

cleared portion of the ROW and trees along the edges are periodically trimmed or removed. The proposed vegetation removal would modify, but would not eliminate, vegetation and wildlife habitat.

After the completion of construction, desirable native plant species can be expected to regenerate naturally and the new transmission facilities would be as compatible with natural systems within the Project area as the existing transmission facilities. WMECO would promote the establishment of desirable low-growing plant species by selective applications of herbicide to control tree sapling and undesirable invasive species, thereby enabling native plants to dominate within the ROW. Invasive or potentially invasive shrub species that are controlled under the current vegetation management program typically include multiflora rose, autumn olive, black locust, buckthorn, tree-of-heaven, and honeysuckle.

5.3.12 Historic and Archaeological Resources

The existing environment and impacts and mitigation measures for cultural resources of the Preferred Northern Route and the Noticed-Alternative Southern Route are provided in the following subsections.

WMECO's consultant, University of Massachusetts (UMass) Archaeological Services, completed predictive model studies for the GSRP. In southern New England, a variety of environmental factors (e.g., topography, soil type, proximity to water) have been shown to correlate to ancient Native American settlement locations. Historical maps and other documents illustrate where historic Euro-American settlement took place. The following is a list of factors used during the Phase 1A investigation to assess the archaeological sensitivity within the Project area:

- The presence of known Native American or historic sites within or adjacent to the project area.
- Proximity to a National Register property.
- Proximity to a supply of fresh water.
- Proximity to seasonal or perennial subsistence resources.
- Soils characteristics such as drainage, texture, suitability for cultivation.
- Topographic features such as slope, aspect, elevation, and barriers to prevailing winds.
- Proximity to sources of raw materials.
- Proximity to topographic features conducive to industrial development such as hydrologic features.
- Proximity to areas known to have been early historic settlement clusters, or that may have been early settlement areas.
- Proximity to transportation routes.

- Proximity to industrial, commercial, and agricultural markets.

These factors, in combination with limited field visits, were used in the predictive model studies to classify all potential GSRP work areas according to low, moderate, or high archaeological sensitivity. Archaeological areas with high sensitivity include undisturbed areas less than 300 meters (1,000 feet) from water, on level, dry, well-drained soils. Archaeological areas with Moderate sensitivity include areas more than 300 meters (1,000 feet) from water, but on well-drained soils. Low sensitivity areas include areas that are greater than 15% slope, disturbed by agriculture and/or development and undeveloped areas further than 300 meters (1,000 feet) from water with soils that are moderately- to poorly-drained. When design alternatives were being considered, these archaeological sensitivity findings were incorporated into a wider matrix of feasibility variables. Much of the Greater Springfield Area is previously disturbed by modern development and other factors, and thus possesses low sensitivity. However, many zones do possess Moderate or High sensitivity. Regulations require consideration of possible impacts to significant archaeological resources within the GSRP work areas.

The UMass model studies were intended to assess the likelihood for cultural resources to be affected by the Project, identify known or possible archaeological resources within Project areas and evaluate the potential visual effects of the Project on historic properties listed or eligible for listing on the State and National registers of historic places. This archaeological predictive model study was conducted in accordance with the standards of the Massachusetts Historical Commission (MHC).

The predictive model study analyzes background data and included selected field visits in order to assess archaeological sensitivity early in the planning and design process. This level of study is a prerequisite to a Phase 1A reconnaissance survey, which involves more detailed surface inspection, and a Phase 1B intensive (locational) survey, which involves subsurface testing in areas found to have Moderate to High sensitivity. The UMass predictive model study involved visual inspection of selected portions of the existing transmission line corridors and an analysis of characteristics that influence the likelihood for Native American or Euro American archaeological resources (i.e., slope, drainage, ledge, ground disturbance, land fill). The study also involved an extensive review of documentary sources, as well as consultations with the MHC. The resulting study provided the basis for recommendations for future archaeological investigations that will be performed to identify significant resources when the final Project configuration is determined. The objectives of future investigations will be: 1) to determine the presence or absence of significant archaeological resources within the GSRP area; 2) to develop avoidance and preservation measures through modification of the Project design for any significant

resources that may be identified; and 3) to enact mitigation measures for any significant resources that cannot be avoided and preserved.

5.3.12.1 Existing Environment

5.3.12.1.1 Preferred Northern Route

The Massachusetts portion of the GSRP Preferred Northern Route is located to the west and north of the City of Springfield in the towns of Agawam, West Springfield, Chicopee and Ludlow. The route crosses major rivers and numerous secondary streams, which were attractive for Native American settlement, as well as areas that were first occupied by European colonists as early as the seventeenth century. The predictive model study detailed the archaeological sensitivity of the route sections in the respective towns, using a tabular format. The study found that approximately 60% of the GSRP Preferred Northern Route possesses High sensitivity for Native American and/or historic archaeological resources. Specific survey units, designated by walkover survey of these zones, are tested for archaeological sites. Approximately 20% of the route possesses Moderate sensitivity. More limited testing is conducted in these zones. The remaining 20% of the route possesses Low sensitivity due to previous disturbances, and does not merit archaeological testing. Area with High to Moderate sensitivity along this route of the Project include:

- Tarkill Brook, Still Brook, Philo Brook, Worthington Brook, and the Westfield River (Agawam)
- Goldine Brook, Connecticut River, Bass Brook, and Piper Brook (West Springfield)
- Chicopee River and Colley Brook (Chicopee)

Based on the study, the Preferred Northern Route was assigned a superior score of 39.2 in Table 4-3, above. The only area that is potentially sensitive for Euro American historic resources in the vicinity of the Preferred Northern Route is the historic town center of Ludlow where multiple historical structures are located in this vicinity. The UMass report provides detailed information regarding the status of archaeological resource studies along the ROW as well.

5.3.12.1.2 Noticed-Alternative Southern Route

UMass conducted the same type of evaluation of archaeological and historic resources for the Noticed-Alternative Southern Route as detailed for the Preferred Northern Route. The results of these analyses determined that the Noticed-Alternative Southern Route traverses areas with Low, Moderate, and High potential sensitivity to cultural resources. Areas with Moderate to High archaeological sensitivity are

generally associated with prominent water features. Along the Noticed-Alternative Southern Route, these include:

- Tarkill Brook, Worthington Brook, and Threemile Brook (Agawam)
- Watchaug Brook (East Longmeadow)
- Mill River (Hampden, Wilbraham)
- White Cedar Swamp (Wilbraham)
- Connecticut River (Longmeadow, East Longmeadow)
- Chicopee River and Colley Brook (Wilbraham, Ludlow)

To date, predictive modeling and some preliminary field verification have been performed to determine areas along the Noticed-Alternative Southern Route where possible sensitivity for archaeological resources is Low, Moderate, or High for possible Native American sites and/or for historic Euro American sites. Based on the study, the Noticed-Alternative Southern Route was assigned a lower score of 68.3 in Table 4-3, above. There are no known sensitive historic areas in the vicinity of the Noticed-Alternative Southern Route. A specific scope of work has been developed in consultation with the MHC and additional field surveys are now underway in order to collect additional cultural resources information for the Project area.

5.3.12.2 Impacts and Mitigation

5.3.12.2.1 Preferred Northern Route and Related Facilities

Predictive modeling and some ground-truthing²⁰ have been performed to determine areas along the Preferred Northern Route that indicate moderate to high potential for the presence of historic and archaeological resources. A specific scope for more intensive field surveys has recently been developed in consultation with the MHC and additional field surveys are now underway in order to collect additional cultural resources information along the Preferred Northern Route. The results of these surveys will be used to determine the impacts, if any, which may occur to cultural resources.

5.3.12.2.2 Noticed-Alternative Southern Route

Predictive modeling and some ground-truthing have been performed to determine areas along the Preferred Northern Route where possible sensitivity for archaeological resources is Low, Moderate, or High.

²⁰ On-the-ground verification of field conditions identified during research or table top exercises.

5.3.12.2.3 Comparison of Impacts on Historic and Archaeological Resources

Both the Preferred and Noticed Alternative Routes possess water features that are generally associated with moderate to high sensitivity for archaeological resources. Potential impacts to archaeological resources will be formulated once the current field studies have been completed. In terms of historic resources, the Preferred Northern Route has one historically significant area within approximately 500 feet of the ROW (Ludlow Center), while the Noticed-Alternative Southern Route possesses none. Since work on both routes is required if the Noticed-Alternative Southern Route were chosen, this route scored less favorably in Table 4-3, above, than the Preferred Northern Route from the point of view of potential impacts on culturally sensitive resources and the Preferred Northern Route is considered superior on this basis.

5.3.12.2.4 Mitigation Measures

In sections of overhead line ROW that have been classified as Moderate or High Sensitivity, additional archaeological investigation is recommended once the decision has been made to use those ROW for construction purposes, and once work locations, Area of Potential Effect (APEs) and technical designs have been more fully developed for the GSRP. For each ROW, an archaeological Phase 1A reconnaissance survey is recommended, to include 100 percent walkover survey and additional archival research. The purpose of the Phase 1A reconnaissance will be to confirm that locations within the ROW actually merit subsurface testing, and to determine the amount of testing that is appropriate. If warranted on the basis of the Phase 1A study, archaeological Phase 1B intensive (locational) subsurface testing should be conducted in order to locate and identify any Native American and/or historical archaeological resources located within the GSRP area. Phase 2 surveys are performed to determine the eligibility of a site to be included on the National Register of Historic Places. Sites that do not meet the standards for inclusion on the National Register of Historic Places require no further work. Avoidance is recommended for sites that do meet the National Register standards (eligible sites). If eligible sites can not be avoided, then preservation or data removal must be performed during Phase 3 survey work to protect the data included in these sites.

WMECO will continue to coordinate with the MHC regarding cultural resources and will perform further archaeological studies as necessary.

5.4 SUBSTATIONS

WMECO proposes to modify two of its existing substations as ancillary facilities in connection with the construction of its 345-kV transmission facilities (Agawam and Ludlow). The proposed modifications to