



Appendix K: Supplements to Listing Documentation

For

CAR1217

Finite Carbon – Lyme GLS

Improved Forest Management Project

In

The State of Maine

Contents

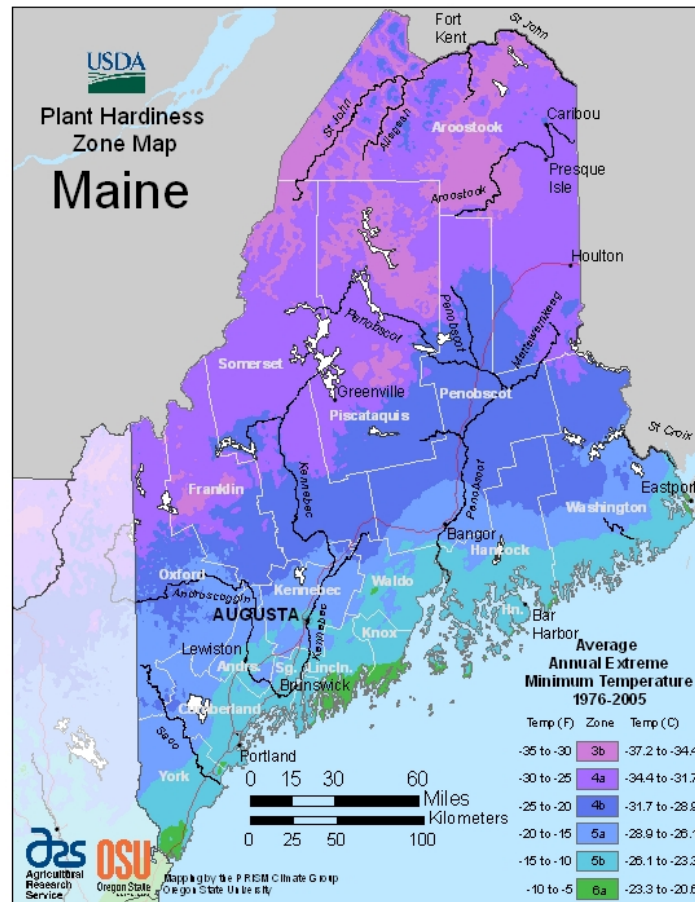
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Part VII. Carbon Stock Inventory

Overview:

Finite Carbon Corp. has commissioned the following forest inventory for the Lyme Timber Company on their lands in Washington County, Maine totaling approximately 19,500 forested acres. The purpose of this forest inventory is to quantify the carbon stocks and general forest products on the subject properties for enrollment as a forest carbon offset project. This inventory shall be conducted in a manner that can be verified, that will facilitate modeling, and is replicable. In order to guide the inventory process, the project site has been stratified by macro forest types as per carbon program requirements. All inventory data collected will be independently and jointly audited for accuracy. As all carbon claims for this project site will also be independently verified at a later date, the accuracy and precision of the data collection for this project is paramount to project success for the landowner.

The primary land use for the region is forestry. Review of air photos and satellite images reveal a forest dominated landscape with minor agricultural uses in some areas. The forest project lies entirely in the 4b and 5a climate zones as shown on USDA FS mapping for the region. (Source: <http://www.usna.usda.gov/Hardzone/hzm-se1.html>).



Review of publicly available aerial imagery indicates that land use change pressure in this region is low with minor residential development and little changes to other land uses from forest.

The following inventory procedures will be the guiding requirements for current and future inventory work done on this site to comply with the carbon program. In order to guide and improve the inventory process, the project site has been stratified by macro forest type.

Pre-cruise Mapping:

- **Pre cruise mapping** has been completed in order to comply with the carbon protocol requirements and improve the accuracy of the inventory. This stratification includes the designation of non-forest types, non-stocked stands, broad forest type by species group, size, and other key features. The current stratification is based on the most recent spatial data submitted for use by the landowner and was generated for use in forest management planning using regionally appropriate codes and techniques. [REDACTED]

- [REDACTED]

Inventory Design:

The project inventory shall consist of **500** 1/10 acre (37.2 foot radius) fixed radius plots for all trees 5.0 inches and larger. At each sample location a 1/250 acre plot (7.4 foot radius) shall also be taken for all stems 1.0 to 4.9 inches dbh. The inventory design is based on the requirements for biomass calculation as listed in the biomass equations approved for use by CAR 3.2 and ARB.

Finite Carbon developed the following sampling design in an effort to reduce overall sampling error and thereby optimize the carbon results for the landowner:

- **Sampling method** for all samples involved with this inventory will be a 1/10 acre fixed radius sample plot for all stems 5.0 inches dbh and larger and a 1/250 acre fixed radius plot for all stems 1.0 to 4.9 inches dbh. All eligible living and standing dead trees shall be tallied. [REDACTED]
- **Sampling Intensity** has been determined as **500** total nested samples across the project site. All sample locations have been pre-determined on field maps and have been assigned GPS coordinates.
- **Statistical Standards** of Inventory will be a minimum of +/- 10% of total cubic foot volume expressed at the 90% confidence interval for forest stratum on the project. If, after processing, the original sample does not yield the target statistical targets, additional samples may be commissioned on a per plot basis until the target statistical results are realized. All additional samples will be located randomly within target strata using GIS forestry tools.

Field Procedures:

- All tally files shall be labeled with the following information; plot sample id, date, tract, and cruiser name or initials. Each plot shall have a stand identifier, reflecting the stand or strata the sample was taken in.
- Cruisers should locate all sample plots using [REDACTED] GPS [REDACTED] units.

[REDACTED]

- [REDACTED]
- A forest type map including sample plot locations will be provided to each cruiser. All tally sheet identification codes shall correspond to the map sample identification codes. All samples will be located as close as possible to the mapped location unless:

- o [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]

Tally Measurements:

Species shall be recorded in accordance with the USDA FS FIA numerical three digit species codes. Species must be recorded for dead stems. [REDACTED]

Dead trees shall only be tallied if they are a minimum 15 feet in total height. In addition, all dead stems shall be recorded on designated samples per species and designated a form and decomposition code as per the criteria below:

Dead Tree Form:

- D1 (Dead with large branches, small branches, and twigs)
- D2 (Dead with large branches, small branches, and no twigs)
- D3 (Dead with large branches only)
- D4 (Dead with bole or partial bole only broken below 4 inch top dia)

Decomposition Class: Using a visual evaluation and a sounding hammer (or equivalent) the cruiser shall qualify each dead tree for its state of decomposition as either sound, intermediate, or rotten using the descriptions below:

- **Sound:** Bark may or may not remain on stem and upper branches. The wood itself is dense. The sounding hammer or equivalent instrument does not penetrate the surface more than ¼ inch when struck with an average blow. May have surface decay at or near base, but more than 85% of the tree is estimated to be sound and free of advanced decay.
- **Rotten:** Little bark remains on stem or branches. Remaining bark is easily removed by hand. The surface of the stem is penetrated more than ¼ inch when struck with an average blow using the sounding hammer or equivalent device. The stem shows signs of advanced decay such as woodpecker activity, fungus, insect activity, etc. Visible voids, fungal fruiting bodies, or other signs may also be evident. Portions of the wood itself can be removed by hand. Greater than 70% of the stem demonstrates characteristics of advanced decay.
- **Intermediate:** Trees showing characteristics of minor or surface decay such as patches of sloughing bark in some areas, small cavities, small fungus and or fruiting bodies. Tree shows signs of some minor decay but appears to be structurally sound and should remain standing for several years into the future. Intermediate trees do not easily fit into the Rotten or Sound categories.

Diameter at breast height (4.5') on the high side of the stump**, measured with a loggers tape or calipers **to the 0.1 inch.** [REDACTED]

Height of each stem and or product section shall be measured with a clinometer or laser hypsometer in one foot increments for all height measurements. [REDACTED]

Height to 4" top diameter (FHT)

o Record height in one foot increments.

o [REDACTED]

o [REDACTED]

o [REDACTED]

Total Height (THT)

o Record all heights in one foot increments.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Soundness deduction for any visible possibilities of rot or cavities. [REDACTED]

[REDACTED] The following per section product codes shall also be recorded for all stems as per the product matrix below:

Product code per stem (for pre merch, dead, or pulpwood stems only) or product section (all trees with more than one product in the main stem) Grade each section of the tree for its highest grade product as per the categories below, record each sections length in two foot increments. For damaged butts the product designation may begin up to 4 feet above ground level.

- **Dead wood** (05),
- **Cull** (greater than 50% unsound) (04)
- **Pre-merch** (03),
- **Pulpwood** (straight sound for at least 8 feet) (02)

- All trees 5.0 inches dia up to 7.9 inches for softwoods and 5.0 to 10.9 inches diameter for hardwoods, or any larger trees of poor quality
- **Sawtimber** (01)
 - All suitable softwood trees 8.0 inches and larger, all suitable hardwood trees 11.0 inches and larger. Suitable is defined as at least one clear face on at least one 8 foot section of the bole.

[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
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[REDACTED]
[REDACTED]
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[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]		[REDACTED]
[REDACTED]		[REDACTED]
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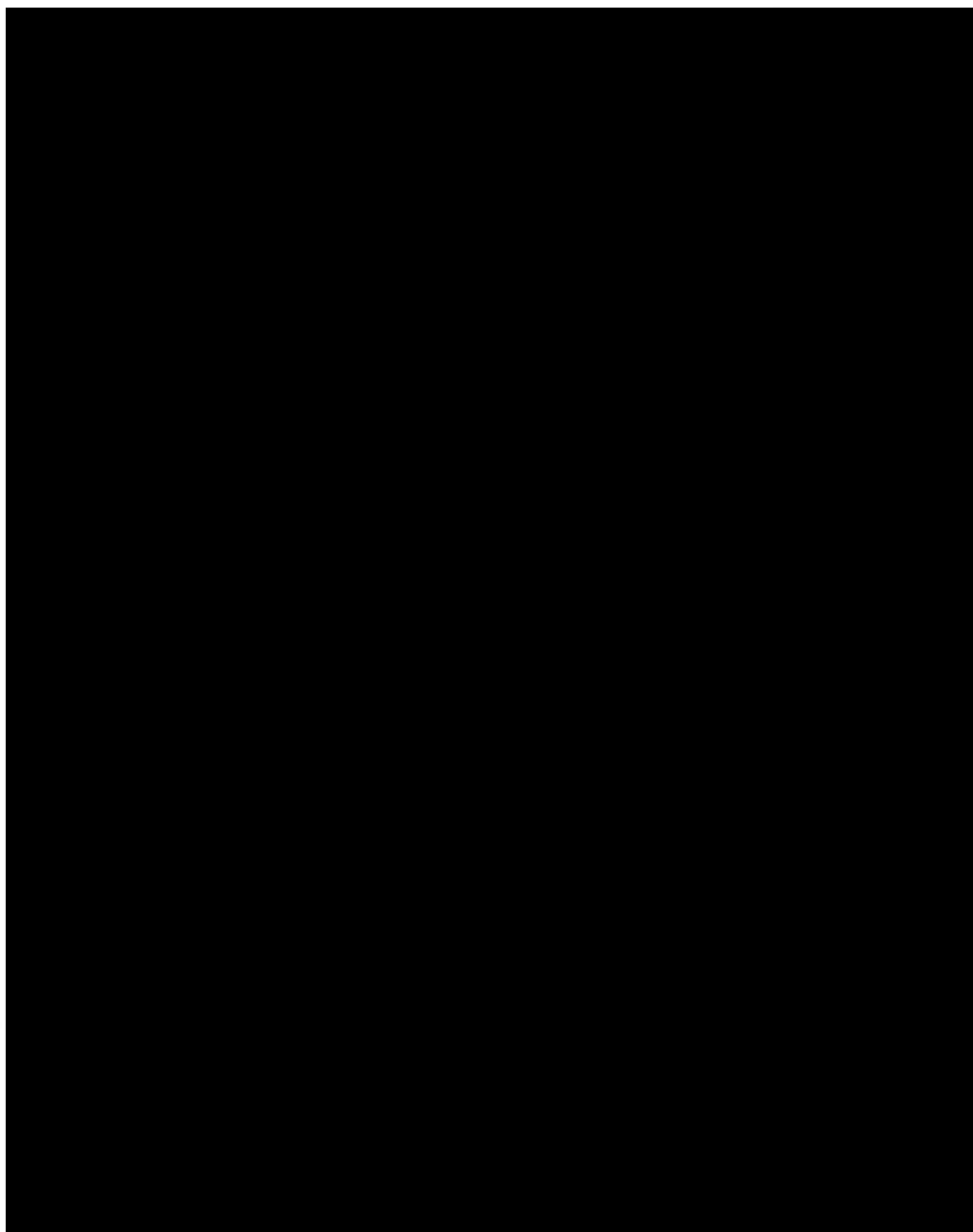
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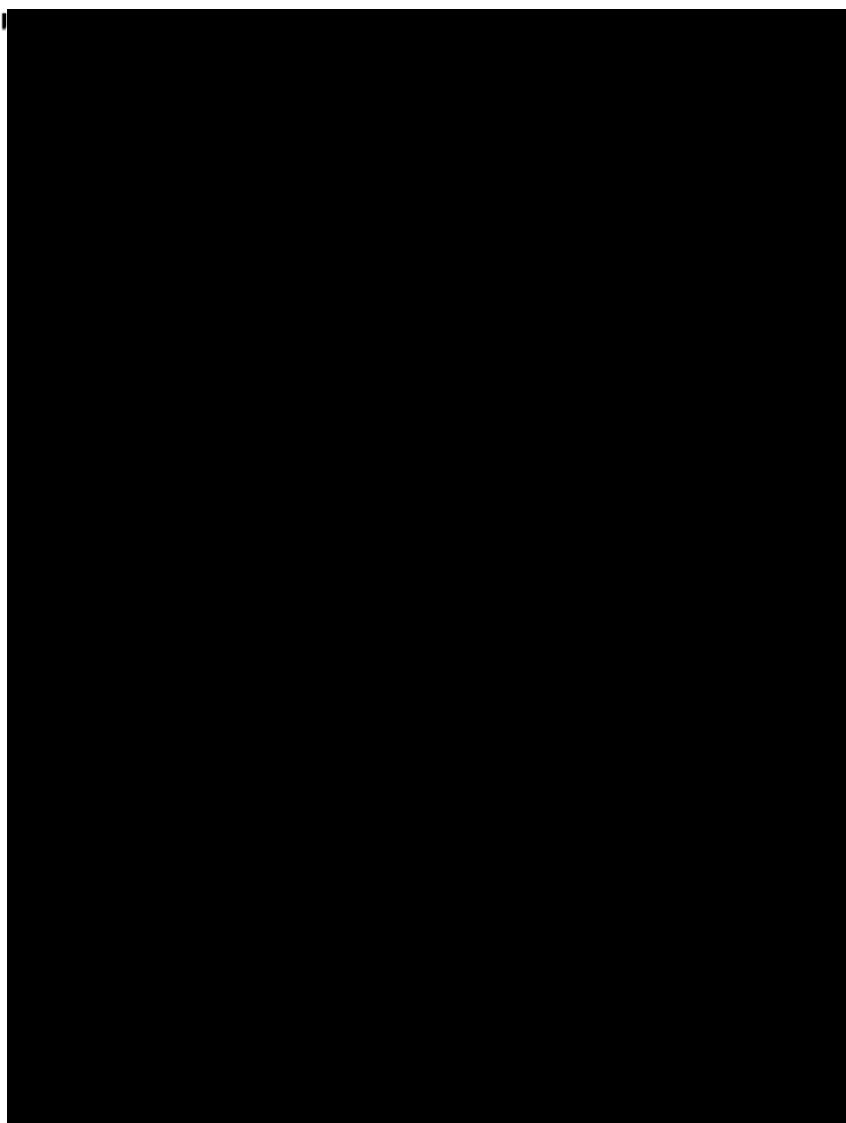
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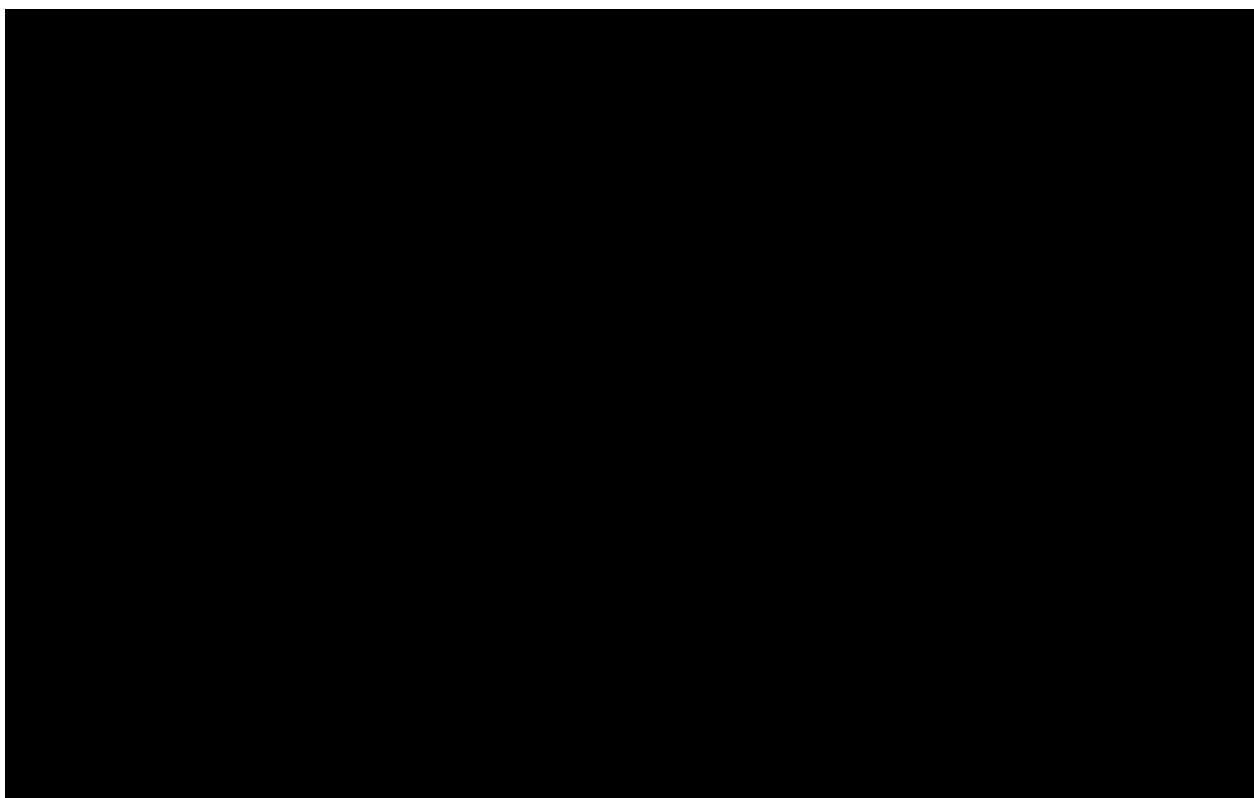
[REDACTED]

[REDACTED]

[REDACTED]







Part VIII. Offset Project Baseline

6. General Description of Legal Constraints Affecting Forest Management

Table 1. Evaluation of Rules and Regulations subject to the Project Area

Rule/Regulation	Description	Notes
Conservation Easement	The easement is considered a working forest conservation easement. It was recorded on December 18, 2012 and covers the properties 21,870 acres of forests, wetlands and bogs.	The conservation easement calls for maintaining a continuing, renewable and long-term harvest of forest products. It also requires third party certification with SFI or FSC. The baseline scenario will be modeled to meet those standards.
Endangered Species Act (ESA) & Maine Department of Inland Fisheries & Wildlife (MDIFW) Species of Special Concern	The Endangered Species Act (ESA) provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing ESA are the U.S. Fish and Wildlife Service (FWS) and the U.S. National Oceanic and Atmospheric Administration (NOAA) Fisheries Service. The FWS maintains a worldwide list of endangered species. Species include birds, insects, fish, reptiles, mammals, crustaceans, flowers, grasses, and trees.	Habitat protection considerations are applied in both the baseline and project scenarios; however, there have been no observed or detected endangered species in the Project area that would require any restrictions on forest management activities as a result of the ESA. Although a bald eagle nest was identified by MDIFW, the species was removed from the federal list of threatened and endangered species in 2007. The State of Maine considers it a Species of Special Concern. Special concern species are “established by policy, not by regulation, and are used for planning and informational purposes; they do not have the legal weight of endangered and threatened species.” ¹ As

¹ State of Maine. Species of Special Concern. <http://www.maine.gov/ifw/wildlife/endangered/specialconcern.htm>

		such, the restrictions on harvesting in shoreline areas resulting from compliance with the State of Maine Rule Chapters below are considered adequate for the baseline scenario.
Clean Water Act (CWA) of 1972 & Best Management Practices for Forestry: Protecting Maine's Water Quality (2004)	The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The Maine BMP publication is primarily a reference and training tool designed to help foresters and loggers become better informed about the best management practices for protecting water quality during timber harvests.	The recommended procedures from the state BMPs are assumed to be adhered to in both the baseline and project implementation. These procedures work in concert with the regulations established by the State of Maine Rule Chapters (detailed below) to protect water quality in the Project Area.
National Wild & Scenic Rivers Act	The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.	There are no nationally designated wild and scenic rivers in the Project area, or close enough to have a direct impact on forest management activities. www.rivers.gov/
Maine Forest Practices Act – State of Maine Rule Chapters for the Department of Agriculture, Conservation and Forestry	The Rule Chapters that regulate timber management activities in the Project Area were developed in accordance with the Maine Forest Practices Act of 1989, with the initial goal of substantially reducing liquidation harvesting in the state. The Act has been revised several times since then resulting in new Rule Chapters. The applicable chapters are described below. Chapter 10 enumerates the requirements of the Maine Land Use Planning Commission (LUPC), for areas within the jurisdiction of the LUPC. These requirements are similar in scope to Rule Chapter 21 below. While Washington County falls under this jurisdiction, section 10.27,B on Vegetation Clearing exempts forest management activities from the separate LUPC requirements. Chapter 20 establishes standards for clearcutting and for forest regeneration following timber harvesting. It clearly defines clearcutting and overstory removal standards. If timber harvesting activities result in a clearcut larger than five acres, there must be a separation zone between clearcuts and regeneration standards must be met. No clearcut can be greater than 250 acres. Chapter 21 establishes statewide standards for timber harvesting and related activities in shoreland areas. In general, timber harvesting activities in shoreland areas must protect shoreline integrity and not expose mineral soil that can be washed into water bodies, including nonforested freshwater and coastal wetlands and tidal waters. Timber harvesting and related activities in shoreland areas below the 300 acre drainage point must leave windfirm stands of trees that provide adequate shade. If located in shoreland areas, roads used primarily for timber harvesting and related activities must be constructed and maintained to standards designed to minimize the chance of exposed soil washing into water bodies, including wetlands. Stream crossings must not disrupt the natural flow of water and must not allow sediment into water bodies. Chapter 23, Section 6 states that timber harvesting on a parcel of land, any portion of which is sold, offered for resale, or otherwise conveyed within five years of the original date of purchase or acquisition of the parcel must satisfy one of four possible conditions. Compliance with Option 1, "Basal area removal limited," will ensure that if the property is to be sold within 5 years of GLS Woodlands' original date of purchase then timber harvesting shall not	The applicable regulations established in the State of Maine Rule Chapters are followed in the baseline and project forest management activities. Rule Chapters 20, 21, and 27 have implications that are reflected in the constraints on the baseline model. Greater detail for how these regulations are applied in the baseline scenario is provided under the Consideration of Legal Constraints in Step 3 of Section 6.2.1. Forest management activities are exempted from the additional requirements of Rule Chapter 10. Both the project and baseline scenario are in compliance with Rule Chapter 23, as in neither case is GLS Woodlands removing more than 50 percent of the basal area before selling the property within 5 years of the original date of purchase. GLS Woodlands is also in compliance with Rule Chapter 26, and it is assumed that the baseline would also remain in compliance with forest operations notification standards.

	remove more than 50 percent of the basal area of trees 4.5" DBH and larger, present on the entire parcel at the time of purchase. Timber harvesting must not result in high grading and must include measures to protect advanced regeneration by minimizing the area damaged by logging equipment. Chapter 26 describes the forest operations notification standards that govern all forest lands in the state of Maine. Prior to conducting timber harvesting activities a landowner or designated agent must notify the Bureau of Forestry in writing. Chapter 27 establishes the procedures for notifying the Department of Conservation and Forestry, Division of Forestry, of proposed timber harvesting activities and sets standards for regulating those activities. This rule applies to all land within the unorganized and deorganized areas of the state classified by the Land Use Planning Commission as protection districts or management districts.	
Other Local Ordinances	n/a	There are no local ordinances or regulations in the towns or counties of the project area that affect timber harvesting.