Hinton Wood Products
A division of West Fraser Mills
Forest Management Agreement
FMA 8800025
O.C. 565/2007

Mountain Pine Beetle Forest Management Plan Amendment
Technical Report #1
- Landbase Classification -

April 30, 2010

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1 Introduction

Hinton Wood Products (a division of West Fraser Mills Ltd) renewed its Forest Management Agreement (FMA) effective May 1, 2008 (O.C. 565/2007). The entire management area is close to a million hectares in size and is located in west-central Alberta (Figure 1). This diverse area is comprised of five natural sub-regions: Upper Foothills, Lower Foothills, Montane, Sub-Alpine and Alpine (listed in order of prevalence).

Eighty percent of the forested area consists of pure coniferous stands. Pure deciduous stands make up roughly 8% and the remaining 12% are mixedwoods. Pine is the dominant species and constitutes approximately 65% of the merchantable volume within the FMA. Therefore, the expanding mountain pine beetle (MPB) infestation being observed across west-central Alberta (during the autumn of 2009) make an MPB forest management plan (FMP) amendment critical for the Hinton Wood Products (HWP) FMA.

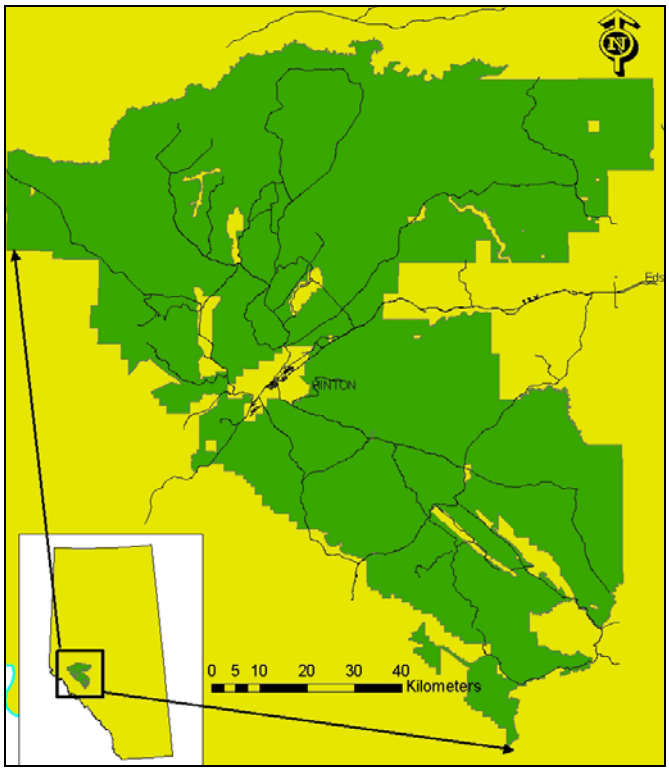

Figure 1. HWP forest management Area (Green) within Alberta

This landbase classification report is the first in a series of three technical reports undertaken as part of the HWP MPB FMP amendment. These reports are the basis for revising the annual allowable cut (AAC) for the Hinton FMA (Hinton FMA is a shorthand used throughout the report to refer to HWP's Forest Management Area). Since the 1999 FMP was completed and approved HWP has acquired new data sources, which include: a new forest inventory, a new watercourse layer, an ecological land classification inventory, MPB stand susceptibility indices, and LIDAR data. These new data along with changes in the timber utilization from a 10/8 pulp standard to a 15/11 sawlog standard has required HWP to complete much of the technical work required for a

full FMP; this includes: classifying a new landbase, building new yield curves, and constructing new TSA models.

This landbase classification report has four objectives:

1. Illustrate the methodology used to compile the various (and often disparate) data sources into a single *Fully Classified Landbase* (FCL) ;
2. Identify pine stands that are particularly vulnerable to MPB infestation;
3. Present the current condition of the Hinton FMA landbase by classifying each polygon in the FCL as either part of the contributing or passive landbase and assigning all forested areas to a yield stratum;
4. Output a layer that is compliant to the *Alberta Forest Management Planning Standard* which can be used within a TSA model to revise the AAC for the Hinton FMA.

1.1 Software Tools

All spatial data was handled through ARCMAP/ARCWORKSTATION 9.2 platform. The landbase classification process (see step 6 in the *Data and Methods* section) was done using SAS 9.2. FoxPro 9.0 was also used intermittently to translate data between software platforms and for error checking.

2 Data and Methods

The Fully Classified Landbase (FCL) was produced by using several data sources:

- Alberta Vegetation Inventory (AVI)
- FMA boundary (compliant with the FMA boundary as of May 1, 2008 Forest Management Agreement O.C. 565/2007)
- Harvesting compartments
- Cutblock history and silviculture records
- Fire history
- Ecological land classification
- Mountain pine beetle susceptibility index
- Natural sub-region
- Hydrology (Watercourses and Lakes)
- Watersheds
- ESIP zones
- HWP wildzones
- Steep slopes
- Dispositions
- Seismic / Cut lines
- Planned blocks

These data sources were combined through a 7 step process (Figure 2) and much as possible updated to a **base date of May 1, 2008**.

Step 1 -AVI Update: Cutblock and fire history were spatially combined with AVI to produce an inventory updated to the May 1, 2008 base date.

Step 2- Link data to AVI polygons: A change in natural sub-region or ecosite is often correlated with a change in surface vegetation. This relationship was the reason an earlier AVI version was used as an input data source for the building of HWP's Ecological Land Classification (ELC) inventory. Similarly, the Mountain Pine Beetle Stand Susceptibility Index (SSI) was directly derived from the mostly currently approved AVI. Therefore, the correspondence between AVI and these data layers allowed for each individual polygon in the new AVI to be assigned to a single natural sub-region, ecosite, and SSI.

Step 3 – Combine spatial data that divide AVI polygons: Many input data sources were weakly correlated or not correlated at all to the vegetation inventory. These data layers were spatially unioned into a single layer to allow for them to be more easily cut through the updated AVI layer (step 1 output) in step 4.

Step 4 – Combine the output from step 3 with the updated AVI from step 1: Union the output from step 3 to the output from step 1.

Step 5 – Incorporate seismic lines: Seismic lines were unioned to the output from step 4.

Step 6 - Classify the landbase: The landbase classification logic was applied and output into fully classified landbase tables.

Step 7 – Link fully classified landbase tables to GIS layer and output final spatial files: The output from step 6 was linked back to the GIS layers to produce fully classified spatial files.

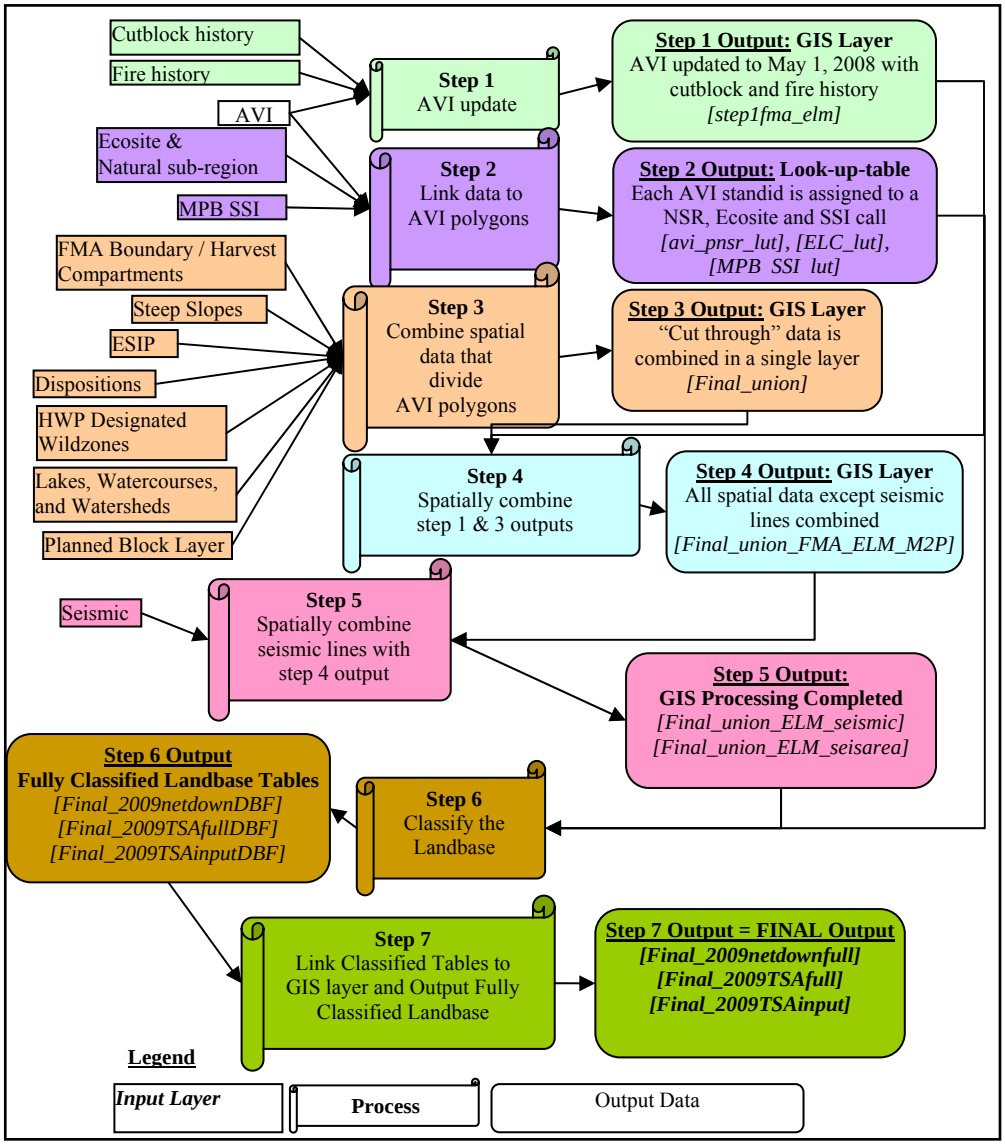

Figure 2. Schematic diagram of the overall method used to produce the FCL

Note: colour codes are used simply to separate steps to make the diagram easier to follow

- When a file is referenced during the following discussion it will be in the form ***[FILE NAME].*** If a specific field is being referenced within a file it will be referenced in the form ***[FILE NAME:FIELD NAME]*** or it will be clear that a field name is being discussed**.**

Table 1. Metadata for input layers

Layer	Step Used	Description	File Type	Effective Date	Projected Obsolete Date	Projection and Datum	Zunits	Units	Source
AVI_SS2	1	Approved AVI (2001 photos) – FMA snapshot 2	Shapefile Polygon	May 1, 2001	May 1, 2011	UTM 11 NAD83	NO	Meters Squared	HWP
FMP_Block_res_fixed_x	1	HWP cutblock data with residual patches identified	Shapefile Polygon	May 1, 2008	May 1, 2008	UTM 11 NAD83	NO	Meters Squared	HWP
Fires_00to07_FMAclip	1	SRD fire layer showing fires that occurred from 2000 to 2007 clipped to the Hinton FMA boundary	Shapefile Polygon	May 1, 2008	May 1, 2008	UTM 11 NAD83	NO	Meters Squared	SRD
ELC_short	2	Ecological Land Classification	Shapefile Polygon	May 1, 2006	Valid Indefinitely	UTM 11 NAD83	NO	Meters Squared	HWP
Provincial_NSR	2	Provincial Natural Sub-region	Shapefile Polygon	May 1, 2006	Valid Indefinitely	UTM 11 NAD83	NO	Meters Squared	SRD
MPB_ssi_lut	2	Mountain Pine Beetle Susceptibility Index	Look-up Table	May 1, 2001	Valid Indefinitely	NA	NA	NA	SRD
Hinton_04may08_withbufferdist	3	Watercourse Layers with buffers	Shapefile Linear	May 1, 2008	Valid Indefinitely	UTM 11 NAD83	NO	Meters	HWP
Lake_with_buffdist	3	Lakes with buffers	Shapefile Polygon	May 1, 2008	Valid Indefinitely	UTM 11 NAD83	NO	Meters Squared	HWP
Final_Riparian	3	Riparian Buffers	Shapefile Polygon	May 1, 2008	Valid Indefinitely	UTM 11 NAD83	NO	Meters Squared	HWP
Final_Watersheds	3	Watershed Boundaries	Shapefile Polygon	May 1, 2008	Valid Indefinitely	UTM 11 NAD83	NO	Meters Squared	HWP
Elev_5m_rast	3	LIDAR Based DEM	Raster	May 1, 2008	Valid Indefinitely	UTM 11 NAD83	YES	Meters	HWP Processed SRD LIDAR
Final_steep_slp	3	Inoperable areas due to steep slopes	Shapefile Polygon	May 1, 2008	Valid Indefinitely	UTM 11 NAD83	NO	Meters Squared	HWP Processed SRD LIDAR
DIDS_input	3	SRD DIDS Layer	Shapefile Polygon	November 1, 2008	November 1, 2008	UTM 11 NAD83	NO	Meters Squared	SRD & HWP
Road_Row	3	HWP Road Layer	Shapefile Polygon	November 1, 2008	November 1, 2008	UTM 11 NAD83	NO	Meters Squared	SRD & HWP
DIDS_lut_fin2	3	Look-up table identifying dispositions to remove	Look-up Table	November 1, 2008	November 1, 2008	NA	NA	NA	SRD & HWP
Final_Disposition	3	Disposition removals Based on DIDS and HWPs road layer	Shapefile Polygon	May 1, 2008	May 1, 2008	UTM 11 NAD83	NO	Meters Squared	SRD HWP
Final_ESIP	3	Eastern Slopes Land Use Prime Protection Zones	Shapefile Polygon	May 1, 2008	Valid Indefinitely	UTM 11 NAD83	NO	Meters Squared	SRD
Final_Wildzones	3	HWP Wildzones (Special Management Areas)	Shapefile Polygon	May 1, 2008	Valid Indefinitely	UTM 11 NAD83	NO	Meters Squared	HWP
Final_Compartments	3	Harvesting Compartments	Shapefile Polygon	May 1, 2008	Valid Indefinitely	UTM 11 NAD83	NO	Meters Squared	HWP
Final_Plan_Blks	3	Final Planned Blocks	Shapefile Polygon	May 1, 2008	Valid until Sequence is Harvested	UTM 11 NAD83	NO	Meters Squared	HWP
Geo_disp_region	5	HWP Cutline/Seismic Line Layer	Shapefile Polygon	December 31, 2007	December3 1, 2007	UTM 11 NAD83	NO	Meters Squared	HWP

2.1 Step 1 – Update AVI with Cutblock and Fire History

The inventory was updated to the May 1, 2008 base date through a spatial union between the AVI ***[AVI_ss2]*** layer, the cutblock layer and fire history layer (***[FMP_block_res_fixed_x] & [fire_00to07_FMAclip]***).

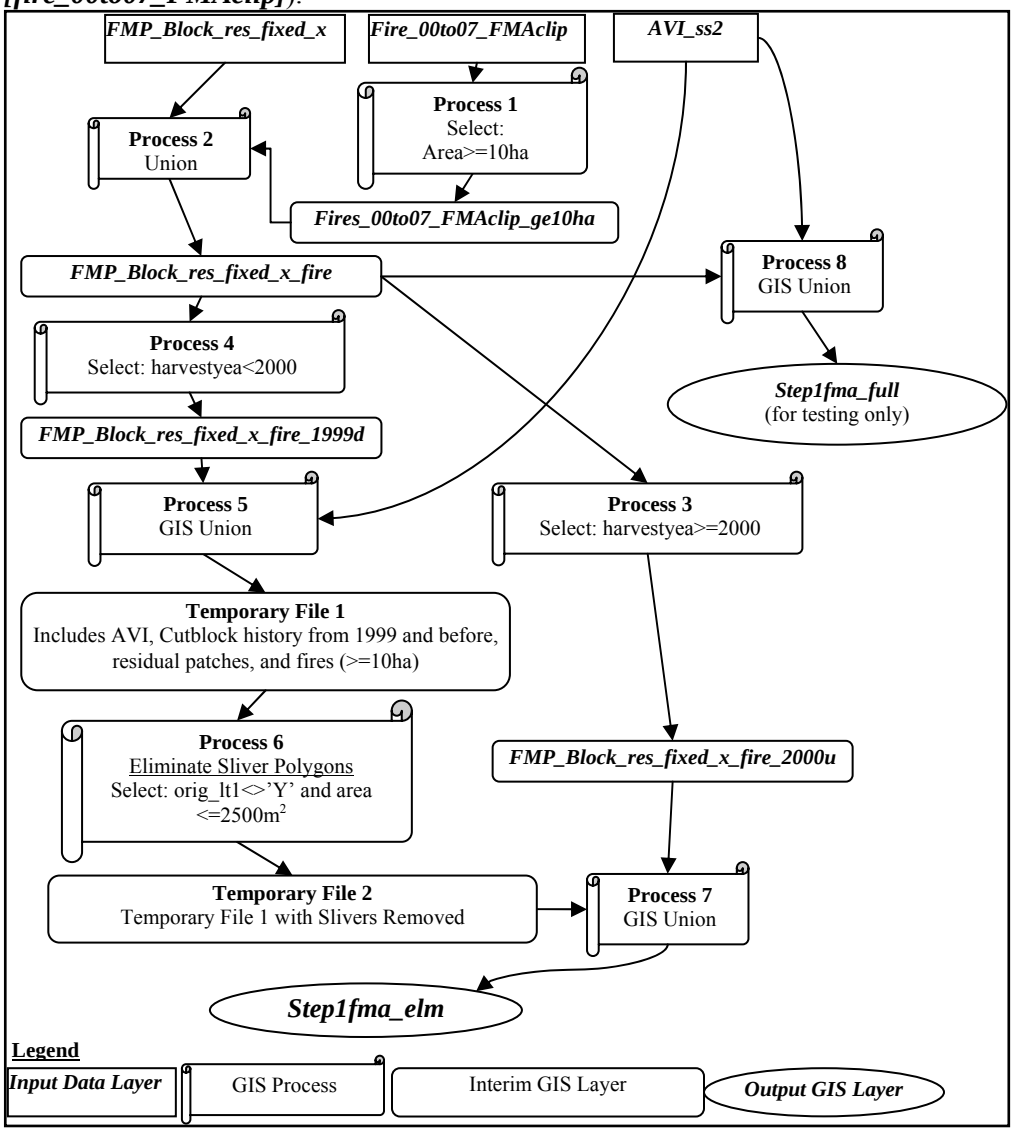

Figure 3. Step 1 overview

Input Layers

- ***[AVI_ss2]* –** most current approved AVI (snapshot 2.1) for the Hinton FMA.
- ***[FMP_Block_res_fixed_x]* –** spatial cutblock history on the Hinton FMA (residual patches identified).
- ***[fires_00to07_FMAclip]*** – SRD fire history from 2000 to 2007 (the start of the 2008 timber year) clipped to the Hinton FMA boundary. Fires prior to 2000 are captured by AVI and were not required to be cut into the net landbase.

Interim Layers

- ***[fires_00to07_FMAclip_ge10ha]*** –Hinton FMA fires that occurred from 2000 to 2007 that were at least 10ha in size. This layer was derived by querying for ***[fires_00to07_FMAclip:hectare_00]*** >= 10.
- ***[FMP_Block_res_fixed_x_fire] –*** A compilation of FMA cutblock history, residual patches, and fires from 2000 to 2007 (10ha+ in size). Derived from a GIS union of ***[FMP_Block_res_fixed_x]*** and ***[fires_00to07_FMAclip_ge10ha]***.
- ***[FMP_Block_res_fixed_x_fire_2000u] –*** contains all areas that were harvested since the start of 2000 (***[FMP_Block_res_fixed_x_fire:harvestyea]*** >= 2000) . Due to the 2001 photo date these areas were not represented by AVI polygons; therefore sliver removal was not permitted on these polygons (Section 2.1.6).
- ***[FMP_Block_res_fixed_x_fire_1999d] –*** contains all areas harvested prior to 2000, all residual patches, and fires from 2000 to 2007 (10ha+ in size). These cutblock areas were properly represented in the AVI; therefore sliver removal was permitted on these polygons.

Output Layers

- ***[Step1fma_full]*** – This layer was produced to compare against ***[Step1fma_elm]*** and to allow for easier audit of the sliver elimination process.
- ***[Step1fma_elm]*** – Final output from step 1, derived through applying a sliver elimination process on ***[Step1fma_full]*** as outlined in Figure 3.

2.1.1 AVI Background

The newest version of AVI for the Hinton FMA was completed on 2001 aerial photos and approved in 2006 (version 2.1 specifications). This was the second full AVI completed across the Hinton FMA.

Table 2. AVI History on the Hinton FMA

AVI- FMA Snapshot #	AVI Version	Aerial Photo Date	Implementation Date	Comments
1	2.1	1992 to 1995	1998	A compilation of three inventories taken between 1992 and 1998 to provide an inventory current to 1995. Portions of the inventory had a high level of field verification which resulted in finer polygon delineation for improved operational planning.
1.1	2.1	1998	2001	Some areas from snapshot #1 were upgraded to a finer resolution to support operational planning.
2	2.1	2001	2006	Entire FMA completed in a single inventory at a strategic planning scale. No operational scale work was done.

2.1.2 Cutblock History

HWP's harvest history layer (***[FMP_Block_res_fixed_x]***) is continually updated as new blocks are harvested and old blocks are altered. This information along with silviculture records provides HWP with a solid understanding of the location and condition of cutblocks across the FMA.

2.1.3 Spatial Cutblock data versus ARIS data

SRD uses the ARIS database to maintain information on all cutblocks harvested in Alberta. After a block is harvested, HWP reports the area cut to ARIS based on the area in the spatial cutblock layer. Therefore the areas recorded in ARIS should match the areas in HWP's current spatial cutblock layer. However some deviations will eventually occur, as the spatial cutblock layer is continually updated to reflect block boundary changes caused by other activities (such wellsite construction). These updates occur infrequently as only 8% of all blocks harvested since 1991 show a difference that is greater than 0.5ha between the current block area and the ARIS reported areas (this difference increases to 12% after the sliver removal process). This will have negligible impact on the TSA results as these block by block area differences only account for a 0.7% difference from the total area harvested since 1991.

2.1.4 Residual Patches

Residual patches are left within cut blocks to protect sensitive sites, protect vibrant understories, avoid currently unmerchantable timber, or avoid veteran wolf trees. A GIS process was used to define residual patches ***[FMP_Block_res_fixed_x :Resid]***=*'Y'* as uncut areas surrounded by cutover areas (Section 2.6.1.2 has more discussion on residual patches).

2.1.5 Fire History

According to SRD's spatial fire history layer, a total of 43,609ha have been burnt across the Hinton FMA since the 1930s; with 833ha having been burnt since 2000 ***[fires_00to07_FMAclip]***. All fires not captured by the 2001 aerial photos with an area greater than and equal to 10ha (a total of 778ha) were cut into the AVI harvest layer ***[fires_00to07_FMAclip_ge10ha]***. Fire polygons less than 10ha in size were not included because they account for only 54.6ha (6.6% of the total area burnt) while accounting for 85% of the polygons (Table 3).

Table 3. Hinton FMA fires from 2000 to 2007

Fire size	Total Area (ha)	Total Number of Individual Fires
<1ha	4.5	22
<2ha	9.9	26
<5ha	26.4	31
<10ha	54.6	35
Total	**832.6**	**41**

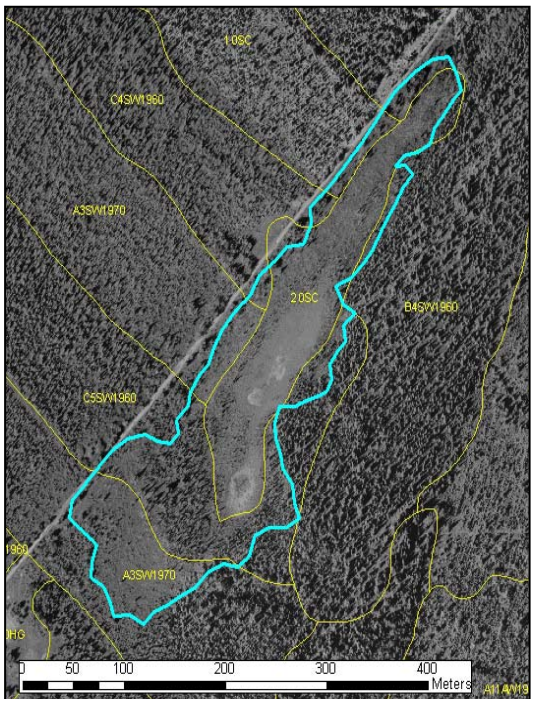

Figure 4. An example of a fire less then 10ha

Passive landbase areas are included therefore the impact on the contributing landbase is significantly less. Figure 2 shows a fire of 5ha burnt in 2003, which is one of the larger fires under 10ha. In this instance ½ to $^{2}/_{3}$ of the area is non-productive and will not be included in the net landbase. Small postage-stamp burns around the edges of larger fires are also included in the 54.6ha (Figure 5). These areas will eventually become part of the adjacent stand (perhaps as residual patches).

As the total area impacted was low and the implications were benign, the dropping of fire polygons less than 10ha in size was deemed to be an appropriate way of preemptively reducing the number of polygons in the resultant final FCL. In the very rare possibility that a change to the spatial harvest sequence (SHS) will be caused by this process, it will be addressed as an operational deviation from the SHS. The total burn area included in the FCL was 778ha.

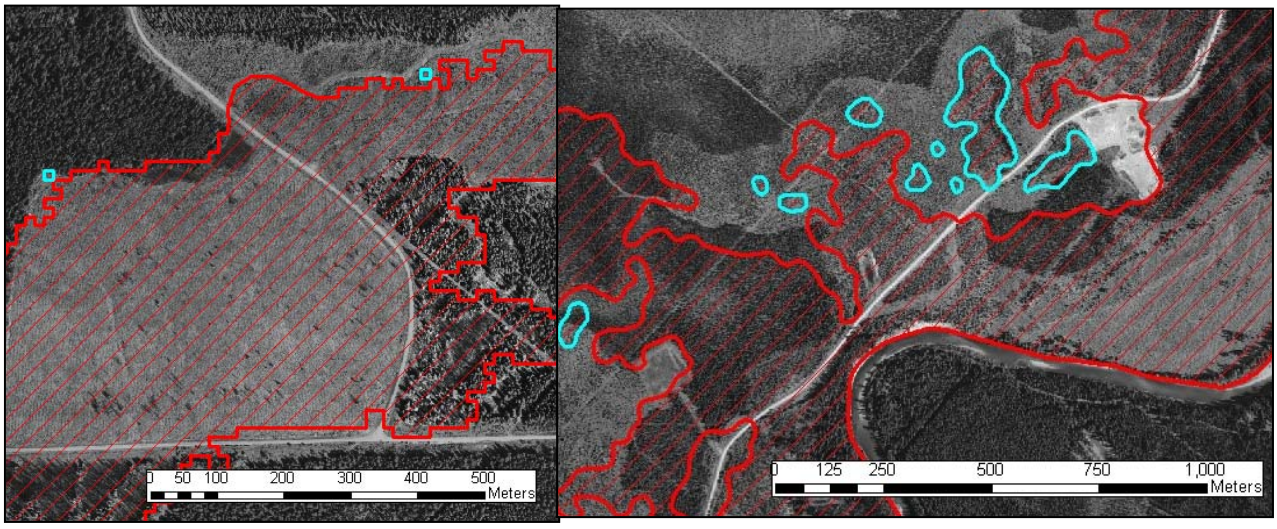

Figure 5. Postage-stamp burns associated with larger fires
Note: fires>=10ha in red; fires<10 in blue

2.1.6 Rationale for Sliver Removal

The landbase classification procedure is fraught with sliver making processes. For example, AVI and the cutblock layer both capture the location of cutblocks harvested prior to the photo date of 2001. This often results in dozens of additional polygons being produced for each cutblock on the FMA. Slivers cause three main difficulties:

1. Silvers dramatically increase processing times while contributing very little to the solution.

2. Slivers increase the complexity of the geometry in a layer which increases the chance of geometry or topology based errors.
3. Slivers can reduce the efficacy of some timber supply models by increasing the file size beyond what can readily be handled.

During sliver elimination (process 6 - Figure 3) polygons were deemed to be slivers if all of the following were true:

1. The polygon area was <= 0.25ha
2. The polygon area in the original AVI layer ***[AVI_ss2]*** was greater than and equal to 1ha
3. The polygon was not part of a cutblock that had been harvested in 2000 or after

The *Eliminate* command was used to amalgamate slivers into the neighbouring polygon with the largest shared common boundary. Polygons that were deems to be silvers can be queried in ***[Step1fma_full]*** through ***[orig_lt1<>'Y' and area <=2500]***.

The sliver removal process reduced the number of polygons by 45% (Table 4), but only impacted the cutblock area by just slightly over 0.1%. There were also minimal impacts on AVI attributes like leading species (Table 5 & Table 6). Therefore no reasonable risk to sustainability was posed by the sliver removal process.

Table 4. Polygon count of pre-union input layers and post-union output layers

	Data description	**Number of FMA Polygons**
Input Layer Pre-union	AVI ***[AVI_ss2]***	100,160
	Cutblock, residuals, & recent fires layer ***[FMP_Block_res_fixed_x_fire]***	22,946
Post-union	Slivers not removed ***[Step1fma_full]***	383,222
	Slivers <=0.25ha eliminated ***[Step1fma_elm]***	210,955

Table 5. Area by harvest decade pre and post sliver removal

Harvest Decade	**Cutblocks Area (ha)***		**(5) Percentage change in area**
	(3) Slivers Not Removed *[Step1fma_full]*	**(4) Slivers <=025ha Removed *[Step1fma_elm]***	
Unknown	2,694	2,721	1.007%
1950	7,868	7,864	-0.045%
1960	33,633	33,655	0.065%
1970	39,404	39,444	0.102%
1980	26,872	26,883	0.042%
1990	58,126	58,304	0.305%
2000	55,228	55,228	0.000%
	223,824	**224,099**	**0.123%**

* - Includes both contributing and passive landbases. The 2008 cutblocks are included in this table, where as throughout the rest of the report the 2008 cutblocks are considered pre-blocked fire origin stands.

Table 6. Leading species area distribution (AVI) before and after sliver removal

Species	Slivers Not Removed (ha) *[Step1fma_full]*	Slivers <=025ha Removed *[Step1fma_elm]*	Difference
No species	90,144	90,224	0.088%
AW	129,852	129,828	-0.019%
BW	445	446	0.185%
FA	932	932	-0.016%
FB	5,300	5,303	0.066%
LT	30,673	30,674	0.004%
PB	4,091	4,093	0.030%
PL	479,325	479,299	-0.005%
SB	130,409	130,383	-0.020%
SE	11,062	11,062	0.000%
SW	126,391	126,380	-0.009%
Total	**1,008,624**	**1,008,624**	**0.000%**

The sliver elimination process simplified the boundaries of individual blocks. For example, Figure 6 shows a 27ha block that was harvested in 1995. Prior to the slivers being removed the block consisted of 25 polygons with an area of 27.0ha. The numerous slivers make it difficult to quickly comprehend where block boundaries have been drawn and also give the false impression that there is a "no man's land" between mature stands and cutblocks. Conversely after the slivers (>=0.25ha) were removed the number of polygons dropped dramatically to 3 polygons with an area of 27.4ha, with the block location clearly evident.

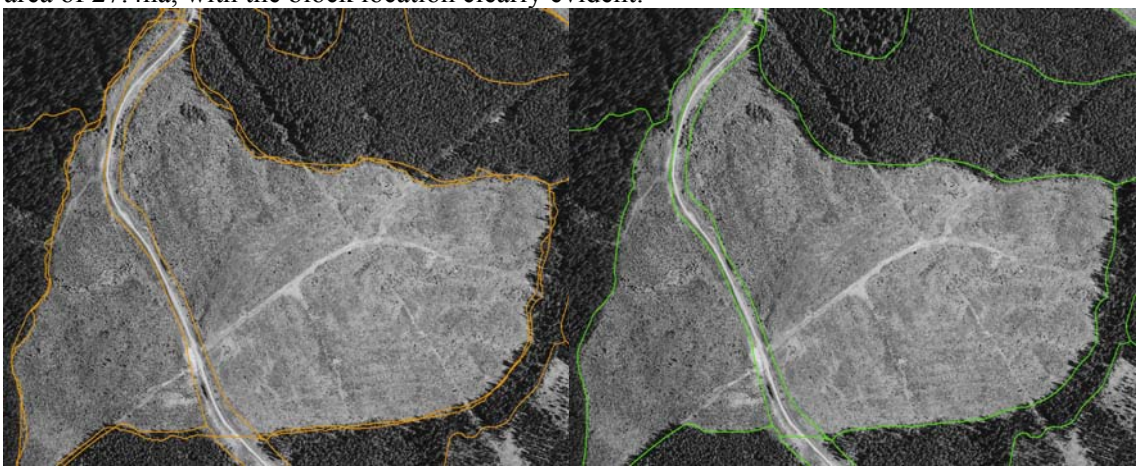

Figure 6. Linework after cutblock and AVI layers were unioned (sliver removal demonstrated)
Note: No sliver removal (ORANGE = Output 1A) versus Slivers removed (GREEN = Output 1B)

2.2 Step 2: Data Sources Linked to AVI Polygons

The following attributes are correlated with ground vegetation:

- Natural sub-region (NSR)
- Ecological land classification (ELC) data
- Mountain Pine Beetle Stand Susceptibility Index (SSI)

Therefore, the attributes from these data sets were assigned directly to each AVI polygon without GIS processing (step 2 in Figure 2)).

Input Layers

- ***[AVI_ss2]* –** Current approved AVI (2.1 standard) for the Hinton FMA. This is the second full AVI completed on the FMA. It was developed with 2001 aerial photos and was approved in 2006.
- ***[ELC_short]* –** Hinton FMA Ecological Land Classification inventory.
- ***[provincial_nsr]* –** SRD's 2006 provincial NSR spatial layer.

Output Layers

- ***[avi_pnsr_lut]*** – Look-up table that links one provincial NSR call to each AVI polygon on *standid* ***[AVI_ss2:Standid]***.
- ***[ELC_LUT]*** – Look-up table that links one ***[ELC_short]*** record to ***[AVI_ss2:Standid]***. Please note there is a slight difference in the number of records in ***[AVI_ss2]*** where standid>0 (100,154) and the number of records in ***[ELC_LUT]*** (99,761). This was expected and was caused by the following:
    1. This difference was mostly due to the original ELC project not being completed in areas that were within the outer FMA perimeter but outside the FMA. For example no ELC inventory was collected within most of Switzer Park whereas AVI was completed throughout the park.
    2. ***[AVI_ss2]*** includes some small areas outside the outer FMA perimeter which were not covered by the ELC inventory.
    3. Within the ELC data some small areas did not have a call due to lack of data. In the rare instances when no ELC NSR call was available then the provincial NSR call was used. Similarly, when no ELC ecosite calls were available then AVI TPR was used to assign site class (Section 2.6).
- ***[MPB_SSI_LUT]*** – Look-up table of Mountain Pine Beetle stand susceptibility indices for each AVI polygon.

2.2.1 Ecological Land Classification and Ground Operability

In 2006 HWP completed an ecological inventory for the Hinton FMA called the Ecological Land Classification (ELC). Full documentation is available to SRD upon request. The ecological attributes of the spatial inventory were collected to comply with the *1996 Field Guide to Ecosites of West-central Alberta* (Beckingham et al). The ELC layer was used to provide spatial information on natural subregion, site quality, and the likelihood of summer harvesting access.

Methodology for Developing the ELC look-up table

Process 1.	Dissolve *[ELC_short]* on *[ELC_NSR]*
Process 2.	Union the output file from process 1 with *[AVI_ss2]* and recalculate polygon area.
Process 3.	Summarize process 2 output for area by standid and sub_region. The sub_region with the largest area for a given stand_id was assigned to the entire polygon.
Process 4.	Union *[ELC_short]* and *[AVI_ss2]* and recalculate polygon area.

Process 5. Link table from process 3 output to the output from process 4.
Process 6. Summarize process 5 output for area by the standid, sub_region, eco_site, and summer_op fields.
Process 7. For each standid the valid data assignment was where: the sub_region assignment is the same as that designated in process 3. For example: from process 3 we know that standid=0001 is in the LF sub-region. After process 4 there are 3 resultant polygons for standid=0001 with the following attributes:

a. Sub-region=MN, Ecosite=C, Area=10ha
b. Sub-region=LF, Ecosite=E, Area=9ha
c. Sub-region=LF, Ecosite=F, Area=7ha

In this instance the entirety of standid=0001 was assumed to be in the Lower Foothills, with an Ecosite of E (the results from process 3 prohibit the 'MN' call from being used).

Process 8. Output a lookup table ***[ELC_LUT]*** based on process 7 to be used in step 6 (Figure 2).

Key Fields from the ELC data

- Sub_region: ELC NSR
- Eco_site: ELC ecosite
- LTAP_FIN: **Ground operability** (independent of access). The five categories are:
    i. **Contingency** – Almost Always Summer Operable: These sites remain summer operable even during periods of significant precipitation.
    ii. **Summer_A** – Usually Summer Operable: These sites should remain summer operable during periods of light precipitation. As the intensity and duration of rain events increase, this category will become increasingly summer inaccessible. However, these locations should recover quickly after precipitation ceases.
    iii. **Summer_B -** Intermittently Summer Operable: Large amounts of this category will likely be summer inaccessible during rain events and for short periods thereafter (caution: be prepared to move ops).
    iv. **Marginal -** Marginal Ground: Summer operable only during extensive dry periods.
    v. **Winter -** Winter Ground Only: These locations are almost never summer operable.
- **Summerop:** Identifies ground that is likely to be summer operable based on the current road network.

2.2.2 Provincial Natural Sub-region

Similar to the process used for the ELC data a look-up table was produced where each AVI polygon was assigned a 2006 provincial NSR call.

2.2.3 MPB SSI

Early in 2009 SRD ran Alberta's Mountain Pine Beetle Stand Susceptibility Index model on HWP's new AVI layer ***[AVI_SS2]***. The look up table ***[Mpb_ssi_lut]*** from this process was used in the landbase classification.

2.3 Step 3: Union Spatial Data that Divide AVI Polygons

All layers cut-through the updated AVI in step 4 (Figure 2) were first combined into a single layer (Figure 7).

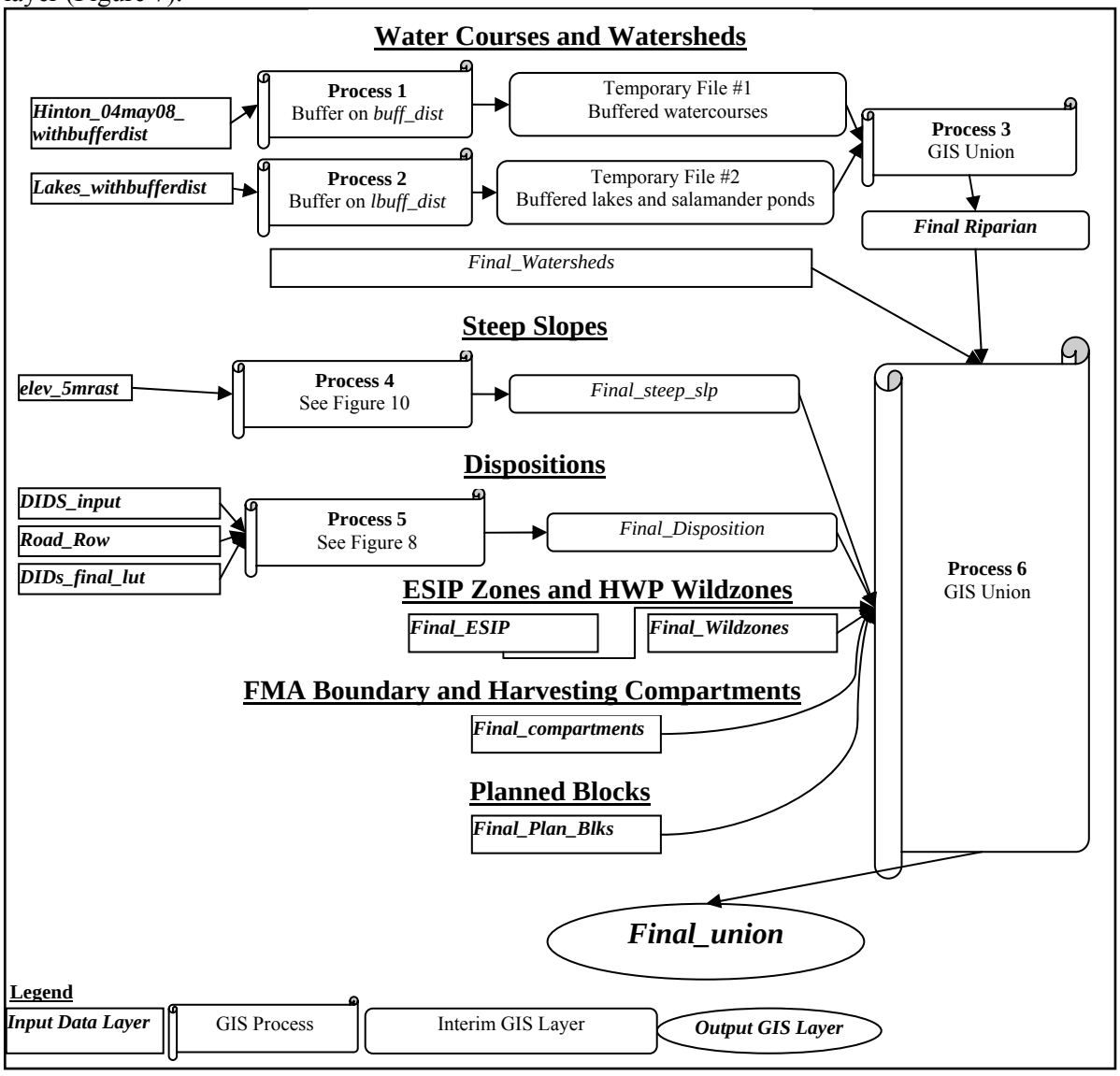

Figure 7. Step 3 overview

Input Layers
Each input layer is described in detail in separate sections below.

Output Layer

[Final_union] – Output layer used in step 4 to union to the updated AVI output from step 1.

2.3.1 FMA Boundary, Working Circles, and Compartments

As part of the 2009 FMP process, HWP revised the FMA working circles, and planning compartments to comply with the new FMA boundary (O.C. 565/2007). The FMA has a total of five working circles, 135 compartments, and seven forest management units (Table 7).

Table 7. Relationship between working cicles and FMUs

Working Circle	Number of Compartments	FMU
Berland	30	E7 (E4*)
Athabasca	32	E6 (E4*)
Marlboro	26	E3
McLeod	25	E4, (E5*)
Embarras	22	E1, E5, E11

* - Only a small portion

Input Layers

- ***[Final_Compartments]* –** Hinton FMA boundary, working circles, and compartments effective May 1, 2008.

2.3.2 Landuse Dispositions

Landuse dispositions were based on a combination of two data sources (Alberta's Digital Integrated Dispositions (DIDS) data and HWP's roads layer).

Input Layers

- ***[DIDS_input]* –** DIDS input layer obtained from SRD November 2008.
- ***[Road_Row]*** – Roads layer that combines HWP's roads layer with all DIDS *LOC* type dispositions with a verification date after December 31, 2004. HWP maintains a road layer that is updated to reflect actual construction. Road widths (Table 8) were applied to this layer based on the declared maximum disturbed area in *HWP's 2002 Harvest Planning and Operating Ground Rules (2002 Weldwood of Canada).*

Table 8. Buffer widths applied to roads

Road Class	Maximum Disturbed Width (m)	Buffer Distance (m)
1	35	17.5
2	35	17.5
3	30	15
4	25	12.5

- ***[DIDS_lut_fin2]* –** A look-up table that defines each disposition in ***[DIDS_final]*** as being a landbase deletion or part of the contributing landbase (Table 9). Note: ***[DIDS_lut_fin2]*** has more records than ***[DIDS_final]*** because ***[DIDS_lut_fin2]*** includes

very small areas (<2ha) not present in DIDS as well as some dispositions that are beyond the outer FMA perimeter.

Table 9. Disposition type by landbase deletion category

Disposition Deletion Category		Disposition Type/Number
FMA Landbase Deletions	Entire category is a Landbase Deletion	• Easement (EZE) • Forestry Road (FRD) • Grazing Lease (GRL) • Grazing Permit (GRP) • License of Occupation (LOC) • Miscellaneous Lease (MLL) • Miscellaneous Permit (MLP) • Mineral Surface Lease(MSL) • Pipeline Installation Lease (PIL) • Pipeline Agreement (PLA) • Private Land Sale (PLS) • Provisional Roadway (RDS) • Rural Electric Association Easement (REA) • Recreation Lease (REC) • Right-of-Entry (ROE) • Right-of-Way (ROW) • Registered Roadway (RRD) • Surface Material License(SMC) • Surface Material Exploration (SME) • Surface Material Lease (SML) • Vegetation Control Easement (VCE)
	Protective Notation (PNT) type landbase deletions (by disposition number)*	50184, 550001, 550004, 550005, 550006, 550007, 742945, 810592, 830187, 890291, 900211, 900213, 910257, 910258, 910259, 910261, 920190, 940074, 960185, 960186, 970030, 970031, 980055, 980057, 980159, 990099, 990161
	PNT type landbase deletions addressed as a lake buffer – see Section 2.3.3 (by disposition number)*	10260, 10325, 20232, 880111, 880112
	Disposition Reservation (DRS) type landbase deletions (by disposition number)*	28, 264, 591, 692, 789, 914, 1031, 20051, 60031, 60032, 60078, 810052, 810055, 810057, 830010, 830028, 830085, 840027, 840030, 850039, 850084, 860117, 870075, 870076, 870081, 870082, 870090, 870124, 890004, 890060, 920016, 950022
Part of the FMA Contributing Landbase		• Consultative Notation Company (CNC) • Consultative Notation (CNT) • Industrial Sample Plot (ISP) • Forest Grazing License (FGL) • Holding Reservation (HRS)

* - All other PNT and DRS disposition numbers were not landbase deletions and were considered part of the contributing FMA landbase.

Interim Layers

- ***[DIDS_final]* –** full combined disposition layer (DIDS and HWP's roads layer combined)
- ***[Final_Disposition_OG]*** – Export of the dispositions that prohibit harvesting from ***[DIDS _final]*** (individual disposition numbers are maintained).

Output Layer

- ***[Final_Disposition]* –** final output layer of dispositions that prohibit forest management.

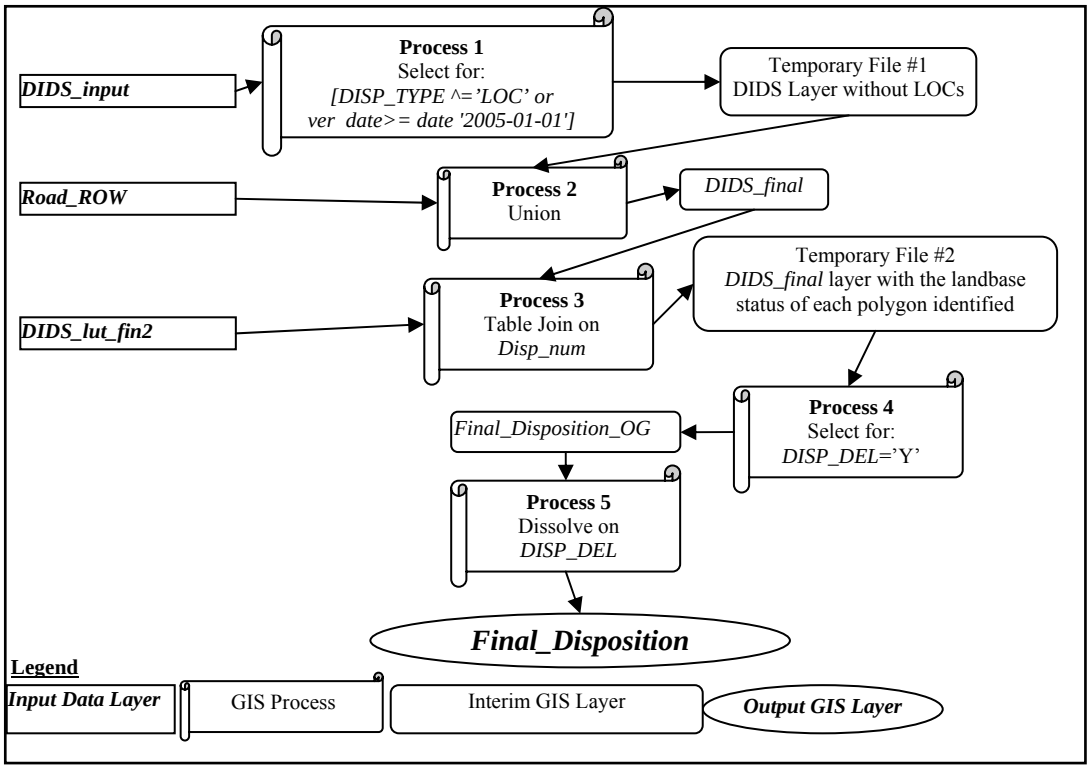

Figure 8. Method used to derive final Disposition Layer.

2.3.3 Watercourses, Riparian Zones, and Watersheds

In 2008 Land Data Technologies (LDT) completed a watercourse delineation project for the Hinton FMA (documentation available to SRD upon request). These data delineate the location of watercourses and water bodies across the FMA.

Input Layers

- ***[Hinton_04may08_withbufferdist]* –** watercourse layer with Class "A" and "B" watercourses explicitly defined. Buffer widths (see *[buff_dist]* field) were assigned as per the *Alberta timber harvest planning and operating ground rules framework for renewal, January 2008.*

Watercourse classification in ***[Hinton_04may08_withbufferdist]***:

- Class "A" Waterbodies were identified by manually selecting watercourse segments based on referencing the *Code of Practice for Pipelines and Telecommunications Lines Crossing a Water Body – Code of Practice for Watercourse Crossings – Edson Management Area Map.* Class "A" waterbodies can be queried by: ***[class_A]*** = 'Y'.
- Class "B" Waterbodies were identified by manually selecting watercourse segments based on referencing the *Code of Practice for Pipelines and Telecommunications Lines Crossing a Water Body – Code of Practice for Watercourse Crossings – Edson Management Area Map.* Class "B" waterbodies can be queried by: ***[class_B]*** = 'Y'.

- Waterbodies within 2kms of a class "A" waterbody were identified by placing a 2km buffer on all class "A" waterbodies. Waterbodies within 2kms of a Class "A" Waterbody can be queried by: ***[ClsA_2kms]*** = 'Y'.
- Waterbodies within 500m of a class "B" waterbody were identified by placing a 500m buffer on all class "B" waterbodies. Waterbodies within 500m of a Class "B" Waterbody can be queried by ***[ClsB_500m]*** = 'Y'.
- Large Permanent: All two-line watercourses (*[Feature] = 'RIVER_RIGHT_BANK' or [Feature] = 'RIVER_LEFT_BANK'*) were identified as large permanents. Islands *[feature]='ISLAND'* within two-line watercourses were also flagged as being part of large permanent watercourses.
- Small Permanent: All single-line permanent watercourses *[Code] = 'PERMANENT'* and *[Feature]='RIVER'* were identified as small permanents.
- Intermittent: All watercourses where *[Code]* = 'INTERMMITTENT' *(sic)* were assumed to be intermittent.
- Ephemeral – All watercourses where *[Code]* = 'EPHEMERAL' were assumed to be ephemeral.

Table 10. Riparian buffer widths by watercourse type

Watercourse Type	**Selection code in *[Hinton_04may08_withbufferdist]***	**Buffer width - applied to both sides (m)**
Class "A" waterbody	*[Class_A]* = "Y"	100
Class "B" waterbody - permanent	*[Class_B]* = "Y" and *[Code]* = 'PERMANENT'	60
Class "B" waterbody - not permanent	*[Class_B]* = "Y" and *[Code]* ^= 'PERMANENT'	30
Large permanent	*([Feature]= 'RIVER_LEFT_BANK' or [Feature]= 'RIVER_RIGHT_BANK'or [feature]='ISLAND') and [Class_A]* ^= "Y" and *[Class_B]* ^= "Y"	60
Small permanent (not part of a class "A" or "B" waterbody)	*[Code]* = 'PERMANENT' and *[Feature]='RIVER'* and *[Class_A]* ^= "Y" and *[Class_B]* ^= "Y"	30
Water source areas*	*[Feature]* = 'MARSH' and *[Class_A]* ^= "Y" and *[Class_B]* ^= "Y"	20
Intermittent - within 2kms of a Class "A" waterbody ; or - within 500m of a Class "B" waterbody	*[Feature]* = 'RIVER' and *[Code]* = 'INTERMMITTENT' and *([ClsA_2kms]* = 'Y' or *[ClsB_500m]* = 'Y')	10
Ephemeral - within 2kms of a Class "A" waterbody ; or - within 500m of a Class "B" waterbody	*[Feature]* = 'RIVER' and *[Code]* = 'EPHEMERAL' and *([ClsA_2kms]* = 'Y' or *[ClsB_500m]* = 'Y')	5

* - Watersource areas are normally identified during layout. However this was an attempt to preemptively account for these areas within the landbase classification.

- ***[lake_with_buffdist]* –** lake layer for the Hinton FMA. The layer identifies lakes across the FMA along with required buffer distances (see *[lbuff_dist]* field). Lakes requiring extra consideration for Salamanders and Trumpeter Swans were also identified.

Table 11. Riparian buffer widths applied to lakes

Watercourse Type	Selection code in *[lake_with_buffdist]*	Buffer width applied (m)
Trumpeter Swan Lake	*[LAKE_DISP]* = "TSWAN"	200
Salamander Lake	*[LAKE_DISP]* = "SALMA"	100
Lakes >= 4ha	*[Area] >= 40000*	100
Lakes < 4ha with recreational or sport potential*	*[Area] < 40000* and *[Type]* = 'Permanent'	30

* - Lakes were not classified by recreational or sport potential. It was assumed that any lakes identified as "Permanent" in ***[lake_with_buffdist]*** had recreational or sport potential. This assumption should be reviewed during the next landbase allocation process.

Oxbow lakes were captured in ***[lake_with_buffdist]*** but were not distinguished from non-oxbow lakes. Therefore the decision rules used for applying buffers to lakes (Table 11) results in "permanent" oxbow lakes being buffered 30m rather than the suggest 20m as per *Alberta timber harvest planning and operating ground rules framework for renewal, January 2008.* This 10m difference is not a cause for concern (or at least certainly at the FMP level) as oxbow lakes are often associated with sites that have been deleted for multiple reasons including buffers from neighbouring rivers, wet sites, or unmerchantable timber (Figure 9).

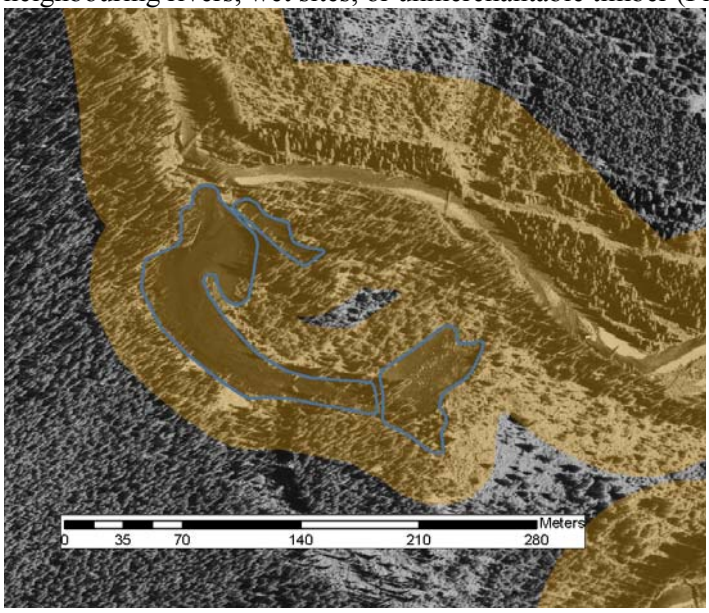

Figure 9. Oxbow lake (Blue) along the Berland River as delineated in *[lake_with_buffdist]*
Note: Orange shading shows the riparian buffer applied to both the river and lake.

Riparian Output Layer

[Final_riparian] – Riparian buffers (both watercourses and lakes) used in the FCL.

Watershed Layer

A new watershed layer ***[final_watersheds]*** was produced (by HWP staff) by referencing watercourse locations, heights of land, and by using local knowledge. The goal was to ensure that each hectare of the FMA was assigned to a single watershed with a single exit point that was between 4,000 and 8,000ha in size. These boundaries are used to assess water yield changes caused by implementing forest management scenarios.

2.3.4 Steep Slopes

A data exchange agreement between ASRD and HWP allowed HWP to obtain LIDAR data for the Hinton FMA in 2008. LIDAR data was used to delineate steep slopes (defined as 45%+) across the FMA (Figure 10).

Input Layers

- ***[elev_5m_rast]* –** LIDAR based DEM on a 5m raster grid (available to SRD upon request).

Interim Layers

- ***[slope_5m]*** – Slope percentage on a 5m raster grid.
- ***[hwpslp_5to15m_steeponly]*** – a shapefile processed from ***[slope_5m]*** that shows the discrete location of all 45%+ slopes.
- ***[fma_stpslpall_75m_fin]* –** Complete depiction of FMA steep slope removals including both discrete steep slope locations and areas isolated due to steep slopes.

Output Layers

- ***[final_steep_slp]* –** Final steep slopes layer used to delineate the FCL.

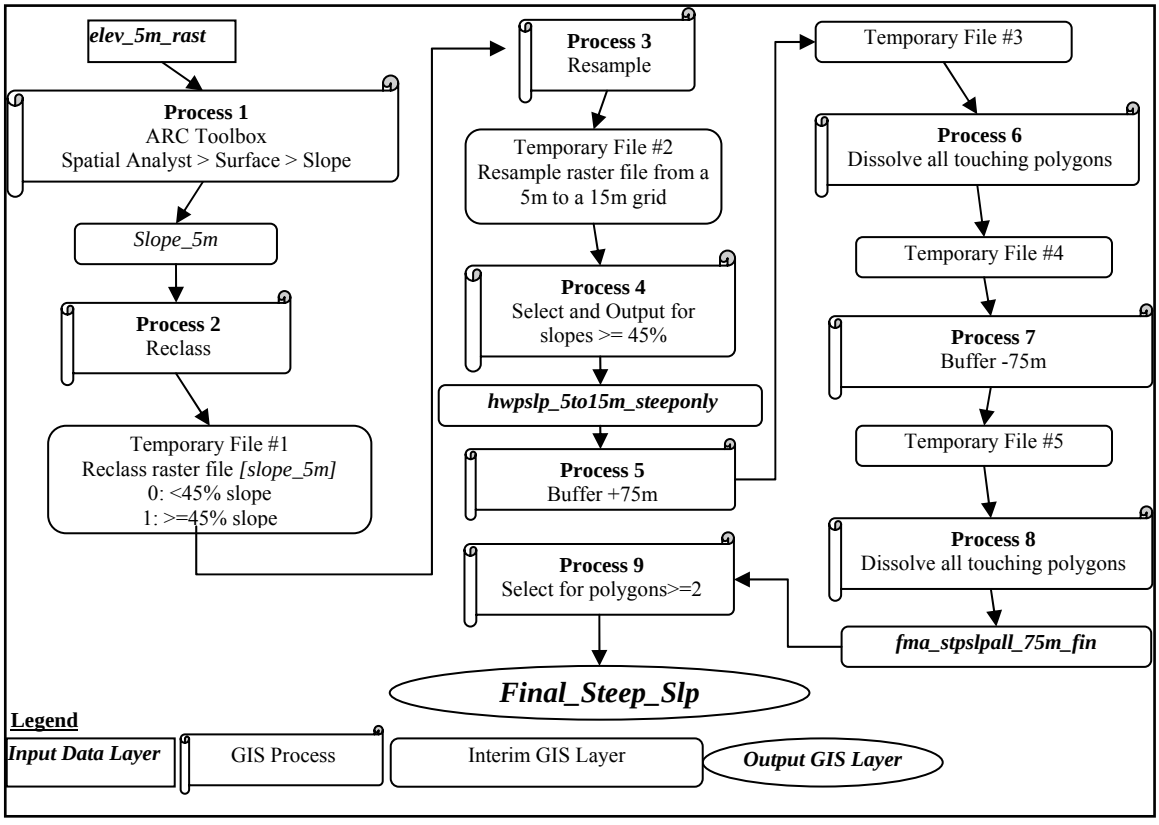

Figure 10. Method used to process LIDAR DEM to final steep slopes layer *[final_steep_slp]*.

Process 1 - ARCMAP 9.2 Toolbox (Spatial Analyst Tool Box>Surface>Slope Tool) was used to transform the input DEM layer (5m raster grid) into a percentage slope layer.

Process 2 - The 5m slope raster layer ***[slope_5m]*** was reclassified so that:

0 = less than 45% slope
1 = greater than and equal to 45% slope

Process 3 - The reclassified layer was resampled to a 15m grid from a 5m grid. This was done to reduce the file size and as a 5m grid was a finer resolution than was warranted.

Process 4 - Output layer showing the discrete location of steep slopes (Figure 11).

Process 5 - Discrete steep slope areas were buffered +75m.

Process 6 - The post-buffer polygons were dissolved to remove boundaries between adjacent polygons.

Process 7 - The remaining dissolved polygons were buffered -75m to reduce the outside boundary size.

Process 8 - The boundary between adjacent polygons was dissolved.

Process 9 - All polygons less than 2ha were removed. Steep slope polygons less than 2ha were indicative of small isolated areas and were not automatically defined as inaccessible.

Total FMA area in discrete steep slopes prior to buffering:
[hwpslp_5to15m_steeponly] 21,917 ha

Total area in steep slopes after buffering:
[fma_stpslpall_75m_fin] 53,574 ha
- Steep slopes in polygons < 2ha in size 3,338 ha
- Steep slopes in polygons >= 2ha in size 50,236 ha*

* - exported to ***[Final_Steep_Slp]***

Estimated total FMA area in steep slopes in the 1999 FMP 15,000 ha†

† - this is an estimate only. Due to the process used in 1999 it is difficult to assess the total slope area. An FMA total of 10,303ha were removed from the 1999 contributing landbase; however this does not include several deletion types that were removed prior to the steep slope assessment.

HWP staff indicated steep slopes were not sufficiently identified in the 1999 FMP landbase classification. This issue was partially resolved through better data (LIDAR) and by evaluating the relationship between individual steep areas. Rarely are steep slopes in a contiguous band, rather they are usually intermixed with gentle slopes and even flat plateaus. Figure 11 shows a clear situation where simply using individual steep slope designations does not adequately reflect the full area that is inaccessible due to steep slopes. These inaccessible areas were captured through a process of buffering individual steep areas 75m and dissolving boundaries between adjacent polygons (Figure 12).

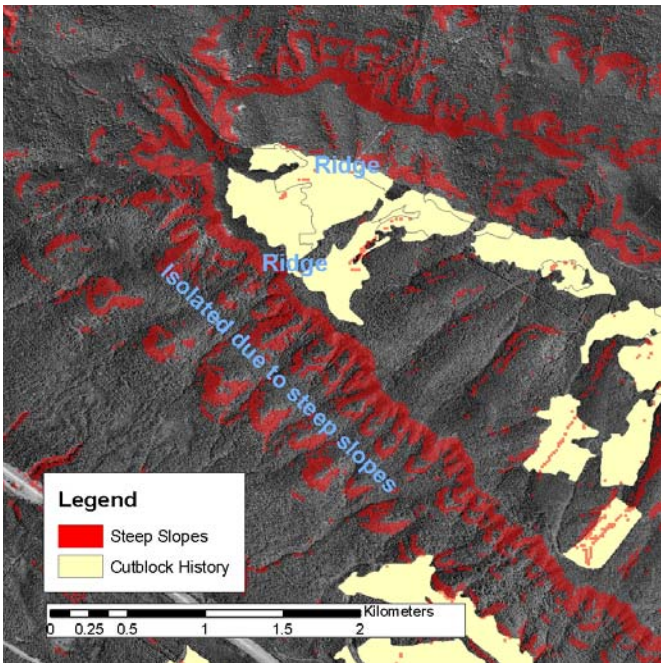

Figure 11. Discrete steep slope areas prior to buffering from ***[hwpslp_5to15m_steeponly]*****.**

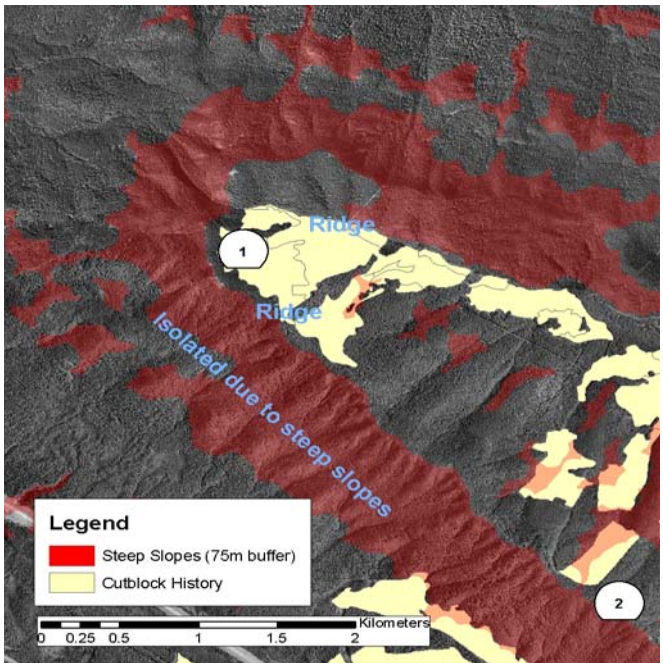

Figure 12. Steep slopes layer with 75m buffer applied

2.3.5 ESIP and HWP SMA Wildzones

In 2008, SRD provided HWP with the Eastern Slopes Land Use Zones (ESIP) spatial layer for the province. This layer was used in the FCL to remove prime protection ESIP zones from the contributing landbase.

HWP maintains a spatial layer of special management areas (SMA) wild zones which identifies potential habitat zones for Mountain Goats, Trumpeter Swans, and Woodland Caribou. Timber harvesting is a compatible activity within these zones, therefore SMAs are not landbase "deletions" but rather signify areas where additional planning for wildlife may be required.

Layers

- ***[final_ESIP]* –** ESIP prime protection areas (harvesting prohibited).
- ***[final_Wildzones]* –** HWP SMAs.

2.3.6 Planned Blocks

One objective of the MPB FMP is to obtain a 10 year spatial harvest sequence. Planned blocks were spatially cut into the FCL through the planned block layer ***[final_plan_blks]***. These spatially delineated blocks are expected to provide AAC volume for the first two to three years of the spatial harvest sequence. The remaining portion of the spatial harvest sequence will be provided by forcing the timber supply model to concentrate harvesting in high priority compartments (Table 12). Until timber supply modeling commences it is impossible to know with certainty if the identified high priority compartments will provide the volume required to complete the SHS (reference the forthcoming timber supply modeling technical report for a discussion of the results).

Table 12. Planned blocks by compartment, year, and data source

Compartment	2008	2009	2010-2011	2012-2014	2015 - 2017	Notes
Athabasca 1			P	P	P	New MPB design
Athabasca 15		A	P	P	P	Plan 2nd pass MPB
Athabasca 19	C	A				Should be complete in 2009
Athabasca 22	C	A				Should be complete in 2009
Athabasca 24			P	P	P	Plan 2nd pass MPB
Athabasca 26			P	P	P	Plan 2nd pass MPB
Athabasca 27	C	A	P			Redesigned 2nd pass MPB
Athabasca 28			P	P	P	New MPB design
Athabasca 29			P	P	P	Plan 2nd pass MPB
Athabasca 30		A	P	P		MPB blocks approved, commence 2010
Athabasca 31			P	P	P	Plan 2nd pass MPB
Athabasca 35			P	P	P	Plan 2nd pass MPB
Marlboro 2			P	P	P	Potential for Blue Ridge
Marlboro 4			P	P	P	Potential for Blue Ridge
Marlboro 5				P	P	Potential for Blue Ridge
Marlboro 8	C				P	Aspen
Marlboro 13			P	P	P	Redesign for Pl and Aw
Marlboro 16	C	A	P	P	P	Aspen
Marlboro 17	C	A	P	P	P	Aspen
Marlboro 18				P	P	Aspen
Marlboro 21			P	P	P	Potential for Blue Ridge
Marlboro 22			P	P	P	Potential for Blue Ridge
Embarras 6			P	P	P	Plan 2nd pass MPB
Embarras 7		A	P	P		Redesign for MPB
Embarras 9	C	A				Finish and close
Embarras 10			P	P	P	Plan 2nd pass MPB

Compartment	2008	2009	2010-2011	2012-2014	2015 - 2017	Notes
Embarras 11			P	P	P	Plan 2nd pass MPB
Embarras 12			P	P	P	Plan 2nd pass MPB
Embarras 20			P	P	P	Redesign for MPB
McLeod 3			P	P	P	Redesign for MPB
McLeod 5		A	P			New MPB design
McLeod 6			P	P	P	New MPB design
McLeod 7		A	P			New MPB design
McLeod 8			P	P	P	New MPB design
McLeod 12			P	P	P	Plan 2nd pass MPB
McLeod 13			P	P		Aspen
McLeod 16			P	P		Aspen
McLeod 17			P	P	P	Plan 2nd pass MPB
McLeod 20			P	P	P	New MPB design
McLeod 21	C	A				Finish and close
McLeod 23			P			Robb FireSmart
McLeod 24			P	P	P	Plan 2nd pass MPB
McLeod 25						1 contingency block
McLeod 27	C		P	P	P	Plan 2nd pass MPB
Berland 6	C	A				Finish and close
Berland 7	C	A				Finish and close
Berland 9	C	A				Finish and close
Berland 10	C	A				Finish and close
Berland 11	C	A				Finish and close
Berland 12	C	A	P			Finish and close
Berland 18	C	A				Finish and close
Berland 23			P	P	P	New MPB design
Berland 25			P	P	P	Plan 2nd pass MPB
Berland 26	C	A	P	P	P	Redesign for MPB
Berland 27			P	P	P	Plan 2nd pass MPB
Berland 29			P	P	P	New MPB design
Berland 33			P	P	P	New MPB design

Table notes: **C =** Cut block harvest history: As the base date of the plan is May 1, 2008 "planned blocks" during the 2008/09 timber year have already been cut. Therefore, the harvest boundaries were placed in the FCL they are used as "planned blocks" in the spatial harvest sequence. The cutblock layer ***[FMP_Block_res_fixed_x]*** provides these data.

A = Recent AOP blocks: Blocks that have not been harvested will be incorporated into the FCL based on planned boundaries ***[final_plan_blks]***.

P = Priority harvesting compartment: The timber supply model will be confined to priority harvesting compartments augmented with MPB rankings and AVI covertype call.

Layers

- ***[final_plan_blks]* –** Planned block input layer.

2.4 Step 4: Union Updated AVI (Step 1 output) with other Spatial Layers (Step 3 output)

Outputs from Step 1 *[step1fma_elm]* and Step 3 *[final_union_FMA_ELM]* were combined to produce an output layer *[final_union_FMA_ELM_M2P]* that was used as an input into step 5 (see section 2.5). This was purely a GIS processing step.

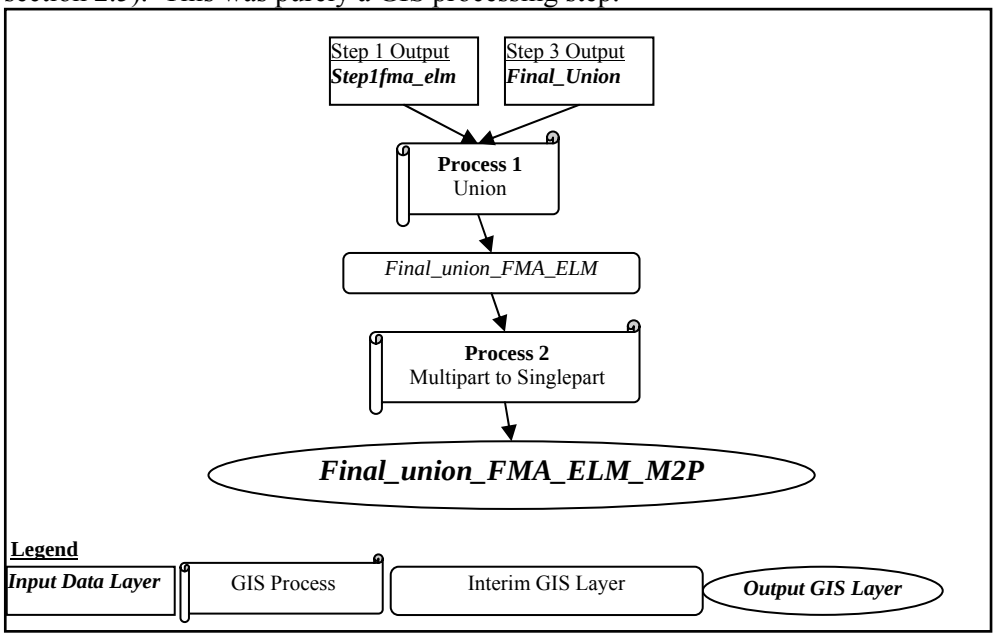

Figure 13. Step 4 overview

2.5 Step 5: Add in Seismic Lines

Seismic lines were addressed separately from other spatial data (in step 3 – Section 2.3) for the following reasons:

1. Unlike pipelines and roads; seismic lines (and other small non-disposition cutlines) are not a barrier to block design.
2. Seismic lines are regenerated after blocks are harvested. Therefore it is unrealistic to assume they are a continual deletion throughout the entire 200 year planning horizon.
3. Due to points 1 and 2 above, two layers were produced:
   a. ***[Final_union_ELM_seismic]:*** Seismic lines explicitly spatially maintained.
   b. ***[Final_union_ELM_seisbyarea]:*** Seismic lines reported as an area within individual polygons.

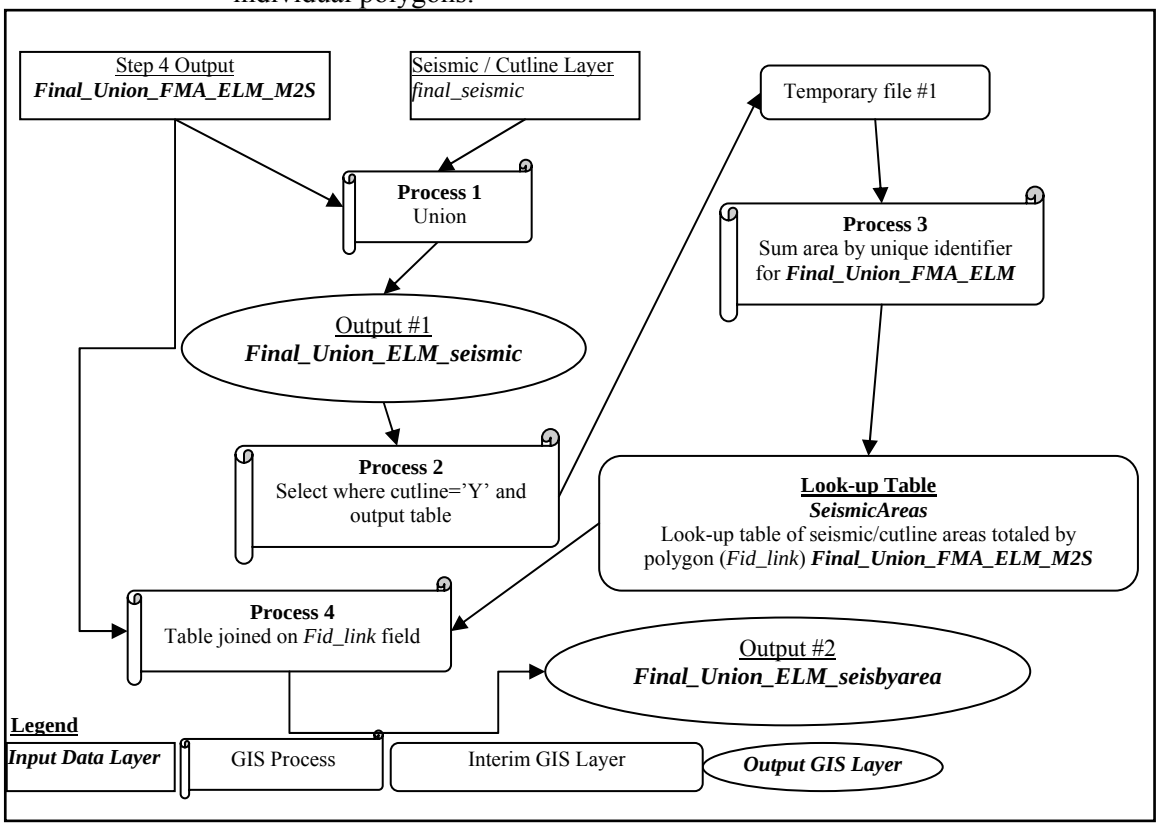

Figure 14. Step 5 overview

Input Layers

[Final_Union_FMA_ELM_M2S] - output layer from step 4
[final_seismic] – Seismic layer from section 2.5.1.

Output Layers

[Final_union_ELM_seismic] – Shapefile with all spatial layers combined with seismic lines spatially delineated.
[Final_union_ELM_seisbyarea] – Shapefile with all spatial layers combined with seismic lines described as an area within each polygon.

2.5.1 Seismic Lines

HWP maintains a continuously updated seismic line layer ***[geo_disp_region]*** with each cutline being assigned a width based on field inspections and geophysical *Final plan reports*.

Current oil and gas companies practice the use of low-impact cutlines which tend to avoid merchantable stems. As low-impact lines are barely discernible on the ground they have a negligible impact on the merchantable volume within the forest. Therefore, all low-impact seismic lines (defined as a width of 2.5m or less) were not included in the FCL.

Input Layer

[geo_disp_region] – Input seismic/cutline layer. At the time of processing this layer represented all activity to the end of 2007. Thus any new cutlines produced within the first four months of 2008 were not captured (base date of May 1, 2008). However, this was not considered to be a significant outage because current data suggests that all the 2008 seismic line activity within the Hinton FMA was low-impact.

[cutline] – Provincial base feature data layer: used for comparison purposes only.

Output Layer

[final_seismic] – Seismic line and cutline layer used in the FCL. This layer was derived based on removing all low-impact lines, which were defined as lines cut in 2004 and later with a predominant width less than 2.5m (Table 13).

Table 13. Seismic line widths (built between 2004 and 2008) as per *GEO Final plan report*

Disposition Key	Section 1		Section 2		Section 3		Predominant Width (m)	Low Impact?
	Width (m)	Length (m)	Width (m)	Length (m)	Width (m)	Length (m)		
GEO040283	1.8	1,890	3.0	32,300	0.0	0	3.0	No
GEO040343	2.0	15,160	0.0	0	0.0	0	2.0	Yes
GEO040422	1.5	300	3.0	4,470	0.0	0	3.0	No
GEO040423	0.5	117,530	0.0	0	0.0	0	0.5	Yes
GEO040564	1.5	1,220	2.8	4,570	0.0	0	2.8	No
GEO040864	1.0	19,400	4.0	15,400	0.0	0	1.0	Yes
GEO040941	1.5	2,620	2.5	3,380	0.0	0	2.5	No
GEO041074	1.8	430	4.5	3,580	0.0	0	4.5	No
GEO041121	1.5	2,480	3.8	6,260	0.0	0	3.8	No
GEO050256	1.5	10,700	2.5	16,670	0.0	0	2.5	No
GEO050280	0.1	56,170	2.8	14,560	0.0	0	0.1	Yes
GEO050369	1.5	119,020	1.8	124,650	2.8	122,440	1.8	Yes
GEO050485	1.5	17,810	0.0	0	0.0	0	1.5	Yes
GEO050567	1.5	520	2.8	11,820	0.0	0	2.8	No
GEO050569	1.5	2,400	3.0	27,900	0.0	0	3.0	No
GEO050805	2.3	3,750	0.0	0	0.0	0	2.3	Yes
GEO050902	2.0	13,150	0.0	0	0.0	0	2.0	Yes
GEO050909	1.8	9,810	2.5	17,690	0.0	0	2.5	No
GEO050942	1.5	315,450	1.8	30,920	2.8	108,520	1.5	Yes
GEO050988	1.8	294,590	2.8	204,720	0.0	0	1.8	Yes
GEO051015	1.7	19,110	3.0	26,120	0.0	0	3.0	No
GEO051053	1.5	15,100	3.5	1,400	2.7	13,500	1.5	Yes
GEO051144	1.5	7,650	2.5	56,510	0.0	0	2.5	No
GEO051368	1.5	15,950	1.8	119,120	3.8	50,630	1.8	Yes
GEO051420	2.2	6,820	0.0	0	0.0	0	2.2	Yes
GEO051422	1.5	740	3.5	1,920	0.0	0	3.5	No
GEO051433	1.0	62,820	2.5	37,020	0.0	0	1.0	Yes
GEO051498	2.5	580	2.8	5,200	0.0	0	2.8	No
GEO060007	2.8	60,280	0.0	0	0.0	0	2.8	No

Disposition Key	Section 1		Section 2		Section 3		Predominant Width (m)	Low Impact?
	Width (m)	Length (m)	Width (m)	Length (m)	Width (m)	Length (m)		
GEO060009	1.5	23,500	0.0	0	0.0	0	1.5	Yes
GEO060015	0.5	1,005,950	2.0	545,680	2.0	2,680	0.5	Yes
GEO060033	1.5	31,450	2.8	20,080	0.0	0	1.5	Yes
GEO060103	2.8	92,280	0.0	0	0.0	0	2.8	No
GEO060175	1.8	25,050	3.0	14,600	0.0	0	1.8	Yes
GEO060180	1.8	338,600	3.0	300,700	0.0	0	1.8	Yes
GEO060222	3.0	14,180	0.0	0	0.0	0	3.0	No
GEO060272	1.7	6,400	0.0	0	0.0	0	1.7	Yes
GEO060362	1.8	1,500	2.5	7,850	0.0	0	2.5	No
GEO060712	1.5	74,900	3.0	62,000	0.0	0	1.5	Yes
GEO060834	1.2	460	3.0	5,940	0.0	0	3.0	No
GEO061018	1.2	10,520	4.5	8,030	0.0	0	1.2	Yes
GEO061036	1.5	31,700	2.9	21,400	2.8	100	1.5	Yes
GEO070020	1.5	206,920	0.0	0	0.0	0	1.5	Yes
GEO070145	1.2	23,900	2.9	12,100	0.0	0	1.2	Yes
GEO070237	1.5	67,170	1.8	23,030	2.5	37,230	1.5	Yes
GEO070287	1.5	93,986	1.5	187,682	2.5	146,939	1.5	Yes
GEO070718	1.5	1,040	3.0	7,240	0.0	0	3.0	No

The *Alberta Forest Management Planning Standard (Version 4.1) – Annex 1* indicates that "*Detectable seismic activity, captured in the provincial base features access layer, must be removed from the net land base as an area-based deletion"*. A comparison between HWP's seismic/cutline layer *[geo_disp_region]* and the provincial base features layer *[cutline]* was done to assuage any concerns over the provincial base cutline data not being used in the landbase allocation process (Table 14).

Prior to removing low-impact lines (width less than 2.5m), HWP's seismic/cutline layer *[geo_disp_region]* has approximately 25% more seismic/cutline distance identified than provincial base features layer *[cutline]*. After the removal of low-impact lines HWP's data *[final_seismic]* still showed over 5% more distance in seismic/cutline distance than the provincial base data. Given this result it was determined that HWP's seismic/cutline could reliably be used as a replacement for the provincial base data.

Table 14. Total kilometers of cutlines and seismic lines within the FMA (outer perimeter) by data source

Data File/Source	Description	Total cutline distance (km) within FMA outer perimeter
Cutline	Provincial Base Data	32,000
Geo_region_disp	HWP's continually updated seismic and cutline layer	40,000
Final_Seismic	Layer used in landbase netdown Derived by removing low impact lines (width <= 2.5m) from *[Geo_region_disp]*	34,000

2.6 Step 6: Classify the Landbase

The landbase classification was completed by running SAS 9.2 code on the outputs from step 5 (***[Final_union_ELM_seismic]*** & ***[Final_union_ELM_seisbyarea]***) and step 2 (***[ELC_lut], [AVI_pnsr_lut],*** & ***[MPB_ssi_lut]***) (Figure 15).

Input Layers

[Final_union_ELM_seismic] – Output from Step 5: Shapefile with all spatial layers combined with seismic lines spatially delineated.
[Final_union_ELM_seisbyarea] – Output from Step 5: Shapefile with all spatial layers combined with seismic lines described as an area within each polygon.

Output Layers

[Final_2009netdownDBF] – fully classified landbase look-up table (seismic lines spatially delineated).

[Final_2009TSAfullDBF] – fully classified landbase look-up table (seismic lines are identified as an area *[cl_area]* within a polygon).

[Final_2009TSAinputDBF] – Draft TSA model input themes (seismic lines are identified as an area *[cl_area]* within a polygon).

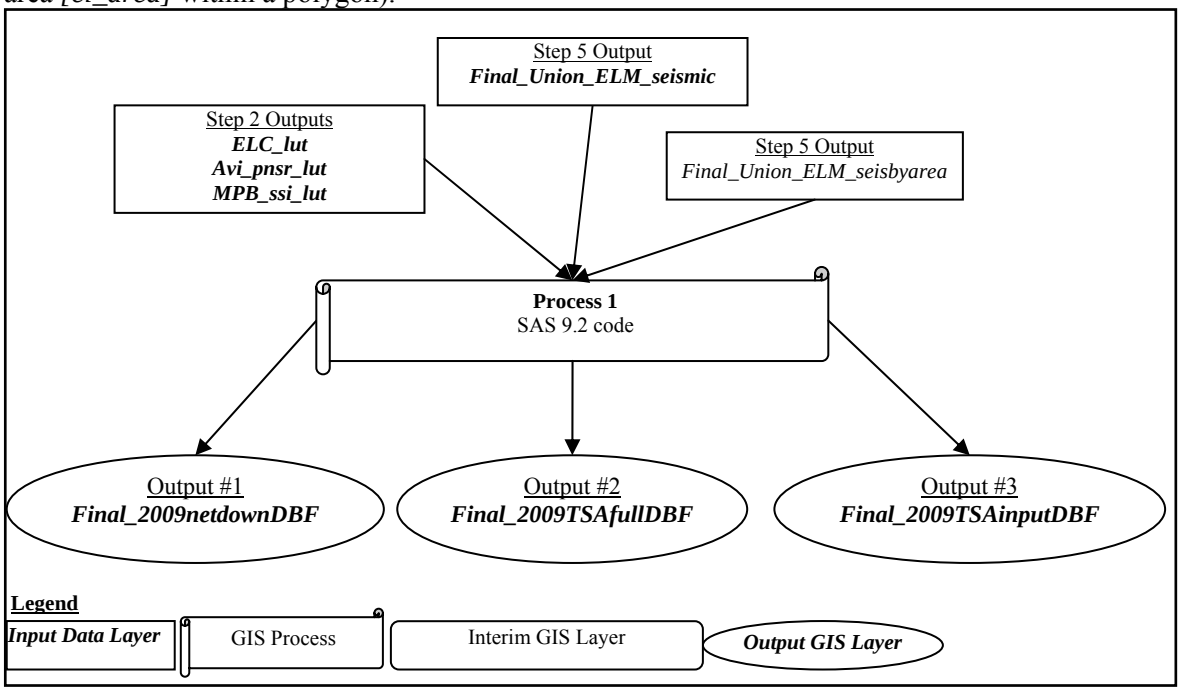

Figure 15. Step 6 overview

2.6.1 Cutblocks

The most complex portion of the landbase classification was assigning cutblocks to the correct yield stratum (Section 2.6.2.8). Five data sources were referenced for classifying cutblocks:

1. HWP's spatial block layer ***[FMP_Block_res_fixed_x]***
2. ARIS data ***[Tfm_silv_data_export]****
3. Performance survey data ***[vmv_tfm_surveyregen]****
4. SRD's FRIAA block data for CTP blocks ***[SRD_friaa_blocks]****
5. AVI ***[AVI_ss2]***

* - These data sets were fully integrated into the output data sets ***[Final_2009netdownDBF] and [Final_2009TSAfullDBF]***. The individual input data sets are available to SRD upon request.

All cutblocks were assigned four attributes:

1. Harvest year
2. Broad cover group
3. Stocking status (crown closure)
4. Leading coniferous species

2.6.1.1 Identifying Cutblocks

HWP's spatial block layer and AVI were used to identify the location of harvesting activities across the Hinton FMA. HWP's block layer was the best data source while AVI was only a secondary source. In the output tables ***[Final_2009netdownDBF] & [Final_2009TSADBF]*** the field ***[harvhist]*** was populated to identify clear cuts and partial cuts.

Polygons were flagged as clear cuts *[harvhist='Y']* if either of the following were true:

1. HWP's spatial block layer ***[FMP_Block_res_fixed_x]*** defined the opening type as being harvested ***[blockstage**='Harvested']* and ARIS opening type ***[sb_opent]*** either indicated a clear cut or was unpopulated.
2. AVI call had a clear cut modifier of three or higher.

Polygons were flagged as partial cuts *[harvhist='P']* if either of the following were true:

1. HWP's spatial block layer ***[FMP_Block_res_fixed_x]*** defined the opening type as being harvested ***[blockstage**='Harvested']* and ARIS opening type ***[sb_opent]*** indicated a partial cut (ie ***[sb_opent]** = ('PC', 'SL', 'TC')*).
2. AVI call had a clear cut modifier of less than three.

Note: all partial cuts are treated as modified fire origin stands and assigned to a fire origin yield strata. Any partial cuts *[harvhist='P']* with no tree species present *[sp1=' ']* were considered to be a clear cut.

All clearcuts were flagged with ***[cutfull]***='C'.

2.6.1.2 Identifying Residual Patches

Residual patches ***[Resid='Y']*** were initially identified in the cutblock input file ***[FMP_Block_res_fixed_x]*** in step 1 (Section 2.1.4). The following decision rules were applied to polygons where ***[Resid='Y']*** in an attempt to better reflect HWP's forest management practices ***[newResid='Y']***:

1. Residual patches greater than 20ha in size were assumed to be large enough to be stand alone blocks and were not treated as residual.

2. Areas within cutblocks that were older than 1950 (the start of industrial forest management in the Hinton FMA) with a crown closure greater than 'A' were assumed to be a residual patch.
3. Areas within a block with a stand origin of 1950 or younger and a stand height less than and equal to 14m were assumed to not be a residual patch.

2.6.1.3 Assigning Cutblock Harvest Year

Skid clearance dates (***[timber_year]***, ***[sb_haryear]***, ***[skidcleardate]***, *and* ***[harvestyea]*** fields) were the best data for determining cutblock ages. When no skid clearance date was assigned the AVI 'CC' modifier date was used. If that was unavailable then AVI origin was used (Table 15). The year of harvest assigned to each clear cut polygon was recorded in the ***[CUTYEAR]*** field.

Table 15. Data source used for assigning harvest year to managed stands within the contributing landbase

Year of Harvest	Data Source Hierarchy	Data Source	Area (ha)
1981 and prior (Stand age 27 and older)	1	Skid clearance date	80,523
	2	AVI overstory "CC" modifier year	4,470
	3	AVI understory origin	424
	4	AVI overstory origin	359
Total			85,776
1982 to 1990 (Stand age 17 to 26)	1	Skid clearance date	21,933
	2	AVI overstory "CC" modifier year	1,096
	3	AVI understory origin	1
	4	AVI overstory origin	10
Total			24,313
1991 to 1999 (Stand age 9 to 16)	1	Skid clearance date	49,772
	2	AVI overstory "CC" modifier year*	84
Total			49,856
2000 and after (Stand age 8 and younger)	1	Skid clearance date	49,413
Total			49,413
Total Area in Clearcuts in the Contributing Landbase			208,085

* blocks with opening numbers but no skid date assigned

Note: Block population can be selected on *Final_2009netdownDBF* by *[cutfull='C' and FIN_STATUS='CONT' and FINorg08='MANA']*

2.6.1.4 Assigning Cutblocks to a Broad Covergroup

AVI was used to define broad cover group for all cutblocks harvested prior to the 1991 timber year (see Section 2.6.2.1 for the assignment rules). The following decision hierarchy was applied to cutblocks harvested during the 1991 timber year and later:

1. ARIS stratum declaration was the primary data source (Table 16) and used for 98,847ha.

Table 16. Relationship between stratum declaration and broad cover group

Stratum Declaration Code (reference the ***sb_stc*** field for HWP spatial block layer and ***strdec_fria*** field for SRD's FRIAA block data)	**Use of regeneration survey stocking percentages**	**Broad Cover Group Assignment**
C-2000	None	CX – Pure coniferous
CD-2000	None	CD – Coniferous dominated mixedwood
DC-2000	None	DC – Deciduous dominated mixedwood
D-2000	None	DX – Pure deciduous
MIXD	Coniferous species stocking percentage >= 50%	CD – Coniferous dominated mixedwood
MIXD	Deciduous species stocking percentage > 50%	DC – Deciduous dominated mixedwood

2. AVI was used for 394ha where no stratum declaration was available (see section 2.6.2.1 for process).

3. If there was no stratum declaration or AVI covertype available but the stand had an openingnumber then the stand was assumed to be CD. This occurred for 28ha only.

The BCG assigned to each clear cut polygon is recorded in the ***[CUT_COV]*** field.

2.6.1.5 Assigning Crown Closure and Understocked Blocks

AVI was used to define crown closure for cut blocks harvested prior to 1991. For cutblocks harvested after the start of the 1991 timber year a decision hierarchy was used (Table 17). The crown closure assigned to each clear cut polygon is recorded in the ***[CUT_CC]*** field.

Table 17. Decision hierarchy to assign crown closure for recent cutblocks harvested after the start of the 1991 timber year

Hierarchy	**Data Source**	**Decision Rule**	**Area Assigned (ha)**
1	Performance Survey: Total Stocking	If total stocking was greater than and equal to 80 then crown closure = "C" If total stocking was greater than and equal to 50 then crown closure = "B"* If total stocking was less than 50 then crown closure = "A"†	20,866
2	Assume fully stocked	If the cutblock had an openingnumber but had not yet had a performance survey it was assumed to be fully stocked (crown closure = 'C')	78,347
3	Use AVI	If the cutblock did not have an openingnumber AVI was used (see Section 2.6.2.1)	55

* - "B" is mostly just a place holder. As per direction from SRD - blocks with a performance survey total stocking of >=50% and <80% were flagged as understocked ***[r50_80]***='Y' and will have a volume reduction multiplier applied to the fully stocked yield curve.

† - "A" is mostly just a place holder. As per direction from SRD – blocks with a performance survey total stocking of <50% and a non-forest AVI call have been declared "potentially productive" and assigned to the passive landbase.

2.6.1.6 Assigning Leading Coniferous Species

Each cutblock was assigned to one of three leading coniferous species groups: 1) Pine 2)White/Engelmann Spruce & Fir or 3) Black Spruce & Tamarack. For cut blocks harvested prior to 1991, the leading coniferous species group was defined by AVI species compositions (section 2.6.2.4). For cutblocks harvested since the start of the 1991 timber year, the following hierarchy decision rules were used:

1. Leading coniferous species was assigned based on the leading species call *[leadingcon]* from the last performance, establishment, or stocking survey completed*:* used for 69,337ha
2. AVI species composition (section 2.6.2.4): used for 29,932ha. Ties were resolved based on a Pine, White Spruce, then Black Spruce hierarchy.

The leading coniferous species assigned to each clear cut polygon is recorded in the *[CUT_LCON]* field.

2.6.2 Classifying the Forested Landbase

All forested polygons were classified by landbase, broad cover group, story of primary management, crown closure, stand age, and site class. Final stand assignments were recorded in fields with a "*FIN_*" prefix.

2.6.2.1 Broad Cover Group and Crown Closure

Broad cover group (BCG) is a description of the coniferous versus deciduous species composition (Table 18). For each polygon both the overstory ***[OS_COV]*** and understory ***[US_COV]*** were assigned to one of four categories (Table 19). The final polygon broad cover group assignment ***[FIN_COV]*** was assigned as the BCG of the Story of Primary Management.

Table 18. Coniferous and Deciduous tree species on the Hinton FMA

Coniferous Species	Deciduous Species
Black spruce (SB)	Trembling aspen (AW)
Engelmann spruce (SE)	White birch (BW)
White spruce (SW)	Balsalm poplar (PB)
Lodgepole pine (PL)	
Balsalm fir (FB)	
Alpine fir (FA)	
Douglas fir (FD)	
Tamarack (LT)	

Table 19. Broad cover group assignment logic

Broad cover group **Fields applicable = *OS_COV, US_COV, CUT_COV, and FIN_COV***	**Definition**
CX – Pure Coniferous	Coniferous composition ≥ 80%
CD – Coniferous dominated mixedwood	Coniferous composition > deciduous composition And coniferous composition < 80% **OR** Coniferous composition = deciduous composition And leading species is coniferous
DC – Deciduous dominated mixedwood	Deciduous composition = coniferous composition And leading species is deciduous **OR** Deciduous composition > coniferous composition And deciduous composition < 80%
DX – Pure Deciduous	Deciduous composition ≥ 80%

2.6.2.2 Coniferous or Deciduous Landbase

Landbase is an oft-used term during landbase classification; in this context *Landbase* describes the volume type (coniferous or deciduous) for which a stand will be managed. All pure coniferous and mixedwood stands (broad cover group = 'CX' or 'CD' or 'DC') were managed for coniferous volume (deciduous volume being incidental). Only pure deciduous stands ***[FIN_BASE10=1]*** were managed to maximize deciduous volume (coniferous volume being incidental). Both the overstory ***[O_LAND]*** and understory ***[U_LAND]*** were assigned to a landbase, with the final landbase assignment ***[FIN_LAND]*** determined by the story of primary management.

2.6.2.3 Story of Primary Management

The story of primary management (SoPM) ***[STORY]*** defines whether a stand will be managed for the overstory or understory. All stands are managed for the overstory ***[Story='O']***; except:

- When an overstory has an 'A' crown closure ***[crown='A']*** and there is an understory present ***[u_crown>='A']*** then the stand is managed for the understory ***[Story='U'].***
- When an overstory is pure deciduous ***[OS_COV='DX']*** and the understory belongs to the coniferous landbase ***[u_land='CON']*** having a "B" or greater understory crown closure ***[u_crown>='B']*** and an origin no older than 1930 ***[u_origin>=1930]*** (this is meant to exclude overmature understories) then the stand is managed for the understory ***[Story='U']***.

Clearcuts were managed based on the rules outlined in section 2.6.1.

2.6.2.4 Leading Coniferous Species

All stands were assigned to one of the following coniferous species groups based on leading species ***[FIN_lcon_sp]***:

1. Pine
2. White/Engelmann Spruce & Fir

3. Black Spruce & Tamarack

For stands that have not been clear cut the leading coniferous species group was determined by summing AVI species compositions within the SoPM.

Table 20. Species composition fields used to identify leading coniferous species

Field Name	Description	Species Included
PER_CON	Overstory coniferous composition	LT, SW, SB, SE, PL, P, FB, FA, PJ, FD
PER_DEC	Overstory deciduous composition	AW, BW, PB
UPER_CON	Understory coniferous composition	LT, SW, SB, SE, PL, P, FB, FA, PJ, FD
UPER_DEC	Understory deciduous composition	AW, BW, PB
PER_SB	Overstory black spruce composition	SB
PER_LARCH	Overstory larch composition	LT
UPER_SB	Understory black spruce composition	SB
UPER_LARCH	Understory larch composition	LT
PER_SWFB	Overstory White Spruce/Fir composition	SW, SE, FB, FA,
UPER_SWFB	Understory White Spruce/Fir composition	SW, SE, FB, FA,
PER_PL	Overstory Pine composition	PL
UPER_PL	Understory Pine composition	PL

Note: For fire origin stands ties were resolved based on a White Spruce, Black Spruce, then Pine hierarchy. When no coniferous species were present, pine was assumed.

2.6.2.5 Stand Age

Stand age ***[FIN_AGE]*** was calculated by:

Stand age = 2008 - origin of the SoPM

The timber supply analysis will use 5 year periods so each stand was placed into a 5 year age groupings (Stand age class =Rounded up to nearest integer(Stand age/5)) ***[AGE5yr]***.

2.6.2.6 Site Class

Site class was defined by grouping ecosites (see ELC layer – section 2.2.1) into categories that express similar site indices. Groupings were completed across natural sub-regions and site calls were made for three distinct species groups: deciduous ***[Dec_SITE]***, pine ***[PINE_SITE]***, and other coniferous ***[OCON_SITE]*** (Table 21). The following rules where used for TPR based site assignments, which was used only when an ecosite call was unavailable (this rarely occurred):

- If TPR = ‘G’ (Good) then site class =’G’ (Good)

- If TPR = 'M' (Medium) then site class ='M' (Medium) except for deciduous dominated sites where site class ='G' (Good)
- If TPR = 'F' (Fair), 'U' (Unproductive), or ' ' (Blank) then site class ='P' (Poor)

Final stand site ***[FIN_SITE]*** was assigned contingent upon the base 10 ***[Fin_base10]*** strata assignment (Table 23):
If Base10 strata = 1 then ***[FIN_SITE]*** = ***[DEC_SITE]***
If Base10 strata = 3, 4, 6, 7, or 9 then ***[FIN_SITE]*** = ***[OCON_SITE]***
If Base10 strata = 2, 5, or 8 then ***[FIN_SITE]*** = ***[PINE_SITE]***

Table 21. Site class by natural sub-region and species group

Species Group	ELC Natural Sub-region	Site Class		
		Good	Medium	Poor
Pine	Lower Foothills	C, E, F, G	B, D, H, I	A, J, K, L, M, N
	Montane	None	B, C	A, D, E, F, G, H
	Upper Foothills	C, E, F, G, J	B, D	A, H, I, K, L, M
	Sub-Alpine	None	B, C, D	A, E, F, G, H, I
Other Coniferous	Lower Foothills	C, E, F, I, G	B, D, H	A, J, K, L, M,N
	Montane	None	B, C, D, F	A, E, G, H
	Upper Foothills	C, F, J	B, D, E, I	A, G, H, K, L, M
	Sub-Alpine	None	E, F, G	A, B, C, D, H, I
Deciduous	Lower Foothills	C, E, F, G, I	None	A, B, D, H, J, K, L, M, N
	Montane	C, D	None	A, B, E, F, G, H
	Upper Foothills	C, E, F, G, J	None	A, B, D, G, H, K, L, M
	Sub-Alpine	None	None	A, B, C, D, E, F, G, H, I

2.6.2.7 Horizontal Stands

Horizontal stands are defined in the *Alberta Vegetation Inventory Standards Manual* as "Stands…composed of numerous homogeneous stands within other distinctly different homogeneous stands, but both or each individual stand are too small to delineate...". Therefore, horizontal stands are processed somewhat differently than non-horizontal cover groups. Although the different parts of a horizontal stand are located in the overstory and understory fields they are not to be understood as overstory and understory but rather separate "mini-stands" within the polygon. The following rules for delineating horizontal stands were used:

For horizontal stands with both a forest covertype overstory and understory:

a. if the overstory proportion of the stand was 50% or greater, the overstory was defined as the SoPM ***[STORY]***.
b. if the understory proportion of the stand was greater than 50%, the understory was defined as the SoPM.

For horizontal stands that had only one valid forest cover group:

a. if the overstory was the only valid forest cover group then the SoPM was defined as the overstory.
b. if the understory was the only valid forest cover group then the SoPM was defined as the understory.

All horizontal stands were expected to be managed only for the area assigned to the SoPM (except for cutblocks). Therefore, a 10ha horizontal stand managed on the overstory with a

horizontal percentage of 70% would contribute 7ha to the net landbase area. A total of forty-one hectares are located in the non-managed portions of horizontal stands within the contributing landbase (Table 27). To calculate this area sum both the ***[areaha]*** and ***[netarea]*** fields on the contributing landbase base and subtract the two (alternatively sum ***[horxha]*** for ***[Del]***='NO'). For example use the file ***[Final_2009netdownDBF]*** to query the following:

Step 1: Sum *[areaha]* for ***[FIN_STATUS]***=*'CONT'*
Step 2: Sum *[netarea]* for ***[FIN_STATUS]***=*'CONT'*
Step 3: Subtract the step 2 result from the step 1 result.

2.6.2.8 MPB ranking

As of the fall of 2009, the working circles in northern portion of the FMA (Berland, Marlboro, and Athabasca) were considered to be at high risk of MPB attack while working circles in the south (McLeod and Embarras) were at moderate risk. Attack risk, climate factor, and SSI were all used to MPB stand priority ranking.

Table 22. Relationship between MPB attack risk, MPB Rankings, SSI, and climate factor

Working Circles	Attack Risk	MPB Ranking	Stand Susceptibility Index (SSI) & Climate Factor (CF) Coding Logic

Berland, Marlboro, and Athabasca	High	1: High	`if ssi >= 1 and ssi <= 30 and cf = 1 and then mpbrank=1;`
			`if ssi >= 31 and ssi <= 50 and cf = 1 and then mpbrank=1;`
			`if ssi >= 51 and ssi <= 80 and cf = 1 and then mpbrank=1;`
			`if ssi >= 81 and cf = 1 and then mpbrank=1;`
			`if ssi >= 1 and ssi <= 30 and cf = .8 and then mpbrank=1;`
			`if ssi >= 31 and ssi <= 50 and cf = .8 and then mpbrank=1;`
			`if ssi >= 51 and ssi <= 80 and cf = .8 and then mpbrank=1;`
			`if ssi >= 81 and cf = .8 and then mpbrank=1;`
			`if ssi >= 31 and ssi <= 50 and cf = .5 and then mpbrank=1;`
			`if ssi >= 51 and ssi <= 80 and cf = .5 and then mpbrank=1;`
			`if ssi >= 81 and cf = .5 and then mpbrank=1;`
			`if ssi >= 31 and ssi <= 50 and cf = .2 and then mpbrank=1;`
			`if ssi >= 51 and ssi <= 80 and cf = .2 and then mpbrank=1;`
			`if ssi >= 81 and cf = .2 and then mpbrank=1;`

		2: Medium	`if ssi >= 1 and ssi <= 30 and cf = .5 and then mpbrank=2;`
			`if ssi >= 1 and ssi <= 30 and cf = .2 and then mpbrank=2;`
			`if ssi >= 31 and ssi <= 50 and cf = .1 and then mpbrank=2;`
			`if ssi >= 51 and ssi <= 80 and cf = .1 and then mpbrank=2;`
			`if ssi >= 81 and cf = .1 and then mpbrank=2;`

		3: Low	`if ssi >= 1 and ssi <= 30 and cf = .1 and then mpbrank=3;`

McLeod and Emabarras	Moderate	1: High	`if ssi >= 31 and ssi <= 50 and cf = 1 then mpbrank=1;`
			`if ssi >= 51 and ssi <= 80 and cf = 1 then mpbrank=1;`
			`if ssi >= 81 and cf = 1 then mpbrank=1;`
			`if ssi >= 51 and ssi <= 80 and cf = .8 then mpbrank=1;`
			`if ssi >= 81 and cf = .8 then mpbrank=1;`
			`if ssi >= 81 and cf = .5 then mpbrank=1;`

		2: Medium	`if ssi >= 1 and ssi <= 30 and cf = 1 then mpbrank=2;`
			`if ssi >= 1 and ssi <= 30 and cf = .8 then mpbrank=2;`
			`if ssi >= 31 and ssi <= 50 and cf = .8 then mpbrank=2;`
			`if ssi >= 1 and ssi <= 30 and cf = .5 then mpbrank=2;`
			`if ssi >= 31 and ssi <= 50 and cf = .5 then mpbrank=2;`
			`if ssi >= 51 and ssi <= 80 and cf = .5 then mpbrank=2;`
			`if ssi >= 31 and ssi <= 50 and cf = .2 then mpbrank=2;`
			`if ssi >= 51 and ssi <= 80 and cf = .2 then mpbrank=2;`
			`if ssi >= 81 and cf = .2 then mpbrank=2;`
			`if ssi >= 51 and ssi <= 80 and cf = .1 then mpbrank=2;`
			`if ssi >= 81 and cf = .1 then mpbrank=2;`

		3: Low	`if ssi >= 1 and ssi <= 30 and cf = .2 then mpbrank=3;`
			`if ssi >= 1 and ssi <= 30 and cf = .1 then mpbrank=3;`
			`if ssi >= 31 and ssi <= 50 and cf = .1 then mpbrank=3;`

2.6.3 Yield Strata

Five attributes were used for yield strata assignments:

1. Stand origin: Fire versus Managed as identified in the ***[FIN_org08]*** field. As the base date for the TSA is the 2008 timber year, all blocks harvested during the 2008 timber year were assigned as fire origin (***[FIN_org08]='FIRE'***) pre-blocks, with the yield strata assignment being based on the AVI SoPM. The block will be modeled to transition to its post harvest stratum declaration.
2. Site Quality: Each stand was identified as being located on either a Good, Medium, or Poor site (Table 21).
3. Crown Closure: Each stand was identified as having either high ("C" & "D") or low ("A" & "B") crown closure (Sections 2.6.1.5 & 2.6.2).
4. Base10 Yield Strata: Each polygon was assigned to a base10 yield strata based on Table 23.
5. Overstory versus Understory managed: Used for fire origin stands only and based on the SoPM call (or *[story]* field).

Table 23. Final Base 10 *[fin_base10]* strata assignments

Base10 Yield Strata Assignment	**SAS Code Used**	**Description of Code**
1 – Pure Deciduous (DX)	if ***FIN_cov***='DX'	Final broad cover group assignment is "DX"
2 – Deciduous / Pine (DC)	if ***FIN_cov***='DC' *and* ***FIN_lcon_sp***='PL'	Final broad cover group assignment is "DC" and leading coniferous species is pine.
3 – Deciduous / Other Coniferous (DC)	if ***FIN_cov***='DC' and ***FIN_lcon_sp***^='PL'	Final broad cover group assignment is "DC" and leading coniferous species is not pine.
4 – White Spruce / Deciduous (CD)	if ***FIN_cov***='CD' and ***FIN_lcon_sp***='SW' (fir and white spruce were combined when ***FIN_lcon_sp***='SW')	Final broad cover group assignment is "CD" and leading coniferous species is either white spruce or fir.
5 – Pine / Deciduous (CD)	if ***FIN_cov***='CD' and ***FIN_lcon_sp***='PL'	Final broad cover group assignment is "CD" and leading coniferous species is pine.
6 – Black Spruce / Deciduous (CD)	if ***FIN_cov***='CD' and ***FIN_lcon_sp***='SB' (larch and black spruce were combined when ***FIN_lcon_sp***='SB')	Final broad cover group assignment is "CD" and leading coniferous species is either black spruce or larch.
7 – Pure Coniferous (CX) Engelmann/White Spruce & Fir are the dominant species	if ***FIN_cov***='CX' and ***FIN_lcon_sp***='SW' (fir and Engelmann/white spruce were combined for ***FIN_lcon_sp***='SW')	Final broad cover group assignment is "CX" and leading coniferous species is either white spruce or fir
8 – Pure Coniferous (CX) Pine dominant species	if ***FIN_cov***='CX' and ***FIN_lcon_sp***='PL'	Final broad cover group assignment is "CX" and leading coniferous species is pine

Base10 Yield Strata Assignment	**SAS Code Used**	**Description of Code**
9 - Pure Coniferous (CX) Black Spruce	if ***FIN_cov***='CX' and ***FIN_lcon_sp***='SB' (larch and black spruce were combined for ***FIN_lcon_sp***='SB')	Final broad cover group assignment is "CX" and leading coniferous species is either black spruce or larch

Fire origin stands and cutblocks harvested prior to 1991 were assigned to a yield stratum (Table 24) based on the stand attributes from the *Story of Primary Management* (Section 2.6.2). Yields for these yield strata were based on HWP's PGS data. Cutblocks harvested since the beginning of the 1991 timber year were assigned to a yield strata based on field surveys and silviculture declarations (Section 2.6.1); yields for these strata were projected through ARS data modeled through GYPSY. Yield projections are discussed in greater detail in technical report #2.

Table 24. Final yield strata assignments

	Description / *Data Field Used*							
Strata	**Landbase Contributing / Passive**	**Origin Type**	**Story Managed**	**Base10 Strata**	**SITE**	**Crown Closure (Hi/Low)**	**Yield_Curve**	**Data Source**
	***FIN_STATUS*†**	***FIN_ORG08*†**	***Story*†**	***FIN_BASE10*†**	***FIN_SITE*†**	***FIN_CC*†**	***FIN_YLDSTR*†**	
1	Contributing	FIRE origin, or partial cuts or pre-91 cut blocks, or cut blocks without an opening number, or cut blocks with a performance survey with less than 50% stocking but has a forested AVI label	OVER	1	ALL	LOW	E_B1_XL	PGS
2						HI	E_B1_XH	
3				2	ALL	ALL	E_B2_XX	
4				3	ALL	ALL	E_B3_XX	
5				4, 6	ALL	ALL	E_B4_XX	
6				5	ALL	ALL	E_B5_XX	
7				7	PM	ALL	E_B7_MX	
8					G	LOW	E_B7_GL	
9						HI	E_B7_GH	
10				8	PM	LOW	E_B8_ML	
11						HI	E_B8_MH	
12					G	LOW	E_B8_GL	
13						HI	E_B8_GH	
14				9	ALL	ALL	E_B9_XX	
15			UNDER	1 to 6	ALL	ALL	E_UN_DM	
16				7, 8, 9			E_UN_CX	
17	Contributing	Recent Cut blocks Harvested since the start of the 1991 timber year with an opening number	ALL	1	ALL	LOW	E_B1_XL	PGS*
18						HI	E_B1_XH	
19				2	ALL	ALL	E_B2_XX	
20				3	ALL	ALL	E_B3_XX	
21				4, 6	ALL	ALL	G_B4_XX	ARS
22				5	ALL	ALL	G_B5_XX	
23				7	ALL	ALL	G_B7_XX	
24				8	ALL	ALL	G_B8_XX	
25				9	ALL	ALL	E_B9_XX	PGS*
26	Passive	ALL	ALL	1 to 6	ALL	ALL	E_PAS_D	PGS
27				7, 8, 9	ALL	ALL	E_PAS_C	

* - Not enough data for ARS based curves so PGS fire origin curves were used.
† - Data fields in *[final_2009netdownfull] & [final_2009TSAfull]*
Note: *'All'* means all attributes in this category are grouped in a single category.

2.6.4 Subjective Deletions and Potentially Productive Sites

Subjective deletions delineate areas that are unlikely to produce merchantable sawlogs. The following decision criteria were used to identify these stands:

1. Too wet – If the AVI moisture regime was either Wet or Aquatic *[moist in ('W', 'A')]* the site was assumed to be too wet for forest management.
2. Tamarack present – If the story of primary management *[SoPM]* indicated any "Tamarack" present the site was assumed to be too wet for forest management.
3. Unmerchantable ecosite in the Lower Foothills – If a stand was located on a 'K', 'L', 'M', or 'N' ecosite in the Lower Foothills, than the site was assumed to be either too wet and/or too nutrient poor for forest management.
4. Unmerchantable ecosite in the Upper Foothills – If a stand was located on a 'K', 'L', or 'M' ecosite in the Upper Foothills, than the site was assumed to be either too wet and/or too nutrient poor for forest management.
5. Unmerchantable ecosite in the Montane – If a stand was located on a 'G' or 'H' ecosite in the Montane, than the site was assumed to be either too wet and/or too nutrient poor for forest management.
6. Unmerchantable ecosite in the Sub-Alpine – If a stand was located on an 'H' or 'I' ecosite in the Sub-Alpine, than the site was assumed to be either too wet and/or too nutrient poor.
7. TPR "U" – TPR was only applied in the rare situation where an ecosite call was not available. In those instances when TPR="U" (unproductive) the site was assumed to be either too wet and/or too nutrient poor for forest management.
8. "A" overstory only – Stands sixty years old or greater *[fin_age>=60]* with an "A" overstory with no understory present, were assumed to be unmerchantable over the 200 year planning horizon.
9. 80% or more Black Spruce composition - If the story of primary management *[SoPM]* had 80%+ SB composition the site was assumed to be too wet for forest management.

Subjective deletions were not applied to areas that had either been harvested in the past or were planned for future harvest.

2.6.4.1 Potentially Productive Sites

Potentially productive locations are disturbed areas where it is unclear if a merchantable forest cover type will be re-established. There is little doubt that a significant portion of these areas will in fact become merchantable; however due to the uncertainty, a conservative approach was taken and these locations were assigned to the passive landbase. The following four rules identify potentially productive sites:

1. Unsalvaged burnt stands with no tree species present in AVI.
2. Stands harvested before 1991 *[**cutyear**<1991]* with no tree species yet present in AVI.
3. Stands harvested in 1991 or after *[**cutyear**>=1991]* with both no opening number and no AVI tree species.
4. Cutblocks that have had a performance survey with less than 50% total stocking and have no AVI tree species.

2.6.5 Deletion Hierarchy and the Contributing Landbase

A given polygon may have several deletion types assigned to it; therefore a deletion hierarchy was applied (Table 25).

Table 25. Deletion hierarchy for 2009 landbase classification

#*	Deletion Type & *[Deletion Code]*	Applied to Cutblocks and Pre-blocks
1	Area outside the FMA ***[Del='OB']***	Yes
2	Naturally non-vegetated ***[Del='NN']***	No
3	Naturally non-forested ***[Del='NV']***	No
4	Anthropogenic non-vegetated ***[Del='AN']***	No
5	Anthropogenic vegetated ***[Del='AV']***	No
6	Eastern Slopes Prime Protection Areas ***[DEL="EP"]***	Yes
7	Disposition reservations ***[DEL="DR"]***	Yes
8	Wet site ***[DEL="WT"]***	No
9	Larch composition is 10% or more of the SoPM ***[DEL="LR"]***	No
10	Unmerchantable ecosites ***[DEL="EC"]***	No
11	Stand with an "A" overstory only ***[DEL="AO"]***	No
12	Black spruce composition makes up 80% or more of the SoPM ***[DEL="SB"]***	No
13	Potentially Productive ***[DEL="PP"]***	Yes
14	Steep Slopes ***[DEL="SS"]***	No
15	Watercourse buffers ***[DEL="WB"]***	No
16	Seismic Lines and Cutlines ***[DEL="CL"]***	Yes

* # - Deletion hierarchy order

[Del]*='NO'* means that no deletion criteria was identified and the area is part of the contributing landbase. The ***[Del]*** field was simplified into the final status ***[FIN_STATUS]*** field:

- If ***[Del]****='NO'* then ***[FIN_STATUS]****='CONT'* (i.e. contributes to the AAC)
- If ***[Del]***^='*NO'* then ***[FIN_STATUS]****='PASS'* (i.e. is passive landbase and does not contribute to the AAC)

2.6.6 Area Field Definitions

There are four area fields in the landbase classification output files:

- ***[Area]***: Total polygon area in m^2
- ***[Areaha]***: Total polygon area in ha
- ***[Horxha]***: Area of non-managed portions of horizontal stands within the contributing landbase *[FIN_STATUS='CONT']*
- ***[Netarea]***:
  - for areas in the passive landbase ***[FIN_STATUS****='PASS']*
    - ***[Netarea]*** = ***[Areaha]***
  - for areas in the contributing landbase *[****FIN_STATUS****='CONT']*
    - ***[Netarea]*** = ***[Areaha]*** - ***[Horxha]***

For the majority of area summaries ***[Netarea]*** should be used, with the caveat that 41ha of unproductive horizontal stand area is not included.

2.7 Step 7: Link Classified Landbase to GIS layer and Build TSA Files

The final step is to link the completed classification tables output from step 6 to the shapefiles output from step 5 on the ***[Fid_link] & [Fid_link12]*** fields (Figure 16).

Input Layers

[Final_2009netdownDBF] – Step 6 output: fully classified landbase look-up table (seismic lines are spatially delineated).

[Final_2009TSAfullDBF] – Step 6 output: fully classified landbase look-up table (seismic lines identified as an area *[cl_area]* within a polygon).

[Final_2009TSAinputDBF] – Step 6 output: Draft version of TSA model input themes look-up table (seismic lines identified as an area *[cl_area]* within a polygon).

Output Layers

[Final_2009netdownfull] – fully classified spatial landbase shapefile with seismic lines spatially delineated. All fields used in the landbase classification are present in this file.

[Final_2009TSAfull] – fully classified spatial landbase shapefile with seismic lines identified as an area *[cl_area]* within a polygon. All fields used in the landbase classification are present in this file which is an interim file between ***[Final_2009netdownfull]*** and ***[Final_2009TSAinput]***.

[Final_2009TSAinput] – spatial landbase shapefile with draft TSA theme fields declared with seismic lines identified as an area *[cl_area]* within a polygon.

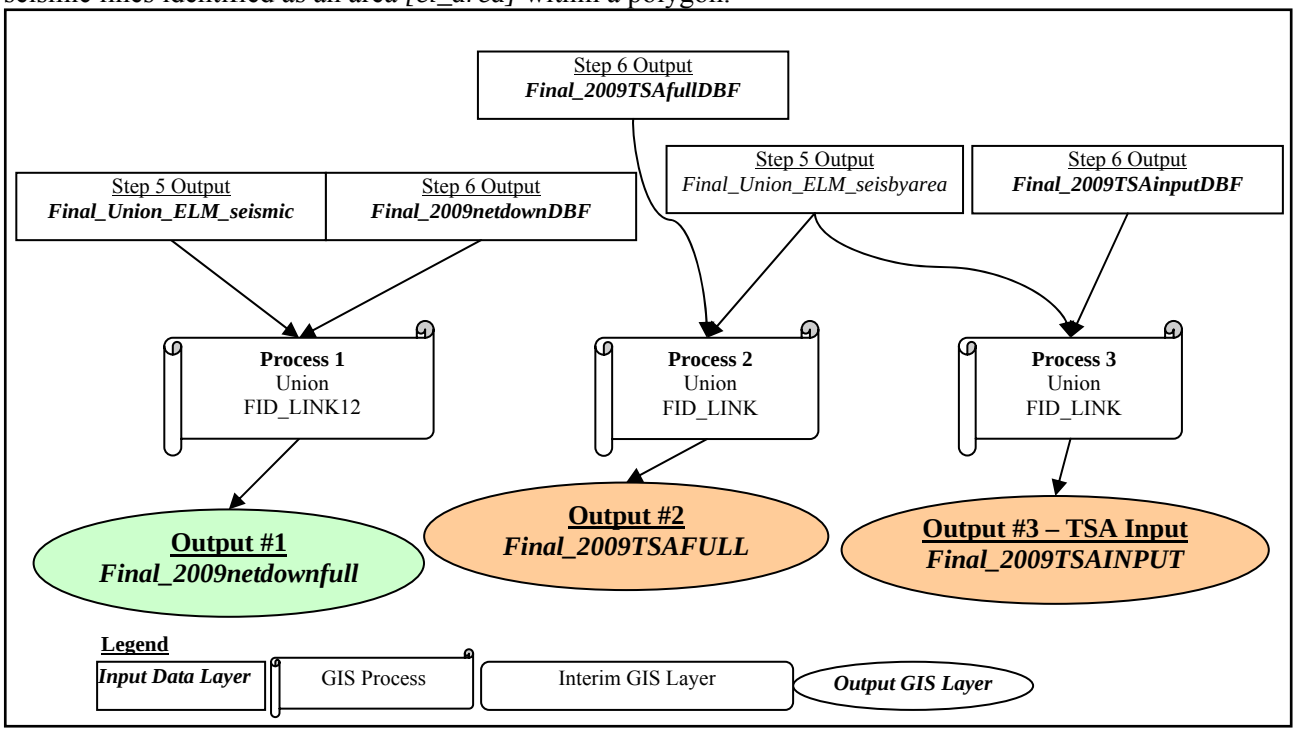

Figure 16. Step 7 overview

2.7.1 Handling Seismic Lines Aspatially

The following process was used to account for seismic lines (also call cutlines) in both the ***[Final_2009TSAFULL]*** and ***[Final_2009TSA_input]*** shapefiles.

1. Cutline area ***[cl_areaha]*** was summed in ***[Final_2009netdownfull]*** on the ***[fid_link]*** field.
2. For the ***[Final_2009TSAFULL]*** and ***[Final_2009TSA_input]*** shapefiles, the area in cutlines ***[cl_areaha]*** (from the above step) and the area of non-managed portions of horizontal stands ***[horxha]*** were subtracted from the total area of each polygon ***[areaha]*** within the contributing landbase ***[FIN_STATUS****='CONT'].*

2.7.2 Assigning Draft Timber Supply Modeling Themes

Timber supply modeling themes were output from ***[Final_2009TSAFULL]*** to ***[Final_2009TSA_input].*** Themes were identified for use in timber supply modeling; however until the modeling process nears completion it is difficult to predetermine exactly what themes will be required. Therefore the following list of TSA (and intended uses) should be considered as draft only:

Table 26. Draft TSA themes and intended modeling use

Field Name	Description	Potential/Intended Use
Theme1	Working Circles and Compartments	Sequence harvesting
Theme2	Watershed Basin Unique Identifier	Post preferred scenario analysis
Theme3	Special Management Wildzone	Deferrals
Theme4	Ground Operability	Constraint
Theme5	MPB Stand Susceptibility Index with Climate Factor Groupings	Harvest Sequence Objective function for pine reduction strategy
Theme6	Mountain Pine Beetle Risk Ranking	Harvest Sequence Objective function for pine reduction strategy
Theme7	Identifies stands with a stand height of 19m or greater	Harvest Sequence
Theme8	Yield Strata	Defines Yields
Theme9	Fire versus Managed	Defines Yields Signifies Transitions
Theme10	Contributing Versus Passive	Constraint
Theme11	Stands with a cutline within its boundary	Landbase area modifier
Theme12	Low stocking Cutblock	Yield modifier
Theme13	Regeneration Curve for 2008 cutblocks	Defines yield transitions

Note: Reference Technical Report #3 for the definitive description of the themes used.

3 Results

Table 27. Final landbase area classification for the Hinton FMA (compared to the 99 FMP)

Landbase Category			FMA 1999 10/8 UTZ	FMA 2009 15/11 UTZ†	FMA 2009 % Total*
Outside the FMA			**Hectares**	**Hectares**	
OB	Townsites, Patented Land, Parks, and Mines		36,093	45,293	
Non-Forested Area Reductions					
NN	Naturally Non-Vegetated		18,733	5,280	**0.53%**
NV	Naturally Non-Forested		47,175	21,834	**2.21%**
AN	Anthropogenic Non-Vegetated			17,542	**1.77%**
AV	Anthropogenic Vegetated			5,334	**0.54%**
		Sub-Total	***65,909***	***49,991***	***5.06%***
Dispositions and Other Area Removals					
EP	Eastern Slopes Land Use Zones (Prime Protection)			962	**0.10%**
DR	Disposition Reservation		22,044	22,341	**2.26%**
		Sub-Total	***22,044***	***23,303***	***2.36%***
Subjective and Ecosite Deletions					
WT	Wet Site			152,694	**15.44%**
LR	Larch Subjective Deletion			2,954	**0.30%**
EC	Non-Operational Ecosites		94,524	6,600	**0.67%**
AO	"A" Crown Closure Overstory with No Understory			3,924	**0.40%**
SB	Black Spruce Composition >=80%		24,559	28,690	**2.90%**
PP	Potentially Productive			2,355	**0.24%**
		Sub-Total	***119,083***	***197,217***	***19.95%***
Water course buffers / Steep Slopes					
SS	Steep Slopes		10,303	37,794	**3.82%**
WB	Watercourse Removals		53,648	16,737	**1.69%**
		Sub-Total	***63,951***	***54,531***	***5.52%***
Seismic Lines					
CL	Cutlines / Seismic		16,144	13,528	**1.37%**
	Non-Managed Portions of Horizontal Stands		0	41	**0.00%**
		Sub-Total	***16,144***	***13,569***	***1.37%***
Total Deletion Area (Excluding OB Areas)			**287,130**	**338,611**	***34.25%***
Contributing Landbase					
Base 10 Yield Strata	1 - Pure Deciduous			51,230	**5.18%**
	2 - DC (Pine)			18,326	**1.85%**
	3 - DC (Other Conifer)			19,639	**1.99%**
	4 - CD (White Spruce)			16,469	**1.67%**
	5 - CD (Pine)			25,331	**2.56%**
	6 - CD (Black Spruce)			555	**0.06%**
	7 - Pure Conifer (White Spruce)			106,673	**10.79%**
	8 - Pure Conifer (Pine)			395,925	**40.04%**
	9 - Pure Conifer (Black Spruce)			16,016	**1.62%**
Total Contributing Landbase			**715,341**	**650,163**	**65.75%**
Total Landbase within the FMA Perimeter (Including OB Areas)			**1,038,564**	**1,034,067**	**100.00%**

* - Percentages exclude out of bounds areas (Del = "OB"); † - UTZ = Utilization Standard - 15/11 for coniferous; 15/10 for deciduous
Deletion numbers can be replicated by summing any of the final output shapefiles: ***[Final_2009netdownfull], [Final_2009TSAFULL], or[Final_2009TSAINPUT]*** on *[Netarea] and* classifying on the *[Del] or [Del_Heir]* field. Base 10 Yields can be replicated by summing on *[Netarea] and* classifying by *[FIN_BASE10]* where *[Del]='NO' or [Del_Heir]=99.*

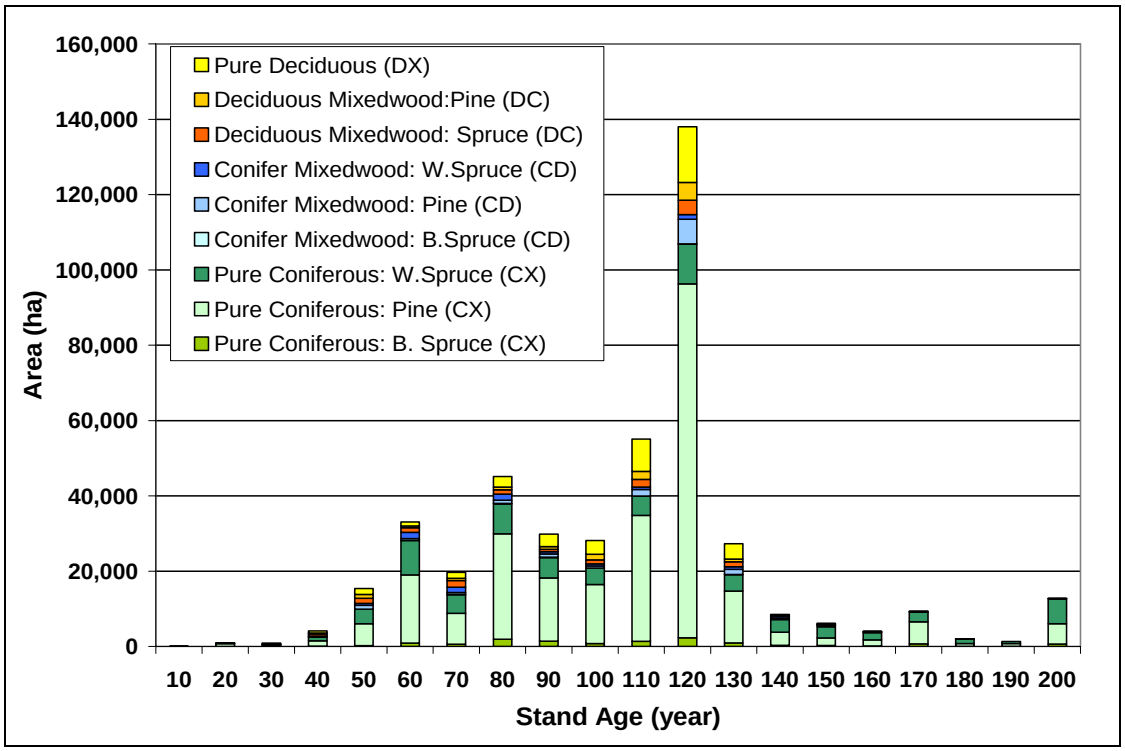

Figure 17. Age class distribution for fire origin stands within the contributing landbase

Note: Stand Age (year) represents the highest age for the grouping; therefore 50 represents stand ages from 41 to 50. The 200 year age class represents all stands 191 years and older.

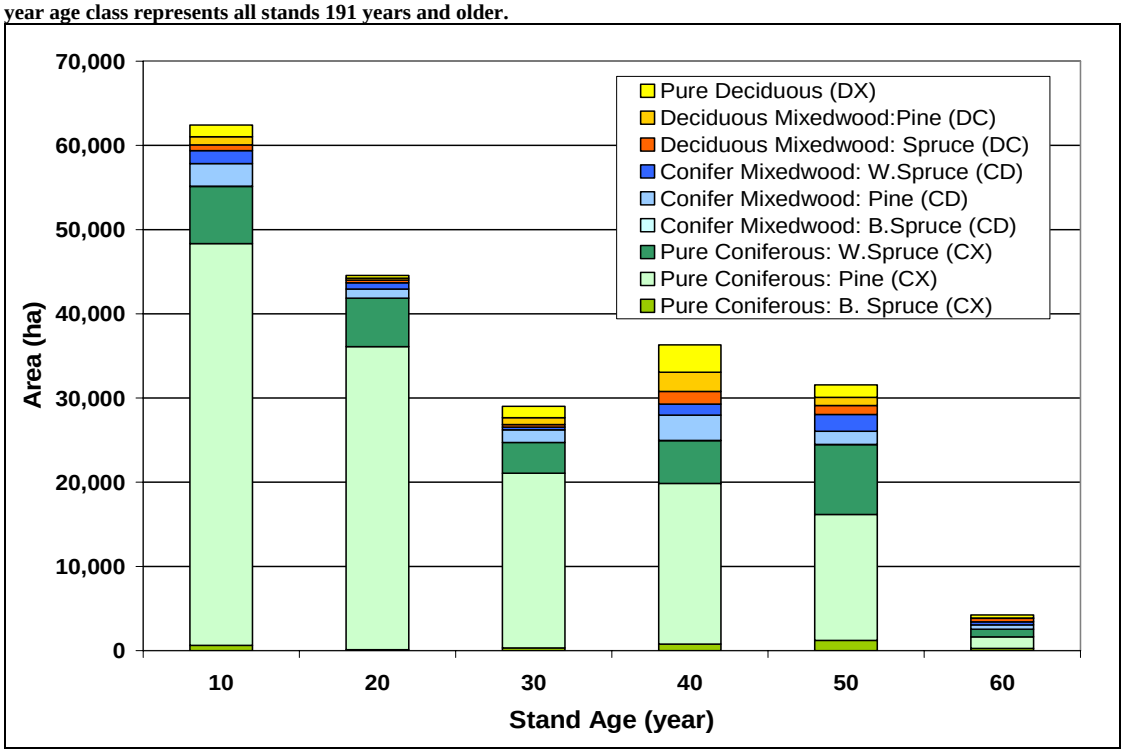

Figure 18. Age class distribution for managed stands in the contributing landbase

Note Stand Age (year) represents the highest age for the grouping; therefore 50 represents stand ages from 41 to 50.

Table 28. MPB Ranking by Base 10 yield strata for the contributing landbase.

Base 10 Yield Strata	MPB Ranking				Total Area (ha)
	1	2	3	None	
1 - Pure Deciduous	6,762	5,383	69	39,016	51,230
2 - DC (Pine)	7,745	5,905	302	4,375	18,326
3 - DC (Other Conifer)	2,557	3,534	124	13,424	19,639
4 - CD (White Spruce)	1,415	2,779	113	12,162	16,469
5 - CD (Pine)	10,489	6,877	380	7,586	25,331
6 - CD (Black Spruce)	179	61	0	315	555
7 - Pure Conif (White Spruce)	9,316	19,878	10,902	66,576	106,673
8 - Pure Conif (Pine)	157,023	114,762	12,196	111,943	395,925
9 - Pure Conif (Black Spruce)	4,869	5,093	398	5,655	16,016
Total Area (ha)	200,356	164,270	24,484	261,052	650,163

Note: this table can be replicated by summing ***[Final_2009netdownfull], [Final_2009TSAFULL], or[Final_2009TSAINPUT]*** on *[netarea] and classifying* by *[fin_base10]* and *[mpbrank] (or [theme6] for* ***[Final_2009TSAINPUT]*** *)* where *[DEL]='NO'(or [theme10]='NO' for* ***[Final_2009TSAINPUT]****).*

Table 29. Area by yield strata within the contributing landbase

Base 10 Yield	Yield Strata*	Yield Strata Definition	Fire Origin Area (ha)	Clear cut Area (ha)
1	E_B1_XH	Pure Deciduous (DX) C&D Crown Closure	30,931	6,044
1	E_B1_XL	Pure Deciduous A&B Crown Closure	9,174	2,084
2	E_B2_XX	Deciduous/Pine (DC)	11,880	5,314
3	E_B3_XX	Deciduous/Other Conifer (DC)	9,983	4,261
4 & 6	E_B4_XX	White Spruce/Deciduous (CD) Black Spruce/Deciduous (CD)	5,141	4,098
5	E_B5_XX	Pine/Deciduous (CD)	14,170	6,888
7	E_B7_GH	Pure Coniferous (CX) White Spruce/Fir Leading Good Site, C&D Crown Closure	5,713	1,153
7	E_B7_GL	Pure Coniferous (CX) White Spruce/Fir Leading Good Site, A&B Crown Closure	10,099	1,667
7	E_B7_MX	Pure Coniferous (CX) White Spruce/Fir Leading Medium & Poor Site	28,336	15,336
8	E_B8_GH	Pure Coniferous (CX) Pine Leading Good Site, C&D Crown Closure	79,758	23,832
8	E_B8_GL	Pure Coniferous (CX) Pine Leading Good Site, A&B Crown Closure	17,672	16,136
8	E_B8_MH	Pure Coniferous (CX) Pine Leading Medium & Poor Site C&D Crown Closure	121,277	10,565
8	E_B8_ML	Pure Coniferous (CX) Pine Leading Medium & Poor Site	25,396	12,695

Base 10 Yield	Yield Strata*	Yield Strata Definition	Fire Origin Area (ha)	Clear cut Area (ha)	
		A&B Crown Closure			
9	E_B9_XX	Pure Coniferous (CX) Black Spruce	4,777	3,297	
1 to 6	E_UN_CX	Understory Managed Pure Conifer Understory	51,955	0	
7, 8, 9	E_UN_DM	Understory Managed Decid/Mixed Understory	15,843	0	
4 & 6	G_B4_XX	Managed stand harvested after the start of the 1991 timber year White Spruce/Deciduous (CD) Black Spruce/Deciduous (CD)	0	2,315	
5	G_B5_XX	Managed stand harvested after the start of the 1991 timber year Pine/Deciduous (CD)	0	3,424	
7	G_B7_XX	Managed stand harvested after the start of the 1991 timber year Pure Coniferous (CX) White Spruce/Fir Leading	0	12,336	**Grand Total**
8	G_B8_XX	Managed stand harvested after the start of the 1991 timber year Pure Coniferous (CX) Pine Leading	0	76,615	
Total			**442,103**	**208,060**	**650,163**

* - See Table 24 for the definitions of each yield strata.
Note: this table can be replicated by summing by *[netarea]* and grouping on *[FIN_ORG08], [FIN_BASE10], [FIN_YLDSTR]* where *[FIN_STATUS='CONT']*

The total net contributing landbase on the Hinton FMA is 650,163ha (or just over 65% of the entire FMA area). Pure pine (base 10 yield stratum 8) dominates the forested landbase with an area close to 400,000ha (Table 27). A significant portion of the forested landbase that is currently ready for harvest is between 111 and 120 years old (Figure 17).

It is unprofitable to meticulously detail the differences between the 1999 and 2009 landbase classifications (Table 27), for the following reasons:

1. FMA boundary change: Between 1999 and 2009 a total of 13,700ha have been removed from the Hinton FMA (mostly due to mining dispositions and parks). Additionally the outside perimeter of FMA was re-defined in 2007 as part of the 2008 FMA renewal process.
2. Utilization change: In 2006 HWP switched from a pulpwood to a sawlog utilization standard. Thus pulpwood-only stands no longer contribute to the AAC.
3. Deletion hierarchy change: Both the deletion hierarchy and the landbase classification methodology have changed between the 1999 and 2009 reports.

Despite this a few general comparisons that can be made:

1. The results from 2009 landbase classification show 65% of the landbase contributing to a sawlog AAC (Table 27). This is consistent with the 1999 results which showed 70% contributing to a pulp wood AAC.
2. The significantly greater area in subjective deletions in 2009 is consistent with a switch to a sawlog standard.

3. The apparent decrease in area deleted due to watercourse buffers and seismic lines was caused by a change in deletion hierarchy. In 1999 subjective deletions were removed after watercourse buffers and seismic lines and in 2009 that was done before.

4 References

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5 Appendix

5.1 AVI Acceptance Letter

Alberta
SUSTAINABLE RESOURCE DEVELOPMENT

June 11, 2007

Mr. Richard Briand, RPF
Management Forester
Hinton Wood Products
A Division of West Fraser Mills Ltd.
760 Switzer Drive
Hinton, AB
T7V 1V7

Dear Mr. Briand:

Alberta Sustainable Resource Development staff completed a review of the Alberta Vegetation Inventory data submitted for the Hinton Wood Products forest management agreement area. The data successfully met all audit requirements requested by SRD.

If you have any questions regarding this process, please feel free to contact Daryl McEwan at (780) 415-0010.

Sincerely,

for Craig Barnes, Executive Director
Resource Information Management Branch

c: Doug Sklar, Executive Director
Forest Management Branch

Bruce Mayer, Director
PPD Wildfire & Aircraft Mgmt Branch

5.2 Data Libraries

Data Libraries are provided in the same step order as presented in Section 2.

5.2.1 Step 1 Data Sets

AVI_ss2					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
AREA	Polygon Area	Float	19	11	m^2
PERIMETER	Polygon Perimeter	Float	19	11	meters
AVI_V2_FUL		Numeric	9		
AVI_V2_F_1		Numeric	9		
STANDID	AVI Stand id	Numeric	10		Integer
PID		Numeric	4		Integer
MER	Meridian	Numeric	1		Integer
TWP	Township	Numeric	3		Integer
RGE	Range	Numeric	2		Integer
MOIST	Overstory Moisture Class	Character	1		A: Aquatic, D: Dry, M: Mesic, W: Wet
CROWN	Overstory Crown Class	Character	1		A: 6% to 30%, B: 31% to 50%, C: 51% to 70%, D: 71% to 100%
HEIGHT	Overstory Height	Numeric	2		to the nearest meter
SP1	Species 1	Character	2		AW: Trembling Aspen, BW: White Birch, PB: Balsam Poplar, FB: Balsam Fir, FA: Alpine Fir, LT: Tamarack, PL: Lodgepole Pine, SB: Black Spruce, SE: Engelmann Spruce, SW: White Spruce
PER1	Species 1 - Percentage Stand Composition	Numeric	2		0 to 10 (1=10%, 2=20%, etc.)
SP2	Species 2	Character	2		Same as Species 1
PER2	Species 2 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
SP3	Species 3	Character	2		Same as Species 1
PER3	Species 3 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
SP4	Species 4	Character	2		Same as Species 1
PER4	Species 4 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
SP5	Species 5	Character	2		Same as Species 1
PER5	Species 5 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
STR	Stand Structure	Character	1		Blank: Single story, M: Multi-layer, C: Complex, H: Horizontal
STRVAL	Stand Structure Value	Numeric	1		If STR='C' then height range, If STR='H' then structure percentage
ORIGIN	Overstory Origin	Numeric	4		Origin Year
STEMS	Estimated Overstory Stem Density	Numeric	4		Stems/ha
TPR	Timber Productivity Rating - Overstory	Character	1		G: Good, M: Medium, F: Fair, U: Unproductive
MOD1	Stand Condition Modifier 1	Character	2		CC: Clearcut, BU: Burn, WF: Windfall, CL: Clearing, DI: Disease, IK: Insect Kill, UK: Unknown, WE: Weather, DT: Discoloured/dead tops, BT: Broken Tops, SN: Snags, ST: Scattered timber
EXT1	Extent of Modifier 1	Numeric	1		Blank: Nil, 1: 1% to 25%, 2: 26% to 50%, 3: 51% to 75%, 4: 76% to 94%, 5: 95%+
YEAR1	Year of Modifier 1 Disturbance	Numeric	4		Year
MOD2	Stand Condition Modifier 2	Character	2		Same as Mod1
EXT2	Extent of Modifier 2	Numeric	1		Same as Ext1
YEAR2	Year of Modifier 2 Disturbance	Numeric	4		Same as Year1

AVI_ss2					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
MOD3	Stand Condition Modifier 3	Character	2		Same as Mod1
EXT3	Extent of Modifier 3	Numeric	1		Same as Ext1
YEAR3	Year of Modifier 3 Disturbance	Numeric	4		Same as Year1
NAT_V	Non-Forest Vegetated Land	Character	2		SC: Closed Shrub, SO: Open Shrub, HG: Herbaceous (Grassland), HF: Herbaceous (Forbs), BR: Bryophyte
NAT_CL		Numeric	2		
NAT_N	Naturally Non-Vegetated Land	Character	3		NWI: Water, NWL: Permanent Ice, NWR: River, NWF: Flooded, NMB: Recent Burn, NMC: Cutbank, NMR: Rock Barren, NMS: Sand
ANTH_V	Anthropogenic Vegetated Land	Character	3		CA: Annual Crops, CP: Perennial Forage Crops, CPR: Rough Pasture, CIP: Pipelines, CIW: Geophysical
ANTH_N	Anthropogenic Non-Vegetated Land	Character	3		ASC: Town, ASR: Ribbon Development, AIH: Roads, AIE: Peat Extractions, AIG: Gravel pits, AIF: Farmsteads, AIM: Surface Mines, AII: Industrial sites
REF_SC		Character	1		
REF_YR		Numeric	4		
YR_INTERP		Numeric	4		
INTERP		Character	2		
U_MOIST	Understory Moisture Class	Character	1		A: Aquatic, D: Dry, M: Mesic, W: Wet
U_CROWN	Understory Crown Class	Character	1		A: 6% to 30%, B: 31% to 50%, C: 51% to 70%, D: 71% to 100%
U_HEIGHT	Understory Height	Numeric	2		to the nearest meter
U_SP1	Species 1	Character	2		AW: Trembling Aspen, BW: White Birch, PB: Balsam Poplar, FB: Balsam Fir, FA: Alpine Fir, LT: Tamarack, PL: Lodgepole Pine, SB: Black Spruce, SE: Engelmann Spruce, SW: White Spruce
U_PER1	Species 1 - Percentage Stand Composition	Numeric	2		0 to 10 (1=10%, 2=20%, etc.)
U_SP2	Species 2	Character	2		Same as Species 1
U_PER2	Species 2 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
U_SP3	Species 3	Character	2		Same as Species 1
U_PER3	Species 3 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
U_SP4	Species 4	Character	2		Same as Species 1
U_PER4	Species 4 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
U_SP5	Species 5	Character	2		Same as Species 1
U_PER5	Species 5 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
U_STR	Stand Structure	Character	1		Blank: Single story, M: Multi-layer, C: Complex, H: Horizontal
U_STRVAL	Stand Structure Value	Numeric	1		If STR='C' then height range, If STR='H' then structure percentage
U_ORIGIN	Understory Origin	Numeric	4		Origin Year
U_STEMS	Estimated Overstory Stem Density	Numeric	4		Stems/ha
U_TPR	Timber Productivity Rating - Overstory	Character	1		G: Good, M: Medium, F: Fair, U: Unproductive
U_MOD1	Stand Condition Modifier 1	Character	2		CC: Clearcut, BU: Burn, WF: Windfall, CL: Clearing, DI: Disease, IK: Insect Kill, UK: Unknown, WE: Weather, DT: Discoloured/dead tops, BT: Broken Tops, SN: Snags, ST: Scattered timber
U_EXT1	Extent of Modifier 1	Numeric	1		Blank: Nil, 1: 1% to 25%, 2: 26% to 50%, 3: 51% to 75%, 4: 76% to 94%, 5: 95%+
U_YEAR1	Year of Modifier 1 Disturbance	Numeric	4		Year
U_MOD2	Stand Condition Modifier 2	Character	2		Same as Mod1
U_EXT2	Extent of Modifier 2	Numeric	1		Same as Ext1
U_YEAR2	Year of Modifier 2 Disturbance	Numeric	4		Same as Year1

AVI_ss2					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
U_MOD3	Stand Condition Modifier 3	Character	2		Same as Mod1
U_EXT3	Extent of Modifier 3	Numeric	1		Same as Ext1
U_YEAR3	Year of Modifier 3 Disturbance	Numeric	4		Same as Year1
U_NAT_V	Non-Forest Vegetated Land	Character	2		SC: Closed Shrub, SO: Open Shrub, HG: Herbaceous (Grassland), HF: Herbaceous (Forbs), BR: Bryophyte
U_NAT_CL		Numeric	2		
U_NAT_N	Naturally Non-Vegetated Land	Character	3		NWI: Water, NWL: Permanent Ice, NWR: River, NWF: Flooded, NMB: Recent Burn, NMC: Cutbank, NMR: Rock Barren, NMS: Sand
U_ANTH_V	Anthropogenic Vegetated Land	Character	3		CA: Annual Crops, CP: Perennial Forage Crops, CPR: Rough Pasture, CIP: Pipelines, CIW: Geophysical
U_ANTH_N	Anthropogenic Non-Vegetated Land	Character	3		ASC: Town, ASR: Ribbon Development, AIH: Roads, AIE: Peat Extractions, AIG: Gravel pits, AIF: Farmsteads, AIM: Surface Mines, AII: Industrial sites
U_REF_SC		Character	1		
U_REF_YR		Numeric	4		
ORIG_LT1	Original polygon area is less than 1ha	Character	1		Y: Original AVI polygon size was less than 1ha prior to any additional GIS processing.
ORIG_AREA	Original AVI polygon area in AVI_SS2 Orig_Area = Area	Numeric			m^2
OS_Label	Overstory Label	Character			Simple concatenation of AVI overstory attributes
US_Label	Understory Label	Character			Simple concatenation of AVI understory attributes

fires_00to07_FMAclip / fires_00to07_FMAclip_ge10ha					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
FIRENUM00	Fire Number (fires between 2000 to 2007)	Character	12		**Fire management district – Fire sequence # - Year** EWF-138-2006 EWF-080-2006 EWF-059-2006 EWF-055-2001 EWF-061-2003
BURNCODE00	Burn Code (fires between 2000 to 2007)	Character	6		B: Burnt
BURN_CLS00	Burn Class (fires between 2000 to 2007)	Numeric	1	0	5: Burnt area: >94% burned
HECTARE_00	Hectares Burnt (fires between 2000 to 2007)	Numeric	12	1	In hectares
YEAR_00	Year of Burn (fires between 2000 to 2007)	Numeric	4	0	Year

FMP_Block_res_fixed_x					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
AGENCYCODE	West Fraser FMA Holder	Character	15		HWP: Hinton Wood Products
PASS	Harvest Pass (entire cutblock history)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKSTAGE	Block Stage (entire cutblock history)	Character	10		Harvested: Harvested
HARVESTYEA	Harvest Year (entire cutblock history)	Numeric	4		Year
BLOCK	Block Number (entire cutblock history)	Character	20		**Working Circle –Compartment-Block Number** **(**too many to state individually – see layer table**)**

FMP_Block_res_fixed_x					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
OPENINGNUM	Opening Number (entire cutblock history)	Character	20		**ARIS Compliant Opening Number** **(**too many to state individually – see layer table**)**
BLOCKOID	Block Object ID (entire cutblock history)	Numeric	9		**HWP internal block object identification number** **(**too many to state individually – see layer table**)**
RESID	Residual Identifier	Character	1		Y-Residual Area
RESID_HA	Residual Block Size	Float	19	11	Residual area before polygons were divided for other attributes (ha)
RESID_PERM	Residual Perimeter	Float	19	11	Residual perimeter before polygons were divided for other attributes (m)
SHAPE_LENG	Polygon Perimeter	Float	19	11	Polygon perimeter (m)
SHAPE_AREA	Polygon Area	Float	19	11	Polygon area (m^2)

FMP_Block_res_fixed_x_fire / FMP_Block_res_fixed_x_fire_1999d					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
AGENCYCODE	West Fraser FMA Holder	Character	15		HWP: Hinton Wood Products
PASS	Harvest Pass (for cutblocks harvested before 2000)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKSTAGE	Block Stage (for cutblocks harvested before 2000)	Character	10		Harvested: Harvested
HARVESTYEA	Harvest Year (for cutblocks harvested before 2000)	Numeric	4		Year
BLOCK	Block Number (for cutblocks harvested before 2000)	Character	20		**Working Circle –Compartment-Block Number** **(**too many to state individually – see layer table**)**
OPENINGNUM	Opening Number (for cutblocks harvested before 2000)	Character	20		**ARIS Compliant Opening Number** **(**too many to state individually – see layer table**)**
BLOCKOID	Block Object ID (for cutblocks harvested before 2000)	Numeric	9		**HWP internal block object identification number** **(**too many to state individually – see layer table**)**
RESID	Residual Identifier	Character	1		Y-Residual Area
RESID_HA	Residual Block Size	Float	19	11	Total Residual Area Before polygons were divided for other attributes (ha)
RESID_PERM	Residual Perimeter	Float	19	11	Total Residual Perimeter Before polygons were divided for other attributes (m)
FIRENUM00	Fire Number for fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after	Character	12		**Fire management district – Fire sequence # - Year** EWF-138-2006 EWF-080-2006 EWF-059-2006 EWF-055-2001 EWF-061-2003
BURNCODE00	Burn Code for fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after	Character	6		B: Burnt
BURN_CLS00	Burn Class for fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after	Numeric	1	0	5: Burnt area: >94% burned
HECTARE_00	Hectares Burnt for fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after	Numeric	12	1	In hectares
YEAR_00	Year of Burn for fires	Numeric	4	0	Year

FMP_Block_res_fixed_x_fire / FMP_Block_res_fixed_x_fire_1999d					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
	between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after				
SHAPE_LENG	Polygon Perimeter	Float	19	11	Polygon perimeter (m)
SHAPE_AREA	Polygon Area	Float	19	11	Polygon area (m^2)

FMP_Block_res_fixed_x_fire_2000u					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
PASS2000	Harvest Pass (for recent cutblocks harvested in 2000 and after)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKST2000	Block Stage (for recent cutblocks harvested in 2000 and after)	Character	10		Harvested: Harvested
HARV2000	Harvest Year (for recent cutblocks harvested in 2000 and after)	Numeric	4		Year
BLOC2000	Block Number (for recent cutblocks harvested in 2000 and after)	Character	20		**Working Circle –Compartment-Block Number (**too many to state individually – see layer table**)**
OPEN2000	Opening Number (for recent cutblocks harvested in 2000 and after)	Character	20		**ARIS Compliant Opening Number (**too many to state individually – see layer table**)**
OID2000	Block Object ID (for recent cutblocks harvested in 2000 and after)	Numeric	9		**HWP internal block object identification number (**too many to state individually – see layer table**)**
FIREN2000	Fire Number (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Character	12		**Fire management district – Fire sequence # - Year** EWF-138-2006 EWF-080-2006 EWF-059-2006 EWF-055-2001 EWF-061-2003
BURN2000	Burn Code (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Character	6		B: Burnt
BRNCLS2000	Burn Class (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	1	0	5: Burnt area: >94% burned
HECT2000	Hectares Burnt (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	12	1	In hectares
SHAPE_LENG	Polygon Perimeter	Float	19	11	Polygon perimeter (m)
SHAPE_AREA	Polygon Area	Float	19	11	Polygon area (m^2)

Step1Fma_elm					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
The fields at the start of this layer are exactly the same as: **AVI_ss2**					
Other Fields (from FMP_Block_res_fixed_x_fire_1999d & FMP_Block_res_fixed_x_fire_2000u)					
PASS	Harvest Pass (for cutblocks harvested before 2000)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKSTAGE	Block Stage (for cutblocks harvested before 2000)	Character	10		Harvested: Harvested
HARVESTYEA	Harvest Year (for cutblocks harvested before 2000)	Numeric	4		Year
BLOCK	Block Number (for cutblocks harvested before 2000)	Character	20		**Working Circle –Compartment-Block Number (**too many to state individually – see layer table**)**
OPENINGNUM	Opening Number (for cutblocks harvested before 2000)	Character	20		**ARIS Compliant Opening Number (**too many to state individually – see layer table**)**
BLOCKOID	Block Object ID (for cutblocks harvested before 2000)	Numeric	9		**HWP internal block object identification number (**too many to state individually – see layer table**)**
RESID	Residual Identifier	Character	1		Y-Residual Area
RESID_HA	Residual Block Size	Float	19	11	Total Residual Area Before polygons were divided for other attributes (ha)
RESID_PERM	Residual Perimeter	Float	19	11	Total Residual Perimeter Before polygons were divided for other attributes (m)
FIRENUM00	Fire Number (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Character	12		**Fire management district – Fire sequence # - Year** EWF-138-2006 EWF-080-2006 EWF-059-2006 EWF-055-2001 EWF-061-2003
BURNCODE00	Burn Code (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Character	6		B: Burnt
BURN_CLS00	Burn Class (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Numeric	1	0	5: Burnt area: >94% burned
HECTARE_00	Hectares Burnt (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Numeric	12	1	In hectares
YEAR_00	Year of Burn (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Numeric	4	0	Year
PASS2000	Harvest Pass (for recent cutblocks harvested in 2000 and after)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKST2000	Block Stage (for recent cutblocks harvested in 2000 and after)	Character	10		Harvested: Harvested
HARV2000	Harvest Year (for recent cutblocks harvested in 2000 and	Numeric	4		Year

Step1Fma_elm					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
	after)				
BLOC2000	Block Number (for recent cutblocks harvested in 2000 and after)	Character	20		**Working Circle –Compartment-Block Number (**too many to state individually – see layer table**)**
OPEN2000	Opening Number (for recent cutblocks harvested in 2000 and after)	Character	20		**ARIS Compliant Opening Number (**too many to state individually – see layer table**)**
OID2000	Block Object ID (for recent cutblocks harvested in 2000 and after)	Numeric	9		**HWP internal block object identification number (**too many to state individually – see layer table**)**
FIREN2000	Fire Number (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Character	12		**Fire management district – Fire sequence # - Year** EWF-138-2006 EWF-080-2006 EWF-059-2006 EWF-055-2001 EWF-061-2003
BURN2000	Burn Code (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Character	6		B: Burnt
BRNCLS2000	Burn Class (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	1	0	5: Burnt area: >94% burned
HECT2000	Hectares Burnt (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	12	1	In hectares
YEAR2000	Year of Burn (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	4	0	Year

Step1Fma_full					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
The fields for this table are exactly the same as those in: **AVI_ss2** and **FMP_Block_res_fixed_x_fire**					

5.2.2 Step 2 Data Sets

ELC_short					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
SUB_REGION	ELC Natural Sub-region	Character	2		A – Alpine LF – Lower Foothills UF – Upper Foothills MN – Montane SA – Sub-alpine

ELC_short					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
ECO_SITE	Ecosite	Character	2		Ecosite Letter: A, B, C, D, E, F, G, H, I, J, K, L, M, N
LTAP_FIN	Operability independent of location of roads	Character	16		Contingency, Marginal, Summer_A, Summer_B, Winter See section 2.2.1 for definitions.
SUMMEROP	Operability considering current road locations	Character	1		Y: Currently summer operable N: Not currently summer operable

Provincial_NSR					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
NSRCode	Provincial Natural Sub-region	Character	2		A – Alpine LF – Lower Foothills UF – Upper Foothills M – Montane SA – Sub-alpine

Avi_pnsr_lut					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
STANDID	AVI Stand id	Numeric	10		Integer
Prov_NSR	Provincial Natural Sub-region	Character	2		A – Alpine LF – Lower Foothills UF – Upper Foothills MN – Montane SA – Sub-alpine

ELC_Lut					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
STANDID	AVI Stand id	Numeric	10		Integer
SUB_REGION	ELC Natural Sub-region	Character	2		A – Alpine LF – Lower Foothills UF – Upper Foothills MN – Montane SA – Sub-alpine
ECO_SITE	Ecosite	Character	2		Ecosite Letter: A, B, C, D, E, F, G, H, I, J, K, L, M, N
LTAP_FIN	Operability independent of location of roads	Character	16		Contingency, Marginal, Summer_A, Summer_B, Winter See section 2.2.1 for definitions.
SUMMEROP	Operability considering current road locations	Character	1		Y: Currently summer operable N: Not currently summer operable

MPB_SSI_lut					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
STANDID	AVI Stand id	Numeric	10		Integer
CF	Climate Factor	Numeric	19	5	Factor Rating (0 – 1.0)
SSI	SSI without Climate Factor	Numeric	19	5	Factor Rating (0 – 83)
SSI_CF	SSI with Climate Factor	Numeric	19	5	SSI x CF

5.2.3 Step 3 Data Sets

Dispositions

DIDS_input					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Disp_num	Disposition Numbers	Character	15		Disp_type + disposition number
Disp_type	Disposition Type	Character	3		See section 2.3.2 CNC CNT DRS EZE FGL FRD GRL GRP HRS ISP LOC MLL MLP MSL PIL PLA PLS PNT RDS REA REC ROE RRD SMC SME SML VCE
Ver_date	Verification Date	Dates	8		Verification Date

Road_Row					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Disp_num	Disposition Numbers	Character	15		Disp_type + disposition number
Disp_type	Disposition Type	Character	3		See section 2.3.2 LOC
Ver_date	Verification Date	Dates	8		Verification Date
Source	Data Source	Character	15		DIDS: DIDS HWP: Hinton's internal LOC

DIDS_lut_fin2					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Disp_num	Disposition Numbers	Character	13		Disp_type + disposition number
Disp_type	Disposition Type	Character	13		See section 2.3.2 CNC CNT DRS EZE FGL FRD GRL GRP HRS ISP LOC MLL MLP MSL PIL PLA PLS PNT RDS REA REC ROE RRD SMC SME SML VCE
DISP_DEL	Disposition Deletion Flag	Character	12		N – Not a Deletion Y – FMA Deletion

DIDS_final					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Disp_num	Disposition Numbers	Character	15		Disp_type + disposition number
Disp_type	Disposition Type	Character	3		See section 2.3.2 CNC CNT DRS EZE FGL FRD GRL GRP HRS ISP LOC MLL MLP MSL PIL PLA PLS PNT RDS REA REC ROE RRD SMC SME SML VCE
Ver_date	Verification Date	Dates	8		Verification Date

Final_Disposition / Final_Disposition_OG					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Disp_num	Disposition Numbers	Character	13		Disp_type + disposition number
Disp_type	Disposition Type	Character	13		See section 2.3.2 CNC CNT DRS EZE FGL FRD GRL GRP HRS ISP LOC MLL MLP MSL PIL PLA PLS PNT RDS REA REC ROE RRD SMC SME SML VCE
DISP_DEL	Disposition Deletion Flag	Character	12		N – Not a Deletion Y – FMA Deletion

Watercourses, Riparian, and Watershed Layers

Hinton_04may08_withbufferdist

Field Name	Description	Type	Width	Dec	Valid codes and description
Elevation	Line segment elevation	Numeric	12	6	Elevation in meters
Feature	Line segment class	Character	50		DITCHES, ISLAND, LAKE, MARSH, RIVER, RIVER_LEFT BANK, RIVER_RIGHT BANK
Code	Watercourse type	Character	50		EPHEMERAL – ephemeral watercourse INTERMMITANT – intermittent watercourse PERMANENT – permanent watercourse
Visibility	Watercourse visible or obscured on the orthophoto	Character	50		OBSCURED – watercourse is obscured Blank – watercourse is not obscured
Class_B	Identifies for Class "B" Waterbodies	Character	1		Y – Class "B" Waterbody Blank – not a Class "B" Waterbody
Class_A	Identifies for Class "A" Waterbodies	Character	1		Y – Class "A" Waterbody Blank – not a Class "A" Waterbody
ClsA_2kms	Identifies water bodies within 2kms of a class "A" waterbody	Character	1		Y – Within 2kms of a class "A" Waterbody Blank – Not within 2kms of a class "A" Waterbody
clsB_500m	Identifies water bodies within 500m of a class "B" waterbody	Character	1		Y – Within 500m of a class "B" Waterbody Blank – Not within 500m of a class "B" Waterbody
Buff_dist	Buffer Distance to be Applied	Numeric	12	0	5, 10, 20, 30, 60, 100 (in meters)

lake_with_buffdist

Field Name	Description	Type	Width	Dec	Valid codes and description
Code	Watercourse type	Character	15		LAKE
TYPE	Watercourse type	Character	15		INTERMMITANT – intermittent lake (ponds and sloughs) PERMANENT – permanent lake
DISP_NUM	Dispositions associated with lakes	Character	15		PNT010260, PNT010325, PNT020232, PNT880111, PNT880112
LAKE_DISP	Reason for the lake disposition	Character	15		SALMA – Salamander TSWAN – Trumpeter Swan
LBuff_dist	Buffer Distance to be Applied	Numeric	12	0	30, 100, 200 (in meters)

Final_riparian

Field Name	Description	Type	Width	Dec	Valid codes and description
RIP_ZONE	Riparian Zone	Character	5		YES – Riparian Zone

Final_watersheds

Field Name	Description	Type	Width	Dec	Valid codes and description
Basinname	Basin name	Character	50		Brazeau River, Cardinal River, Edson River, Embarras River, Gregg River, Little Berland River, Lower Athabasca River, Lower Berland River, Lower Erith River, Lower McLeod River, Lower Wildhay River, Mid Athabasca River, Mid Berland River, Mid McLeod River, Oldman Creek, Pembina River, Pine Creek, Pinto Creek, Sundance, Trout Creek, Upper Athabasca River, Upper Berland River, Upper Berland River_OUT, Upper Erith River, Upper McLeod River, Upper McLeod River_OUT, Upper Wildhay River, Upper Wildhay River_OUT, Willow Creek, Windfall Creek
WS_UID	Watershed Unique Identifier	Character	50		BasinName - unique number

Steep Slopes

Elev_5m_rast

Field Name	Description	Type	Width	Dec	Valid codes and description
Elevation	Elevation	Numeric	12	6	Elevation in meters

Slope_5m

Field Name	Description	Type	Width	Dec	Valid codes and description
Slope	Slope	Numeric	12	6	Slope %

Hwpslp_5to15m_steeponly

Field Name	Description	Type	Width	Dec	Valid codes and description
GRID_CODE	Steep Slope Indicator	Numeric	12	0	1 – Slope is 45% or greater
Area / Shape_area	Polygon Area	Numeric	18	6	m^2

Fma_stpslpall_75m_fin

Field Name	Description	Type	Width	Dec	Valid codes and description
Slope45up	Steep Slope Indicator	text	1	0	Y – Area is either a 45%+ slope or isolated due to slopes.
Shape_area	Polygon Area	Numeric	18	6	m^2

Final_steep_slp

Field Name	Description	Type	Width	Dec	Valid codes and description
Slope45up	Steep Slope Indicator	text	1	0	Y – Area is either a 45%+ slope or isolated due to slopes.

ESIP Zones

Final_ESIP

Field Name	Description	Type	Width	Dec	Valid codes and description
ESIP_PP	ESIP Prime Protection Indicator	Character	5		YES – Prime Protection

Wildzones

Final_Wildzones

Field Name	Description	Type	Width	Dec	Valid codes and description
WZone_Desc	Wildzone Description	Character	50		High Elevation Sheep and Goat SMA, Pinto Creek Mountain Goat SMA, Trumpeter Swan SMA, Woodland Caribou SMA

Planned Blocks

Final_plan_blks

Field Name	Description	Type	Width	Dec	Valid codes and description
Plannedblk	Planned Block	Character	15		YES: Planned Block

Final Union

Final_union					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Slope45up	Steep Slope Indicator	text	1	0	Y – Area is either a 45%+ slope or isolated due to slopes.
ESIP_PP	ESIP Prime Protection Indicator	Character	5		YES – Prime Protection
Basinname	Basin name	Character	50		Brazeau River, Cardinal River, Edson River, Embarras River, Gregg River, Little Berland River, Lower Athabasca River, Lower Berland River, Lower Erith River, Lower McLeod River, Lower Wildhay River, Mid Athabasca River, Mid Berland River, Mid McLeod River, Oldman Creek, Pembina River, Pine Creek, Pinto Creek, Sundance, Trout Creek, Upper Athabasca River, Upper Berland River, Upper Berland River_OUT, Upper Erith River, Upper McLeod River, Upper McLeod River_OUT, Upper Wildhay River, Upper Wildhay River_OUT, Willow Creek, Windfall Creek
WS_UID	Watershed Unique Identifier	Character	50		BasinName - unique number
RIP_ZONE	Riparian Zone	Character	5		YES – Riparian Buffer
Plannedblk	Planned Block	Character	15		YES: Planned Block
DISP_DEL	Disposition Deletion Flag	Character	12		N – Not a Deletion Y – FMA Deletion
WZone_Desc	Wildzone Description	Character	50		High Elevation Sheep and Goat SMA, Pinto Creek Mountain Goat SMA, Trumpeter Swan SMA, Woodland Caribou SMA
WC_CMPT	FMA working circle and compartment	Character	6		In the FMA The first 4 letters are: ATHA: Athabasca, MARL: Marlboro, EMBR: Embarras, MCLD: McLeod, BERL: Berland The last 2 numbers represent the compartment. Outside the FMA The first 2 letters are: XX: outside the FMA The last 4 letters identify the location: ROBB: Robb townsite COLS: Coalspur LUCR: Luscar MUSK: Muskiki OUTS: Generic Outside FMA WKLK: Wiki Lake HINT: Hinton Townsite OBED: Obed Mine PINT: Pinto SILV: Silver Summit SQBK: Square Block SUND: Sundance Provincial Park SWIT: Switzer Provincial Park WILD: Wildhay Natural Area

5.2.4 Step 4 Data Sets

Final_union_FMA_ELM_M2P					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Slope45up	Steep Slope Indicator	text	1	0	Y – Area is either a 45%+ slope or isolated due to slopes.
ESIP_PP	ESIP Prime Protection Indicator	Character	5		YES – Prime Protection
Basinname	Basin name	Character	50		Brazeau River, Cardinal River, Edson River, Embarras River, Gregg River, Little Berland River, Lower Athabasca River, Lower Berland River, Lower Erith River, Lower McLeod River, Lower Wildhay River, Mid Athabasca River, Mid Berland River, Mid McLeod River,

Final_union_FMA_ELM_M2P					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
					Oldman Creek, Pembina River, Pine Creek, Pinto Creek, Sundance, Trout Creek, Upper Athabasca River, Upper Berland River, Upper Berland River_OUT, Upper Erith River, Upper McLeod River, Upper McLeod River_OUT, Upper Wildhay River, Upper Wildhay River_OUT, Willow Creek, Windfall Creek
WS_UID	Watershed Unique Identifier	Character	50		BasinName - unique number
RIP_ZONE	Riparian Zone	Character	5		YES – Riparian Buffer
Plannedblk	Planned Block	Character	15		YES: Planned Block
DISP_DEL	Disposition Deletion Flag	Character	12		N – Not a Deletion Y – FMA Deletion
WZone_Desc	Wildzone Description	Character	50		High Elevation Sheep and Goat SMA, Pinto Creek Mountain Goat SMA, Trumpeter Swan SMA, Woodland Caribou SMA
WC_CMPT	FMA working circle and compartment	Character	6		In the FMA The first 4 letters are: ATHA: Athabasca, MARL: Marlboro, EMBR: Embarras, MCLD: McLeod, BERL: Berland The last 2 numbers represent the compartment. Outside the FMA The first 2 letters are: XX: outside the FMA The last 4 letters identify the location: ROBB: Robb townsite COLS: Coalspur LUCR: Luscar MUSK: Muskiki OUTS: Generic Outside FMA WKLK: Wiki Lake HINT: Hinton Townsite OBED: Obed Mine PINT: Pinto SILV: Silver Summit SQBK: Square Block SUND: Sundance Provincial Park SWIT: Switzer Provincial Park WILD: Wildhay Natural Area
The fields at the start of this layer are exactly the same as: **AVI_ss2**					
Other Fields (from FMP_Block_res_fixed_x_fire_1999d & FMP_Block_res_fixed_x_fire_2000u)					
PASS	Harvest Pass (for cutblocks harvested before 2000)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKSTAGE	Block Stage (for cutblocks harvested before 2000)	Character	10		Harvested: Harvested
HARVESTYEA	Harvest Year (for cutblocks harvested before 2000)	Numeric	4		Year
BLOCK	Block Number (for cutblocks harvested before 2000)	Character	20		**Working Circle –Compartment-Block Number** **(**too many to state individually – see layer table**)**
OPENINGNUM	Opening Number (for cutblocks harvested before 2000)	Character	20		**ARIS Compliant Opening Number** **(**too many to state individually – see layer table**)**
BLOCKOID	Block Object ID (for cutblocks harvested before 2000)	Numeric	9		**HWP internal block object identification number** **(**too many to state individually – see layer table**)**
RESID	Residual Identifier	Character	1		Y-Residual Area
RESID_HA	Residual Block Size	Float	19	11	Total Residual Area Before polygons were divided for other attributes (ha)

Final_union_FMA_ELM_M2P					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
RESID_PERM	Residual Perimeter	Float	19	11	Total Residual Perimeter Before polygons were divided for other attributes (m)
FIRENUM00	Fire Number (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Character	12		**Fire management district – Fire sequence # - Year** EWF-138-2006 EWF-080-2006 EWF-059-2006 EWF-055-2001 EWF-061-2003
BURNCODE00	Burn Code (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Character	6		B: Burnt
BURN_CLS00	Burn Class (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Numeric	1	0	5: Burnt area: >94% burned
HECTARE_00	Hectares Burnt (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Numeric	12	1	In hectares
YEAR_00	Year of Burn (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Numeric	4	0	Year
PASS2000	Harvest Pass (for recent cutblocks harvested in 2000 and after)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKST2000	Block Stage (for recent cutblocks harvested in 2000 and after)	Character	10		Harvested: Harvested
HARV2000	Harvest Year (for recent cutblocks harvested in 2000 and after)	Numeric	4		Year
BLOC2000	Block Number (for recent cutblocks harvested in 2000 and after)	Character	20		**Working Circle –Compartment-Block Number** **(**too many to state individually – see layer table**)**
OPEN2000	Opening Number (for recent cutblocks harvested in 2000 and after)	Character	20		**ARIS Compliant Opening Number** **(**too many to state individually – see layer table**)**
OID2000	Block Object ID (for recent cutblocks harvested in 2000 and after)	Numeric	9		**HWP internal block object identification number** **(**too many to state individually – see layer table**)**
FIREN2000	Fire Number (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Character	12		**Fire management district – Fire sequence # - Year** EWF-138-2006 EWF-080-2006 EWF-059-2006 EWF-055-2001 EWF-061-2003
BURN2000	Burn Code (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Character	6		B: Burnt
BRNCLS2000	Burn Class (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	1	0	5: Burnt area: >94% burned

Final_union_FMA_ELM_M2P					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
HECT2000	Hectares Burnt (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	12	1	In hectares
YEAR2000	Year of Burn (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	4	0	Year
FID_LINK	Unique Identifier	Numeric	9		Integer
Cutline	Seismic / Cutline Identifier	Character	3		Y – Cutline / Seismic

5.2.5 Step 5 Data Sets

Seismic Lines

Geo_disp_region					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
DISP_KEY	Disposition Key	Character	9		GEO + disposition number

Final_seismic					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Cutline	Seismic / Cutline Identifier	Character	3		Y – Cutline / Seismic

Final_union_ELM_seismic / Final_union_ELM_seisbyarea					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Slope45up	Steep Slope Indicator	text	1	0	Y – Area is either a 45%+ slope or isolated due to slopes.
ESIP_PP	ESIP Prime Protection Indicator	Character	5		YES – Prime Protection
Basinname	Basin name	Character	50		Brazeau River, Cardinal River, Edson River, Embarras River, Gregg River, Little Berland River, Lower Athabasca River, Lower Berland River, Lower Erith River, Lower McLeod River, Lower Wildhay River, Mid Athabasca River, Mid Berland River, Mid McLeod River, Oldman Creek, Pembina River, Pine Creek, Pinto Creek, Sundance, Trout Creek, Upper Athabasca River, Upper Berland River, Upper Berland River_OUT, Upper Erith River, Upper McLeod River, Upper McLeod River_OUT, Upper Wildhay River, Upper Wildhay River_OUT, Willow Creek, Windfall Creek
WS_UID	Watershed Unique Identifier	Character	50		BasinName - unique number
RIP_ZONE	Riparian Zone	Character	5		YES – Riparian Buffer
Plannedblk	Planned Block	Character	15		YES: Planned Block
DISP_DEL	Disposition Deletion Flag	Character	12		N – Not a Deletion Y – FMA Deletion
WZone_Desc	Wildzone Description	Character	50		High Elevation Sheep and Goat SMA, Pinto Creek Mountain Goat SMA, Trumpeter Swan SMA, Woodland Caribou SMA
WC_CMPT	FMA working circle and compartment	Character	6		In the FMA The first 4 letters are: ATHA: Athabasca, MARL: Marlboro, EMBR: Embarras, MCLD: McLeod, BERL: Berland

Final_union_ELM_seismic / Final_union_ELM_seisbyarea					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
					The last 2 numbers represent the compartment. Outside the FMA The first 2 letters are: XX: outside the FMA The last 4 letters identify the location: ROBB: Robb townsite COLS: Coalspur LUCR: Luscar MUSK: Muskiki OUTS: Generic Outside FMA WKLK: Wiki Lake HINT: Hinton Townsite OBED: Obed Mine PINT: Pinto SILV: Silver Summit SQBK: Square Block SUND: Sundance Provincial Park SWIT: Switzer Provincial Park WILD: Wildhay Natural Area
The fields at the start of this layer are exactly the same as: **AVI_ss2**					
Other Fields (from FMP_Block_res_fixed_x_fire_1999d & FMP_Block_res_fixed_x_fire_2000u)					
PASS	Harvest Pass (for cutblocks harvested before 2000)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKSTAGE	Block Stage (for cutblocks harvested before 2000)	Character	10		Harvested: Harvested
HARVESTYEA	Harvest Year (for cutblocks harvested before 2000)	Numeric	4		Year
BLOCK	Block Number (for cutblocks harvested before 2000)	Character	20		**Working Circle –Compartment-Block Number (**too many to state individually – see layer table**)**
OPENINGNUM	Opening Number (for cutblocks harvested before 2000)	Character	20		**ARIS Compliant Opening Number (**too many to state individually – see layer table**)**
BLOCKOID	Block Object ID (for cutblocks harvested before 2000)	Numeric	9		**HWP internal block object identification number (**too many to state individually – see layer table**)**
RESID	Residual Identifier	Character	1		Y-Residual Area
RESID_HA	Residual Block Size	Float	19	11	Total Residual Area Before polygons were divided for other attributes (ha)
RESID_PERM	Residual Perimeter	Float	19	11	Total Residual Perimeter Before polygons were divided for other attributes (m)
FIRENUM00	Fire Number (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Character	12		**Fire management district – Fire sequence # - Year** EWF-138-2006 EWF-080-2006 EWF-059-2006 EWF-055-2001 EWF-061-2003
BURNCODE00	Burn Code (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Character	6		B: Burnt
BURN_CLS00	Burn Class (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Numeric	1	0	5: Burnt area: >94% burned
HECTARE_00	Hectares Burnt (fires between 2000 to 2007 that are not associated with	Numeric	12	1	In hectares

Final_union_ELM_seismic / Final_union_ELM_seisbyarea					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
	cutblocks harvested in 2000 and after)				
YEAR_00	Year of Burn (fires between 2000 to 2007 that are not associated with cutblocks harvested in 2000 and after)	Numeric	4	0	Year
PASS2000	Harvest Pass (for recent cutblocks harvested in 2000 and after)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKST2000	Block Stage (for recent cutblocks harvested in 2000 and after)	Character	10		Harvested: Harvested
HARV2000	Harvest Year (for recent cutblocks harvested in 2000 and after)	Numeric	4		Year
BLOC2000	Block Number (for recent cutblocks harvested in 2000 and after)	Character	20		**Working Circle –Compartment-Block Number (**too many to state individually – see layer table**)**
OPEN2000	Opening Number (for recent cutblocks harvested in 2000 and after)	Character	20		**ARIS Compliant Opening Number (**too many to state individually – see layer table**)**
OID2000	Block Object ID (for recent cutblocks harvested in 2000 and after)	Numeric	9		**HWP internal block object identification number (**too many to state individually – see layer table**)**
FIREN2000	Fire Number (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Character	12		**Fire management district – Fire sequence # - Year** EWF-138-2006 EWF-080-2006 EWF-059-2006 EWF-055-2001 EWF-061-2003
BURN2000	Burn Code (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Character	6		B: Burnt
BRNCLS2000	Burn Class (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	1	0	5: Burnt area: >94% burned
HECT2000	Hectares Burnt (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	12	1	In hectares
YEAR2000	Year of Burn (fires between 2000 to 2007 that occurred on cutblocks harvested in 2000 and after)	Numeric	4	0	Year
FID_LINK	Unique Identifier for Final_union_ELM_seisarea	Numeric	9		Integer
Cutline	Seismic / Cutline Identifier	Character	3		Y – Cutline / Seismic
FID_LINK12	Unique Identifier for Final_union_ELM_seismic	Numeric	9		Integer
CL_AREA	Cutline area in polygon in Final_union_ELM_seisarea	Numeric	19	6	m^2

5.2.6 Step 6 Input Data Sets

TFM_silv_data_export					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
SKIDCLEARD	Skid Clear Date	Date	8		Day, Month, Year Format
TIMBER_YEA	Timber Year	Numeric	16	4	Harvest year (from 1955 to 2008)
SB_BLOCK	HWP Silviculture Records - Block Number	Character	16		HWP internal block number
SB_HARYEAR	HWP Silviculture Records – Harvest Year	Numeric	16	4	Harvest year (from 1955 to 2008)
SB_OPENT	HWP Silviculture Records – Opening Type	Character	2		CC: Clearcut, CM: Clearcut-MPB, CW: Clearcut-blowdown, PC: Partial Cut, SM: Salvage Cut, TC: Commercial Thin, WF: Wildlife no salvage
SB_STOCKS	HWP Silviculture Records – Stocking Status	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR: Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked
SB_FUNDMET	HWP Silviculture Records – Funding Method	Character	5		FRIAA: FRIAA, IA: Industrial
SB_CURR_RE	HWP Silviculture Records – Current Responsibility	Character	5		AN: LFS Non Quota, F4 or F5: FRIAA, IF: Industry FMA
SB_LBC	HWP Silviculture Records – Landbase Designation Code	Character	2		CC: Coniferous Mixedwood to Coniferous Mixedwood CD: Coniferous Mixedwood to Deciduous Mixedwood CH: Coniferous Mixedwood to Pure Deciduous CS: Coniferous Mixedwood to Pure Coniferous DC: Deciduous Mixedwood to Coniferous Mixedwood DD: Deciduous Mixedwood to Deciduous Mixedwood DH: Deciduous Mixedwood to Pure Deciduous DS: Deciduous Mixedwood to Pure Coniferous HC: Pure Deciduous to Coniferous Mixedwood HH: Pure Deciduous to Pure Deciduous HS: Pure Deciduous to Pure Coniferous SC: Pure Coniferous to Coniferous Mixedwood SD: Pure Coniferous to Deciduous Mixedwood SH: Pure Coniferous to Pure Deciduous SS: Pure Coniferous to Pure Coniferous
SB_STC	HWP Silviculture Records – Stratum Declaration	Character	7		C-2000: Coniferous 2000 CD-2000: Coniferous – Deciduous 2000 CONF: Coniferous D-2000: Deciduous 2000 DC-2000: Deciduous – Coniferous 2000 MIXD: Mixedwood PR91: Pre 1991 Blocks
SB_ORDEC	HWP Silviculture Records – Original Declaration	Character	2		C: Pure coniferous CD: Coniferous Deciduous DC: Deciduous Coniferous D: Pure Deciduous
SB_2YRDEC	HWP Silviculture Records – 2 year Declaration	Character	2		C: Pure coniferous CD: Coniferous Deciduous DC: Deciduous Coniferous D: Pure Deciduous
SB_ESTDEC	HWP Silviculture Records – Establishment Declaration	Character	2		C: Pure coniferous CD: Coniferous Deciduous DC: Deciduous Coniferous D: Pure Deciduous
SB_PERDEC	HWP Silviculture Records – Performance Declaration	Character	1		C: Pure coniferous CD: Coniferous Deciduous DC: Deciduous Coniferous D: Pure Deciduous
SB_ST_SUR_	HWP Silviculture Records – Stocking Survey Status	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR: Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked
SB_EST_SUR	HWP Silviculture Records – Establishment Survey Status	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR: Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked
SB_10YR_SU	HWP Silviculture Records – 10 year Survey Status	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR: Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked
SB_PER_SUR	HWP Silviculture Records – Performance Survey Status	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR: Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked

VFM_tfm_surveyregen					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
STARTDATE	HWP Survey Records – Start Date	Date	8		Month/Day/Year
ENDDATE	HWP Survey Records – End Date	Date	8		Month/Day/Year
REGENSURVE	HWP Survey Records – Regeneration Survey	Character	10		EST: Establishment Survey PER: Performance Survey
ACCEPTCONP	HWP Survey Records – Acceptable Coniferous Percent Stocking	Numeric	8	1	Percentage
ACCEPTDECP	HWP Survey Records – Acceptable Deciduous Percent Stocking	Numeric	8	1	Percentage
ACCEPTFIRP	HWP Survey Records – Acceptable Fir Percent Stocking	Numeric	8	2	Percentage
CONDITIONC	HWP Survey Records – Conditional Coniferous Percent Stocking	Numeric	8	1	Percentage
CONDFIRPCT	HWP Survey Records – Conditional Fir Percent Stocking	Numeric	8	2	Percentage
CONDDECPCT	HWP Survey Records – Conditional Deciduous Percent Stocking	Numeric	8	2	Percentage
TOTALSTOCK	HWP Survey Records – Total Percent Stocking	Numeric	8	1	Percentage
AVGFIRDENS	HWP Survey Records – Average Fir Density	Numeric	9	2	Stem count / ha
AVGDECHEIG	HWP Survey Records – Average Dec Height	Numeric	11	2	Height (cm)
AVGCONHEIG	HWP Survey Records – Average Con Height	Numeric	11	2	Height (cm)
AVGDECCAPP		Numeric	8	1	????
AVGDECDENS	HWP Survey Records – Average Dec Density	Numeric	8		Stem count / ha
AVGCONDENS	HWP Survey Records – Average Con Density	Numeric	8		Stem count / ha
NSRPLOTS	HWP Survey Records – Percentage NSR Plots	Numeric	8		Count of NSR plots in block
NSRAREA	HWP Survey Records – NSR Area	Numeric	8	1	NSR area within block
ROADSAREA	HWP Survey Records – Road Area	Numeric	9	2	Area in roads within a block
ACCEPTCONI	HWP Survey Records – Acceptable Conifer Stocking Percentage	Numeric	8	1	Percentage
AVGCROPTRE	HWP Survey Records – Average Crop Tree Height	Numeric	8	2	Height (cm)
CONPRESENC	HWP Survey Records – Conifer Prescience	Numeric	8	2	
CROPTREEAG	HWP Survey Records – Crop tree average age	Numeric	7		
DAMAGEPCT	HWP Survey Records – Percentage of Trees Damaged	Numeric	8	2	Percentage
LEADINGCON	HWP Survey Records – Leading Conifer Species	Character	25		Species code same as AVI
AVGFIRHEIG	HWP Survey Records – Average Fir Height	Numeric	8		Height (cm)
SURVYEAR	HWP Survey Records – Survey Year	Numeric	16	4	Year
STATUS_RS		Character	8		
VFMTFM	HWP survey record identifier	Character	1		Y: HWP survey data available

SRD_friaa_blocks					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
SURVAGE	Age at Survey	Numeric	16	4	Year
SKIDCLEARD	Skid Clear Date	Date	8		Day, Month, Year Format
NET_HARVES		Numeric	16	4	Not used in Landbase Classification
OPER_FRIA	SRD FRIAA block-Operator	Character	5		FRIAA: FRIAA Block
STRDEC_FRI	SRD FRIAA block-Stratum_Declaration	Character	13		C-2000: Coniferous 2000 CD-2000: Coniferous – Deciduous 2000 CONF: Coniferous D-2000: Deciduous 2000 DC-2000: Deciduous – Coniferous 2000
SURVTY_FRI	SRD FRIAA block-survey_type	Character	13		Establishment
SURDAT_FRI	SRD FRIAA block-survey_date	Numeric	16	4	Survey Date
STK_ST_FRI	SRD FRIAA block-stocking_status	Character	2		SR: Satisfactorily-Restocked
CONSTPER_F	SRD FRIAA block-Coniferous_stocking percentage	Numeric	16	4	Percentage
DECSTPER_F	SRD FRIAA block-Coniferous_stocking percentage	Numeric	16	4	Percentage
TOTSTPER_F	SRD FRIAA block-Coniferous_stocking percentage	Numeric	16	4	Percentage
FRIA_RECS	FRIAA record identifier	Character	1		Y: FRIAA block records available

5.2.7 STEP 6 & 7 Data Sets – Final Output Layers

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
SLOPE45UP	Steep Slope Identifier	Character	1		Blank: not on a 45% or greater slope, Y: in a 45% or greater slope
ESIP_PP	ESIP Prime Protection Zone	Character	5		Blank: not a prime protection zone, Yes: in prime protection zone
RIP_ZONE	Riparian Zone Identifier	Character	5		Blank: not in a riparian buffer, Yes: in a riparian buffer
PBTYPE	Planned Block Type	Character	11		Not used in the netdown
PLANNEDBLK	Planned Block Identifier	Character	15		Blank: not a planned block YES: Planned Block
DISP_DEL	Harvesting Prohibited due to Disposition	Character	12		Blank: harvesting permitted, Y: harvesting prohibited
WC_CMPT	FMA working circle and compartment	Character	6		In the FMA The first 4 letters are: ATHA: Athabasca, MARL: Marlboro, EMBR: Embarras, MCLD: McLeod, BERL: Berland The last 2 numbers represent the compartment. Outside the FMA The first 2 letters are: XX: outside the FMA The last 4 letters identify the location: ROBB: Robb townsite COLS: Coalspur LUCR: Luscar MUSK: Muskiki OUTS: Generic Outside FMA

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
					WKLK: Wiki Lake HINT: Hinton Townsite OBED: Obed Mine PINT: Pinto SILV: Silver Summit SQBK: Square Block SUND: Sundance Provincial Park SWIT: Switzer Provincial Park WILD: Wildhay Natural Area
AREA		Numeric	19	11	
PERIMETER		Numeric	19	11	
FMA_ELMUP2		Numeric	9		
FMA_ELMU_1		Numeric	9		
STANDID		Numeric	19	11	AVI StandID
PID		Numeric	4		
MER	Meridian	Numeric	1		Integer
TWP	Township	Numeric	3		Integer
RGE	Range	Numeric	2		Integer
MOIST	Overstory Moisture Class	Character	1		A: Aquatic, D: Dry, M: Mesic, W: Wet
CROWN	Overstory Crown Class	Character	1		A: 6% to 30%, B: 31% to 50%, C: 51% to 70%, D: 71% to 100%
HEIGHT	Overstory Height	Numeric	2		to the nearest meter
SP1	Species 1	Character	2		AW: Trembling Aspen, BW: White Birch, PB: Balsam Poplar, FB: Balsam Fir, FA: Alpine Fir, LT: Tamarack, PL: Lodgepole Pine, SB: Black Spruce, SE: Engelmann Spruce, SW: White Spruce
PER1	Species 1 - Percentage Stand Composition	Numeric	2		0 to 10 (1=10%, 2=20%, etc.)
SP2	Species 2	Character	2		Same as Species 1
PER2	Species 2 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
SP3	Species 3	Character	2		Same as Species 1
PER3	Species 3 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
SP4	Species 4	Character	2		Same as Species 1
PER4	Species 4 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
SP5	Species 5	Character	2		Same as Species 1
PER5	Species 5 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
STR	Stand Structure	Character	1		Blank: Single story, M: Multi-layer, C: Complex, H: Horizontal
STRVAL	Stand Structure Value	Numeric	1		If STR='C' then height range, If STR='H' then structure percentage
ORIGIN	Overstory Origin	Numeric	4		Origin Year
STEMS	Estimated Overstory Stem Density	Numeric	4		Stems/ha
TPR	Timber Productivity Rating - Overstory	Character	1		G: Good, M: Medium, F: Fair, U: Unproductive
MOD1	Stand Condition Modifier 1	Character	2		CC: Clearcut, BU: Burn, WF: Windfall, CL: Clearing, DI: Disease, IK: Insect Kill, UK: Unknown, WE: Weather, DT: Discoloured/dead tops, BT: Broken Tops, SN: Snags, ST: Scattered timber
EXT1	Extent of Modifier 1	Numeric	1		Blank: Nil, 1: 1% to 25%, 2: 26% to 50%, 3: 51% to 75%, 4: 76% to 94%, 5: 95%+
YEAR1	Year of Modifier 1 Disturbance	Numeric	4		Year

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
MOD2	Stand Condition Modifier 2	Character	2		Same as Mod1
EXT2	Extent of Modifier 2	Numeric	1		Same as Ext1
YEAR2	Year of Modifier 2 Disturbance	Numeric	4		Same as Year1
MOD3	Stand Condition Modifier 3	Character	2		Same as Mod1
EXT3	Extent of Modifier 3	Numeric	1		Same as Ext1
YEAR3	Year of Modifier 3 Disturbance	Numeric	4		Same as Year1
NAT_V	Non-Forest Vegetated Land	Character	2		SC: Closed Shrub, SO: Open Shrub, HG: Herbaceous (Grassland), HF: Herbaceous (Forbs), BR: Bryophyte
NAT_CL		Numeric	2		
NAT_N	Naturally Non-Vegetated Land	Character	3		NWI: Water, NWL: Permanent Ice, NWR: River, NWF: Flooded, NMB: Recent Burn, NMC: Cutbank, NMR: Rock Barren, NMS: Sand
ANTH_V	Anthropogenic Vegetated Land	Character	3		CA: Annual Crops, CP: Perennial Forage Crops, CPR: Rough Pasture, CIP: Pipelines, CIW: Geophysical
ANTH_N	Anthropogenic Non-Vegetated Land	Character	3		ASC: Town, ASR: Ribbon Development, AIH: Roads, AIE: Peat Extractions, AIG: Gravel pits, AIF: Farmsteads, AIM: Surface Mines, AII: Industrial sites
REF_SC		Character	1		
REF_YR		Numeric	4		
YR_INTERP		Numeric	4		
INTERP		Character	2		
U_MOIST	Understory Moisture Class	Character	1		A: Aquatic, D: Dry, M: Mesic, W: Wet
U_CROWN	Understory Crown Class	Character	1		A: 6% to 30%, B: 31% to 50%, C: 51% to 70%, D: 71% to 100%
U_HEIGHT	Understory Height	Numeric	2		to the nearest meter
U_SP1	Species 1	Character	2		AW: Trembling Aspen, BW: White Birch, PB: Balsam Poplar, FB: Balsam Fir, FA: Alpine Fir, LT: Tamarack, PL: Lodgepole Pine, SB: Black Spruce, SE: Engelmann Spruce, SW: White Spruce
U_PER1	Species 1 - Percentage Stand Composition	Numeric	2		0 to 10 (1=10%, 2=20%, etc.)
U_SP2	Species 2	Character	2		Same as Species 1
U_PER2	Species 2 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
U_SP3	Species 3	Character	2		Same as Species 1
U_PER3	Species 3 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
U_SP4	Species 4	Character	2		Same as Species 1
U_PER4	Species 4 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
U_SP5	Species 5	Character	2		Same as Species 1
U_PER5	Species 5 - Percentage Stand Composition	Numeric	1		Same as Species 1 - Percentage Stand Composition
U_STR	Stand Structure	Character	1		Blank: Single story, M: Multi-layer, C: Complex, H: Horizontal
U_STRVAL	Stand Structure Value	Numeric	1		If STR='C' then height range, If STR='H' then structure percentage
U_ORIGIN	Understory Origin	Numeric	4		Origin Year
U_STEMS	Estimated Overstory Stem Density	Numeric	4		Stems/ha
U_TPR	Timber Productivity Rating - Overstory	Character	1		G: Good, M: Medium, F: Fair, U: Unproductive
U_MOD1	Stand Condition Modifier 1	Character	2		CC: Clearcut, BU: Burn, WF: Windfall, CL: Clearing, DI: Disease, IK: Insect Kill, UK: Unknown, WE: Weather, DT: Discoloured/dead tops, BT: Broken Tops, SN: Snags, ST:

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
					Scattered timber
U_EXT1	Extent of Modifier 1	Numeric	1		Blank: Nil, 1: 1% to 25%, 2: 26% to 50%, 3: 51% to 75%, 4: 76% to 94%, 5: 95%+
U_YEAR1	Year of Modifier 1 Disturbance	Numeric	4		Year
U_MOD2	Stand Condition Modifier 2	Character	2		Same as Mod1
U_EXT2	Extent of Modifier 2	Numeric	1		Same as Ext1
U_YEAR2	Year of Modifier 2 Disturbance	Numeric	4		Same as Year1
U_MOD3	Stand Condition Modifier 3	Character	2		Same as Mod1
U_EXT3	Extent of Modifier 3	Numeric	1		Same as Ext1
U_YEAR3	Year of Modifier 3 Disturbance	Numeric	4		Same as Year1
U_NAT_V	Non-Forest Vegetated Land	Character	2		SC: Closed Shrub, SO: Open Shrub, HG: Herbaceous (Grassland), HF: Herbaceous (Forbs), BR: Bryophyte
U_NAT_CL		Numeric	2		
U_NAT_N	Naturally Non-Vegetated Land	Character	3		NWI: Water, NWL: Permanent Ice, NWR: River, NWF: Flooded, NMB: Recent Burn, NMC: Cutbank, NMR: Rock Barren, NMS: Sand
U_ANTH_V	Anthropogenic Vegetated Land	Character	3		CA: Annual Crops, CP: Perennial Forage Crops, CPR: Rough Pasture, CIP: Pipelines, CIW: Geophysical
U_ANTH_N	Anthropogenic Non-Vegetated Land	Character	3		ASC: Town, ASR: Ribbon Development, AIH: Roads, AIE: Peat Extractions, AIG: Gravel pits, AIF: Farmsteads, AIM: Surface Mines, AII: Industrial sites
U_REF_SC		Character	1		
U_REF_YR		Numeric	4		
ORIG_LT1	Original polygon area is less than 1ha	Character	1		Y: Original AVI polygon size was less than 1ha prior to any additional GIS processing.
ORIG_AREA	Polygon Area in AVI	Numeric	19	11	
AGENCYCODE	West Fraser FMA Holder	Character	15		HWP: Hinton Wood Products
PASS	Harvest Pass (for cutblocks harvested before 2000)	Character	1		0: Undeclared (harvested) 1: First Pass (harvested)
BLOCKSTAGE	Block Stage (for cutblocks harvested before 2000)	Character	10		Harvested: Harvested
HARVESTYEA	Harvest Year (for cutblocks harvested before 2000)	Numeric	4		Year
BLOCK	Block Number (for cutblocks harvested before 2000)	Character	20		**Working Circle –Compartment-Block Number (**too many to state individually – see layer table**)**
OPENINGNUM	Opening Number (for cutblocks harvested before 2000)	Character	20		**ARIS Compliant Opening Number (**too many to state individually – see layer table**)**
BLOCKOID	Block Object ID (for cutblocks harvested before 2000)	Numeric	9		**HWP internal block object identification number (**too many to state individually – see layer table**)**
RESID	Residual Identifier	Character	1		Y-Residual Area
RESID_HA	Residual Block Size	Float	19	11	Total Residual Area Before polygons were divided for other attributes (ha)
RESID_PERM	Residual Perimeter	Float	19	11	Total Residual Perimeter Before polygons were divided for other attributes (m)
FID_LINK	Table Link Field	Numeric	9		This field is the unique identifier to link **Final_Union_ELM_seisbyarea**
CUTLINE	Seismic Line / Cutline Identifier	Character	3		Y – Seismic/Cutline
FID_LINK12	Table Link Field	Numeric	9		This field is the unique identifier to link **Final_Union_ELM_seismic**

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
FIREPP	Fire Potentially Productive	Character	3		YES – Potentially Productive Due to a Fire
BURNYEAR	Year of Burn	Numeric	16	4	
SKIDCLEARD	Skid Clear Date	Date	8		Day, Month, Year Format
TIMBER_YEA	Timber Year	Numeric	16	4	Harvest year (from 1955 to 2008)
SB_BLOCK	HWP Silviculture Records - Block Number	Character	16		HWP internal block number
SB_HARYEAR	HWP Silviculture Records – Harvest Year	Numeric	16	4	Harvest year (from 1955 to 2008)
SB_OPENT	HWP Silviculture Records – Opening Type	Character	2		CC: Clearcut, CM: Clearcut-MPB, CW: Clearcut-blowdown, PC: Partial Cut, SM: Salvage Cut, TC: Commercial Thin, WF: Wildlife no salvage
SB_STOCKS	HWP Silviculture Records – Stocking Status	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR: Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked
SB_FUNDMET	HWP Silviculture Records – Funding Method	Character	5		FRIAA: FRIAA, IA: Industrial
SB_CURR_RE	HWP Silviculture Records – Current Responsibility	Character	5		AN: LFS Non Quota, F4 or F5: FRIAA, IF: Industry FMA
SB_LBC	HWP Silviculture Records – Landbase Designation Code	Character	2		CC: Coniferous Mixedwood to Coniferous Mixedwood CD: Coniferous Mixedwood to Deciduous Mixedwood CH: Coniferous Mixedwood to Pure Deciduous CS: Coniferous Mixedwood to Pure Coniferous DC: Deciduous Mixedwood to Coniferous Mixedwood DD: Deciduous Mixedwood to Deciduous Mixedwood DH: Deciduous Mixedwood to Pure Deciduous DS: Deciduous Mixedwood to Pure Coniferous HC: Pure Deciduous to Coniferous Mixedwood HH: Pure Deciduous to Pure Deciduous HS: Pure Deciduous to Pure Coniferous SC: Pure Coniferous to Coniferous Mixedwood SD: Pure Coniferous to Deciduous Mixedwood SH: Pure Coniferous to Pure Deciduous SS: Pure Coniferous to Pure Coniferous
SB_STC	HWP Silviculture Records – Stratum Declaration	Character	7		C-2000: Coniferous 2000 CD-2000: Coniferous – Deciduous 2000 CONF: Coniferous D-2000: Deciduous 2000 DC-2000: Deciduous – Coniferous 2000 MIXD: Mixedwood PR91: Pre 1991 Blocks
SB_ORDEC	HWP Silviculture Records – Original Declaration	Character	2		C: Pure coniferous CD: Coniferous Deciduous DC: Deciduous Coniferous D: Pure Deciduous
SB_2YRDEC	HWP Silviculture Records – 2 year Declaration	Character	2		C: Pure coniferous CD: Coniferous Deciduous DC: Deciduous Coniferous D: Pure Deciduous
SB_ESTDEC	HWP Silviculture Records – Establishment Declaration	Character	2		C: Pure coniferous CD: Coniferous Deciduous DC: Deciduous Coniferous D: Pure Deciduous
SB_PERDEC	HWP Silviculture Records – Performance Declaration	Character	1		C: Pure coniferous CD: Coniferous Deciduous DC: Deciduous Coniferous D: Pure Deciduous
SB_ST_SUR_	HWP Silviculture Records – Stocking Survey Status	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR: Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked
SB_EST_SUR	HWP Silviculture Records – Establishment Survey Status	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR: Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked
SB_10YR_SU	HWP Silviculture Records – 10 year Survey Status	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR: Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked
SB_PER_SUR	HWP Silviculture Records –	Character	3		CSR: Conditionally restocked, FTG: Free-to-Grow, NSR:

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
	Performance Survey Status				Not-Satisfactorily-Restocked, SR: Satisfactorily-Restocked
SBFIL		Character	1		
STARTDATE	HWP Survey Records – Start Date	Date	8		Month/Day/Year
ENDDATE	HWP Survey Records – End Date	Date	8		Month/Day/Year
REGENSURVE	HWP Survey Records – Regeneration Survey	Character	10		EST: Establishment Survey PER: Performance Survey
ACCEPTCONP	HWP Survey Records – Acceptable Coniferous Percent Stocking	Numeric	8	1	Percentage
ACCEPTDECP	HWP Survey Records – Acceptable Deciduous Percent Stocking	Numeric	8	1	Percentage
ACCEPTFIRP	HWP Survey Records – Acceptable Fir Percent Stocking	Numeric	8	2	Percentage
CONDITIONC	HWP Survey Records – Conditional Coniferous Percent Stocking	Numeric	8	1	Percentage
CONDFIRPCT	HWP Survey Records – Conditional Fir Percent Stocking	Numeric	8	2	Percentage
CONDDECPCT	HWP Survey Records – Conditional Deciduous Percent Stocking	Numeric	8	2	Percentage
TOTALSTOCK	HWP Survey Records – Total Percent Stocking	Numeric	8	1	Percentage
AVGFIRDENS	HWP Survey Records – Average Fir Density	Numeric	9	2	Stem count / ha
AVGDECHEIG	HWP Survey Records – Average Dec Height	Numeric	11	2	Height (cm)
AVGCONHEIG	HWP Survey Records – Average Con Height	Numeric	11	2	Height (cm)
AVGDECCAPP		Numeric	8	1	
AVGDECDENS	HWP Survey Records – Average Dec Density	Numeric	8		Stem count / ha
AVGCONDENS	HWP Survey Records – Average Con Density	Numeric	8		Stem count / ha
NSRPLOTS	HWP Survey Records – Percentage NSR Plots	Numeric	8		Count of NSR plots in block
NSRAREA	HWP Survey Records – NSR Area	Numeric	8	1	NSR area within block
ROADSAREA	HWP Survey Records – Road Area	Numeric	9	2	Area in roads within a block
ACCEPTCONI	HWP Survey Records – Acceptable Conifer Stocking Percentage	Numeric	8	1	Percentage
AVGCROPTRE	HWP Survey Records – Average Crop Tree Height	Numeric	8	2	Height (cm)
CONPRESENC	HWP Survey Records – Conifer Presence	Numeric	8	2	
CROPTREEAG	HWP Survey Records – Crop tree average age	Numeric	7		
DAMAGEPCT	HWP Survey Records – Percentage of Trees Damaged	Numeric	8	2	Percentage
LEADINGCON	HWP Survey Records – Leading Conifer Species	Character	25		Species code same as AVI
AVGFIRHEIG	HWP Survey Records – Average Fir Height	Numeric	8		Height (cm)
SURVYEAR	HWP Survey Records – Survey Year	Numeric	16	4	Year

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
STATUS_RS		Character	8		
VFMTFM	HWP survey record identifier	Character	1		Y: HWP survey data available
SURVAGE	Age at Survey	Numeric	16	4	Year
SKIDCLEARD	Skid Clear Date	Date	8		Day, Month, Year Format
NET_HARVES		Numeric	16	4	Not used in Landbase Classification
OPER_FRIA	SRD FRIAA block-Operator	Character	5		FRIAA: FRIAA Block
STRDEC_FRI	SRD FRIAA block-Stratum_Declaration	Character	13		C-2000: Coniferous 2000 CD-2000: Coniferous – Deciduous 2000 CONF: Coniferous D-2000: Deciduous 2000 DC-2000: Deciduous – Coniferous 2000
SURVTY_FRI	SRD FRIAA block-survey_type	Character	13		Establishment
SURDAT_FRI	SRD FRIAA block-survey_date	Numeric	16	4	Survey Date
STK_ST_FRI	SRD FRIAA block-stocking_status	Character	2		SR: Satisfactorily-Restocked
CONSTPER_F	SRD FRIAA block-Coniferous_stocking percentage	Numeric	16	4	Percentage
DECSTPER_F	SRD FRIAA block-Coniferous_stocking percentage	Numeric	16	4	Percentage
TOTSTPER_F	SRD FRIAA block-Coniferous_stocking percentage	Numeric	16	4	Percentage
FRIA_RECS	FRIAA record identifier	Character	1		Y: FRIAA block records available
PROV_NSR	Provincial 2006 Natural Subregion	Character	3		LF: Lower Foothills, M: Montane, SA: Sub-Alpine, UF: Upper Foothills, A: Alpine
SUB_REGION	ELC Layer Natural Subregion	Character	2		LF: Lower Foothills, MN: Montane, SA: Sub-Alpine, UF: Upper Foothills, AP: Alpine
ECO_SITE	ELC Ecosite	Character	2		A to N as per *Field Gudid to Ecosites of West-central Alberta*
LTAP_FIN	Ground Operability	Character	16		Contingency: Almost always summer operable Summer A: Usually summer operable: except for after significant precipitation. Summer B: During a drier than average summer these sites should be summer operable. Marginal: Only potentially summer operable during drought conditions. Winter: Never summer operable
SUMMEROP	Summer operable block identifier	Character	1		N: Not Summer operable Y: Summer operable
CF	Climate Factor	Numeric	19	5	Factor Rating
SSI	SSI without Climate Factor	Numeric	19	5	Factor Rating
SSI_CF	SSI with Climate Factor	Numeric	19	5	SSI x CF
NOR_SOU	North or South	Character	1		North or South Portion of the FMA
MPBRANK	Mountain Pine Beetle Risk Ranking	Numeric	16	4	1: High 2: Medium 3: Low 0: Minimal
U_LAND	Understory Landbase	Character	3		CON: Coniferous volume emphasis (pure Coniferous and all Mixedwoods) DEC: Deciduous volume emphasis (pure Deciduous only) NOT: NOT Present
AREAHA	AVI Polygon Area (ha)	Numeric	20	10	Hectares (ha)
PHOTOYEAR	Photo year (2001)	Numeric	7		2001
PER_CON	Overstory coniferous	Numeric	4		0 to 10 = (0% to 100%)

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
	composition				
PER_DEC	Overstory deciduous composition	Numeric	4		0 to 10 = (0% to 100%)
UPER_CON	Understory coniferous composition	Numeric	4		0 to 10 = (0% to 100%)
UPER_DEC	Understory deciduous composition	Numeric	4		0 to 10 = (0% to 100%)
PER_SB	Overstory black spruce composition	Numeric	4		0 to 10 = (0% to 100%)
PER_LARCH	Overstory larch composition	Numeric	4		0 to 10 = (0% to 100%)
UPER_SB	Understory black spruce composition	Numeric	4		0 to 10 = (0% to 100%)
UPER_LARCH	Understory larch composition	Numeric	4		0 to 10 = (0% to 100%)
OS_AGE	Overstory Age	Numeric	7		Age in years
US_AGE	Understory Age	Numeric	7		Age in years
NETAREA	**FINAL AREA FIELD** Net Area (ha) to be operable excluding not merchantable portions of horizontal stands	Numeric	20	10	Area (ha)
BASEYEAR	Base timber year for the TSA	Numeric	16	4	2008
PER_SWFB	Overstory White Spruce/Fir composition	Numeric	16	4	0 to 10 = (0% to 100%)
UPER_SWFB	Understory White Spruce/Fir composition	Numeric	16	4	0 to 10 = (0% to 100%)
PER_PL	Overstory Pine composition	Numeric	16	4	0 to 10 = (0% to 100%)
UPER_PL	Understory Pine composition	Numeric	16	4	0 to 10 = (0% to 100%)
OS_COV	Overstory Broad Cover Group	Character	2		CX: Pure Coniferous CD: Coniferous Dominated Mixed Wood DC: Deciduous Dominated Mixed Wood DX: Pure Deciduous
O_LAND	Overstory Landbase	Character	3		CON: Coniferous volume emphasis (pure Coniferous and all Mixedwoods) DEC: Deciduous volume emphasis (pure Deciduous only) NOT: NOT Present
US_COV	Understory Broad Cover Group	Character	2		CX: Pure Coniferous CD: Coniferous Dominated Mixed Wood DC: Deciduous Dominated Mixed Wood DX: Pure Deciduous
STORY	Story of Primary Management	Character	1		O: Overstory Only U: Understory Only B: Both Overstory and Understory
Horxha	Area of non-managed portions of horizontal stands	Numeric	20	10	Area (ha)
HARVHIST	Indentifier for previous harvesting	Character	1		Y: Cutblock N: Not a Cutblock
CUTYEAR	Year of Harvest	Numeric	16	4	Year
NEWRESID	Residual Patch Identifier	Character	1		Y: Residual Patch
CUTFULL	Final Clearcut Identifier	Character	1		C: Clearcut
PC_YEAR	Partial Cut Year of Harvest	Numeric	16	4	Year
CUT_COV	Cutblock broad cover group	Character	2		CX: Pure Coniferous CD: Coniferous Dominated Mixed Wood DC: Deciduous Dominated Mixed Wood DX: Pure Deciduous
CUT_CC	Cutblock Crown Closure	Character	1		Similar distinction as in AVI A: Most sparse B: sparse, C: dense, D: Most dense, X: no trees
CUT_LCON	Cutblock Leading conifer	Character	2		Same species codes as AVI
PINE_SITE	Pine site quality	Character	1		G: Good, M: Medium

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
					P: Poor
OCON_SITE	Other Conifer site quality	Character	1		G: Good, M: Medium P: Poor
DEC_SITE	Deciduous site quality	Character	1		G: Good, M: Medium P: Poor
FIN_LARCH	Larch Composition from story of primary management	Numeric	4		0 to 10 = (0% to 100%)
FIN_SB	Black Spruce Composition from story of primary management	Numeric	4		0 to 10 = (0% to 100%)
FINPER_CON	Coniferous Composition from story of primary management	Numeric	4		0 to 10 = (0% to 100%)
FINPER_DEC	Deciduous Composition from story of primary management	Numeric	4		0 to 10 = (0% to 100%)
FIN_SP1PER	Leading species percentage from story of primary management	Numeric	4		0 to 10 = (0% to 100%)
FIN_AGE	Stand age from story of primary management	Numeric	7		Age (years)
AGE5YR	STD_AGE in 5 yr periods	Numeric	3		1 = 0 to 5 years 2 = 6 to 10 years etc.
AGE10YR	STD_AGE in 10 yr periods	Numeric	3		1 = 0 to 10 years 2 = 10 to 20 years etc.
FIN_LAND	Landbase designation from story of primary management	Character	3		CON: Coniferous volume emphasis (pure Coniferous and all Mixedwoods) DEC: Deciduous volume emphasis (pure Deciduous only) NOT: NOT Present
FIN_SP1	Leading species from story of primary management	Character	2		Same species codes as AVI
FIN_SP2	Secondary species from story of primary management	Character	2		Same species codes as AVI
FIN_COV	Broad Cover Group from story of primary management	Character	2		CX: Pure Coniferous CD: Coniferous Dominated Mixed Wood DC: Deciduous Dominated Mixed Wood DX: Pure Deciduous
FIN_CC	Crown Closure from Story of Primary management	Character	1		Similar distinction as in AVI A: 6% to 30%, B: 31% to 50%, C: 51% to 70%, D: 71% to 100%, X: no trees
FIN_LCON_S	Leading Coniferous Species for the story of primary management	Character	2		PL – Pine SW – White & Engelmann Spruce, Fir SB – Black Spruce and Tamarack
PREBLK08	Pre-blocks at the start date 2008	Numeric	16	4	1 – Block harvested during the 2008 timber year or planned for harvest from the 2008 timber year on.
OUT_BOUND	Out side the FMA	Character	1		Y – Outside the FMA
DEL	Deletion	Character	2		AN: Anth Non-vegetated AO: Deleted for being an "A" overstory with no understory present AV: Anth Vegetated CL: Cutline / Seismic DR: Disposition EC: Poor Ecosite EP: ESIP LR: Larch composition 10%+ NV: Non-Forested NO: No Deletion (Operable) NN: Non-Vegetated OB: Out of FMA PP: Potentially Productive SB: SB composition 80%+

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
					SS: Steep Slopes WB: Water Buffer WT: Wet Site
DEL_HIER	Deletion Hierachy	Numeric	2	0	Describes the order of deletion removals: 1 = OB: Out of FMA 2 = NN: Naturally Non-Vegetated 3 = NF: Naturally Non-Forested 4 = AN: Anth Non-vegetated 5 = AV: Anth Vegetated 6 = EP: ESIP 7 = DR: Disposition 8 = WT: Wet Site 9 = LR: Larch composition 10%+ 10 = EC: Poor Ecosite 11 = AO: Deleted for being an "A" overstory with no understory present 12 = SB: SB composition 80%+ 13 = PP: Potentially Productive 14 = SS: Steep Slopes 15 = WB: Water Buffer 16 = CL: Cutline / Seismic 99 = NO: No Deletion (Operable)
FIN_BASE10	Story of Primary Management Base 10 Strata	Numeric	16	4	1: Pure Deciduous 2: Deciduous Dominated Mixedwood (Pine is the leading conifer species) 3: Deciduous Dominated Mixedwood (Spruce/Fir is the leading conifer species) 4: Coniferous Dominated Mixedwood (White Spruce is the leading conifer species) 5: Coniferous Dominated Mixedwood (Pine is the leading conifer species) 6: Coniferous Dominated Mixedwood (Black Spruce is the leading conifer species) 7: Pure Coniferous (White Spruce is the leading conifer species) 8: Pure Coniferous (Pine is the leading conifer species) 9: Pure Coniferous (Black Spruce is the leading conifer species)
FIN_SITE	Story of Primary Management Site	Character	1		G: Good, M: Medium P: Poor
FIN_STATUS	Contributing Versus Passive Landbase Identifier	Character	4		CONT – Contributing PASS - Passive
FIN_ORG08	Yield Class Origin in 2008	Character	4		FIRE – Fire origin MANA – Managed
R50_80	Identifies Low stocking Cutblock (Performance Survey Stocking between 50 and 80%)	Character	6		LOWSTK – Clear cut with low stocking REGULR – Not a cutblock with low stocking
FIN_YLDSTR	Final Yield Strata	Character	7		E= Empirical yield curves G= GYPSY / ARS Curves B#=Base 10 strata Last to letters = Site & Crown Closure (H=C or D; L = A or B; X = All) E_B1_XL, E_B1_XH, E_B2_XX, E_B3_XX, E_B4_XX, E_B5_XX, E_B7_MX, E_B7_GL, E_B7_GH, E_B8_ML, E_B8_MH, E_B8_GL, E_B8_GH, E_B9_XX, E_UN_DM, E_UN_CX, E_B1_XL, E_B1_XH, E_B2_XX, E_B3_XX, G_B4_XX, G_B5_XX, G_B7_XX, G_B8_XX, E_B9_XX, E_PAS_DE_PAS_C
Regen2008	Regeneration Yield Curve Transition for 2008 cutblocks	Character	7		E= Empirical yield curves G= GYPSY / ARS Curves B#=Base 10 strata

FMP2009_netdownDBF / FMP2009_TSAfullDBF FMP2009_netdownfull / FMP2009_TSAFull					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
					Last to letters = Site & Crown Closure (H=C or D; L = A or B; X = All) E_B1_XH, E_B2_XX, E_B3_XX, G_B4_XX, G_B5_XX, G_B7_XX, G_B8_XX, E_B9_XX

FMP2009_TSAinputDBF FMP2009_TSAinput					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
Areaha	Total Polygon Area (ha)	Numeric	20	10	ha
netarea	Net Polygon Area (ha) (excluded unmanaged portions of horizontal stands)	Numeric	20	10	ha
Horxha	Area of unmanaged portions of horizontal stands	Numeric	16	4	ha
AGE5YR	STD_AGE in 5 yr periods	Numeric	3		1 = 0 to 5 years 2 = 6 to 10 years etc.
AGE10YR	STD_AGE in 10 yr periods	Numeric	3		1 = 0 to 10 years 2 = 10 to 20 years etc.
PREBLK08	Pre-blocks at the start date 2008	Numeric	16	4	1 = Block harvested during the 2008 timber year or planned for harvest from the 2008 timber year on.
DEL	Deletion	Character	2		AN: Anth Non-vegetated AO: Deleted for being an "A" overstory with no understory present AV: Anth Vegetated CL: Cutline / Seismic DR: Disposition EC: Poor Ecosite EP: ESIP LR: Larch composition 10%+ NV: Non-Forested NO: No Deletion (Operable) NN: Non-Vegetated OB: Out of FMA PP: Potentially Productive SB: SB composition 80%+ SS: Steep Slopes WB: Water Buffer WT: Wet Site
DEL_HIER	Deletion Hierachy	Numeric	2	0	Describes the order of deletion removals: 1 = OB: Out of FMA 2 = NN: Naturally Non-Vegetated 3 = NF: Naturally Non-Forested 4 = AN: Anth Non-vegetated 5 = AV: Anth Vegetated 6 = EP: ESIP 7 = DR: Disposition 8 = WT: Wet Site 9 = LR: Larch composition 10%+ 10 = EC: Poor Ecosite 11 = AO: Deleted for being an "A" overstory with no understory present 12 = SB: SB composition 80%+ 13 = PP: Potentially Productive 14 = SS: Steep Slopes 15 = WB: Water Buffer 16 = CL: Cutline / Seismic

FMP2009_TSAinputDBF FMP2009_TSAinput					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
					99 = NO: No Deletion (Operable)
FIN_BASE10	Story of Primary Management Base 10 Strata	Numeric	16	4	1: Pure Deciduous 2: Deciduous Dominated Mixedwood (Pine is the leading conifer species) 3: Deciduous Dominated Mixedwood (Spruce/Fir is the leading conifer species) 4: Coniferous Dominated Mixedwood (White Spruce is the leading conifer species) 5: Coniferous Dominated Mixedwood (Pine is the leading conifer species) 6: Coniferous Dominated Mixedwood (Black Spruce is the leading conifer species) 7: Pure Coniferous (White Spruce is the leading conifer species) 8: Pure Coniferous (Pine is the leading conifer species) 9: Pure Coniferous (Black Spruce is the leading conifer species)
Cl_multipy	Cut line regeneration multiplier	Numeric	16	4	This will be discussed in detail in Technical Report #3 - TSA modeling and final results
Ws_short	Watershed Basin Unique Identifier	Character	6		**Large Basin + Sub-basin number** Brazeau River BRAZ149, BRAZ150, BRAZ152, BRAZ171, BRAZ4 Cardinal River CARD0, CARD140, CARD144, CARD145, CARD146, CARD147, CARD148 Edson River EDSO13, EDSO41, EDSO42, EDSO43, EDSO44, EDSO45, EDSO46, EDSO47, EDSO48, EDSO49 Embarras River EMBA100, EMBA101, EMBA103, EMBA104, EMBA105, EMBA108, EMBA109, EMBA110, EMBA111, EMBA6, EMBA98, EMBA99 Greg River GREG172, GREG173, GREG174, GREG175, GREG176, GREG5 Little Berland River LITT221, LITT222, LITT8 Lower Athabasca River LOWA14, LOWA257, LOWA258, LOWA54, LOWA55, LOWA56, LOWA57, LOWA58 Lower Berland River LOWB1, LOWB217, LOWB218, LOWB251, LOWB252, LOWB253, LOWB254, LOWB255, LOWB256 Lower Erith River LOWE121, LOWE122, LOWE123, LOWE124, LOWE126, LOWE127, LOWE26 Lower McLeod River LOWM106, LOWM72, LOWM73, LOWM74, LOWM75 Lower Wildhay River LOWW212, LOWW213, LOWW214, LOWW24, LOWW262, LOWW263 Mid-Athabasca River MIDA107, MIDA18, MIDA61, MIDA62, MIDA63, MIDA64, MIDA65, MIDA66, MIDA67, MIDA68, MIDA69, MIDA70, MIDA71 Mid-Berland River MIDB242, MIDB243, MIDB244, MIDB245, MIDB248, MIDB250 Mid-McLeod River MIDM102, MIDM12, MIDM120, MIDM90, MIDM91, MIDM92, MIDM93, MIDM94, MIDM95, MIDM96, MIDM97 Oldman Creek

FMP2009_TSAinputDBF
FMP2009_TSAinput

Field Name	Description	Type	Width	Dec	Valid codes and description
					OLDM83, OLDM84, OLDM85, OLDM86, OLDM87, OLDM88, OLDM89, OLDM9 Pembina River PEMB131, PEMB132, PEMB133, PEMB134, PEMB135, PEMB136, PEMB137, PEMB138, PEMB139, PEMB3 Pine Creek PINE261, PINE50, PINE51, PINE52, PINE53 Pinto Creek PINT202, PINT203, PINT204, PINT205, PINT206, PINT207, PINT208, PINT209, PINT210, PINT211, PINT7 Sundance SUND22, SUND77, SUND78, SUND79, SUND80, SUND81, SUND82 Trout Creek TROU35, TROU36, TROU37, TROU38, TROU39, TROU40 Upper Athabasca River UPPA15, UPPA177, UPPA178, UPPA179, UPPA180, UPPA181, UPPA182, UPPA183, UPPA184, UPPA185, UPPA186, UPPA187, UPPA188, UPPA189 Upper Berland River UPPB20, UPPB224, UPPB225, UPPB227, UPPB228, UPPB229, UPPB230, UPPB232, UPPB233, UPPB23 Upper Erith River UPPE11, UPPE112, UPPE113, UPPE114, UPPE115, UPPE116, UPPE117, UPPE118, UPPE119, UPPE129, UPPE130 Upper McLeod River UPPM10, UPPM154, UPPM158, UPPM159, UPPM160, UPPM161, UPPM162, UPPM163, UPPM164, UPPM165, UPPM166, UPPM167, UPPM168, UPPM169, UPPM155 Upper Wildhay River UPPW190, UPPW191, UPPW192, UPPW193, UPPW194, UPPW195, UPPW196, UPPW198, UPPW199, UPPW2, UPPW200, UPPW201 Unnamed Watershed WSID999 Willow Creek WILL16, WILL59, WILL60 Windhill Creek WIND30, WIND31, WIND32, WIND33
SSICLASS	MPB Stand Susceptibility Index with Climate Factor Groupings	Character	5		SSI10: SSI_CF>=0 AND SSI_CF<10 SSI20: SSI_CF>=10 AND SSI_CF<20 SSI40: SSI_CF>=20 AND SSI_CF<40 SSI60: SSI_CF>=40 AND SSI_CF<60 SSI80: SSI_CF>=60 AND SSI_CF<80
Theme1	WC_CMPT field FMA working circle and compartment	Character	6		In the FMA The first 4 letters are: ATHA: Athabasca, MARL: Marlboro, EMBR: Embarras, MCLD: McLeod, BERL: Berland The last 2 numbers represent the compartment. Outside the FMA The first 2 letters are: XX: outside the FMA The last 4 letters identify the location: ROBB: Robb townsite COLS: Coalspur LUCR: Luscar MUSK: Muskiki OUTS: Generic Outside FMA WKLK: Wiki Lake HINT: Hinton Townsite OBED: Obed Mine

FMP2009_TSAinputDBF
FMP2009_TSAinput

Field Name	Description	Type	Width	Dec	Valid codes and description
					PINT: Pinto SILV: Silver Summit SQBK: Square Block SUND: Sundance Provincial Park SWIT: Switzer Provincial Park WILD: Wildhay Natural Area
Theme2	Special Management Wildzone	Character	5		HIGHS - High Elevation Sheep and Goat SMA PINTO - Pinto Creek Mountain Goat SMA TRUMP - Trumpeter Swan SMA WOODL - Woodland Caribou SMA XXXXX – Not in a SMA
Theme3	Ground Operability	Character	4		SUMM – Summer Ground WINT – Winter Ground
Theme4	Mountain Pine Beetle Risk Ranking	Character	2		M1: High M2: Medium M3: Low M0: Minimal
Theme5	Identifies stands with a stand height of 19m or greater	Character	5		OVR19: Stand is at least 19m tall UND19: Stand is less than 19m tall
Theme6	Final Yield Strata	Character	7		E= Empirical yield curves G= GYPSY / ARS Curves B#=Base 10 strata Last to letters = Site & Crown Closure (H=C or D; L = A or B; X = All) E_B1_XL, E_B1_XH, E_B2_XX, E_B3_XX, E_B4_XX, E_B5_XX, E_B7_MX, E_B7_GL, E_B7_GH, E_B8_ML, E_B8_MH, E_B8_GL, E_B8_GH, E_B9_XX, E_UN_DM, E_UN_CX, E_B1_XL, E_B1_XH, E_B2_XX, E_B3_XX, G_B4_XX, G_B5_XX, G_B7_XX, G_B8_XX, E_B9_XX, E_PAS_DE_PAS_C NOYIELD – not a forest type
Theme7	Fire versus Managed	Character	4		FIRE – fire origin LMAN – Low-stocked regenerating stand MANA – managed stands NSR – Not sufficiently re-stocked (in TSA model only) DIE – Stand dead (in TSA model only) NONE – non-forested
Theme8	Contributing Versus Passive	Character	4		CONT – Contributing PASS - Passive
Theme9	Stands with a cutline within its boundary	Character	5		CLINE – Cutline within boundary which can be regenerated NOTCL – No cutlines within polygon boundary
Theme10	Regeneration curve for 2008 cutblocks and understory managed stands	Character	7		E= Empirical yield curves G= GYPSY / ARS Curves B#=Base 10 strata Last to letters = Site & Crown Closure (H=C or D; L = A or B; X = All) E_B1_XH, E_B2_XX, E_B3_XX, G_B4_XX, G_B5_XX, G_B7_XX, G_B8_XX, E_B9_XX NOT2008 – not a 2008 cutblock or an understory managed stand
Theme11	Landbase designation	Character	5		CONIF – Stand managed for coniferous volume (Pure Coniferous and Mixedwoods) DECID – Stand managed for deciduous volume (Pure Deciduous)
Theme12	Pine composition	Character	4		PL70 – Stand composition >= 70% pine UNDR – Stand composition < 70% pine
Theme13	Non-pine coniferous composition	Character	5		CON40 – Stand composition >= 40% non-pine coniferous LOWCN – Stand composition < 40% non-pine coniferous
preblock	TSA model preblock	Character	1		Y = Preblock to be sequenced in the first period of the TSA model
lock	TSA model lock	Chaarcter	1		Y = TSA model deferral

FMP2009_TSAinputDBF FMP2009_TSAinput					
Field Name	**Description**	**Type**	**Width**	**Dec**	**Valid codes and description**
harvlock	TSA model lock	Chaarcter	7		_Lock 2 = deferred for 2 periods (10 years) _Lock 6 = deferred for 6 periods (30 years)

5.3 Landscape Assessment Maps

Map Number	**Map Description**
1	Landbase Classification
2	Contributing Landbase Yield Strata
3	Entire Landbase by Age Class
4	Cutblock History
5	MPB Stand Susceptibility Rankings
6	Disposition Exclusions and Prime Protection ESIP Zones
7	Steep Slopes
8	Seismic Lines
9	Riparian Buffers
10	Watershed Basins and Special Management Areas
11	Natural Sub-regions
12	Ground Operability
13	FMA, Working Circles, & Compartments