



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION



July 15, 2009

Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

RE: Greater Springfield Reliability Project and Manchester to Meekville Junction
Circuit Separation Project
Connecticut Light and Power Company
Bloomfield, East Granby, Suffield, Enfield and Manchester, Connecticut
Docket No. 370

Dear Chairman Caruso:

Staff of this department have reviewed the above-referenced application for a Certificate of Environmental Compatibility and Public Need for the proposed 345-kV transmission line from North Bloomfield Substation to the Massachusetts state line at Suffield and have walked the complete alignment of the proposed above-ground route including the Massachusetts Southern Alternative in Suffield and Enfield. Two underground variations, referred to as the Newgate Variation and the Route 168/187 Variation were also field reviewed, principally by vehicle but partially by walking, as was the underground alternative for the Massachusetts Southern Alternative. No field review was performed for the Manchester to Meekville Junction Circuit Separation Project. Based on these efforts, the following comments are offered to the Council for your use in this proceeding.

The proposed facility includes 11.9 miles of 345-kV circuit to be constructed within existing transmission line rights-of-way, extending from North Bloomfield Substation northward through portions of Bloomfield, East Granby and Suffield. North Bloomfield Substation would be expanded by 2.7 acres to accommodate a new switchyard and three new autotransformers. The new 345-kV line would enter Massachusetts from Suffield and would continue on to South Agawam, Agawam and Ludlow Substations. An alternate routing, referred to as the Massachusetts Southern Alternative, which would extend south from Ludlow Substation to northern Enfield and then westward to South Agawam Substation, would entail the construction of 5.4 miles of additional 345-kV transmission lines in Enfield and Suffield. Lastly, 2.2 miles of circuit separation in western Manchester is proposed to place existing 115-kV and 345-kV circuits on separate structures instead of the current arrangement employing shared structures for these two circuits.

DEP's review of this application has included a number of issues including visual and residential impacts along the right-of-way, permit and regulatory requirements of the project, impacts to state-listed species, the potential use of Newgate Wildlife Management Area property for a transition station, the conversion of forest habitat to open field habitat, the Farmington River Wild and Scenic River designation, electromagnetic fields, a summary of conditions along the right-of-way, and a comparison of the underground routes.

Permit and Regulatory Requirements

Section Q of Volume 1 of the application contains a listing of necessary governmental approvals for the proposed facility. The listing of DEP permits and approvals is not entirely accurate. As noted in Section Q, Connecticut Light and Power will need a Section 401 Water Quality Certificate from DEP, a need which is triggered by the requirement for a Clean Water Act Section 404 Permit from the Corps of Engineers. Within the scope of the Section 401 Water Quality Certificate review, the applicant will be required to demonstrate that the impacts to all water resources, including watercourses and wetlands, will not violate adopted state water quality standards and that the impacts to water resources will be minimal. Connecticut Light and Power has already submitted its Section 401 Water Quality Certification application for the Manchester to Meekville Junction Circuit Separation Project but has not yet done so for the Greater Springfield Reliability Project.

Relative to wetland impacts, the statement is made on page N-15 of the application that "The temporary fill used for the crane pads in wetlands may be removed after the completion of structure installation." Similarly, on page N-16, in a discussion of access roads across wetlands, the application states "The surficial fill materials used to construct the access roads would be removed down to the pre-construction elevation so as not to interfere with the surface hydrology of the wetland. The underlying material would serve as either a firm base for equipment access or for the future placement of temporary timber mats to cross these larger wetland systems. CL&P anticipates that this practice of establishing a permanent "access road base" may occur in some wetland systems." If CL&P proposes to leave some crane pads or access road base material in place on a permanent basis, the need for this permanent fill must be justified in the permit application and the acreage thus impacted must be included in the project's total area of wetland impacts for which mitigation will be required. CL&P recognizes the need for compensatory mitigation (p. N-17) for the project's wetland impacts and discusses some actions which could be proposed for mitigation. All other things being equal, CL&P should first consider mitigation options in or adjacent to the corridor right-of-way if possible, and secondly, mitigation opportunities with the same watersheds as the impacts.

The application notes (p. N-48) that 400 cubic yards of fill are proposed to be placed within the 100-year floodplain of Griffin Brook in connection with the expansion of the North Bloomfield Substation. The application correctly notes the need to mitigate this loss of floodplain storage through the creation of new floodplain storage within the affected reach of the Griffin Brook floodplain.

Not mentioned within the table in Section Q but noted elsewhere in the application is the need for Stream Channel Encroachment Line permits in conjunction with new structures within the encroachment lines on the Hockanum River for the Manchester-Meekville Junction project. Another potential need for a SCEL permit would come into play for the Connecticut

River crossing at Suffield should the Massachusetts Southern Alternative alignment be certificated. Although the new crossing would be above the river rather than involving fill or structures within the river or its floodplain, from a regulatory perspective "over is in" and therefore the new crossing from Suffield to Longmeadow, Mass. would create the need for a SCEL permit. The Connecticut River crossing, and perhaps the Hockanum River crossing, would qualify for a General Permit for the Placement of Utilities and Drainage, which is an expedited SCEL process for projects with minimal structure or fill involvement. Jeff Caiola of the DEP Inland Water Resources Division can be contacted at (860) 424-4162 in this regard.

On page N-9 of the application, CL&P cites its intent to apply for a General Permit Registration for the Discharge of Stormwater and Dewatering Wastewater from Construction Activities, and the related preparation and submission of a Stormwater Pollution Control Plan for these construction activities. Questions about this General Permit Registration can be directed to Nisha Patel of the Permitting and Enforcement Division of the Bureau of Materials Management and Compliance Assurance at (860) 424-3840. This general permit is appropriate assuming that the dewatering discharges are clean, i.e., free of contamination.

The preceding paragraph assumes that any dewatering wastewaters are essentially free of any contaminants other than suspended soil particles. This is likely to be true for any dewatering wastewaters from construction activities on the right-of-way. However, should an in-road underground alignment be selected, there is at least the potential for gasoline or home heating oil releases to be present in the groundwater. The presence of such contaminants would probably be detected in the field by odor or sheen as opposed to detection via a pre-characterization study. Pre-characterization of the groundwater along the underground route would not be warranted unless there was reason to expect a possible release from a business such as a gas station or a dry cleaning establishment. In the event that groundwater contamination is present, the project would require either a General Permit for the Release of Groundwater Remediation Wastewaters to a Sanitary Sewer or a General Permit for the Release of Groundwater Remediation Wastewaters to a Surface Water. Discharge of such wastewater to a sanitary sewer is the preferred option where this alternative is available. Discharge of groundwater remediation wastewater to surface waters requires more treatment than discharge to sanitary sewers. Advance application for these permits can be made before the need for them arises through the encounter of contaminated groundwater, and this practice is often recommended to avoid later delays. Questions regarding the General Permits for the Discharge of Groundwater Remediation Wastewaters can be directed to Don Gonyea of the Permitting and Enforcement Division at (860) 424-3827.

The list of the DEP approvals listed in Section Q of Volume 1 mentions two other permits the need for which would arise only if the Massachusetts Southern Alternative were pursued for this project. These are the Structures, Dredging and Fill Permit and the Coastal Consistency Determination under the Coastal Management Act. The crossing of the Connecticut River by this alignment would involve the need for these permits because the Connecticut River is officially classified as navigable at this location and, therefore, any structures or fill in or over the river would require a Structures, Dredging and Fill Permit under section 22a-361 of the Connecticut General Statutes. This permit would likely be handled as a Certificate of Permission from the DEP Office of Long Island Sound Programs due to the fact that no structures or fill

would actually be placed in the river. A Coastal Consistency Determination would need to be made as an element of the issuance of this permit or of a certificate of permission.

The final permit listed in Section Q as potentially required from DEP is a Tidal Wetlands Permit. There is no element of this proposed project or any of its variations or alternatives which could conceivably invoke the need for a Tidal Wetlands Permit.

Natural Diversity Data Base Listed Species

The application lists seven Natural Diversity Data Base species present in the project corridor: Jefferson salamander (*Ambystoma jeffersonianum*), eastern box turtle (*Terrapene carolina*), eastern pearlshell mussel (*Margaritifera margaritifera*), dwarf wedge mussel (*Alasmidonta heterodon*), eastern pond mussel (*Ligumia nasuta*), arrow clubtail dragonfly (*Stylurus spiniceps*), and Bush's sedge (*Carex bushii*). There has been extensive coordination between DEP and CL&P regarding potential impacts to these species and appropriate mitigation measures to minimize or avoid these impacts. The final result of this coordination was a letter of March 26, 2009 from Don Biondi of Northeast Utilities detailing mitigation measures CL&P would take to protect these seven species as well as two other listed species, wood turtle (*Clemmys insculpta*) and eastern hognose snake (*Heterodon platirhinos*), observed by CL&P's naturalist during field work, and one species, barn owl (*Tyto alba*), for which DEP has historic records in the vicinity of the Manchester-Meekville Junction line. By letter of April 3, 2009, the Wildlife Division of DEP formally concurred with these mitigation measures.

With apologies for adding to the length of these comments, these accepted mitigation measures will be summarized here as they may be of use to the Council in crafting certificate conditions or in its review of the Development and Management Plan for this project.

For the Jefferson salamander, the following seven mitigation measures have been agreed to:

- Seasonal restrictions for tree clearing work, which will be performed in September and October for the affected areas of the right-of-way.
- Siting the proposed structure locations outside of confirmed amphibian breeding pools.
- Using temporary timber mats on new access roads instead of constructing gravel roads in the vicinity of amphibian breeding habitat.
- Minimizing the removal of low-growth vegetation surrounding breeding pools during the initial ROW clearing activities.
- Incorporating the protection and maintenance of low-growth vegetation within and around the amphibian breeding pools into CL&P's vegetation maintenance program for the ROW.
- Implementing an effective erosion and sedimentation control plan to avoid and/or minimize deposition of sediment into breeding pools.
- Due to the extended length of time which sediment and erosion controls will need to be in place, CL&P will make the necessary accommodations to facilitate unencumbered amphibian access to and from the identified vernal pool habitat by providing wood chip ramps on either side of the sediment and erosion controls and/or by providing openings in the erosion control barriers.

For the eastern box turtle, the following six mitigation measures have been agreed to:

- During the eastern box turtle active period, a DEP approved turtle ecologist will be present whenever construction activities take place in mapped eastern box turtle habitats. Said monitor shall sweep all active work locations daily. Any eastern box turtles encountered shall be removed from the active work area to ensure their safety.
- A contractor awareness program will be developed and implemented to ensure all contractors working in mapped eastern box turtle habitat areas can identify the turtles and are made aware of the proper handling and care procedures for the species should one be encountered in a work area.
- To the extent that it is possible, all construction vehicles and equipment shall be parked on roadways and not in eastern box turtle habitat whenever working in these areas.
- Install turtle exclusion fencing around the work area prior to construction.
- Minimize removal of low-growth vegetation in all mapped eastern box turtle habitats during the initial ROW clearing activities.
- Implement an effective erosion and sedimentation control plan to avoid and/or minimize the deposition of sediment into wetland habitats.

For the eastern pearlshell mussel, the following two mitigation measures have been agreed to:

- Minimizing the removal of low-growth vegetation in all wetland areas which are tributary to Muddy Brook during the initial ROW clearing.
- Implementing an effective erosion and sedimentation control plan to avoid and/or minimize the deposition of sediments into wetland habitats.

For the arrow clubtail dragonfly, the dwarf wedge mussel and the eastern pond mussel, all of which occur in the vicinity of the line's crossing of the Farmington River, CL&P has committed to:

- Undertaking a rare mussel survey in this area and relocating any rare mussels found here to other suitable habitat.
- Conducting all tree clearing operations on the banks of the Farmington River and on an island in the river without mechanized equipment but rather by crews on foot.
- Minimizing removal of low-growth vegetation in areas adjacent to the river during the initial ROW clearing activities.
- Implementing an effective erosion and sedimentation control plan to avoid and/or minimize the deposition of sediment into riverine habitats.

No special conditions are recommended for the protection of Bush's sedge at this time. A small population near the right-of-way was located and other vegetation threatening this population was pruned by hand. However, no populations of Bush's sedge have been identified within the right-of-way.

For the barn owl, CL&P will perform a nesting tree cavity survey along the Manchester-Meekville Junction corridor prior to removing any trees in this ROW because of the historic occurrence of barn owls in this area.

For the wood turtle, CL&P has committed to performing the first, second, fifth and sixth measures listed above for the eastern box turtle for construction work in the area of the North Bloomfield Substation.

Lastly, for the eastern hognose snake, the following two mitigation measures have been agreed to:

- During the active period for the eastern hognose snake, a DEP approved snake ecologist/monitor will be present on the ROW between Tunxis Avenue and Hatchett Hill Road whenever construction work takes place. Any hognose snakes encountered shall be removed from the active work space to ensure their safety.
- A contractor awareness program will be developed and implemented to ensure all contractors can identify the snakes and are made aware of the proper handling and care procedures for the species should one be observed in the active work space.

Potential Transition Station at Newgate Wildlife Management Area, East Granby

The 3.6 Mile In-ROW Underground Alternative, as proposed, would include the siting of the southern transition station at a location within the Newgate Wildlife Management Area in East Granby, approximately 4,000' north of Route 20, as measured along the right-of-way. The 445-acre Newgate Wildlife Management Area was purchased in 1983 with Pittman-Robertson funds from the U.S. Fish and Wildlife Service for habitat, hunting and recreational use. According to Page H-46 of the application, the use of 2 to 4 acres of this property would be required to locate the transition station for the 3.6 Mile Underground Alternative at this location.

According to 50 CFR Section 80.14, real property acquired or constructed with Wildlife and Sport Fish Restoration Program funds, as this property was, must continue to serve the purpose for which it was acquired or constructed. When such property passes from management control of the state fish and wildlife agency, control of the property must be fully restored to the state fish and wildlife agency or the real property must be replaced using non-Federal funds not derived from license revenues. Replacement property must be of equal value at current market prices and with equal benefits as the original property. When such property is used for purposes that interfere with the accomplishment of the approved purposes, the violating activities must cease and any adverse impacts resulting must be remedied. On a State level, DEP does have a policy directive setting forth the conditions and procedures for the exchange of land or interests in land. Under this directive, which was updated and issued on June 10, 2008, if certain conditions are met, DEP can exchange property or interests in property for other property or interests of equal or greater fair market value and utility to resource management programs. However, again we note that our ability to do this may be constrained by federal restrictions attached to the Wildlife and Sport Fish Restoration Program funding in that any exchange must be approved by the regional director of the U. S. Fish and Wildlife Service.

The particular location proposed for this transition station does raise several questions and concerns. Although the application cites this location as chosen to minimize wetlands impacts of the 3.6 Mile Underground Alternative, at least as compared to the 4.6 Mile Underground Alternative, the proposed transition station is almost perfectly centered within the Newgate WMA. This would create an obstacle for hunters as they would need to avoid or restrict their use of the surrounding property so as not to risk damaging the facility. This would create a *de facto* buffer zone in the middle of the WMA. By regulation, hunting is also

prohibited within 500' of any building occupied by people or domestic wildlife or used for storage of flammable materials. It is unclear if the occasional need for utility personnel to access the transition station would invoke this 500' restriction. We assume no flammable materials would be stored or used at the transition station but this point would need to be verified to see if the 500' restriction would be relevant on this point.

The bottom line is that the 2-4 acres of Newgate WMA which might be required to site the transition station would greatly exceed 2-4 acres in terms of the area impacted by such a facility. Adequate compensation for the resource management values of this land would greatly exceed 2-4 acres.

As shown on Maps 4 of 10 and 5 of 10 in Volume 9 of the application, Northeast Utilities has holdings of 180 acres immediately adjacent to the right-of-way and to Newgate WMA. If the 3.6 Mile In-ROW Underground Alternative were to be pursued, the feasibility of siting the transition station within this land, perhaps toward the northeast corner of this holding, should be investigated. Such a location might entail only a relatively small additional wetland involvement from the crossing of wetlands #246 and 247, or, if necessary, a short crossing of a corner of the Newgate WMA by the underground line to reach the right-of-way from the transition station without impacting these wetlands.

Conversion of Forest Habitat to Open Field Habitat

A second wildlife-related issue of relevance not only to Newgate WMA but to the length of the 12-mile corridor is that of the conversion of approximately 100' of additional ROW width from forested habitat to early successional habitat. According to figures on page N-22 of the application, this widening of the cleared portion of the corridor will convert 103 acres of upland forest habitat to open field and shrub-scrub habitat which will ultimately be maintained as early successional habitat, as required by its use as a power line right-of-way. While both the upland forest and old field/ early successional environments possess habitat value, the old field and shrubland habitat that will be created within the right-of-way will benefit many of the wildlife species that are declining most rapidly in our state and region, including shrubland bird species. In addition, the early successional vegetative regime also provides excellent butterfly habitat. Much of this habitat type has been lost or is being lost as former agricultural land is being developed or as it reverts to woodland. The old field habitat created in the ROW will be maintained indefinitely in that state, and thus represents early successional habitat that is frozen in time. It will therefore continue to provide habitat value for critical species as long as the corridor is maintained for utility purposes.

The value of the habitat provided in and along the right-of-way would be maximized if herbicide applications and mechanical clearing activities can be conducted outside of nesting season for the potential resident species. In broadest terms, this would be accomplished by performing vegetative management activities between mid-September and April first. CL&P may contact the DEP Wildlife Division for consultation on vegetation management in this or any other corridor when necessary. Jenny Dickson may be used as a contact at 424-3494 in this regard. In addition, the Wildlife Management Division is available to consult on beneficial vegetative plantings appropriate to the right-of-way which would enhance habitat value. Paul Rothbart of DEP's Marlborough District Office may be contacted at 295-9523 for input.

Farmington River Wild and Scenic River Designation

In 1994 fourteen miles of the Farmington River from just below Hogback Dam in Colebrook to the Routes 44 and 202 crossing of the river in Canton were formally designated by Congress as part of the National Wild and Scenic River System. As noted in the CL&P application, the existing utility corridor crossing just downstream of Tariffville is not within the Wild and Scenic designated segment of the Farmington River.

However, legislation passed by Congress (Senate in 2005, House in 2006) and signed by President Bush in 2007 authorized a 3-year study of the lower Farmington River from Canton to its confluence with the Connecticut River. This study, which is currently underway, is being undertaken by the National Park Service and may ultimately result in a recommendation to pursue Wild and Scenic River designation for the lower Farmington River. The effect of such a designation, if any, on a new utility line crossing of the Farmington River is unclear. Further questions about the status and goals of the Lower Farmington River Wild and Scenic River Study may be directed to Joyce Kennedy-Raymes, Study Coordinator, at (860) 658-4442 x203.

Comments on Proposed EMF Mitigation and on EMF Literature Review

The applicant has proposed the use of a delta conductor configuration on 110' monopole structures as an EMF reduction strategy for the 3.2-mile "focus area" in the Copper Hill section of East Granby and along portions of Newgate and Phelps Roads. Although these measures, which are projected to yield 22-24% reductions in edge-of-row magnetic field levels, are consistent with the guidance of the Council's Best Management Practices, the Council is urged to revisit the Docket 272 decision to assess the conditions which led to the use of split phase technology for portions of that line and to determine if those criteria would apply to this so-called focus area of the Docket 370 proposal. The Council should apply those criteria consistently from one application to another.

A check of the Council's web site does not indicate that any testimony has been received to date from the Department of Public Health on the current application. DEP notes that DPH did submit testimony addressing EMF issues in the Docket 272 proceeding at the request of the Council. As DPH has expertise in this area which neither DEP nor the Council possesses, it would be useful to the Council to have the benefit of DPH's expertise on EMF as it applies to the application at hand and specifically to the choice of the most appropriate structure and conductor configuration for the focus area. To that end, DEP encourages the Council to again solicit comments from DPH on this issue.

The application uses the terminology of focus area to describe the section of the line from the Copper Hill area of East Granby to the crossing of Phelps Road. For the sake of providing clarity in both this and future applications, the Council should determine whether this focus area meets the threshold for a residential area as used in Connecticut General Statutes section 16-5p(i), and should provide the rationale for why this threshold is or is not met. This might logically be done within the Council's Opinion on this docket.

Though DEP does not have jurisdiction over 60 Hz EMF and has only limited technical expertise in this area, we offer the following comments concerning the applicant's review of current literature on EMF. The DEP Radiation Division conducted a review of Section O of the application and specifically of the Update of Scientific Research in Appendix O-6. Our review

did not find anything inconsistent with the report's assertion that recent studies do not provide evidence to alter the World Health Organization's 2007 Status Report on EMF. Specifically, a review of the Swedish Radiation Protection Authority's Recent Research on EMF and Health Risks (2008) concluded that the previous assessment by the International Agency for Research on Cancer remains unchanged. One observation on the scope of the reports analyzed in Appendix O-6 is that the time interval of the reviewed reports, December 2007 through June 2008, though consistent with the requirements of the Siting Council's Electric and Magnetic Field Best Management Practices, dated December 14, 2007, does leave a gap of probably six months between when the final reports were submitted to the World Health Organization and when the Council's BMPs were issued. We are unaware of any major studies that were released during this interval. However, we point out this six month gap because it will likely become institutionalized if later applications would address new research from June 2008 until those applications are finalized.

There is a minor discrepancy between Table 17 on page 12 of Appendix O-1 which cites 28% and 22% reductions in the magnetic field strength along the western and eastern edges of the right-of-way, respectively, and page O-64 which cites 24% and 22% reductions to the west and east, respectively. Assumedly, the latter figures were written later and are refinements from the analysis in Appendix O-1 but this minor inconsistency is not addressed in the text.

Three other minor glitches in tables and figures in Section O are noted. In Figure O-10 on page O-35, the heading cites pre- and post-NEEWS magnetic fields but the graph only shows the post-NEEWS magnetic field for the In-ROW option. For the two in-ROW options, a pre-NEEWS field does exist from the two existing circuits north of Granby Junction. In Figure O-11 on page O-37, the post-NEEWS field strength reflects modeling for 2017, rather than 2107. Lastly, on page O-38, Table O-7 has a heading indicating pre- and post- NEEWS magnetic field levels but shows only the post-project levels for the overhead and two underground alternatives. In the following paragraph, the town of Suffield should be listed as part of the 5.4-mile Massachusetts Southern Alternative segment in Connecticut.

Manchester to Meekville Junction Circuit Separation Project

Despite the extensive length and detail of the application, one area where it provides little detail is the explanation of the benefits of and need for the Manchester to Meekville Junction Circuit Separation Project. The application notes that the Greater Springfield Reliability Project will allow for higher power flows into Connecticut. The redistribution of these flows would, in the event of certain circuit loss contingencies, cause other circuits to overload. The discussion on page F-29 infers that the circuit separation project will help address this situation. Given that the MMP circuit separation project does not add any additional capacity to the affected 2.2 mile segment from Manchester Substation to Meekville Junction, how does it assist in accommodating these greater power flows? Does the benefit of the MMP project arise solely from the satisfaction of meeting federal reliability standards or are there some operational benefits as well? It would have been helpful if the application had provided some examples of physical events or threats to reliability which would render the separated circuits more reliable than the current arrangement of the 345-kV and 115-kV circuits on common structures.

Field Review of the Greater Springfield Reliability Project and Massachusetts Southern Alternative Corridors

The DEP field review of the Greater Springfield Reliability Project corridor occurred over five days on May 8, 18, 20, 22 and June 9. The Massachusetts Southern Alternative corridor was field reviewed on June 5. The following summary of the review of these corridors, broken down by segments, is offered to the Council for the purpose of providing additional detail and understanding of the nature of these corridors.

North Bloomfield Substation to the Farmington River

North Bloomfield Substation is in a fairly isolated location. A walk of the perimeter of the substation provided views of the home at 22 Hoskins Road and of the barn style 2-car garage at 16 Hoskins Road but of no other neighbors. An eastern box turtle was seen on the gravel apron along the south perimeter of the substation at the fenceline. The proposed expansion of the substation will have no impact on either St. Andrews Church or its cemetery, which are located north of the substation, in the opposite direction from the expansion. The other proximal home at 52 Tariffville Road, north of the line crossing, is well screened from both the substation and the transmission line corridor.

The transmission line corridor makes a steep descent to the Farmington River after crossing Route 189, though the three existing circuits span the river without descending into the valley. Three fishermen were fishing the Bloomfield side of the river on May 8th providing one example of the recreational use of the area.

Farmington River to Muddy Brook, East Granby

The descent from structure 3142 to the Farmington River on the East Granby side is very steep. The Winding Hills Road subdivision east of the right-of-way was not visible from the corridor. Several extensive wetlands, mostly vernal pools, are located in the corridor south of Hatchett Hill Road between structures 3147 and 3155. Large tadpole populations were observed in wetlands 222 and 223 (Volume 9 numbering) between structures 3148 and 3150. The new proposed line would run east of the existing lines on generally drier ground than the existing circuits south of Hatchett Hill Road. No homes were observed between the Farmington River and Hatchett Hill Road.

From Hatchett Hill Road to Holcomb Street, the new line would generally be on the upland side of the right-of-way on higher ground than the existing circuits. This segment is generally devoid of any homes, with the exception being two homes at the end of Adams Circle on the west side of the right-of-way, just south of Holcomb Street. The home at 12 Adams Circle on the south side of the cul-de-sac is reasonably screened from the right-of-way, but the home at 9 Adams Circle, on the north side of the cul-de-sac, could benefit from some additional landscaping along the western edge of the right-of-way. The proposed new line would be on the eastern or opposite side of the existing lines from these homes.

The segment of the corridor from the Farmington River to Holcomb Street supported a particularly dense population of ticks at the time of the field review, by far the highest level anywhere along the twelve mile corridor or the Massachusetts Southern alignment.

North of Holcomb Street a grassed field labeled as agricultural use on Map 3 Of 10 in Volume 9 lies within the right-of-way between structures 3165 and 3166. Assumedly, this field is hayed by the neighboring landowner, probably for equestrian use. The home upslope of this field will have an unscreened view of the new line as it crosses the field about 400' from the house.

Structure 3171 overlooks a wide sweep of the floodplain and associated wetlands of Muddy Brook. As was the case south of Holcomb Street, the eastern side of the right-of-way has generally less wetland involvement than do the existing three circuits.

Muddy Brook to Copper Hill Area, East Granby

From Muddy Brook, the corridor rises in two steps to some tobacco fields whose shade netting was intact but not unfolded as of May 18. Both the upper and lower fields, clearly shown on Map 4 of 10 of Volume 9, were planted in winter rye. The right-of-way continues north crossing grassed fields. Just east of structure 3177 is the proposed location for the southern transition station for the 4.6 Mile In-ROW Underground Variation. The site is a dry, well drained site chiefly covered with hemlock and red oak with lesser amounts of red maple and American chestnut sprouts. Quite a few hemlocks have been cut but left on the site.

Just north of the transition station site on the east side of the right-of-way between structures 3178 and 3179 is an impromptu campground with a tent and fire pits. A vernal pool in the right-of-way between structures 3178 and 3179 supported a population of tadpoles as of May 18. Granby Junction is located at structure 3179. From there to Route 20 at structure 3180 is a difficult to traverse shrub/scrub wetland immediately south of Route 20. Granger Circle can be seen to the east of the line from the Route 20 crossing but the homes on that street were not seen from the right-of-way south of Route 20.

Immediately north of Route 20, wetland 244 is very extensive and has been expanded by beaver activity. Three beaver dams on the east side of the right-of-way (one significant dam and two smaller ones) explain why this wetland is so extensive. A beaver lodge is located just west of the power lines and of structure 3181. North of structure 3182, the corridor was drier and easier to navigate. Newgate Wildlife Management Area is entered between structures 3184 and 3185. The location of the southern transition station for the 3.6 Mile In-ROW Underground Variation is located east of structure 3187 in an area with a thin to moderate canopy of red oak, with numerous American chestnut sprouts on the site. The site slopes off to the north, east and south from a high point just east of structure 3187. Beyond structure 3190, wetland 250 blocked further access along the corridor, so the next segment was accessed from Newgate Road.

Several homes in the Copper Hill section of East Granby have significant views of the existing transmission line corridor and would also have views of the new line. The home at 9 Copper Hill Terrace, east of the end of that road, has the clearest view of the right-of-way. Neighboring homes at 7 and 5 Copper Hill Terrace have more vegetative screening. These homes are west of the right-of-way, on the opposite side from the proposed new line. The closest home to structure 3192 on Country Club Lane benefits from some screening and is not as directly impacted as the house at 9 Copper Hill Terrace. On the south side of Newgate Road, the line crosses between homes at 177 and 169 Newgate. The existing line crosses the yard of 177 Newgate, with the new line location on the east or opposite side of the right-of-way from this

home. The homes at 169 and 168 Newgate Road, east of the right-of-way, will be about 200' from the proposed new line but will retain the benefit of some visual screening.

Newgate Road, Phelps Road and Mountain Road

The three homes at 192, 196 and 198 Newgate Road probably have the clearest views of the right-of-way of any homes along the corridor. These are the homes closest to structure 3197. Two of these homes maintain the right-of-way as part of their backyards. To a lesser extent, the home at 204 Newgate also has a view of the existing lines. Along Newgate Road, the new line would be added on the far side of the right-of-way from the homes. In general, this is the case for most of the proximal homes along the 12-mile corridor. The vast majority of proximal homes are west of the existing lines.

Proceeding north on the right-of-way, the home at structure 3199 has a swimming pool behind the house but is screened from the right-of-way by white pine plantings. To the east side, a small horse barn seen through the woods midway between structures 3199 and 3200 would lose much or most of its screening due to clearing for the new line. The house just north of this barn would lose perhaps two-thirds of its screening but would be 200-250' from the new line. A second house with a backyard pool between structures 3199 and 3200 on the west side of the line is fairly well screened from it. The home on Wyncairn Road just west of the right-of-way is relatively close to the existing line. It possesses some cedar and sugar maple screening from the right-of-way.

Beyond Wyncairn Road, access along the right-of-way is blocked by wetland 257 at the East Granby- Suffield town line just beyond structure 3202. A small horse pasture is crossed just before wetland 257. An associated small horse barn is just east of the existing line near structure 3202 and would likely be directly under the proposed new line.

The lengthy section of the right-of-way from Phelps Road to the East Granby-Suffield line was accessed in one run from Phelps Road southward. The vast majority of the homes along this segment are to the west of the corridor, though scattered homes are located to the east.

The homes adjacent to the line along Phelps Road sit well below the right-of-way in elevation. Screening is limited but does contain a high proportion of cedars and white pine to provide a year round visual barrier. The home at structure 3216 maintains a portion of the right-of-way for his sheep. Three sheep were seen in the right-of-way during the field visit. This home has only intermittent trees available for screening. A line of cedars running along the east side of the existing clearing in the stretch roughly from structure 3217 to 3215 should be left in place if possible during the clearing for the new line to provide additional screening between homes and the new circuit. The height of the new structures in this segment should allow for cedars to be left in place without creating any conflicts. Toward structure 3215, some white pines also occur in this row along the eastern edge of the clearing but these would probably be inconsistent with the long-term maintenance of the corridor. A fence with a No Trespassing sign crosses the corridor between structures 3216 and 3215. Just south of this, a driveway crosses the corridor to a home east of the right-of-way and well back into the woods. A new home is under construction west of the line at structure 3215, again sitting below the right-of-way in elevation. The next homes south of structure 3215 are screened by a mixture of cedars and deciduous trees and sit below the right-of-way.

Just south of structure 3211, a road and a new driveway cross the right-of-way to access homes to the east, which are not seen from the corridor. Just north of structure 3210, some spruce and fir seedlings have been planted in the right-of-way, with a lesser amount also planted south of 3210.

The right-of-way has become a vehicle graveyard at structure 3209 where four derelict trucks and the bed of a fifth, a golf cart, a camper trailer, and two cars have been laid to their final resting places. Multiple 33 gallon bags of empty plastic bottles have also been deposited here.

South of structure 3209, a driveway crossed the right-of-way to a home maybe 350-400' east of, and uphill from, the existing line. A detour off the right-of-way was necessary to get around wetland 258. A private fence crosses the right-of-way south of structure 3208.

Homes along Newgate Road approach the right-of-way more closely between structures 3208 and 3207. Some added screening/landscaping may be appropriate in this area, particularly behind the yellow house in this stretch.

What appears to be a horse pasture crosses the right-of-way between structures 3205 and 3204, with two fences also crossing the corridor. However, this fenced area is open to the back (east) side. A driveway crosses the right-of-way between structures 3204 and 3203 to three homes on the east side. An 'alpaca crossing' sign and a horse enclosure and small barn are located just east of the existing line and very close to, or under, the proposed new line. To the west, a home with a swimming pool has a clear view of the right-of-way from a distance of perhaps 500'. Structure 3202 in East Granby is seen across wetland 257 and a long span from structure 3203. Walking northbound on the return trip, the right-of-way was exited at wetland 259 to cross to street level at 1000 Newgate Road. Views of the line from that point northward on Newgate were non-existent from the road itself.

Northward from Phelps Road, the right-of-way crosses land owned by, or at least maintained by, the Suffield Sportmen's Association until structure 3221, an angle structure atop a steep, northeasterly facing slope. Between structures 3222 and 3223 sits an abandoned dump truck, an abandoned car, old tires and an area used for log storage.

A potential northern transition station site for the Routes 168/187 Underground Variation lies astride the right-of-way between structures 3223 and 3224. This area is dry and well drained, with the exception of a circular 15' pool right at structure 3223, apparently a manmade depression, supporting cattails and a tadpole population. This functions as a vernal pool, though not mapped as such in Volume 4. The proposed northern transition station site for the other three underground variations is located between structures 3219 and 3220 on flatter ground within and east of the transmission line corridor and immediately north of Phelps Road.

At structure 3224, the right-of-way passes the Suffield transfer station just to its north off Mountain Road, then the line crosses Mountain Road and spans up to structure 3225 on West Suffield Mountain. Wetland 262 prevents further access along the right-of-way.

Structure 3225 to Massachusetts Line

From structure 3225 atop West Suffield Mountain, an impressive view is had across Mountain Road and westward. There are no homes along either side of the right-of-way heading north off West Suffield Mountain. A clear view of the Springfield skyline is afforded before starting to descend that basaltic ridge. Wetland 263 necessitates a diversion off the right-of-way. A large home or possibly a multi-dwelling structure lies east of structure 3231. It is barely visible from the right-of-way but would lose maybe a third of its screening due to clearing for the proposed line. North of North Stone Road, a home sites just west of the right-of-way at structure 3234, but on the opposite side of a small ridge between the line and the home. Wetland 265, which extends all the way to Colson Road, blocks access along the right-of-way beyond structure 3235.

Southward from Colson Road, the corridor crosses the extensive wetland 265. The alignment of the new line would be through a red maple swamp between the cleared right-of-way to the west and an agricultural field to the east. Structures 3236 and 3237 in wetland 265 were the only structures along the whole alignment which could not be directly accessed during the field review. Northward from Colson Road, the right-of-way alignment crosses a cornfield, the turns toward Ratley Road, crossing a small wooded area. A stand of Japanese knotweed is found on the eastern side of Ratley Road in the right-of-way. If any construction work would disturb this area, efforts should be made to remove the root mass of the knotweed or otherwise eliminate it before it would have a chance to spread. However, if the new structure would be placed adjacent to existing structure 3240, disturbance in this area may be minimal. The line then crosses a maintained lawn between structures 3241 and 3242, then heads directly north, with agricultural land to the west and forest to the east of the right-of-way. Wetland 267, or at least the portion adjacent to the existing line, was very dry and was consistent with the vegetation of surrounding areas. The line crosses a barbed wire fence at structure 3245, entering into a field. Just after structure 3246, the corridor descends into a broad wetland area at the state line.

Massachusetts Southern Alternative

The 5.4 mile Massachusetts Southern Alternative would host a new 345-kV line only in the event that the Massachusetts Energy Facilities Siting Board does not select the preferred Northern Route for a new circuit from Ludlow Substation to Agawam Substation.

(Note: For the entire Massachusetts Southern Alternative except for the crossing structure #22021 on the west side of the Connecticut River, the structure #s in the field do not correlate to those shown on the five maps of this alternative in Volume 9. To adopt a consistent convention for this section of these comments, the discussion will list the structure number actually on the structure, followed in parentheses by the structure number shown in the Volume 9 maps.)

The 1.1 mile Suffield section of the Massachusetts Southern Alignment is chiefly agricultural land, with the exception of the western and eastern extremities. The westernmost end of the alignment, beginning at structure 20016 (22015) is maintained as typical old field habitat with ferns, dead grey birch saplings which appear to have been treated with herbicide, some blackberry, young sassafras, red oak, alder and black birch.

Just east of structure 20017 (22016), the line crosses a drainage ditch and enters a tobacco field which, with associated barns and farm drives, extends to Mapleton Avenue at structure 2020 (22019). (This structure is the only one in the Suffield segment with a 4-digit #. In Enfield, all the structures have 4-digit numbers. However, in Suffield, the numbering system is not even internally consistent, as the seven Suffield structures are field numbered, from west to east, as 20016, 20017, 20018, 20019, 2020, 20021 and 22021.) West of Mapleton Avenue, more agricultural land is crossed until the forestland along the river is reached. The conductors rise up above the trees to the very tall structure 22021 (22021) to span the river. A supporting arm at a much lower level on this structure holds a small and apparently live wire from a nearby distribution pole. This supporting arm has fallen off, leaving this assumedly live wire within 2' of the ground at structure 22021. This wire appears to run inside the steel pole and may serve a light at the top of this structure.

Moving across the Connecticut River, the line crosses a short portion of Longmeadow, Massachusetts before entering Connecticut as it crosses Amtrak's Springfield Line tracks. Structure numbers in Enfield are internally consistent but do not agree with those shown in Volume 9. From just east of structure 2025 (22024) to structure 2028 (22027), the right-of-way parallels Sword Avenue, running behind the yards on the south side of that street. No homes to the south of the line are visible from the cleared portion of the right-of-way. The yards along Sword Avenue vary somewhat in how closely they approach or enter the right-of-way, with the yard at structure 2026 (22025) being the closest to the existing line. In general, screening along Sword Avenue is more abundant to the western end, with a row of mature deciduous trees, and then thins out moving eastward toward Interstate 91, but all homes have some screening. The proposed new line would be constructed south of the existing line, on the opposite side of the existing line from Sword Avenue. Vegetation maintenance efforts within the right-of-way are apparent in the neighborhood of structure 2028 (22027) where small dead crabapple trees, birches and surrounding circular areas of grass show evidence of herbicide treatment.

A small garden is being raised in the right-of-way just west of structure 2029 (22028) on the west side of Enfield Street. This area also shows evidence of extensive dirt bike usage.

A very deep gully, in excess of 10', has eroded across the right-of-way at structure 2031 (22030) in connection with wetland W8-152B.

The remaining portion of the Massachusetts Southern Alternative alignment from structure 2032 (22031) to the Massachusetts line was accessed in a single run as the corridor is mostly dry and easily traveled from this point eastward. Just south of structure 2034 (22033) are the Spring Lots water treatment facilities (three buildings) of the Connecticut Water Company. Two very vocal hawks atop structure 2034 strongly objected to my presence in the corridor. The right-of-way runs across Connecticut Water Company property from this point to just after structure 2039 (22038) where it enters Northeast Utilities property. The Connecticut Water Company property lies principally to the south of the right-of-way.

Structure 2037 (22036) shows evidence of lightning damage.

The right-of-way receives extensive dirt bike usage from structure 2037 to 2041 (22036 to 22040). A high ridge along the north side of the right-of-way from structures 2038 to 2039 (22037 to 22038) runs between the existing lines and the homes to the north on Alban Road.

The Capitol Region Education Council's Public Service Academy, a regional magnet school, is located north of the corridor at Brainard Road by structure 2041 (22040). The nearest corner of the schoolyard extends onto the right-of-way, while the school itself is approximately 100 yards from the existing power lines, which are on the north side of the right-of-way.

Proceeding eastward, the right-of-way crosses a portion of a maintained yard of the home on George Washington Road, north of the right-of-way at structure 2043 (22042). East of George Washington Road, the right-of-way crosses undeveloped woodland until slightly before structure 2047 (22046) where an extensive agricultural field is crossed which extends to the second crossing of Brainard Road, just after structure 2049 (22048). Signs on Brainard Road indicate that this land is for sale.

The Ashmead Commons condominium complex lies north of Brainard Road and east of the right-of-way. Building #3 of Ashmead Commons is the closest one to the right-of-way. The existing lines cannot be seen from building #3 or from most of the adjacent lawn, but the line can be seen from the southwest corner of the Ashmead Commons grounds, southwest of building #3. Building #1 is the next closest one to the line but is well-screened. Although the new line would run to the east of the existing line at this point, ample screening would remain to block any views from building #1, while views from building #3 would be screened with the possible exception of intermittent views for the sharp-eyed observer.

More evidence of dirt bike use of the right-of-way is seen between structures 2051 and 2052 (22050-22051).

After crossing Maple Street, the Massachusetts Southern Alternative route runs just to the south of Mayfield Drive. To the south is undeveloped land. To the north, the first two-thirds of Mayfield Drive passes an apparently inactive development project, which looks to have been started and then suspended. A high berm has been pushed up along Mayfield Drive to block views of this property. Should this parcel ultimately be developed and the berm removed, there is some vegetative screening along Mayfield Drive in the form of Norway maple and linden plantings and a thin stand of residual trees at the edge of the right-of-way consisting variously of red pine, cottonwood, and scrub oak toward the east end, and of red pine, white oak, pin cherry red oak, black locust, catalpa and pitch pine along the central and western portions of Mayfield Drive.

The Dartmoor condominium development is located at the eastern end of Mayfield Drive, on the northern side of that road. Landscaping options along the south side of Mayfield Drive are limited by a distribution line running in the transmission right-of-way and very close to the street. White pine plantings adjacent to the end units of Dartmoor closest to the power lines effectively block views of the line and were obviously planted for this purpose.

Shortly beyond Dartmoor, it can be seen that a fire went through the woods on the south side of the right-of-way from the cul-de-sac at the end of Mayfield Drive to structure 2059 (22058) in the last 1-2 years.

After the end of Mayfield Drive, the remaining corridor in Connecticut is very wet, crossing a series of wetlands including a large vernal pool at structure 2060 (22059). Extensive ATV usage is in evidence from the end of Mayfield Drive to structure 2060 (22059). The Connecticut section of the right-of-way ends at angle structure 2062 (22061) on the state line. The next structure to the north, in Massachusetts, is a junction structure, which is also numbered 2062.

The proposed site for the eastern transition station for the Massachusetts Southern Alternative underground option is east of the cul-de-sac at the end of Mayfield Drive on the south side of the right-of-way. The site is a westward sloping, oak covered hillside with many trees showing evidence of a recent fire (1-2 years ago) having swept through the area. The black and white oaks in the transition station site are in the 6" size class. No development is seen from this site but it does contain evidence of substantial ATV usage.

At the other end of the proposed underground route, the western transition station would be located off the northern end of Campania Drive in a heavily wooded site which slopes west toward the Amtrak tracks, except for the eastern end of the site which is generally level. Red maple dominates the site with pin cherry as the secondary species. One large red oak, abundant poison ivy and some sumac also inhabit the site. A small road or wide trail cuts diagonally across the site from the end of Campania Drive.

The CREC Public Service Academy on Brainard Road would be the most problematic location along the Massachusetts Southern Alternative alignment in terms of the impacts of an overhead transmission line and compliance with CGS Section 16-50p(i). Additional right-of-way width to the south of the proposed new circuit alignment is available at this location which might provide flexibility, if deemed necessary, to increase separation from this facility. Though an overhead line design has not yet been developed for the Massachusetts Southern Alternative, this might be an area where split phase or vertical conductor configurations are appropriate to reduce EMF levels.

Newgate and Routes 168/187 Underground Alternatives

The six mile Newgate Underground Variation and the eight mile Routes 168/187 Underground Variation were driven, and in the case of Phelps Road and portions of Newgate Road, were also walked. A few observations from these reviews are offered.

The specimen red oak on Old Road, immediately north of Route 20 on the Newgate Variation and mentioned on page M-11 as being 9.5' dbh, is indeed a very impressive tree. The application mentions the possibility of impacts to the oak's root system from excavation for an underground line on this fairly narrow road. This certainly seems like a realistic possibility when looking at the proximity of the oak to that road.

Newgate Road supports homes at moderate density from Old Road to Newgate Prison and Viets Tavern. These two historic sites are operated by the Commission on Culture and

Tourism. Newgate Road is a narrow road and these two historic structures, which are directly opposite each other, crowd the edges of the road. Viets Tavern is 5' from the edge of pavement at its closest point. The front wall of Newgate Prison varies from less than 18" to about 9' from the edge of pavement on Newgate Road. Excavation for a cable trench could pose a risk to these structures.

North of Newgate Prison and Viets Tavern, Newgate Road descends a prolonged and occasionally steep downgrade to the Copper Hill section of East Granby. Newgate Road continues to support residential uses along both sides north to Phelps Road. The narrowness of the road and the residential land use along it may pose some difficulties for the siting of splice boxes along this section from Copper Hill to Phelps Road. At approximately one mile in length, this section of Newgate Road would require three splice boxes for an underground cable.

Phelps Road makes a fairly steep ascent from Newgate Road to the right-of-way, which could be an issue for an underground cable which might shift or stretch within the trench due to the steepness of the grade. This consideration is discussed in general fashion on page H-13 of the application. Following ascent of Phelps Road, the underground cable route would veer left onto the right-of-way and into the transition station located just north of the Phelps Road crossing.

The Routes 168/187 Underground Variation is two miles longer than the Newgate Variation but would be in wider and less densely developed roads, providing more flexibility for both construction activities and for splice box locations. This route is also generally flatter than the Newgate Variation, with the exception of the single, sustained climb up Mountain Road east of Phelps Road.

Thank you for the opportunity to review this application and to submit these comments to the Council. Should you, other Council members or Council staff have any questions, please feel free to me at (860) 424-4110.

Respectfully yours,



Frederick L. Riese
Senior Environmental Analyst

cc: Acting Commissioner Amey Marrella