Federation of Nova Scotia Woodland Owners
&
Mersey Tobeatic Research Institute
FSC Woodlot Certification Program

WOODLOT MANAGEMENT PLAN # 1181

Prepared for
Municipality of the County of Annapolis

Prepared by
Teaberry Forest Consulting
Tom Berry

October 18, 2013

We, the Municipality of the County of Annapolis:
- Endorse the Principles and Criteria of the FSC and the Maritime SLIMF Standard (2008)
- Have reviewed this plan
- Agree to manage the woodlands covered by this plan for a period of 10-years
- Agree, to the best of my ability, to implement the recommendations made in this plan
- Understand that this plan needs to be reviewed and revised within 5-years of signing

I, the woodlot management planner:
- Have reviewed the contents of this plan with woodlot owner
- Assure the recommendations in the plan were made to meet FSC requirements

_____	_____
Woodlot Owner(s)	**Date**
_____	_____
Woodlot Management Planner	**Date**

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1. INTRODUCTION

1.1 Landowner Information:

Name(s) Municipality of the County of Annapolis

Address: PO Box 100, 752 St. George Street, Annapolis Royal, N.S. B0S 1A0

Telephone: Cody Joudry @ 902-532-1445 cell: 902-526-2590

Email: cjoudry@annapoliscounty.ca

1.2 Management Planner Information:

Name: Tom Berry

Organization/Company: Teaberry Forest Consulting

Address: 2530 Perotte Rd., RR#1, Annapolis Royal, N.S. B0S 1A0

Contact Info: Phone: 532-2995 email: trberry@eastlink.ca

Describe credentials: Forest Technician

1.3 Area of Woodlot:

The Property consists of: 126.64 ha (312.8 acres) of woodland and 152.09 ha (375.7 acres) in total.

1.4 Location of Woodlot: Highway # 8, Graywood, Annapolis County, N.S.

Property Identification Number: 05091335, 05091152, 05091178

See woodlot location map in **Appendix IV**

1.5 The primary purpose of the Woodlot: a source of wood products.

1.6 Strategies for Meeting Management Objectives, *Table 1*

Landowner Objectives	Strategy to Implement	Target Treatment/Timing
1. Increase amount of shade tolerant species	*Use harvest techniques that promote natural regen of preferred species*	*Group selection, commercial thinning and unevenaged management have been recommended*
2. Maintain boundary lines.	*Renew by brushing out and reblazing.*	*Prior to harvest .*
3. Maintain roads.	*a.Gravel existing road.* *b.Constuct new road.*	*a.As required.* *b. Access for stands #12,13,14 and 15*
4. Enhance wildlife habitats.	*Maintain species diversity.*	*Shelterwood harvest and unevenaged management. have been recommended*

For full listing of stand-level recommended treatments, see the recommended treatment map in **Appendix IV**. For treatment implementation timing and priority, see the 10-Year Operating plan in **Appendix V**.

1.7 Current uses for the woodlot include:

1. Woodland buffer for two environmentally sensitive sites:

   Stand # 18, Disposal site = 9.18Ha (22.7 acres).

   Stand # 19, Incinerator site = 16.27Ha (40.2 acres).

Forecasted uses for the woodlot include:

1. Woodland buffer for two environmentally sensitive sites:

   Stand # 18, Disposal site = 9.18Ha (22.7 acres).

   Stand # 19, Incinerator site = 16.27Ha (40.2 acres).
2. Sustainable harvest of wood products in stands # 1 – 10, 12 - 15.
3. Potential uses for the public.
4. Wildlife habitat.

1.8 Socioeconomic Conditions:

Annapolis County is located in western Nova Scotia and at the present time sawlog markets are limited to only one option – Freeman's Lumber. Abitibi Bowater Ltd closed on June 15, 2012. Two other large mills have closed in recent years. Prices remain fairly low for the producer. Funding for Silviculture work is available, inconsistently, through the Association for Sustainable Forestry. Silviculture funding has recently become available, through the Federation of Nova Scotia Woodland Owners, exclusively for certified woodlots. Availability of small contractors to do work (harvesting and silviculture) on private woodlots is always a challenge in this area.

1.9 Commitment to Sustainable Forest Management:

Management recommendations for this woodlot were developed to meet the Principles and Criteria of the Forest Stewardship Council (FSC) of Canada's Maritimes Standard for Small and Low Intensity Forests. This plan was designed to cover a 10-year period, with a 5-year review, but management strategies should consider an ecological timeframe of 100+ years.

Resulting management activities shall be implemented in compliance with applicable legislation, based on Nova Scotia's Best Management Practices, and with a commitment to long-term, ecologically sustainable forest management. The primary goal of this program is to manage forests in a way that restores, maintains or enhances conditions found in healthy Acadian Forests.

The FNSWO will provide encouragement and education to landowners to help them achieve their specific objectives, while developing strategies that consider long-term forest health. The latest understanding of forest ecosystem dynamics has been used in developing this plan. Recommendations were given to help achieve the specific objectives of the woodlot owner. However, because of the diverse factors affecting forest development, the plan writer can assume no liability for future forest conditions.

2. GENERAL PROPERTY DESCRIPTION

2.1 Ecological Landscape Classification and Positioning:

The woodlot is part of Nova Scotia's Western Ecoregion, the South Mountain Ecodistrict(s) and Ecosection(s). See Ecosection Map of Woodlot in **Appendix IV** Information from the provincial "Ecological Land Classification for Nova Scotia" pertinent to the woodlot can be found in **Appendix VI**

2.2 Property Title:

A copy of the deed(s) to the property is attached in **Appendix I**

2.3 Woodlot Description:

1. *Forest Lands vs. Other Land Uses*

Two sites have been reserved from this FSC management plan.

No forestry related activities will occur on these sites.

Stand # 18, Disposal site = 9.18Ha (22.7 acres).

Stand # 19, Incinerator site = 16.27Ha (40.2 acres).

All other stands (#1-17) are considered to be forest land.

2. *Species Distribution*

The primary softwood species on the lot are:

Red and white spruce, balsam fir, white pine, and eastern hemlock.

The primary hardwood species are:

Red, striped and sugar maple, white and yellow birch, red oak, largetooth aspen, beech and white ash.

See stand information table in **Appendix IV**

3. *Age Structure and Distribution*

Stands # 3, 5, 7, 9, 12, 13, 14 and 15 are unevenaged.

Stand # 10 is mature. All other stands are immature.

See stand information table in **Appendix IV**.

4. *Current Acadian Forest Attributes*

Many stands are unevenaged with shade tolerant species.

The **Acadian forests** are a temperate broadleaf and mixed forest ecoregion that includes a variety of habitats on the hills, mountains and plateaus of New England in the northeast United States and Quebec and the Maritime Provinces of eastern Canada.[2]

5. *Wetlands/ Bogs/ Streams*

Stands # 11, 16 and 17 are wetlands. A brook flows through stands # 9, 11, 12 and 15.

6. NS Soil Series and FEC Forest Soil Types Distribution, Table 2

NS Soil Series Mapping	NS FEC Forest Soil Type (ST)	Wetter ST found on lower slopes	Drier ST found on upper slopes	Stands where ST was found
Gibralter	8	9	N/A	1,7
Gibralter	2G	3	1	2,3,4,6,8
Gibralter	2/3	3	1	5,12,15
Gibralter	14/4	N/A	N/A	9
Gibralter	2	3	1	10,13,14

7. Topographic Features

- ***a. Slope:*** Steep slopes in stand # 15.
- ***b. Aspect:*** Variable.
- ***c. Elevation:*** 430 - 560 feet above sea level
- ***d. Drainage:*** Most stands are well drained with the exception of stands # 9, 11, 16 and 17.

8. Roads, Trails, Access and Infrastructure

A “D” class road provides access to the majority of recommended treatment areas. This road has a locked gate on Highway # 8. An additional “D” class road, that has been decommissioned, was used in the past to provide access between the construction debris site (stand # 18) and the incinerator site (stand #19). A proposed road could provide access to stands # 12, 13, 14 and 15. Numerous old trails could be used for wood extraction.

9. Protected Areas

Special Management Zones (SMZ) are recommended in stands # 9, 10, 11 and 12.

See Section 7. “WILDLIFE HABITAT AND WATERCOURSE PROTECTON REGULATIONS”.

*10. High Conservation Value Forests (HCVF,) Table 3 – **Not Applicable***

Principle 9 of the FSC focuses on HCVF. This includes identification, assessment for particular values with consultation from experts, documented strategies for maintenance and enhancement, specific measures for management, and annual monitoring to assess effectiveness of conservation measures. If applicable to your woodlot, full HCVF assessment, consultation and management documents can be found in **Appendix X**.

11. Landscape Aesthetic Considerations

All recommendations in this forest management plan are for selection harvests.

12. Landscape Connectivity Opportunities

The Mersey Tobeatic Research Institute (MTRI) is working with woodlot owners to protect endangered species in the area. MTRI is also working in partnership with the Nova Forest Alliance (NFA) and Parks Canada (Kejimikujik National Park and National Historic Site) on habitat connectivity for species at risk and critical wildlife habitat within the Southwest Nova Biosphere Reserve.

2.4 Property Boundary Lines

All boundary lines appear to be well marked with the exception of the west line in stands # 14 and 15 (625 meters in length) . No evidence of this line was found in the field. The adjacent landowner, Cecil Harnish, has a line marked on the ground that is not in agreement with the Pid map. No harvest work is being recommended in stands # 14 and 15. This area has been labeled “Area of Possible Boundary Dispute” on the woodlot map. The east line borders on crown lands. The north and south lines border on private lands.

2.5 Land History

The Municipality of the County of Annapolis purchased these woodlands, adjacent to their disposal sites, as a buffer for these environmentally sensitive sites. In 1971 the County purchased the southern portion from Herbert Cassidy. Aerial photography from 1987 (see Appendix III) indicates that no recent harvest work had been carried out at that time. In 1991 the County purchased the northern portion from Walter Charlton. Aerial photography from 1987 indicates extensive harvest work being carried out at that time.

2.6 Challenges and Opportunities

Challenges: Balancing the protection of environmentally sensitive sites in stands # 18 and 19 with forestry, recreation and traditional uses is the largest challenge in regards managing these woodlands.

Opportunities: Acadian forest attributes are well represented in most stands. Selection harvest work could increase shade tolerant species represented on these sites.

2.7 Significant Habitats and Species-at-Risk

Determined by:

a) On-site observation by Forest Manager at time of plan development

No observations during cruise

b) Discussion with landowner

No historical observations made by landowner or other users

c) Significant Habitat and Species-at-Risk on line viewer map

AP1 Other Habitat 2.0 km from woodlot location. Not of concern.

d) Notes from local DNR wildlife biologist

If applicable to your woodlot, maps of identified habitat and species distribution features can be found in **Appendix IV.**

3. FOREST MANAGEMENT STRATEGY

This section outlines the woodlot owner's general strategy towards forest management. Many factors contribute to the selection of site-specific management techniques. The FSC Standard and the FNSWO/MTRI have identified a set of minimum forest management requirements to ensure sustainable practices are employed during management activities. The FSC Maritime Standard requires forest management regimes that maintain, enhance or restore ecological functions and values, consistent with natural succession and disturbance patterns of the Acadian Forest. To guide the landowner's strategy toward achieving this overarching goal, each heading below is followed by key points that should be included in all management activities on FSC group-certified woodlots. The landowner's individual strategies are documented below these points.

3.1 Harvesting

- Protection of wildlife, habitat, watercourses and protected areas
- Minimize risk of fire and mechanical damage area in operation
- Harvest treatments prescribed as appropriate to stand conditions, and promote rapid and healthy natural regeneration
- Harvest designed to mimic historic local patterns of natural variability of ecological structures and functions on the site and surrounding landscape, including: a mixture of tree species, ages, diameters and height distributions; stand types; successional stages; natural range of canopy closure; maintenance of standing (snags) and fallen dead wood (coarse-woody debris); and natural disturbance regime appropriate to the ecosite

- Harvesting restricted in HCVF and other protected areas
- Consider landscape impacts of the proposed harvest
- Utilize all harvested forest products to their full potential
- Utilize properly trained, competent and insured contractors
- Hire contractors and/or workers from the local area when possible
- Utilize equipment appropriate to site and prescription, time the operation to take best advantage of markets, and minimize environmental impact
- Logging debris retained and distributed to promote soil and tree productivity
- A local contractor could be hired to carry out all harvest work.

3.2 Silviculture

- Protect wildlife habitat, watercourses and protected areas
- Minimize risk of fire and mechanical damage area in operation
- Silviculture treatments prescribed as appropriate to stand conditions, and promote growth of Acadian forest species
- Natural diversity and distribution of species and structures maintained
- Promptly regenerate harvested sites with appropriate species for site
- Limit herbicide use to control competing vegetation (see 3.7)
- A local contractor could be hired to carry out all silviculture work.

3.3 Protected Areas

- Protected areas will be established on sites containing species-at-risk, significant habitat, watercourses, wetlands, identified heritage/ cultural sites as required by applicable legislation
- Ecologically unique sites (HCVF) or features within a defined woodlot must be maintained or enhanced for biodiversity
- Cultural, historical, archaeological, or other special features protected (see 2.7)

3.4 Wildlife Management

- Maintain features used by wildlife during management activities, main tree features to consider: mast-producers, berry-producers, fruit-bearers, shrubs, large-diameter snags, under-represented species
- Maintain or develop a mixture of age classes and successional stages
- Protect watercourses, riparian zones, wetlands, vernal pools, identified critical habitats (deer wintering yards, raptor nest sites, large cavity trees, old-growth)
- Adjust management activities to promote habitat for identified resident species
- A local person has been, carrying out guiding and trapping on these lands. Regular communication with this individual should be carried out during all forestry activities to avoid potential conflicts.

3.5 Access for Recreation

- Establishing and maintaining suitable access is paramount to woodlot management and recreation
- Recreational features should be protected during operations
- Multiple benefits from the forest for present and future use shall be maintained
- Opportunities for hiking trails have been identified in stands # 9, 10, 12, 13 and 14.

3.6 Non-Timber Forest Products

- Consider and evaluate timber vs. non-timber opportunities in potential stands
- Ensure sustainability of non-timber forest products management
- Be aware of and follow applicable legislation and BMPs during harvesting
- Potential exists for mushroom gathering and balsam fir wreaths.

3.7 Ecological Goods and Services

- Forests offer great services to society by providing natural air filters, water resources, erosion controls, recreation opportunities and hunting/fishing
- The landowner must consider existing and potential services their woodlot provides, and implement measures to maintain or enhance these services by considering impacts of forest management

3.8 Plantation Management – No Plantations Found During Field Visit.

- No more than 10% of the forested land base may be plantation
- Plantations are forest stands where high intensity silviculture is used explicitly for timber production, leaving few features of a natural forest
- This non-natural succession results in limitations of: tree species diversity, stand structure, early successional habitats, mature trees and coarse woody debris
- Planted stands that exhibit a diversity of species and structure, and are not being managed intensively for rapid fibre growth are not considered plantations
- Areas recommended for planting must be sampled for FEC and have appropriate species recommended for the ecotype/ vegetation type, as listed on the FEC Vegetation Type management interpretations

3.9 Integrated Pest Management

- Early detection of insect, disease or pest problems is crucial to effective control
- Use harvest treatments that promote natural regeneration and discourage unwanted tree species, thereby reducing need for competition control
- Use manual competition control treatments where possible
- Herbicide use will be limited as much as possible and used prudently, with a commitment from the landowner to attain pesticide-free management, with a specific target date, and interim targets and objectives documented if applicable
- Forest pests will be controlled through sanitation harvesting where possible
- The landowner has committed to pesticide-free forest management and the timely target date to eliminate the use of chemical herbicides:

3.10 FEC Forest Management Guidelines Table

The following table displays ecological data collected from your woodlot, and subsequently classified by using the Forest Ecosystem Classification (FEC) system for Nova Scotia as designed by the Ecosystem Management Group at Nova Scotia Department of Natural Resources. Classifying ecosystems allows forest managers to speak a common language when describing forest conditions, and helps them to consider all components that may affect the outcome of recommended treatments. Understanding the natural disturbance regime of a site helps to ensure appropriate long-term harvesting strategies are applied. With this FEC framework in place, treatment recommendations should be more appropriate on a stand-by –stand basis, and the results should be more consistent and predictable. In the following table, all similar stands within the woodlot will be grouped together. FEC vegetation type data sheets can be found in **Appendix VII**.
Following is glossary of FEC terminology used in the table:

(VT)- FEC vegetation type, classified as per NS VT Guide

(ST)- FEC soil type, classified as per “Forest Soil Types of NS” Guide

(ET)- FEC ecosite, classified as per NS ET Guide

(LC)- Land Capability: ability of that site to grow wood, expressed as a volume growth, per area in one year, in this case, cubic metres/hectare/year

Soil Hazards: These are ratings of medium-high to high hazard potentials for certain soil types found on the woodlot. Following is a list of hazard categories:

C = Compaction, R = Rutting, E = Erosion, FH = Frost Heave, FL = Forest Floor Loss.

Table 5 - FEC Forest Management Guidelines Table

Stand #	VT	ST	ET	LC (m3/ha/year)	MH-VH Soil Hazards
1	IH6	8	13	3.0	
2	MW4	2G	10	5.0	FL
3,6	MW2	2G	10	4.5 – 5.0	FL
4,8	SH5	2G	6	5.5 – 6.0	FL
5,12	SH5	2/3	10	5.5	FL
7	MW2	8	13	4.5	
9	WD3	14/4	12	4.0	R
10	SH4	2	6	6.0	FL
13	MW2	2	10	5.0	FL
14	TH5	2L	13	3.0	E,FL
15	TH8	2L/3L	13	3.0	C,R,E,FL

4. STEWARDSHIP PLAN

4.1 Methodology to determine volume:

- Volumes reported in this plan are rough estimates only. The sampling intensity was low and designed only to provide a qualitative description of wood volumes. A more intense cruise would be required to provide accurate volume estimates
- Each delineated stand on the defined woodlot was sampled at a rate of

Stand Area (ha)	# Cruise Points/ha
< 3 ha	1
3-10 ha	½
>10 ha	¼

4.2 Annual Allowable Cut (AAC)

- To be expressed as calculated growth capability of woodlot (m^3/hectare/year) multiplied by productive area of woodlot (hectares/woodlot) = m^3/year/woodlot
- Historical harvesting regimes should be factored into harvest rates
- Recommended harvesting and/or merchantable silviculture treatments should not exceed AAC for any given year, except in situations where over-mature, fire prone or disease/insect infested stand conditions occur
- AAC shall not be exceeded over the 10-year course of the WMP
- Reductions in AAC must be made to reflect the percentage of operable area within stands recommended for harvest
- Von Mantel's formula for AAC is : Ya = 2 x Ga / R
- Ya = AAC Ga = growing stock or total forest inventory (cords)
- R = Rotation age in years (80) **Ya = 2 x 6,865 / 80 = 137.3 <u>cords/year</u>**
- 5% Reduction Factor = **137.3 – (137.3 X .05) = 130.4 cords**
- **Adjusted AAC = 130 cords/year**
- Total Allowable Harvest over a **10 year period = 1,300 cords**

4.3 Operational Planning

- Woodlot management activities will be carried out in a manner that minimizes environmental impact by complying with applicable legislation, using BMPs, and planning the timing of activities to correspond with appropriate seasons
- Landowner responsible for ensuring boundary lines are clearly marked, objectives of activity are known by workers, workers are competent, FNSWO is contacted when harvesting, silviculture or road building activities are active
- Deforestation and conversion to non-forest use within the defined woodlot shall be minimized through careful planning of forest roads, landings, etc.
- Local contractors, forest workers and processing facilities will be used as much as possible to contribute to the well-being of the local community
- Private landowners, adjacent to stands # 1, 2 , 3, 12 and 13, should be contacted prior to any harvest work being carried out in these areas.

4.4 Financial Considerations

- When implemented, this WMP will support some of the requirements of the Intergenerational Tax Transfer (ITT)
- Good records of revenues and expenses from the woodlot are required to be eligible for the ITT, and to conform to the CSA Z804 standard
- Proper planning can balance revenues and expenses

5. STAND INFORMATION

Stand information is displayed as a table in **Appendix IV**. Ecological management notes and guidelines are displayed in a table in section **3.10**.

Stand Descriptions

SMZ = Special Management Zone (see sec. 7)

Species Codes WS = white spruce, RS = red spruce, BF = balsam fir, WP = white pine, TL = Tamarack, RM = red maple, SM = sugar maple, WB = white birch, YB = yellow birch BE = Beech, LTA = largetooth aspen, WA = white ash, EH = eastern hemlock.

Stand # 1

Description – Immature, evenaged hardwood stand.

Species – RM, WB, LTA, SM, WA, RO, BE, WS with scattered BF, RS and WP.

Recommendations – The majority of this stand is immature and could be allowed to mature naturally at this time. Scattered pockets of mature balsam fir and white spruce could be removed, by group selection harvest, at any time.

Stand # 2 Small brook, found on ground, not marked on map.

Description – Immature, evenaged mixedwood stand.
Species – BF, WS, RM, WB, with scattered YB, WA, WP and LTA.
Recommendations – Scattered pockets of mature balsam fir and white spruce could be removed by group selection harvest.

Stand # 3

Description – Unevenaged mixedwood stand with patches of older growth.
Species – RS, WP, RM, WB, BF, with scattered RO, YB and LTA.
Recommendations – Unevenaged selection harvest could be carried out, leaving RS, WP, RM, RO and YB to further mature, after treatment.

Stand # 4

Description – Immature softwood stand with average age of 35 years.
Species – RS, WP, BF, RM, WB with scattered YB.
Recommendations – In 5 - 10 years, commercial thinning could be carried out, leaving RS, WP, RM, RO and YB to further mature, after treatment.

Stand # 5 Avoid wet areas with heavy equipment.

Description – Unevenaged softwood stand.

Species – RS, BF, RM, WB, WP with scattered WA.

Recommendations –
Unevenaged, selection harvest could be carried out, leaving RS, WP, RM, and WA to further mature, after treatment.

Stand # 6

Description – Immature, evenaged softwood stand with average heights of 6 - 9 meters
Species – RS, BF, RM, WB and WP.
Recommendations – This stand could be left to mature naturally at this time.

Stand # 7

Description – Unevenaged mixedwood stand with pockets of overmature BF.
Species – RM, WB, RS, WS, BF, YB, WA, BE, WP and LTA.
Recommendations – Unevenaged, selection harvest could be carried out, leaving RS, WP, RM, YB, WA, healthy BE and WP to further mature, after treatment.

Stand # 8

Description – Immature, evenaged softwood stand.

Species – RS, BF, RM and WB with scattered WP.

Recommendations –
Commercial thinning could be carried out, leaving RS, WP, RM to further mature, after treatment.

Stand # 9 Special Management Zone – No Machine Access

Description – Unevenaged hardwood stand, on a poorly drained site, with brook.

Species – RM, SM, YB, WA, BF, RS and scattered EH.

Recommendations – This stand should be left to mature naturally.

Stand # 10

Description – Mature softwood stand.

Species – WP, RS, BF, RM with scattered SM and EH.

Recommendations – Unevenaged selection harvest could be carried out, leaving RS, WP, RM, SM and EH to further mature, after treatment.

Stand # 11 Special Management Zone – No Machine Access

Description – Open Wetland

Stand # 12 Avoid wet areas with heavy equipment.

Description – Unevenaged softwood stand with scattered patches of bark beetle in RS.

Species – RS, BF, WP, RM, WB, with scattered YB, WA.

Recommendations – Unevenaged selection harvest could be carried out, leaving RS, WP, RM, YB and WA to further mature, after treatment.

Stand # 13

Description – Unevenaged mixedwood stand with areas of BF mortality.

Species – RS, BF, RM, SM, WB, YB, WA, BE with scattered WP and ironwood.

Recommendations –
Unevenaged selection harvest could be carried out, leaving RS, WP, RM, SM, YB, BE and WA to further mature, after treatment.

Stand # 14

Description – Unevenaged hardwood stand.

Species – BE, SM, RM and WB with scattered RO.

Recommendations –
Unevenaged selection harvest could be carried out, leaving RM, SM, BE and RO to further mature, after treatment.

Stand # 15 Special Management Zone
No Machine Access On Brook

Description – Unevenaged hardwood stand with poor drainage along brook.

Species – RM, SM, WB, YB, BE with scattered RS

Recommendations –
This stand has poor access and could be allowed to mature naturally at this time.

Stand # 16 **Description** – Treed Wetland.
Stand # 17 **Description** – Treed Wetland.
Stand # 18 **Description** – Reserved from FSC management plan
Stand # 19 **Description** – Reserved from FSC management plan

6. WOODLOT MONITORING

Throughout the term of the plan, the key to ensuring the success of the forest management implementation is regular monitoring of the property. Treatment areas and general forest conditions should be monitored periodically. Triggers for unscheduled inspections (wind storms, fire, neighboring activities, etc.), and other important monitoring instructions are listed for each heading. It is extremely important that monitoring activities are documented for future reference. Under each of the following headings, it is clearly stated who will be responsible for monitoring and how often they will conduct inspections.
Throughout the course of the certification program, staff or representatives from either FNSWO or MTRI will inspect woodlots for conformance to the FSC Maritime SLIMF standard. Landowner records of woodlot monitoring aid in this process.

6.1 Harvest Monitoring

- First day of contractor on site: ensure objectives are clear, boundary lines are marked and workers are competent
- During operation: ensure objectives being met, workers within boundaries, harvested wood properly utilized, environmental impacts minimized
- Completion of harvest: infrastructure in good repair, all wood utilized, environmental impact was minimized
- Evaluate whether objectives of harvest were acheived
- Harvest monitoring will be conducted by MTRI staff during and after harvesting.

6.2 Silviculture Monitoring

- First day of contractor on site: ensure objectives are clear, boundary lines are marked and workers are competent
- During operation: ensure objectives being met, workers within boundaries, environmental impacts minimized
- Completion of treatment: infrastructure in good repair, all areas treated, environmental impact was minimized
- Evaluate whether objectives of treatment were acheived
- Silviculture monitoring will be conducted by MTRI staff during and after treatments.

6.3 Forest Condition Monitoring

- High attention given to stands prone to wind throw, fire, disease or insect infestation, or other possible damage
- Report serious disease or insect infestations to NSDNR (see emergency #s)
- Report significant changes in stand conditions to planner, alter WMP to reflect current stand conditions and required management needs
- Forest condition monitoring will be conducted by MTRI staff at a frequency of annually.

6.4 Environmental Impact Monitoring

- Road building, large clear-cutting operations, etc. on adjacent land
- High forest fire index during hot, dry times
- Extreme weather: high winds, heavy snow-loading, lightning storms, etc.
- Impact monitoring will be conducted by MTRI staff when triggered by examples such as those provided above.

6.5 Plantation Monitoring – **No Plantations Found During Field Visit.**

6.6 Monitoring Results and Records

- When the landowner is the person responsible for monitoring exercises, the observations are recorded in the 10-year woodlot management journal provided by the Federation or MTRI
- When a representative from the Federation or MTRI conducts a scheduled inspection of the woodlot, the journal will be used to verify that regular monitoring of the woodlot has been conducted
- The first scheduled inspection of the woodlot by the Federation or MTRI will be on October 18, 2015.

7. NOVA SCOTIA'S WILDLIFE HABITAT AND WATERCOURSES PROTECTION REGULATIONS

Provincial regulations must be followed when forest management activities take place on any woodland in Nova Scotia. There are three main requirements that must be followed when harvesting forest land:

1) Leaving buffer strips along watercourses: when harvesting near watercourses, a special management zone (SMZ) is required. Watercourses that are 50-cm (20") or more in width require a 20-metre (66') SMZ along each edge with the following requirements:

   - SMZ width will be increased by 1-metre (3') for every 2% of slope over a 20% average slope
   - No machine allowed within 7-metres (23') of the watercourse
   - Partial harvesting is allowed within the SMZ: must retain a minimum of 20-m²/ha of basal area, and not create a gap larger than 15-metres (50') in the canopy

   Watercourses that are less than 50-cm (20") in width also require a 20-metre (66') SMZ along each edge with the following requirements:

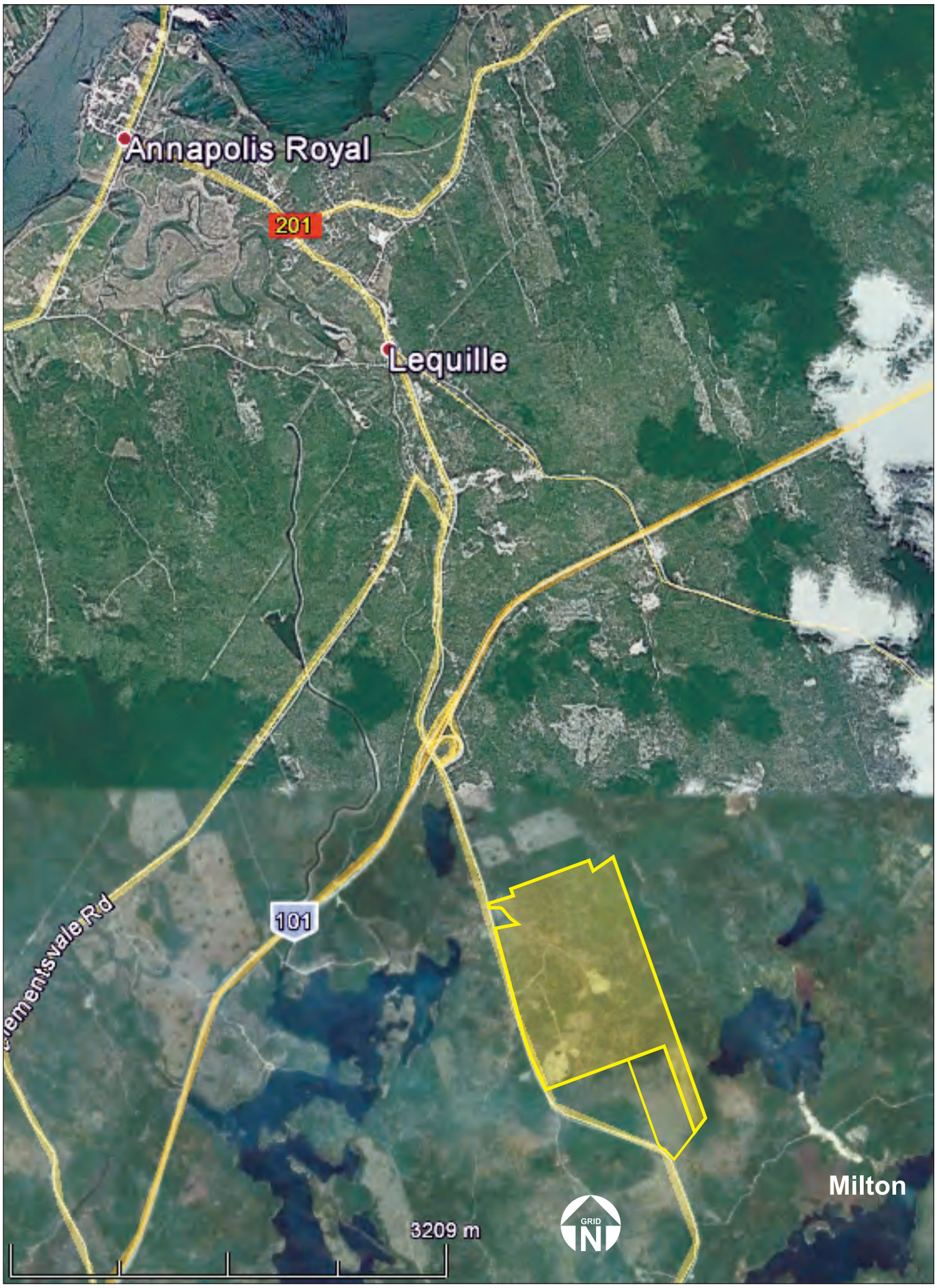
   - No machine allowed within 5-metres (17') of the watercourse
   - Merchantable trees may be harvested
   - Ensure understory vegetation and non-commercial trees within 20-metre SMZ of are retained to their fullest extent

2) Leaving Legacy Trees/ Wildlife Clumps: these specifications are required when harvesting any area larger than 3 hectares (7.4 acres):

- Leave 10 living trees per hectare (2.5-acres) in a clump of representative trees with a minimum of 30-trees for every clump
- Clumps shall be at least 20-metres (66'), but no more than 200-metres (660') from the edge of a cut, or from each other, where there is more than one clump
- No harvesting allowed within clumps

3) Leaving Coarse Woody Debris: all harvest sites will retain standing dead trees, fallen trees and large branches, as well as rotting logs on the harvested site, similar to naturally occurring patterns, when it is safe and possible.

Persons cutting in woodlots should obtain and read a copy of these guidelines from the Department of Natural Resources website: http://www.gov.ns.ca/natr/forestry/strategy/



Woodlot Location Map

Woodlot Management Plan No.
1181

Municipality of the County of Annapolis
Graywood, Annapolis County, Nova Scotia
Date: November 1, 2013

TEABERRY
FOREST CONSULTING

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FEDERATION OF NOVA SCOTIA WOODLAND OWNERS

Mersey Tobeatic Research Institute

TODD Graphic

CARTOGRAPHY:
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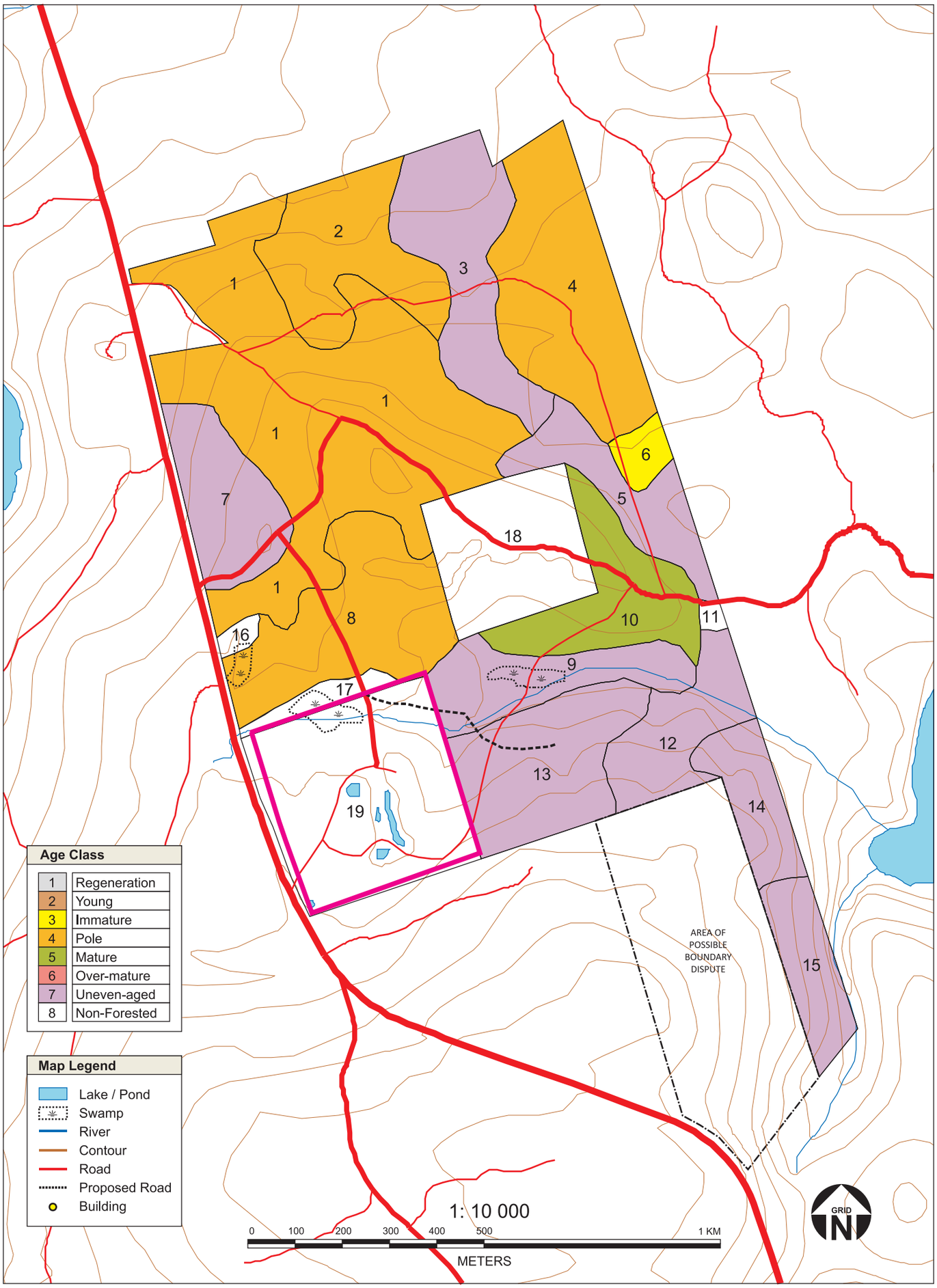

Woodlot Age Class

Woodlot Management Plan No.
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Appendix IV
Stand Information Table
Landowner: Municipality of the County of Annapolis
WMP Number: 1181
Planner: Tom Berry
Organisation: Teaberry Forest Consulting

Federation of Nova Scotia Woodland Owners
285 George Street
Stewiacke, Nova Scotia B0N 2J0
Phone: 902-639-2041 Fax: 902-639-2981
Email: info@fnswo.ca

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9 Mount Merritt Road
PO Box 215, Kempt, Nova Scotia
B0T 1B0

Stand #	Area (ha)	Maturity	Species	Previous Treatment	Year	Stand Condition	FEC Veg Type	Recommended Treatment	Year
1	30.43	4	IH05TH02WS02BE01	0	0	Scattered BF,RS,WP,LTA, rocky areas	IH6	105	2018
2	8.94	4	BF04IH03TH01WS02	0	0	Scattered RO, BE, WP, rocky, small brook not on map	MW4	105	2018
3	9.78	7	RS03IH03WP03BF01	0	0	Scattered LTA, YB, RO, Patches of mature wood from old partial cut.	MW2	1908	2015
4	13.38	4	RS04WP03BF01IH02	0	0	Scattered YB,LTA,RO, Low merch. volume	SH5	808	2018
5	5.45	7	RS05BF02IH02WP01	0	0	Areas of imperfect drainage	SH5	1908	2014
6	1.30	3	RS04BF02RM02WB02	0	0	Heights 6-9 meters, rocky	MW2	0	0
7	6.46	7	IH04OS02BF02TH02	0	0	Patches of mature BF	MW2	1908	2014
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10	7.48	5	WP05RS03RM01BF01	0	0	Healthy RS	SH4	1908	2014
11	0.30	0	Open Wetland	0	0	Special Management Zone on Brook.	0	0	0
12	5.74	7	RS03BF02IH02WP02	0	0	Patches of RS with bark beetle, Imperfectly drained areas, Scattered YB,WA.	SH5	1908	2016
13	9.59	7	RS03IH03TH03BF01	0	0	Scattered Ironwood, patches of RS and BF regen 1-2 meter height.	MW2	1908	2016
14	4.12	7	BE07SM01IH02	0	0	Poor access, Scattered RO, regen = BE,RS,BF 2-4 meters height	TH5	0	0
15	4.22	7	IH04TH03BE02RS01	0	0	Poor access, Scattered old Hwds, poorly drained on brook.	TH8	0	0
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17	1.42	0	treed wetland	0	0	0	0	0	0
18	9.18	0	Reserved from WM	0	0	Constuction Debris Site	0	0	0
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Stand Information Table

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1181

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Graywood, Annapolis County, Nova Scotia
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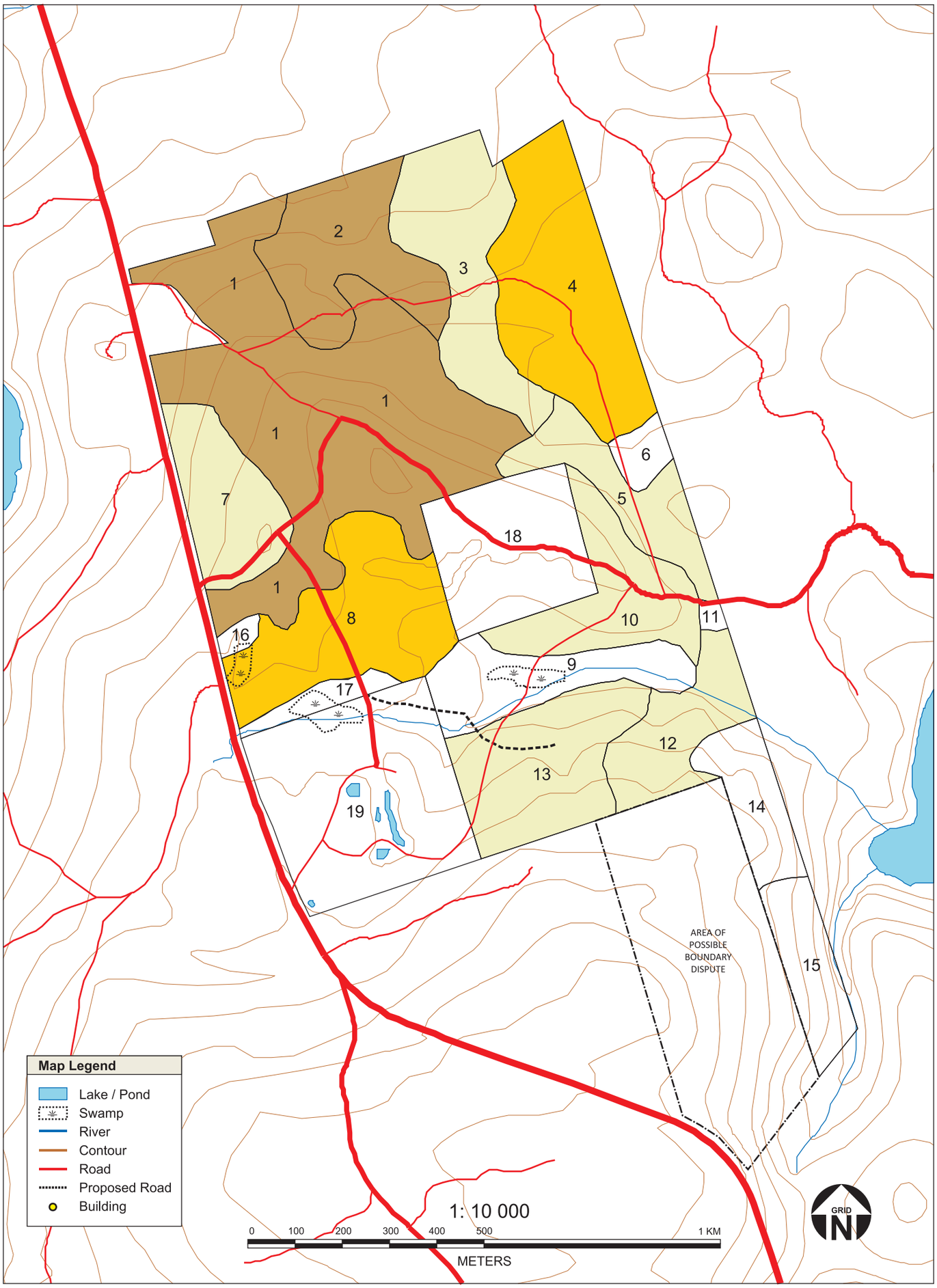

Recommended Treatments

Woodlot Management Plan No.
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Treatment Codes, Registered Buyers Program

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0107	SPWCP	ALL	Final Harvest/ Clearcut
0108	SPWCP	N/A	No Treatment (leave to grow at least 10-years)
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0110	CSA	N/A	Protected: Site of Cultural Significance
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0112	CSA	N/A	No Treatment: Wetland
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Treatment Codes

Woodlot Management Plan No.
1121

Brian Lorber
Perotte, Annapolis County, Nova Scotia
Date: June 29, 2012

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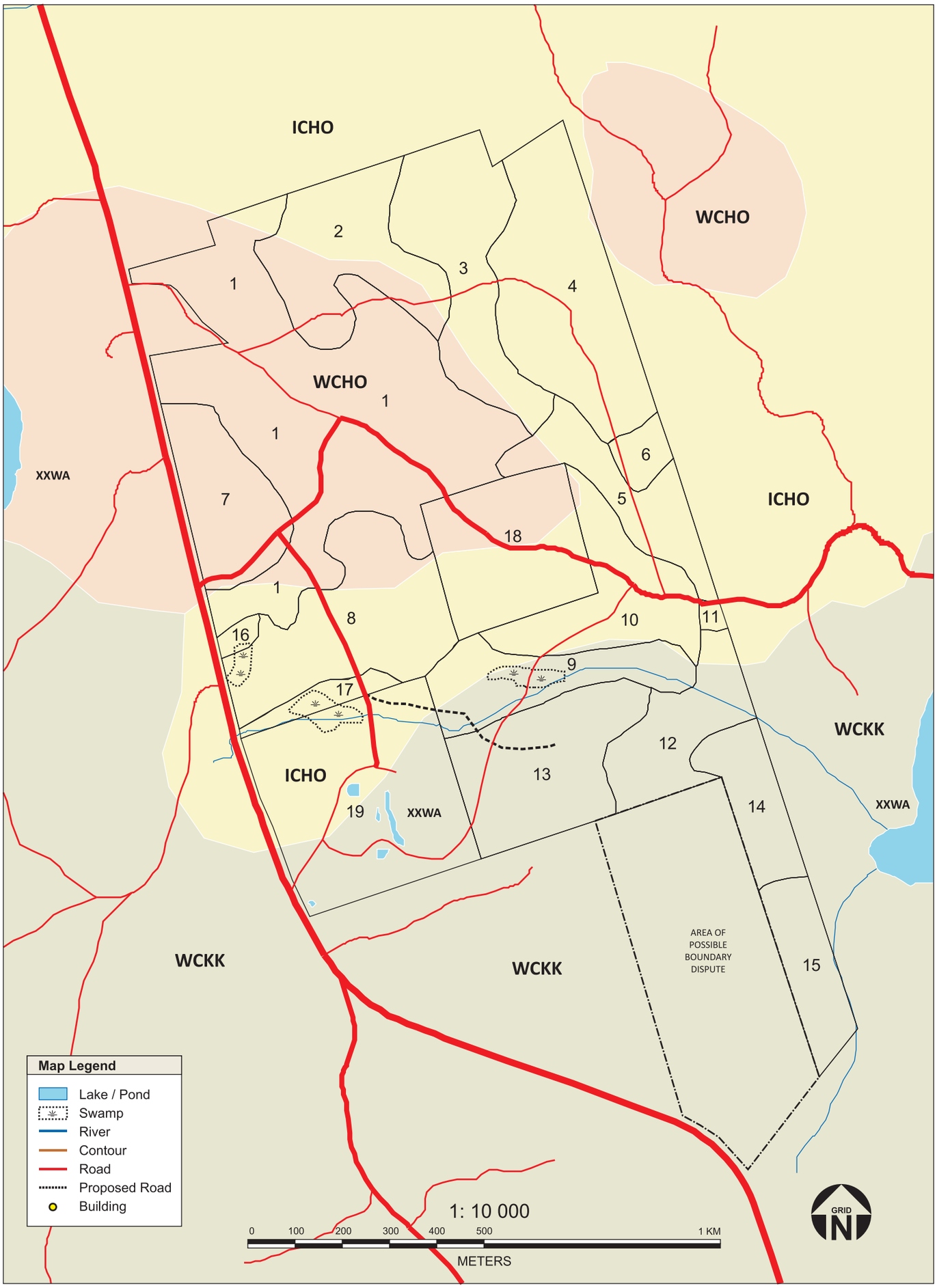

Woodlot Eco-sections

Woodlot Management Plan No.
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Eco-layer Codes

Soil Drainage

ELC Code	Description	Definition
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P	Poorly drained soils	Land Systems comprised of soils >60% poorly drained
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XXWA	Water body	

Eco-layer Codes

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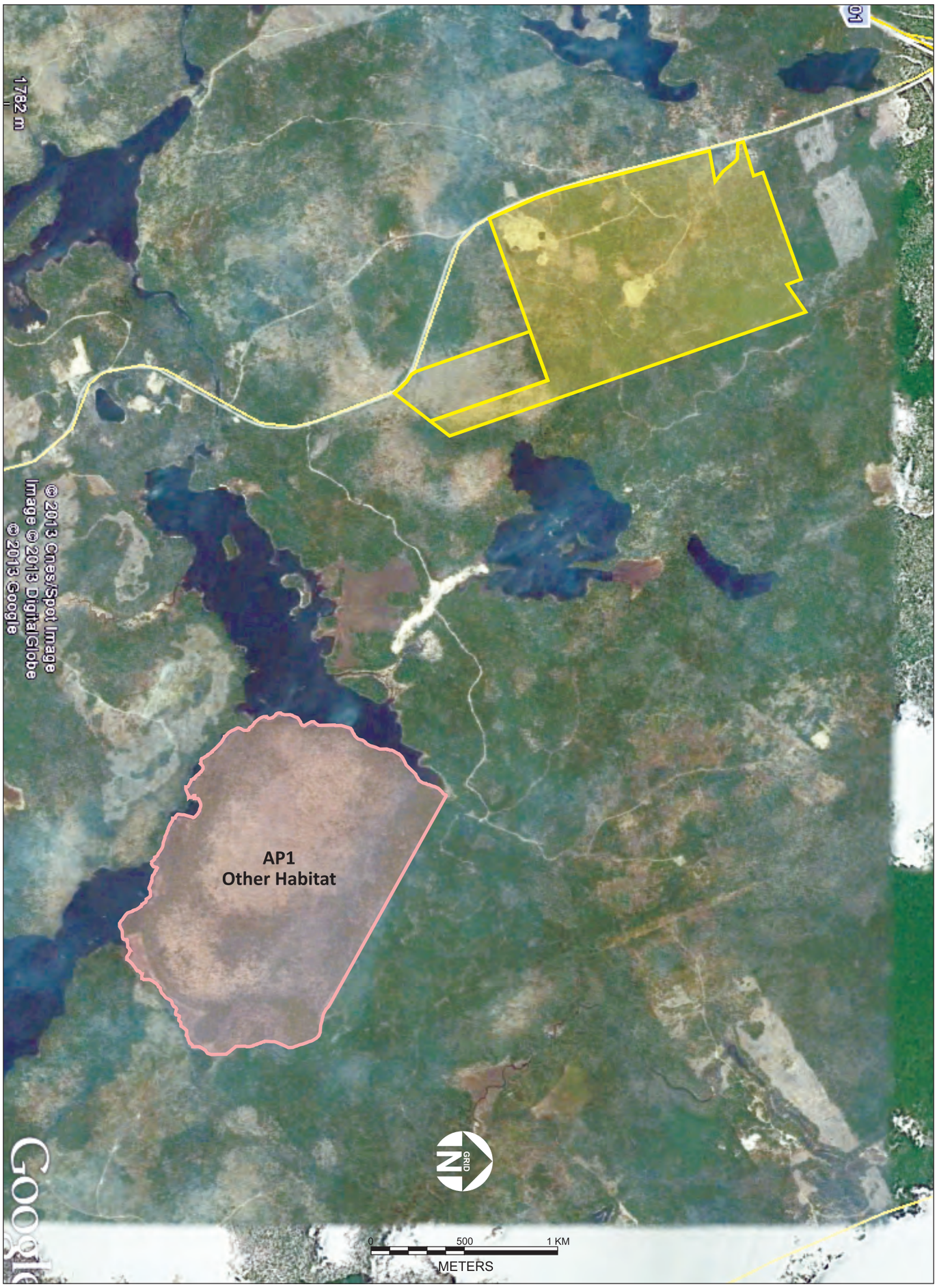

Significant Species and Habitat

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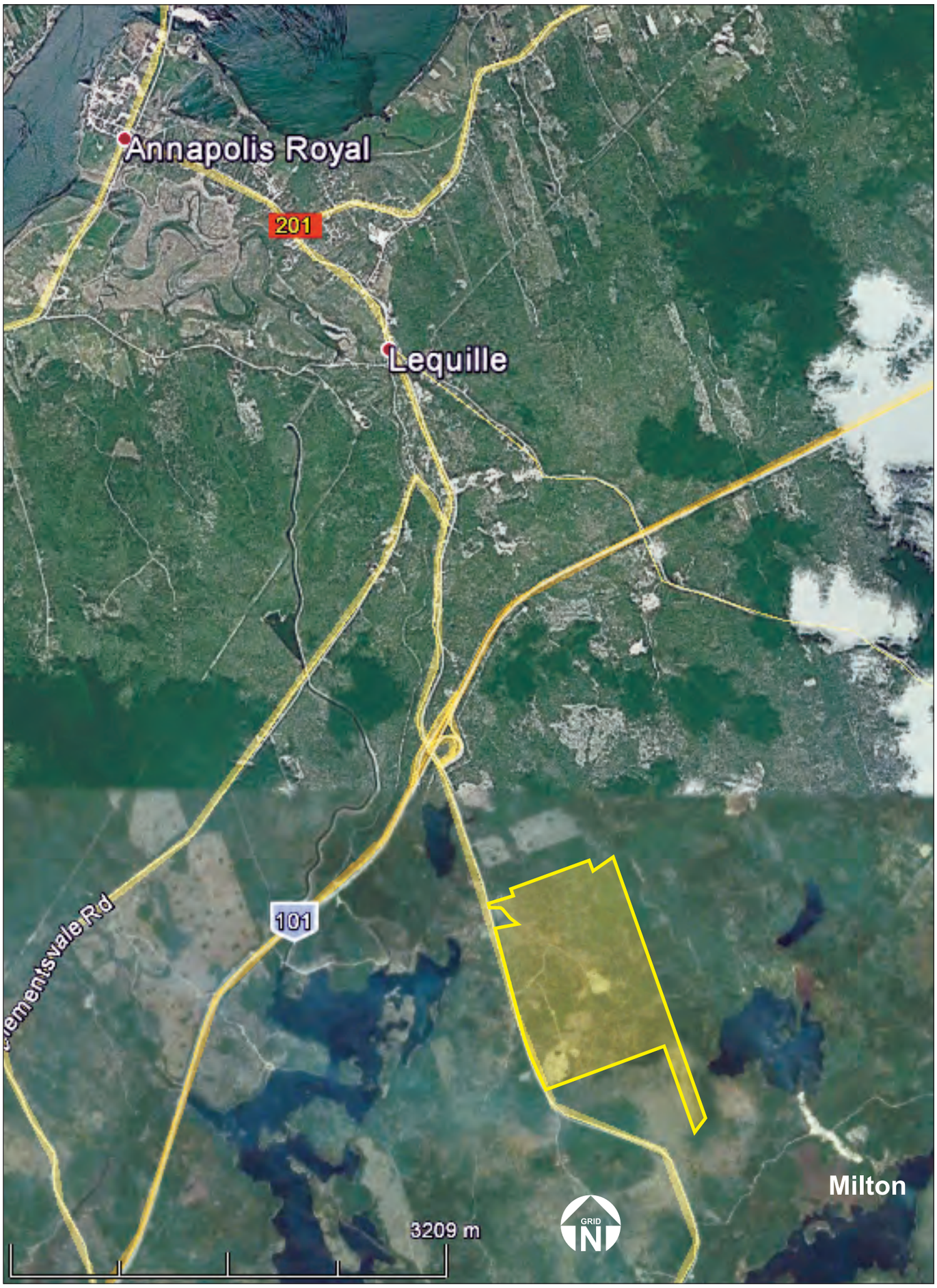

Woodlot Location Map

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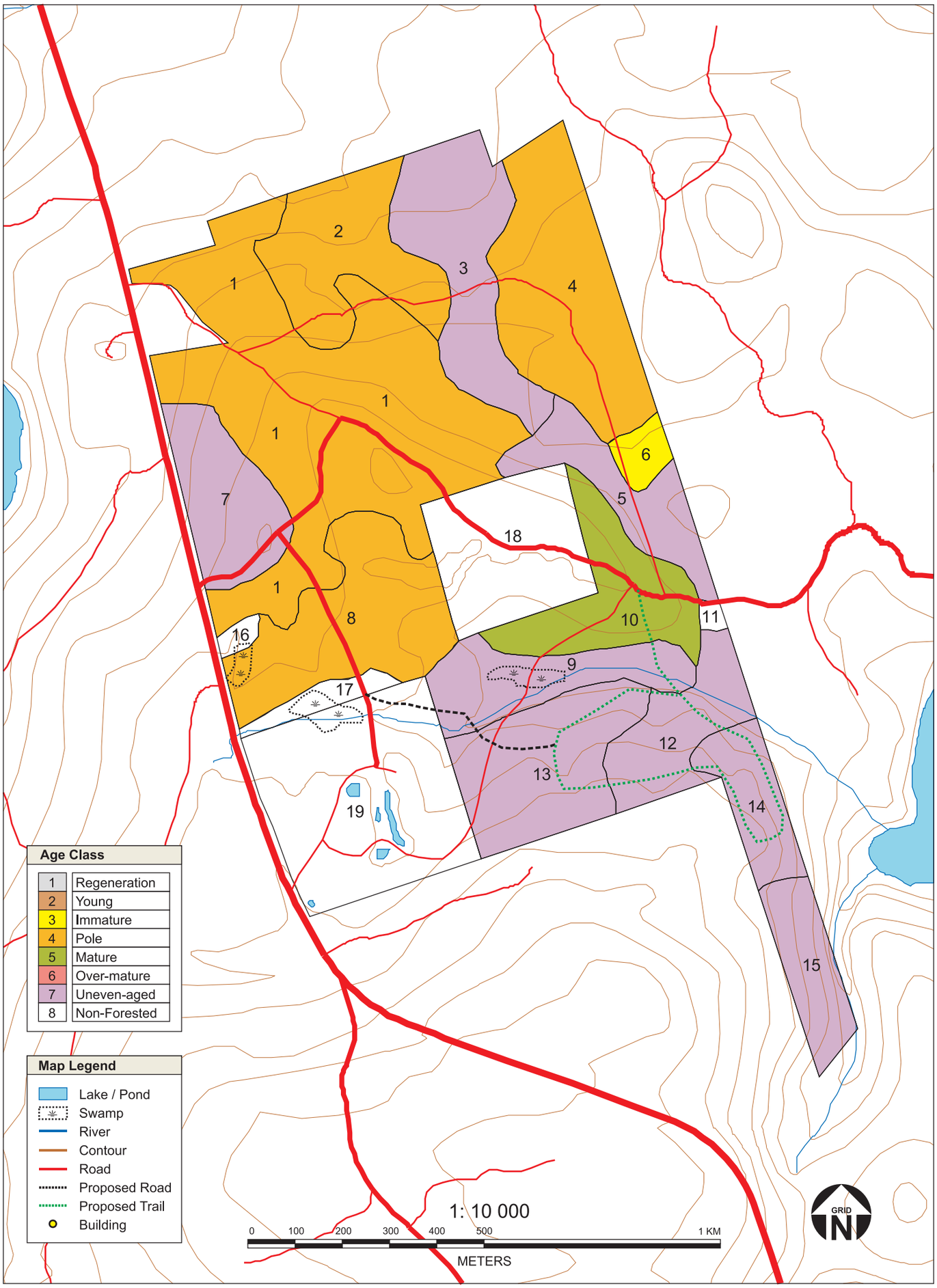

Woodlot Age Class

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Appendix IV
Stand Information Table
Landowner: Municipality of the County of Annapolis
WMP Number: 1181
Planner: Tom Berry
Organisation: Teaberry Forest Consulting

Federation of Nova Scotia Woodland Owners
285 George Street
Stewiacke, Nova Scotia B0N 2J0
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10	7.48	5	WP05RS03RM01BF01	0	0	Healthy RS	SH4	1908	2014
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Stand Information Table

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Graywood, Annapolis County, Nova Scotia
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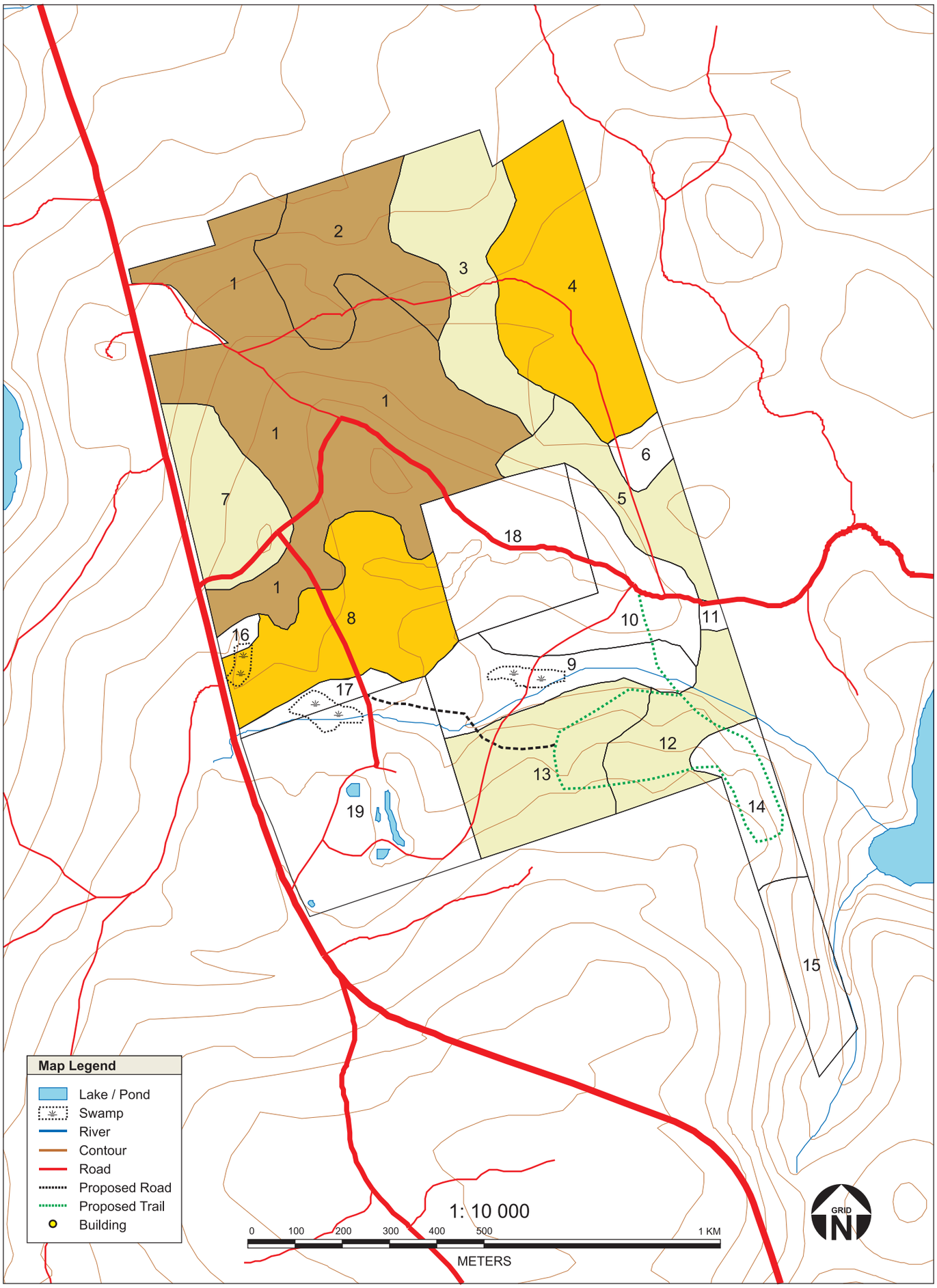

Recommended Treatments

Woodlot Management Plan No.
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Treatment Codes

Woodlot Management Plan No.
1121

Brian Lorber
Perotte, Annapolis County, Nova Scotia
Date: June 29, 2012

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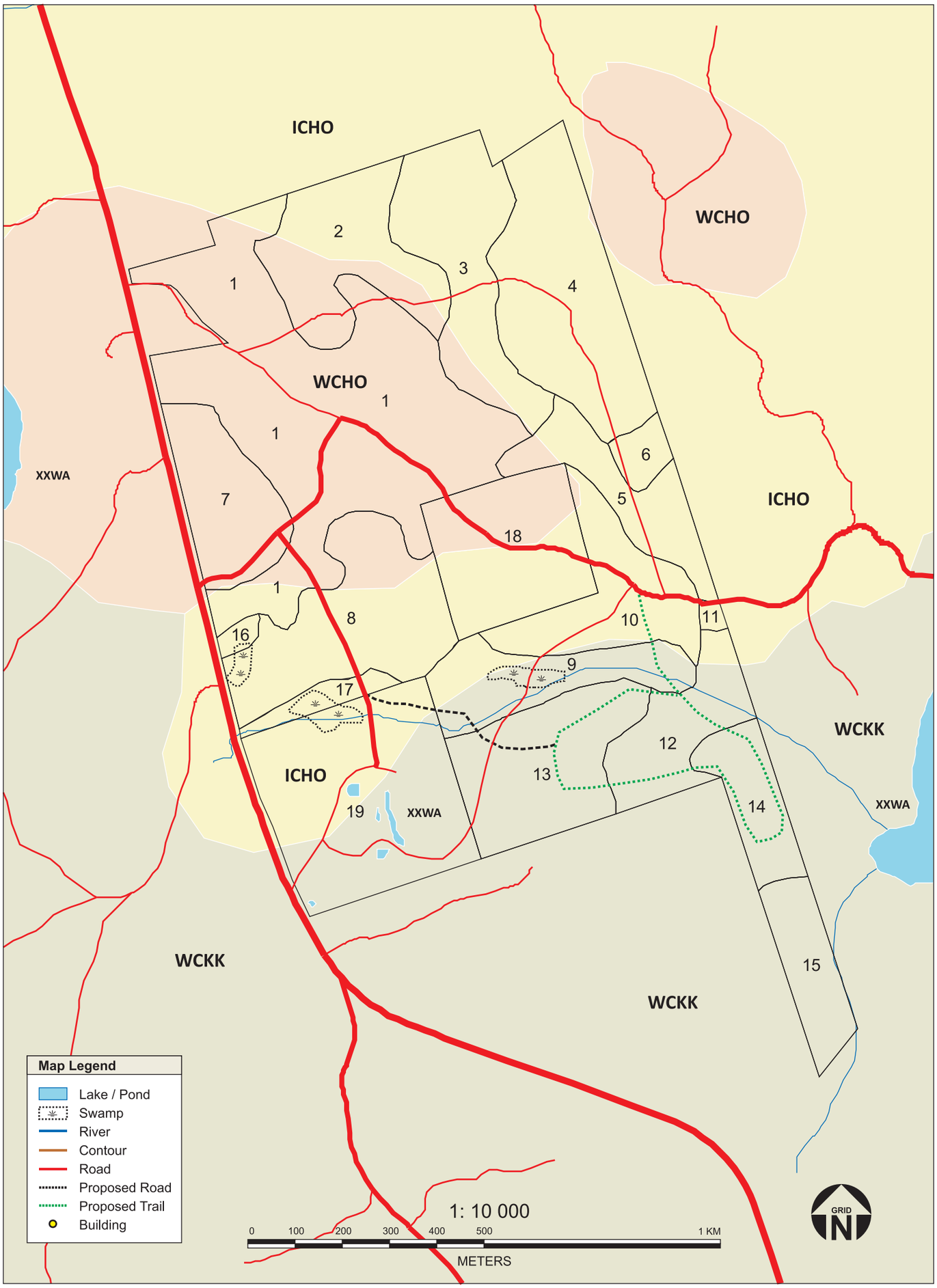

Woodlot Eco-sections

Woodlot Management Plan No.
1181

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Eco-layer Codes

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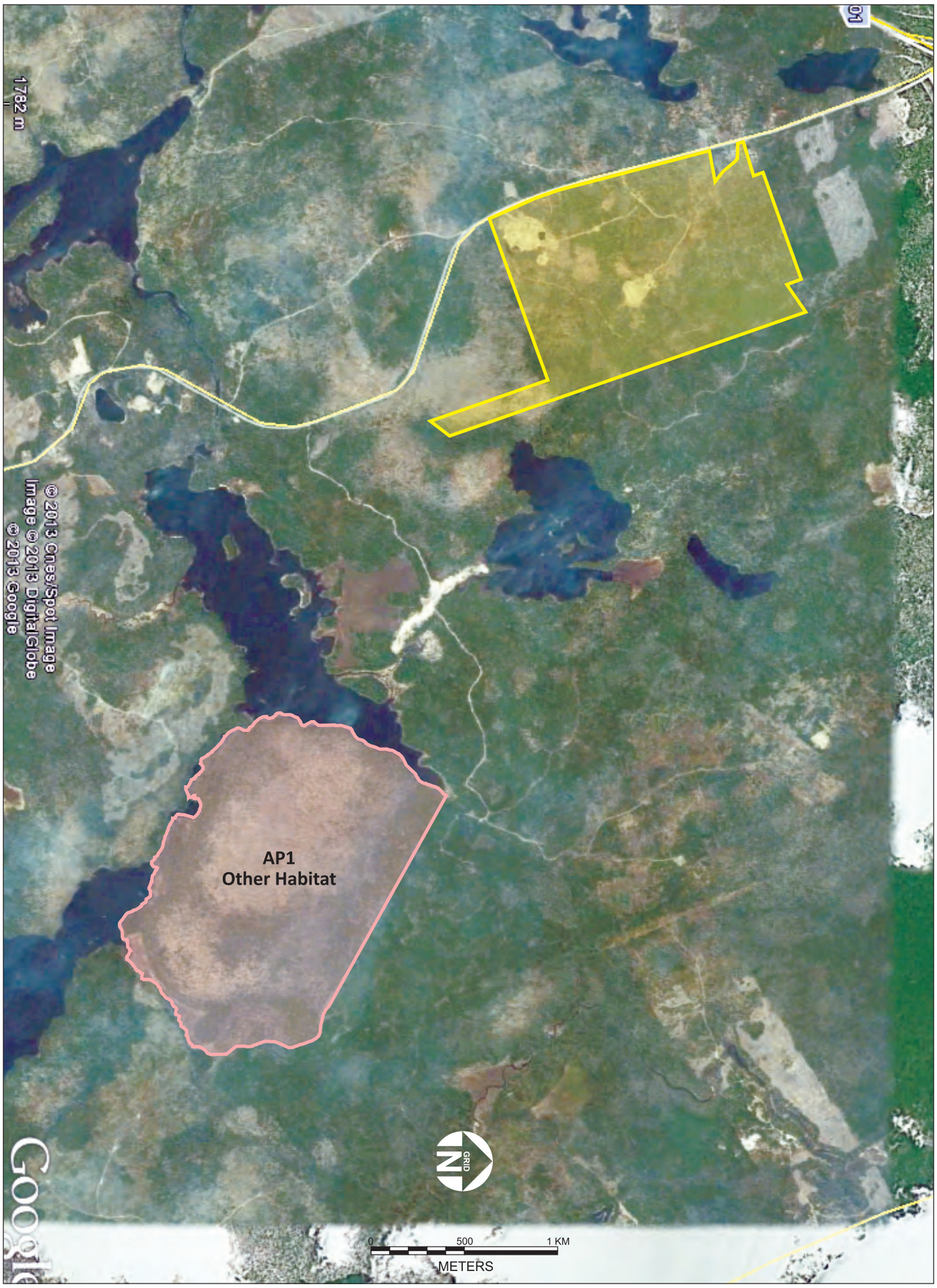

Significant Species and Habitat

Woodlot Management Plan No.
1181

Municipality of the County of Annapolis
Graywood, Annapolis County, Nova Scotia
Date: November 1, 2013

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FEDERATION OF NOVA SCOTIA WOODLAND OWNERS

Mersey Tobeatic Research Institute

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CARTOGRAPHY:
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Appendix IV: 10-Year Operating Plan
Municipality of the County of Annapolis
WMP # 1181
Graywood, Annapolis County

Year	Season	Stand #	Treatment Information	Funded	Follow-Up Treatment	Year
any	any	1	Group Selection Harvest	No	assess blowdown	2
any	any	2	Group Selection Harvest	No	assess blowdown	2
2015	any	3	Unevenaged / selection management	Yes	assess blowdown	2
2018	any	4	Commercial Thinning	Yes	assess blowdown	2
2014	dry/winter	5	Unevenaged / selection management	Yes	assess blowdown	2
2014	any	7	Unevenaged / selection management	Yes	assess blowdown	2
2016	any	8	Commercial Thinning	Yes	assess blowdown	2
2014	any	10	Unevenaged / selection management	Yes	assess blowdown	2
2016	any	12	Unevenaged / selection management	Yes	assess blowdown	2
2016	any	13	Unevenaged / selection management	Yes	assess blowdown	2