

# **New Brunswick Private Woodlot Silviculture Manual**

**2009**

Department of Natural Resources

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## Private Woodlot Silviculture – General

Private woodlots account for 30% of New Brunswick’s forests or 1.9 million ha and are an integral component of the provincial wood supply and rural economy. Federal and Provincial support was provided over the years for silviculture treatments on private woodlots. In recent years, support has been as follows:

Table 1. Historical funding contributions by contributor and corresponding silviculturally treated area annually.

Year	Contribution	Contributor	Ha Treated
1997	\$4 million	Fed / Prov	6,850
1998	\$8 million	Fed / Prov	13,369
1999 & 2000	\$8 million / year	Prov	14,092 & 13,212
2001	\$7.9 million	Prov	12,877
2002 & 2003	\$8.0 million / year	Prov	12,836 & 12,946
2004 & 2005	\$7.2 million / year	Prov	11,902 & 11,757
2006	\$8.0 million	Prov	12,532
2007	\$8.0 million	Prov	12,567
2008	\$6.0 million	Prov/RDC	8,534

The Private Woodlot Silviculture Assistance Program is administered by the Forest Management Branch of the Department of Natural Resources (DNR). It is delivered by the seven Forest Products Marketing Boards and monitored by DNR Regional staff.

Funding is provided on the basis of a cost sharing arrangement with private woodlot owners whereby government contributes a percentage of the estimated total treatment cost, or base rate.

Base rates for specific silviculture treatment types on private woodlots have been established by increasing the corresponding Crown land silviculture reimbursement rates by 20% to account for Marketing Board administrative costs. Base rates are to be adjusted as required to reflect future changes in the Crown land reimbursement rates.

In 2009, government will contribute \$6 million, and will reimburse Marketing Boards at 90% of established base rates for both the regular and farmland reclamation programs. Of the \$6 million dollar budget Government has designated 10% or **\$600,000** for farmland reclamation activities.

The following treatment activities have been approved for 2009-2010; pre-commercial forest thinning, mechanical plantation cleaning, fill planting, full planting, site preparation, plantation chemical release and natural stand chemical release, woodlot management recommendations and farm land reclamation activities.

Approved treatment activities, coding and reimbursement rates are found on page 4.

## Eligibility Requirements

To be eligible for the Private Woodlot Silviculture Assistance Program, privately owned property, as identified by the PID number, is to be 10 hectares or larger (see exceptions below) and not be held by a Crown timber licensee, sub-licensee or Crown Corporation.

A PID property of less than 10 ha is only eligible if:

- it is adjacent to other property owned by the same landowner, and is separated from that other property by a trail, road, railroad, utility corridor or highway, and, in conjunction with the other property, is a minimum of 10 hectares, OR
- it is > 5 ha and where the registered landowner agrees in writing to manage the property in a manner consistent with the time frame necessary to produce primary wood products. (See Appendix 14)

There should be reasonable expectation that work approved under this program will enhance the volume and/or quality of forest products over a 10-20 + year timeframe. Where site or stand conditions, or incidence of disease or insects, or landowner objectives suggest this expectation will not be met, access to this program should not be granted.

For all silviculture activities funded under this program, the minimum size work area is 0.2 hectares. Funding claims for total work area less than 0.2 hectares will not be accepted. Work blocks of less than 0.2 hectares included as part of a larger claim will not be accepted.

Woodlot management recommendations are available for eligible properties 10 hectares or larger only. To be eligible for funding an entire PID must be addressed.

*In situations where exceptions to these requirements may be warranted, the approval of the appropriate Board and DNR is required. Such approval should be documented on the certification form.*

## Farmland Identification Program

Participation in the Private Land Silviculture Program with land registered in the Provincial Farm Land Identification Program (FLIP) may affect continued eligibility for property tax deferrals.

Prior to participating in the Private Land Silviculture Program, landowners of FLIP registered property are advised to discuss the implications with their marketing board representative, or with the FLIP Registrar at **(506) 453-8415**.

Table 2. Government and Board/Landowner funding requirements by treatment type.

<b>Treatment Type</b>	<b>Treatment</b>	<b><u>Code</u></b>	<b>Base Rate 2009</b>	<b>Government Contribution \$/ha</b>	<b>Board/Landowner Contribution \$/ha</b>
<b>Thinning &amp; Cleaning</b>	Pre-commercial forest thinning	PT	\$999	\$899	\$100
	Mechanical plantation cleaning	PC	\$727	\$654	\$73
<b>Planting</b>	Forest Site full planting	PP	\$605	\$562	\$44
	Forest Site fill planting	PF	\$530	\$477	\$53
	Farmland full planting	FP	\$605	\$562	\$44
	Farmland fill Planting	FF	\$530	\$477	\$53
<b>Site Preparation</b>	Mechanical Preparation	PS	\$352	\$317	\$35
	Chemical ground	SG	\$464	\$418	\$46
	Chemical aerial	SA	\$247	\$222	\$25
	Farmland Mechanical preparation	FM	\$352	\$317	\$35
	Farmland Heavy Mechanical prep	FH	\$400	\$360	\$40
<b>Herbicide</b>	Plantation Ground Application	PG	\$464	\$418	\$46
	Plantation Aerial Application	PA	\$247	\$222	\$25
	Natural Stand Ground Application	PB	\$464	\$418	\$46
	Natural Stand Aerial Application	PW	\$247	\$222	\$25
	Farmland Ground Application	FG	\$464	\$418	\$46
	Farmland Aerial Application	FA	\$247	\$222	\$25

## **Treatment Assessment Procedures**

The treatment assessment procedures generally parallel procedures stated in the Forest Management Manual - Crown Lands (FMM-CL). However, an attempt was made to simplify the silviculture monitoring and to accommodate some of the characteristics specific to private woodlot silviculture. This manual summarizes the criteria developed for each treatment type.

Pre-treatment approval must be obtained from DNR for stands which are atypical, or which may be outside criteria.

Within budget, and subject to stands meeting program requirements, stands of 0.2 ha and larger may be treated on a property. However, other than forest site chemical plantation release, no work area will be funded through this program more than once for any given treatment.

Each treatment activity and related inspection criteria can be found under the appropriate Appendix. See Appendices listed (page i).

Plot size requirements for pre-approval and post-treatment inspections have been summarized in Appendix 10, Required Plot Sizes (page 20).

To facilitate (post treatment) monitoring, all work area perimeters should be marked by marketing board staff, by tying distinctive colored flagging tape at each corner of the entire perimeter of the work area represented by the certification form. When more than one property (PID) is included in a work area, property lines should be clearly marked, and, the number of hectares treated on each PID clearly noted on the certification form.

During the monitoring season, DNR will provide each board with month-end summaries of completed monitoring activities within the Board area.

## Invoicing Procedures

- Marketing boards will submit on a regular basis (i. e: within two week of post treatment inspection) invoices and block certification forms to appropriate DNR regional offices.
- Invoices will reflect a summary of the certification forms in a format as per *Appendix 11: Invoice: Private Woodlot Silviculture* (page 19). Certification forms are in Appendix 12, pages 21 - 24.
- Files/Maps indicating woodlot location, access points, and location and layout of treated areas will be provided by the marketing boards to the appropriate DNR Region upon request. GPS waypoints or digital files should be used whenever possible.
- Certification forms are verified for completeness and reimbursement rates at DNRE Regional office and then submitted with the invoice to Forest Management Branch for processing. Fully completed certification forms will be received and approved by the DNR Region before invoice(s) are processed.
- Only one claim (certification form) will be submitted for a given work site. All certification forms submitted will therefore be deemed to be final claims and subject to monitoring.
- Where large work sites create cash flow concerns, boards may choose to enter a claim for “ongoing work sites”(see appendix 11). The claimed amount will represent the sum reimbursement value of completed hectares on all ongoing (active) work sites, and will be the amount entered against the boards account. This amount should not exceed 5% of the boards allocation, and will be reduced to zero by December 1<sup>st</sup>.
- Invoices not containing the required information, correct coding and/or correct reimbursement rate(s), valid PID’s and verifiable areas, will be returned for necessary adjustments. This may cause a delay in processing of invoices.
- The Department will accept partially completed blocks at the end of the season when Boards are unable to complete due to inclement weather. The Board will be reimbursed for area completed to date. The job number will reflect current year (i.e. PT-09-XXX-110). When the additional area is completed in the following year the job number will mirror that of the previous block (i.e. PT-10-XXX-110).

## **Monitoring**

DNRE will conduct  $\geq 20\%$  random sample, by area (ha), across each treatment type to verify compliance with criteria, except for pre-commercial thinning where  $\geq 10\%$ , by area, will be randomly sampled. DNR will verify treatment standards and area (hectares) treated.

## **Criteria Used**

Pre-treatment and post-treatment inspection of treated areas will be as per procedures/criteria in this manual.

## **Treatment Approval**

If DNR assessment finds that a treatment does not meet standards, the Marketing Board will have the option of requesting a joint assessment. Results of joint assessments will be final. Treatments not meeting standards will have the total area rejected.

## **Area Adjustments**

If during sampling, a difference of more than 5% in an individual area is found the Marketing Board will be notified. Marketing Boards will have the option of accepting the DNR measure, or to call for a joint assessment, the results of which will be considered accurate. If work area boundaries are not evident, the Board will be contacted to identify the boundary.

## **Monthly Reporting by DNR**

During the monitoring season, DNR will provide each board with month-end summaries of completed monitoring activity within in the boards area. The DNR will also provide the boards with a summary of the area in which certification forms have been received. The summary will also included by treatment the dollars paid out in reimbursement.

## **Year End Reconciliation**

A year end adjustment will be made by treatment type if an area discrepancy of greater than 3% is assessed for an individual Marketing Board. This % difference will be applied in total to the total area submitted for this treatment type and any necessary adjustments will be made.

## **Annual Financial Reporting by Boards**

On June 30<sup>th</sup> of each year a report (Schedule A) will be submitted by each Marketing Board to the New Brunswick Forest Products Commission that demonstrates the private revenue contribution by woodlot owners or an agent of the private woodlot owners. The Schedule A will also summarize the dollars spent towards direct treatment and

administration costs. The figures in this report will be based on each Board's audited financial statements. Both the NBFPC and the Forest Management Branch will jointly review the information submitted by the boards. The Department may request the revenue portion of the report to be submitted on or before January 31<sup>st</sup>.

# Appendices

### Appendix 1: Activities/Codes/Historical Reimbursement Rates

Activity	Code	Reimbursement Rate/Ha (\$)							
		Base 2008	2000	2001 <sup>7</sup>	2002 <sup>6</sup>	2003 <sup>7</sup> & 04 <sup>8</sup>	2005 <sup>8</sup>	2006 <sup>9</sup> & 07 <sup>11</sup>	2008 <sup>12</sup>
Pre-commercial forest thinning	PT	<b>999</b> <sup>5,7</sup>	709	732	745	784	799	799	699
Mechanical plantation cleaning	PC	<b>727</b> <sup>2</sup>	503	520	529	558	568	582	509
Site preparation:									
Mechanical Preparation	PS	<b>352</b>	249	257	263	272	276	282	246
Mechanical Prep (2007 Plan)	PS8 0	<b>352</b> <b>464</b>	---- 326	---- 337	---- 345	---- 358	---- 362	---- 371	282 325
Chemical ground	SG	<b>247</b>	174	179	183	190	193	197	173
Chemical aerial	SA								
Fill planting	PF	<b>530</b>	373	385	394	409	414	424	371
Full planting	PP	<b>605</b> <sup>3</sup>	425	439	450	467	472	501	441
Full Planting (2007 PS)	PP8 0	<b>605</b>	----	-----	-----	-----	-----	-----	501
Plantation chemical release:									
Ground application	PG	<b>464</b> <sup>1</sup>	326	337	345	358	362	371	325
Aerial application	PA	<b>247</b>	174	179	183	190	193	197	173
Natural stand chemical release:									
Ground application	PB	<b>464</b> <sup>1</sup>	326	337	345	358	362	371	325
Aerial application	PW	<b>247</b>	174	179	183	190	193	197	173
Farm land reclamation:									
Mechanical preparation	FM	<b>352</b>	280	289	295	306	310	317	282
Heavy Mechanical prep <sup>10</sup>	FH	<b>400</b>	-	-	-	-	-	360	320
Chemical ground	FG	<b>464</b>	367	379	388	403	408	417	371
Chemical ground (2007 Plan)	FG9 0	<b>464</b> <b>247</b>	---- 195	---- 202	---- 206	---- 214	---- 217	---- 222	418 198
Chemical aerial	FA	<b>530</b> <sup>4</sup>	420	433	443	460	466	477	424
Fill Planting	FF	<b>605</b> <sup>3</sup>	478	494	506	525	532	545	484
Full Planting	FP	<b>605</b>	----	-----	-----	-----	-----	-----	545
Full Planting (2007Plan)	FP90								
Management Plans	\$ per PID								
	PM		100	100	100	100	100	100	100

<sup>1</sup>Original base rate was \$336/ha. Adjusted in 1997 to reflect increased cost experienced on Crown land.

<sup>2</sup>Original base rate was \$510/ha. Adjusted in 1998 to \$600/ha to recognize treatment of higher density stands. Adjusted again in 2000 to reflect increased cost experienced on Crown land.

<sup>3</sup>Original base rate was \$510/ha. Adjusted in 2000 to reflect increased cost experienced on Crown land.

<sup>4</sup>Original base rate was \$448/ha. Adjusted in 2000 to reflect increased cost experienced on Crown land.

<sup>5</sup>Original base rate was \$845/ha. Adjusted in 2000 to reflect increased cost experienced on Crown land.

<sup>6</sup>2002 rates include a 1.8 % increase for PT and PC, and a 2.3 % increase for other silviculture activities.

<sup>7</sup>2003 rates include a 5.2 % increase for PT and PC, and a 3.8 % increase for other silviculture activities.

<sup>8</sup>2005 rates include a 2.0 % increase for PT and PC, and a 1.3 % increase for other silviculture activities.

<sup>9</sup>2006 rates include a 2.4% increase for all silviculture activities, except PT=0.0% and PP=2.4% plus \$17.00

<sup>10</sup>Maximum expenditure of \$150,000 from Farm Land Reclamation Budget of \$600,000

<sup>11</sup>2007 rates indexed at 0.0 %.

<sup>12</sup>2008 rates indexed at 0.0%.

## Appendix 2: Pre-Commercial Forest Thinning & Mechanical Plantation Cleaning

### Pre-Treatment Inspection:

- Required density: >5000 stems/ha with crop trees not in a “free to grow” condition.
- Work areas cannot be laid out to exclude high-density patches.
- Required crop tree stocking: >60%
- Required remnant overstorey crown closure: <25% ( 8 m<sup>2</sup> residual BA)
- Average height of crop trees: 2.0 - 7.0 m softwood  
4.0 - 9.0 m hardwood
- Acceptable crop tree species: jack pine, spruce, fir, white pine, cedar, hemlock, red pine, larch, sugar maple, red maple, yellow birch, oak, ash, white birch, aspen\*, any combination of above. (Layered spruce and advanced stunted fir are not acceptable.)

### Post-Treatment Inspection:

- Minimum stocking must meet 60%, + crop tree height be within stated ranges\*\*\*\*
- Minimum 85% quality standard (subjective approval acceptable). Quality deductions are assigned as follows:
  - Crop tree selection = 5% per tree
  - Excessive cutting of potential crop trees = 5% per tree
  - Crop tree damage = 3% per tree
  - Crop tree spacing = 3% per tree
  - Uncut competition = 3% per tree
  - Live branches on cut stumps = 3% per plot
  - Incomplete cuts = 1% per plot
- Acceptable density\*\*:
  - 2,000 - 3,500 crop trees/ha (softwood)
  - 3,000 - 4,000 crop trees/ha (white pine)
  - 2,000 - 3,500 crop trees/ha (hardwood)
  - 2,000 - 3,500 crop trees/ha (mixed wood)\*\*\*

**Sampling:** Stocking and density plots must share the same plot centre. Plot intensity; greater of one plot pair per ha or 4 plot pairs per work area.

**Stocking** is based on 1.26 m radius (5 sq m) plots where one "in" tree represents stocked. Stocking must be greater than 60%

**Density:** Pre-approval based on 1/1,500 ha plots (6.7 sq m = 1.46 m radius). Post-treatment based on 1/250 ha plots (40 sq m = 3.57 m radius).

\* Additional criterion for thinning in Populus tremuloides: Well and moderately-well drained sites only: Crop trees must have good form with no damage or evidence of fungal defects.

\*\* Generally the mid range of stated densities should be aimed for as the ideal. The range is to allow some flexibility for individual situations.

\*\*\* Mixed wood is where softwood and hardwood species both comprise >25% of crop trees.

\*\*\*\* Height based on released crop trees in density plot.

## Appendix 3: Site Preparation

### Pre-treatment

#### Forest sites

The following areas may be treated:

- S and SH sites (map types) with < 60% softwood stocking
- Intolerant H and HS sites (map types) with < 60% stocking of commercial species with average height < 4 m.
- Tolerant H and tolerant HS sites (map types) will not be treated.
- Stands must have a crown closure of less than 25% ( 8 m<sup>2</sup> residual BA)

#### Field

Field sites may be treated where existing vegetation significantly impedes planting or is present to the extent that it would retard the establishment of planted seedlings. Use of brush hog is acceptable where > 60% of planting opportunities are overtopped by woody species. 100% of the work area must be treated (no spot or band treatment). Mowing of predominately non-woody vegetation is not eligible for reimbursement.

Neglected farm land may be treated with Mulching head, hydro Axe, Marden Rollers, or other heavy equipment with prior DNR approval, where the area is at least 95% occupied by non-commercial woody species at least 3m in height. Sites must be of above average site quality, and must not show signs of impeded drainage (sites with gleying must be avoided). 100% of the work area must be treated (no spot, band or row treatments). A maximum of \$150,000 of the Farm Land Reclamation budget is available for this activity. (Heavy Mechanical, FH)

#### Post treatment

Sufficient planting opportunities to accommodate a minimum of 90% stocking with 1,800 to 2,500 planted plus natural seedlings on forest sites, and 1,800 – 3,000 on farm sites. A planting opportunity is defined as a location with access to mineral soil and where competing vegetation will not significantly impede the development of the seedling for at least 12 months from the scheduled time of planting.

#### Farm land reclamation

An enhanced reimbursement rate of 80% (of base rate) is available for mechanical and or chemical site preparation (where required) and planting of non-productive or abandoned agricultural sites being reclaimed for production of commercial forest species (not Christmas trees).

Sites eligible under farmland reclamation must have been previously farmed (ploughed and cultivated), and must meet established pre and post treatment criteria of site preparation.

NOTE: Sites which qualify for semi-commercial thinning are considered forest sites and should not be in need of reclamation. Exceptions should receive prior DNR approval before proceeding with the work.

## Appendix 4: Fill Planting

### Pre-Treatment Inspection:

- Natural stocking level of all softwood and hardwood commercial species must be below 60% (see below).
- Must have sufficient natural regeneration plus planting opportunities to accommodate 90% stocking.

### Post-Treatment Inspection:

- Minimum stocking of natural and planted trees must meet 90% and have
- 30 - 60% stocking of planted trees only.
- Planted seedlings must be native commercial softwood species and/or Norway spruce.
- Wild seedlings are not acceptable.
- Must meet planting quality requirements using 40 sq m plots. A seedling is considered planted if all the following criteria are satisfied.
  - Alive or estimated to have been alive when planted and planted properly, and
  - Firmly imbedded to the root collar, and
  - Roots must have mineral soil contact
  - No exposed roots, and
  - Not broken below the top whorl, and
  - Multiple stems are counted as one, and
  - Not planted on a severe microsite.

### Sampling

- Stocking and density plots must share the same plot centre.
- Plot intensity greater of one plot pair per ha or 4 plots pairs per work area.

### Stocking

- Based on 1.26 m radius (5 sq m = 1/2,000) plots where one "in" tree represents stocked for both pre-approval and post-treatment inspections.

### Density:

- Within acceptable range using 1/250 ha (40 sq m = 3.57 m radius) plots for planting quality inspections.

Natural Regeneration will not include the following:

- Layering,
- Seedlings with over 25% of circumference of stem girdled,
- Seedlings with a live crown ratio of less than 20%,
- Advanced stunted fir regeneration. This is advanced regeneration present following harvest. Generally this refers to trees over one meter in height with short "umbrella" shaped crowns exhibiting very poor annual growth.

Container Planting Stock: (eg. paperpot 408, jiffy 70, jiffy 140, Can Am 3)

- The following planting stock specifications apply to all plantings.

<b>Parameter</b>	<b>All Species</b>		
	<b>Minimum</b>	<b>Average</b>	<b>Maximum</b>
Shoot height (cm)	10	15	30
Root Collar diameter (mm)	1.25	1.5	3.0
<b>Total Dryweight (g)</b>	0.5	1.0	2.75
<b>Shoot: Root Ratio</b>	2	5.0	8

NOTE: Boards are encouraged to monitor planting site moisture conditions on a daily basis, and to consider cessation of planting activity when sites become sufficiently dry to jeopardize seedling survival. Boards are encouraged to monitor two components of the Fire weather Index: The Drought Code and the Buildup index. Drought Codes of 300, and Buildup index of 55 have been identified as critical levels above which higher than normal mortality rates may be expected.

During the fire season, Fire Weather Index is available from local DNR offices, as well as on-line at <http://www.gnb.ca/public/fire-feu/index-e.asp>. From here, click on "Actual Data".

## Appendix 5: Full Planting

### **Pre-Treatment Inspection:**

- Stocking level of all softwood and hardwood commercial species must be below 60% (see below).
- Must have sufficient planting opportunities to accommodate 90% stocking.
- Crown closure must be less than 25%.
- Harvested tolerant H or HS sites (map types) will not be planted with softwood species.

### **Post-Treatment Inspection:**

- Minimum stocking must meet 90% and have > 60% stocking of planted trees only.
- Between 1,800 – 2,500 planted plus natural seedlings/ha for forest sites, and 1,800 - 3,000 for farm land sites.
- Planting multiple commercial species on a site is acceptable provided they are appropriate for the site and compatible with one another.
- Planted seedlings must be native softwood species and/or Norway spruce.
- Wild seedlings are not acceptable.
- Must meet planting quality requirements using 40 sq m plots. A seedling is considered planted if all the following criteria are satisfied:
  - Alive or estimated to have been alive when planted and planted properly, and
  - Firmly imbedded to the root collar, and
  - Roots must have mineral soil contact
  - No exposed roots, and
  - Not broken below the top whorl, and
  - Multiple stems are counted as one, and
  - Not planted on a severe microsite.

### **Sampling**

- Stocking and density plots must share the same plot centre.
- Plot intensity greater of one plot pair per ha or 4 plot pairs per work area.

### **Stocking:**

- Based on 1.26 m radius (5 sq m = 1/2,000 ha) plots where one "in" tree represents stocked for pre-approval and post-treatment inspections.

### **Density:**

- Within acceptable range using 1/250 ha (40 sq m = 3.57 m radius) plots for post-treatment inspections.

Natural Regeneration will not include the following:

- Layering,
- Seedlings with over 25% of circumference of stem girdled,
- Seedlings with a live crown ratio of less than 20%,

- Advanced Stunted fir Regeneration. This is advanced regeneration present following harvest. Generally this refers to trees over one meter in height with short “umbrella” shaped crowns exhibiting very poor annual growth.

Container Planting Stock: (eg. paperpot 408, jiffy 70, jiffy 140, Can Am 3)

- The following planting stock specifications apply to all plantings.

<b>Parameter</b>	<b>All Species</b>		
	<b>Minimum</b>	<b>Average</b>	<b>Maximum</b>
Shoot height (cm)	10	15	30
Root Collar diameter (mm)	1.25	1.5	3.0
<b>Total Dryweight (g)</b>	0.5	1.0	2.75
<b>Shoot: Root Ratio</b>	2	5.0	8

NOTE: Boards are encouraged to monitor planting site moisture conditions on a daily basis, and to consider cessation of planting activity when sites become sufficiently dry to jeopardize seedling survival. Boards are encouraged to monitor two components of the Fire weather Index: The Drought Code and the Buildup index. Drought Codes of 300, and Buildup index of 55 have been identified as critical levels above which higher than normal mortality rates may be expected.

During the fire season, Fire Weather Index is available from local DNR offices, as well as on-line at <http://www.gnb.ca/public/fire-feu/index-e.asp>. From here, click on "Actual Data".

## Appendix 6: Plantation Chemical Release

### **Pre-Treatment Inspection**

- Plantations only.
- Must have > 75% softwood stocking (see below).
- 60% of planted stock must be overtopped.
- Hardwood and woody brush and/or herbaceous weeds must occupy 80% of site.
- All areas and applicators must comply with requirements and conditions as required by NB Department of Environment and herbicide label.

### **Post-Treatment Inspection**

- No more than 25% of stocked softwood plots can be overtopped with hardwood, brush or herbaceous species.
- Boards will submit, not later than August 1<sup>st</sup> of the year following treatment, a list of any areas where the treatment was unsuccessful.

**Sampling** Plot intensity greater of one plot per ha or 4 plots per work area.

**Stocking** based on 1.26 m radius (5 sq m = 1/2,000 ha) plots where one "in" tree represents stocked.

Year 5 Report: Plantations established on forest cutovers may receive a second chemical release if required and recommended in the year five or earlier plantation performance summary. Any second chemical release must be at least 3 years from the time of the initial release.

## **Appendix 7: Natural Stand Chemical Release**

### **Pre-Treatment Inspection**

- Must have >75% softwood stocking (see below).
- 75% of stocked softwood must be overtopped by hardwood and brush or >40% softwood is interfered with as evidenced by reduced height growth, shade foliage, leader whipping or a physical damage from vegetation.
- All areas and applicators must comply with requirements and conditions as required by NB Department of Environment and herbicide label.
- Must have <15 m<sup>3</sup>/ha residual commercial hardwood.
- Stand conversion not permitted. Must have <14 m<sup>2</sup>/ha basal area tolerant hardwood regeneration.

### **Post-Treatment Inspection**

- No more than 25% of stocked softwood plots can be overtopped with hardwood or shrub species.
- Boards will submit, not later than August 1<sup>st</sup> of the year following treatment, a list of any areas where the treatment was unsuccessful.

### **Sampling**

- Plot intensity greater of one plot per ha or 4 plots per work area.

### **Stocking**

- Based on 1.26 m radius (5 sq m = 1/2,000 ha) plots where one "in" tree represents stocked.

## Appendix 8: Woodlot Management Recommendations

Funding has been designated toward the development of woodlot management recommendations for individual forest properties.

This assistance is established at \$100 per each individual PID designated property. Multiple PID's may be incorporated into a single plan, so long as all PID's are adjacent to each other, or are separated from each other by a trail, road, railroad, utility corridor or highway. All PID's described in a plan must be identified on the certification form. However, a maximum of one less-than 10 ha PID may be funded per plan, and all plans must include at least one PID 10 ha or larger.

To qualify for the \$100 reimbursement, the entire property (as designated by the PID) must be assessed. Management recommendations are not to address only a portion of a PID property.

Woodlot Management recommendations are expected and may well include treatments under the government funded program.

The site inspection should be able to point out any or a number of woodlot treatments that may be required in the short and/or medium term.

Only one reimbursement per PID is applicable per the length of this funding agreement (beginning in 1997).

The form/format for each woodlot management recommendation is flexible but must be in the form of a written document, and be signed by a graduate of a recognized professional forestry or forest technician program.

Woodlot Management Recommendations will contain at a minimum, the following information:

- Scale sketch or aerial photograph of property, including delineation of all stands and non-productive portions of the property.
- Description of all stands, and prescription for stands where silviculture or other activity is recommended.

The owner/manager of the property must be provided with a copy of the woodlot management recommendations, and a copy retained in board files.

Certification forms and invoices will be submitted for reimbursement.

## Appendix 9: Plantation Performance Monitoring - Year 5 & Year 10

Objective: To document plantation performance, and to initiate release or cleaning opportunities as warranted.

### Reporting Requirements:

- For all plantations established under this or other Provincially funded programs, reports are to be submitted indicating the growth status during their 5<sup>th</sup> and 10<sup>th</sup> year of development. Actual plantation monitoring may be conducted prior to the 5<sup>th</sup> and 10<sup>th</sup> year, but timing of monitoring should be such that the report accurately reflects the plantations status in the 5<sup>th</sup> and 10<sup>th</sup> year of development. **For 2009, 1999 and 2004 plantations will be reported and reports submitted by March 2009**
- Year 5 reports based on walk-through estimates should include the following:
  - Plantation job number; area, crop tree stocking, total softwood stocking, percent stocked softwood plots overtopped by competition.
  - Recommendation (chemical release vs. no action required) and scheduled time of required release.
  - Stands must meet chemical release requirements described in Appendix 6.
- Year 10 reports, based on stocking and density plots should include the following:
  - Plantation job number; area, crop tree stocking, total softwood stocking.
  - Percent softwood stocked plots overtopped by competition including hardwood.
  - Total density of all commercial species including hardwood.
  - Recommendation (cleaning vs no action required) and scheduled time of required cleaning.
  - Stands must meet mechanical plantation cleaning requirements described in Appendix 2.
  - Where plantations have been cleaned prior to year 10, report may be based on post-cleaning assessment.

## Appendix 10: Required Plot Sizes for Pre-Approval & Post-Treatment Inspections

### Density

<b>Activity</b>	<b>Pre-Approval</b>	<b>Post-Treatment</b>
Thinning & cleaning	6.7 sq m, 1.46 m r 1/1,500 ha	40 sq m, 3.57 m r 1/250 ha
Fill planting & full planting	N/A	40 sq m, 3.57 m r 1/250
Chemical release	No requirement	No requirement

### Stocking

<b>Activity</b>	<b>Pre-Approval</b>	<b>Post-Treatment</b>
Thinning & cleaning	5 sq m, 1.26 m r 1/2,000 ha	5 sq. m., 1.26 m r 1/ 2,000 ha
Fill planting & full planting	5 sq m, 1.26 m r 1/ 2,000	5 sq. m., 1.26 m r 1/ 2,000
Chemical release	5 sq m, 1.26 m r 1/ 2,000	5 sq m, 1.26 m r 1/ 2,000

## **Appendix 11: Invoice & Certification Forms**

The certification forms to be submitted for reimbursement and monitoring are found on the following pages.



## Stand Improvement

### Landowner & Woodlot Data

### Post Treatment Survey Data

Name:		Date:	
Mailing Address:		Plantation	<input type="checkbox"/>
Location:		Natural	<input type="checkbox"/>
PID#		Area (ha):	
Treatment #		Reimbursement Rate (\$/ha):	
Invoice#		Total Reimbursement (\$):	\$0.00

### Post Treatment Survey Data

	Stocking	Density	Height
Total Softwood			
Total Hardwood			
Total Crop Tree	%		

Comments:

<p style="text-align: center;"><b>Silviculture Treatment Conducted by:</b></p> <p>Contractor: <input type="checkbox"/></p> <hr/> <p>Landowner: <input type="checkbox"/></p> <hr/> <p>Immediate Family Member: <input type="checkbox"/></p> <hr/> <p>Name (print): _____</p> <hr/> <p>Relation to Landowner: _____</p> <hr/>	<p style="text-align: center;"><b>Landowner Certification</b></p> <p>I, the landowner, attest that this silviculture treatment has been carried out by myself or an immediate family member.</p> <p>Landowner name (print): _____</p> <hr/> <p>Landowner Signature: _____</p> <hr/>
---	---

<p style="text-align: center;"><b>Marketing Board Certification</b></p> <p>I certify that this work has been carried out in accordance with the agreed specifications.</p> <p>Date:        D                    M                    Y</p> <hr/> <p>Name (print): _____</p> <hr/> <p>Signature: _____</p> <hr/>	<p style="text-align: center;"><b>Department of Natural Resources Certification</b></p> <p>This work, to the best of our knowledge, has been carried out in accordance with agreed specifications and may be subject to later verification and adjustment.</p> <p>Date:                    D                    M                    Y</p> <hr/> <p>Name (print): _____</p> <hr/> <p>Signature: _____</p> <hr/>
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## Site Preparation

Mechanical:   
 Heavy Mechanical

Chemical Aerial:   
 Chemical Ground:

### Landowner & Woodlot Data

### Post Treatment Survey Data: Site Prep

Name:		Start Date:	D	M	Y
Mailing Address:		End Date:	D	M	Y
Location:		Equipment or chemical used:			
PID#		Area (ha):	0		
Treatment #		Reimbursement Rate (\$/ha):			
Invoice#		Total Reimbursement (\$):	\$0.00		

Comments:

  
  
  
  

\* Include area breakdown for jobs with multiple PIDs.

<p style="text-align: center;"><b>Silviculture Treatment Conducted by:</b></p> <p>Contractor: <input type="checkbox"/></p> <hr/> <p>Landowner: <input type="checkbox"/></p> <hr/> <p>Immediate Family Member: <input type="checkbox"/></p> <hr/> <p>Name (print): _____</p> <hr/> <p>Relation to Landowner: _____</p> <hr/>	<p style="text-align: center;"><b>Landowner Certification</b></p> <p>I, the landowner, attest that this silviculture treatment has been carried out by myself or an immediate family member.</p> <p>Landowner name (print): _____</p> <hr/> <p>Landowner Signature: _____</p> <hr/>
---	---

<p style="text-align: center;"><b>Marketing Board Certification</b></p> <p>I certify that this work has been carried out in accordance with the agreed specifications.</p> <p>Date:            D            M            Y</p> <hr/> <p>Name (print): _____</p> <hr/> <p>Signature: _____</p> <hr/>	<p style="text-align: center;"><b>Department of Natural Resources Certification</b></p> <p>This work, to the best of our knowledge, has been carried out in accordance with agreed specifications and may be subject to later verification and adjustment.</p> <p>Date:            D            M            Y</p> <hr/> <p>Name (print): _____</p> <hr/> <p>Signature: _____</p> <hr/>
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## Planting

Full Plant:  Forest:   
 Fill Plant:  Farm reclamation:

### Landowner & Woodlot Data

### Post Treatment Survey Data: Planting

Name:		Date:	D      M      Y
Mailing Address:		Comments:	
Location:			
PID#		Area (ha):	0
Treatment #		Reimbursement Rate (\$/ha):	
Invoice#		Total Reimbursement (\$):	\$0.00

Total Stocking (planted & natural)		%	Species	
Stocking (planted only)		%	Stock Type	Cont
Total Density		per ha		Bare Rt

<p style="text-align: center;"><b>Silviculture Treatment Conducted by:</b></p> <p>Contractor: <input type="checkbox"/></p> <p>Landowner: <input type="checkbox"/></p> <p>Immediate Family Member: <input type="checkbox"/></p> <p>Name (print): _____</p> <p>Relation to Landowner: _____</p>	<p style="text-align: center;"><b>Landowner Certification</b></p> <p>I, the landowner, attest that this silviculture treatment has been carried out by myself or an immediate family member.</p> <p>Landowner name (print): _____</p> <p>Landowner Signature: _____</p>
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<p style="text-align: center;"><b>Marketing Board Certification</b></p> <p>I certify that this work has been carried out in accordance with the agreed specifications.</p> <p>Date:            D            M            Y</p> <p>Name (print): _____</p> <p>Signature: _____</p>	<p style="text-align: center;"><b>Department of Natural Resources Certification</b></p> <p>This work, to the best of our knowledge, has been carried out in accordance with agreed specifications and may be subject to later verification and adjustment.</p> <p>Date:            D            M            Y</p> <p>Name (print): _____</p> <p>Signature: _____</p>
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## Chemical Release

Landowner & Woodlot Data		Treatment Area Data			
Name:		Treatment Date:	D	M	Y
Mailing Address:		Plantation	<input type="checkbox"/>		
Location:		Natural	<input type="checkbox"/>		
PID#		Area (ha):	0		
Treatment #		Reimbursement Rate (\$/ha):	\$0.00		
Invoice#		Total Reimbursement (\$):	\$0.00		
		Application Method:	Aerial	Ground	
		Applied by (name):			
		Product Used:			

Comments:

Silviculture Treatment Conducted by:	Landowner Certification
Contractor: <input type="checkbox"/>	I, the landowner, attest that this silviculture treatment has been carried out by myself or an immediate family member.
Landowner: <input type="checkbox"/>	
Immediate Family Member: <input type="checkbox"/>	
Name (print): _____	
Relation to Landowner: _____	
	Landowner name (print): _____
	Landowner Signature: _____

Marketing Board Certification	Department of Natural Resources Certification
I certify that this work has been carried out in accordance with the agreed specifications.	This work, to the best of our knowledge, has been carried out in accordance with agreed specifications and may be subject to later verification and adjustment.
Date:           D           M           Y	Date:           D           M           Y
Name (print): _____	Name (print): _____
Signature: _____	Signature: _____

## Woodlot Management Recommendations

Landowner & Woodlot Data

Service Description:

Name:		Date field work complete:	D	M	Y
Mailing Address:		Woodlot stand description & prescription (min requirement):			
Location:		PID #'s under Management:			
Treatment #		Total # of PID's:			
Invoice#		Reimbursement Rate (\$/PID):	\$100		
Area (ha):		Total Reimbursement (\$):	\$0		

Work done by:	
Contractor:	<input type="checkbox"/> _____
Marketing Board:	<input type="checkbox"/> _____

<p style="text-align: center;"><b>Marketing Board Certification</b></p> <p style="text-align: center;">I certify that this work has been carried out in accordance with the agreed specifications.</p> <p>Date:           D                   M                   Y</p> <p>Name (print): _____</p> <p>Signature: _____</p>	<p style="text-align: center;"><b>Department of Natural Resources Certification</b></p> <p style="text-align: center;">This work, to the best of our knowledge, has been carried out in accordance with agreed specifications and may be subject to later verification and adjustment.</p> <p>Date:                                   D                   M                   Y</p> <p>Name (print): _____</p> <p>Signature: _____</p>
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## Appendix 12: Working Near Water

The New Brunswick Clean Water Act – Watercourse and Wetland Alteration Regulation requires that any activity carried out in the vicinity of any watercourse *or wetland* requires certain precautions to protect the quality and quantity of water. This includes (but is not limited to) all silviculture activities funded under the Private Land Silviculture Program.

Watercourse Alteration Permits (WAP's) are available on application from the NB Department of Environment. WAP's provide specific details of operational limitations and requirements required to protect water quality and quantity of the watercourse described in the application.

A WAP application may be submitted to the NB Department of Environment for any activity planned in the vicinity of any watercourses. It is mandatory under the law to obtain a WAP prior to commencing work near any watercourse depicted on the 1:10,000 ortho-photos. It is optional to obtain a WAP for watercourses not depicted on the 1:10,000 ortho-photos. *The choice to not obtain a WAP for watercourses not depicted on the 1:10,000 ortho-photos does not remove the obligation to maintain both the quality and quantity of water in that watercourse.*

Further information on your obligations when working near a watercourse or wetland are available from the NB Department of Environment.

**Appendix 13: Properties > 5ha and < 10 ha**

**Inclusion Agreement For Properties  
Less Than 10 Hectares & Greater Than 5 Hectares**

**BACKGROUND:** The Private Land Silviculture Program has traditionally provided financial incentive to landowners interested in conducting specific silvicultural activities on non-industrial private woodlots that are larger than 10 ha and where the owner controls less than the 4,000 ha. The program has targeted stand establishment activities (site preparation and planting) and early interventions (cleaning and pre-commercial thinning), all of which necessitate a number of decades for the benefits to mature.

In 2003, and at the request of the Provincial Auditor General, the upper eligibility limit of 4,000 ha was eliminated. This affected only a few land owners, and caused a review of the 10 ha lower limit. As a result of that review, all parties (NBDNR and the NBFWO) have agreed to expand eligibility for program assistance (excluding management recommendations) to properties less than 10 ha and larger than 5 ha providing the following conditions are met;

- all program requirements and activity criteria are met, and
- the registered landowner agrees in writing to manage the property in a manner consistent with the time frame necessary to produce primary wood products, and
- the registered landowner agrees to repay moneys received under this program should they fail to manage area that is treated under this program prior to the production of primary wood products.

**AGREEMENT:**

I \_\_\_\_\_ (print) am the registered landowner of the 5 to 10 hectare property identified by PID # \_\_\_\_\_. I have read and understand this document. I agree that in accepting financial assistance under this program, I am committing this property to the production of primary forest products. I understand and acknowledge that production of primary forest products is a process that typically requires a time frame measured in decades. I agree to manage this property in a manner consistent with the time frame necessary to produce primary wood products, and I also agree to repay moneys received under this program should I fail to manage area that is treated under this program prior to the production of primary wood products.

\_\_\_\_\_  
Signature of Registered Landowner

\_\_\_\_\_  
Date

(This document should be attached to the activity certification form.)