



Vanderwell Contractors Ltd.
and
Alberta-Pacific Forest Industries
Inc.

Forest Harvest Plan

Forest Management Unit:

S22

Forest Harvest Plan- PU091234

FMA 9100029

CTL220001

Date Submitted: July 10, 2019

Forest Harvest Plan

Planning Unit 091234

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Report

1.0 Introduction

Alberta – Pacific Forest Industries Inc. (Alberta–Pacific) and Vanderwell Contractors (1971) Ltd. (Vanderwell) have prepared a Forest Harvest Plan (FHP) for the harvest of deciduous and coniferous stands within Planning Unit 091234.

Planning Unit 091234 is located along the Chip Lake Road within Forest Management Unit (FMU) S22.

Copies of this Forest Harvest Plan are available on the Alberta–Pacific website, at www.alpac.ca.

2.0 General Planning Unit Information /Design Considerations

This FHP has been validated by a Registered Forestry Professional from Alberta-Pacific and a representative of Vanderwell.

This FHP includes maps and reports that clearly show and document the planned harvest area boundaries, roads and water crossings within the Planning Unit.

This plan is being submitted for appraisal, for a 5-year FHP approval under the 2019-2020 Alberta-Pacific and Vanderwell Annual Operating Plan (AOP).

2.1 Operating Ground Rules

Planning Unit 091234 has been designed in accordance with the Northeast Alberta Operating Ground Rules (OGRs). Alberta – Pacific and Vanderwell are requesting certain deviations from the OGRs, due to field verified factors. These requests, along with corresponding information are listed under the section “OGR Deviations”.

3.0 Maps

Individual block maps have been included in the submission package, outlining the information pertinent to these blocks. A Planning Unit overview map and a Spatial Harvest Sequence (SHS) Planning Unit map have been included in the submission package. These maps can be viewed in the *Appendices* of this document.

4.0 Block Information

A *Block Summary Table* has been included below outlining the expected volumes of the harvest area.

4.1 Utilization

Deciduous and coniferous stands will adhere to the 15/10 utilization standard.

4.2 Field verification

The proposed blocks were ground verified by a field layout team during the summer of 2018. The layout team provided planning support to assess timber quality, sensitive and historical sites, operability of the harvest area, and classification of water courses within the Planning Unit boundary. Where applicable, the findings of the layout team have been noted in the corresponding section of this report.

4.3 Understory Assessment

White Spruce understory within deciduous landbase will be protected utilizing high effort understory protection in stands identified as greater than 600 stems/ha by the Alberta Vegetation Inventory (AVI), as well as any potential areas found to have understory present that is not identified by the AVI. Any deciduous blocks found to have understory amounting to between 400 stems/ha and 600 stems/ha will be protected utilizing the avoidance method.

Blocks requiring understory protection or understory avoidance are noted within the *Block Summary Table*.

Block Summary Table

Table 1: Block Summary Table

This table provides a brief description of the proposed harvest blocks within the Planning Unit.

Deciduous Blocks						
<i>Source ID</i>	Opening Number	Harvest Season (Frozen/Non-Frozen)	Area (ha)	Deciduous Volume (m ³)	Incidental Coniferous Volume (m ³)	Total Volume (m ³)
FB09123410851*	4230911085	Frozen	13.9	2,487.4	876.7	3,364.1
FB09123401151*	4230910115	Frozen	81.3	11,907.5	9,850.5	21,758.0
FB09023436461*	4230903646	Frozen	4.5	901.6	79.4	981.0
FB09023435791	4230903579	Frozen	17.1	2,848.8	1,409.3	4,258.2
FB09023434761*	4230903476	Non-Frozen	34.9	6,972.7	1,956.8	8,929.5
FB09123402531	4230910253	Transitional	15.4	2,722.1	1,047.8	3,769.9
FB09023434571*	4230903457	Non-Frozen	5.1	948.1	140.2	1,088.3

FB09123402711*	4230910271	Transitional	17.4	2,877.7	1,255.5	4,133.2
FB09023434541	4230903454	Non-Frozen	19.7	3,377.9	1,488.0	4,865.9
FB09023434291	4230903429	Non-Frozen	3.8	557.0	337.4	894.3
FB09123401521*	4230910152	Frozen	11.9	2,203.8	1,049.9	3,253.7
FB09023436281*	4230903628	Frozen	42.6	7,738.0	3,075.5	10,813.5
FB09123402341	4230910234	Non-Frozen	3.6	637.9	194.5	832.4
FB09123404841	4230910484	Transitional	26.9	5,317.3	2,083.4	7,400.7
FB09123409521	4230910952	Non-Frozen	156.9	28,343.5	12,862.0	41,205.5
FB09123411891*	4230911189	Transitional	55.0	9,470.0	2,075.4	11,545.4
Total			509.9	89,311.3	39,782.3	129,093.6

*Understory Block: White Spruce understory within deciduous landbase will be protected utilizing high effort understory protection in stands identified as greater than 600 stems/ha.

Any blocks found to have understory amounting to between 400 stems/ha and 600 stems/ha will be protected utilizing the avoidance method.

Al-Pac Coniferous Blocks						
<i>Source ID</i>	Opening Number	Harvest Season (Frozen/ Non-Frozen)	Area (ha)	Conifer Volume (m³)	Incidental Deciduous Volume (m³)	Total Volume (m³)
FB09022431071	4220903107	Frozen	2.4	471.7	67.4	539.1
FB09023436181	4230903618	Frozen	6.1	1,089.8	422.3	1,512.1
FB09023436871	4230903687	Frozen	4.7	778.2	247.3	1,025.5
FB09123401671	4230910167	Frozen	41.4	7,482.4	3,579.7	11,062.1
FB09123401711	4230910171	Frozen	10.7	1,677.2	1,064.6	2,741.7
FB09123412001	4230911200	Frozen	3.8	493.9	381.7	875.6
FB09123401301	4230910130	Non-Frozen	23.4	4,619.3	1,148.4	5,767.7
FB09123402851	4230910285	Non-Frozen	2.6	510.5	117.4	627.8
FB09023434411	4230903441	Transitional	3.4	573.8	245.8	819.7
FB09123402701	4230910270	Transitional	5.8	951.3	430.0	1,381.3
Total			104.22	18,648.1	7,704.5	26,352.7
Vanderwell Coniferous Blocks						
<i>Source ID</i>	Opening Number	Harvest Season (Frozen/ Non-Frozen)	Area (ha)	Conifer Volume (m³)	Incidental Deciduous Volume (m³)	Total Volume (m³)
NB09123402794	4230910279	Frozen	11.1	1,973.8	960.5	2,934.3
NB09123409924	4230910992	Frozen	33.3	6,931.1	1,966.8	8,897.9
NB09123410764	4230911076	Frozen	5.0	866.6	485.8	1,352.5
NB09123402084	4230910208	Non-Frozen	5.7	957.0	433.2	1,390.1
NB09123402554	4230910255	Non-Frozen	5.0	920.7	364.9	1,285.6
NB09123403954	4230910395	Non-Frozen	7.7	925.9	1,069.2	1,995.1
NB09123404684	4230910468	Non-Frozen	131.1	21,578.3	12,645.6	34,223.8

NB09123411854	4230911185	Transitional	20.2	3,875.0	1,373.4	5,248.3
Total			219.1	38,028.4	19,299.4	57,327.8

4.4 Structure Retention

Alberta- Pacific will leave an average of 5% merchantable volume and Vanderwell will leave an average of 3% merchantable volume for structure retention throughout the FMU. Structure retention will be left in the following methods:

- Laid out patches
- Individual trees
- Small clumps left at the operators' discretion

4.5 Debris Management

Planning Unit 091234 is situated within Alberta's Fire Control Zone number 46 as identified by Alberta Agriculture and Forestry (AAF).

Debris management of the Planning Unit will be accomplished in a manner consistent with Section 7.3 of the OGRs.

4.6 Camp Location

The companies have identified a few camp locations for logging operations within this Planning Unit. The campsites will be reclaimed as indicated in Section 11.3.4.4 of the Northeast Alberta Timber Harvesting Planning and Operating Ground Rules (OGRs).

Camp Location Table

Table 2: Camp Location Table

This table provides a brief description of the proposed camp locations in the Planning Unit.

Block Number	Opening Number	GRID	LAT	LONG
NB09123404684	4230910468	0327	56.86771	113.624
FB09123401151	4230910115	0298	56.86911	113.577
FB09023436281	4230903628	3627	56.85265	113.536

5.0 Watercourse Protection

During the preliminary planning of Planning Unit 091234, potential watercourses were identified using wet areas mapping, LiDAR data, aerial imagery, as well as the available AVI data.

Where harvest blocks are in proximity to any potential watercourses, the field layout team conducted field assessments utilizing the methodology and classification standards outlined in Section 6.0 of the OGRs. Any confirmed watercourses have been buffered in accordance with the OGRs Section 6.0.

Any deviations from the OGRs in relation to the watercourse buffers are noted in this report; please refer to the *OGR Deviations* section of the report for further information.

Watercourse Crossing Summary Table

Table 3: Watercourse Crossing Summary

A list of road crossings over field verified watercourses within the Planning Unit.

Road ID	Stream Class	Road Crossing Number
FB09023435791	Small Permanent	3587
FB09123402851	Small Permanent	0365
NB09123417924	Ephemeral	0947

6.0 Road Information

Overview maps have been attached showing roads in accordance with Section 3.4.7. of the OGRs; all spatial data requirements have also been included with this submission.

Roads will be constructed, maintained, and reclaimed in a manner consistent with Section 11.3 of the OGRs.

When new access is necessary, reclamation processes will adhere to Section 11.3.4, Section 11.3.4.3 and Section 11.3.4.4 of the OGRs. To enable for silviculture activities, all-terrain vehicle (ATV) access may be left throughout the harvest area.

Road Attributes Table

Table 4: Road Attributes

Summary of the proposed in-block roads of the Planning Unit.

Al-Pac Road Attributes			
Road ID	Road Classification	Haul Season	Length (m)
FB09023434291	Temporary	Non Frozen	168.5
FB09023434291	Temporary	Non Frozen	237.5
FB09023435791	Temporary	Frozen	1146.5
FB09023436281	Temporary	Frozen	1184.5
FB09023436461	Temporary	Frozen	316.6
FB09023436871	Temporary	Frozen	1657.0
FB09123401151	Temporary	Frozen	207.8

FB09123401671	Temporary	Frozen	182.4
FB09123401711	Temporary	Non Frozen	1276.4
FB09123401711	Temporary	Frozen	273.5
FB09123401711	Temporary	Non Frozen	287.5
FB09123401711	Temporary	Frozen	579.4
FB09123401711	Temporary	Frozen	510.3
FB09123402711	Temporary	Non Frozen	1139.5
FB09123402711	Temporary	Non Frozen	194.7
FB09123402711	Temporary	Non Frozen	194.7
FB09123402851	Temporary	Non Frozen	1897.5
FB09123409521	Temporary	Non Frozen	1548.6
FB09123410851	Temporary	Frozen	1447.1
FB09123411001	Temporary	Frozen	314.0
FB09123411891	Temporary	Non Frozen	1103.2
FC09123404401	Temporary	Non Frozen	1479.5
FC09123404684	Temporary	Non Frozen	2547.8
FC09123404684	Temporary	Non Frozen	444.3
Vanderwell Road Attributes			
<i>Road ID</i>	Road Classification	Haul Season	Length (m)
NB09123402084	Temporary	Non Frozen	845.6
NB09123409924	Temporary	Non Frozen	1018.0
NB09123411854	Temporary	Non Frozen	772.8

7.0 Land Use Information

A search of the Geographic Land Information Management and Planning System (GLIMPS) and Digital Integrated Dispositions (DIDs) yielded active dispositions within the FHP. Any necessary agreements with the disposition holder will be in place prior to the commencement of harvest operations. None of the dispositions within the FHP will restrict harvest operations in the FHP.

Land Use Summary Table

Table 5: Land Use Summary Table
Active dispositions in the Planning Unit

Disposition Number	Disposition Holder	Disposition Type
PLA900760	CANADIAN NATURAL RESOURCES LIMITED	Pipeline Crossing
PLA941772	CANADIAN NATURAL RESOURCES LIMITED	Pipeline Crossing
PLA930066	CANADIAN NATURAL RESOURCES LIMITED	Pipeline Crossing

The FHP design incorporates pipeline crossings, for temporary roads. The agreements will be in place prior to the construction of these crossings.

8.0 Integration with Other Forest Users

8.1 Integration with Other Harvest Operators

This is an integrated plan between the FMA holder and CTL holder; both companies have validated the plan.

8.2 Registered Fur Management Areas (RFMAs)

There are 4 RFMAs within the FHP who will be affected by operations. Notification letters were sent to the respective RFMA holders, any requests from any RFMA holder have been considered, and, where possible, the harvest design has been planned to accommodate the request.

Trapper Areas Table

Table 6: Trapper Areas Table

RFMA holders affected by harvest operations.

RFMA ID	Notification Method	Contact Method
6	Letter	Mail
1460	Letter	Mail
1634	Letter	Mail
2266	Letter	Mail

8.3 Wildlife Management Unit(s) (WMU)

Planning Unit 091234 is located within WMU 518. The Guides and Outfitters operating within this unit have been sent notification, via registered mail, on the FHP design, as well as a timeline for the commencement of harvest operations. Any requests from Guides and Outfitters have been considered, and, where possible, the harvest design has been planned to accommodate the request.

Guide and Outfitters Table

Table 7: Guide and Outfitters

List of Guide and Outfitters active in 518.

OG ID Number	Date	Contact Method
709 G	August 08, 2018.	Mail
872 G	August 08, 2018.	Mail

401 GW	August 08, 2018.	Mail
1034 G	August 08, 2018.	Mail
858 G	August 08, 2018.	Mail
163 G	August 08, 2018.	Mail
834 G	August 08, 2018.	Mail
881 GW	August 08, 2018.	Mail
956 G	August 08, 2018.	Mail

8.4 Indigenous Groups

During the General Development Plan (GDP) process, Alberta – Pacific and Vanderwell conduct consultations with indigenous groups every year. There have not been any issues identified for the Planning Unit 091234 FHP submission.

8.5 Other Forest Users

There are no other forest user groups operating within the Planning Unit area.

8.6 Forest Aesthetics

As outlined in Section 5.5. of the OGRs, Alberta – Pacific and Vanderwell follow the objective to mitigate the impact of timber operations on the visual quality of the forest landscape. This FHP is not adjacent to any park or recreational areas, and no other aesthetics concerns have been noted to date by other forest users.

9.0 Species and Areas of Concern

9.1 Woodland Caribou

Planning Unit 091234 is located within Caribou Range and will adhere to section 7.7.2 of the OGRs

9.2 Key Wildlife and Biodiversity Zone (KWBZ)

Planning Unit 091234 is not located within a Key Wildlife and Biodiversity Zone.

9.3 Other Species

All known sensitive wildlife sites have been buffered in accordance with Section 7.7.5 of the OGRs.

9.4 Sensitive Sites

A review of the block design and landscape of the FHP was completed by professional archaeologists. Any sites identified as being of high historical significance (historical resource sites) have been removed from the harvest design.

Upon completion of cutblock and road layout, a second review of the harvest blocks, and temporary roads is completed to identify potential conflicts, and to determine if any further changes are required to the Planning Unit.

There were no signs of rare plants, including signs of terrestrial lichen found within the Planning Unit.

If any sites are identified post submission, Alberta – Pacific and Vanderwell will take the appropriate action to protect these sites.

9.5 Forest Health

During the field verification, a team evaluated the current state of the forest health in the FHP area, as outlined in Section 10.1 of the OGRs.

If any sites are identified post submission, Alberta – Pacific will take the appropriate action to protect these sites as per Section 10.1.2 of the OGRs.

10.0 SHS Information / Variance Summary

Variances from the Spatial Harvest Sequence (SHS) within the Planning Unit boundary are shown in Appendix 3 - *Spatial Harvest Sequence Summary Table*.

11.0 OGR Deviations

Table 8: Road Percent Deviations Table

Road deviations which contain blocks that are greater than 7 hectares, with potentially more than 5% road disturbance.

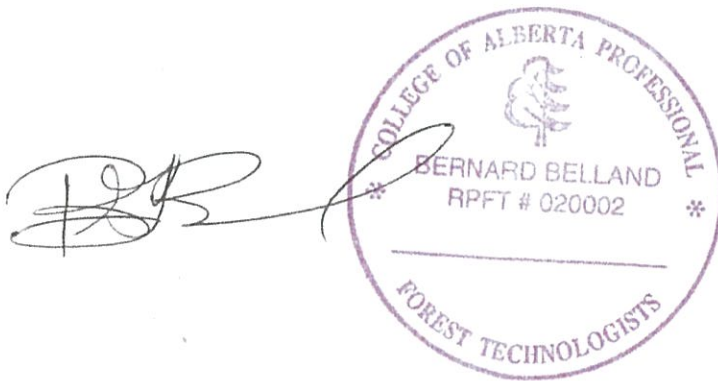
Source ID	Opening Number	Road Percentage	Road Percentage Reason
FB09123401711	4230910171	6.8	Access to other blocks
FB09023436281	4230903628	5.3	Access to other blocks
FB09123402711	4230910271	8.5	Access to other blocks

12.0 Validation by Registered Forest Practitioner

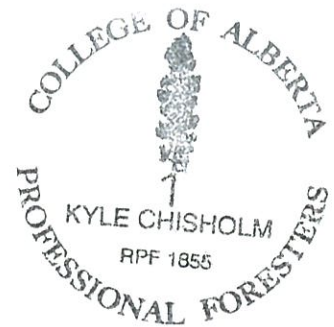
This plan is being prepared and submitted on behalf of Vanderwell Contractors (1971) Ltd. and Alberta-Pacific Forest Industries Inc.

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Appendices

Appendix 1- FHP Block Map

Appendix 2- FHP Overview Map

Appendix 3- Vanderwell Spatial Harevest Sequence Summary Table

Appendix 4- Al-Pac Spatial Harevest Sequence Summary Table

Appendix 5- Spatial Harvest Sequence Summary Map