

**STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE**

Docket No. 2015-06

**Joint Application of Northern Pass Transmission, LLC
and Public Service Company of New Hampshire
d/b/a Eversource Energy for a Certificate of Site and Facility**

**SUPPLEMENTAL PREFILED DIRECT TESTIMONY
OF
BETH FENSTERMACHER, ASSISTANT CITY PLANNER**

April 17, 2017

Background and Qualifications – Beth Fenstermacher

Q. Please state your name, title and business address.

A. My name is Beth Fenstermacher. My work address is 41 Green Street, Concord, New Hampshire 03301. I am the Assistant City Planner for the City of Concord.

Purpose of Supplemental Testimony

Q. What is the purpose of this supplemental pre-filed direct testimony?

A. The supplemental pre-filed testimony provides clarification and a correction to Exhibit A of my previous testimony, which is the set of plans submitted in the Northern Pass application entitled Project Map February 2016. The supplemental pre-filed testimony also provides clarification about my earlier testimony to the extent that such information was requested in data requests and/or raised during my technical session.

Exhibit A - Project Map February 2016

Q. Have you updated Exhibit A that was attached to your pre-filed testimony dated December 30, 2016?

A. Yes. The document attached as Exhibit A to my pre-filed testimony in December 30, 2016 was a set of plans that was modified to reference all of the current and proposed height of structures. The purpose of including notes about the current and proposed structure heights on the set of plans was to make it easier to identify the areas where there would be an increase in the height of the structures. That document was attached to my pre-filed testimony as Exhibit A. In Exhibit A, I used the estimated height of 55 feet for the current structures along the existing 115-

1 kV line that is proposed to be relocated in Concord. I also used 75 feet as an estimate for the
2 existing structures along the 115-kV line that is not being relocated. The estimated heights of the
3 structures were taken from the typical cross-sections provided in the NH Department of
4 Environmental Services Wetlands Application materials provided by the Applicants.

5 In order to provide more specific and accurate information about the existing heights of
6 structures, I am now attaching a new Exhibit A-1 which contains the *actual heights* of the
7 structures along the 115-kV line that are proposed to be relocated. The height information was
8 provided by the Applicants in response to a data request. This list is included in the last page of
9 Exhibit A-1. It was an oversight not to include the actual heights in my earlier Exhibit A.

10 The current height of the existing structures is written in *red* ink. The proposed height of
11 the relocated and new structures is written in *black* ink. The last page of Exhibit A-1 is the list of
12 the existing structure heights that was provided to the City in Concord in response to a data
13 request.

14 **Communications with Property Owners**

15 **Q. In your pre-filed testimony and at your technical session, you discussed**
16 **concerns about Alton Woods, which is an apartment complex in the City of Concord. Have**
17 **you had a recent conversation with the property owner of Alton Woods?**

18 A. Yes. I recently spoke to Alan Johnson at the Hodges Companies, which is the
19 property owner of Alton Woods. Alan Johnson raised a number of concerns about the Northern
20 Pass proposal, including the proposed height of the poles, the impacts to the open area under the

1 existing transmission lines that is currently used as a community amenity for outdoor recreation
2 and walking trails, and possible obstruction to the existing access to adjacent property owned by
3 the Hodges Companies which is used for additional vehicle storage. Additional concerns include
4 potential safety issues associated with an electrical field produced under the power lines, noise
5 pollution and increased visibility from the removal of the vegetative buffer along Interstate 393,
6 and additional concerns about the potential impact on future development on adjacent parcels.
7 Further, he indicated that despite voicing these concerns to Eversource in 2014, and his desire to
8 see the poles buried, the project as currently proposed reflects a more significant physical impact
9 to the easement area. Mr. Johnson indicated that he was pleased with the negotiation process
10 with Unitil regarding their cooperation and understanding his concerns regarding their pole
11 heights and locations where crossing Interstate 393. Mr. Johnson also sent me a letter
12 summarizing his concerns, which is attached as Exhibit F.

13 **Q. Mr. Johnson references the heights of structures proposed to cross Interstate**
14 **393. What is your understanding of pole heights that are now being proposed to cross**
15 **Interstate 393?**

16 **A.** The Department of Transportation raised concerns about the crossing of the
17 bridge. In response, according to information received from the Department of Transportation,
18 Northern Pass proposed to co-locate the lines on structures that are 155 feet. More recently,
19 information was provided that the structures are now proposed to be 160 feet. These proposed

1 structures will be along Portsmouth Street and also in close proximity to Alton Woods. The
2 height of 155 or 160 feet far exceeds the height of any other structures in the area.

3 **Q. Mr. Johnson also references that he was able to successfully work with Unitil**
4 **to reduce the height of structures being constructed in the right of way corridor. Can you**
5 **explain the Unitil project?**

6 A. The Unitil project involves a reliability project for the Concord region. They
7 were originally looking at using 130 foot poles. They instead were able to work with the owners
8 of Alton Woods to obtain an increased right of way, and by doing so, were able to move the
9 poles away from the bridge over Interstate 393 and to reduce the height of the structures to
10 approximately 40 feet. It is my understanding that Northern Pass has not had any
11 communications with Alan Johnson to try to similarly reduce the height of the pole structures.

12 **Q. Have you had any conversations with other owners of properties along the**
13 **route?**

14 A. Yes. As discussed during the technical session, I also met with Mr. and Mrs.
15 Lawrence, the owners of 37 Snow Pond Road. The owners raised a number of concerns about
16 the Northern Pass plans, including removal of the existing tree buffer between their house and
17 the transmission line and disruption to their driveway during construction. The proposed
18 construction access road crosses their driveway, and it is unclear to the home owners how this
19 will limit access to and from their home during construction and what condition the driveway
20 will be returned to after construction. They stated that they are afraid of what the project will do

1 to the buffer line that blocks their current view to the poles, and also upset with the placement of
2 the larger poles being directly in the view from the front of their home. Mr. & Mrs. Lawrence
3 also submitted a letter summarizing their concerns, which is attached as Exhibit G.

4 **Communications with Local Cycling Organizations**

5 **Q. In your pre-filed testimony, you provided information about the amount of**
6 **bicycle rides recorded on Strava in 2015 on areas of Mountain Road, Snow Pond Road,**
7 **Shaker Road and Oak Hill Road. Since that time, have you had a chance to review the**
8 **2016 annual statistics of Strava?**

9 **A.** Yes. As discussed in my pre-filed testimony, the Northern Pass proposed
10 transmission line travels along and over scenic roads that lend to the rural character of Concord.
11 The cycling community uses these roads often because of the scenic character.

12 Strava is a website that is used to keep track of an athlete's activities. According to
13 numbers available through Strava (made available to the City of Concord through the Central
14 NH Regional Planning Commission), in 2015, there were 880 bicycle rides recorded on
15 Mountain Road, 55 bicycle rides recorded on Snow Pond Road, 611 bicycle rides recorded on
16 Shaker Road, and 576 bicycles recorded on Oak Hill Road.

17 I was recently able to receive the statistics for usage in 2016. In 2016, there were 680
18 bicycle rides recorded on Mountain Road, 91 bicycle rides recorded on Snow Pond Road, 929
19 bicycle rides recorded on Shaker Road, and 667 bicycles recorded on Oak Hill Road.

1 **Q. In your pre-filed testimony, you quoted a statistic from an article posted in**
2 **the Guardian stating that 5-10% of cyclists use Strava to track their mileage. Have you**
3 **received any additional information about this estimated use?**

4 A. Yes. A representative from Strava confirmed that approximately 5% of cyclists
5 utilize Strava to track mileage.

6 **Q. During your technical session, you were asked whether any local cycling**
7 **organizations have raised concerns about the impacts to scenic cycling routes resulting**
8 **from the proposed Northern Pass plans. Please provide information to the Site Evaluation**
9 **Committee about any recent communications you have had with local cycling**
10 **organizations.**

11 A. During my technical session, I was asked a number of questions about the use of
12 scenic roads in Concord by the cycling community. In order to provide clarification on this
13 issue, I contacted the Central New Hampshire Bicycle Coalition (CNHBC), the Granite State
14 Wheelmen (GSW), and New Hampshire Cycling Club (NHCC) to obtain information regarding
15 the use by cyclists in Concord areas such as Hoit Road, Mountain Road, Sanborn Road, Snow
16 Pond Road, Shaker Road and Oak Hill Road. I received responsive letters from representatives
17 from all three organizations, which are attached as Exhibit H.

18 In general, the information that I received from the local cycling clubs is as follows.
19 NHCC indicated that they have promoted over 50 bicycle races in Concord in 2016, typically
20 attracting 300-500 riders with spectators. They mentioned that riders often comment on the

1 attractiveness of Concord as a reason for attending their events. Approximately half of the bike
2 routes in Concord utilized Shaker Road, Mountain Road, Hoit Road, Snow Pond Road, and Oak
3 Hill Road. Further, they stated that these roads are popular because of the proximity to
4 downtown for lunchtime rides, as well as because they provide lower trafficked routes for longer
5 rides to Loudon, Chichester, Canterbury, and Pittsfield. They indicated that the most significant
6 visual impacts from Northern Pass will be for riders travelling on Oak Hill Road, with views
7 down the corridor being visible for miles. Although they do not feel that bikers will change their
8 route if Northern Pass is constructed as proposed, they acknowledge that the degradation of the
9 views and the scar on the landscape created by this project will be a permanent loss to the
10 community. NHCC supports the City Council's recommendation to bury the Northern Pass
11 project.

12 CNHBC is a Concord-area education and advocacy group for cyclists. CNHBC
13 recognizes that the roads in East Concord are very popular for bicycling because of their scenic
14 character, and several of the popular ride destinations would involve one or more encounters
15 with the Northern Pass transmission line. CNHBC believes that if the proposal moves forward,
16 some bicyclists will certainly choose to bicycle elsewhere where the landscape is unspoiled.

17 The letter from CNHBC also addresses questions that were raised during my technical
18 session. The duration of visibility of the current lines were measured by a rider proceeding at a
19 pace of 10-12 mph, a reasonable pace for a recreational rider. The findings are summarized in
20 their letter at Exhibit H. CNHBC is of the opinion that the impact of the taller towers will be

1 greater, as the existing towers are mostly a similar height to the forest canopy, which masks the
2 towers from view at a distance. Where the new towers will be above the tree canopy, their
3 presence will be more imposing and they will be visible from greater distances. Additionally,
4 CNHBC is concerned that the proposal will impact the expansive vista of Turtle Pond while
5 bicycling southwest on Oak Hill Road. None of this is appealing to bicyclists seeking to enjoy
6 the pastoral landscapes of East Concord. CNHBC hopes that accommodations will be made by
7 Northern Pass that will minimize the visual impacts on the area if the project moves forward.

8 Mr. David Ross wrote a letter as a member of the Granite State Wheelman cycling club.
9 He indicated that the GSW hosts group rides in Concord three to six times per week, with up to
10 40 people participating. Many of the GSW rides, in particular the Saturday rides, utilize Shaker,
11 Mountain, Oak Hill and Hoit Roads. The rides that take place on Mondays and Wednesdays
12 may also utilize these roads, since the distances are not far for avid road cyclists. He stated that
13 the roads are traversed in both directions, depending on how the groups ride. The new Sewalls
14 Falls Bridge will encourage even more riders as well as cycle-commuters to utilize these roads.
15 Access to towns such as Canterbury, Loudon, Tilton, Belmont and Pittsfield is facilitated by the
16 use of these roads.

17 Mr. Ross believes that the most significant visual impacts will occur on Oak Hill Road
18 westbound (toward East Concord), and on Shaker Road in both directions approaching the height
19 of land south of the southern Snow Pond Road junction. Snow Pond Road will have visual
20 impact as well, as will Hoit Road near the intersection with Mountain Road.

1 Depending on the speed of the cyclists concerned, Mr. Ross state that the visual impact
2 may be for several minutes. While this does not seem to be a long time, any degradation of the
3 scenery is undesirable. For these reasons Mr. Ross supports the Concord City Council's
4 recommendation to bury the Northern Pass line through Concord.

5 **Efforts to Protect Scenic Vistas in Concord**

6 **Q. During the technical sessions and in data requests, there were discussions of**
7 **efforts by the City of Concord to conserve land. It was explained that as part of the Vision**
8 **20/20 process, the City has taken measures to conserve land in order to preserve scenic**
9 **views and vistas. Please discuss in more detail the importance of the ridgeline where the**
10 **Northern Pass corridor is proposed, and some of the measures that the City of Concord has**
11 **taken to preserve land.**

12 A. In 2001, the City of Concord engaged citizens to develop a vision for the future of
13 Concord. In the resultant Vision 20/20 Plan, the importance of scenic vistas in Concord was a
14 consistent theme, and the goal to identify and protect key scenic views was included in the plan.
15 A video was developed during the visioning process, and an excerpt of the video discussing the
16 importance of Concord's views can be viewed at <https://youtu.be/n5d5Pobzg38>. The entire
17 video about the Vision 20/20 process is available at <https://youtu.be/1CIAofBVw08>.

18 The Vision 20/20 plan guided the development of the City's 2030 Master Plan and Open
19 Space Plan, and one of the goals of the Open Space Plan is to maintain and enhance scenic views
20 and natural vistas from the City's roads and public properties. Based on the importance on the

1 protection of views and vistas, the City has taken measures to conserve land with this criterion in
2 mind. A total of 2,296 acres of land in Concord was conserved based on the goals in the Open
3 Space Plan. The conservation commission has spent approximately \$3,700,000 of its funds over
4 the last 10 years to purchase property. This amount does not include matching and other grants
5 received by other organizations to assist in the purchase of property.

6 I am also attaching as Exhibit I some photographs, maps and artwork which depicts the
7 iconic ridgeline in Concord.

8 **Viewshed Analysis – Chesapeake Conservancy**

9 **Q. Please provide a resume of the individual at the Chesapeake Conservancy**
10 **who prepared the viewshed analysis for the City of Concord.**

11 **A.** During your technical session and in data requests, I was asked to provide the
12 resume of Jeffrey Allenby. Mr. Allenby is the Director of Conservation Technology, and he
13 prepared the viewshed analysis. I have attached his resume as Exhibit J.

14 **Q. Has Mr. Allenby worked on other projects in which he used the same**
15 **methodology as the viewshed analysis that he prepared for the City of Concord?**

16 **A.** Yes. As discussed in responses to data requests, in 2013, the Chesapeake
17 Conservancy was retained by George Washington's Mount Vernon to conduct an analysis to
18 model the potential viewshed impacts of development within two counties in Maryland. The
19 Chesapeake Conservancy developed a methodology to model a proposed building and determine
20 if it would be visible from Mount Vernon above the existing treeline. This project was updated in

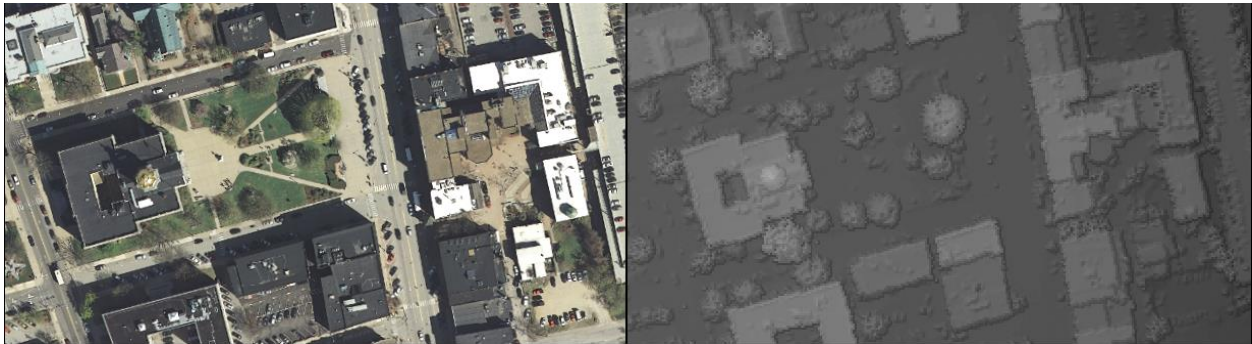
1 2015 to include new Digital Surface Models (DSMs) and Digital Elevation Models (DEMs)
2 processed from updated Light Detection and Ranging (LIDAR) point clouds. The Mount Vernon
3 analysis pioneered the conceptual model of comparing a DSM and visibility Above Ground
4 Layer to a DEM and proposed building/viewer height to assess visibility.

5 In 2014, Chesapeake Conservancy developed an updated visibility analysis methodology
6 to provide a comprehensive model of visual impacts from the 17 proposed towers associated
7 with a 500 kilovolt (kV) line crossing the James River. The resulting viewshed analysis was
8 included in a submission to the Army Corps of Engineers. The methodology for the Northern
9 Pass viewshed analysis was based off of the James River project. However, unlike Concord, the
10 visual impact to multi-story buildings was not calculated for the James River project because it
11 was in a rural area.

12 In 2014, Chesapeake Conservancy was asked by the National Park Service Chesapeake
13 Bay Office (NPS CBO) to help determine the visual impacts to the Captain John Smith
14 Chesapeake National Historic Trail from a proposed bridge across the west branch of the
15 Susquehanna River. The Conservancy successfully adapted the methodology developed for the
16 James River Powerline to work for a bridge, the results of which were submitted by the NPS
17 CBO as part of its official statement regarding the visual impact of the bridge.

18 **Q. Please explain the methodology that was used in analyzing the building**
19 **heights in the Chesapeake Conservancy viewshed analysis.**

1 A. As discussed in responses to data requests resulting from my technical session, all
2 building heights are derived directly from the DSM and represent the actual height of each
3 building as well as the building's roofline, slope, domes, etc. that are present when that data was
4 collected. In a DSM, building heights are not "extruded" based on a given building height and
5 added to the bare earth elevation, this differs from the methodology that was used by the
6 Northern Pass consultant. An example of how buildings (and trees) are represented in the DSM
7 can be seen in the following DSM hillshade:



8 As this DSM was used in all of the analyses, all buildings, including rooflines, steeples, etc., and
9 other above ground structures were taken into account for their blocking potential between the
10 viewer and the transmission towers. This was the case for assessing visibility from ground level
11 and multi-story buildings.

12 **Q. Please provide information regarding how the visibility ranges were assigned**
13 **to buildings that have multiple floors and how was it determined that the Project would be**
14 **visible from a particular building.**

1 A. As also discussed in responses to data requests, assessing visibility for each floor
2 was calculated using the full LIDAR elevation surface (DSM) including other buildings, trees,
3 etc.; and a similar methodology to assessing visibility at ground level. The visibility of each
4 transmission tower was evaluated by identifying areas within a five-foot buffer of buildings
5 where a person standing in a second, third, fourth, or fifth floor window would be able to see the
6 top of a structure. The number of stories for each building was provided to the Conservancy by
7 the City of Concord. As the height of each floor is highly variable between buildings, an average
8 height of eleven feet per floor was incorporated to estimate viewer heights.

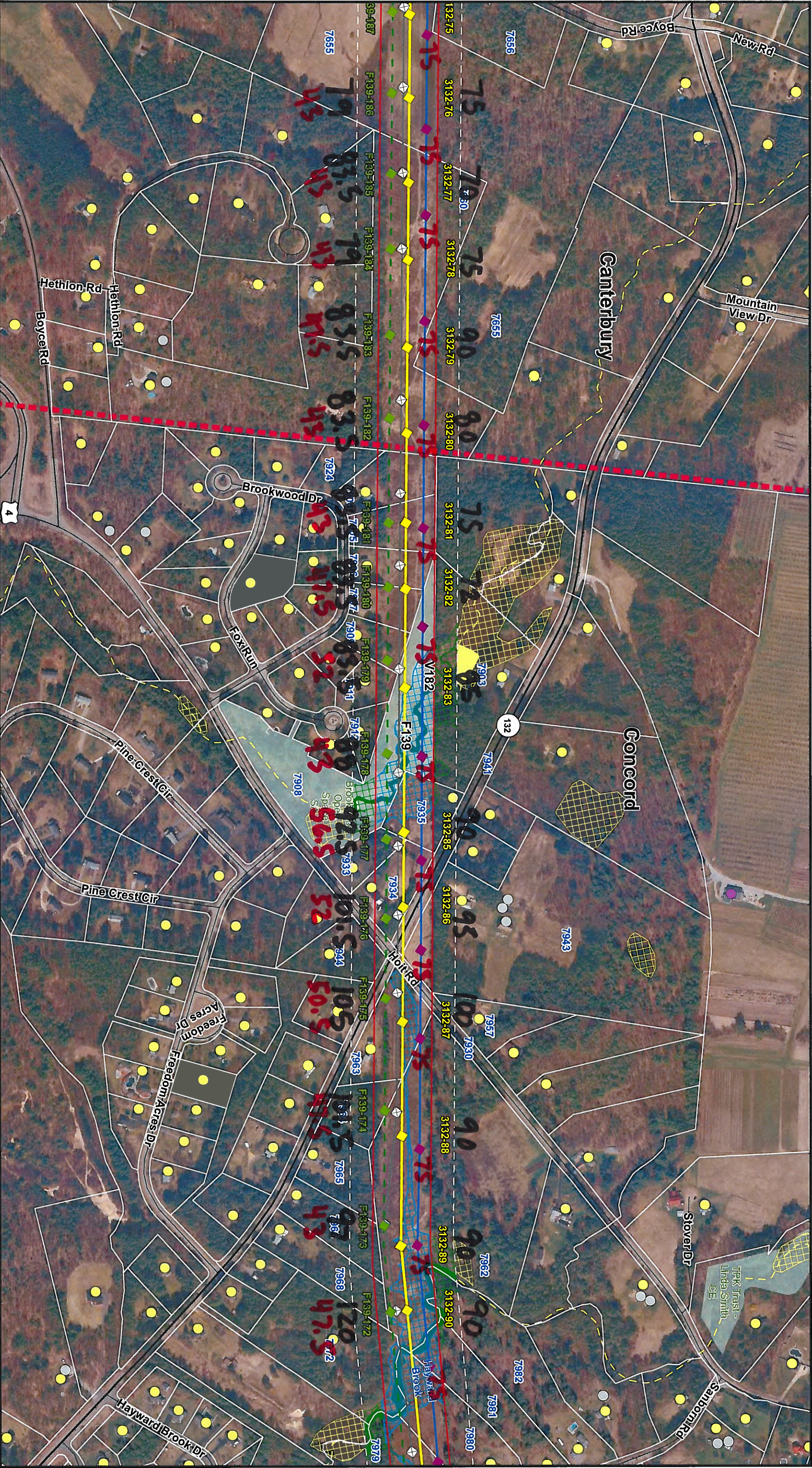
9 The viewer offset was calculated using 5 foot height for the viewer standing on the
10 ground. For multi-story buildings, eleven feet was added for each floor above ground level,
11 resulting in a viewer height of 16 feet above ground level for two story buildings, 27 feet for
12 three story buildings, 38 feet for four story buildings, and 49 feet for five story buildings.


13 To determine whether a proposed structure would be visible from a location, the
14 Conservancy used a formula. If the value is positive, the proposed structure would not be visible
15 and if the value is negative then the proposed structure would be visible from that location.

16 **Q. Does this end your testimony?**

17 A. Yes.


EXHIBIT A-1









































THE NORTHERN PASS

0 150 300 Feet

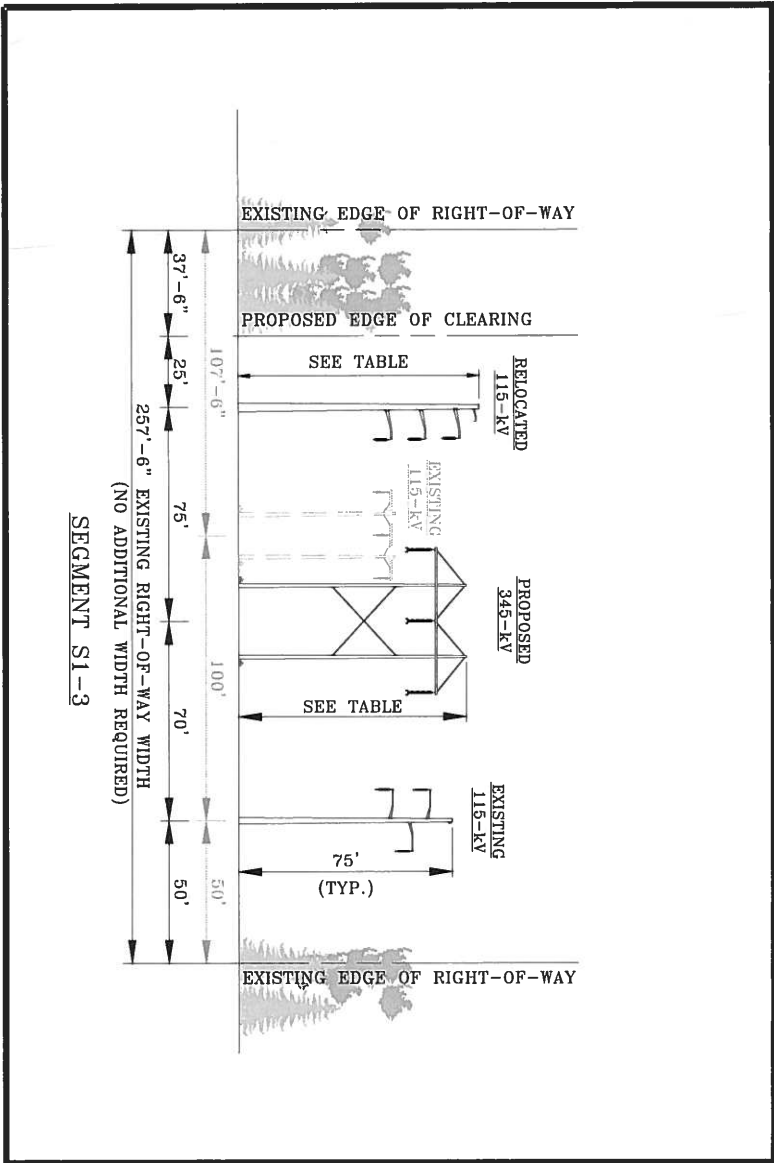
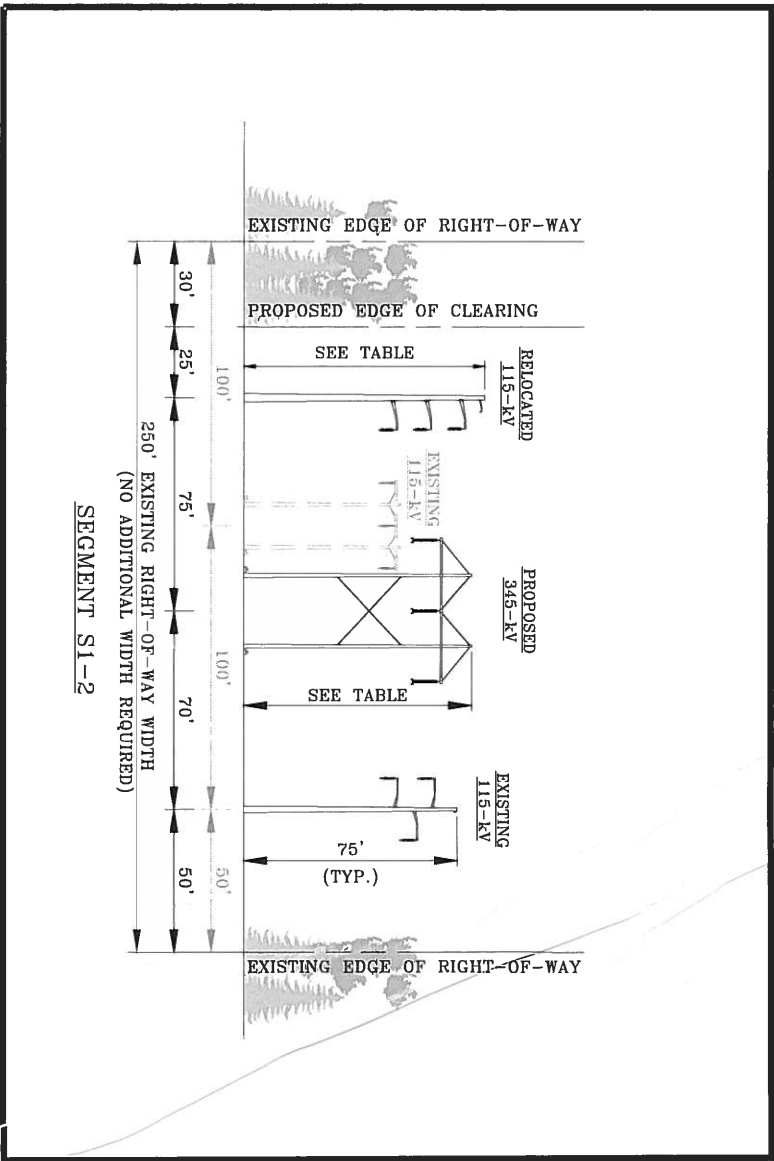


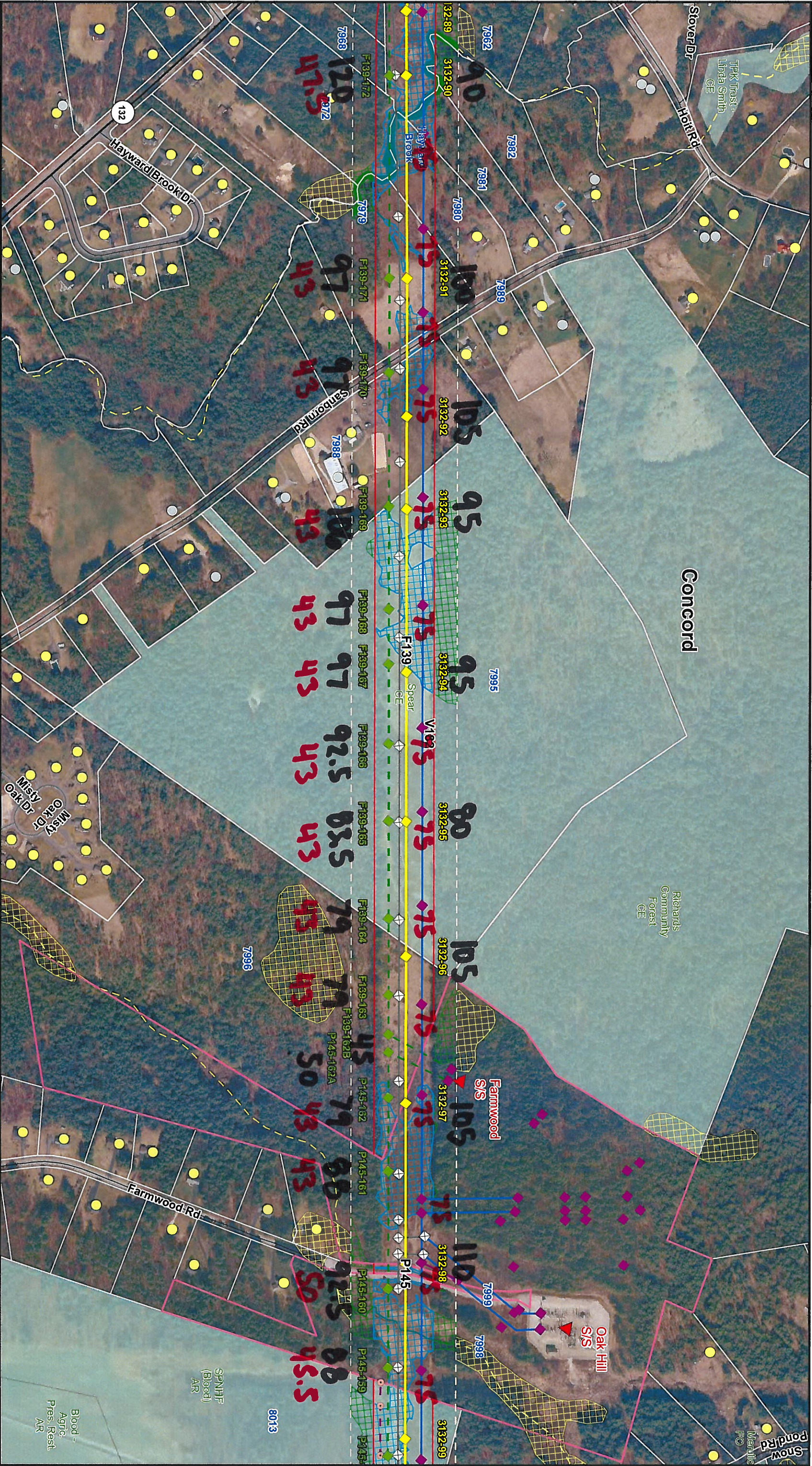
 HVDC Line	 Relocated Distribution Line	 Replacement Structures	 Approximate Wetlands	 Conservation Easement, State/Federal Parks and Public Lands
 HVDC UG - Trenched	 ROW Boundary	 Town Boundary	 Field Delineated Waterbody	
 HVDC UG - Trenchless	 Edge of Corridor	 Property Owner Identification	 Photo-Estimated Waterbody	
 345-kV Line	 Existing Structure	 Eversource Owned Parcels	 Approximate Waterbody	
 Existing 345-kV Line	 Existing Structure - Removed	 Residential Building	 Field Delineated Stream	
 Existing 115-kV Line	 Proposed 345-kV Structure	 Commercial Building	 Photo-Estimated Stream	
 Existing Distribution Line	 Relocated 345-kV Structure	 Other Building	 Approximate Stream	
 Relocated 115-kV Line	 Relocated Structure	 Field Delineated Wetlands	 Extent of Estimated Features	
 Relocated 345-kV Line	 Distribution Pole	 Photo-Estimated Wetlands		

***V102 ASSUMED 75 feet**
Per Northern Pass

The Northern Pass
Transmission Line Project
Proposed Route
Canterbury, Concord
Project Maps
February 2016 Supplement
PRELIMINARY ENGINEERING

Structure Number	Structure Height	Cross Section
F139-172	120	S1-3
F139-173	97	S1-2
F139-174	101.5	S1-2
F139-175	105	S1-2
F139-176	101.5	S1-2
F139-177	92.5	S1-2
F139-178	88	S1-2
F139-179	83.5	S1-2
F139-180	83.5	S1-2
F139-181	83.5	S1-2
F139-182	83.5	S1-2
F139-183	83.5	S1-2
F139-184	79	S1-2
F139-185	83.5	S1-2
F139-186	79	S1-2
3132-76	75	S1-2
3132-77	70	S1-2
3132-78	75	S1-2
3132-79	90	S1-2
3132-80	80	S1-2
3132-81	75	S1-2
3132-82	75	S1-2
3132-83	85	S1-2
3132-85	90	S1-2
3132-86	95	S1-2
3132-87	100	S1-2
3132-88	90	S1-2
3132-89	90	S1-3
3132-90	90	S1-3





THE NORTHERN PASS

0 150 300 Feet

HVDC Line	Relocated Distribution Line	Replacement Structures	Conservation Easement, State/Federal Parks and Public Lands
HVDC UG - Trenched	ROW Boundary	▲ Town Boundary	
HVDC UG - Trenchless	Edge of Corridor	3582 Property Owner Identification	
345-kV Line	Existing Structure	EverSource Owned Parcels	
Existing 345-kV Line	Existing Structure - Removed	Residential Building	
Existing 115-kV Line	Proposed HVDC Structure	Commercial Building	
Existing 115-kV Line	Proposed 345-kV Structure	Other Building	
Relocated 115-kV Line	Relocated Structure	Field Delineated Wetlands	
Relocated 345-kV Line	Distribution Pole	Photo-Estimated Wetlands	
		Approximate Wetlands	
		Field Delineated Waterbody	
		Photo-Estimated Waterbody	
		Approximate Waterbody	
		Field Delineated Stream	
		Photo-Estimated Stream	
		Approximate Stream	
		Extent of Estimated Features	

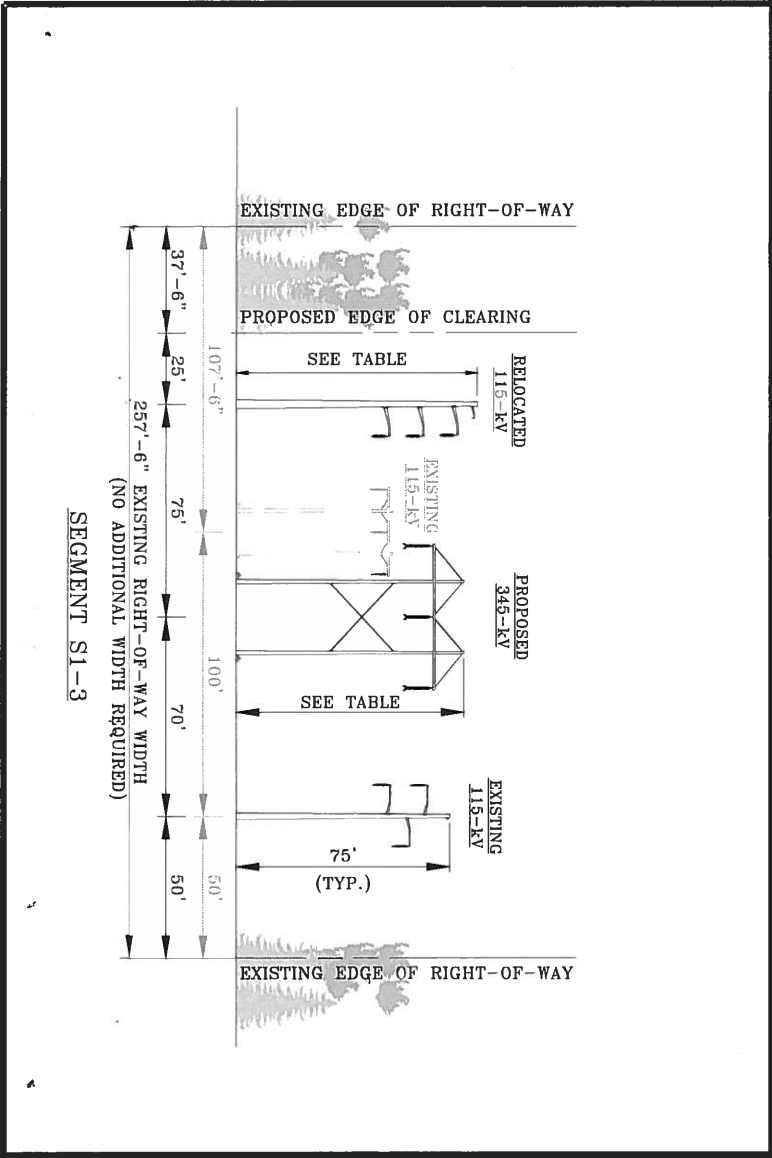
***V102 Assumed 75 feet Per Northern Pass**

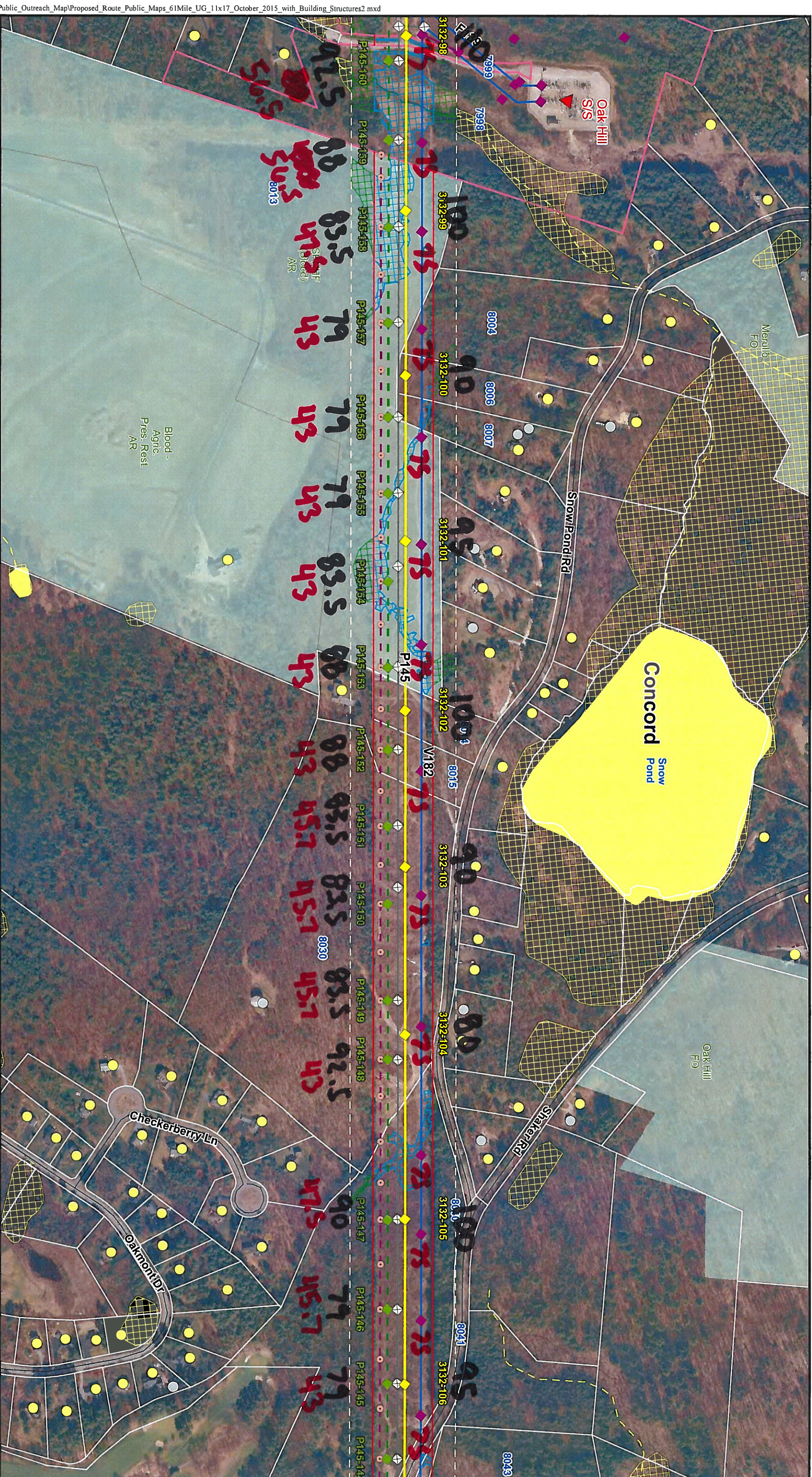
The Northern Pass
Transmission Line Project
Proposed Route
Concord

Project Maps
February 2016 Supplement

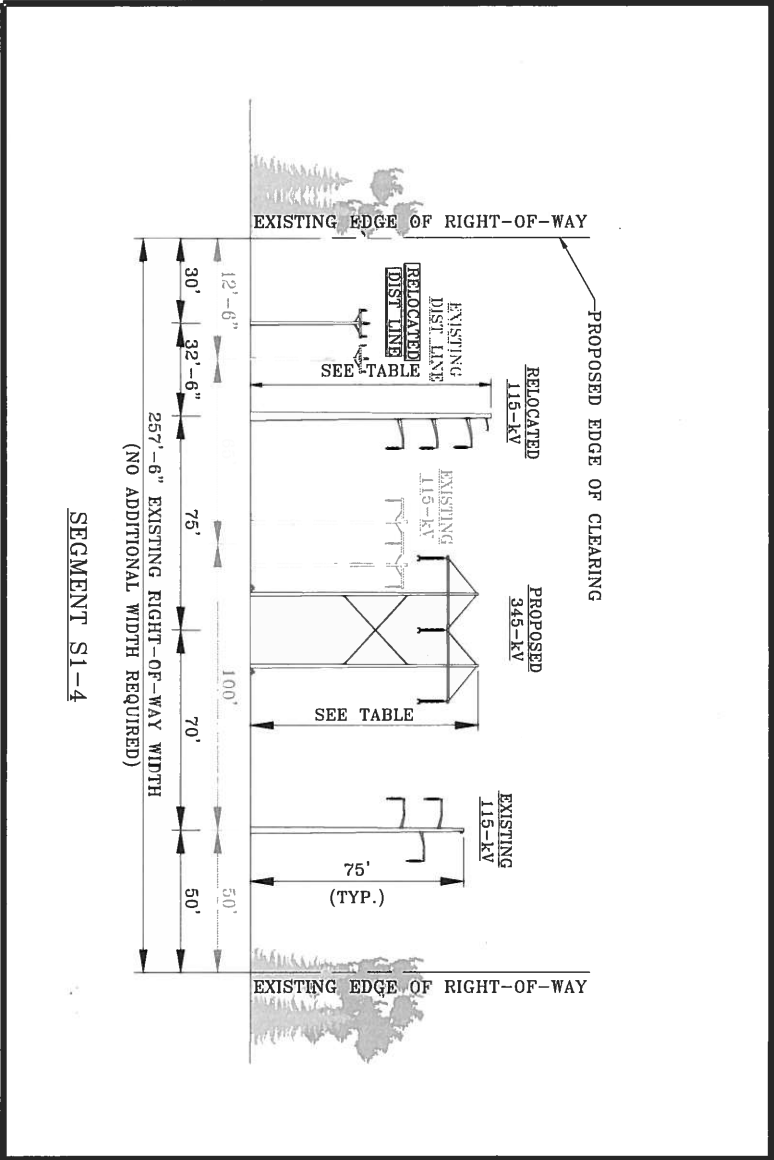
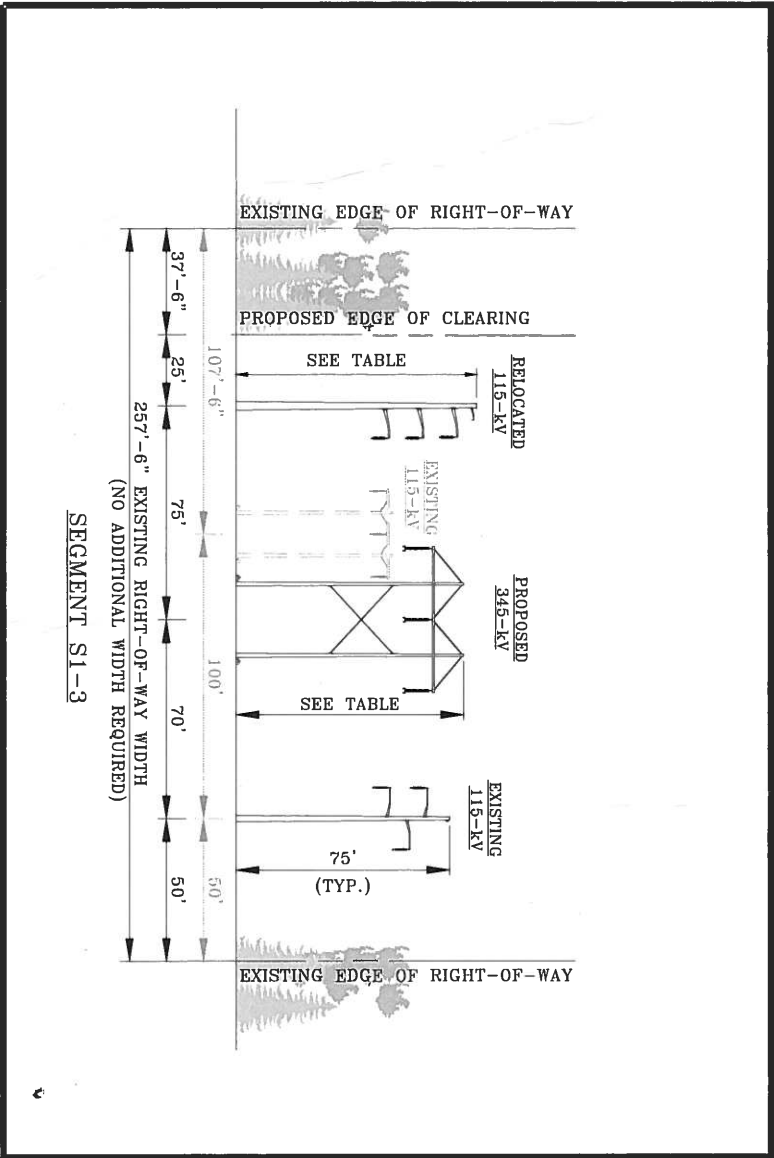
PRELIMINARY ENGINEERING

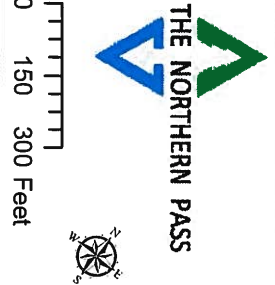
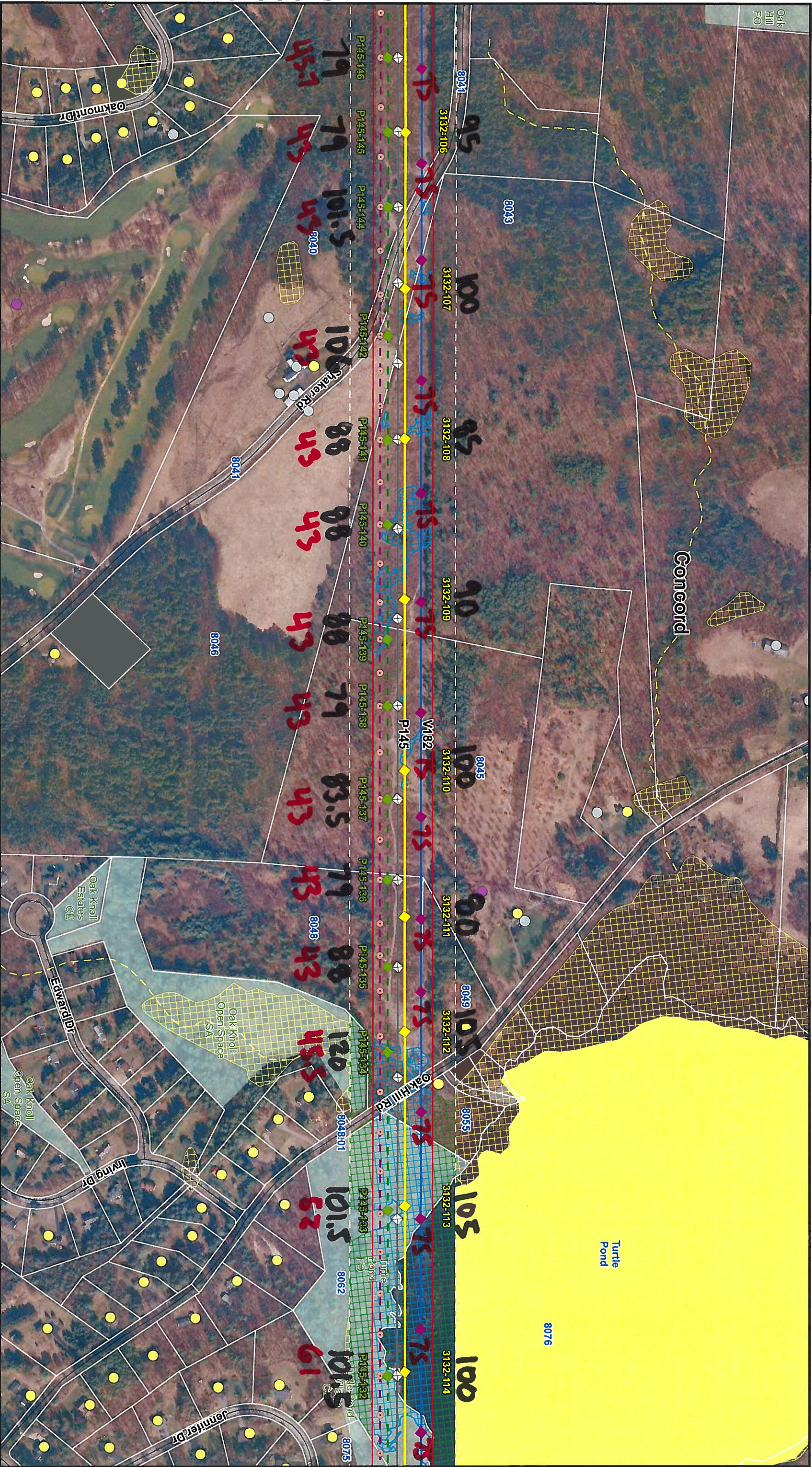
Structure Number	Structure Height	Cross Section
F139-162B	45	NA
F139-163	79	S1-3
F139-164	79	S1-3
F139-165	83.5	S1-3
F139-166	92.5	S1-3
F139-167	97	S1-3
F139-168	97	S1-3
F139-169	106	S1-3
F139-170	97	S1-3
F139-171	97	S1-3
F139-172	120	S1-3
3132-90	90	S1-3
3132-91	100	S1-3
3132-92	105	S1-3
3132-93	95	S1-3
3132-94	95	S1-3
3132-95	80	S1-3
3132-96	105	S1-3
3132-97	105	S1-3
3132-98	110	S1-3
P145-159	88	S1-3
P145-160	92.5	S1-3
P145-161	88	S1-3
P145-162	79	S1-3
P145-162A	50	NA





Structure Number	Structure Height	Cross Section
3132-100	90	51-4
3132-101	95	51-4
3132-102	100	51-4
3132-103	90	51-4
3132-104	80	51-4
3132-105	100	51-4
3132-106	95	51-4
3132-99	100	51-4
P145-145	79	51-4
P145-146	79	51-4
P145-147	90	51-4
P145-148	92.5	51-4
P145-149	83.5	51-4
P145-150	83.5	51-4
P145-151	83.5	51-4
P145-152	88	51-4
P145-153	88	51-4
P145-154	83.5	51-4
P145-155	79	51-4
P145-156	79	51-4
P145-157	79	51-4
P145-158	83.5	51-4
P145-159	88	51-3
P145-160	92.5	51-3



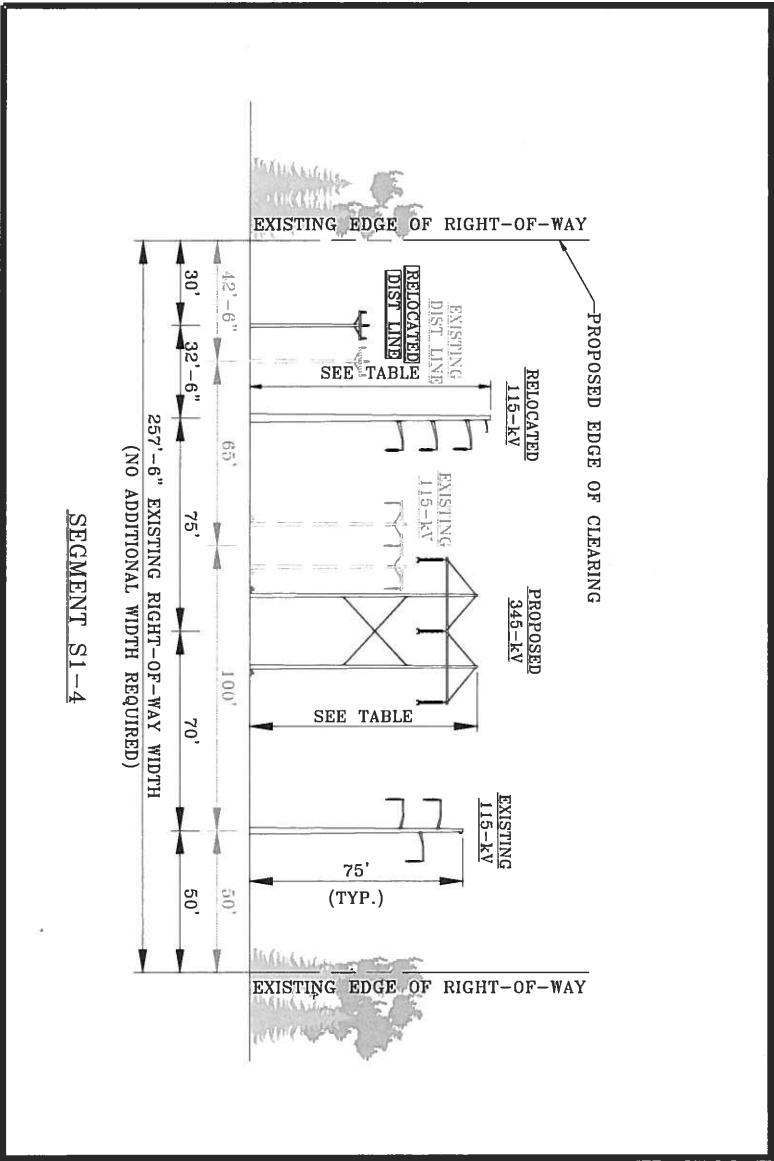


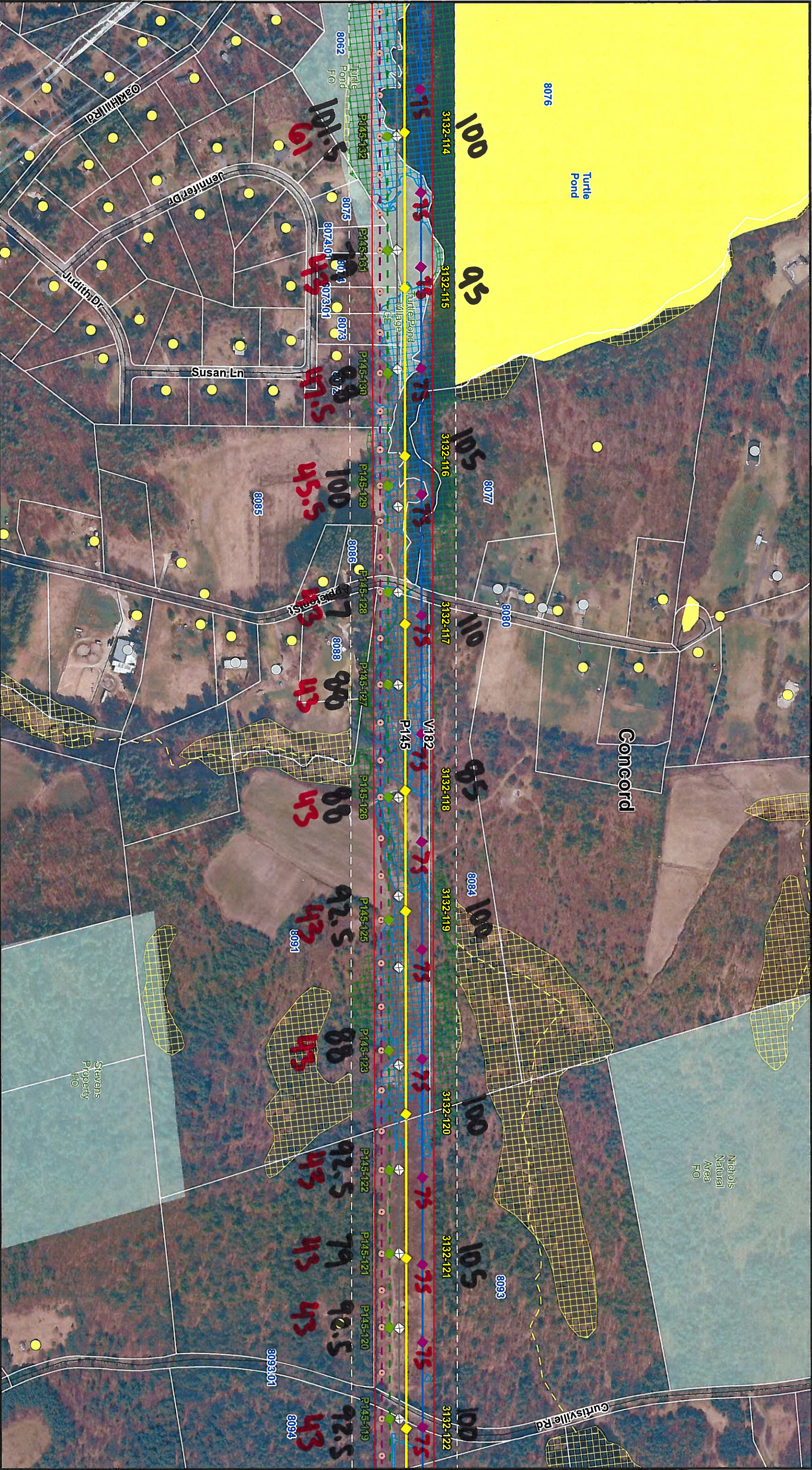
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|----------------------------|------------------------------|-------------------------------|
| HVDC Line | Relocated Distribution Line | Replacement Structures |
| HVDC UG - Trenched | ROW Boundary | Town Boundary |
| HVDC UG - Trenchless | Edge of Corridor | Property Owner Identification |
| 345-kV Line | Existing Structure | 3582 Eversource Owned Parcels |
| Existing 345-kV Line | Existing Structure - Removed | Residential Building |
| Existing 115-kV Line | Proposed HVDC Structure | Commercial Building |
| Existing Distribution Line | Proposed 345-kV Structure | Other Building |
| Relocated 115-kV Line | Relocated Structure | Field Delineated Wetlands |
| Relocated 345-kV Line | Distribution Pole | Photo-Estimated Wetlands |

- | | |
|------------------------------|---|
| Approximate Wetlands | Conservation Easement, State/Federal Parks and Public Lands |
| Field Delineated Waterbody | |
| Photo-Estimated Waterbody | |
| Approximate Waterbody | |
| Field Delineated Stream | |
| Photo-Estimated Stream | |
| Approximate Stream | |
| Extent of Estimated Features | |

The Northern Pass
Transmission Line Project
Proposed Route
Concord
Project Maps
February 2016 Supplement
PRELIMINARY ENGINEERING

Structure Number	Structure Height	Cross Section
3132-106	95	S1-4
3132-107	100	S1-4
3132-108	85	S1-4
3132-109	90	S1-4
3132-110	100	S1-4
3132-111	80	S1-4
3132-112	105	S1-4
3132-113	105	S1-4
3132-114	100	S1-4
P145-132	101.5	S1-4
P145-133	101.5	S1-4
P145-134	120	S1-4
P145-135	88	S1-4
P145-136	79	S1-4
P145-137	83.5	S1-4
P145-138	79	S1-4
P145-139	88	S1-4
P145-140	88	S1-4
P145-141	88	S1-4
P145-142	106	S1-4
P145-144	101.5	S1-4
P145-145	79	S1-4
P145-146	79	S1-4







THE NORTHERN PASS

0 150 300 Feet

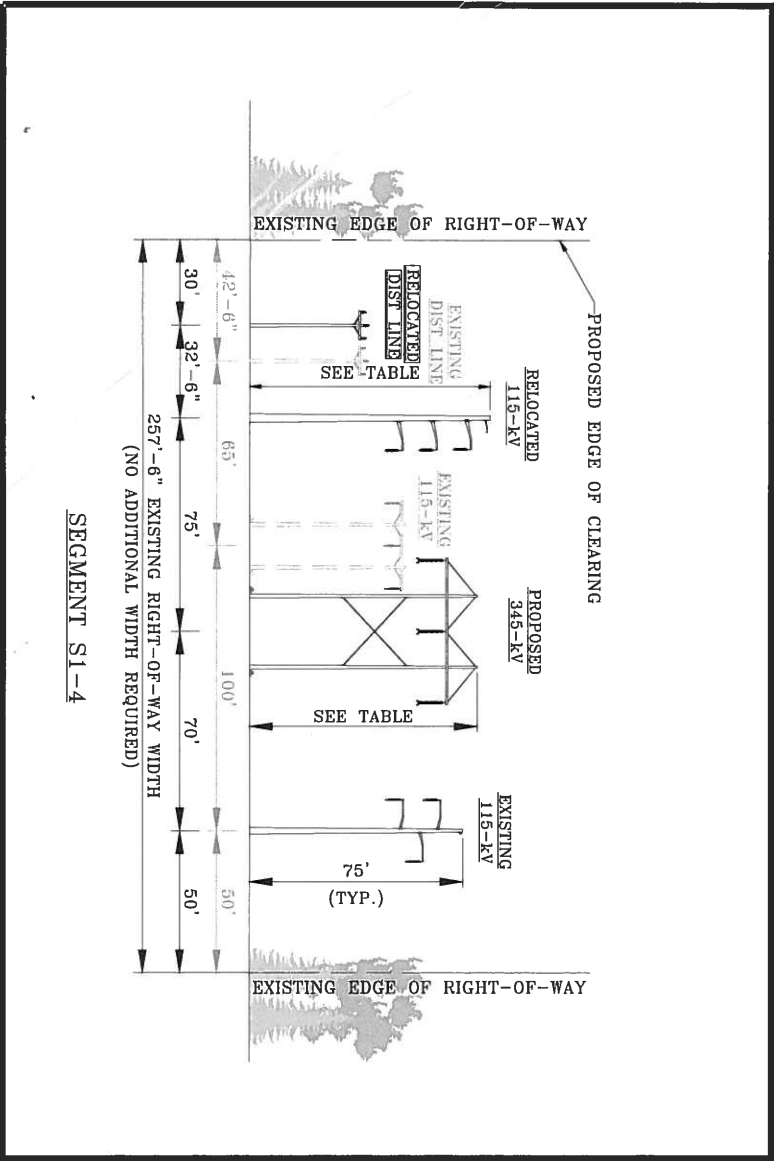
HVDC Line	Relocated Distribution Line	Replacement Structures
HVDC UG - Trenched	ROW Boundary	Town Boundary
HVDC UG - Trenchless	Edge of Corridor	Property Owner Identification
345-kV Line	Existing Structure	3582 Eversource Owned Parcels
Existing 345-kV Line	Existing Structure - Removed	Residential Building
Existing 115-kV Line	Proposed HVDC Structure	Commercial Building
Existing Distribution Line	Proposed 345-kV Structure	Other Building
Relocated 115-kV Line	Relocated Structure	Field Delineated Wetlands
Relocated 345-kV Line	Distribution Pole	Photo-Estimated Wetlands

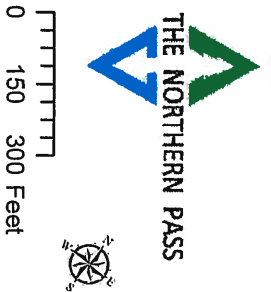
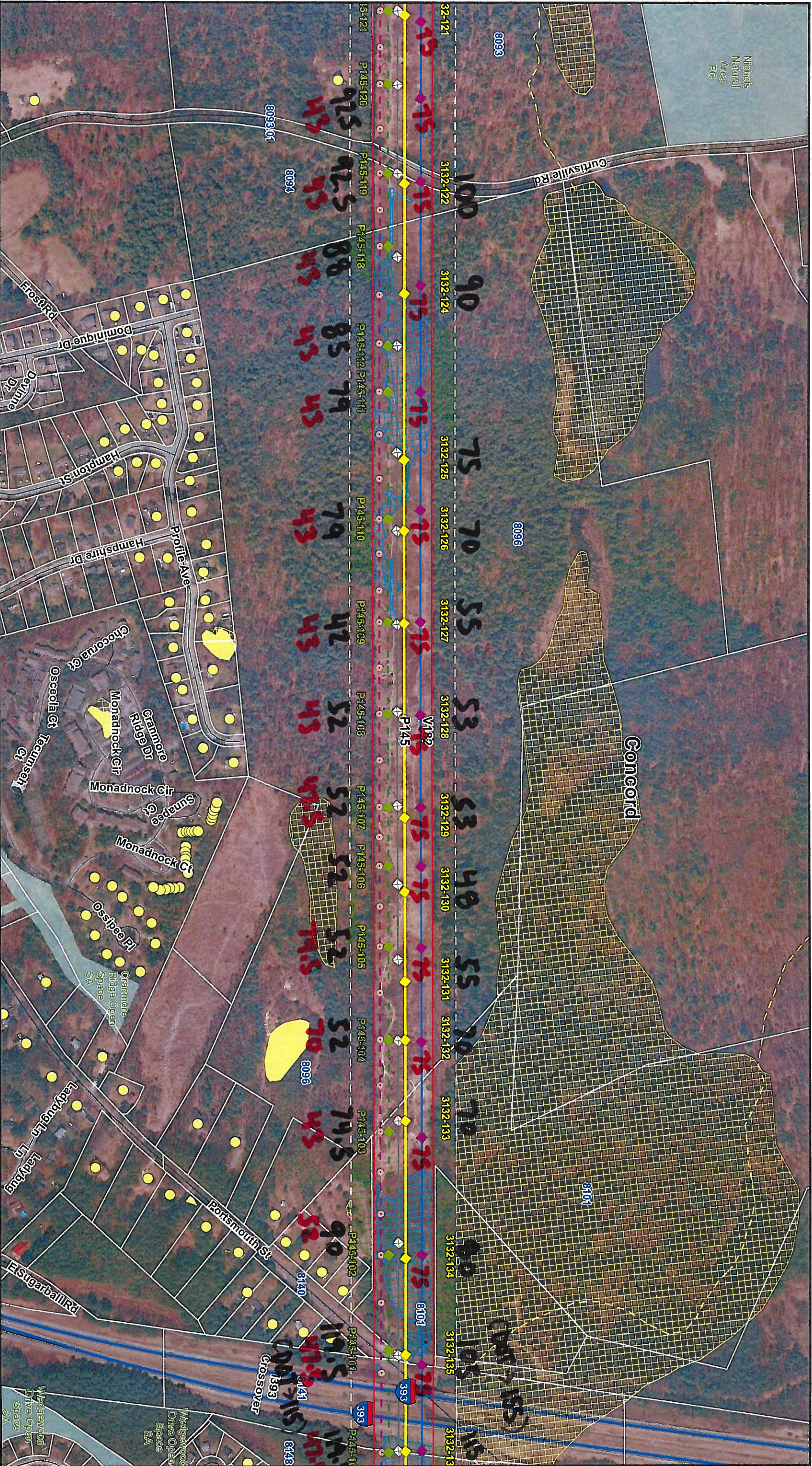
Approximate Wetlands	Conservation Easement, State/Federal Parks and Public Lands
Field Delineated Waterbody	
Photo-Estimated Waterbody	
Approximate Waterbody	
Field Delineated Stream	
Photo-Estimated Stream	
Approximate Stream	
Extent of Estimated Features	

The Northern Pass
Transmission Line Project
Proposed Route
Concord

Project Maps
February 2016 Supplement
PRELIMINARY ENGINEERING

Structure Number	Structure Height	Cross Section
3132-114	100	51-4
3132-115	95	51-4
3132-116	105	51-4
3132-117	110	51-4
3132-118	85	51-4
3132-119	100	51-4
3132-120	100	51-4
3132-121	105	51-4
P145-119	92.5	51-4
P145-120	92.5	51-4
P145-121	79	51-4
P145-122	92.5	51-4
P145-123	88	51-4
P145-125	92.5	51-4
P145-126	88	51-4
P145-127	88	51-4
P145-128	97	51-4
P145-129	100	51-4
P145-130	88	51-4
P145-131	79	51-4
P145-132	101.5	51-4



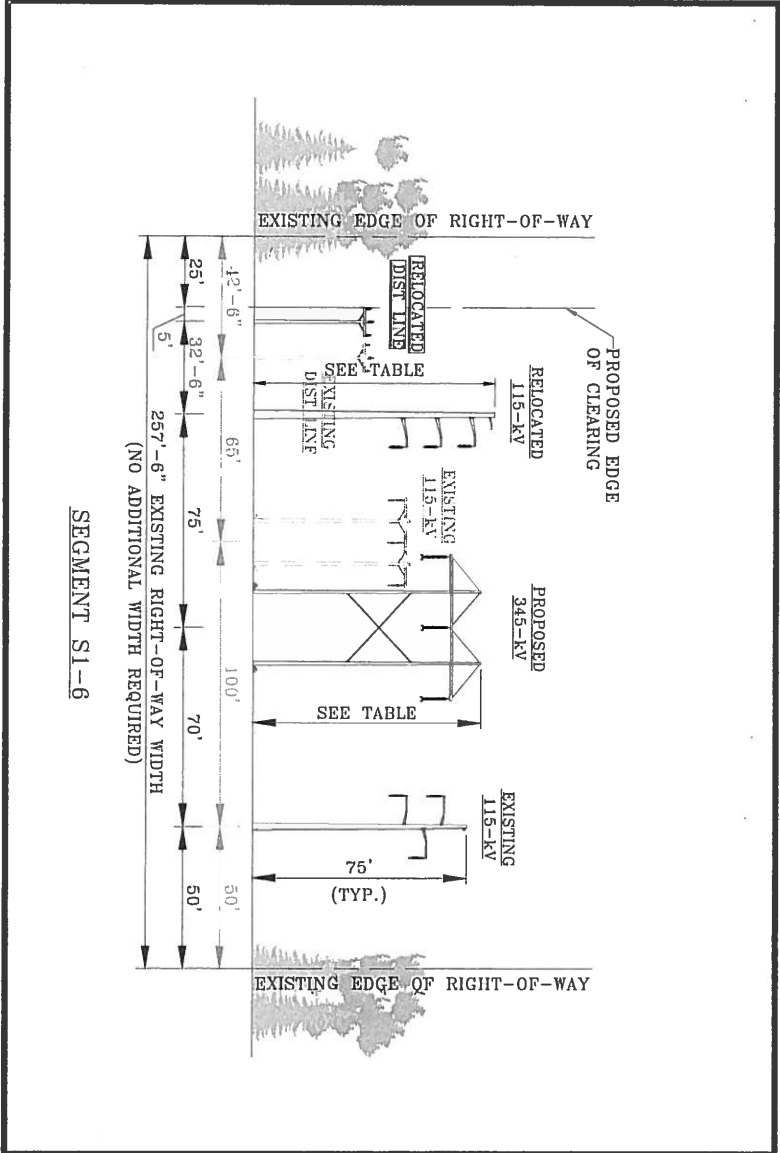
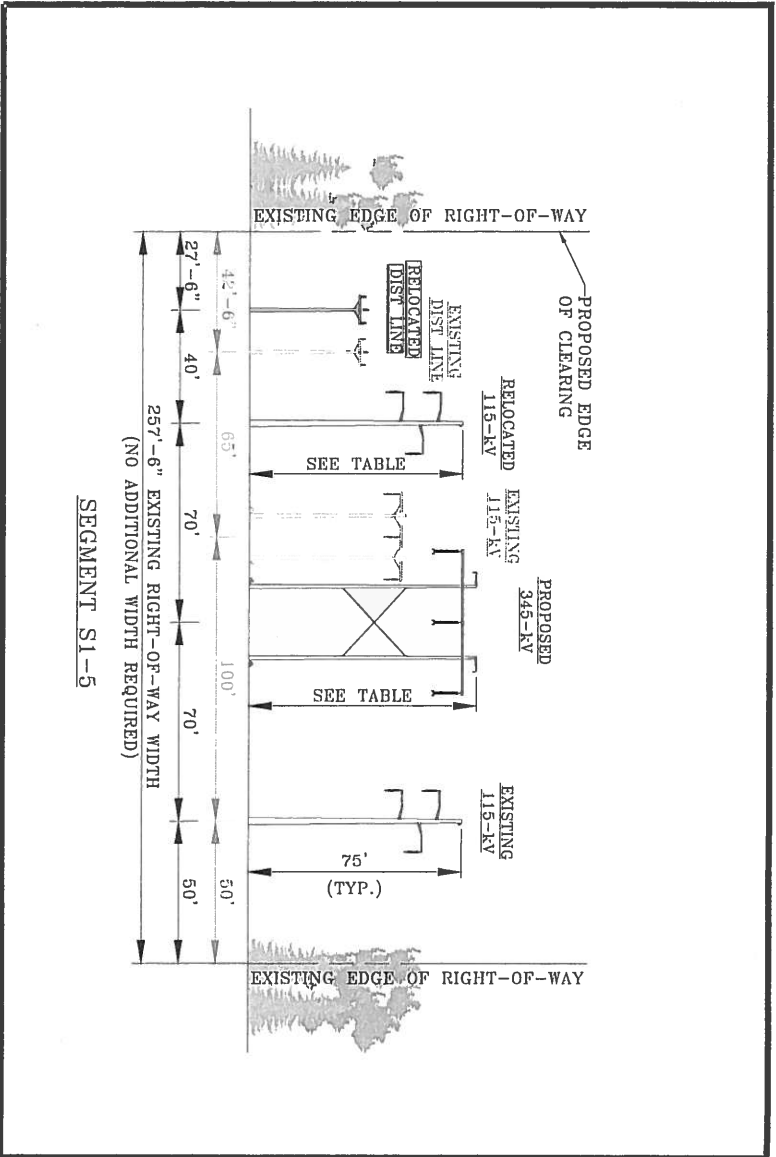
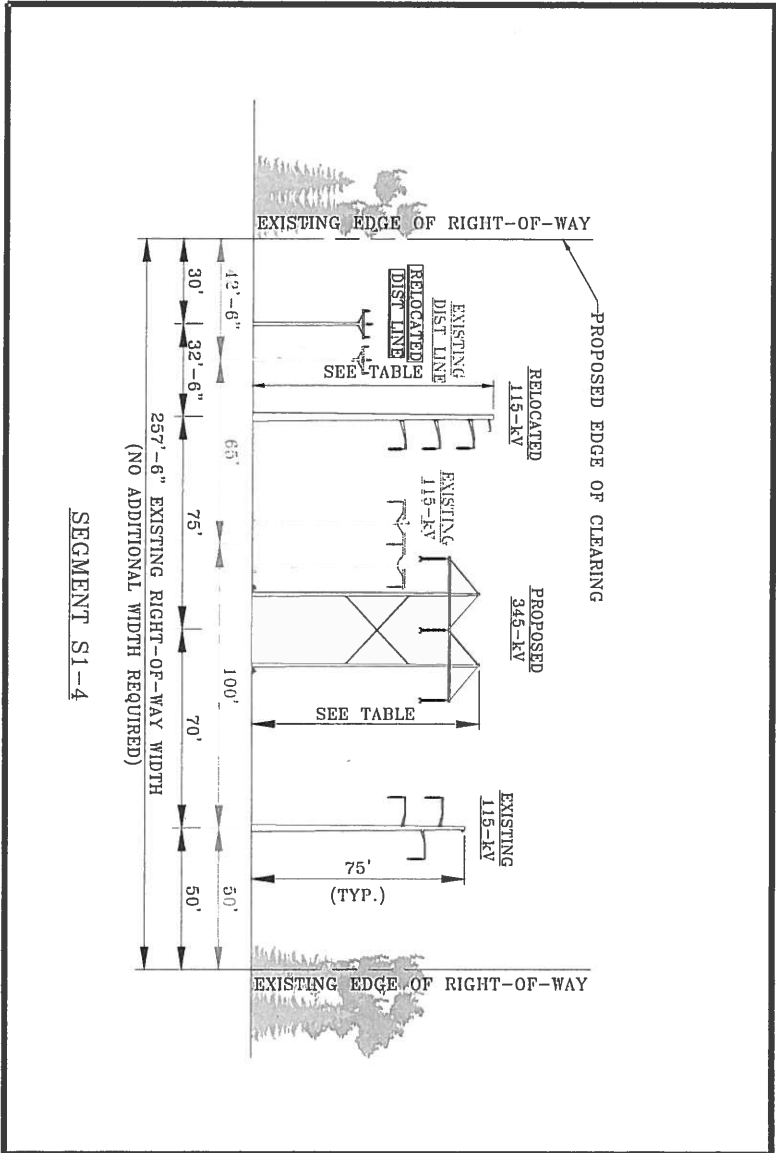


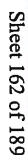
- HVDC Line
- HVDC UG - Trenched
- HVDC UG - Trenchless
- 345-kV Line
- Existing 345-kV Line
- Existing 115-kV Line
- Existing Distribution Line
- Relocated 115-kV Line
- Relocated 345-kV Line
- Relocated Distribution Line
- ROW Boundary
- Edge of Corridor
- Existing Structure
- Existing Structure - Removed
- Proposed HVDC Structure
- Proposed 345-kV Structure
- Relocated Structure
- Distribution Pole
- Replacement Structures
- Town Boundary
- Property Owner Identification
- EverSource Owned Parcels
- Residential Building
- Commercial Building
- Other Building
- Field Delineated Wetlands
- Photo-Estimated Wetlands
- Approximate Wetlands
- Field Delineated Waterbody
- Photo-Estimated Waterbody
- Approximate Waterbody
- Field Delineated Stream
- Photo-Estimated Stream
- Approximate Stream
- Extent of Estimated Features
- Conservation Easement, State/Federal Parks and Public Lands

#V192 Assumed 75 feet
per Northern Pass

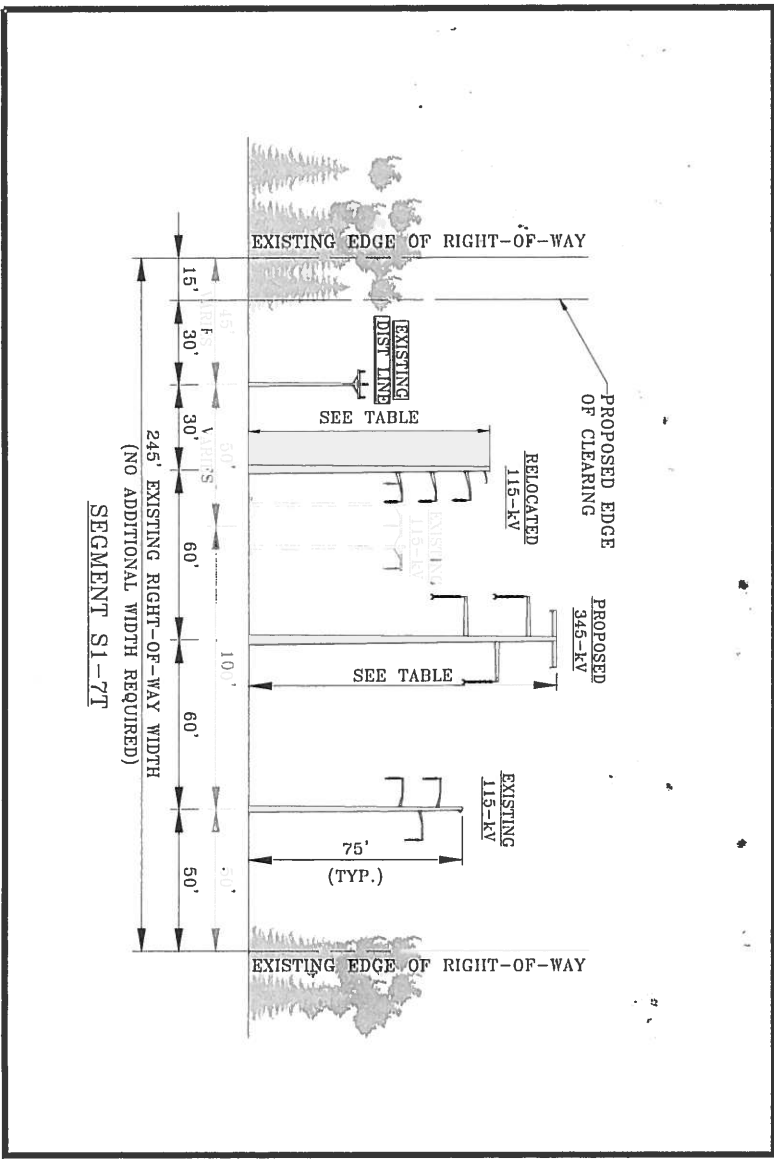
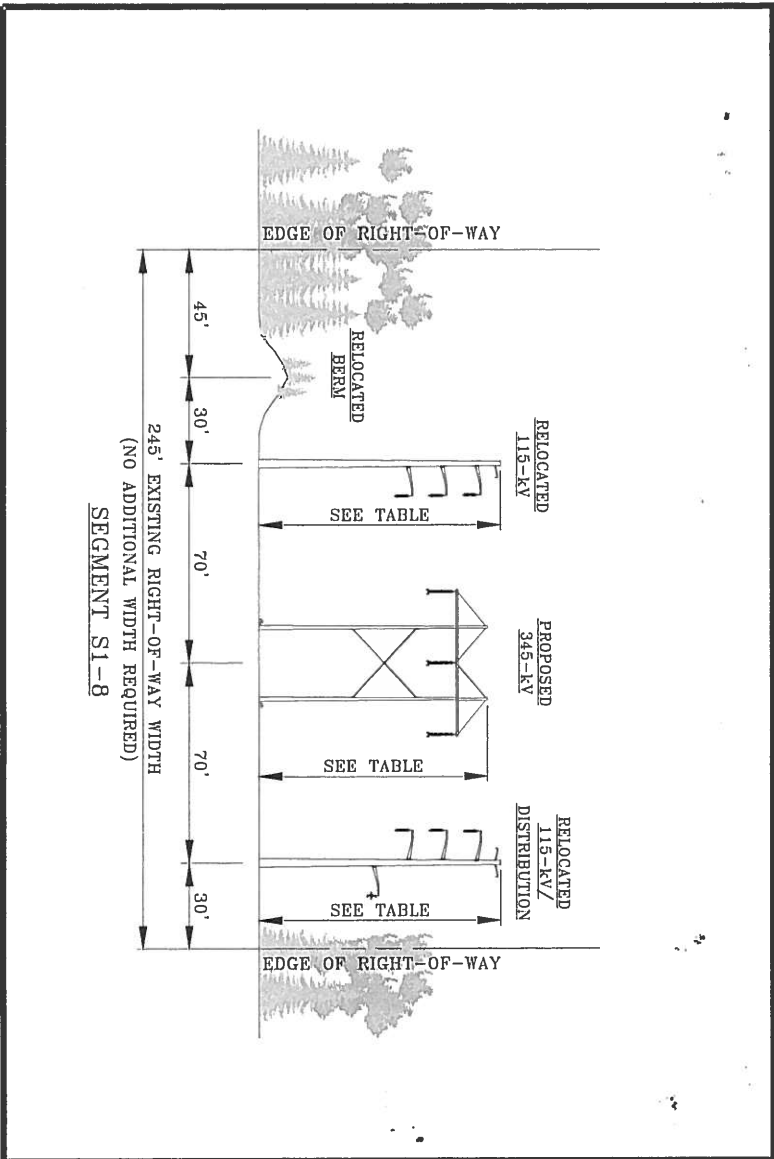
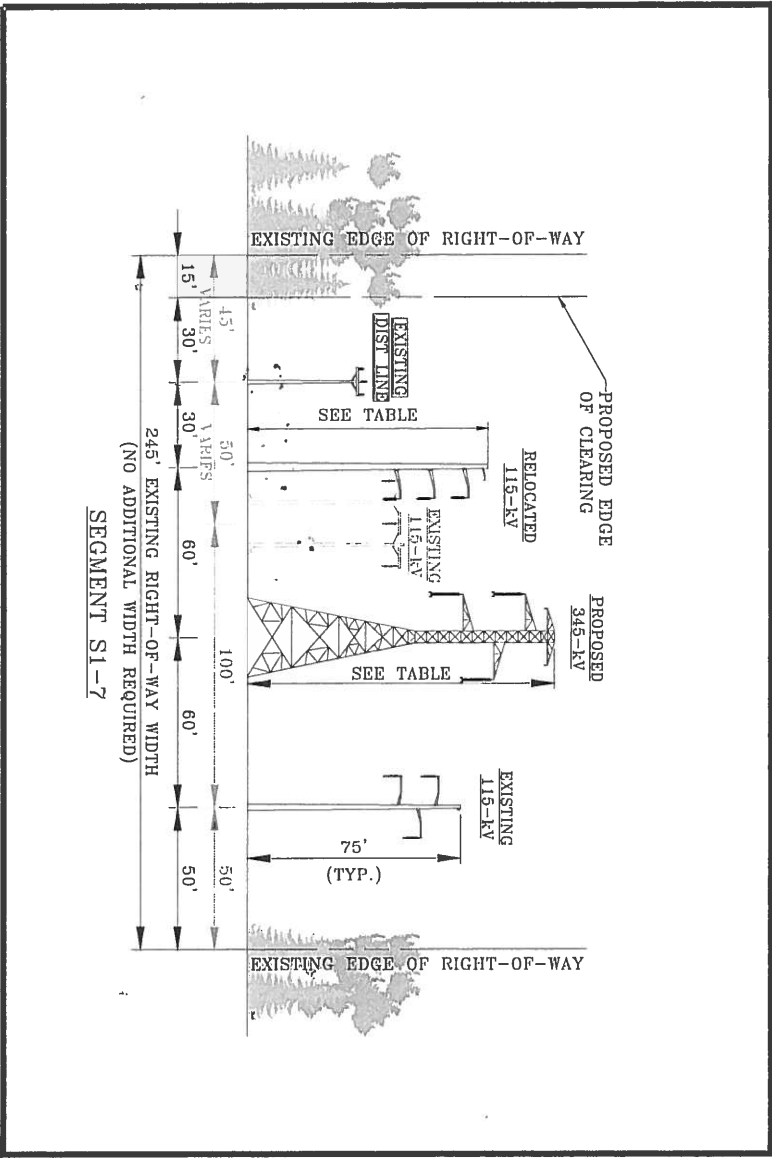
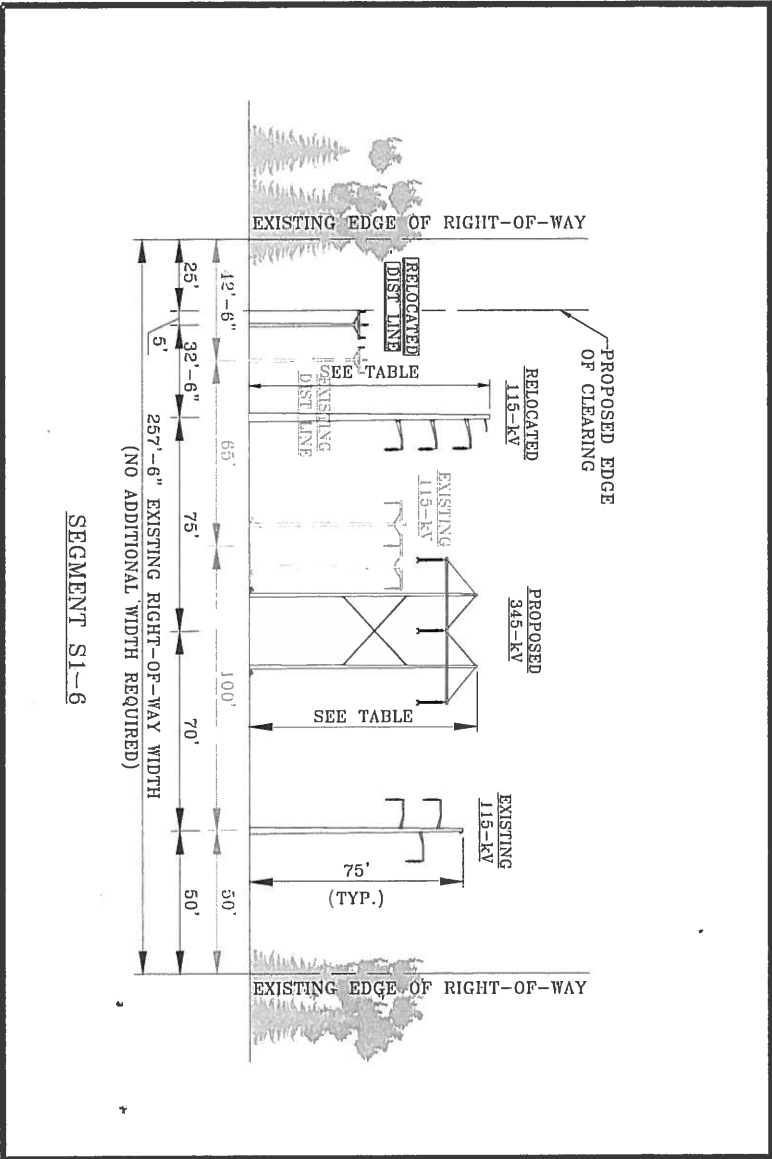
The Northern Pass
Transmission Line Project
Proposed Route
Concord
Project Maps
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PRELIMINARY ENGINEERING

Structure Number	Structure Height	Cross Section
3132-122	100	S1-4
3132-124	90	S1-4
3132-125	75	S1-5
3132-126	70	S1-5
3132-127	55	S1-5
3132-128	53	S1-5
3132-129	53	S1-5
3132-130	48	S1-5
3132-131	55	S1-5
3132-132	70	S1-5
3132-133	70	S1-5
3132-134	80	S1-5
3132-135	105	S1-6
P145-101	119.5	S1-6
P145-102	90	S1-5
P145-103	74.5	S1-5
P145-104	52	S1-5
P145-105	52	S1-5
P145-106	52	S1-5
P145-107	52	S1-5
P145-108	52	S1-5
P145-109	42	S1-5
P145-110	79	S1-5
P145-111	79	S1-5
P145-112	85	S1-4
P145-118	88	S1-4
P145-119	92.5	S1-4
P145-120	92.5	S1-4





Structure Number	Structure Height	Cross Section
3132-135	105	S1-6
3132-136	115	S1-6
3132-137	90	S1-6
3132-138	90	S1-7T
3132-139	125	S1-7T
3132-140	125	S1-7T
3132-141	85	S1-7T
3132-142	75	S1-8
3132-143	70	S1-8
3132-144	75	S1-8
3132-145	110	S1-8
3132-146	85	S1-8
3132-147	85	S1-8
C189-46	105	S1-8
C189-47	110	S1-8
C189-48	105	S1-8
C189-49	88	S1-8
C189-50	87.5	S1-8
C189-51	90	S1-8
C189-52	85	S1-7
P145-100	119.5	S1-6
P145-101	119.5	S1-6
P145-87	101.5	S1-8
P145-88	110	S1-8
P145-90	110	S1-8
P145-91	92.5	S1-8
P145-92	88	S1-8
P145-93	88	S1-8
P145-94	95	S1-7
P145-95	105	S1-7
P145-96	106	S1-7
P145-97	85	S1-7
P145-98	83.5	S1-6
P145-99	88	S1-6





THE NORTHERN PASS

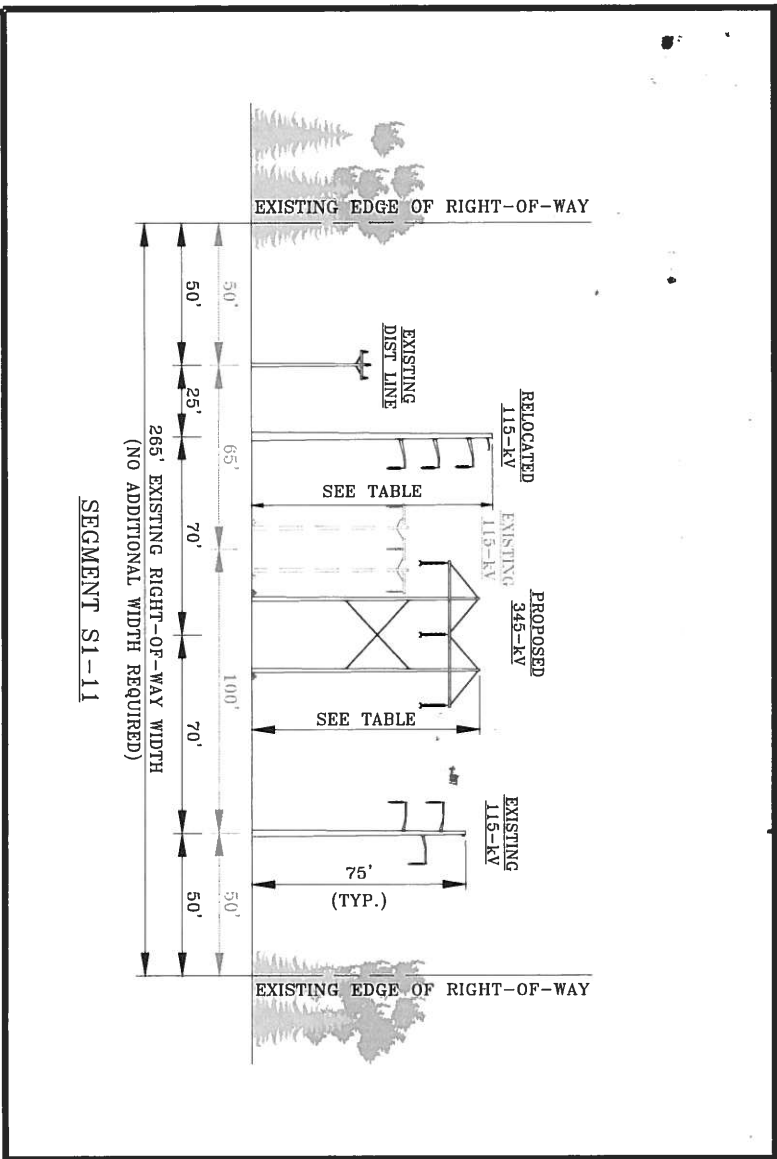
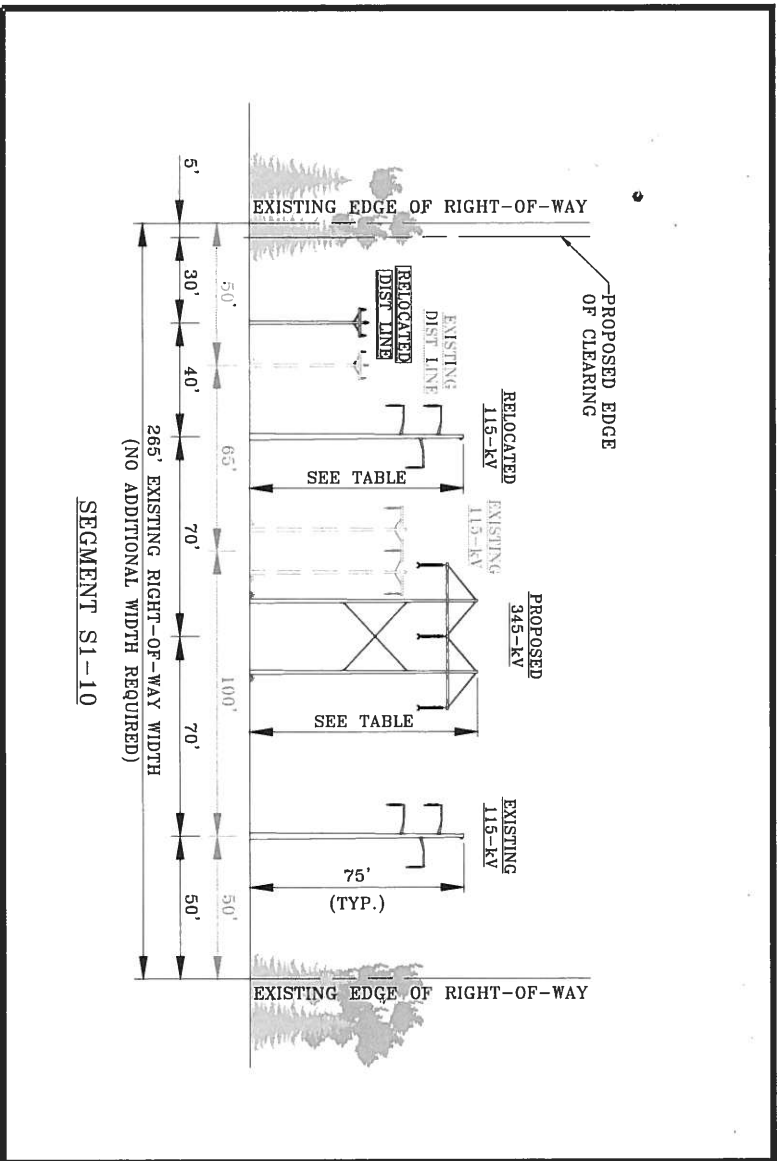
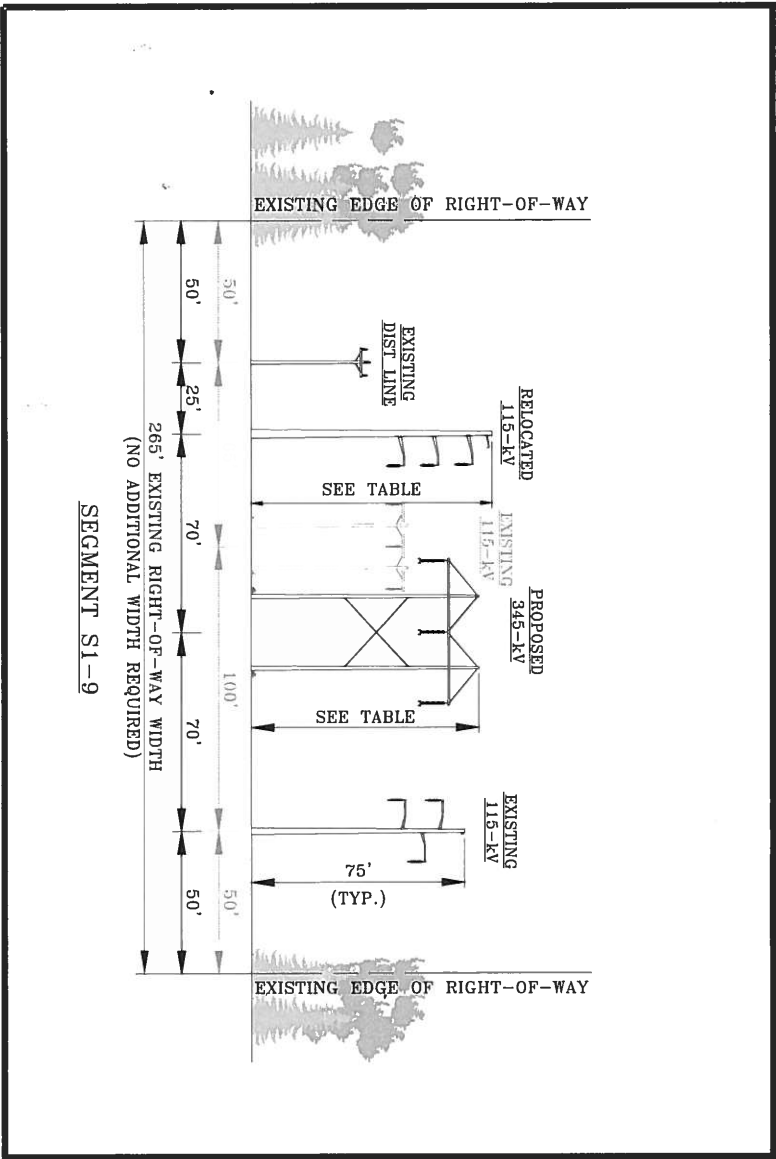
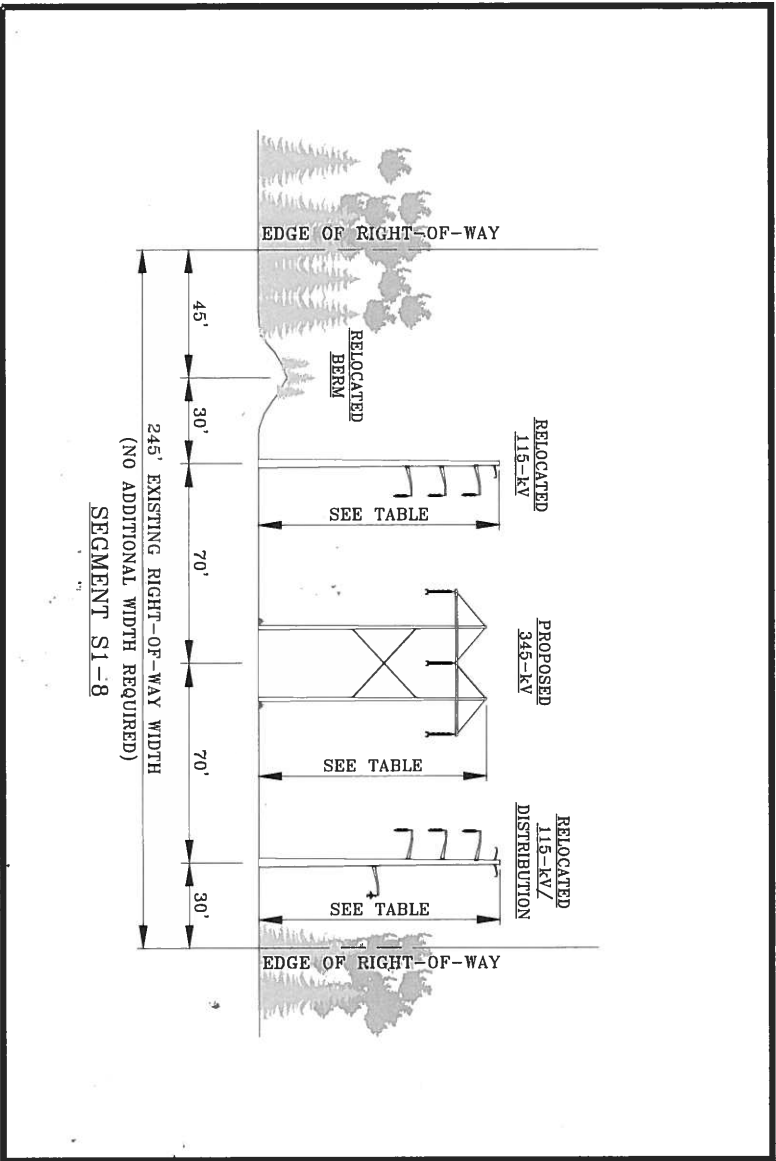
0 150 300 Feet

<ul style="list-style-type: none">HVDC LineHVDC UG - TrenchedHVDC UG - Trenchless345-kV LineExisting 345-kV LineExisting 115-kV LineExisting Distribution LineRelocated 115-kV LineRelocated 345-kV Line	<ul style="list-style-type: none">Relocated Distribution LineROW BoundaryEdge of CorridorExisting StructureExisting Structure - RemovedProposed HVDC StructureProposed 345-kV StructureRelocated StructureDistribution Pole	<ul style="list-style-type: none">Replacement StructuresTown BoundaryProperty Owner IdentificationEversource Owned ParcelsResidential BuildingCommercial BuildingOther BuildingField Delineated WetlandsPhoto-Estimated Wetlands	<ul style="list-style-type: none">Approximate WetlandsField Delineated WaterbodyPhoto-Estimated WaterbodyApproximate WaterbodyField Delineated StreamPhoto-Estimated StreamApproximate StreamExtent of Estimated Features	<ul style="list-style-type: none">Conservation Easement, State/Federal Parks and Public Lands
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**V1B2 assumed 75 feet per Northern Pass*

The Northern Pass
Transmission Line Project
Proposed Route
Concord, Pembroke
Project Maps
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PRELIMINARY ENGINEERING

Structure Number	Structure Height	Cross Section
3132-146	85	S1-8
3132-147	85	S1-8
3132-148	90	S1-9
3132-149	95	S1-9
3132-150	95	S1-9
3132-151	100	S1-9
3132-152	110	S1-10
3132-153	100	S1-10
3132-154	85	S1-10
3132-155	85	S1-10
3132-156	95	S1-10
3132-157	90	S1-10
3132-158	80	S1-10
3132-159	75	S1-11
C189-32	75	S1-11
C189-45	100	S1-8
C189-46	105	S1-8
C189-47	110	S1-8
P145-73	90	S1-11
P145-74	100	S1-10
P145-75	97	S1-10
P145-76	92.5	S1-10
P145-77	92.5	S1-10
P145-78	92.5	S1-10
P145-79	92.5	S1-10
P145-80	97	S1-10
P145-81	95	S1-9
P145-82	88	S1-9
P145-83	92.5	S1-9
P145-84	92.5	S1-9
P145-85	97	S1-9
P145-86	100	S1-8
P145-87	101.5	S1-8



STR_NUM	STR_HEIGHT
C189-52	79.0
C189-51	74.5
C189-50	83.5
C189-49	74.5
C189-48	79.0
C189-47	79.0
C189-46	74.5
C189-45	47.5
C189-32	47.5
C189-31	74.5
C189-22	92.5
C189-21	65.5
C189-20	52.0
G146-168	88.0
G146-167	70.0
G146-166	65.5
G146-39	61.0
G146-38	83.5
G146-37	65.5
G146-36	65.5
G146-35	88.0
G146-34	74.5
G146-33	74.5
G146-32	83.5
G146-31	83.5
G146-30	74.5
G146-29	74.5
G146-28	74.5
F139-259	43.0
F139-258	43.0
F139-257	43.0
F139-256	43.0
F139-255	43.0
F139-254	43.0
F139-253	43.0
F139-252	43.0
F139-251	43.0

STR_NUM	STR_HEIGHT
F139-250	42.0
F139-249	46.5
F139-248	43.0
F139-247	43.0
F139-246	41.0
F139-245	43.0
F139-244	41.0
F139-243	52.0
F139-242	47.5
F139-241	47.5
F139-240	43.0
F139-239	43.0
F139-238	43.0
F139-237	43.0
F139-236	43.0
F139-235	43.0
F139-234	43.0
F139-233	47.5
F139-232	43.0
F139-231	43.0
F139-230	43.0
F139-229	47.5
F139-228	52.0
F139-227	43.0
F139-226	47.5
F139-225	43.0
F139-224	43.0
F139-223	43.0
F139-222	43.0
F139-221	43.0
F139-220	43.0
F139-219	43.0
F139-218	47.5
F139-217	43.0
F139-216	45.7
F139-215	47.5
F139-214	43.0

STR_NUM	STR_HEIGHT
F139-213	43.0
F139-212	43.0
F139-211	43.0
F139-210	47.5
F139-209	43.0
F139-208	43.0
F139-207	43.0
F139-206	43.0
F139-205	43.0
F139-204	43.0
F139-203	43.0
F139-202	43.0
F139-201	47.5
F139-200	43.0
F139-199	47.5
F139-198	43.0
F139-197	43.0
F139-196	43.0
F139-195	43.0
F139-194	43.0
F139-193	43.0
F139-192	43.0
F139-191	43.0
F139-190	43.0
F139-189	47.5
F139-188	47.5
F139-187	47.5
F139-186	43.0
F139-185	43.0
F139-184	43.0
F139-183	47.5
F139-182	43.0
F139-181	43.0
F139-180	47.5
F139-179	52.0
F139-178	43.0
F139-177	56.5

STR_NUM	STR_HEIGHT
F139-176	52.0
F139-175	50.5
F139-174	47.5
F139-173	43.0
F139-172	47.5
F139-171	43.0
F139-170	43.0
F139-169	43.0
F139-168	43.0
F139-167	43.0
F139-166	43.0
F139-165	43.0
F139-164	43.0
F139-163	43.0
F139-162	43.0
F139-161	43.0
F139-160	52.0
F139-160	50.0
F139-159	45.5
P145-162	45.5
P145-161	50.0
P145-160	56.5
P145-159	56.5
P145-158	47.5
P145-157	43.0
P145-156	43.0
P145-155	43.0
P145-154	43.0
P145-153	43.0
P145-152	43.0
P145-151	45.7
P145-150	45.7
P145-149	45.7
P145-148	43.0
P145-147	47.5
P145-146	45.7
P145-145	43.0

STR_NUM	STR_HEIGHT
P145-144	43.0
P145-143	47.5
P145-142	43.0
P145-141	43.0
P145-140	43.0
P145-139	43.0
P145-138	43.0
P145-137	43.0
P145-136	43.0
P145-135	43.0
P145-134	45.5
P145-133	52.0
P145-132	61.0
P145-131	43.0
P145-130	47.5
P145-129	45.5
P145-128	43.0
P145-127	43.0
P145-126	43.0
P145-125	43.0
P145-124	43.0
P145-123	43.0
P145-122	43.0
P145-121	43.0
P145-120	43.0
P145-119	43.0
P145-118	43.0
P145-117	43.0
P145-116	43.0
P145-115	43.0
P145-114	43.0
P145-113	47.5
P145-112	43.0
P145-111	43.0
P145-110	43.0
P145-109	43.0
P145-108	43.0

STR_NUM	STR_HEIGHT
P145-107	47.5
P145-105	74.5
P145-104	70.0
P145-103	43.0
P145-102	52.0
P145-101	47.5
P145-100	47.5
P145-99	61.0
P145-98	56.5
P145-97	43.0
P145-96	43.0
P145-95	43.0
P145-94	43.0
P145-93	43.0
P145-92	43.0
P145-91	47.5
P145-90	47.5
P145-89	45.5
P145-88	43.0
P145-87	47.5
P145-86	43.0
P145-85	43.0
P145-84	41.0
P145-83	43.0
P145-82	43.0
P145-81	43.0
P145-80	43.0
P145-79	43.0
P145-78	47.5
P145-77	43.0
P145-76	42.0
P145-75	42.0
P145-74	43.0
P145-73	47.5
P145-72	43.0
P145-71	43.0
P145-70	43.0

STR_NUM	STR_HEIGHT
P145-69	43.0
P145-68	43.0
P145-67	43.0
P145-66	43.0
P145-65	43.0
P145-64	43.0
P145-63	97.0
P145-62	43.0
P145-61	41.0
G146-27	65.5
G146-26	52.0
G146-25	65.5
G146-24	65.5
G146-23	56.5
G146-22	65.5
G146-21	79.0
G146-20	74.5
G146-19	65.5
G146-18	74.5
G146-17	65.5
G146-16	79.0
G146-15	88.0
G146-14	65.5
G146-13	88.0
G146-12	74.5
G146-11	79.0
G146-10	65.5
G146-9	61.0
G146-8	70.0
G146-7	83.5
G146-6	74.5
G146-5	83.5
G146-4	74.5

EXHIBIT F



April 10, 2017

Ms. Beth Fenstermacher
City of Concord
Planning Division
41 Green Street
Concord, NH 03301

Re: Northern Pass Project – Concord NH

Dear Beth:

My understanding is that representatives from the City of Concord will be providing testimony this week on the impact that the proposed Northern Pass project may have on Concord. I also understand that at a recent hearing relating to this project, the folks from Eversource/Northern Pass may have implied that there was a level of understanding that had been reached with our company Hodges Properties, Inc. (owners of Alton Woods Apartments). As a result of these hearings, I feel an obligation to provide clarity regarding the prior discussions we had with Eversource and ongoing concerns we have with the project as proposed.

Please note that our last direct communication with Eversource was a single meeting in 2014. Previous to that we had one other discussion back in 2011. At that time we indicated that there were certain concerns that we had with the existing Public Service easement running along the easterly side of the Alton Woods development. We were hopeful that any proposed modifications would not worsen conditions and increase those concerns. The focus of our discussions exclusively related to the easement area, power lines, pole heights and pole locations within this limited easement area. We mentioned that our preference would be for Public Service/Eversource to bury the new power lines in this location and thus lessen the visual and physical impact that the new expanded power lines would have in this easement area and our Alton Woods community. If it was reasonably determined that cost concerns of line burial create a significant deterrent then we would request that pole heights be set at the absolute minimal heights and locations be set so as to provide minimal disruption to the land use within the easement area and visual appearance from our Alton Woods development.

Understanding that the language in the easement likely provided Public Service/Eversource with a broad level of discretion we asked that they be mindful and considerate of our valid concerns and minimize the changes that they would propose to the existing infrastructure. We pointed out that this easement area was part of the amenity package of the residential community providing recreational areas and walking trails for our residents as well as providing an underpass for traveling to additional land owned by Hodges Properties, Inc. to the east of the easement area. This property has been used for the storage of larger recreational and work vehicles. We had been promised that these concerns along with the request for line burial would be given proper consideration. These discussion points represent the entirety of our direct communications with Public Service/Eversource.

Subsequent to our discussions in 2014, it appears that there have been changes to the proposed design that will likely result in greater direct impact to our community and the residents of Alton Woods. Pole heights have increased and pole locations have changed. Structural pad locations with dimensions have now been provided as a result of the updated data used in the recent hearings. These changes reflect a more significant increase in the physical impact that this project will have on the easement area. This appears to be a substantial change over what had been briefly discussed back in 2011 and 2014. In addition, these new designs provide additional detail on offsite improvements adjacent to our property on the northerly boundary as well as the southerly boundary that will, in our opinion, have the potential to negatively impact the marketing appeal of our rental community.

Having an opportunity to reflect further on this proposal and digesting the changes reflected in the more recent proposed design, we would like to outline our continuing concerns over the impact that this Northern Pass project may have on our property.

- Even with the recent changes, for the most part the proposed pole heights in direct proximity of Alton Woods will likely be acceptable if mitigation from line burial is not possible. The proposed above ground pole structures are also likely to be acceptable but need to have minimal visual and obstructive impact.
- We do have concerns that pole 3132-137 could provide some obstruction to the access road to our cell tower directly to the east. The structural pad/bases, detailed on the more recent designs, significantly expand the impact that the poles have within the easement area.
- Other structural pads/bases within the easement area will also likely disrupt the recreational features currently existing within the easement area. This may require that they either be eliminated or relocated at a considerable cost.
- We have concerns regarding the degree of tree removal that will be necessary to provide for this project. Specifically, if both of the buffers, (1) to the north along Rte. 393 and (2) to the south along Old Loudon Road, are greatly thinned out or removed we will likely experience greater noise pollution for our residents and lose our visual screening from the highway to the north and the new expanded substation to the south.
- We recently found out that the pole heights for the area crossing Rte. 393 to the north have been increased substantially. Initially the proposal called for pole heights of 115' and 119.5' for poles 3132-136 and P145-100, respectively. New information indicates that the DOT will be requiring pole heights up to 155'. This increase causes concern from both an aesthetic perspective as well as a safety concern.
- We have mounting concerns over the potential of safety issues within the easement area underneath the power lines. We understand that there is the potential that these new expanded power lines could create an electrical field that can produce microshocks. As many of the Alton Woods residents as well as members of the Hodges staff do and will travel within the easement area and underneath the power lines, we have significant concerns over the safety issues caused by the proposed power lines. Published material only elevates our concerns in this area.
- The proposed expansion of power lines and poles at the intersection of Old Loudon Road and Loudon Road will have significant negative impact on the southerly curb

appeal for Loudon Road as you approach the entrance on Loudon Road. Although the current conditions are less than ideal, the expansion needed by this project and the increased pole heights in this area will drastically change the image and aesthetics along this section of Loudon Road. The perspective will change from a residential/commercial feel to that of a more industrial feel. We have invested millions of dollars along this gateway area and feel at risk of having this Northern Pass project negatively impact our investments.

- Our focus has been on the direct and indirect impact that this project will have on our Alton Woods development. However, we also have several parcels of land located to the south of Alton Woods along Pembroke Road (159 – 173 Pembroke Road) that have been inventoried for future development. We have additional concerns that this Northern Pass project may have significant detrimental impact on the value and development opportunities of this combined land parcel.

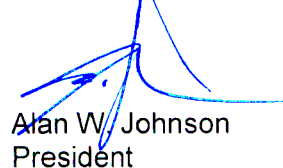
We understand and appreciate the need for improvement and expansion of the electricity and natural gas infrastructure. We also understand and appreciate the need for transmission and pipeline projects that can facilitate such expansion. Increased capacity within the New England region will hopefully stimulate economic growth through the reduction in energy costs. However priority must be given to the rights of existing property owners and Eversource needs do whatever is possible in mitigating the negative consequences that the Northern Pass project will have on direct abutters and the communities that it passes through. We continue to feel that a reasonable compromise would be line burial especially considering the limited length of run within the Concord area.

Finally, it should be noted that we are in the process of finalizing negotiations with Unitil relating to a needed change in their existing easement area within the Alton Woods property directly adjacent to the Public Service/Eversource easement. Unitil was able to work with us in addressing our concerns including reduction in pole height, adding additional plantings for buffer areas, eliminating any impact on our cell tower easement access, as well as other concerns. I would hope that Eversource would provide us with the same level of cooperation and flexibility.

If you find it beneficial, please feel free to mention our concerns as part of your testimony or discussions.

Sincerely,

HODGES PROPERTIES, INC



Alan W. Johnson
President

AWJ:dbb

EXHIBIT G

William & Elizabeth Lawrence
37 Snow Pond Rd, Concord NH
603-226-2160

April 2, 2017

TO WHOM IT MAY CONCERN:

My name is Elizabeth Lawrence. My husband Steve and I and our three children have lived at 37 Snow Pond Rd for 12 years now as of April 5, 2017.

When we first came to look at the home and property, it was February and there was about 2 feet of snow. Driving up the driveway; first traveling up thru the trees my heart started to melt. We were so happy with the idea of moving out of the congested neighborhood that we currently owned a home in and the possibility that our children would have space to play and we would have some room to grow and enjoy some privacy.

The second portion of our drive up to the house we came to the clearing under the power lines.

Although the power lines weren't the best *"Introduction"* to the home, the tree barrier between the house and the power lines seemed enough to *"forget"* about the view of the lines from the house.

Then we came to the next section of this 1000-foot driveway and we came back into the trees and then up to the house. We had found our dream house....

Over the years, the power line corridor has been trimmed and cleared, sometimes looking like a war zone with all the shrubbery that had grown being shredded and just left to decay. But the buffer between our home and the lines has not been seriously impacted.

Recently, the lower side of the corridor was trimmed back and that really didn't affect our view from the house. However, the large pine trees that were cut down were just left to decay as well with their huge root balls right on the edge of the driveway facing the driveway. Again, not the best introduction to our home which we call **"Lawrence Mountain"** but we have learned to live with the fact that we share our mountain.

With this new proposal, I am truly afraid of what this will do to my *"buffer line"* between my house and the power lines and extremely upset with the placement of the largest of the poles and "pads" being directly in the view from the front of our home. We are extremely concerned with the placement of the poles and the possible reduction of our "buffer". We have not been contacted by anyone from the utility to see what might be the result of these new plans. I know we have to accept the fact that the lines need to be upgraded but we are very concerned with our view as the end result and would like the chance to have this plan adjusted with our concerns in mind.

Please accept this submission and be considerate of the people with whom this plan will affect for many years to come.

Respectfully,



William Lawrence



Elizabeth Lawrence

EXHIBIT H



CENTRAL NEW HAMPSHIRE BICYCLING COALITION
296 South Main Street, Concord, NH 03301
www.cnhbc.org

April 12, 2017

Ms. Beth Fenstermacher, PLA, LEED AP
Assistant City Planner
41 Green Street | Concord, NH 03301

Dear Ms. Fenstermacher:

The Central New Hampshire Bicycling Coalition is a Concord-area education and advocacy group focused on getting more people on bicycles more often. Our mission is to promote bicycling through education, advocacy, and support for access to bicycles and bicycling infrastructure. Our membership spans the spectrum from novice cyclists to racers. Our programs are geared toward making the bicycling safer through signage, bike lane/sharrow marking, and education of bicyclists and motorists. We are also actively engaged in supporting bicycling among groups where this inexpensive form of transportation can remove barriers to success, including the homeless and refugee populations.

We know you have used Strava data to determine which roads are most used for bicycling in the city. We would caution you about being overly reliant on this data set because it provides an incomplete picture. While it is a reasonable sample of bicycling by performance-oriented bicyclists, there are many avid and casual bicyclists using Concord roads who do not log their trips using any social media platform. Not only are the number of trips undercounted, but the configuration of a bike trip by a family with children will not be the same as that of the typical fitness rider using Strava. That said, Strava provides the best available data on bicycling in Concord.

The roads in East Concord are very popular for bicycling because of their scenic character. Bicyclists have the opportunity to do a number of loop rides of varying distances depending on their fitness level and time available for the ride. Families bicycling with children often prefer destination rides offering a break for a picnic, walk, swim or other activity. There are several popular ride destinations in East Concord, including Turtle Pond/Turtletown Pond Conservation Area, Hot Hole Pond, Hoyt Road Marsh, the Oak Hill trail network (accessible from both Oak Hill Road and Shaker Road), Spears Park, and the Nichols Natural Area. Rides to all of these destinations would involve one or more encounters with the Northern Pass transmission line.

The scenic quality and natural features of East Concord are significant factors in the attractiveness of bicycling in this area. Because of the slow pace of bicycling, there is the opportunity to enjoy the rich natural beauty of the area. These experiences would be diminished by encountering the industrialized corridor of the proposed transmission line. The increases

in tower height will make the visual impact more imposing than the line as it exists today. Some bicyclists will certainly choose to bicycle elsewhere where the landscape is unspoiled.

There may be minor differences in the diminishment of the experience based on the direction of bicycling because of the terrain and the angle at which the line intersects the road. These differences are not relevant because these roads are routinely bicycled in both directions. In all cases, the duration of potential impact would be more than a minute, not seconds as with motorized traffic, especially at the slow pace of casual cyclists and family groups.

For reference, the visibility duration for several transmission-line intersections with commonly bicycled roads are provided in Table 1. These times were measured by a rider proceeding at a pace of 10-12 mph, which is a reasonable pace for a recreational rider who is not focused on athletic performance. The only location where a significant difference in time was noted depending on direction of travel was at the crossing on Oak Hill Road by the Turtletown Pond Conservation Area. In all cases the visual impact will be of longer duration as the tower height increases. Right now, the towers are mostly a similar height to the forest canopy, which masks the towers from view at a distance. The impact of new towers higher than the canopy is likely to be significantly greater, but the Coalition does not have the resources to measure this. Of special concern is the expansive vista of Turtle Pond seen while bicycling southwest on Oak Hill Road.

Table 1.

Duration of Visibility of Current Lines and Towers in Proposed Northern Pass Corridor

Location	Time	Comment
State Route 132	1 min 2 sec	Crossings at 132 and Hoit Road are very close together, extending the impact for riders turning from one road to another.
Hoit Road	1 min 44 sec	
Sanborn	1 min 4 sec	
Snow Pond	1 min 4 sec	Line runs near road without crossing
Shaker	1 min 33 sec	
Oak Hill (NE)	44 sec	
Oak Hill (SW)	1 min 26 sec	
Curtisville Road	1 min 24 sec	Near trailhead for Nichols Natural Area

The only discordant elements in the landscape at the present time are the places where the current transmission line crosses or runs near the road. The increased tower heights will magnify this discord. Where the towers will be above the tree canopy, their presence will be more imposing, and they will be visible from greater distances. None of this is appealing to bicyclists who are out to enjoy the pastoral landscapes of East Concord.

Especially damaging is the increased impact of higher towers at the Turtletown Pond Conservation Area. This crossing will not only diminish the experience of cyclist passing by, but will seriously mar the enjoyment of riders who use Turtle Pond as a destination.

The rural areas of East Concord are valued by bicyclists for their scenic qualities. We hope that accommodations will be made by Northern Pass that will minimize the visual impacts on the area if the project moves forward.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Susanne Kibler-Hacker", with a stylized, flowing script.

Central New Hampshire Bicycling Coalition
By: Susanne Kibler-Hacker, Board Chair



Beth Fenstermacher
Assistant City Planner
41 Green Street, Concord
New Hampshire 03301

Re: New Hampshire Cycling Club response to Northern Pass Inquiry

Dear Beth:

The visual impacts of the Northern Pass will significantly impact the Concord cycling community. I have been involved with the Concord cycling community for over 25 years. I am the treasurer of the New Hampshire Cycling Club (NHCC), a 503(c)(4) non-profit corporation formed in 1991 to promote the sport of competitive cycling. In 2016 we had 72 members, most of whom live and ride in the Concord area. NHCC has promoted over 50 bicycle races and other events in Concord that typically attract 300-500 riders with spectators coming from throughout the New England region. Both participants and spectators often mention the attractiveness of Concord as a venue as one reason for coming to our events.

Our members, and other competitive cyclists, typically ride four to five days a week and log between 3,000 and 5,000 or more miles a year. Rides include social group rides to training sessions. Many riders use and download Strava GPS data on a regular basis. With the Strava data it is possible to verify where they are riding using the composite Strava Heat Map.

Approximately half of the bike routes in Concord utilize Shaker, Mountain, Hoit Road, Snowpond, Sanborn, and Oak Hill roads. All of these roads will be impacted by the construction of the Northern Pass transmission line. The completion of the new Sewalls Falls bridge will increase use of the roads east of the Merrimack River. These roads are popular not only because they are ideal for shorter rides at noon from downtown Concord, but also because they provide the best way to avoid heavily traveled main roads on longer rides to the towns of Loudon, Chichester, Canterbury, Pittsfield and other towns to the east of Concord. Riders travel on these roads in both directions depending on whether they are leaving or returning to Concord. The Club also has sponsored a weekly race series at the New Hampshire Motor Speedway. Many riders use these roads to ride to that event. Several years ago, NHCC promoted the Turtle Pond Circuit Race that used these roads as a race course.

The most significant visual impacts from Northern Pass include the descent on Oak Hill starting from the Loudon line to past Turtle Pond and on Shaker Road to the top of the hill from Shaker Road School northbound to the crossing of the existing transmission line corridor and southbound on Shaker Road to the same crossing. In both instances, there are long views down the clear cut transmission corridor where the transmission towers will be visible for miles. The line will also be visible from the crossing on Hoit/Mountain Road and Sanborn Road. In addition to these roads there will be negative impacts on the crossings of Pembroke road, Portsmouth

Street near interstate 93-A and Old Loudon road. These roads are used to gain access to North Pembroke Road and returning from Chichester and Loudon.

I do not have the mathematical modeling skills to state the number of seconds or minutes that the Northern Pass towers will be visible to riders as this will depend on the riders' speed, the location of the specific tower and its height, the time of year, and assumptions about whether surrounding screening, such as trees, remains as it is now. I am sure these calculations could be made if necessary. It is fair to assume that the towers and wires of Northern Pass will be considerably higher than the existing trees and the present transmission line towers and thus visible for a longer period of time and greater distance.

I do not believe that cyclists will alter their preferred routes if Northern Pass is constructed as proposed. The problem is that any alternative routes expose riders to heavy and dangerous high speed traffic, including truck traffic during the work day. If the choice is between safety or an ugly view of Northern Pass on a preferred route, most riders will choose to avoid the increased risk of being hit by a car. Riders may be forced to abandon these roads during the construction phase of the project if impacts are not mitigated.

You have asked whether there are other pre-existing "discordant elements" on these routes. Aside from the safety of these routes, one of the pleasures of riding a bike in Concord is that within a mile of leaving the downtown of the city you are in a rural environment. The area these routes go through is mostly forested or low density residential housing. There are several conservation parcels, ponds and marshes. One of the best views of Concord is from Oak Hill Road towards the southwest over Turtle Pond and open farm fields. When NHCC promoted the Turtle Pond race, we received many comments about the beauty of this view and the course in general. From Oak Hill, it is possible to see the gold dome of the capitol building in the distance. The only truly "discordant element" in this scene is the transmission line corridor that already exists and will be made much worse if Northern Pass is allowed to be constructed as proposed.

The area south of the Portsmouth Street underpass with Interstate 93-A and Pembroke Road is already developed commercially, but even there the buildings are typically low lying one and two story structures with screening around them. Nothing approaching the height of Northern Pass exists there now which will be visible from miles away. The degradation of these views and the scar on the landscape that this project will create is a permanent loss to the community.

For these reasons we support the recommendation of the Concord City Council that the 8.1 miles of Northern Pass through Concord should be buried.

Very Truly Yours,



James Owers
Treasurer, NHCC

April 13, 2017

RE: Response to Northern Pass Inquiry

Dear Beth:

I am writing as a member of the Granite State Wheelmen cycling club. The club membership consists of several hundred cyclists of all abilities who reside primarily in southern New Hampshire.

I have been participating in, and leading rides for the GSW since the mid-1990s. I typically ride three or four days per week, and cover anywhere from three thousand to five thousand miles per year, much of them in the Concord area.

From April through November, GSW in Concord hosts group rides from three to six times per week. At some of these sessions a total of up to 40 cyclists may participate, riding not as a single mass but divided into groups according to ability, speed of cycling and distance traveled.

In Concord, cyclists will gather at the following three sites, among others: the DOT lot on Hazen Drive, on Saturday mornings; the parking lot across from S&W Sports on South Main St, Concord on Wednesday evenings; and at the Penacook Elementary School lot in Penacook on Monday evenings.

Additional venues may be chosen by groups of cyclists wishing to ride different roads. The length of the rides, in mileage, varies from 10 miles to as many as 65 or 70 miles, on a Saturday. The mean mileage ridden on a Monday or Wednesday evening I would conservatively estimate as 25 miles.

Many of the GSW rides, in particular the Saturday rides from the DOT lot, utilize Shaker, Mountain, Oak Hill and Hoit Roads. Even the rides that take place on Mondays and Wednesdays may utilize these roads, since the distances are not far for avid road cyclists.

The roads are traversed in both directions, depending on how the groups ride. The new Sewalls Falls Bridge will encourage even more riders as well as cycle-commuters to utilize these roads. Access to towns such as Canterbury, Loudon, Tilton, Belmont and Pittsfield is facilitated by the use of these roads.

If the Northern Pass project is built as proposed, cyclists will still likely use the above-mentioned roads, since there are no viable options that allow for safe cycling and convenient loops to and from the meeting places. The alternatives are routes like NH 106 which is heavily traveled by vehicles and consequently noisy, or Fisherville Road, which has the same issues. Both of these roads make access to certain towns problematic.

The most significant visual impacts will occur on Oak Hill Road westbound (toward East Concord), and on Shaker Road in both directions approaching the height of land south of the southern Snow Pond Road junction. Snow Pond Road will have visual impact as well, as will Hoit Road near the intersection with Mountain Road.

Depending on the speed of the cyclists concerned, the visual impact may be for several minutes. While this does not seem to be a long time, any degradation of the scenery is undesirable.

Regarding discordant elements: it is our fortune that the above-mentioned roads have few or no commercial or industrial buildings, other than those by exit 17 of I-93 and south of the Portsmouth St/I-393 overpass. There are no high-rise buildings in these areas, although Wheelabrator does have a high stack near exit 17.

For these reasons I support the Concord City Council's recommendation to bury the Northern Pass line through Concord.

Respectfully submitted,

David S Ross

EXHIBIT I

Bird's Eye View of Concord, NH 1899 (Black and White Poster)



Bird's Eye View of Concord, NH 1899 (Color Poster)



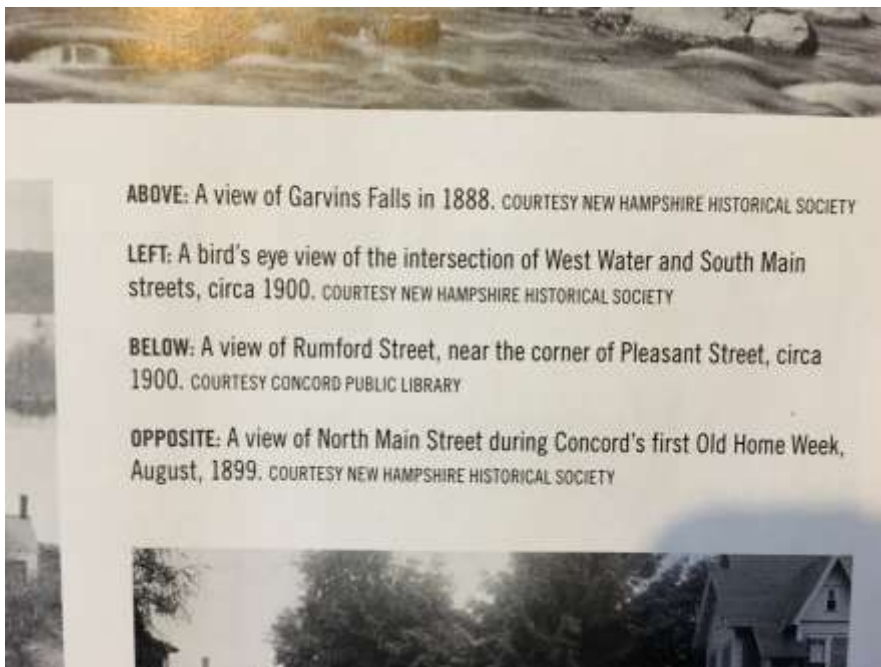
“Downtown at Dawn, Concord, New Hampshire,” by Rebecca Kinhan



Intown Concord Website Homepage (Photograph)



Concord Monitor (Photograph -Description Below)



Chamber of Commerce (Publication Featuring Photograph and Trail System)
<http://concordmonitor.nh.newsmemory.com/special.php?date=20160531>



The heart of the capital region, Concord, New Hampshire is one of New England's best places to live, work and raise a family.

Welcome to the Capital Area



Gary Miller

Welcome to the Capital Area. We are pleased to present the 2016-2017 Guidebook to Greater Concord, showcasing one of the finest communities in the Northeast.

Concord, at the heart of this beautiful area, has been recognized nationally for its vitality and economic strength and offers a quality of living to rival any city in the country. It has been consistently ranked among the nation's top micropolitan (population under 50,000) community, year after year. Our excellent public and private schools produce a well-educated workforce, and we are proud to be home to one of the finest health care networks north of Boston. Whether you prefer the theater, museums, galleries and libraries, or hiking, skiing, and world class motorsports, you can find it here. Concord prides itself on civic involvement, a city where the streets are safe and neighbors care.

With Concord's brand new downtown and an abundance of cultural offerings and diverse businesses in surrounding communities, now is a great time to visit or relocate to Greater Concord and discover one of New England's best-loved areas.

Gary Miller

Gary Miller, Chair
Board of Directors
Greater Concord Chamber of Commerce



Mayor Jim Bouley

Welcome to the wonderful city of Concord, the capital of New Hampshire and the fastest growing city in the state. Situated in the heart of the scenic Merrimack River Valley region of central New Hampshire, its close proximity to Boston, the Lakes Region, mountains and the Seacoast makes Concord an appealing place to visit, raise a family, or do business.

Our public school system, recreational offerings, architecturally diverse state capital, downtown, cultural facilities, private schools, health care services, retirement communities and superb public safety services make us the envy of most cities our size and provide us with one of the most livable small cities in America.

We hope that you will enjoy your time in Concord and that you take the opportunity to immerse yourself in all our community has to offer, partake of our hospitality and attractions and, perhaps, choose to make Concord your home.

Best wishes,

Jim Bouley

Mayor Jim Bouley, City of Concord

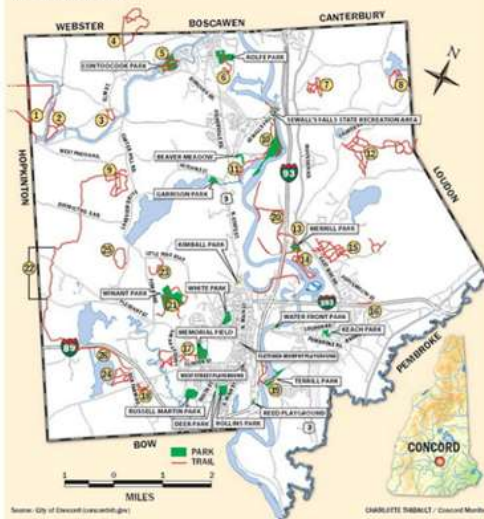
edits

The Greater Concord Chamber of Commerce develops economic opportunities, strengthens the business climate and enhances the quality of life in the Capital Region.

Chamber President: Timothy C. Sisk, CCE

CONCORD'S PUBLIC TRAIL SYSTEM

1. BAKY YARD STATE FOREST TRAIL
2. LINTHORN PARK TRAILS
3. O'REILLY-FLEETHAM TRAIL
4. WEBB ROAD-BOSCAWEN TOWN FOREST TRAILS
5. CONTOCOCK RIVER PARK TRAILS
6. ROLFE PARK TRAILS
7. SPEAR'S PARK TRAILS
8. HELY TRAILS
9. CARTER HILL FARM TRAILS
10. SEWALLS FALLS PARK TRAIL
11. MORONO PARK TRAILS
12. OAK HILL TRAILS
13. MERRILL PARK TRAIL
14. SOCIETY FOR THE PROTECTION OF NEW HAMPSHIRE FORESTS TRAILS
15. CORTVILLE AND BATCHELDER HILL ROAD TRAILS
16. EAST SUGAR BALL ROAD TRAIL
17. TURNER RIVER WHITE FARM TRAILS
18. UPTON MORGAN STATE FOREST INTERPRETIVE TRAILS
19. HEALY PARK AND TERRILL PARK TRAILS
20. EAST CONCORD HERITAGE TRAIL
21. WINNART PARK TRAILS
22. DORCHOW HILL GLEN TRAIL
23. WALKERS RESERVE TRAIL
24. RM AUDUBON SOCIETY TRAILS
25. MARJORY SHORE PARK TRAIL
26. WEST END FARM TRAIL



Source: City of Concord (concordnh.gov)

CHARLOTTE TABAKOFF / Concord Monitor

New Hampshire Historical Society (Poster)

<https://www.nhhistory.org/Object?id=57bc0ce1-5468-4e21-97f0-e3e87d4f1a02>



EXHIBIT J

JEFFREY ALLENBY, GISP

716 Giddings Ave, Suite 42
Annapolis, MD 21401

443-482-9080
Jallenby@chesapeakeconservancy.org

EDUCATION

MASTER OF ENVIRONMENTAL MANAGEMENT, Aug 2009 – May 2011

- Nicholas School of the Environment, Duke University, Durham, NC
- *Concentration*: Coastal Environmental Management
- *Certificate of Geospatial Analysis*, May 2011

BACHELOR OF SCIENCE, *cum laude*, Aug 2003 – May 2007

- University of Richmond, Richmond, VA
- *Major*: Environmental Studies.
- *Minors*: Leadership Studies, Geography, Urban Practice & Policy
- *Jepson School of Leadership Studies*, May 2007
- *Honors*: Oldham Scholar for overall academic achievement, 2003-2007

PROFESSIONAL EXPERIENCE

CHESAPEAKE CONSERVANCY, ANNAPOLIS, MD, *Director of Conservation Technology - June 2011 – Present*

Responsible for the development and management of over \$1 million of projects conducted through the Conservancy's Conservation Innovation Center: a team of nine staff exploring new methods to improve the effectiveness and efficiency of the Conservancy's projects and focusing on developing new ways to empower partner organizations by providing them with innovative ways to access geospatial data and analysis tools that will create beneficial management outcomes including:

- Developing a novel method of generating ultra-high resolution landscape information to improve the organization's ability to identify and prioritize land with the highest conservation and restoration potential
- Incorporating geospatial technology and advanced remote sensing into the Conservancy's large-landscape conservation efforts and the Chesapeake Bay Programs management efforts
- Expanding public engagement through interactive mapping and analysis tools displaying data and allowing complex geospatial analyses through a simple and intuitive user interface.
- Providing consulting and advisory services to non-profits and local, state, and federal governments throughout the Chesapeake Bay watershed and around the world.
- Primary author for reports highlighting new roles for technology and geospatial analysis in the conservation field.

UNIVERSITY OF MARYLAND CENTER FOR ENVIRONMENTAL SCIENCE, ANNAPOLIS, MD, *CoastSmart Communities Planner - June 2011 – June 2012*

Administered the CoastSmart Communities Initiative for the Maryland Department of Natural Resources. Provided technical support and advice to local communities to incorporate climate change adaptation measures into local planning activities and regulations. Managed a competitive grant program, providing financial support to local governments for climate change adaptation, including coordinating the selection process for grant recipients, processing invoices and tracking budget expenditures, ensuring reporting was done in a timely manner, and providing support for all project activities. Completely redesigned the Maryland Coastal Atlas web mapping tool to improve the user experience and functionality of the website. Organized a daylong workshop, attended by representatives of federal, state and local governments and academia, investigating how public opinions affect climate change adaptation in Maryland and Germany. Developed new education and communication materials for homeowners and local governments regarding climate adaptation at the local level

DUKE UNIVERSITY, BEAUFORT, NC *Master's Project – May 2011*

Developed a custom GIS-based tool for Bogue Banks, NC to model barrier island oceanfront erosion and estuarine flood risks due to sea-level rise. Using census data, tax maps, and Coastal Area Management Act land use plans, translated scientific and regulatory data into information that the four Bogue Banks communities and their citizens could understand and act upon, dealing with topics such as septic tank regulations, transportation and housing infrastructure, and migrating wetlands. Served as an advisor to the Coastal Resources Commission in the development of North Carolina regulations regarding development and sea level rise. Held public meetings to communicate the risks that will likely be faced and the policy areas that need to be addressed further in an effort to improve the understanding of the consequences of climate change at the local level.

CHESAPEAKE BAY FOUNDATION, ANNAPOLIS, MD

Environmental Education Manager – Aug 2007 – Aug 2009

Responsible for all aspects of an environmental education program, focusing primarily on Maryland tributaries of the Chesapeake Bay. Taught 6th grade to college level students about the biology, chemistry, history, and cultural resources of the Chesapeake Bay and its tributaries, focusing on the need for community involvement in conservation efforts.

Geospatial Information Specialist – Jan. 2008 – July 2009

Created and organized a geospatial analysis database for the entire organization and worked with other departments to identify and fulfill GIS needs including:

- Analyzing the conservation potential of sub-watersheds to determine where the organization's restoration efforts should be concentrated; including identifying landowners, determining land use, and analyzing conservation potential based on environmental characteristics and impact on downstream water quality.
- Detecting declines in submerged aquatic vegetation beds over time to support a major scientific report, and
- Helping the Development Department target critical geographic areas for membership drives and fundraising.

Professional

- Geographic Information System Professional (GISP) (2015) – Geographic Information System Certification Institute

Certifications

Awards

- **Esri Special Achievement in GIS** (2015) for pioneering the generation of large landscape high-resolution land cover data
- **Esri See, Find, Share** award (2016) for excellence in the generation, analysis, and distribution of remotely sensed data.

Relevant Projects

- **George Washington's Mount Vernon Viewshed Analysis**
From 2013-2016, the Chesapeake Conservancy has been retained by George Washington's Mount Vernon to conduct and update an analysis to model the potential viewshed impacts of development within two counties in Maryland.
- **James River Powerline**
In 2014, Chesapeake Conservancy joined the Down to the Wire Coalition to model the visual impacts of a proposed 500kV powerline crossing the James River in Virginia using an updated visibility analysis methodology to provide a comprehensive map of visual impacts from the 17 proposed towers.
- **Central Susquehanna Valley Transportation Project**
In 2014, Chesapeake Conservancy was asked by the National Park Service, Chesapeake Bay Office, to help determine the visual impacts to the Captain John Smith Chesapeake National Historic Trail of a proposed bridge across the west branch of the Susquehanna River.