM	shallow emergent marsh	2	181	0.25
N14-3B	A	PEM	shallow emergent marsh	2	110	0.07
N14-3C/D	A	PFO/PSS	not recorded	2	355	0.69
N15-4A	A	PEM	not determined	2	158	0.24
N15-4B	A	PSS	not determined	3	106	0.18
N15-4C	A	PSS	not determined	3	236	0.40
N16-4A	A	PFO/PSS	not determined	2	243	0.42
N16-4B	A	PSS	not determined	3	109	0.18
N17-4A	A	PFO	not determined	4	256	0.44
N17-4B	A	PEM	not determined	2	246	0.42
N18-4A	A	PFO/PSS	not determined	2	312	0.54
N18-4B	A	PSS	not determined	3	162	0.28
N18-4C	A	PEM	not determined	2	195	0.34

[1] P=Preferred, A=Alternate, P/A=common to both Preferred and Alternate
[2] Communities were not determined for wetlands delineated by aerial photo interpretation.
[3] The wetland value ratings were determined from guidance provided in the Adirondack Park Agency Rules and Regulations, Part 578. This rating system assigns a value of one to four with one being the highest. The value ratings indicate the overall worth of a given wetland based on wetland cover type, and specific intrinsic and extrinsic wetland characteristics as defined in Parts 578.5 and 578.6.

Table 3-2. Summary of Wetlands Crossings by Cover Class				
Cover Class	Preferred Route		Alternate Route	
	Linear Feet	Acres	Linear Feet	Acres
PFO	6,498	6.6	5,028	6.1
PSS	1,600	1.4	3,341	3.7
PEM	2,510	1.3	1,548	1.8
POW	43	0.03	0	0
PFO/PSS	856	0.7	1,924	2.6
PFO/PEM	3,543	3.3	1,267	2.0
PSS/PEM	506	0.20	2,055	1.9
PFO/PSS/PEM	127	0.20	1,443	2.0
POW/PEM	0	0	0	0
Total	15,683	13.7	16,605	20.2

Scrub-shrub wetlands occurring within the ROW along the Preferred Route are also frequently found in association with forested wetland cover types such as tamarack swamps and spruce-fir swamps. Less than 1 percent of the scrub-shrub wetlands along this route are found in combination with emergent communities. A total of 1,600 linear feet of wetlands, comprising 1.4 acres, are classified as scrub-shrub with no forest community. These areas are characteristic of shrub swamp/alder thicket communities that contain shrubs and sapling-age tree species that do not exceed 20-feet in height.

The ROW following the Alternate Route (Newton Falls to Piercefield) crosses more wetland complexes (103) than the Preferred Route and results in a greater linear crossing distance of 16,605 feet and occupies an area of 20.2 acres within the ROW. Total forested wetland crossings along this route is less compared to the Preferred Route (5,028 linear feet, 6.1 acres) while forested/shrub-scrub complexes are slightly higher (1,924 linear feet, 2.6 acres). Common forested wetland cover types along the Alternate Route are spruce-fir swamp and red maple hardwood swamp. Shrub swamp/alder thicket communities comprise the highest amount of wetlands classified as scrub-shrub along the Alternate Route.

3.2 Surface Waterbodies

The Alternate Route crosses tributaries of the Oswegatchie, Raquette and South Branch Grasse Rivers as well as the main branch of the Oswegatchie approximately 1 mile northeast of the town of Newton Falls. These watersheds ultimately drain to the northeast in the Upper St. Lawrence River watershed. Table 3-3 lists each watercourse crossed by the project and the legal status of each waterbody. Figure B-3 (Attachment 6) depicts stream crossings. The Oswegatchie River crossing is approximately 300 feet wide and representative of a midreach stream with a medium flow rate and alternating pools and riffles. Small headwater streams comprise the largest amount of riverine aquatic habitat traversed by the proposed ROW, including rocky headwater streams, marsh headwater streams, and intermittent streams. Most streams in the project area have substrates composed of a cobble-gravel material (Reschke 1990). Bed and bank characteristics of streams encountered during field delineation efforts are tabulated in Table 3-4, Recorded Characteristics of Streams Crossed by the Tri-Lakes Project. Portions of the Preferred Route are located adjacent to Carry Falls Reservoir and Stark Falls Reservoir, which are lacustrine communities produced by impoundments in the Raquette River. These impoundments are not crossed by the Project.

Table 3-3. Waterbodies Crossed by the Tri-Lakes Reliability Project					
Stream Identification Number [1]	**Channel Identifier [2]**	**Waterbody Name**	**Flow Regime**	**Legal Status [3]**	**Route [4]**
Delineated During Field Efforts Newton Falls – Sevey Corners Segment					
N/A	N1-1B-ST	Trib. Oswegatchie River	Perennial	N/A	A
N/A	N1-1C/D-ST	Trib. Oswegatchie River	Perennial	N/A	A
A15P910-1090	N1-1G-ST	Trib. Oswegatchie River	Perennial	C	A
A15P910-1090	N1-1H/I-ST	Trib. Oswegatchie River	Perennial	C	A
N/A	N1-1J/K-ST	Trib. Oswegatchie River	Perennial	N/A	A
N/A	N1-1M-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N2-1A/B-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N2-1C/D-ST	Trib. Oswegatchie River	Intermittent	N/A	A
A15P910-1091	N2-1G/H-ST *	Trib. Oswegatchie River	Perennial	A(T); Study River	A
A15P910-1091	N3-3A-ST *	Oswegatchie River	Perennial	A(T); Study River	A
N/A	N4-3A/B-ST	Trib. Moosehead Pond Outlet	Intermittent	N/A	A
N/A	N4-3C-ST	Trib. Moosehead Pond Outlet	Intermittent	N/A	A
N/A	N4-3D/E-ST	Trib. Moosehead Pond Outlet	Perennial	N/A	A
A15P910-1582	N5-2C/D-ST	Tooley Pond Outlet	Perennial	D	A
A15P910-1582	N5-2E/F-ST *	Trib. Tooley Pond Outlet	Perennial	D	A
N/A	N6-2B-ST	Trib. Oswegatchie River	Intermittent	N/A	A
A15P910-1091	N6-2C-ST	Trib. Oswegatchie River	Perennial	A(T)	A
A15P910-1091	N6-2D-ST	Trib. Oswegatchie River	Intermittent	A(T)	A
N/A	N6-2N-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N7-1A/B-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N7-1C-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N7-1D-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N7-1E/F/G-ST	Trib. Oswegatchie River	Intermittent	N/A	A
A15P910-1049	ALT C-1A/B-ST	Dead Creek	Intermittent	C(T)	A
N/A	ALT C-1G-ST	Trib. Dead Creek	Perennial	N/A	A
A15P910-1585	ALT C-1J/K	Trib. Tooley Pond Outlet	Perennial	C(T)	A
A15P910-1049	N9-1B/C/D-ST	Trib. Dead Creek	Perennial	C(T)	A
N/A	N9-1F-ST	Trib. Dead Creek	Intermittent	N/A	A
N/A	N9-1G-ST	Trib. Dead Creek	Intermittent	N/A	A
A15P910-1049	N10-1A-ST	Trib. Dead Creek	Perennial	C(T)	A
A15P910-1049	N10-1A/B-ST	Trib. Dead Creek	Intermittent	C(T)	A
A15P910-1049	N10-2A-ST	Trib. Dead Creek	Perennial	C(T)	A
A15P910-1034	N11-2E/F-ST *	South Branch Grasse River	Perennial	C(T); Scenic	A
N/A	N11-2E/F-ST	South Branch Grasse River	Intermittent	N/A	A
A15P910-1034	N11-2J/K-ST	South Branch Grasse River	Perennial	C(T); Scenic	A
A15P910-1049	N12-3A/B-ST *	Dead Creek	Perennial	C(T)	A
A15P910-1034	N13-3A/B-ST	Trib. South Branch Grasse River	Perennial	C(T)	A
N/A	N14-3A-ST	Trib. South Branch Grasse River	Intermittent	N/A	A
Sevey Corners – Piercefield Segment					
A15P910-1061	P2-3F/G-ST	Trib. Jocks Pond Outlet	Perennial	C(T)	P/A
A15P910-1061	P3-1A-ST	Jocks Pond Outlet	Perennial	C(T)	P/A
N/A	P3-1D-ST	Jocks Pond Outlet	Intermittent	N/A	P/A
N/A	P5-3A/B-ST	Unnamed	Perennial	N/A	P/A
N/A	P7-1C-ST	Unnamed	Perennial	N/A	P/A
N/A	P8-1A-ST	Unnamed	Perennial	N/A	P/A
A15P910-608	P8-1B-ST	Unnamed	Perennial	D	P/A
N/A	P8-1B-ST-A	Unnamed	Intermittent	N/A	P/A
N/A	P8-1B-ST-B	Unnamed	Intermittent	N/A	P/A
N/A	P8-2C-ST	Unnamed	Perennial	N/A	P/A
N/A	P9-2B/C/D-ST	Trib to Dead Creek	Intermittent	N/A	P/A
A15P910-610	P9-2E-ST *	Dead Creek	Perennial	C	P/A
A15P910-608	P10-1A-ST	Trib. to Raquette River	Intermittent	D	P/A

Table 3-3. Waterbodies Crossed by the Tri-Lakes Reliability Project					
Stream [1] Identification Number	**Channel Identifier [2]**	**Waterbody Name**	**Flow Regime**	**Legal Status [3]**	**Route [4]**
Stark Falls – Sevey Corners Segment					
A15P910-488	S2-2D/E-ST	Cold Brook	Perennial	C(T)	P
A15P910-488	S2-3A-ST	Cold Brook	Perennial	C(T)	P
N/A	S3-3C/D-ST	Trib. Cold Brook	Perennial	N/A	P
N/A	S3-3F-ST	Trib. Cold Brook	Intermittent	N/A	P
N/A	S3-3I-ST	Trib. Cold Brook	Intermittent	N/A	P
A15P910-488	S3-3J/K-ST *	Trib. Cold Brook	Perennial	C(T)	P
N/A	S4-3A-ST	Trib. Cold Brook	Intermittent	N/A	P
A15P910-517	S5-3A-ST	Trib. Felton Brook	Perennial	C(T)	P
N/A	S5-3B/C-ST	Trib. Felton Brook	Perennial	N/A	P
A15P910-517	S5-3D/E-ST	Felton Brook	Perennial	C(T)	P
N/A	ALT2-2A/B-ST	Trib. Crooked Lake	Perennial	N/A	P
A15P910-581	ALT2-6C/D-ST	Trib. Crooked Lake	Intermittent	C(T)	P
N/A	ALT4-2C-ST	Unnamed	Intermittent	N/A	P
A15P910-1053	ALT4-2F/G-ST	Trib. Dead Creek	Intermittent	C(T)	P
A15P910-1051	ALT5-2A-ST	Trib. Windfall Brook	Perennial	C(T)	P
N/A	ALT5-2Q/R-ST	Trib. Windfall Brook	Perennial	N/A	P
N/A	ALT5-2T/U-ST	Trib. Windfall Brook	Perennial	N/A	P
A15P910-572	S9-2A/B-ST	Trib. Carry Falls Reservoir	Perennial	C(T)	P
A15P910-572	S9-2C/D-ST	Trib. Carry Falls Reservoir	Perennial	C(T)	P
A15P910-572	S9-2G/H-ST *	Trib. Carry Falls Reservoir	Perennial	C(T)	P
N/A	S9-2K-ST	Trib. Carry Falls Reservoir	Intermittent	N/A	P
N/A	S13-1A/B-ST	Unnamed	Intermittent	N/A	P
A15P910-587	S13-3B/C-ST	Trib. Raquette River	Perennial	C(T)	P
Delineated from Aerial Photograph Interpretation					
A15P910-1582	N7-4A-ST	Trib. Tooley Pond Outlet	Perennial	D	A
A15P910-1051	N17-4B-ST	Windfall Brook	Perennial	C(T)	A
A15P910-1051	N18-4B-ST	Windfall Brook	Perennial	C(T)	A
A15P910-1051	N18-4C-ST	Windfall Brook	Perennial	C(T)	A
N/A	P11-4A-ST	Trib. Raquette River	Intermittent	N/A	P/A
N/A	P11-4B-ST	Trib. Raquette River	Intermittent	N/A	P/A
A15P910-624	P11-4C-ST	Trib. Raquette River	Intermittent	D	P/A

[1] Stream identification numbers identify those streams that are classified NYSDEC streams.

[2] Channel IDs are names arbitrarily assigned to streams that cross the proposed project and indicate approximate locations along the transmission route.

* Indicates streams that are 5 feet or greater in width and, therefore, are APA Navigable Waterways subject to APA Shoreline Restrictions.

[3] Streams are classified according to best usage under 6 NYCRR Part 701 as follows:

- Class A: waters are suitable for drinking, primary and secondary contact recreation and fishing, and for the survival and propagation of fish;
- Class B: waters are suitable for primary and secondary contact recreation and fishing, and for the survival and propagation of fish;
- Class C: waters are suitable for fishing, and for the survival and propagation of fish; and
- Class D: waters are suitable for fishing.

Stream classifications modified by the standard (T), as in C(T), indicate that it may support a trout population.

[4] A = Alternate Route, P = Preferred Route, P/A = common to both Preferred and Alternate Routes

Table 3-4. Recorded Characteristics of Streams Crossed by the Tri-Lakes Reliability Project [1]

Stream Identification Number	Channel Identifier[2]	Waterbody Name	Width (feet)	Depth (feet)	Substrate	Bank Vegetation
Delineated During Field Efforts						
N/A	N1-1B-ST	Trib. Oswegatchie River	2-3	0.5	cobble/gravel/ vegetated	shrub/herbaceous
N/A	N1-1C/D-ST	Trib. Oswegatchie River	2-3	0.5	cobble/gravel/ vegetated	shrub/herbaceous
A15P910-1090	N1-1G-ST	Trib. Oswegatchie River	5	0.3	cobble/gravel	shrub/herbaceous
A15P910-1090	N1-1H/I-ST	Trib. Oswegatchie River	3-4	0.5-1	sand/gravel	herbaceous
N/A	N1-1J/K-ST	Trib. Oswegatchie River	2-3	0.5	muck	herbaceous
N/A	N1-1M-ST	Trib. Oswegatchie River	no data	no data	no data	no data
N/A	N2-1A/B-ST	Trib. Oswegatchie River	1	0.3	-	forested
N/A	N2-1C/D-ST	Trib. Oswegatchie River	1	0.5	sand/gravel	herbaceous/forested
A15P910-1091	N2-1G/H-ST	Trib. Oswegatchie River	5	0.5-1	sand/cobble	herbaceous/shrub
A15P910-1091	N3-3A-ST	Oswegatchie River	230	-	-	forested
N/A	N4-3A/B-ST	Trib. Moosehead Pond Outlet	2-4	0.5	cobble/gravel	shrub/forested
N/A	N4-3C-ST	Trib. Moosehead Pond Outlet	1-3	0.3	cobble/gravel	herbaceous/forested
N/A	N4-3D/E-ST	Trib. Moosehead Pond Outlet	2-4	0.3	cobble/gravel	forested
A15P910-1582	N5-2C/D-ST	Tooley Pond Outlet	155	-	sand/silt	herbaceous/forested
A15P910-1582	N5-2E/F-ST	Trib. Tooley Pond Outlet	5-20	0.5	muck	herbaceous
N/A	N6-2B-ST	Trib. Oswegatchie River	1-2	0.0	soil/muck	herbaceous
A15P910-1091	N6-2C-ST	Trib. Oswegatchie River	3-4	0.5	sand/silt	herbaceous/shrub
A15P910-1091	N6-2D-ST	Trib. Oswegatchie River	1	0.5	silt/muck	herbaceous/forested
N/A	N6-2N-ST	Trib. Oswegatchie River	5	-	-	forested/field
N/A	N7-1A/B-ST	Trib. Oswegatchie River	no data	no data	no data	no data
N/A	N7-1C-ST	Trib. Oswegatchie River	1-3	0.04	cobble/gravel/ silt/boulders	herbaceous/forested
N/A	N7-1D-ST	Trib. Oswegatchie River	2-3	0.1	cobble/gravel	grasses/beech-maple
N/A	N7-1E/F/G-ST	Trib. Oswegatchie River	1-3	0.1-0.3	sand/silt	herbaceous/forested
A15P910-1049	Alt C-1A/B-ST	Dead Creek	2-4	0.5	cobble/grave/ sand	herbaceous/shrub
N/A	Alt C-1G-ST	Trib. Dead Creek	-	-	-	forested
A15P910-1585	AltC-1J/K-ST	Trib. Tooley Pond Outlet	3-5	1.5-2	muck/sand	herbaceous/shrub
A15P910-1049	N9-1B/C/D-ST	Trib. Dead Creek	3-4	0.5	silt/cobble/gravel	herbaceous/forested
N/A	N9-1F-ST	Trib. Dead Creek	1-2	-	silt/cobble/gravel	shrub
N/A	N9-1G-ST	Trib. Dead Creek				
A15P910-1049	N10-1A-ST	Trib. Dead Creek	-	2.0	cobble/gravel/ sand	herbaceous/shrub
A15P910-1049	N10-1A/B-ST	Trib. Dead Creek	-	-	-	shrub/herbaceous
A15P910-1049	N10-2A-ST	Trib. Dead Creek	1-3	0.5	muck/sand	shrub/grass
A15P910-1034	N11-2E/F-ST	South Branch Grasse River	-	-	-	herbaceous/shrub
	N11-2E/F-ST	South Branch Grasse River	-	-	-	shrub/herbaceous
A15P910-1034	N11-2J/K-ST	South Branch Grasse River	45	>5.0	sand/boulder	shrub
A15P910-1049	N12-3A/B-ST	Dead Creek	15	3.0	sand/gravel	herbaceous/shrub
A15P910-1034	N13-3A/B-ST	Trib. South Branch Grasse River	2-4	1-2	sand/gravel	herbaceous
N/A	N14-3A-ST	Trib. South Branch Grasse River	-	-	-	herbaceous
A15P910-1061	P2-3F/G-ST	Trib. Jocks Pond Outlet	1	0.5	-	shrub/forested
A15P910-1061	P3-1A-ST	Jocks Pond Outlet	5-8	0.3	rock	shrub
N/A	P3-1D-ST	Jocks Pond Outlet	3	dry	cobble/gravel/ sand	forested/herbaceous
N/A	P5-3A/B-ST	Unnamed	2-3	0.7	vegetated	herbaceous/shrub
N/A	P7-1C-ST	Unnamed	2	0.4	cobble/gravel/ muck	forested/herbaceous
N/A	P8-1A-ST	Unnamed	2-3	0.5	cobble/gravel	herbaceous

Table 3-4. Recorded Characteristics of Streams Crossed by the Tri-Lakes Reliability Project [1]

Stream Identification Number	Channel Identifier[2]	Waterbody Name	Width (feet)	Depth (feet)	Substrate	Bank Vegetation
N/A	P8-1B-ST	Unnamed	2-3	0.5	sand/cobble/ gravel	herbaceous
N/A	P8-1B-ST-A	Unnamed	1-2	0.25	muck	forested/herbaceous
N/A	P8-1B-ST-B	Unnamed	-	-	-	forested/herbaceous
N/A	P8-2C-ST	Unnamed	1	0.3	muck/boulders	herbaceous/forested
N/A	P9-2B/C/D-ST	Trib. Dead Creek	5-6	0.5-1.0	muck	shrub
A15P910-610	P9-2E-ST	Dead Creek	30	>3.0	muck/sand	shrub
A15P910-608	P10-1A-ST	Trib to Raquette River	10-15	dry	Mossy covered boulders	forested
A15P910-488	S2-2D/E-ST	Cold Brook	3-5	0.5	sand	herbaceous/shrub
A15P910-488	S2-3A-ST	Cold Brook	325	-	-	herbaceous/forested
N/A	S3-3C/D-ST	Trib. Cold Brook	1-3	0.7	sand/gravel/ muck	herbaceous
N/A	S3-3F-ST	Trib. Cold Brook	1	0.5	-	herbaceous/forested
N/A	S3-3I-ST	Trib. Cold Brook	-	-	-	herbaceous/shrub
A15P910-488	S3-3J/K-ST	Trib. Cold Brook	6-10	1-2	sand/muck	shrub
N/A	S4-3A-ST	Trib. Cold Brook	1-3	1.0	sand/gravel/ muck	herbaceous
A15P910-517	S5-3A-ST	Trib. Felton Brook	2-3	1.0	sand/gravel	herbaceous
N/A	S5-3B/C-ST	Trib. Felton Brook	2	1.0	sand/gravel	herbaceous
A15P910-517	S5-3D/E-ST	Felton Brook	3-6	1.0	sand/gravel	herbaceous
A15P910-572	S9-2A/B-ST	Trib. Carry Falls Reservoir	3-5	0.5	cobble/pebble/ sand	grasses
A15P910-572	S9-2C/D-ST	Trib. Carry Falls Reservoir	3-5	0.5	muck	herbaceous/forested
A15P910-572	S9-2G/H-ST	Trib. Carry Falls Reservoir	10-15	<3.0	cobble/pebble	herbaceous
N/A	S9-2K-ST	Trib. Carry Falls Reservoir	2-3	0.1	muck/leaf litter	herbaceous/shrub
N/A	Alt 2-2A/B-ST	Trib. Crooked Lake	3	0.3	cobble/gravel/ sand	herbaceous
A15P910-581	ALT2-6C/D-ST	Trib. Crooked Lake	1-4	0.2-0.4	cobble w/ organics in spots	shrub/forested
N/A	Alt 4-2C-ST	Unnamed	-	-	-	forested/herbaceous
A15P910-1053	Alt 4-2F/G-ST	Trib. Dead Creek	-	-	-	forested
A15P910-1051	Alt 5-2A-ST	Trib. Windfall Brook	3	0.2	sand	herbaceous
N/A	Alt 5-2Q/R-ST	Trib. Windfall Brook	-	-	-	herbaceous/forested
N/A	S13-1A/B-ST	Unnamed	2-5	dry	muck	forested/herbaceous
A15P910-587	S13-3B/C-ST	Trib. Raquette River	-	-	-	shrub/forested
N/A	Alt 5-2T/U-ST	Trib. Windfall Brook	2-5	0.5	muck	herbaceous/forested
Delineated from Aerial Photograph Interpretation						
A15P910-1582	N7-4A-ST	Trib. Tooley Pond Outlet	-	-	-	-
A15P910-1051	N17-4B-ST	Windfall Brook	-	-	-	-
A15P910-1051	N18-4B-ST	Windfall Brook	-	-	-	-
A15P910-1051	N18-4C-ST	Windfall Brook	-	-	-	-
A15P910-624	P11-4A-ST	Trib. Raquette River	-	-	-	-
N/A	P11-4B-ST	Trib. Raquette River	-	-	-	-
N/A	P11-4C-ST	Trib. Raquette River	-	-	-	-

[1] Data does not include streams that were delineated by aerial photo interpretation.

[2] Channel IDs are names assigned to streams that cross the proposed project and indicate approximate locations along the transmission route.

Under the Environmental Conservation Law (Article 15), New York regulates surface freshwater resources within the Project Area as best usage classifications (6 NYCRR Part 701) or as Wild, Scenic and Recreation rivers (6 NYCRR Part 666). State water quality classifications of watercourses crossed by the Preferred and Alternate Routes fall into four categories, including Classes A, B, C, and D streams. Classification A is assigned to waters used as a source for drinking water. Classification B indicates best usage for swimming and other contact recreation, but not for drinking. Classification C is for waters supporting fisheries and suitable for non-contact activities. All other watercourses are designated as D. Waters with classifications A, B, and C may also have a standard of (T), indicating that it may support a trout population, or (TS), indicating that it may support trout spawning. In addition, small lakes and ponds with a surface area of 10 acres or less, located within the course of a stream, are considered to be part of a stream and are subject to regulation under the stream protection category of Protection of Waters.

Eighteen streams and/or their tributaries are traversed by the Preferred or Alternative Routes at 74 locations. Of these, a total of 31 intermittent and 43 perennial stream crossings were identified during field studies. Because some landowners denied permission to access their properties, approximately eight miles of the Preferred and Alternate Routes were not evaluated in the field. For these areas, aerial photograph interpretation revealed that four perennial streams and three intermittent streams traverse the Preferred and Alternative Routes. For all stream crossings, one stream segment and its associated tributaries are classified as A(T); nine stream segments and associated tributaries are classified as C(T) streams; two streams and associated tributaries are classified as C streams; and three stream segments and associated tributaries are classified as D streams. Only streams classified as C or greater are regulated by the State. The South Branch Grasse River is designated as a Scenic River and the Raquette River is designated a Recreational River under the Wild, Scenic and Recreational River Systems Act (Article 15 Title 27 of the Environmental Conservation Law) (Table 3-3; Waterbodies Crossed by the Tri-Lakes Reliability Project). The Oswegatchie River is currently listed as a study river to be added to the list of Wild, scenic and Recreational rivers. These rivers, and the 0.25-mile area immediately adjacent to their banks, are given special protection under the provisions of this Act.

3.3 Soils

The following Table 3-5 describes soils series associated with Project Area wetlands.

Table 3-5. Soils Descriptions

Series Name	Drainage	Permeability	Slope	Topographic Location
Adirondack Series	somewhat poorly drained	Slow	0 to 15 %; depth bedrock >72 inches	glaciated lowlands in depressions and on toe slopes
Dawson Series	very poorly drained	moderately slow to moderately rapid in organic layers; rapid in the sandy material	0 to 2 %; depth to bedrock >60 inches	depressions on outwash plains, lake plains or flood plains
Fluvaquents Frequently Flooded	typically poorly or very poorly drained	variable over a broad range	0 to 5 %	Flood plains along streams and drainage ways
Loxley Series	very poorly drained	moderately slow to moderately rapid in organic layers; rapid in the sandy material	0 to 2 %; depth to bedrock >60 inches	depressions on outwash plains, lake plains or flood plains
Lyme Series	poorly or very poorly drained	moderate in surface layers; slow or very slow in the very firm substratum surface	0 to 5 %	slightly concave areas and shallow drainage ways in glaciated uplands
Naumburg Series	poorly and somewhat poorly	Rapid	0 to 8 %; depth bedrock >80 inches	low sand plains and terraces
Pillsbury Series	somewhat poorly drained soils	moderate in surface layers; slow or very slow in the very firm substratum	0 to 15 %	on glacial till uplands and in transition to wetlands

3.4 Vegetation

Wetland communities comprise approximately one quarter of the Project Area. They include palustrine systems most typically spruce-fir swamp, red maple hardwood swamp, shrub swamp, and shallow emergent marsh. *Ecological Communities of New York State* (Reschke 1990) was used to differentiate wetland plant communities encountered during field delineation. These communities are described below. Complete lists of plants species found in wetlands and adjacent uplands during the field effort are provided in Tables 3-6 and 3-7, respectively.

3.4.1 Red Maple Hardwood Swamp

The Red Maple Hardwood Swamp is one of the most common wetland covertype occurring in the area of the proposed ROW. These areas may consist of a monoculture canopy of red maple (*Acer rubrum*)or a codominance of red maple and yellow birch (*Betula alleghaniensis*), with red spruce (*Picea rubens*) occasionally occurring at the periphery or on hummocks within the wetlands. These swamps often have gaps in the canopy allowing for a dense understory with many saplings and a thick shrub layer containing species such as winterberry (*Ilex verticillata*), spicebush (*Lindera benzoin*), alders (*Alnus* spp.), and viburnums. The herbaceous layer may be quite diverse with ferns like sensitive fern (*Onoclea sensibilis*) and cinnamon fern (*Osmunda cinnamomea*) having a high percent cover. Characteristic herbs include troutlily (Erythronium americanum) and wild-lily-of-the-valley (*Maianthemumcanadense*) may include other herbaceous vegetation, such as marsh marigold (*Caltha palustris*) and various sedges, in open areas under gaps in the canopy.

3.4.2 Shrub Swamp

Shrub swamps are dominated by tall shrubs that occur along the shore of lakes or rivers, in a wet depression not associated with lakes, or in a transitional zone between a marsh, swamp, or bog and an upland community. This is a broadly defined, highly variable covertype that includes several distinct communities and many intermediates. Shrub swamps may have a single dominant shrub species or be codominated by a mixture of species. Speckled alder (*Alnus incana* sp. *rugosa*) is the most frequently dominating shrub of this community within the Project Area and these areas are often characterized as an alder thicket. Red osier dogwood (*Cornus stolonifera*), silky dogwood (*Cornus amomum*), and Spirea spp. also occur either as a dominant species or codominant with speckled alder. Various other shrub species with occasional occurrence include highbush blueberry (*Vaccinium corymbosum*), smooth alder (*Alnus serrulata*), willows (*Salix* spp.), and viburnums. These wetland communities are frequently associated with stream complexes and may contain portions emergent wetland sedges and grasses.

3.4.3 Shallow Emergent Marsh

Shallow emergent marshes are permanently saturated and seasonally flooded wetlands that can be dominated by a variety of herbaceous vegetation. Common dominant herbaceous plants within the Project Area are soft rush (*Juncus effusus)*, cattails (*Typha latifolia)*, bluejoint reedgrass (*Calamagrostis canadesis)*, reed canary grass (*Phalaris arundinacea)*, sedges (*Carex* spp.), and meadow-rues (*Thalictrum* spp.). Marshes must have less than 50 percent cover of peat and tussuck-forming sedges such as tussuck sedge (*Carex stricta*), otherwise it may be classified as a sedge meadow. Other plants characteristic of shallow emergent marshes include, blue flag iris *(Iris versicolor)*, Sensitive Fern , Cinnamon Fern , and rushes (*Juncus* spp.). Shallow emergent marshes commonly have scattered shrub species including rough alder (*Alnus incana* sp. *rugosa*), dogwoods (*Cornus* spp.), willows (*Salix* spp.), and meadow sweet (*Spirea alba*).

Table 3-6. Plant Species Encountered in Wetlands		
Scientific name	**Common name**	**Wetland Indicator Status**
Trees		
Abies balsamea	Fir, Balsam	FAC
Abies fraseri	Fir, Fraser's	FACU
Acer pensylvanicum	Maple, Striped	FACU
Acer rubrum	Maple, Red	FAC
Acer saccharum	Maple, Sugar	FACU-
Betula alba	Birch, White	FAC+
Betula alleghaniensis	Birch, Yellow	FAC
Betula populifolia	Birch, Gray	FAC
Fagus grandifolia	Beech, American	FACU
Juniperus virginiana	Cedar, Eastern Red	FACU
Larix laricina	Larch, American	FACW
Picea rubens	Spruce, Red	FACU
Pinus strobus	Pine, Eastern White	FACU
Populus grandidentata	Aspen, Big-Tooth	FACU-
Populus tremuloides	Aspen, Quaking	FACU
Prunus pensylvanica	Cherry, Fire	FACU-
Prunus serotina	Cherry, Black	FACU
Salix discolor	Willow, Pussy	FACW
Tsuga canadensis	Hemlock, Eastern	FACU
Shrubs		
Acer spicatum	Maple, Mountain	FACU-
Alnus incana spp. rugosa	Alder, Speckled	FACW+
Amelanchier canadensis	Service-Berry, Oblong-Leaf	FAC
Amelanchier x intermedia	Shadbush, Swamp	FACW
Cornus amomum	Dogwood, Silky	FACW
Cornus racemosa	Dogwood, Gray	NI
Cornus stolonifera	Dogwood, Red-Osier	FACW+
Ilex verticillata[1]	Winterberry, Common	FACW+
Kalmia angustifolia[1]	Sheep-Laurel	FAC
Prunus pensylvanica	Cherry, Fire	FACU-
Rhododendron spp.	Rhododendron	-
Salix nigra	Willow, Black	FACW+
Salix spp.	Willow	-
Spiraea alba	Meadow-Sweet, Narrow-Leaf	FACW+
Spiraea latifolia	Meadow-Sweet, Broad-Leaf	FAC+
Spiraea tomentosa	Steeple-Bush	FACW
Vaccinium simulatum	Blueberry, Highbush	FACU
Viburnum lantanoides	Hobblebush	NI
Viburnum cassinoides	Withe-Rod	FACW
Herbs		
Aster novi-bergii	Aster, New York	FACW+
Aster umbellatus	Aster, Flat-top	FACW
Athyrium filix-femina[1]	Fern, Subarctic Lady	FAC
Calamagrostis canadensis	Reedgrass, Blue-Joint	FACW+
Caltha palustris	Marsh-Marigold, Common	OBL
Cardamine diphylla	Toothwort, Two-Leaf	FACU*

Table 3-6. Plant Species Encountered in Wetlands		
Scientific name	**Common name**	**Wetland Indicator Status**
Carex crinita	Sedge, Fringed	OBL
Carex intumescens	Sedge, Bladder	FACW+
Carex lurida	Sedge, Lurid	NI
Carex spp.	Sedge	-
Carex stricta	Sedge, Uptight	OBL
Carex vulpinoidea	Sedge, Fox	OBL
Chamaedaphne calyculata	Leatherleaf	OBL
Chelone glabra[1]	Turtlehead, White	OBL
Clintonia borealis	Beadlily, Blue	FAC
Coptis trifolia	Goldthread, Alaska	FACW
Cornus canadensis	Bunchberry, Canada	FAC-
Dalibarda repens	Robin-Run-Away	FAC
Dryopteris intermedia[1]	Woodfern, Evergreen	FACU
Dryopteris sp.	Woodfern	-
Equisetum spp.	Horsetail	-
Erythronium americanum	Trout Lily, Yellow	NI
Eupatoriadelphus fistulosus	Joe-Pye-weed, Hollow	FACW
Fragaria virginiana	Strawberry, Virginia	FACU
Galium palustre	Bedstraw, Marsh	OBL
Gaultheria hispidula	Snowberry, Creeping	FACW
Gentiana linearis1	Gentian, Narrow-leaf	OBL
Geum laciniatum	Avens, Rough	FAC+
Glyceria melicaria	Grass, Melic Manna	OBL
Impatiens capensis	Touch-me-not, Spotted	FACW
Impatiens sp.	Touch-me-not	FACW
Iris versicolor	Blueflag	OBL
Juncus effusus	Rush, Soft	FACW+
Ledum groenlandicum[1]	Labrador-Tea, Greenland	OBL
Lycopodium lucidulum[1]	Clubmoss, Shining	FACW-
Lycopodium obscurum[1]	Clubmoss, Tree	FACU
Lycopus americanus	Horehound, Water	OBL
Maianthemum canadense	Wild-Lily-of-the-Valley	FAC-
Onoclea sensibilis	Fern, Sensitive	FACW
Osmunda cinnamomea[1]	Fern, Cinnamon	FACW
Osmunda claytoniana[1]	Fern, Interrupted	FAC
Osmunda regalis[1]	Fern, Royal	OBL
Panax trifolius	Ginseng, Dwarf	NI
Panicum dichotomiflorum	Grass, Fall Panic	FACW-
Panicum spp.	Grass, Panic	-
Phalaris arundinacea	Grass, Reed Canary	FACW+
Phragmites australis	Reed, Common	FACW
Pleurozium schreberi	Stem Moss, Big Red	NI
Ribes glandulosum	Currant, Skunk	FACW
Rubus allegheniensis	Blackberry, Allegheny	FACU-
Rubus hispidus	Blackberry, Bristly	FACW
Rubus idaeus	Raspberry, Common Red	FAC-
Rubus pubescens	Blackberry, Dwarf	FACW
Rubus wheeleri	Dewberry	FACW

Table 3-6. Plant Species Encountered in Wetlands		
Scientific name	**Common name**	**Wetland Indicator Status**
Scirpus cyperinus	Wool-Grass	FACW+
Scirpus spp.	Bulrush	-
Solidago patula	Golden-rod, Rough Leaf	OBL
Solidago rugusa	Goldenrod, Wrinkled	FAC
Solidago spp.	Goldenrod	-
Sphagnum spp.	Sphagnum	-
Thalictrum dioicum	Meadow-Rue, Early	FAC
Thalictrum pubescens	Meadow-Rue, Tall	FACW+
Thelypteris thelypteroides	Fern, Marsh	FACW+
Thuidium spp.	Moss, Feather	-
Tiarella cordifolia	Foamflower, Heart-Leaf	FAC-
Trientalis borealis	Starflower, American	FAC
Typha latifolia	Cattail, Broad-Leaf	OBL
Uvularia sessilifolia	Bellwort, Sessile-Leaf	FACU-
Veratrum viride	False-Hellebore, American	FACW+

[1] Exploitably vulnerable listed species are native plants that are not necessarily rare or uncommon, but may be desirable for commercial use and could become rare, threatened, or endangered if subjected to unchecked commercial exploitation.

Table 3-7. Plant Species Encountered in Uplands		
Scientific name	**Common Name**	**Wetland Indicator Status**
Trees		
Abies balsamea	Fir, Balsam	FAC
Abies fraseri	Fir, Fraser's	FACU
Acer rubrum	Maple, Red	FAC
Acer saccharum	Maple, Sugar	FACU-
Betula alleghaniensis	Birch, Yellow	FAC
Betula papyrifera	Birch, Paper	FAC+
Betula populifolia	Birch, Gray	FAC
Fagus grandifolia	Beech, American	FACU
Larix laricina	Larch, American	FACW
Ostrya virginiana	Hop-Hornbeam, Eastern	FACU-
Picea abies	Spruce, Norway	UPL
Picea rubens	Spruce, Red	FACU
Pinus strobus	Pine, Eastern White	FACU
Pinus sylvestris	Pine, Scotch	NI
Populus grandidentata	Aspen, Big-Tooth	FACU-
Populus tremuloides	Aspen, Quaking	FACU
Prunus pensylvanica	Cherry, Fire	FACU-
Prunus serotina	Cherry, Black	FACU
Tsuga canadensis	Hemlock, Eastern	FACU
Shrubs		
Acer pensylvanicum	Maple, Striped	FACU
Acer spicatum	Maple, Mountain	FACU-
Alnus incana spp. rugosa	Alder, Speckled	FACW+
Amelanchier canadensis	Service-Berry, Oblong-Leaf	FAC
Amelanchier x intermedia	Shadbush, Swamp	FACW
Celtis occidentalis	Hackberry, Common	FACU
Vaccinium angustifolium	Blueberry, Lowbush	FACU-
Vaccinium myrtilloides	Blueberry, Velvet-Leaf	FAC
Viburnum acerifolium	Viburnum, Maple-Leaf	UPL
Viburnum cassinoides	Withe-Rod	FACW
Viburnum lantanoides	Hobble-Bush	FAC
Herbs		
Achillea millefolium	Yarrow, Common	FACU
Aralia nudicaulis	Sarsaparilla, Wild	FACU
Asarum shuttleworthii	Wildginger	NI
Asclepias syriaca	Milkweed, Common	NI
Aster umbellatus	Aster, Flat-top	FACW
Brachyelytrum erectum	Shorthusk Bearded	NI
Clematis virginiana	Bowers, Virgin's	FAC

Table 3-7. Plant Species Encountered in Uplands		
Scientific name	**Common Name**	**Wetland Indicator Status**
Clintonia borealis	Beadlily, Blue	FAC
Coptis trifolia	Goldthread	FACW
Cornus canadensis	Bunchberry, Canada	FAC-
Dactylis glomerata	Grass, Orchard	FACU
Dalibarda repens	Robin-Run-Away	FAC
Daucus carota	Queen Anne's Lace	NI
Dryopteris intermedia[1]	Woodfern, Evergreen	FACU
Erythronium americanum	Trout Lily, Yellow	NI
Festuca rubra	Fescue, Red	FACU
Fragaria vesca	Strawberry, Woodland	NI
Galium sp.	Bedstraw	-
Hypericum spp.	St. John's-Wart	-
Lolium perenne	Ryegrass, Perennial	FACU-
Lonicera spp.	Honeysuckle	-
Lycopodium annotinum[1]	Clubmoss, Stiff	FAC
Lycopodium clavatum[1]	Pine, Running	FAC
Lycopodium lucidulum	Clubmoss, Shining	FACW-
Lycopodium obscurum[1]	Clubmoss, Tree	FACU
Maianthemum canadense	Wild-Lily-of-the-Valley	FAC-
Mitchella repens	Partridge-Berry	FACU
Oxalis europaea	Woodsorrel, Upright Yellow	UPL
Plantago major	Plantain, Common	FACU
Poa pratensis	Bluegrass, Kentucky	FACU
Podophyllum peltatum	May-Apple	FACU
Potentilla spp.	Cinquefoil	-
Pteridium aquilinum	Fern, Bracken	FACU
Rosa multiflora	Rose, Multiflora	FACU
Rubus allegheniensis	Blackberry, Allegheny	FACU-
Rubus hispidus	Blackberry, Bristly	FACW
Solidago spp.	Goldenrod	-
Taraxacum officinale	Dandelion, Common	FACU-
Thelypteris noveboracensis[1]	Fern, New York	FAC
Thelypteris thelypteroides	Fern, Marsh	FACW+
Trientalis borealis	Starflower, American	FAC
Trillium spp.[1]	Trillium	-
Uvularia sp.	Bellwort	-
Vicia sp.	Vetch	-

[1] Exploitably vulnerable listed species are native plants that are not necessarily rare or uncommon, but may be desirable for commercial use and could become rare, threatened, or endangered if subjected to unchecked commercial exploitation.

3.4.4 Floodplain Forest

A floodplain forest occurs on mineral soils of river floodplains and river deltas. These sites are characterized by their flood regime; low areas are annually flooded in spring, whereas other sites may be flooded again in late summer or early autumn by heavy precipitation associated with tropical storms.

Dominant tree species in floodplain forest communities within the Project Area include red maple, sugar maple (*Acer saccharum*), and yellow birch (*Betula alleghaniensis*). Characteristic shrub species include oblong-leaf serviceberry (*Amelanchier canadensis*), wild raisin, and hobblebush (*Viburnum lantanoides*). Common herbaceous species include troutlily (*Erythronium americanum*), ferns, sedges, and grasses.

Species compositions within floodplain forest communities are quite variable, primarily due to seed dispersal along associated waterways, therefore dominant species may vary locally.

3.4.5 Spruce-Fir Swamp

Another common wetland covertype encountered during wetland delineation, spruce-fir swamps are often found in drainage basins occasionally flooded by beaver (*Castor canadensis*). These swamps are fairly dense with a canopy cover of 80 to 90 percent, usually dominated by red spruce (*Picea rubens*). Codominant trees include balsam fir (*Abies balsamea*), red maple, and American larch or tamarack (*Larix laricina*). Other less frequently occurring trees include yellow birch, white pine (*Pinus strobes*), and hemlock (*Tsuga canadensis*). The shrub layer usually comprises less than 20 percent cover and contains dominant species including alders, wild raisin, winterberry (*Ilex verticillata*), and sapling canopy species. Characteristic herbs include cinnamon fern , wild-lily-of-the-valley, goldthread (*Coptis trifolia*), Canada bunchberry (*Cornus canadensis*), and robin-run-away (*Dalibarda repens*). In addition, *Sphagnum* mosses often dominate the groundlayer.

Spruce-fir swamps occur in lowlands where they may grade into upland areas like spruce flats or balsam flats. These communities are distinguishable by lower elevations, wetland soils, the presence of *Sphagnum* mosses, and the absence of black cherry (*Prunus serotina*), a characteristic species of spruce flats and balsam flats.

3.4.6 Balsam Fir-Tamarack Swamp

The balsam fir-tamarack swamp is a variation of the spruce-fir swamp. This cover type is not described by Edinger *et al*. (2002) but was encountered frequently during field delineation. The canopy is usually less dense than the spruce-fir swamp and codominated by balsam fir and tamarack, although in some instances tamarack exists as a monoculture, in which case the cover type is labeled as a tamarack swamp. Occasional hardwood species such as yellow birch or red maple may also contribute to the canopy composition.

The understory is variable and may contain a significant shrub layer composed of wild raisin, meadowsweet, alders, and sapling stage canopy species. Characteristic understory species include wild-lily-of-the-valley, Labrador tea (*Ledum groenlandicum*), and various fern species.

3.4.7 Northern White Cedar Swamp

This community was encountered at one location on the Preferred Route. It is located adjacent to Sevey bog and fed by a small perennial stream approximately 3 feet wide. Northern white cedar (*Thuja occidentalis*) is codominant in the canopy with balsam fir (*Abies balsamea*), red spruce, and hemlock. The shrub layer consists of saplings of canopy species along with honeysuckle (*Lonicera* spp.) and raspberry (*Rubus* spp.). Cinnamon fern and *Sphagnum* mosses make up the herbaceous layer.

3.4.8 Black Spruce-Tamarack Bog

Black-spruce-tamarack bogs occur on acidic peatlands in cool, poorly drained depressions. The characteristic canopy trees are black spruce (*Picea mariana*) and tamarack; in any given stand either tree may be dominant, or they may be codominant. Canopy cover is variable, ranging from open canopy woodlands with as little as 20 percent cover of evenly spaced canopy trees to closed canopy forests with 80 to 90 percent cover.

In more open canopy stands there is usually a well-developed shrub layer characterized by leatherleaf (*Chamadaephne calyculata*), speckled alder (*Alnus incana spp. rugosa*), wild raisin, and *Rubus* spp. In closed canopy stands the shrub layer is usually sparse; however, the species composition is similar. Characteristic herbs include reed canary grass, blueflag (*Iris versicolor*), sedges, and grasses. *Sphagnum* mosses are also common and may be very abundant in black spruce-tamarack bogs.

3.5 Hydrology

Hydrology strongly influences the plant communities which develop within wetlands and consists of a variety of water regimes. These water regimes are in turn defined in length of the growing season, which is equal to the frost-free period of the seasonal year. The rest of the year is defined as the dormant season, a time when even extended periods of flooding may have little influence on the development of plant communities. Common water regimes found in palustrine systems are presented in Table 3-8. The most common hydrological regimes associated with wetlands in the Project Area were the saturated and seasonally flooded regimes. In the saturated wetlands, the surface of the wetland soil expands or rises as it gets wetter, thus they are not considered flooded.

Table 3-8. Non-tidal Hydrology Regimes

	Regime	Description
Driest	Intermittently Flooded	The substrate is usually exposed, but surface water is present for variable periods without detectable seasonal periodicity. Weeks, months, or even years may intervene between periods of inundation. The dominant plant communities under this regime may change as soil moisture conditions change. Some areas exhibiting this regime do not fall within our definition of wetland because they do not have hydric soils or support hydrophytes.
	Temporarily Flooded	Surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface for most of the season. Plants that grow both in uplands and wetlands are characteristic of the temporarily flooded regime.
↓	Saturated	The substrate is saturated to the surface for extended periods during the growing season, but surface water is seldom present.
	Seasonally Flooded	Surface water is present for extended periods especially early in the growing season, but is absent by the end of the season in most years. When surface water is absent, the water table is often near the land surface.
	Semi-Permanently Flooded	Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land surface.
Wettest	Intermittently Exposed	Surface water is present throughout the year except in years of extreme drought.
	Permanently Flooded	Water covers the land surface throughout the year in all years. Vegetation is composed of obligate hydrophytes.

3.6 Functions and Values

Wetlands within the Project Area provide a number of important functions and values. Primary among these are flood damage and stormwater control, wildlife habitat, protection of water resources and valuable watershed through pollution treatment or sediment control, and recreation. Other values that wetlands provide include opportunities for scientific research, visual variety and open space, and educational benefits.

Based on the APA's valuation method, 12 out of the 97 wetland complexes within the ROW of the Preferred Route qualify for the highest value rating of one (Table 3-9). Most of the 12 wetlands with a one rating occur between reference markers ALT2 and ALT5. These wetland complexes contain high covertype heterogeneity with variable combinations of forested, scrub-shrub, and emergent vegetation classifications occurring within a single wetland. In addition, wetland ALT5-3A/B is associated with Sevey Bog, an area documented as spruce grouse breeding habitat by the New York Department of Environmental Conservation. A total of 66 wetlands along the Preferred Route were assigned a two rating, mainly due to the presence of emergent marsh and deciduous swamp covertypes. The APA states that emergent marshes are the most valuable individual covertype with regard to nesting habitat, food, and cover for waterfowl and other wildlife species, as well as providing large annual increases in biomass, and cycling large quantities of nutrients in the food chain. Deciduous swamps offer similar habitat and additionally provide shade trees to help stabilize wetland climate. Fourteen wetlands scored a three rating, primarily due to the presence of a shrub swamp community, which may provide nesting habitat, temporary water storage, and erosion control. The remaining five wetlands along the Preferred Route scored a four rating because they are isolated coniferous swamp complexes that may provide an aesthetic value to the area.

Five wetlands within the ROW of the Alternate Route scored a one rating. These wetlands possess similar characteristics to the one-rated wetlands observed on the Preferred Route, namely heterogeneous covertypes. The lower amount of one-rated wetlands within the Alternate Route may be the result of a significantly higher number of wetlands with a scrub-shrub component in comparison to the Preferred Route. According to the APA, scrub-shrub communities score lower than emergent marsh and deciduous swamp covertypes, which in several cases results in a lower overall wetland value score.

Sixty-five of the 103 wetlands along the Alternate Route are two-rated wetlands. Twenty-three wetlands were scored with a three rating and these consist primarily of homogeneous scrub-shrub vegetation communities. Wetlands scoring a four rating along the Alternate Route (10) mainly contain a coniferous swamp covertype and lack heterogeneity, unique species diversity, and cultural or geological significance.

Table 3-9. Rank of Functions and Values For Wetlands Crossed By the Tri-Lakes Reliability Project [1,2]

Wetland ID	Route	Class	ALT/ PREF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Overall Value
N1-1A	Newton Falls	PSS	A						3						4							4						3
N1-1B	Newton Falls	PSS/PEM	A						3	2				3								4						2
N1-1C/D	Newton Falls	PSS/PEM	A						3	2				3								4						2
N1-1G	Newton Falls	PSS	A						3	2					4							4						2
N1-1H/I	Newton Falls	PEM	A						3	2				3								4						2
N1-1J/K	Newton Falls	PEM	A						3					3								4						3
N1-1L	Newton Falls	PFO/PEM	A			2								3								4						2
N1-1M	Newton Falls	PEM	A			2								3								4						2
N2-1A/B	Newton Falls	PFO	A				2								4							4						2
N2-1C/D	Newton Falls	PFO	A				2								4							4						2
N2-1E/F	Newton Falls	PFO	A				2								4							4						2
N2-1G/H	Newton Falls	PSS	A						3					3														3
N2-1I/J	Newton Falls	PFO	A				2								4							4						2
N2-1K	Newton Falls	PSS	A				2		3						4													2
N3-3A	Newton Falls	PFO	A				2							3														2
N3-3B/C	Newton Falls	PFO	A								4				4							4						4
N3-3D/E	Newton Falls	PFO	A				2								4							4						2
N3-3F/G	Newton Falls	PFO	A								4				4							4						4
N3-3H/I/J/K	Newton Falls	PFO/PEM	A			2	2			2					4													1
N4-2A/B	Newton Falls	PFO	A				2								4							4						2
N4-2C/D	Newton Falls	PFO/PEM	A			2	2			2	4				4							4						1
N4-3D/E	Newton Falls	PFO	A				2							3								4						2
N4-3F/G	Newton Falls	PFO	A				2								4							4						2
N5-2A/B	Newton Falls	PFO/PEM	A			2				2	4				4													2
N5-2D	Newton Falls	PFO/PSS/PEM	A			2			3	2	4				4													2
N5-2G/H	Newton Falls	PFO/PSS	A				2		3	2	4				4							4						2
N5-2I/J	Newton Falls	PFO	A								4				4							4						4
N5-2K/L	Newton Falls	PFO/PEM	A			2	2			2					4							4						1
N6-2A/B	Newton Falls	PFO	A								4			3														3
N6-2C/D	Newton Falls	PSS/PEM	A			2	2		3	2				3														1
N6-2E/F	Newton Falls	PSS/PEM	A			2			3	2					4							4						2
N6-2G/H	Newton Falls	PFO	A				2								4							4						2

Table 3-9. Rank of Functions and Values For Wetlands Crossed By the Tri-Lakes Reliability Project [1,2]

Wetland ID	Route	Class	ALT/ PREF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Overall Value
N6-Alt-1A	Newton Falls	PEM	A	2						2	4				4							4						2
N6-2N	Newton Falls	PFO/PSS	A						3	2				3								4						2
N7-1A/B	Newton Falls	PFO	A				2								4							4						2
N7-1E/F/G	Newton Falls	PFO/PSS/PEM	A			2	2		3	2					4							4						1
N7-2A	Newton Falls	PFO	A				2								4							4						2
N7-4A	Newton Falls	PSS/PEM	A			2			3	2				3								4						2
AltC-1A/B	Newton Falls	PFO	A				2							3								4						2
AltC-1C/D	Newton Falls	PFO	A				2				4				4							4						2
AltC-1E/F	Newton Falls	PSS	A						3		4				4													3
AltC-1G/H/I	Newton Falls	PFO	A				2								4													2
AltC-1J/K	Newton Falls	PFO/PSS/PEM	A			2				2	4			3								4		2			3	2
N9-1A	Newton Falls	PSS	A						3		4				4							4						3
N9-1B/C	Newton Falls	PFO	A				2							3								4						2
N9-1E	Newton Falls	PSS/PEM	A			2			3	2					4							4						2
N9-1F	Newton Falls	PSS	A						3					3								4						3
N9-1G	Newton Falls	PSS	A						3						4							4						3
N9-1H/I	Newton Falls	PFO	A				2							3								4						2
N10-1A/B	Newton Falls	PFO/PSS/PEM	A			2			3	2	4			3														2
N10-2A/B	Newton Falls	PFO/PSS/PEM	A			2			3	2	4			3								4						2
N11-2A/B	Newton Falls	PFO/PSS	A						3	2	4				4							4						2
N11-2C/D	Newton Falls	PFO/PSS	A						3	2	4				4							4						2
N11-2E/F	Newton Falls	PSS	A						3					3								4						3
N11-2H/I	Newton Falls	PSS	A				2		3		4				4							4						2
N11-2J/K	Newton Falls	PSS	A						3		4			3														3
N12-3A/B	Newton Falls	PSS/PEM	A			2			3	2				3														2
N12-3C/D	Newton Falls	PFO	A								4				4							4						4
N12-3E	Newton Falls	PFO	A								4				4							4						4
N12-3F	Newton Falls	PFO	A								4				4							4						4
N12-3G/H	Newton Falls	PFO	A								4				4							4						4
N13-3A/B	Newton Falls	PEM	A			2					4			3								4						2
N14-3A	Newton Falls	PEM	A			2									4							4						2
N14-3B	Newton Falls	PEM	A			2									4							4						2

Table 3-9. Rank of Functions and Values For Wetlands Crossed By the Tri-Lakes Reliability Project [1,2]

Wetland ID	Route	Class	ALT/ PREF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Overall Value
N14-3C/D	Newton Falls	PFO/PSS	A						3	2					4							4						2
N15-4A	Newton Falls	PEM	A			2									4							4						2
N15-4B	Newton Falls	PSS	A						3						4							4						3
N15-4C	Newton Falls	PSS	A						3						4							4						3
N16-4A	Newton Falls	PFO/PSS	A						3	2					4							4						2
N16-4B	Newton Falls	PSS	A						3						4							4						3
N17-4A	Newton Falls	PFO	A												4							4						4
N17-4B	Newton Falls	PEM	A			2								3								4						2
N18-4A	Newton Falls	PFO/PSS	A						3	2					4							4						2
N18-4B	Newton Falls	PSS	A						3					3								4						3
N18-4C	Newton Falls	PEM	A			2								3														2
P1-3A/B	Piercefield	PFO/PSS	P/A						3	2	4				4							4						2
P1-3C/D	Piercefield	PSS	P/A						3						4							4						3
P1-3E	Piercefield	PFO/PSS	P/A				2		3	2					4							4						2
P2-3A/B/C	Piercefield	PFO/PSS	P/A				2		3	2					4							4						2
P2-3F/G	Piercefield	PFO/PSS	P/A				2		3	2				3								4						2
P2-3H/I/J	Piercefield	PSS	P/A						3						4							4						3
P2-3K	Piercefield	PSS	P/A						3						4							4						3
P3-1A/B/C	Piercefield	PFO	P/A								4			3								4				3	3	2
P5-3A/B	Piercefield	PSS/PEM	P/A			2			3	2				3								4						2
P6-3A	Piercefield	PFO	P/A												4							4						4
P6-3B/C	Piercefield	PFO	P/A				2								4							4						2
P7-1A	Piercefield	PSS/PEM	P/A						3	2					4							4						2
P7-1B	Piercefield	PSS/PEM	P/A						3	2					4							4						2
P7-1C	Piercefield	PSS/PEM	P/A						3	2				3								4						2
P8-1A	Piercefield	PEM	P/A			2								3								4						2
P8-1B	Piercefield	PFO	P/A								4			3								4						3
P8-1C	Piercefield	PFO	P/A								4				4							4						4
P8-2A	Piercefield	PFO/PEM	P/A			2				2					4							4						2
P8-2B	Piercefield	PEM	P/A			2									4							4						2
P8-2C	Piercefield	PFO	P/A											3								4						3
P8-2D	Piercefield	PSS/PEM	P/A			2			3	2					4							4						2

Table 3-9. Rank of Functions and Values For Wetlands Crossed By the Tri-Lakes Reliability Project [1,2]

Wetland ID	Route	Class	ALT/ PREF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Overall Value
P9-2A	Piercefield	PEM	P/A			2									4							4						2
P9-2B/C/D	Piercefield	PSS	P/A						3		4			3														3
P9-2F	Piercefield	PSS	P/A						3						4													3
P9-2H	Piercefield	PSS	P/A						3						4													3
P9-2I	Piercefield	PFO/PSS	P/A						3	2	4				4							4						2
P11-4A	Piercefield	PSS	P/A						3					3								4						3
P11-4C	Piercefield	PFO/PSS/PEM	P/A				2		3	2				3								4					3	2
S2-2A	Stark	PFO/PEM	P			2				2	4				4							4						2
S2-2B	Stark	PFO/PSS	P	2					3	2	4				4							4						2
S2-2D/E	Stark	PSS	P						3					3								4						3
S2-3A	Stark	PFO/PEM	P			2				2	4				4													2
S2-3B	Stark	PFO	P								4				4							4						4
S3-3A/B	Stark	PFO	P				2								4							4						2
S3-3C/D	Stark	PFO	P				2							3								4						2
S3-3E	Stark	PFO	P				2				4				4							4						2
S3-3F	Stark	PFO	P											3								4						3
S3-3H	Stark	PFO/PEM	P			2	2			2					4							4						1
S3-3I	Stark	PEM	P			2					4				4							4						2
S3-3J/K	Stark	PFO/PSS	P						3	2				3														2
S3-3L	Stark	PEM	P			2									4							4						2
S4-3A	Stark	PFO	P				2							3								4						2
S4-3B	Stark	PFO	P				2								4							4						2
S5-3A	Stark	PSS	P			2			3					3														2
S5-3B/C	Stark	PEM	P			2								3								4						2
S5-3D/E	Stark	PFO	P			2								3														2
S5-3F/G	Stark	PFO/PEM	P			2	2			2					4							4						1
S6-3A	Stark	PFO/PEM	P			2				2	4				4							4						2
S6-3B/C	Stark	PFO/PEM	P			2				2	4				4													2
S6-3D	Stark	PEM	P			2						4			4													2
S6-3E	Stark	PEM	P			2						4			4							4						2
S7-3A/B	Stark	PEM	P			2						4			4							4						2
S7-3C	Stark	PEM	P			2						4			4							4						2

Table 3-9. Rank of Functions and Values For Wetlands Crossed By the Tri-Lakes Reliability Project [1,2]

Wetland ID	Route	Class	ALT/ PREF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Overall Value
S7-3D	Stark	PEM	P			2									4							4						2
S7-3E	Stark	PEM	P			2						4			4							4						2
S7-3F	Stark	PSS	P						3						4							4						3
S7-3G	Stark	PEM	P			2									4							4						2
S7-3H/I	Stark	PFO	P				2				4				4							4						2
S7-3J/K	Stark	PEM	P			2						4			4							4						2
S8-3A	Stark	PEM	P			2						4			4							4						2
S8-3B	Stark	PEM	P			2						4			4							4						2
S8-3C	Stark	PFO/PEM	P			2				2	4	4			4							4						2
S8-3D	Stark	PFO/PEM	P			2				2	4	4			4							4						2
S8-3E/F	Stark	PFO/PEM	P			2				2	4	4			4													2
S9-2E/F	Stark	PFO	P								4			3								4						3
S9-2J	Stark	PFO/PEM	P			2	2			2	4				4							4						1
S9-2L/M	Stark	PFO	P								4				4							4						4
Alt1-2A/B	Stark	PFO/PEM	P			2				2	4			3								4						2
Alt1-2C	Stark	PEM	P			2	2								4							4						2
Alt2-2A/B	Stark	PEM	P			2									4							4						2
Alt2-6A/B	Stark	PFO/PEM	P			2				2	4				4													2
Alt2-6C/D	Stark	PFO/PEM	P			2				2	4				4													2
Alt2-6E/F	Stark	PFO/PEM	P			2				2	4				4													2
Alt2-6G/Alt3-6A	Stark	PFO/PEM	P			2				2	4				4													2
Alt3-6C/D	Stark	PEM	P			2									4													2
Alt 3-4B	Stark	PFO/PSS	P	2		2				2	4				4							4						1
Alt 3-4C	Stark	PFO/PSS	P	2		2				2	4				4							4						1
Alt3-2A/B	Stark	PFO/PEM	P	2		2				2	4				4							4						1
Alt4-2B	Stark	PEM	P			2	2								4							4						2
Alt4-2D/E	Stark	PFO/PEM	P			2				2	4				4													2
Alt4-2F/G	Stark	PFO	P								4			2								4						2
Alt4-2H	Stark	PFO	P	2							4				4													2
Alt5-2A through K	Stark	PFO/PSS/PEM	P			2			3	2	4			2														1
Alt5-2M/N	Stark	PSS/PEM	P	2		2	2		3	2					4							4						1
Alt5-2O/P	Stark	PFO/PEM	P	2		2	2			2					4							4						1

Table 3-9. Rank of Functions and Values For Wetlands Crossed By the Tri-Lakes Reliability Project [1,2]

Wetland ID	Route	Class	ALT/ PREF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Overall Value
Alt5-2Q/R	Stark	PFO/PEM	P			2	2			2	4				4							4						1
Alt5-2T/U	Stark	POW	P					3		2	4			3								4						2
Alt5-2V/W	Stark	PFO/PEM	P			2	2			2					4							4						1
Alt5-2X/Y	Stark	PFO	P				2								4							4						2
Alt5-3A/B	Stark	PFO	P	2							4				4	1			1									1
Alt6-3A	Stark	PFO/PSS	P						3	2	4				4													2
Alt6-3B	Stark	PSS	P						3	2					4													2
S13-1A/B	Stark	PFO	P								4			3								4						3
S13-1C/D	Stark	PFO/PEM	P			2				2	4				4							4						2
S13-1E/F	Stark	PFO/PEM	P			2				2	4				4							4						2
S13-3A	Stark	PFO	P												4							4						4
S13-3B/C/D	Stark	PFO	P								4			2														2

[1] LEGEND:

A: wetland community with bog characteristics
B: classic or kettlehole bog
C: emergent marsh
D: deciduous swamp
E: deep water marsh
F: shrub swamp
G: wetland composed of two or more structural groups
H: coniferous swamp
I: wet meadow
J: artificial mudflat
K: wetland associated with open water
- for wetlands greater than 2 acres, ranking value = 2
- for wetlands less than 2 acres, ranking value = 3
L: wetland not part of permanent surface water system
M: wetland with unusual species abundance or diversity
N: wetland with a total alkalinity of at least 50 ppm
O: wetland adjacent to fertile upland
P: wetland with significant evidence of use as key habitat for threatened or endangered species
Q: wetland containing a threatened or endangered plant species
R: wetland containing , owing its existence to, or ecologically associated with high quality geological features
S: wetland with slopes greater than 1 percent
T: wetland located in town where wetland, or wetland of same covertype, are 1 percent or less of total acreage
U: wetland among the three largest wetlands in town
V: wetland with islands present

W: wetland of demonstrable historical, archeological, or paleontological significance
X: wetland that contributes significantly to open space or aesthetic value in a hamlet, moderate intensity, or low intensity use area

[2] Functions and values ranking is based on Adirondack Park Agency Rules and Regulations, Part 578.

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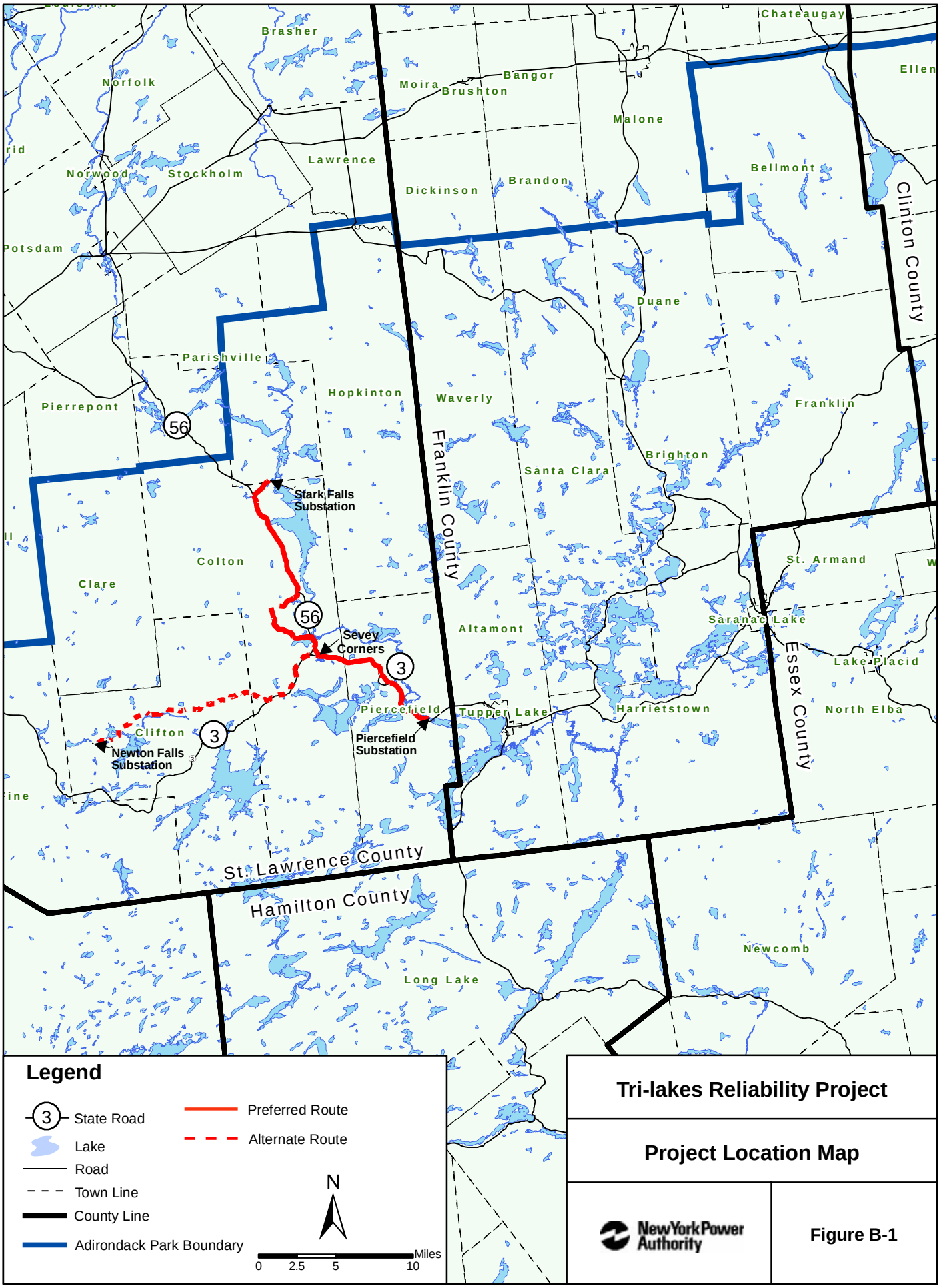
ATTACHMENT 1

PROJECT LOCATION MAP FIGURE B-1

1.1-1.mxd



Tri-lakes Reliability Project

Project Location Map

New York Power Authority

Figure B-1

ATTACHMENT 2

PROTOCOL FOR DELINEATING WETLANDS

NEW YORK POWER AUTHORITY
TRI-LAKES TRANSMISSION LINE PROJECT

Protocol for Wetland Delineation and Vegetation Covertype Determination

Introduction

This protocol is for the use of field personnel responsible for wetland boundary delineations on the preferred and alternate routes of the Tri-Lakes Transmission Line Project. The data collected by the field crews will be used as supporting documentation for the delineated wetland boundaries, as well as to provide semi-quantitative information for assessing the potential impacts to vegetation associated with construction and maintenance of the transmission line. The objective of this protocol is to enable field crews to collect data in a timely, cost-effective manner that ensures uniform quality and ease of interpretation.

Wetland Boundary Delineation

The method to be used for delineation of wetland boundaries is based on that described in the 1987 *Corps of Engineers Wetlands Delineation Manual* ("the 1987 Manual"), as clarified and updated through a series of guidance documents and memoranda from Headquarters of the U.S. Army Corps of Engineers[1] (USACE), and the New York State Freshwater Wetlands Delineation Manual (1995). The following is a brief description of the basic field methodology to be used.

1. Wetland scientists performing the delineation will walk the proposed route of the transmission line. In places where new transmission line is proposed outside of an existing transmission line right-of-way, delineators will follow a centerline either flagged at an earlier date by others, or as determined from hand-held GPS equipment (Trimble GeoXT units).
2. Using their knowledge and best professional judgment, delineators will identify wetlands and verify the existence of hydrophytic vegetation, hydric soils, and wetland hydrology.
3. At each point where the proposed transmission line crosses from upland to a wetland, delineators will determine the location of the wetland boundary through observation of changes in slope, vegetation changes, and changes in soil characteristics. Wetland boundaries will be demarcated in the field with pink WETLAND DELINEATION survey flagging. Each flag will be marked with an identification number[2]. In sections where the proposed transmission line will be located within an existing transmission right-of-way, delineators will mark wetland boundaries within the existing right-of-way and extending another 50 feet beyond the edge of the existing right-of-way clearing, where practicable. On sections of the route where new transmission line right-of-way would be constructed, wetland boundaries lying within 50 feet on either side of the centerline will be delineated.

[1] A version of the 1987 manual that incorporates the issued guidance documents and memoranda is available on-line at http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf.

[2] A system for determining the identification number of each wetland boundary line will be developed prior to the fieldwork.

4. At representative locations, data on the characteristics of the soil, vegetation, and hydrology on both sides of the wetland boundary will be recorded on standard data forms (i.e. the Routine Wetland Determination Data Form). Data will not be recorded at every wetland crossed by the transmission line route. The following criteria will be used to determine under what circumstances an upland/wetland pair of observation points will be recorded:

    - For all crossings of river segments designated Wild and Scenic
    - For wetland crossings greater than 100 feet wide, data will be recorded at paired observation points on each wetland boundary within the right-of-way
    - At wetland crossings between 50 and 100 feet wide, data will be recorded at a single paired observation point along the wetland boundary within the right-of-way
    - At most wetlands less than 50 feet wide, data at a single paired observation point will be collected at every tenth wetland encountered within this size category, or more frequently, at the discretion of the delineation team
    - At wetlands less than 30 feet wide, notes on the characteristics of the vegetation will be recorded as described below, under "Vegetation Covertype Data."

Boundary Delineation of Non-Wetland Waters of the United States

At points where the transmission line route crosses waters of the United States that does not meet wetland criteria (e.g., a rocky stream with no hydrophytic vegetation within or adjacent to its channel), boundary lines will also be delineated along the banks or shoreline of that water body. For crossings less than 5 feet only the centerline of waterbody will be located by GPS survey. At major stream crossings, including the Grasse, Oswegatchie, and Raquette rivers, a standard pair of wetland/upland observation points will be recorded, even if there is a steep bank without wetland vegetation.

Vegetation Covertype Data

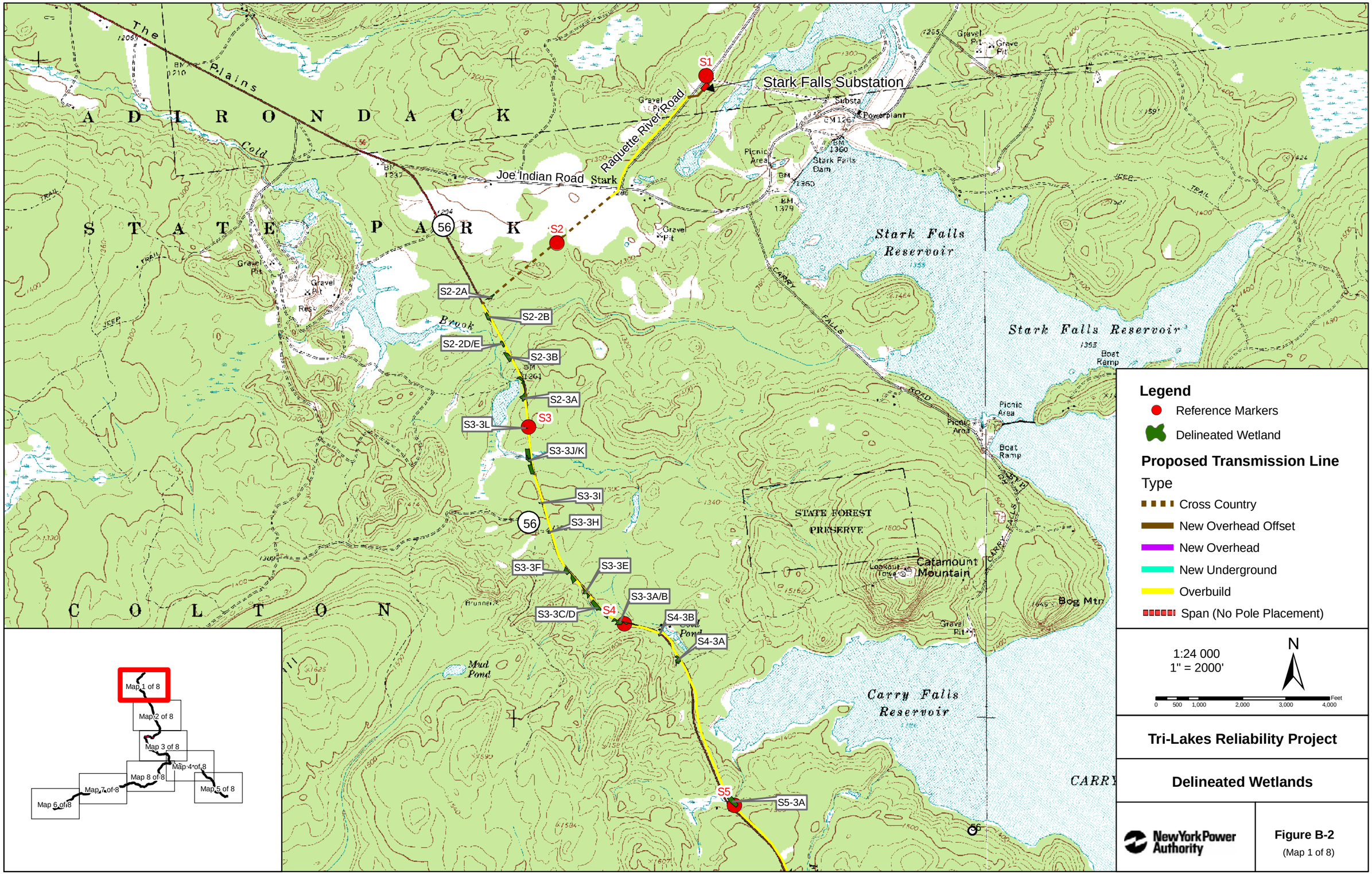
In the course of walking along the transmission line route, wetland delineators will record data on vegetation covertypes. Likely upland and wetland covertypes will be defined before the beginning of fieldwork. A vegetation covertype data form will be used to record data, including the following:

- Pre-defined vegetation covertype
- Approximate beginning and ending points for vegetation covertype units, as determined through field verification of aerial photos and/or a hand-held GPS unit. At transitions between upland and wetland covertypes, the wetland boundary line will be recorded.
- The nature of the tree canopy (e.g., continuous, discontinuous, separate individuals) and estimated general height of canopy.
- Noteworthy deviations from the pre-defined covertype.
- Vegetation units within each wetland will be classified according to Cowardin et al, 1979, and included on the covertype data sheet.

- Previously undefined covertypes will be described and named.
- At major covertype transition points (e.g., changes from upland to wetland), photographs will be taken to show the characteristics each covertype. At stream crossings, photographs will be taken showing views upstream and downstream from the proposed transmission line centerline.

ATTACHMENT 3

DELINEATED WETLANDS FIGURE B-2

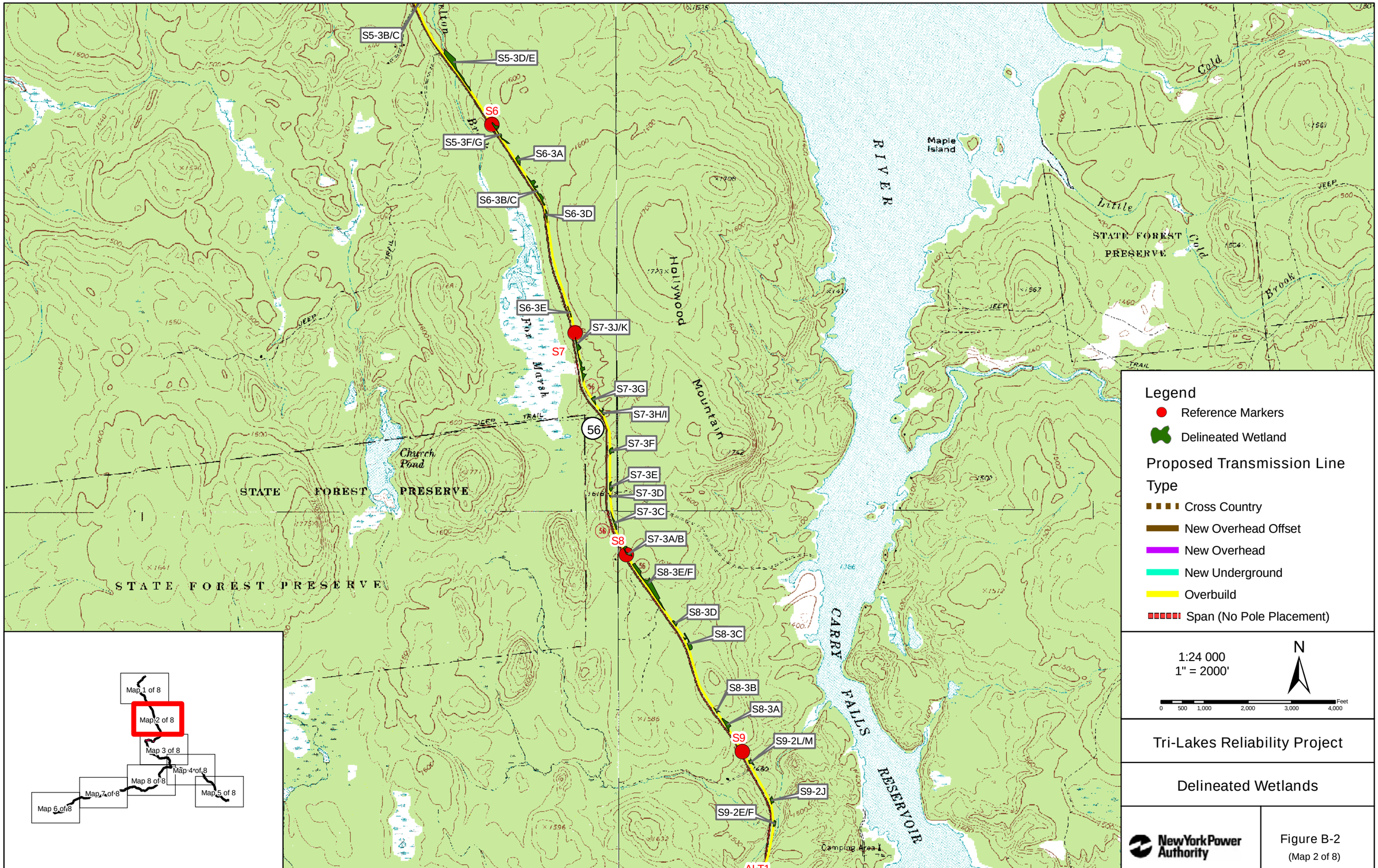


Tri-Lakes Reliability Project

Delineated Wetlands

NewYorkPower Authority

Figure B-2
(Map 1 of 8)

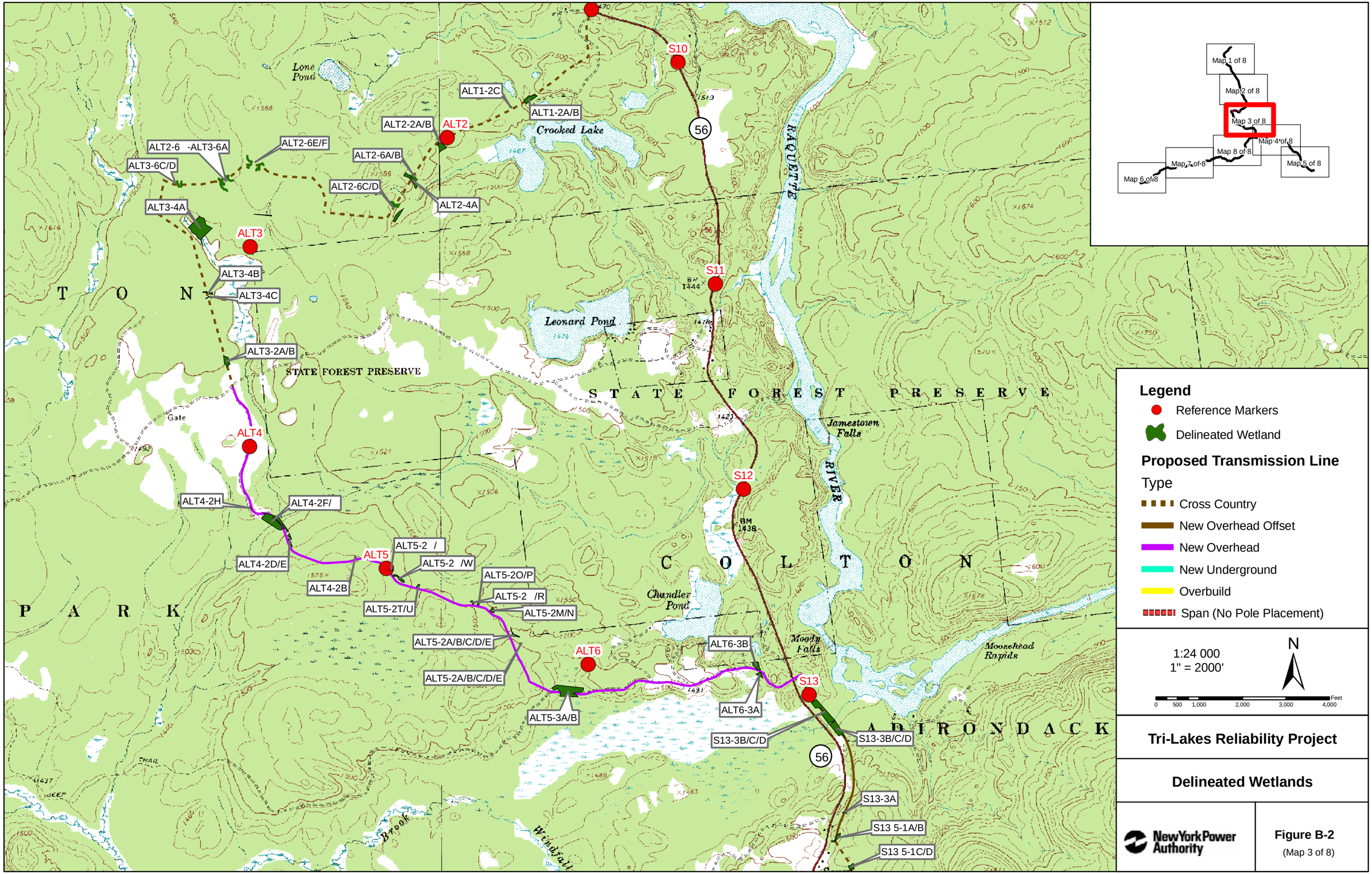


Tri-Lakes Reliability Project

Delineated Wetlands

NewYorkPower Authority

Figure B-2
(Map 2 of 8)

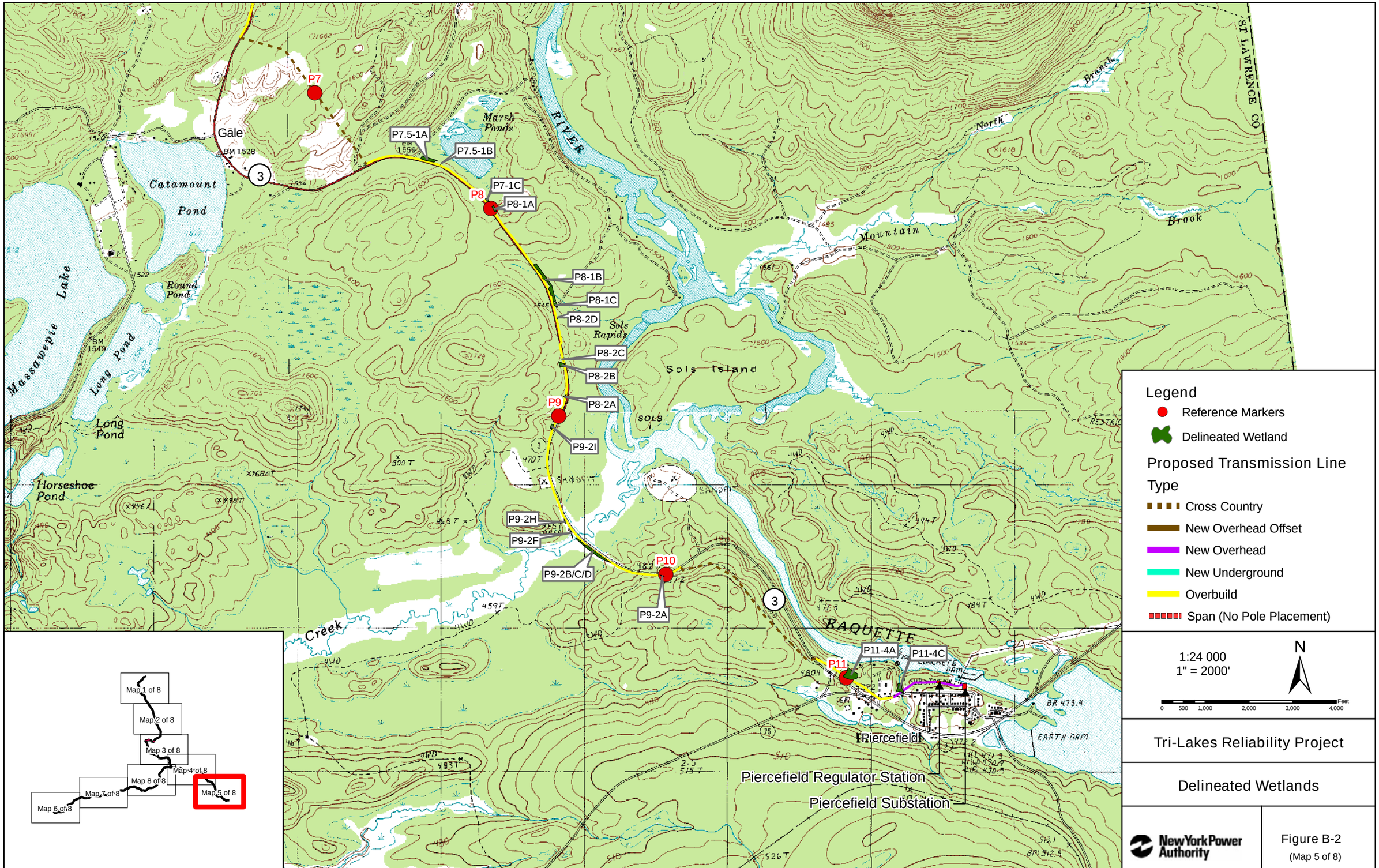

Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
Legend
Reference Markers
Delineated Wetland
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
Feet
0 500 1,000 2,000 3,000 4,000
Tri-Lakes Reliability Project
Delineated Wetlands
New York Power Authority
Figure B-2
(Map 3 of 8)
S10
S11
S12
S13
ALT1-2C
ALT1-2A/B
ALT2
ALT2-2A/B
ALT2-6E/F
ALT2-6 -ALT3-6A
ALT3-6C/D
ALT2-6A/B
ALT2-6C/D
ALT2-4A
ALT3-4A
ALT3
ALT3-4B
ALT3-4C
ALT3-2A/B
ALT4
ALT4-2H
ALT4-2F/
ALT4-2D/E
ALT4-2B
ALT5
ALT5-2 /
ALT5-2 /W
ALT5-2O/P
ALT5-2 /R
ALT5-2M/N
ALT5-2T/U
ALT5-2A/B/C/D/E
ALT5-2A/B/C/D/E
ALT5-3A/B
ALT6
ALT6-3B
ALT6-3A
S13-3B/C/D
S13-3B/C/D
S13-3A
S13 5-1A/B
S13 5-1C/D
Lone Pond
Crooked Lake
Leonard Pond
Chandler Pond
Jamestown Falls
Moody Falls
Moosehead Rapids
RAQUETTE RIVER
STATE FOREST PRESERVE
STATE FOREST PRESERVE
T O N
C O L T O N
P A R K
ADIRONDACK
56
56
Gate
TRAIL
JEEP
Brook
Windfall

Tri-Lakes Reliability Project

Delineated Wetlands

New York Power Authority

Figure B-2
(Map 4 of 8)

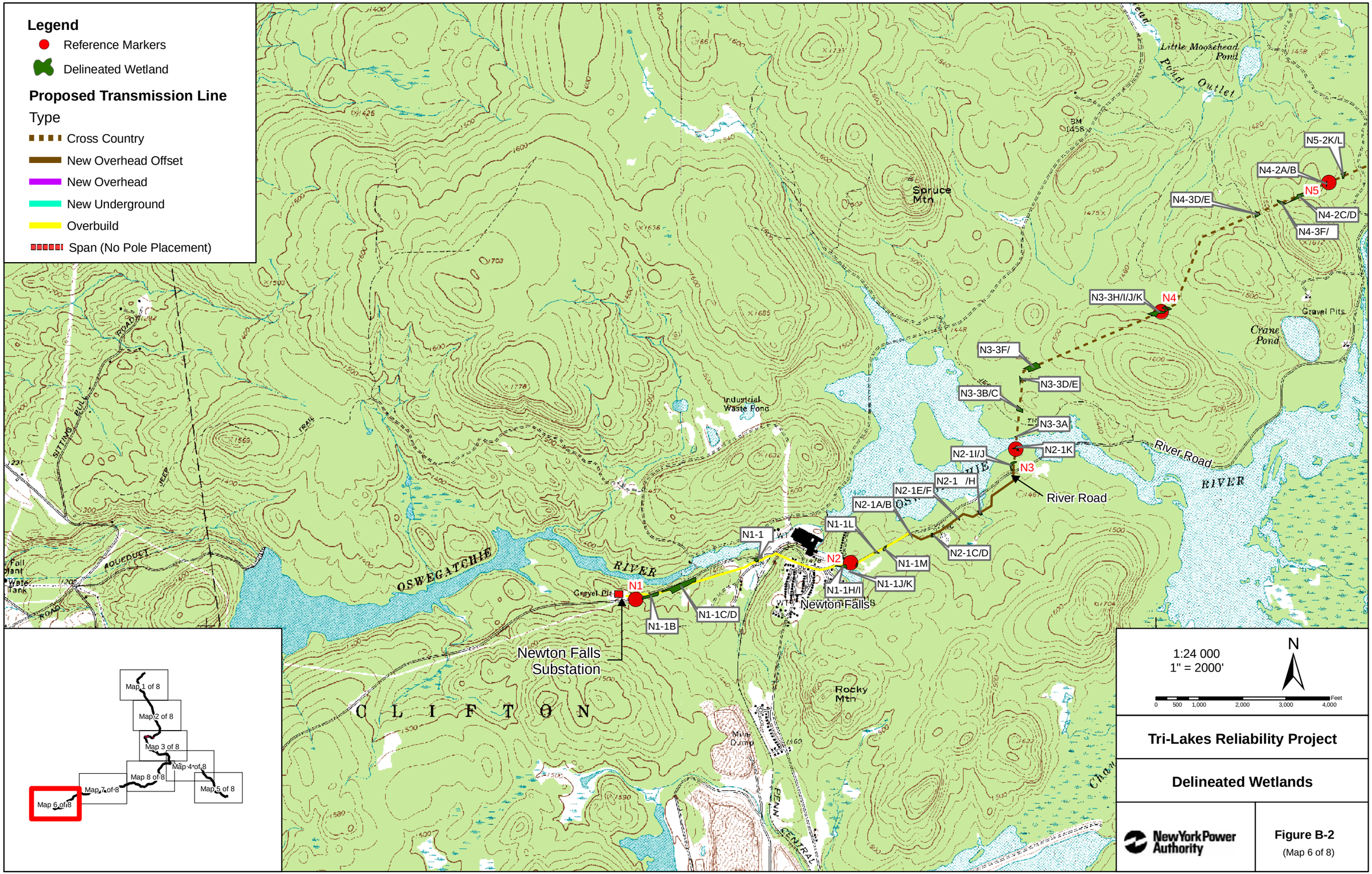


Tri-Lakes Reliability Project

Delineated Wetlands

NewYorkPower Authority

Figure B-2
(Map 5 of 8)

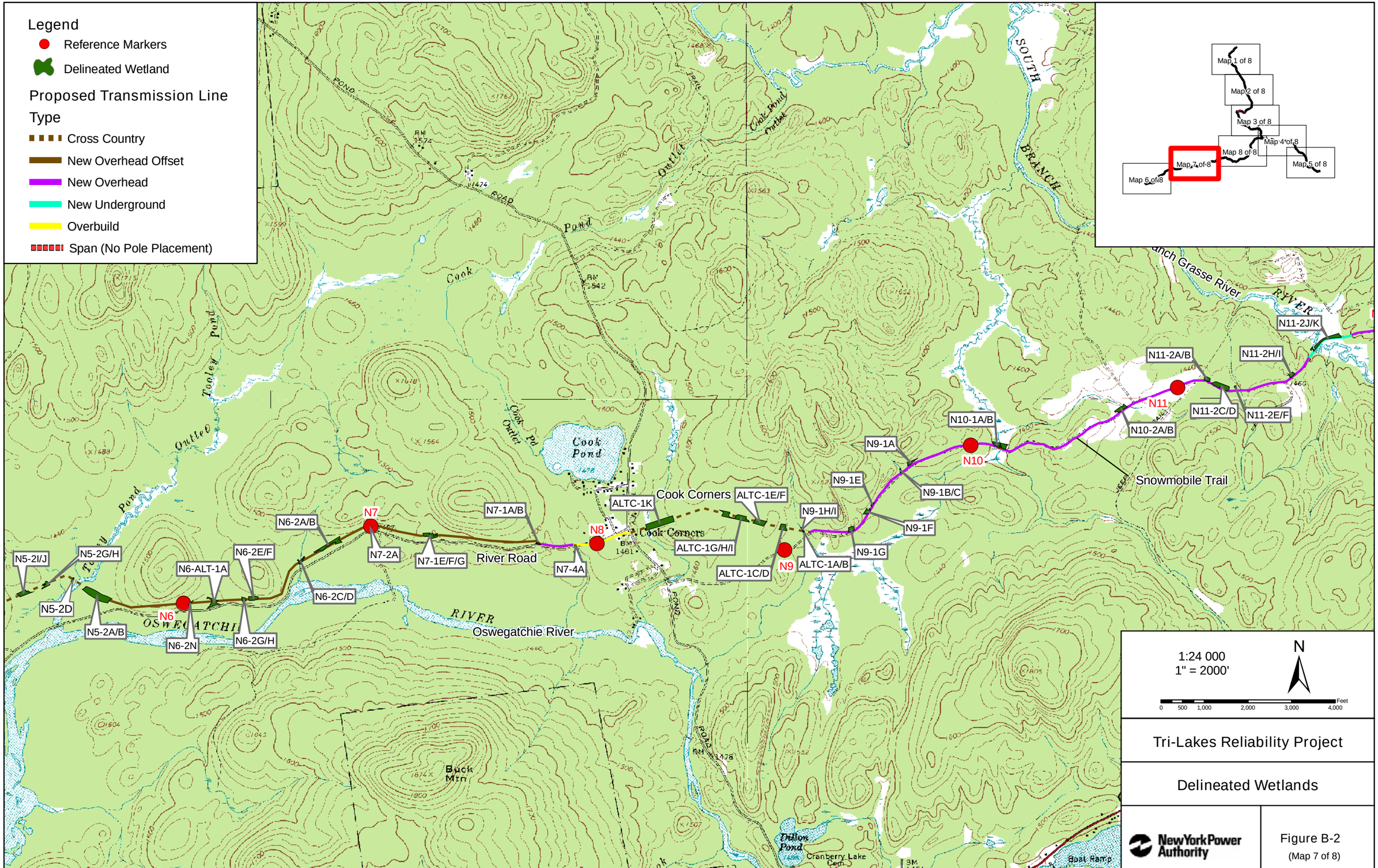


Tri-Lakes Reliability Project

Delineated Wetlands

New York Power Authority

Figure B-2
(Map 6 of 8)

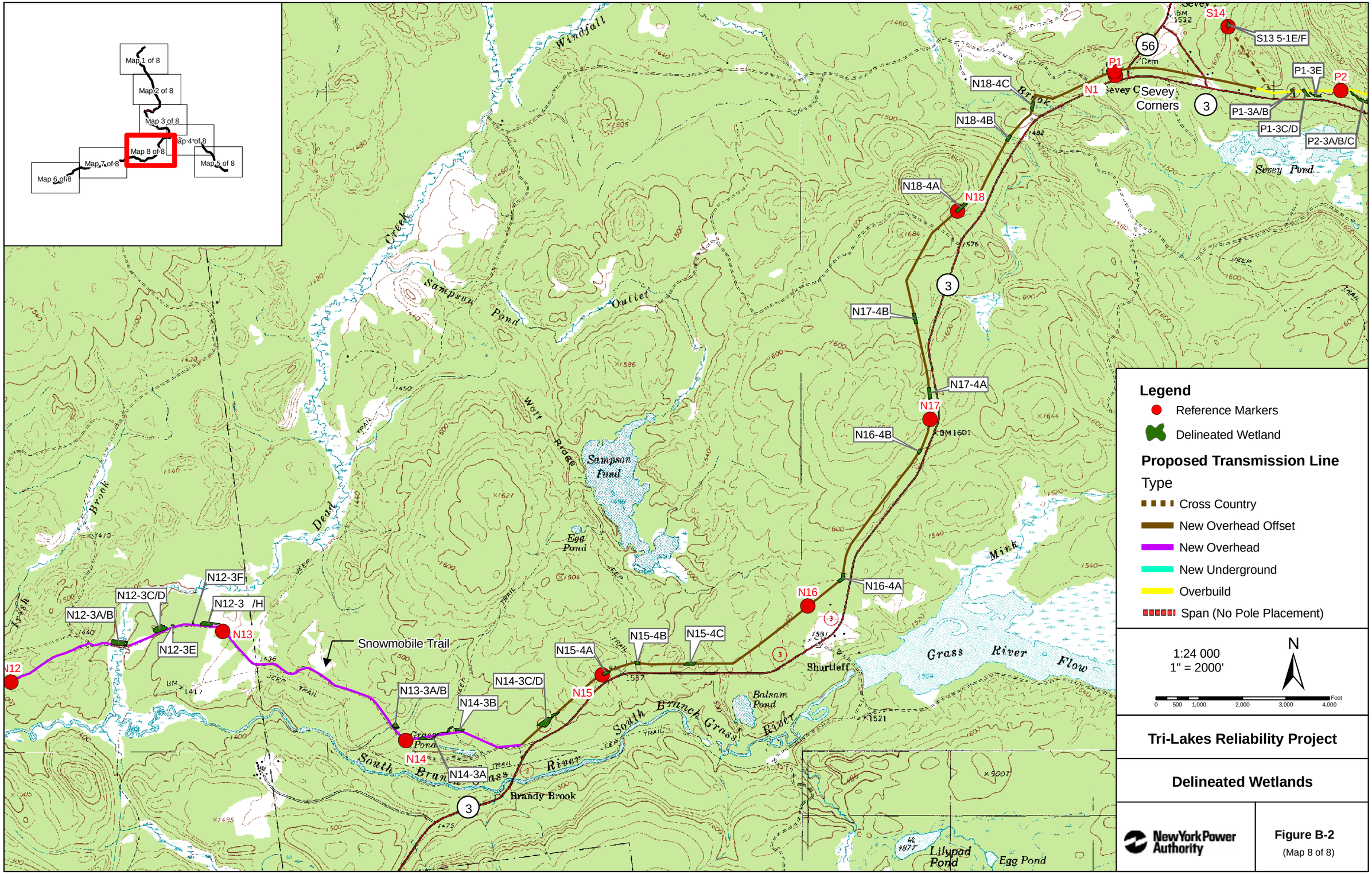


Tri-Lakes Reliability Project

Delineated Wetlands

NewYorkPower Authority

Figure B-2
(Map 7 of 8)



Tri-Lakes Reliability Project

Delineated Wetlands

New York Power Authority

Figure B-2
(Map 8 of 8)

ATTACHMENT 4

WETLAND DATA SHEETS

(INCLUDING SKETCH MAPS)

Link to Attachment 4. Scanned Wetland Data Sheets

ATTACHMENT 5

WETLAND PHOTOGRAPHS

Preferred Route
Stark Segment

S2-2A (Northeast View, 5/23/05)

S2-2B (Southeast View, 5/23/05)

S2-2B (Southwest View, 5/23/05)

S2-2D/E (West View, 5/23/05)

S2-2D/E (North View 5/23/05)

S2-3A (West View, 5/24/05)

S2-3A (North View, 5/24/05)

S2-3B (Southeast View, 5/24/05)

S3-3A/B (North View, 5/23/05)

S3-3A/B (Southeast View, 5/23/05)

S3-3C/D (West View, 5/23/05)

S3-3E (South View, 5/24/05)

S3-3F (Southeast View, 5/24/05)

S3-3H (Northwest View, 5/24/05)

S3-3I (West/Southwest View 5/24/05)

S3-3J/K (North/Northwest View, 5/24/05)

S3-3J/K (West/Southwest View, 5/24/05)

S3-3L (West View, 5/24/05)

S4-3A (Northwest View, 5/23/05)

S4-3A (West View, 5/23/05)

S4-3B (Northwest View, 5/23/05)

S5-3A (Northeast View, 5/19/05)

S5-3B/C (Northeast View, 5/19/05)

S5-3D/E (East View, 5/19/05)

S5-3D/E (North/Northwest View, 5/19/05)

S5-3F/G (Southwest View, 5/19/05)

S6-3A (Northeast View, 5/19/05)

S6-3B/C (North View, 5/19/05)

S6-3B/C (Southwest View, 5/19/05)

S6-3D (Northeast View, 5/19/05)

S6-3E (North View, 5/19/05)

S7-3A/B (East View, 5/19/05)

S7-3C (East View, 5/20/05)

S7-3D (East View, 5/20/05)

S7-3E (Northeast View, 5/20/05)

S7-3F (North/Northeast View, 5/20/05)

S7-3G (Northeast View, 5/20/05)

S7-3J/K (Southwest View, 5/20/05)

S8-3A (East View, 5/20/05)

S8-3B (Northwest View, 5/20/05)

S8-3C (East View, 5/20/05)

S8-3D (Northeast View, 5/20/05)

S8-3E/F (Northwest View, 5/20/05)

ALT1-2A/B (West View, 5/24/05)

ALT1-2C (Northwest View, 5/24/05)

ALT2-2A/B (North View, 5/24/05)

ALT2-4A (South View, 5/24/05)

ALT3-4A (East View, 9/8/05)

ALT3-4B (Southwest View, 9/8/05)

ALT3-4C (Southeast View, 9/8/05)

ALT3-2A/B (Southeast View, 9/8/05)

ALT4-2B (North View, 5/20/05)

ALT4-2D/E (Northeast View, 5/20/05)

ALT4-2F/G (Northeast View, 5/20/05)

Alt4-2H (Southeast View, 5/21/05)

ALT5-2A through K (Southeast View, 5/18/05)

ALT5-2M/N (Northwest View, 5/20/05)

ALT5-20/P (East View, 5/20/05)

ALT5-2Q/R (Northeast View, 5/20/05)

ALT5-2V/W (Southeast View, 5/20/05)

ALT5-2X/Y (Southwest View, 5/20/05)

ALT5-3A/B (Northweast View, 5/18/05)

ALT5-3A/B (East View, 5/18/05)

ALT6-3B (Northwest View, 5/18/05)

S9-2I/J (South View, 5/19/05)

S9-2L/M (Northwest View, 5/19/05)

S13-3A (North View, 5/18/05)

S13-3B/C/D (Northwest View, 5/18/05)

S13-3B/C/D (Souteast View, 5/18/05)

S13.5-1A/B (North View, 8/28/05)

S13.5-1C/D (Northeast View, 8/28/05)

S13.5-1E/F (Northeast View, 8/28/05)

Alternate Route
Newton Falls Segment

N1-1A (Northeast View, 8/26/05)

N1-1B (Southwest View, 8/26/05)

N1-1C/D (Southwest View, 8/26/05)

N2-1A/B (North View, 5/10/05)

N2-1C/D (West View, 5/10/05)

N2-1C/D (North View, 5/10/05)

N2-1E/F (Northeast View, 5/10/05)

N2-1G/H (Southwest View, 5/10/05)

N2-1G/H (Southeast View, 5/10/05)

N2-1I/J (North View, 5/10/05)

N2-1K (Northeast View, 5/10/05)

N2-1K Northwest View 5/10/05)

N3-3A (North View, 5/16/05)

N3-3B/C (North View, 5/16/05)

N3-3D/E (North View 5/16/05)

N3-3F/G (Southwest, 5/16/05)

N3-3H/I/J/K (Northeast View, 5/16/05)

N4-2A/B (North View, 5/16/05)

N4-2C/D (West View, 5/16/05)

N4-3D/E (Northeast View, 5/16/05)

N4-3F/G (Northeast View, 5/16/05)

N5-2A/B Northeast View, 5/14/05)

N5-2D (Southwest View, 5/16/05)

N5-2D (South/Southeast View, 5/16/05)

N5-2G/H (East/Northeast View, 5/16/05)

N5-2I/J (West View, 5/15/05)

N5-2K/L (North/Northwest View, 5/16/05)

N6-2A/B (Northwest View, 5/13/05)

N6-2A/B (Northwest View, 5/13/05)

N6-2C/D (South View, 5/13/05)

N6-2E/F (East View, 5/13/05)

N6-2G/H (East/Northeast View, 5/14/05)

N6-2N (Northwest View, 5/14/05)

N7-1A/B (Southeast View, 5/14/05)

N7-1E/F/G (West View, 5/14/05)

N7-2A (West View, 5/13/05)

N9-1A (Southwest View, 5/11/05)

N9-1B/C (South View, 5/11/05)

N9-1E (Northeast View, 5/12/05)

N9-1F (Northeast View, 5/12/05)

N9-1G (Southwest View, 5/12/05)

N9-1H/I (North View, 5/12/05)

ALTC-1C/D (Southwest View, 5/13/05)

ALTC-1E/F (Southeast View, 5/13/05)

ALTC-1G/H/I (Southeast View, 5/13/05)

ALTC-1J/K (Southwest View, 8/31/05)

N10-1A/B (Southeast View, 5/11/05)

N10-2A/B (Southwest View, 5/11/05)

N11-2A/B (North/Northeast View, 5/11/05)

N11-2C/D (Southeast View, 5/12/05)

N11-2E/F (North View, 5/12/05)

N11-2H/I (West View, 5/12/05)

N11-2J/K (Northwest View, 5/12/05)

N12-3A/B (Northeast View, 5/11/05)

N12-3A/B (Northeast View, 5/11/05)

N12-3C/D (West View, 5/11/05)

N12-3E (Southwest View, 5/11/05)

N12-3F (South View, 5/11/05)

N12-3G/H (South/Southwest View, 5/11/05)

N13-3A/B (North View, 5/12/05)

Preferred and Alternate Routes
Piercefield Segment

P1-3A/B (North View, 5/25/05)

P1-3C/D (North View, 5/25/05)

P1-3E (Southeast View, 5/25/05)

P2-A/B/C (East View, 5/25/05)

P2-3F/G (Southeast View, 5/25/05)

P2-3H/I/J (South/Southeast View, 5/25/05)

P2-3K (South, Southeast View, 5/25/05)

P2-3K (West View, 5/25/05)

P3-1A/B/C (North/Northeast View, 8/28/05)

P5-3A/B (North View, 5/17/05)

P6-3A (North View, 5/17/05)

P6-3B/C (South View, 5/17/05)

P7.5-1A (North/Northwest View, 8/27/05)

P7.5-1B (North/Northeast View, 8/27/05)

P7.5-1C (North View, 8/27/05)

P8-1A (Northeast View, 8/27/05)

P8-1B (Northeast View, 8/27/05)

P8-1C (Southeast View, 8/27/05)

P8-2A (Southwest View, 5/17/05)

P8-2B (North View, 5/17/05)

P8-2D (East View, 5/17/05)

P9-2A (Southeast View, 5/17/05)

P9-2B/C/D (South/Southeast View, 5/17/05)

P9-2F (South View, 5/17/05)

P9-2F (Southwest View, 5/17/05)

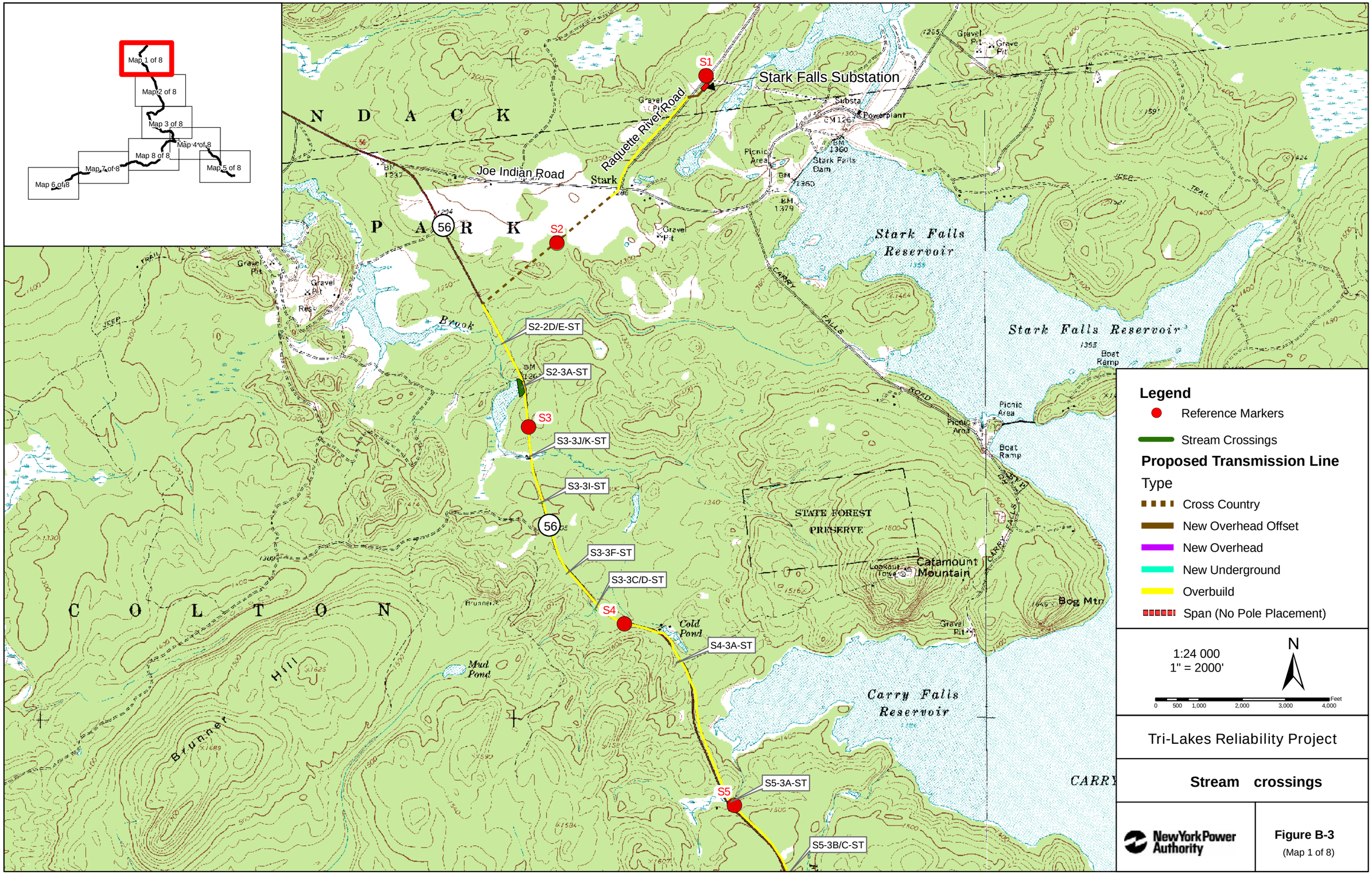
P9-2H (North View, 5/17/05)

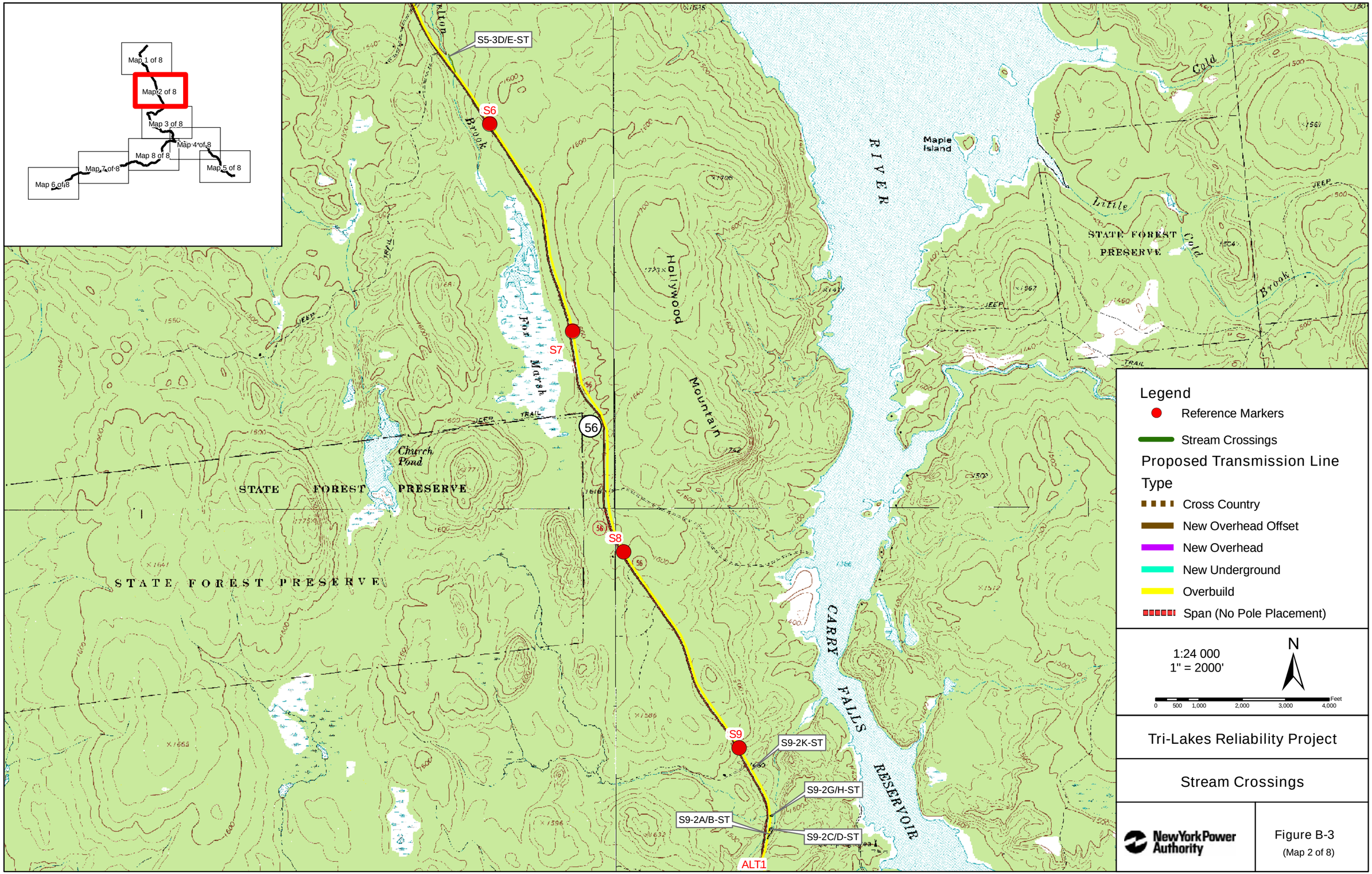
P9-2I (North/Northeast View, 5/17/05

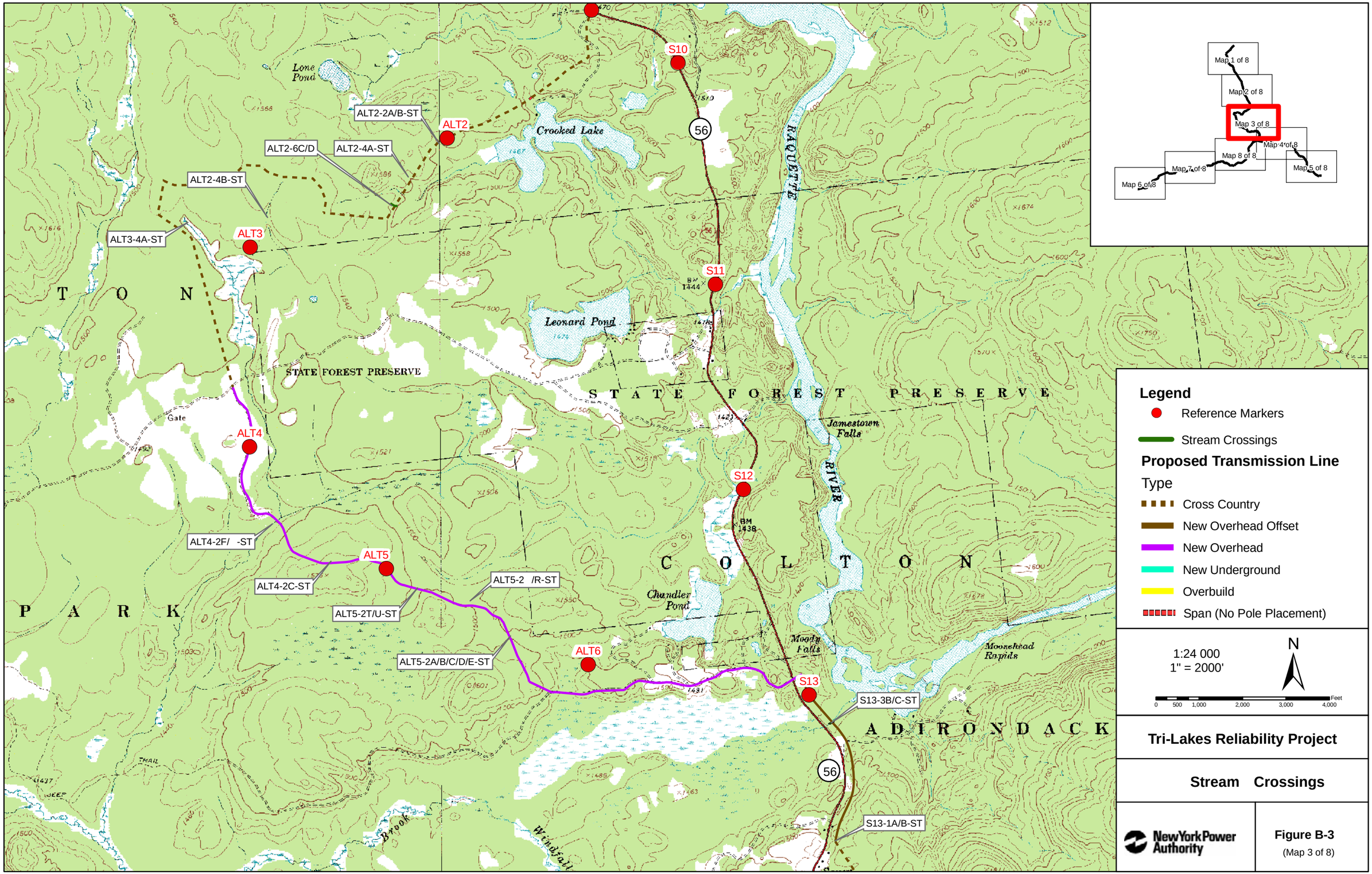
P9-2I (South/Southwest View, 5/17/05)

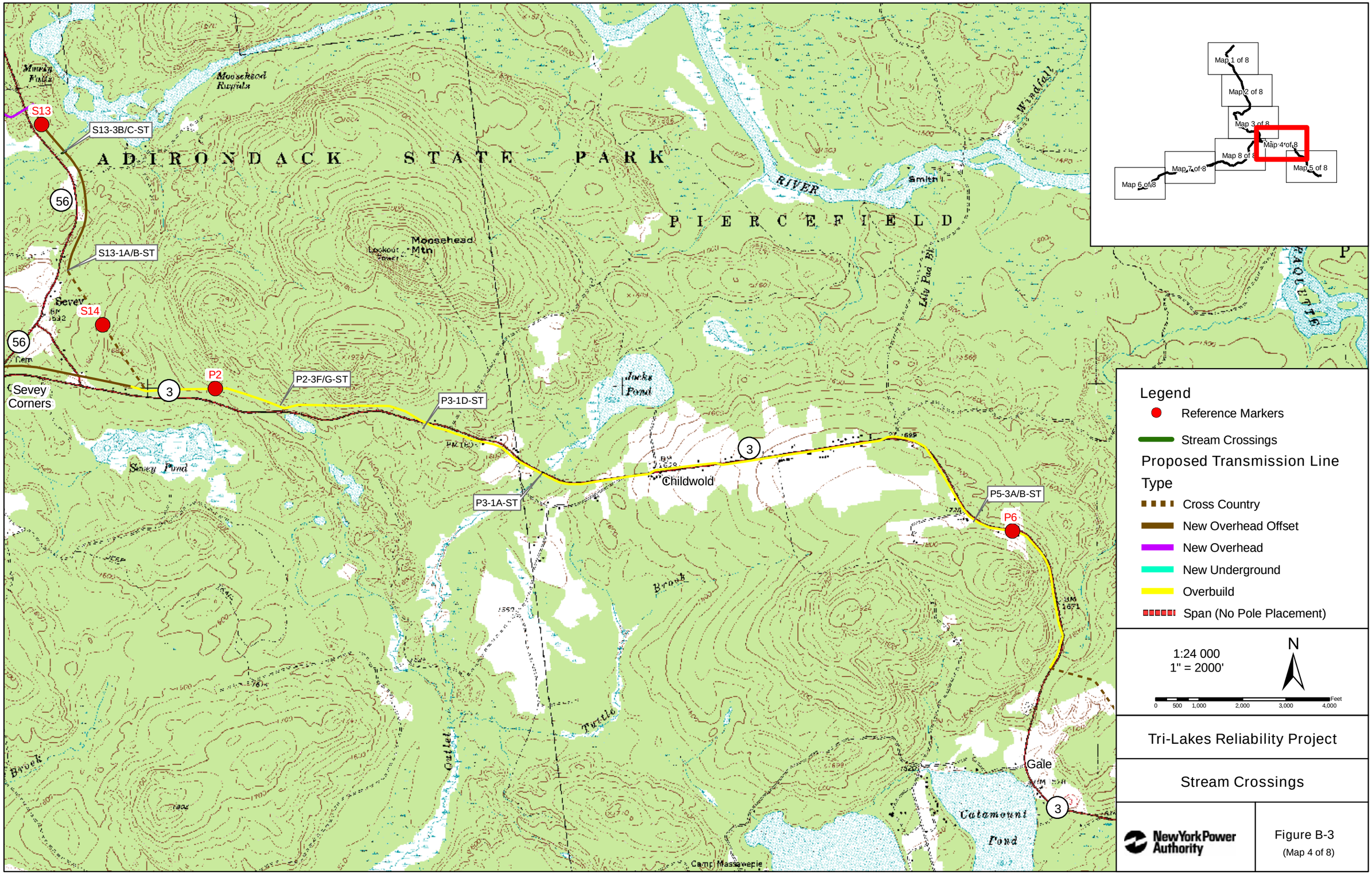
ATTACHMENT 6

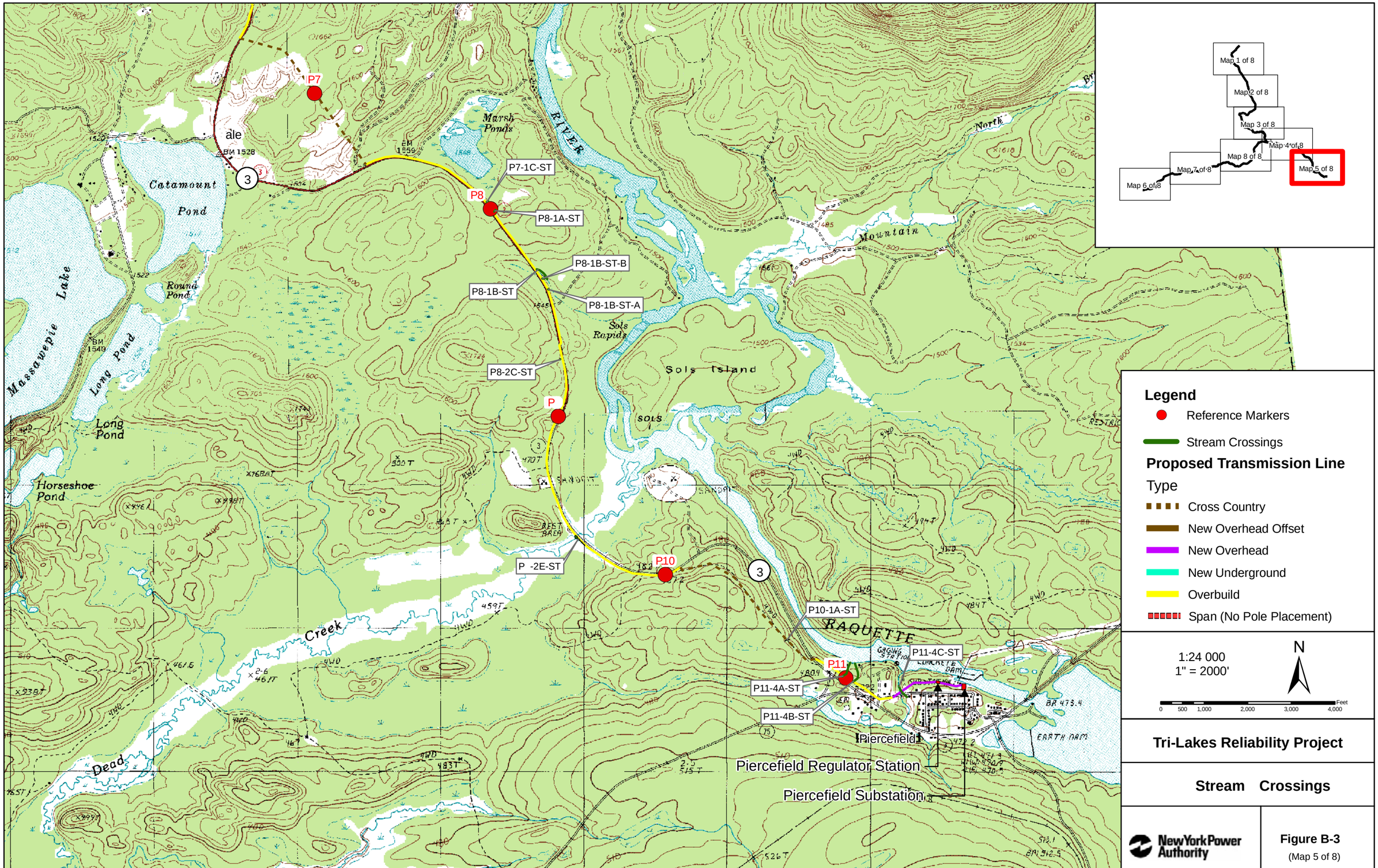
STREAM CROSSINGS FIGURE B-3


Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
S1
Stark Falls Substation
Raquette River Road
Joe Indian Road
Stark
S2
S2-2D/E-ST
S2-3A-ST
S3
S3-3J/K-ST
S3-3I-ST
S3-3F-ST
S3-3C/D-ST
S4
S4-3A-ST
S5
S5-3A-ST
S5-3B/C-ST
56
Stark Falls Reservoir
Carry Falls Reservoir
STATE FOREST PRESERVE
Catamount Mountain
Bog Mtn
Cold Pond
Mud Pond
Brunner Hill
Legend
Reference Markers
Stream Crossings
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
Feet
0 500 1,000 2,000 3,000 4,000
Tri-Lakes Reliability Project
Stream crossings
NewYorkPower Authority
Figure B-3
(Map 1 of 8)


Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
S5-3D/E-ST
S6
S7
S8
S9
ALT1
S9-2K-ST
S9-2G/H-ST
S9-2A/B-ST
S9-2C/D-ST
Maple Island
RIVER
Hollywood
Mountain
Fox Marsh
Church Pond
STATE FOREST PRESERVE
Little Cold Brook
CARRY FALLS RESERVOIR
Legend
Reference Markers
Stream Crossings
Proposed Transmission Line Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
Feet
0 500 1,000 2,000 3,000 4,000
Tri-Lakes Reliability Project
Stream Crossings
NewYorkPower Authority
Figure B-3
(Map 2 of 8)


Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
S10
S11
S12
S13
ALT2
ALT3
ALT4
ALT5
ALT6
ALT2-2A/B-ST
ALT2-6C/D
ALT2-4A-ST
ALT2-4B-ST
ALT3-4A-ST
ALT4-2F/ -ST
ALT4-2C-ST
ALT5-2T/U-ST
ALT5-2 /R-ST
ALT5-2A/B/C/D/E-ST
S13-3B/C-ST
S13-1A/B-ST
Lone Pond
Crooked Lake
Leonard Pond
Chandler Pond
Jamestown Falls
Moody Falls
Moosehead Rapids
RAQUETTE RIVER
STATE FOREST PRESERVE
STATE FOREST PRESERVE
T O N
P A R K
C O L T O N
A D I R O N D A C K
56
Legend
Reference Markers
Stream Crossings
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
0 500 1,000 2,000 3,000 4,000 Feet
Tri-Lakes Reliability Project
Stream Crossings
NewYorkPower Authority
Figure B-3
(Map 3 of 8)


S13
S13-3B/C-ST
S13-1A/B-ST
S14
P2
P2-3F/G-ST
P3-1D-ST
P3-1A-ST
P5-3A/B-ST
P6
ADIRONDACK STATE PARK
PIERCEFIELD
Moosehead Rapids
Moosehead Mtn
Lookout Tower
Sevey
Sevey Corners
Sevey Pond
Jocks Pond
Childwold
Turtle Brook
Catamount Pond
Gale
Camp Massawepie
Smith
RIVER
Lily Pad Bk
Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
Legend
Reference Markers
Stream Crossings
Proposed Transmission Line Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
0 500 1,000 2,000 3,000 4,000 Feet
Tri-Lakes Reliability Project
Stream Crossings
NewYorkPower Authority
Figure B-3
(Map 4 of 8)

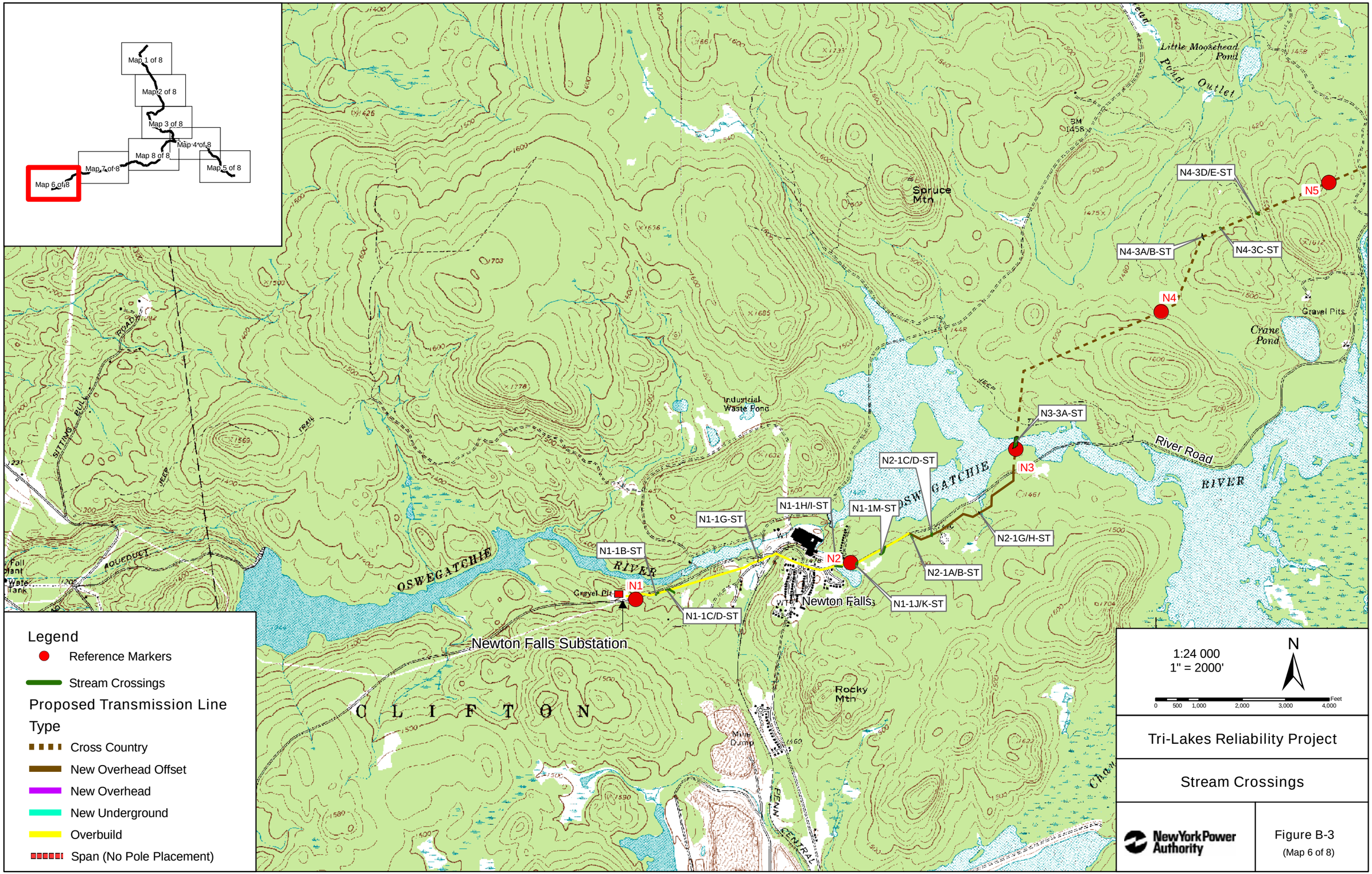


Tri-Lakes Reliability Project

Stream Crossings

NewYorkPower Authority

Figure B-3
(Map 5 of 8)

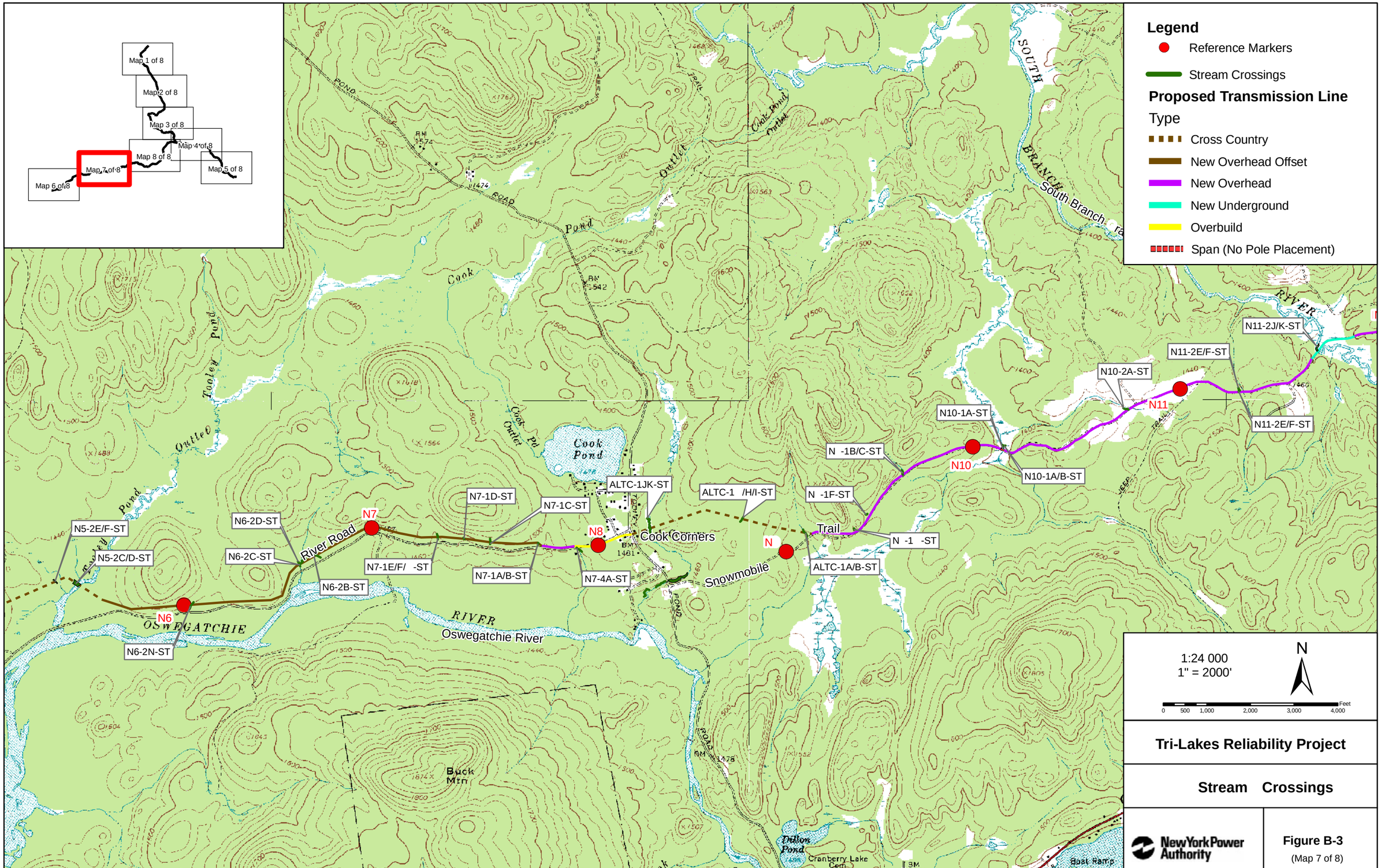


Tri-Lakes Reliability Project

Stream Crossings

NewYorkPower Authority

Figure B-3
(Map 6 of 8)

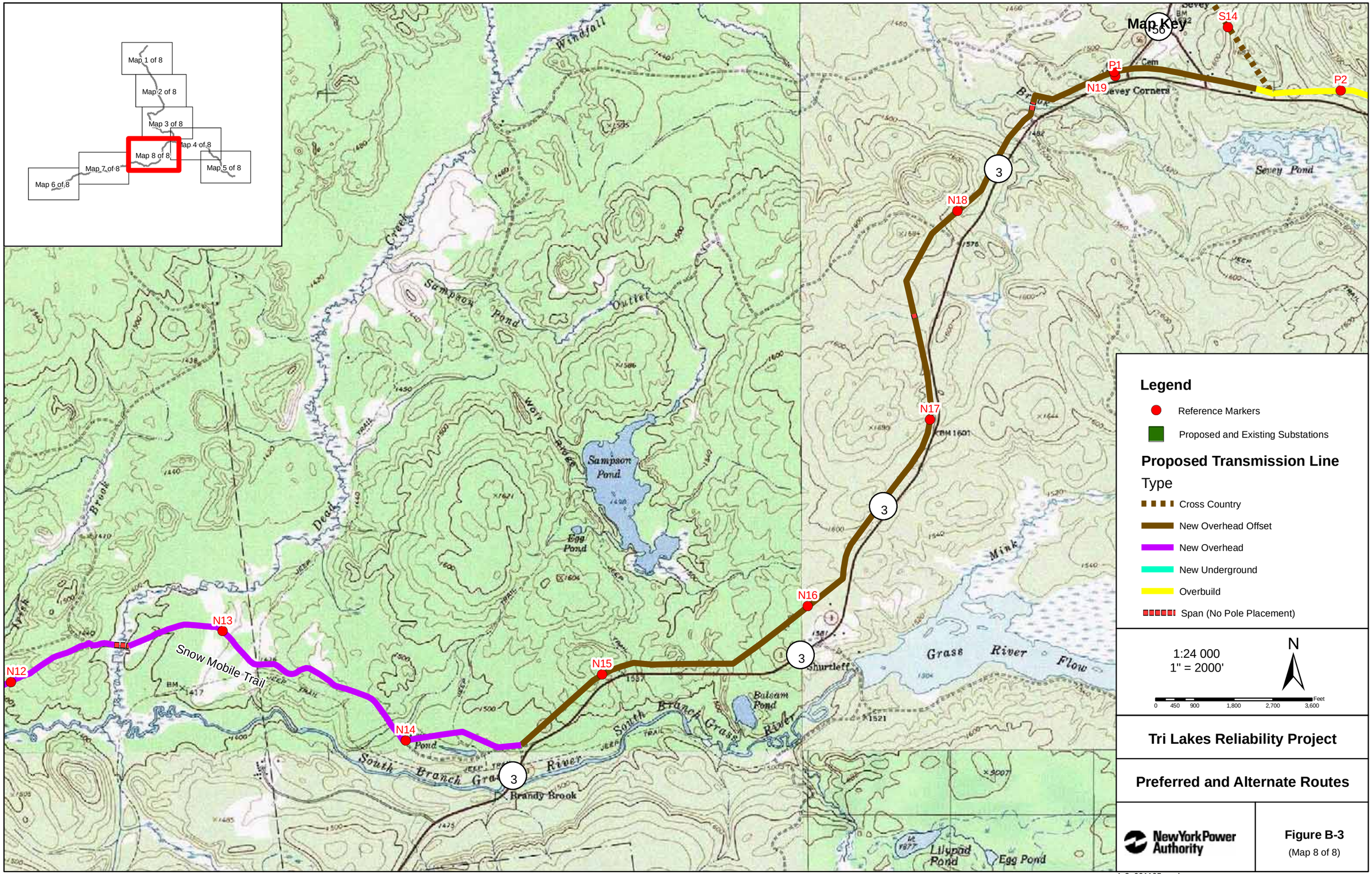


Tri-Lakes Reliability Project

Stream Crossings

New York Power Authority

Figure B-3
(Map 7 of 8)



Tri Lakes Reliability Project

Preferred and Alternate Routes

New York Power Authority

Figure B-3
(Map 8 of 8)

A-3_091105.mxd

ATTACHMENT 7

STREAM CROSSING DATA SHEETS

(INCLUDING SKETCH MAPS)

Link to Attachment 7. Scanned Stream Crossing Data Sheets