

6.0 EXISTING SITE CONDITIONS

6.1 General Site Conditions

The Project's eight wind turbines will be located along the generally north-south trending ridgeline of Canton Mountain in Canton, Maine. The proposed Project access road originates at the intersection of Canton Point Road and Ludden Lane in Canton and will follow Ludden Lane for approximate 1.36 miles to an existing logging road/snowmobile/ATV trail. The proposed access road will follow this existing logging road for another 1.63 miles; at the end of the logging road, CMW will construct approximately 0.65 miles of new access road up to the Canton Mountain ridgeline. Current land use in the Project area consists primarily of undeveloped forest land subjected to commercial forest harvesting operations. In addition, recreational snowmobile and all-terrain vehicle (ATV) clubs maintain a network of trails throughout the project area.

The lower elevations and side slopes of the Project area support predominantly an uneven-aged stand of mixed hardwood forest uplands dominated by American beech (*Fagus grandifolia*), white birch (*Betula papyrifera*), red oak (*Quercus rubrum*) and sugar maple (*Acer saccharum*). Forested wetlands are typically comprised of red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), American elm (*Ulmus Americana*) and green and black ash (*Fraxinus pennsylvanica* and *nigra*, respectively). Ludden Brook parallels and crosses Ludden Lane in several locations along the southern section of the proposed access road (see Resource Survey Maps Appendix G, in Attachment 6-1). Beaver dams in the vicinity of Ludden Brook have also caused historic issues with flooding along Ludden Lane and have been a challenge for local land owners and recreational trail users.

Because the elevation of the ridgeline is approximately 1,500 feet above sea level, vegetation even at higher elevations along the ridgeline support mature trees including various hardwoods, and in locations with shallower soils, coniferous stands including balsam fir (*Abies balsamea*), eastern hemlock (*Tsuga canadensis*), and red spruce (*Picea rubens*). Some areas along the ridgeline appear to have been mined for granite and many of the trees on the ridgeline exhibit evidence of ice storm damage with cracked, split, and twisted limbs. Recent forest harvesting in 2010 has opened up portions of the forest located along the southern portion of Canton Mountain.

General topographic conditions in the project area range from relatively flat at the lower elevations in the vicinity of Ludden Lane's intersection with Canton Point Road, to moderate and steep side slopes that climb to roughly 1,538 feet above sea level at the highest point along the ridgeline of Canton Mountain. The ridgeline between the northernmost and southernmost proposed turbines ranges in elevation from 1,324 feet to 1,538 feet above sea level.

6.2 Resource Mapping and Surveys

The Maine DEP and the U.S. Army Corps of Engineers (USACE) regulate impacts to wetlands, waterbodies, and certain vernal pools in Maine pursuant to the Natural Resources Protection Act (NRPA) (MRSA 38 §§ 480A-480FF) and Section 404 of the Clean Water Act (CWA) (33 Code of Federal Regulations, Parts 320-332), respectively. These resources are protected by laws and regulations because they perform certain functions that provide value to the public and to the natural environment. The following sections describe the resource mapping performed for the Project.

6.2.1 Pre-survey Planning and Consultations

In early stages of project development, CMW consulted with state and federal agencies to discuss the proposed Project and to assess wetlands and wildlife issues and sensitivities, evaluate and refine proposed field survey protocols, and review permitting procedures. Planning meetings were held with the Maine Department of Inland Fisheries and Wildlife (Maine DIFW), Maine DEP, and the USACE. CMW and its environmental consultant Tetra Tech also consulted with the Maine Natural Areas Program (Maine NAP), U.S. Fish and Wildlife Service (USFWS), and the Maine Historic Preservation Commission (Maine HPC). Applicable written communications received from these agencies are included in Section 12 of this application.

6.2.2 Wetlands and Waterbody Surveys

Wetland and waterbody field surveys for the Project were conducted during the summer and fall of 2010. Following a review of background information, including United States Geological Survey (USGS) topographic maps, Natural Resources Conservation Service medium-intensity soils mapping, and high-resolution aerial photography, field survey limits were established for proposed facilities by qualified wetland scientists. Engineers then prepared preliminary designs and established proposed Project work limits. In some cases, a number of alternatives for proposed facilities were identified and field surveyed.

Field surveys were initiated with a walkover inspection of the area to identify topographic, drainage, and vegetation features that would indicate potential wetland and/or waterbody occurrences. Wetland vegetation and soil sampling plots (data plots) were established within distinct plant communities and evaluated using methods defined in the USACE's Wetlands Delineation Manual (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast Region* (October 2009).

Wetlands and waterbodies were further evaluated to characterize the hydrologic connections to adjacent upland, wetlands, and other waters of the United States in proximity to the resources investigated. A wetland/upland pair of data plots was completed approximately every mile to represent the major cover type changes along the survey corridor. Photographs were taken of all wetlands. Determinations regarding Maine DEP jurisdictional streams and Wetlands of Special Significance (WSS) were also made in the field, where appropriate, during these surveys.

Field surveys were performed using electronic shapefiles of survey limits uploaded into mapping grade global positioning system (GPS) units. Field teams navigated a number of transects covering the entire project survey limits using GPS technology. When resources were encountered having the required three factors that constitute a state and federal jurisdictional wetland (i.e., dominance of hydrophytic vegetation, hydric soils, and indicators of hydrology at or near the surface), the wetland boundary was flagged with sequentially numbered flags, and the wetland field ID number and flag number were recorded. The information on each flag was entered into the GPS and the flag location recorded.

Maine WSS are defined in 38 M.R.S.A. § 310. All coastal wetlands and great ponds (greater than 10 acres) in Maine are considered WSS, in addition to freshwater wetlands with one or more of the following characteristics:

- contains a natural community that is critically imperiled (S1) or imperiled (S2) as defined by the Maine NAP;

- contains significant wildlife habitat as defined by 38 M.R.S.A. § 480-B (10);
- is located within 250 feet of a coastal wetland;
- is located within 250 feet of the normal high water line, and within the same watershed, of any lake or pond classified as great pond under 38 M.R.S.A. § 465-A;
- contains under normal circumstances at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water (unless the 20,000 or more square foot area is the result of an artificial pond or impoundment);
- is inundated with floodwater during a 100-year flood event based on flood insurance maps produced by the Federal Emergency Management Agency (FEMA) or other site-specific information;
- contains peatland; and/or
- area is located within 25 feet of a Maine DEP regulated river, stream, or brook.

The majority of these criteria were evaluated prior to field surveys based on Geographic Information Systems (GIS) information for the project area. However, field determinations were made regarding whether or not wetlands were likely to contain (under normal circumstances) greater than 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water. Portions of wetlands that qualify as WSS because they fall within 25 feet of a Maine DEP jurisdictional river, stream, or brook were identified on plans using a 25-foot offset from field surveyed streams in the Project GIS, and wetlands located within the FEMA 100-year floodplain were also identified using the GIS mapping. Field surveyed wetlands and waterbodies are shown on the Resource Survey Maps included as Appendix G of Attachment 6-1.

Waterbodies were delineated based on agency-specific criteria. Maine DEP's definition for regulated waterbodies (i.e., river, stream, or brook) is specified in NRPA (38 MRSA § 480.B. Definitions) as follows:

- A river, stream or brook means a channel between defined banks. A channel is created by the action of surface water and has 2 or more of the following characteristics.*
- A. It is depicted as a solid or broken blue line on the most recent edition of the U.S. Geological Survey 7.5-minute series topographic map or, if that is not available, a 15-minute series topographic map.*
 - B. It contains or is known to contain flowing water continuously for a period of at least 6 months of the year in most years.*
 - C. The channel bed is primarily composed of mineral material such as sand and gravel, parent material or bedrock that has been deposited or scoured by water.*
 - D. The channel contains aquatic animals such as fish, aquatic insects or mollusks in the water or, if no surface water is present, within the stream bed.*
 - E. The channel contains aquatic vegetation and is essentially devoid of upland vegetation.*
- "River, stream or brook" does not mean a ditch or other drainage way constructed, or constructed and maintained, solely for the purpose of draining storm water or a grassy swale.*

Federal jurisdictional waterbodies are defined pursuant to the Clean Water Act, as traditional navigable waters (TNWs), non-navigable tributaries of TNWs that are relatively permanent (typically flow year-round or have continuous flow at least seasonally [e.g., typically three months]), and wetlands that directly abut relatively permanent waters (USACE RGL 07-01).

In addition, based on past project experience in high elevation environments, non-jurisdictional drainages that meet neither Maine DEP nor USACE jurisdictional definitions were also field survey located and

shown on project maps. The location of these non-jurisdictional resources were provided to the design engineers in support of stormwater management designs because, although these drainages may flow for short durations, spring runoff events (including rain and snow melt) can have a negative impact on stormwater management facilities due to high volumes of spring runoff.

6.2.3 Vernal Pools and Significant Wildlife Habitats

Vernal pool surveys were performed in both 2010 and 2011 for the Project. The first field surveys in 2010 were performed between April 15th and 19th, with second visits performed on May 6th and 7th to ensure comprehensive coverage for all vernal pool obligate species. First visit field surveys in 2011 were performed between April 30th and May 4th, with the second visit on May 23, 2011. Field survey limits were established based on a minimum 500-foot offset from the outer limits of the proposed project work limits along the access road and 750 feet from the work limits on the ridgeline, and within 200 feet of the proposed electric transmission centerline.

Both 2010 and 2011 vernal pool surveys were performed during the optimal identification period for egg mass counts (generally one to two weeks following the start of peak chorusing activity of pool-breeding amphibians) for both survey years. Although the NRPA Significant Wildlife Habitat (Chapter 335) regulations identify the recommended identification period for egg mass counts in central Maine as April 25 to May 10, surveys for CMW commenced on April 15th in 2010 due to a warmer-than-normal spring in 2010, and commenced on April 30th in 2011 due to a colder-than-normal spring.

Tetra Tech understands that the appropriate timing of vernal pool surveys is critical in ensuring the integrity of the survey results. To ensure optimal timing of surveys, biologists continually monitored the status of amphibian breeding through the Maine Association of Wetland Scientists' (MAWS) vernal pool monitoring website and the Maine Amphibian Monitoring Program email distributions in the weeks leading up to field mobilizations. Biologists also performed reconnaissance in the Project vicinity and monitored the status of wood frog (*Rana sylvatica*) chorusing. Mobilizations for the first round of surveys were conducted approximately two weeks following reports of full wood frog chorusing in accordance with Chapter 335 of the NRPA. In addition, due to unusual biological conditions in 2010 (not only an unusually warm spring but also a brief cold snap following peak chorusing), Tetra Tech visited many of the pools a second and third time (to ensure peak timing for spotted and blue spotted salamander egg mass counts). In addition, the timing of high elevation and low elevation surveys were staggered with the expectation that higher elevation pools would experience melt and peak breeding later than lower elevation pools.

Vernal pool surveys were performed in accordance with the MAWS' Vernal Pool Technical Committee (VPTC) Interim Vernal Pool Field Survey Protocol in an effort to standardize collection of vernal pool field data and agency reporting. CMW employed this field survey protocol during both 2010 and 2011 vernal pool surveys. Prior to mobilizing field crews, Tetra Tech held training sessions to ensure all biologists performing field surveys understood the field survey protocol and how it was to be implemented in the field with specific attention to the field conditions presented by the Project. In addition, Tetra Tech specified the content and format of all required resource documentation, including GPS data collection to sub-meter accuracy, photographic documentation, and completion of MAWS vernal pool survey and Maine DIFW field data forms.

When a potential vernal pool (PVP) was encountered, a complete count of egg masses identified to species level was performed. In addition, PVPs were investigated for the presence of wood frog tadpoles and fairy shrimp and level of egg maturation was recorded. Dip nets were used when necessary to sample PVPs. The egg mass counts and other descriptive information were recorded in field books and on data forms.

Pool descriptive data included the presence of observed inlets or outlets (and assessments to whether or not these were permanently flowing); whether the pool was natural, natural but modified by human activity, or formed as the result of human activities (e.g., tire ruts in a woods roads); and whether or not the pool supports a population of predatory fish. In addition, the field survey protocol advises that pools be further characterized with respect to size, depth, predominant substrate, origin, hydro-period and adjacent habitat conditions. When a pool was deemed potentially significant, the edge of spring high-water (at the time of survey) was field located with GPS to establish the limits of the NRPA-regulated Critical Terrestrial Habitat (CTH). Field survey forms were also completed for each resource. In 2010, the MAWS Vernal Pool Data Collection Form was used and in 2011 the Maine DIFW's data form was used. Detailed vernal pool summary data, including a Vernal Pool Survey Results Summary Table, vernal pool data collection forms, and photographic documentation are provided in Appendix E of Attachment 6-1.

The science and regulation of vernal pools in Maine has been an evolving process since 2007 when the significant vernal pool regulations were originally adopted as part of the NRPA. The MAWS Vernal Pool Technical Committee took the lead in facilitating a process where scientists and regulators are working collaboratively to refine the systems used for classifying and regulating vernal pools in Maine. Part of the challenge involves similar but different regulations for the protection of vernal pools at the state and federal levels. Therefore, a system for classifying and naming Maine regulated vernal pools vs. federally regulated vernal pools was necessary.

Chapter 335 of the NRPA establishes the state regulatory authority over certain vernal pools as significant wildlife habitat. Only vernal pools meeting both physical and biological criteria are regulated by the Maine DEP pursuant to Chapter 335.

The NRPA definition of a vernal pool is as follows:

A vernal pool, also referred to as a seasonal forest pool, is a natural, temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet and no viable populations of predatory fish. A vernal pool may provide the primary breeding habitat for wood frogs (*Rana sylvatica*), spotted salamander (*Ambystoma maculatum*), blue-spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubbranchipus sp.*), as well as valuable habitat for other plants and wildlife including several rare, threatened, and endangered species. A vernal pool intentionally created for the purposes of compensatory mitigation is included in this definition.

In order for a vernal pool to be classified as significant, some obligate species (wood frogs, blue spotted salamanders, spotted salamanders, or fairy shrimp) must not only be present (represented by number of egg masses counted during amphibian breeding season), but must be present in certain numbers, as defined in the NRPA, Chapter 335(9), as follows:

- Presence of fairy shrimp in any life stage;

- 10 or more blue spotted salamander egg masses;
- 20 or more spotted salamander egg masses;
- 40 or more wood frog egg masses;
- Presence of a state-listed endangered or threatened species that commonly requires a vernal pool to complete a critical portion of its life-history, including: Blanding's turtle (*Emydoidea blandingii*), spotted turtle (*Clemmys guttata*), or ringed boghaunter dragonfly (*Williamsonia lintneri*); or, Presence of any of the following rare species: ribbon snake (*Thamnophis sauritus*), wood turtle (*Clemmys insculpta*), swamp darner dragonfly (*Epiaeschna heros*), or comet darner dragonfly (*Anax longipes*).

The following sections describe the naming conventions used in this application and in the field survey report included as Attachment 6-1.

Potential Significant Vernal Pool (PSVP): Pool meets Maine NRPA physical characteristics and definition of vernal pool and has met at least one of the biological criteria. The data forms and photographic documentation for these pools are submitted to the Maine DIFW for formal classification as a significant vernal pool. Prior to the Maine DIFW making its determination of significance, the pool is deemed a PSVP.

Natural Vernal Pool (NVP): Pool meets Maine NRPA definition of a vernal pool but did not meet biological criteria based on breeding season field surveys. These pools may be regulated by the USACE based on an assessment of biological activity.

Barren Vernal Pool (BVP): Pool meets NRPA physical definition for vernal pools but was observed devoid of biological indicators during all field observations performed during the optimal egg mass identification period. These pools may be regulated by the USACE based on an assessment of the potential for biological activity.

Corps Pool (CP): Pool does not meet NRPA definition of a vernal pool due to determination that the depression is man-made or formed as the result of a man-made (non-natural) alteration of the land. Although these resources are called "pools," CPs include roadside ditches and tire ruts filled with water at the time of surveys and observed with egg masses.

Amphibian Breeding Areas (ABA): ABAs include features that may provide habitat for target breeding amphibians but do not meet the NRPA or Maine General Permit (GP) definitions for vernal pools. This can be due to the pool having a permanently flowing inlet or outlet or being observed to support a population of predatory fish. ABAs also often have permanent hydrology and would include features like beaver ponds and fish ponds that support amphibian breeding but are not likely to support viable populations of the obligate species identified in the NRPA's significant vernal pool (SVP) definition.

6.3 Field Survey Results

Table 6-1 provides an overall summary of wetlands and waterbodies surveyed within the Project survey limits and categorized by proximity to proposed Project facilities.

Table 6-1 Wetland and Waterbody Survey Results for Canton Mountain Wind Project

Project Segment	Wetlands ¹				Waterbodies ³	
	PFO	PSS	PEM	WSS ²	Intermittent	Perennial
Access Road	19	6	20	19	12	6
Ridgeline	3	4	5	2	0	1
Transmission Line	11	1	6	4	2	1
Totals	33	11	31	25	14	8

1. Cowardin, et al. 1979

2. WSS= wetlands of special significance include portions of wetlands located within 25 feet of a Maine DEP-regulated river, stream or brook; containing significant wildlife habitat; or located within the FEMA-mapped 100 year floodplain.

3. Waterbody classifications:

Intermittent, flows more than 3 months but less than 6 months of the year

Perennial, flows more than 6 months of the year

6.3.1 Wetlands

The following sections provide additional descriptions and relative occurrences of the wetlands resources delineated within the Project survey limits.

6.3.1.1 Forested Wetlands

Forested wetlands are those with more than 30 percent of their area dominated by woody vegetation that is greater than 3 inches in diameter at breast height (dbh) (measured 4.5 feet from ground level) and greater than 6 meters (20 feet) tall (Cowardin et al. 1979). Of the 75 wetlands delineated in the project area, 33 were classified as PFO. PFO wetlands were the most common wetland type surveyed in the project area.

The majority of the forested wetlands (19 of 33) in the project vicinity occur within the access road survey areas. Typical tree species found in PFO wetlands include yellow birch (*Betula alleghaniensis*), red maple (*Acer rubrum*), red spruce (*Picea rubens*), balsam fir (*Abies balsamea*), and green ash (*Fraxinus pennsylvanica*) in the overstory, with saplings of the same species dominating the shrub layers, and various ferns, sedges, and *Sphagnum* moss found in the herbaceous layers. Representative forested wetlands found along the proposed access road include AW5, AW14, AW25 and AW33; only three PFO wetlands were surveyed along the ridgeline: RW74, RW75, and RW77. Representative PFO wetlands found along the transmission line include TW2, TW6, TW8, and TW19.

6.3.1.2 Scrub-Shrub Wetlands

Scrub-shrub wetlands include areas dominated by woody vegetation less than 6 meters (20 feet) tall and less than 3 inches in dbh (Cowardin et al. 1979). Scrub-shrub wetlands are typically comprised of true shrubs, young trees, and trees and shrubs that are stunted due to environmental conditions (Cowardin et al. 1979). Scrub-shrub wetlands were the least common (11 of 75 wetlands) type of wetland encountered during field surveys (Table 6-1). The majority of the PSS wetlands (6 of 11) delineated

during field surveys occur within the access road survey area. These shrub-scrub wetlands were typically dominated with speckled alder (*Alnus incana*), moose maple (*Acer pensylvanicum*), witch hazel (*Hamamelis virginiana*), meadow sweet (*Filipendula ulmaria*), or shrub-sized versions of trees identified previously as occurring within PFO wetlands. Representative scrub-shrub wetlands found in the Project area include AW12, AW16, RW72, and TW21.

6.3.1.3 Emergent Wetlands

Emergent wetlands are those with more than 30 percent of their area dominated by herbaceous plants such as sedges, grasses, rushes, ferns and other forbs (Cowardin et al. 1979) and were the second most common (31 of 75 wetlands) type of wetland delineated in the project area (Table 6-1). This was primarily attributed to timber harvesting and associated haul roads that resulted in removal of the forest canopy in many locations throughout the project area. Emergent wetlands are often referred to as wet meadows. Species commonly found in these wetlands include sensitive fern (*Onoclea sensibilis*); cinnamon fern (*Osmunda cinnamomea*); various *Carex* species including shallow sedge (*Carex lurida*), fringed sedge (*Carex crinita*) and broom sedge (*Carex scoparia*); common rush (*Juncus effuses*); threelobed goldthread (*Coptis trifolia*); and common ladyfern (*Athyrium filix-femina*), along with seedlings of overstory trees and shrubs.

Representative emergent wetlands located in the Project survey limits include AW2, AW10, RW66, RW71, TW1, and TW17.

6.3.2 Waterbodies

Twenty-two waterbodies were identified in the project area during field surveys, including eight perennial streams and 14 intermittent streams. All twenty-two waterbodies are both Maine DEP and USACE jurisdictional resources. Numerous ephemeral and sub-grade drainages were also evaluated, classified, and mapped during field surveys. These resources were survey located and considered during design of the stormwater management system for the Project and are shown on civil engineering design drawings filed with the Project's Site Location of Development Act (SLODA) permit application. Table 6-2 provides a summary of the waterbodies identified along each project segment and jurisdictional authorities for those resources.

Table 6-2 Canton Mountain Wind Project Waterbody Resource Summary

Project Segment	Waterbodies ¹			Jurisdiction
	Intermittent	Perennial	Total Streams per Segment	Maine DEP and USACE
Access Road	12	6	18	18
Ridgeline	0	1	1	1
Transmission Line	2	1	3	3
Totals	14	8	22	22

¹ Waterbody classifications

I = Intermittent, flows more than 3 months but less than 6 months of the year P = Perennial, flows more than 6 months of the year

6.3.3 Vernal Pools

Based on amphibian breeding season field surveys for vernal pools, nineteen pools meeting the NRPA's definition were located in the Project vicinity. Of these 19 pools, only two met the biological criteria for regulation pursuant to the NRPA as significant wildlife habitat. In addition, 13 Corps pools and 2 ABAs

were survey located and are shown on resource survey maps (Attachment 6-1, Appendix G). Photo documentation for all pools meeting the NRPA definition can be found in Attachment 6-1, Appendix E-b. Corps pools and ABA photo documentation can be found in Attachment 6-1, Appendix E-d.

Table 6-3 provides a summary of the vernal pool field survey results. The following provides an overview of the vernal pool survey results by project facilities:

- **Access Road:** Four NVPs and two BVPs were identified along the access road survey area portion of the Project. One ABA and 10 Corps pools were also identified along the access road, many of these in saturated roadside ditches or tire ruts.
- **Ridgeline:** Three NVPs, eight BVPs, and one PSVP were identified along the ridgeline survey area portion of the Project. Three Corp pools were identified along the ridgeline portion of the project.
- **Transmission Line:** One ABA and one SVP were identified within the transmission line survey limits. Data forms for these resources were submitted to the Maine DIFW in 2010 as part of the permitting process for the Saddleback Ridge Wind Project (Maine DEP license number L-25137-24-A-N/L-25137-TG-B-N).

Table 6-3 Canton Mountain Wind Project Vernal Pool Survey Results

Project Segment	Vernal Pool Classification and Occurrence Summary ¹			
	NVP	BVP	PSVP/SVP	ABA/Corps Pools
Access Road	4	2	0	1 ABA/ 10 CP
Ridgeline	3	8	1	3 CP
Transmission Line	0	0	1	1 ABA
Totals	7	10	2	15

¹ NVP Natural Vernal Pool (NVP) = Pool meets Maine NRPA definition of a vernal pool but did not meet egg mass count or rare, threatened or endangered (RTE) species criteria for a determination as a significant vernal pool.
 Barren Vernal Pool (BVP) = Pool meets Maine NRPA definition of a vernal pool but exhibited no evidence of amphibian breeding activity and no egg masses were observed even after two visits.
 Potentially Significant Vernal Pool (PSVP) = Pool meets Maine NRPA definition of a vernal pool and has met at least one of the egg mass count or RTE criteria for a determination as significant wildlife habitat, but has not yet been reviewed and confirmed by the Maine DIFW.
 Significant Vernal Pool (SVP) = Pool meets Maine NRPA definition of a vernal pool and has met at least one of the egg mass count or RTE criteria for a determination as significant wildlife habitat, and has been reviewed and confirmed by the Maine DIFW as meeting the NRPA criteria for a SVP.
 Amphibian Breeding Area (ABA) = Water resource does not meet the NRPA or Corps GP definition of vernal pool. Resource is a federally regulated water of the U.S. and was observed to support amphibian breeding due to presence of egg masses during amphibian breeding season surveys. ABA's are often resources such as ponds that have permanent hydrology.
 Corps Pool (CP) = Do not meet the NRPA definition of vernal pool but are inundated areas (often road side ditches, skidder ruts, or borrow areas filled with water) that are observed with egg masses during breeding season surveys.

After reviewing vernal pool data forms for the Saddleback Ridge Wind Project in 2010, Maine DIFW confirmed that the one PSVP located east of the proposed transmission line meets the NRPA's definition as a SVP and is now identified in the Maine DIFW's database as significant wildlife habitat. Following this decision, it was also determined that the Saddleback Ridge transmission line could be built maintaining a minimum 100-foot separation distance between the proposed transmission line right-of-way

and the spring high water line of the adjacent SVP, and that a minimum of 75 percent of the adjacent critical terrestrial habitat (located within 250 feet of the SVP spring high water line) would remain intact following construction. Therefore, the transmission line could be built in compliance with Maine DEP's Permit-by-Rule (Chapter 305) Standards, Section 19, for *Activities in, on or over significant vernal pool habitat*.

Because CMW proposes to construct the portion of the Project transmission line that parallels the Saddleback Ridge transmission line within the same right-of-way and because no additional alteration of adjacent terrestrial habitat is proposed, CMW's construction of its electric transmission line is also expected to be in compliance with Maine DEP's, Chapter 305, Section 19, Standards; therefore, the NRPA minimum standards for activities in, on, or over significant vernal pool habitats will be met.

6.3.4 Northern Spring Salamander and Roaring Brook Mayfly Surveys

Field surveys for the Northern Spring Salamander (NSS) (*Gyrinophilus p. porphyriticus*), a Maine species of special concern, and the state-endangered Roaring Brook mayfly (*Epeorus frisoni*), were performed within the Project area on August 11, 12 and 26, 2010. The following sections describe the methods employed for these surveys.

Northern Spring Salamander Habitat Assessments

The NSS investigation included a background data review and subsequent field surveys. Specific methods employed during the field portion of the surveys followed the same methods employed by Tetra Tech for other Maine wind projects based on protocols developed and recommended by the Maine DIFW. The following sections outline the methods used during both the background review and field survey for NSS for the Project.

Potential locations of suitable NSS habitats within the Project area were evaluated by conducting a desktop review of USGS 7.5-minute series topographic maps and GIS-generated maps highlighting elevation and hydrology of the Project area. In addition, field surveyed stream data collected during summer 2010 were also reviewed to identify streams containing potential NSS habitat within the survey area. This information was compiled to generate a list of seven streams that were investigated for suitable habitat and the presence of NSS during the subsequent field reconnaissance survey.

Field biologists then conducted field surveys of the seven streams identified as containing potential NSS habitat. Surveys of these streams were conducted in sections of appropriate stream habitat located within 500 feet of the proposed Project facilities. The NSS sampling was conducted on August 11, 12 and 26, 2010 during normal low and stable flow periods to ensure that all areas of the wetted channel were consistently part of the habitat evaluated and not just during times of high flow. The following describes the specific methods that were used for sampling for NSS:

- Stream searches involved two biologists walking along or within a stream, moving upstream, and looking under stones and large rocks along the margin of the stream or in shallow areas within the stream itself. Although larger, flatter, partially submerged rocks are preferred by adult NSS, biologists searched a wide array of rock sizes ranging from approximately six to 24 inches in diameter in an attempt to identify larval individuals;
- Streams were not surveyed during high flow events because many suitable cover objects could be inaccessible and stream visibility is reduced;

- Timed searches of no less than 30 minutes (two-person crew) were performed per section/site; and
- All NSS were documented through photography and completion of a Rare Animal Survey Form. At the request of Maine DIFW, other species of amphibians and reptiles observed during the NSS surveys were also documented (see Appendix F of Attachment 6-1).

For all streams where NSS were observed, data recorded on the field sheet include survey start and end time, waterbody name, stream habitat description (substrate, flow regime, and approximate slope), and upland habitat description (forest types, dominant species, and visual estimation of canopy cover). The location of each spring salamander observed and/or captured was recorded using mapping-grade GPS. A total of five NSS were observed in three of seven streams evaluated within the project survey area: Ludden Brook, Fletcher Brook, and an unnamed stream near the southern end of the ridgeline survey (see Attachment 6-1).

Roaring Brook Mayfly Habitat Assessments

The Roaring Brook mayfly (RBM) is a Maine endangered species and historically was only known to occur at Roaring Brook in Baxter State Park, Maine. However, recent surveys have identified occurrences of this species within a few streams located throughout New England, including sites located in the western mountains of Maine. Life history information collected thus far for this species indicates that the RBM inhabits undisturbed, high elevation headwater streams along the northern section of the Appalachian Mountain Range. These streams are associated with cold water (less than 15° Celsius [C]) that retains significant flow throughout the year. The limited life history data available demonstrate that RBM inhabit cold, un-vegetated, high elevation streams with moderate to fast flow. Streambed substrates comprised of a cobble/gravel/sand mixture with little to no organic substrates are considered suitable habitat for RBM. Riparian vegetation and surrounding habitat is typically undisturbed, mixed forest stands with a semi-open to closed canopy.

The project survey area had only one perennial stream located above 1,000 feet, but this stream was determined not to provide suitable habitat for the Roaring Brook mayfly; therefore, detailed substrate sampling for this species was not warranted.

6.4 Fisheries

The Maine DIFW provided CMW with fish survey data for six streams located in the vicinity of the Project (see Figure 6-1) during consultations for the Saddleback Ridge Wind Project. These data are summarized in Table 6-4. Although specific fish information was available for only three of the six streams, the Maine DIFW regional fishery biologist noted that the species composition in the three unsurveyed streams would likely be similar to what is listed for the three streams that were surveyed. There are no documented rare, threatened or endangered (RTE) species in these streams, although, the state special concern species, the northern spring salamander, was documented to occur in Ludden Brook and tributaries to Fletcher Brook (see Attachment 6-1 for details of these survey).

In addition, the USFWS noted in a letter to CMW on December 21, 2010 (see Section 12) that the Project occurs within the range of the federally endangered Gulf of Maine Distinct Population Segment (GOM DPS) of the Atlantic salmon (*Salmo salar*), specifically within the Androscoggin River watershed. Although the waterbodies potentially impacted by the Project are not in an area designated as critical

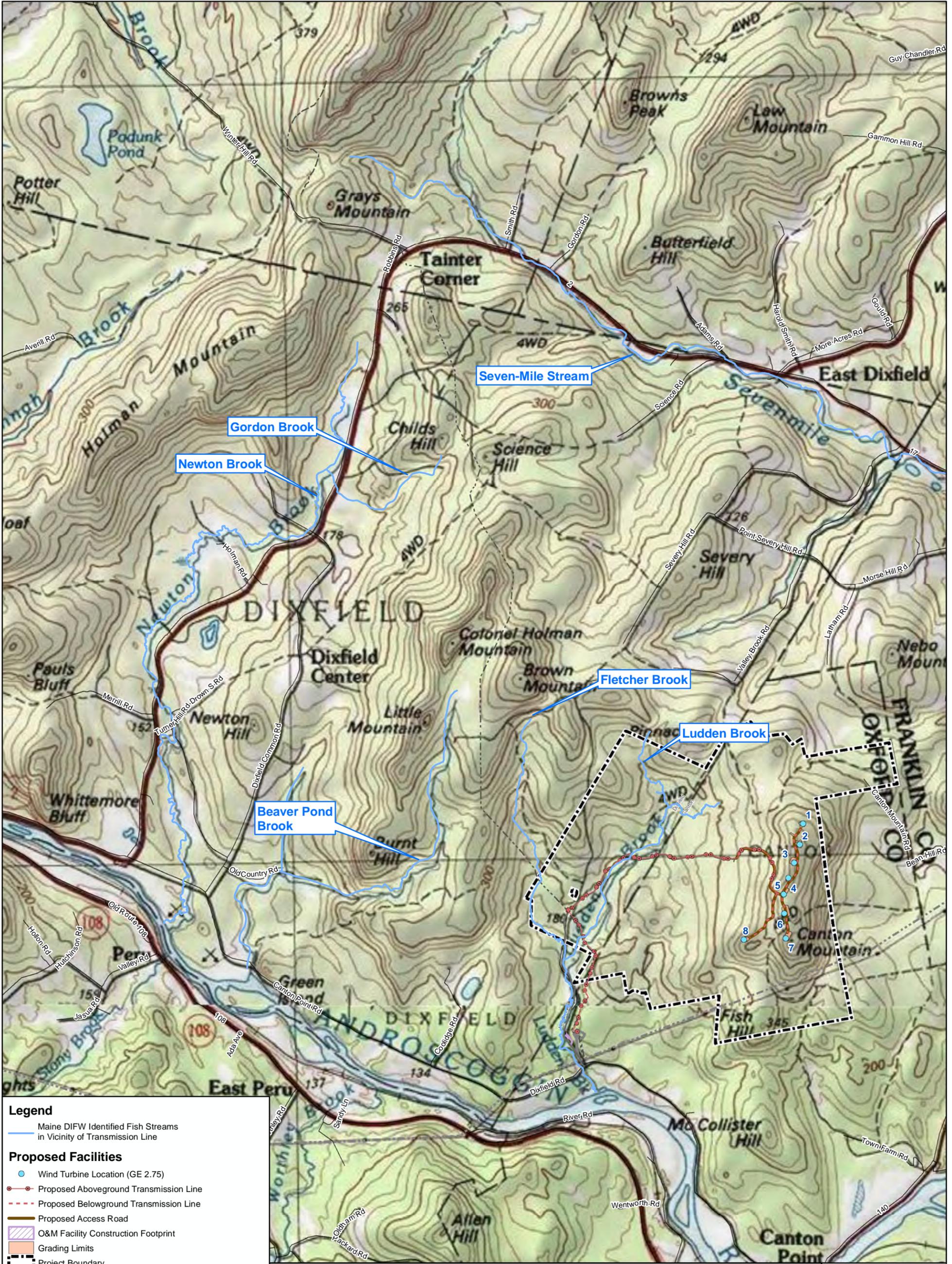
habitat for the Atlantic salmon, the USFWS requested that information on proposed stream crossings be shared with the both the USFWS and the USACE. Erosion and sedimentation control information is summarized in Section 10 of this application. CMW does not anticipate that the Project will negatively impact Atlantic salmon or its habitat due to protective measures proposed to avoid and minimize impacts both during construction and operations of the Project.

To protect these streams, CMW will comply with Maine DEP's *Minimum Performance Standards for Transmission Line Corridors* before, during, and following construction of the transmission line. CMW will also contract a Maine DEP approved third-party inspector to oversee the construction phase of the Project and will work with the contractor to ensure that protective measures identified in this application are employed effectively in the field. Erosion and sedimentation control measures will be installed, inspected regularly, and maintained throughout construction to prevent adverse impacts to waterbodies and other resources (see Section 10).

Table 6-4 Maine DIFW Fish Survey Data for Streams in the Vicinity of the CMW Project

Newton Brook	
Brook trout	<i>Salvelinus fontinalis</i>
Blacknose dace	<i>Rhinichthys atratulus</i>
Northern redbelly dace	<i>Phoxinus eos</i>
Creek chub	<i>Semotilus atromaculatus</i>
Slimy sculpin	<i>Cottus cognatus</i>
White sucker	<i>Catostomus commersoni</i>
Ludden Brook	
Blacknose dace	<i>Rhinichthys atratulus</i>
Creek chub	<i>Semotilus atromaculatus</i>
Slimy sculpin	<i>Cottus cognatus</i>
White sucker	<i>Catostomus commersoni</i>
Seven-Mile Stream	
Brook trout	<i>Salvelinus fontinalis</i>
Brown trout	<i>Salmo trutta</i>
Cusk	<i>Lota lota</i>
Yellow perch	<i>Perca flavescens</i>
Blacknose dace	<i>Rhinichthys atratulus</i>
Common shiner	<i>Luxilus cornutus</i>
Creek chub	<i>Semotilus atromaculatus</i>
Fallfish	<i>Semotilus corporalis</i>
Slimy sculpin	<i>Cottus cognatus</i>
White sucker	<i>Catostomus commersoni</i>
Longnose sucker	<i>Catostomus catostomus</i>
Threespine stickleback	<i>Gasterosteus aculeatus</i>
Gordon Brook	<i>No data</i>
Beaver Pond Brook	<i>No data</i>
Fletcher Brook	<i>No data</i>

Survey data provided by Dave Boucher, Regional DIFW Fishery Biologist, February 19, 2010



Legend
 Maine DIFW Identified Fish Streams
 in Vicinity of Transmission Line

- Proposed Facilities**
- Wind Turbine Location (GE 2.75)
 - Proposed Aboveground Transmission Line
 - - - Proposed Belowground Transmission Line
 - Proposed Access Road
 - ▨ O&M Facility Construction Footprint
 - ▨ Grading Limits
 - ▭ Project Boundary

- Existing Facilities**
- Existing Access Road
 - - - Existing Aboveground Transmission Line
 - 115kV Electric Transmission Line (CMP 229 Line)
 - ▨ Ludden Lane Substation

SOURCE: Mount Blue, Dixfield, East Dixfield, & Canton USGS Quadrangles
 0 0.25 0.5 1 Miles



Figure 6-1
Maine DIFW Identified Fish Streams
in Vicinity of CMW Transmission Line

Canton Mountain Wind Project
Canton and Dixfield, Maine

December 2011



6.5 Maine DIFW Mapped Wildlife Habitats in Project Vicinity

Figure 6-2 shows Maine DIFW mapped wildlife habitats in the Project vicinity. There are two significant vernal pools, with associated 250-foot mapped significant vernal pool habitat, located east and southeast of the proposed transmission line and one mapped inland wading bird and waterfowl (IWWH) habitat located west of Ludden Lane. Both the mapped IWWH and the significant vernal pool located south of the entrance to Ludden Lane are located greater than 250 feet from the proposed Project work limits. As noted in Section 6.3.3, the second mapped significant vernal pool located east of the proposed electric transmission line was mapped during surveys for the Saddleback Ridge Wind project and was confirmed by Maine DIFW as significant in 2010. CMW has confirmed that the proposed transmission line that intersects the 250-foot critical terrestrial habitat, classified as significant wildlife habitat, can be constructed in compliance with Maine's NRPA Permit-by-Rule Standards (Chapter 305), Section 19, for *Activities in, on or over significant vernal pool habitat*.

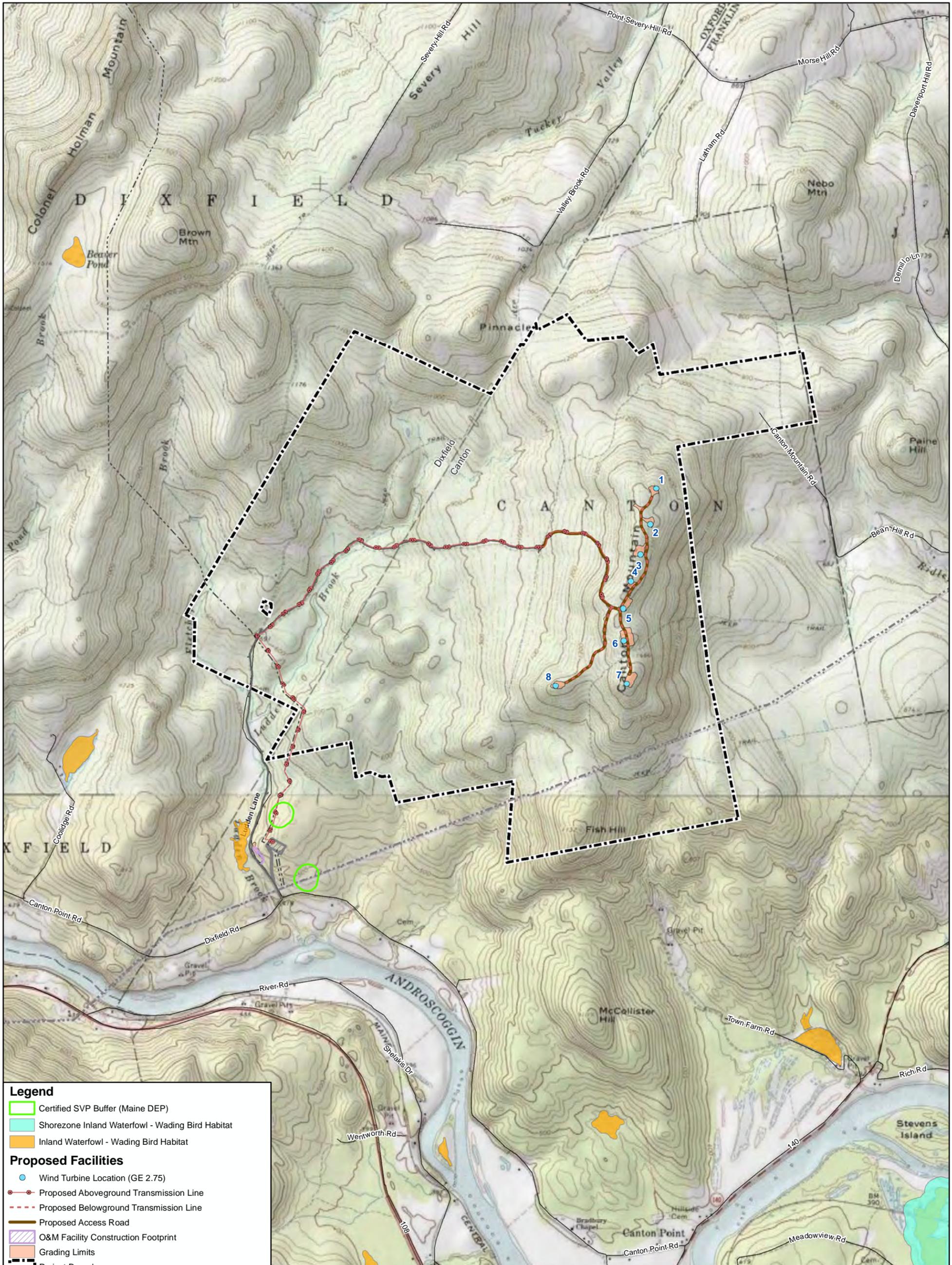


Figure 6-2
Maine DIFW Mapped Wildlife Habitats
in Vicinity of CMW Project

Canton Mountain Wind Project
Canton and Dixfield, Maine

December 2011

