

April 4, 2016

**STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DESIGN**

CONFERENCE REPORT

PROJECT: Northern Pass

DATE OF CONFERENCE: March 22, 2016

LOCATION OF CONFERENCE: 7 Hazen B34 211 Kancamagus Conf Rm

ATTENDED BY: DEPARTMENT OF TRANSPORTATION

William Cass – Assistant Commissioner
Dave Rodrigue – Director of Operations
Alan Hanscom – Highway Maintenance District 3 Engineer
Melodie Esterberg – Chief of Design Services
Matthew Powers – Utility Coordinator, Design Services
Lennart Suther – Utilities Engineer, Design Services
Lou Barker - Railroad Planner, Rail & Transit

EVERSOURCE ENERGY

Jerry Fortier – NPT Project Manager, Eversource Energy
Stephanie Labbe – PAR Electric
Lance Clute – PAR Electric
Mike Pillsbury – Louis Berger Group
Sam Johnson – Burns & McDonnell Engineering

SUBJECT: Site Evaluation Committee (SEC) Process Application and Design Update

NOTES ON CONFERENCE:

See attached Agenda

There were no comments or changes to the previous March 1, 2016 meeting minutes.

The Department will meet internally to combine all the review comments of the existing applications prior to submitting to the Northern Pass design team. The Department anticipates submitting those comments prior to the next monthly meeting.

Eversource is continuing to obtain record information from the various utilities.

Eversource has hired a geotechnical firm to perform the necessary geotechnical evaluations and anticipates seeking permits for the field work in Highway Maintenance Districts 1 and 3 the week of April 4th. Stephanie Labbe will be the primary contact to the Department and will be submitting the individual permit requests. Eversource clarified their terminology regarding the boring work for civil trench (open trench) and horizontal directional drill (HDD) construction. The first permit requests will be for 216 borings (approximately half in each

District) in the civil trench construction areas with the second requests for approximately 100 borings (approximately half in each District in the HDD construction area coming a couple weeks later. These are in addition to the previous 44 shallow and 9 deep borings performed in November and December of 2015. PAR Electric anticipates that with 2 to 3 crews working full time the work effort will take 6 weeks for each group of borings. The boring contractors will be submitting the permit requests to Ms. Labbe for review who will then be submitting them to the Department. The permit requests plans will indicate the Town in which the work will be performed. Ms. Labbe offered to meet with the District Engineers when submitting the permit requests. It was suggested that the meeting occur at the Highway Maintenance District 3 office in Gilford so District 1 personnel do not have to travel as far. The Department will need the permit request with original signatures of both the owner and the contractor. S.W. Cole will be performing the borings for the civil trench construction areas.

Mr. Rodrigue asked if Eversource had a particular schedule that the permit requests should be reviewed. Eversource does not have a scheduling priority as they are all necessary and agreed that work will need to progress in an orderly fashion along the corridor to facilitate the Department's review of the work and minimize impacts to traffic due to concurrent work done by others in specific locations. Upon approval of the permits the Eversource design team and contractors will meet with the District Engineers to verify the locations and provide a detailed schedule.

Eversource has advertised for bids to perform the ground survey along the corridor and asked whether permits were necessary. The Department replied that permits are not required but the Highway Maintenance Districts shall be notified when survey work will be occurring. PAR Electric will provide notification approximately a week in advance of crews beginning survey work. The Department reminded Eversource that all contractor questions should be through Eversource to the Department. The Department also informed Eversource and PAR Electric that the survey crews shall comply with the requirements of the Manual of Uniform Traffic Control Devices when within the Right-of-Way. Mr. Barker noted that the Department owns all the rail corridors, except the far northern rail corridors and that any work within those corridors would require Agreements with the Operators for insurance and flaggers. Eversource indicated that they did not anticipated work within the rail corridors except at road crossings and would be surveying between the sidewalks. Other than road crossings of rail corridors survey will be from Right-of-Way line to Right-of-Way line.

Eversource provided information on the design and characteristics of the underground electric cable. The design of the cable requires consideration of the voltage, depth, bending radius of the cable and thermal characteristics (resistivity to dissipate heat) of the soil. Initial testing of the soil indicates that less than 10% to 20% of the material will not be reusable. The designed cable is 4 1/2" diameter weighing 20 -22 lbs./ft. in a 8" Schedule 40 conduit and will be energized to 320 kV. The minimum bending radius is 200 feet. The trenching which is anticipated to be 2 feet 9 inches wide and HDD will contain 2-8" conduits and 3-2" conduits for communication and grounding. The pulling tension on the cable is what limits the splice vault spacing and with more bends, either horizontal or vertical, the spacing will need to be reduced. The current spacing between the splice vaults, anticipating some bends, is 1,800 to 2,000 feet. The terrain (topography) also impacts the spacing of the splice vaults. The vault spacing will always be on the shorter side when there are conflicts.

Eversource explained that the 30% design alignment along the edge of pavement is their attempt to balance the technical, environmental, Department policy and right-of-way demands of the project. Ms. Esterberg identified that the current alignment appears to require elimination of at least one traffic lane and some locations two lanes for construction. The DOT mission is to provide transportation avenues for goods and people. The Northern Pass (NP) project needs to balance all design constraints while minimizing the impact to the mission of the DOT. Mr. Pillsbury emphasized the continuation of the coordination meetings to deal with the constraints and balance the missions of the DOT and NP project. Mr. Rodrigue noted that the Department's policy is for utilities to be outside the 1:1 slope line from the edge of pavement. The Department prefers a location where neither party is digging around the others infrastructure in the future. Mr. Fortier noted that Eversource is hearing the need for more outside the pavement, preferably outside the shoulder, locations. Ms. Esterberg did identify that there are locations, such as NH 112 which is a scenic byway, that there are more constraints. Also HDD pits will not be allowed within the roadway and particularly not in an intersection (NH 112 and NH 18). Eversource noted that those locations will be better located as the design progresses.

The Department requested an overview of the construction sequencing and anticipated times for the various phases. Segments of the trench excavation, installation of the conduit bedding and conduit and then backfilling with the excavated material will be completed daily so as not to remain open overnight. The excavation for and installation of the splice vaults will occur as encountered since the conduit entrance and exit locations in the vault walls must be sealed before backfilled. It is anticipated that the contractor will complete between 50 to 200 feet of the underground facility per day depending on the material encountered. Final pavement will be placed in large segments. Conduit construction is being used to reduce impacts to traffic as direct buried cable would require entire trenches, vault to vault, to remain open until the cable is installed between the splice vaults, spliced and tested. PAR Electric is investigating the use jigs to support the assembled conduit system while it is lowered in the trench to simplify and accelerate the installation time frame and avoid personnel in the trench. An issue Eversource is looking into to resolve is the storage of the excavated material and the various construction materials (conduit, etc.).

Ms. Esterberg noted that the Department is working under new policies that require material from the roadway to be considered mildly contaminated unless tested to prove otherwise. Mildly contaminated material must be properly disposed of. PAR Electric indicated that they have dealt with this issue on other projects. Mr. Rodrigue indicated that in most cases the material near the surface adjacent to the pavement is considered "mildly" contaminated soil and since the average depth of the conduit is 5+ feet that it shouldn't be an issue.

Once significant lengths of conduit and splice vaults are installed Eversource anticipates beginning the cable installation and splicing operations. Typically the splicing operation is a week per vault.

Eversource noted that they are revisiting the depth of the installation and the type of protection based on the Department's comment regarding the depth of the installation. The policy dictates 30" below ground elevation or 18" below the structural box, and that the Department considers those measurements to the top of the concrete slab. Eversource is now considering concrete encasement of the conduits to balance the Utility Accommodation Manual (UAM) requirements and constructability. The Department suggested that typical details be presented for review and comment before submitting the plan packages.

Mr. Rodrigue asked if the proposed power facility locations would be marked as part of the Dig Safe process in the future and whether Eversource would require personnel on site during future maintenance. Eversource noted that the facilities would be include in the Dig Safe marking process and would not require personnel to be on site during NHDOT maintenance activities but did request to be notified of proposed work in the vicinity of the power facility.

Mr. Rodrigue reminded Eversource that because of the magnitude the project they will be invoiced by the Department for inspection of the construction activities. Eversource asked if the Department had an estimate of the cost for the inspection. The cost is difficult to estimate at this time as it will depend on the number of crews, locations, personnel used (DOT employee, part-time hire, or consultant), and the quality of the work.

Eversource was reminded again that Liability Insurance and a Surety Bond for both performance during construction and warranty after construction.

Eversource was informed that some of the older sections of roadway contain concrete slabs overlaid with asphalt concrete. Where concrete slab is removed it will need to be replaced with a concrete slab that is attached to the remaining concrete slab. Mr. Hanscom noted that if the trench is at edge of pavement there should be limited impacts to the concrete slab because generally the slabs are 20 feet wide with 10 feet in each lane.

The Department recommended looking at the potential to use the rail corridor in the Plymouth to avoid the municipal and college infrastructure in the downtown area. Eversource asked about the width of the rail corridor right-of-way and whether it contained fiber optic cable. Mr. Barker replied that it is generally 55' to 60' wide with a single track within the corridor and would need to investigate the existence of fiber optic cable. He noted that the Railroad retained the easements for such facilities when the corridors were sold to the State.

Meetings are now scheduled for 1:00 pm on the 4th Tuesday of the month, with the next meeting on April 26, 2016.

Submitted by:

Lennart Suther
Utilities Engineer

LDS/lds

NOTED BY: MAE, MCP

cc: Attendees, Christopher Waszczuk, Philip Beaulieu, Douglas King, Richard Radwanski, Brian Schutt, Chuck Schmidt