ABMI PHOTO-PLOT

DATA MODEL

Alberta Biodiversity Monitoring Institute

Remote Sensing Group

Version 2.4.1

January 2016

About this document

Title	ABMI Photo-Plot Data Model
Purpose	To provide a data model and data dictionary for ABMI photo-plots attributes and to facilitate the creation of a dedicated File Geodatabase and its associated data entry interface.
Filename	ABMI_photoplot_DataModel_v241_sent20160112.pdf
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Document history	V20081203 First version V20081215 New version incorporating recommendations from Doug Crane and Bev Wilson (ASRD) V20090119, version used in the 1st pilot. V200900401, version used for 16-site pilot V2.2, adjustments made based on new version of Interpretation Manual (v2.2) V20100426 (V2.3.0), final adjustments made based on 3rd 8-plot pilot V20100617 (V2.3.1), minor editorial changes, some additional adjustments to criteria/standards V20110429 (V2.4.0), replacement of separate wetland type attributes with one wetland type attribute; removal of secondary height attribute; addition of versioning and Green/White area type attributes; addition of new infrastructure types V20160112 (V2.4.1), minor editorial changes
Current version.	2.4.1
Changes to previous version.	Minor
Date	2016/01/12
Status	Final draft, to be the basis for operational-level photo-plot mapping within the ABMI
Target readership	Persons involved in ABMI photo-plot-mapping
General readership	Public
Correct reference	Castilla G, Crane D, Hird J, Maynes B, and McDermid GJ (2016) ABMI Photo-Plot Data Model, Version 2.4.1

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1 INTRODUCTION

The Alberta Biodiversity Monitoring Institute's (ABMI's) core goal is to provide long-term monitoring of species and habitats in order to inform resource management in the province of Alberta. To achieve this goal, the ABMI maintains 1656 permanent sample sites evenly spaced across a systematic 20-kilometer grid, and conducts ground surveys at each site approximately once every five years. In addition to recording the occurrence and abundance of individual species, ABMI requirements also call for information habitats and human footprint characteristics. These monitoring needs are to be fulfilled through the mapping and analysis of 3 km by 7 km photo-plots surrounding each sample site.

1.1 Purpose and content of this document

This document describes the data model and dictionary of the various attributes that have to be estimated/determined during the interpretation of the ABMI photo-plots, including table structures, attribute definitions, domains, rules, relationships, and metadata. This document has been used as a specification to create a dedicated ESRI File Geodatabase (FGDB) and associated data entry interface and specific tools. The data model was successively tested in three pilot studies, as well as a larger, operational contract, . Suggestions and concerns resulting from those pilots have been incorporated into the data model. The current data model is intended to be the final version that is going to be used consistently in future photo-plot interpretation contracts. This document also contains the landcover, land use and infrastructure classification scheme used by ABMI to characterize these themes within the photo-plots (see Appendices).

2 DATA MODEL

2.2 Overview

ABMI requirements for local (around the field plots) habitat and human footprint information cannot be completely met with the existing vegetation inventories in the province, namely, the Alberta Vegetation Inventory (AVI), designed for use in the Green Area, and the Grassland Vegetation Inventory (GVI), designed for use in the White Area. Therefore ABMI needs its own mapping program. Notwithstanding, we have taken advantage of the Government of Alberta's (GoA) strong investment in AVI and GVI, and have used their specifications and standards where possible. Such strategy will also facilitate the work by AVI/GVI certified interpreters. In designing this data model, we have also taken into account the National Forest Inventory (NFI) specifications as to make the proposed ABMI photo-plot protocol compatible with NFI. This will facilitate the GoA's plans of extracting NFI photo-plots from their ABMI counterparts.

The basic areal unit of the ABMI photo-plot is the **polygon**, which represents a contiguous area having a relatively homogeneous cover that is different from that of adjacent polygons. A polygon may contain a single cover type, or it may also contain regions with a different cover type than the one reported for the polygon. Regions inside a polygon belonging to a different cover type than the polygon may be represented in three different ways:

- As individual polygons, if they exceed the Minimum Mapping Unit (MMU) size constraint (either 0.5 or 2 ha depending on the land-cover of the region and that of the surrounding polygon; see the ABMI Photo-Plot Mapping Interpretation Manual v2.4.1 for further details).

- As **multi-points**, if they are smaller than the MMU size and represent anthropogenic, wetland or aquatic features. A multi-point feature is a set of points located within the same polygon that represent individual occurrences of a given cover type different than that of the encompassing polygon. All points within a multi-point feature share the same attribute values. For example, a multi-point feature could be a set of small (<0.5 ha) bogs within an upland forest polygon. Instead of delineating individually each bog, the interpreter simply needs to place a point in the centre of each bog and then fill a single record in the attribute table. A multi-point feature may consist of a single or many individual points, but all must lie within the same polygon. Note also that a polygon may contain up to 3 different multi-point features. The use of multi-point features is restricted to (1) aquatic, wetland or anthropogenic features occurring within natural or semi-natural vegetated land; and (2) aquatic or wetland features within anthropogenic features (including agriculture, settlements and industrial areas). The multi-point representation has been included because at a small extra cost, it allows an interpreter to bypass the limit that the minimum polygon size imposes on the capture of the above type of features which are important for the ABMI.

- As **multipart lines**, if they are elongated and narrower than 20 m (e.g., shelterbelts, cutlines, some roads). A multipart line feature is a set of (not necessarily interconnected) lines that share the same attribute values. Note that unlike multi-point features, multipart lines are not spatially constrained within a single polygon. For example, if all the seismic cutlines in a photo-plot have the same width and age/status, they all could be included into a single multipart line feature, and would therefore only require a single record in the associated table. Note also that when a polygon is dissected by linear features, the net area occupied by its main cover type can be computed after interpretation through a series of automated spatial analysis steps (the same applies to cases where the polygon also contains some multi-point features). Finally, it should be noted that a single linear entity may require representation by different line features. Such would be the case of a road network where the main sectors are paved but which also contains branches that are gravel - the gravel roads should constitute a separate feature.

- If none of the above applies and the regions cannot be explicitly represented using polygon, multi-point or line features, information on them can be indirectly included through the attributes of the encompassing polygon.

The ABMI data model contains over 90 attributes that enable interpreters to capture a wealth of information about the delineated features. The values of attributes for a given feature are stored as a single record in the attribute table of the corresponding feature class (point, line or polygon), allowing users to easily exploit the database. Many attributes are only applicable in particular situations or under specific conditions, so not all of them apply simultaneously. As a result, interpreters usually need to fill only 5 to 15 attributes per feature, depending on whether the feature is non-vegetated or vegetated, natural or anthropogenic, etc.

This data model has been implemented into a database that enables the collection of ABMI features and attributes using ESRI's **ArcMap software**. The data model has not been normalized for storage purposes (i.e., the set of attributes has not been separated into different tables so as to reduce the amount of empty cells), but is designed to enable simple data entry and validation using the tools and structures found in ArcMap and its **File Geodatabase** (**FGDB**, a data format that is a de facto industry standard in North America.

The ABMI FGDB data set contains as many individual FGDBs with a **feature dataset**[1] as sites there are. Each feature dataset consists of 5 **feature classes**[1]:

ABMI_PPLOT – a polygon feature class that act as a container and summary for the rest – it comprises the core and buffer boundaries of the photo--plot. It also includes a time stamp to differentiate between the ongoing compilation and future ones (updates and/or remaps), as well as metadata for the ABMI photo-plot.
ABMI_POLYGON – a polygon feature class contains all polygon features.
ABMI_POINT – a multi-point feature class containing points related to polygons.
ABMI_LINE – a multipart polyline feature class that contains all line features < 20 m wide.
ABMI_RSFIELD – a point feature class containing points related to field verification of the photo-plot interpretation. **NB**. *Not yet implemented in this version*.

There is one separate table per feature class, and one record per feature in the class. Having a single table per feature class increases the disk space taken by the data as opposed to a normalized schema, but it allows a straightforward conversion to older formats such as shapefile, which are still widely used. Except for ABMI_PPLOT and ABMI_RSFIELD, all the tables look similar, meaning that most of their attributes are the same, although there are a few specific attributes that only exist in one or two tables (e.g., the attribute Shape_Area only appears in the ABMI_PPLOT and the ABMI_POLYGON tables). Each attribute has a predefined format (e.g., short or long integer, floating point [double precision], or string), width (e.g. a 12-character string), and a *domain* (i.e. a set of valid values). The domains are used to enforce data integrity and thus help Quality Control (QC). *Subtypes*[2] are used in the ABMI_PPLOT feature class table to differentiate between the core 3 km by 7 km photo-plot boundary, and the 100 meter-buffered photo-plot boundary.

In the next section, the list of attributes and their descriptions is presented. There are currently over 90 attributes, of which 34 appear in only one of the four tables, and over 60 appear in all three of the point, line and polygon feature class attribute tables. The FGDB interface (a set of Data Entry Tools) is structured so that attributes are grouped into logical categories (e.g. treed overstory, treed understory, non-vegetated, landuse, wetland, etc.) that can be browsed easily by

[1] A feature dataset is a collection of feature classes stored together that share a coordinate system, and that their features fall within a common geographic area. A feature class in turn is a collection of geographic features with the same geometry type (such as point, line, or polygon) and the same attributes. Finally, a feature is a geographic object or phenomenon that can be discretely identified or measured in spatial data collection.

[2] In FGDB, a subtype is a subset of features in a feature class that have been grouped together based on an attribute field. Each subtype can have its own set of default values and its own set of valid values for a given field.

interpreters as needed. In addition, the majority of non-numerical attributes are entered using drop-down menus, which prevents the occurrence of typos during feature attribution.

3 DATA DICTIONARY

This section describes the attributes included in the ABMI photo-plot File Geodatabase. First, the list of attributes of each feature class is presented in the respective tables. Then, each attribute is fully described in a dedicated table (**NB. The page of this document in which each attribute table appears is indicated in the last column of the tables below**). Most attributes exists in the three features classes (polygon, line and point). When an attribute is exclusive to one or two of the feature classes, it will be noted in its descriptive table. Attributes appearing in red are either internally generated by ArcMap (those appearing at beginning of the table) or are populated after interpretation using a script (those appearing at the end of the table). Consequently, **the contractor need not populate the attributes appearing in** red.

3.1 List of Attributes

3.1.1 Feature class: ABMI_POLYGON

Field Name	Alias Name	Type	VarType	Length	Precision	Page
OBJECTID	OBJECTID	OID	Long	4	0	13
Shape	Shape	Geometry	DataObject	0	0	41
Shape_Length	Shape_Length	Double	Double	8	0	42
Shape_Area	Shape_Area	Double	Double	8	0	41
MOIST_REG	Moisture Regime	String	String	3	0	13
STATUS	Management Status	String	String	2	0	14
OBS	Observations	String	String	80	0	14
NV_CLASS	Nonveg Class	String	String	4	0	15
NV_TYPE	Nonveg Type	String	String	2	0	16
NV_PER	Nonveg Percent	SmallInteger	Integer	2	0	16
STAND_STRU	Stand Structure	String	String	4	0	17
ORIGIN	Origin	String	String	3	0	17
ORIGIN_YR	Origin Year	SmallInteger	Integer	4	0	17
DENSITY	Density Class	String	String	1	0	18
SITE_HT	Height	SmallInteger	Integer	2	0	18
SP1	Species 1	String	String	2	0	18
SP1_PER	Species 1 Percent	SmallInteger	Integer	2	0	19
SP2	Species 2	String	String	2	0	19
SP2_PER	Species 2 Percent	SmallInteger	Integer	2	0	19
SP3	Species 3	String	String	2	0	19
SP3_PER	Species 3 Percent	SmallInteger	Integer	2	0	20
SP4	Species 4	String	String	2	0	20
SP4_PER	Species 4 Percent	SmallInteger	Integer	2	0	20
SP5	Species 5	String	String	2	0	20
SP5_PER	Species 5 Percent	SmallInteger	Integer	2	0	21
USITE_HT	U Height	SmallInteger	Integer	2	0	21
UORIGIN	U Origin	String	String	3	0	21

Field Name	Alias Name	Type	VarType	Length	Precision	Page
UORIGIN_YR	U Origin Year	SmallInteger	Integer	4	0	21
UDENSITY	U Density	String	String	1	0	22
USP1	U Species 1	String	String	2	0	22
USP1_PER	U Species 1 Percent	SmallInteger	Integer	2	0	23
USP2	U Species 2	String	String	2	0	23
USP2_PER	U Species 2 Percent	SmallInteger	Integer	2	0	23
USP3	U Species 3	String	String	2	0	23
USP3_PER	U Species 3 Percent	SmallInteger	Integer	2	0	24
USP4	U Species 4	String	String	2	0	24
USP4_PER	U Species 4 Percent	SmallInteger	Integer	2	0	24
USP5	U Species 5	String	String	2	0	24
USP5_PER	U Species 5 Percent	SmallInteger	Integer	2	0	25
NTW_TY	NTW Type	String	String	2	0	25
NTW_PER	NTW Percent	SmallInteger	Integer	2	0	26
NTW_HT	NTW Height	SmallInteger	Integer	2	0	26
NWOOD_TYPE	Nonwoody Type	String	String	2	0	26
NWOOD_PER	Nonwoody Percent	SmallInteger	Integer	2	0	26
MOD1	Modifier1	String	String	3	0	28
MOD1_PER	Modifier1 Percent	SmallInteger	Integer	2	0	30
MOD1_YR	Modifier1 Year	SmallInteger	Integer	4	0	30
MOD2	Modifier2	String	String	3	0	30
MOD2_PER	Modifier2 Percent	SmallInteger	Integer	2	0	30
MOD2_YR	Modifier2 Year	SmallInteger	Integer	4	0	31
MOD3	Modifier3	String	String	3	0	31
MOD3_PER	Modifier3 Percent	SmallInteger	Integer	2	0	31
MOD3_YR	Modifier3 Year	SmallInteger	Integer	4	0	31
LU1_LEVEL1	Landuse1 Level1	String	String	2	0	33
LU1_LEVEL2	Landuse1 Level2	String	String	4	0	34
LU2_LEVEL1	Landuse2 Level1	String	String	2	0	35
LU2_LEVEL2	Landuse2 Level2	String	String	4	0	35
INFRA_CL	Infrastructure Class	Sting	String	2	0	36
INFRA_TY	Infrastructure Type	Sting	String	4	0	36
WAUL_TY	White Area upland site type	String	String	2	0	27
SOIL_TY	AGRASID 3.0 soil symbol	String	String	18	0	27
WTLD_TY	ABMI Wetland Type	String	String	4	0	32
NUTR_REG	Nutrient Regime	String	String	1	0	33
HYDR_REG	Hydrodynamic Regime	String	String	3	0	33
LC1	Landcover 1	String	String	3	0	38
LC2	Landcover 2	String	String	3	0	38
LC3	Landcover 3	String	String	4	0	38
ABMI_SITE	ABMI ID	Integer	Long	4	0	41
POLYGON_ID	Polygon ID	Integer	Long	8	0	41
MPT_CNT	Multi-point Count	SmallInteger	Integer	2	0	42
AREA_NET	Net Area	Double	Double	8	0	42
PER_POLY	Percent Area	SmallInteger	Integer	2	0	42

3.1.2 Feature class: ABMI_LINE

Field Name	Alias Name	Type	VarType	Length	Precision	Page
OBJECTID	OBJECTID	OID	Long	4	0	13
Shape	Shape	Geometry	DataObject	0	0	41
Shape_Length	Shape_Length	Double	Double	8	0	42
MOIST_REG	Moisture Regime	String	String	3	0	13
STATUS	Management Status	String	String	2	0	14
OBS	Observations	String	String	80	0	14
NV_CLASS	Nonveg Class	String	String	4	0	15
NV_TYPE	Nonveg Type	String	String	2	0	16
NV_PER	Nonveg Percent					16
WIDTH	Line Width	SmallInteger	Integer	2	0	17
STAND_STRU	Stand Structure	String	String	4	0	17
ORIGIN	Origin	String	String	3	0	17
ORIGIN_YR	Origin Year	SmallInteger	Integer	4	0	18
DENSITY	Density Class	String	String	1	0	18
SITE_HT	Height	SmallInteger	Integer	2	0	18
SP1	Species 1	String	String	2	0	19
SP1_PER	Species 1 Percent	SmallInteger	Integer	2	0	19
SP2	Species 2	String	String	2	0	19
SP2_PER	Species 2 Percent	SmallInteger	Integer	2	0	19
SP3	Species 3	String	String	2	0	20
SP3_PER	Species 3 Percent	SmallInteger	Integer	2	0	20
SP4	Species 4	String	String	2	0	20
SP4_PER	Species 4 Percent	SmallInteger	Integer	2	0	20
SP5	Species 5	String	String	2	0	21
SP5_PER	Species 5 Percent	SmallInteger	Integer	2	0	21
USITE_HT	U Height	SmallInteger	Integer	2	0	21
UORIGIN	U Origin	String	String	3	0	21
UORIGIN_YR	U Origin Year	SmallInteger	Integer	4	0	22
UDENSITY	U Density	String	String	1	0	22
USP1	U Species 1	String	String	2	0	23
USP1_PER	U Species 1 Percent	SmallInteger	Integer	2	0	23
USP2	U Species 2	String	String	2	0	23
USP2_PER	U Species 2 Percent	SmallInteger	Integer	2	0	23
NTW_TY	NTW Type	String	String	2	0	24
USP3	U Species 3	String	String	2	0	24
USP3_PER	U Species 3 Percent	SmallInteger	Integer	2	0	24
USP4	U Species 4	String	String	2	0	24
USP4_PER	U Species 4 Percent	SmallInteger	Integer	2	0	25
USP5	U Species 5	String	String	2	0	25
USP5_PER	U Species 5 Percent	SmallInteger	Integer	2	0	26
NTW_PER	NTW Percent	SmallInteger	Integer	2	0	26
NTW_HT	NTW Height	SmallInteger	Integer	2	0	26

Field Name	Alias Name	Type	VarType	Length	Precision	Page
NWOOD_TYPE	Nonwoody Type	String	String	2	0	26
NWOOD_PER	Nonwoody Percent	SmallInteger	Integer	2	0	28
MOD1	Modifier1	String	String	3	0	30
MOD1_PER	Modifier1 Percent	SmallInteger	Integer	2	0	30
MOD1_YR	Modifier1 Year	SmallInteger	Integer	4	0	30
MOD2	Modifier2	String	String	3	0	30
MOD2_PER	Modifier2 Percent	SmallInteger	Integer	2	0	31
MOD2_YR	Modifier2 Year	SmallInteger	Integer	4	0	31
MOD3	Modifier3	String	String	3	0	31
MOD3_PER	Modifier3 Percent	SmallInteger	Integer	2	0	31
MOD3_YR	Modifier3 Year	SmallInteger	Integer	4	0	33
LU1_LEVEL1	Landuse1 Level1	String	String	2	0	34
LU1_LEVEL2	Landuse1 Level2	String	String	4	0	35
LU2_LEVEL1	Landuse2 Level1	String	String	2	0	35
LU2_LEVEL2	Landuse2 Level2	String	String	4	0	36
INFRA_CL	Infrastructure Class	Sting	String	2	0	36
INFRA_TY	Infrastructure Type	Sting	String	4	0	27
WTLD_TY	ABMI Wetland Type	String	String	4	0	27
NUTR_REG	Nutrient Regime	String	String	1	0	32
HYDR_REG	Hydrodynamic Regime	String	String	3	0	33
LC1	Landcover 1	String	String	3	0	33
LC2	Landcover 2	String	String	3	0	38
LC3	Landcover 3	String	String	4	0	38
ABMI_SITE	ABMI ID	Integer	Long	4	0	38
ARC_ID	Arc ID	Integer	Long	8	0	43
ARC_AREA	Arc Area	Double	Double	8	0	43

3.1.3 Feature class: ABMI_POINT

Field Name	Alias Name	Type	VarType	Length	Precision	Page
OBJECTID	OBJECTID	OID	Long	4	0	13
Shape	Shape	Geometry	DataObject	0	0	41
MOIST_REG	Moisture Regime	String	String	3	0	13
STATUS	Management Status	String	String	2	0	14
OBS	Observations	String	String	80	0	14
NV_CLASS	Nonveg Class	String	String	4	0	15
NV_TYPE	Nonveg Type	String	String	2	0	16
NV_PER	Nonveg Percent	SmallInteger	Integer	2	0	16
PER_PT	Percent Area	SmallInteger	Integer	2	0	17
AVG_WIDTH	Average Width	SmallInteger	Integer	2	0	17
SIZE_VAR	Size Variation	String	String	2	0	17
STAND_STRU	Stand Structure	String	String	4	0	18
ORIGIN	Origin	String	String	3	0	18
ORIGIN_YR	Origin Year	SmallInteger	Integer	4	0	18
DENSITY	Density Class	String	String	1	0	19

Field Name	Alias Name	Type	VarType	Length	Precision	Page
SITE_HT	Height	SmallInteger	Integer	2	0	19
SP1	Species 1	String	String	2	0	19
SP1_PER	Species 1 Percent	SmallInteger	Integer	2	0	19
SP2	Species 2	String	String	2	0	20
SP2_PER	Species 2 Percent	SmallInteger	Integer	2	0	20
SP3	Species 3	String	String	2	0	20
SP3_PER	Species 3 Percent	SmallInteger	Integer	2	0	20
SP4	Species 4	String	String	2	0	21
SP4_PER	Species 4 Percent	SmallInteger	Integer	2	0	21
SP5	Species 5	String	String	2	0	21
SP5_PER	Species 5 Percent	SmallInteger	Integer	2	0	21
USITE_HT	U Height	SmallInteger	Integer	2	0	22
UORIGIN	U Origin	String	String	3	0	22
UORIGIN_YR	U Origin Year	SmallInteger	Integer	4	0	23
UDENSITY	U Density	String	String	1	0	23
USP1	U Species 1	String	String	2	0	23
USP1_PER	U Species 1 Percent	SmallInteger	Integer	2	0	23
USP2	U Species 2	String	String	2	0	24
USP2_PER	U Species 2 Percent	SmallInteger	Integer	2	0	24
USP3	U Species 3	String	String	2	0	24
USP3_PER	U Species 3 Percent	SmallInteger	Integer	2	0	24
USP4	U Species 4	String	String	2	0	25
USP4_PER	U Species 4 Percent	SmallInteger	Integer	2	0	25
USP5	U Species 5	String	String	2	0	26
USP5_PER	U Species 5 Percent	SmallInteger	Integer	2	0	26
NTW_TY	NTW Type	String	String	2	0	26
NTW_PER	NTW Percent	SmallInteger	Integer	2	0	26
NTW_HT	NTW Height	SmallInteger	Integer	2	0	28
NWOOD_TYPE	Nonwoody Type	String	String	2	0	30
NWOOD_PER	Nonwoody Percent	SmallInteger	Integer	2	0	30
MOD1	Modifier1	String	String	3	0	30
MOD1_PER	Modifier1 Percent	SmallInteger	Integer	2	0	30
MOD1_YR	Modifier1 Year	SmallInteger	Integer	4	0	31
MOD2	Modifier2	String	String	3	0	31
MOD2_PER	Modifier2 Percent	SmallInteger	Integer	2	0	31
MOD2_YR	Modifier2 Year	SmallInteger	Integer	4	0	31
MOD3	Modifier3	String	String	3	0	33
MOD3_PER	Modifier3 Percent	SmallInteger	Integer	2	0	34
MOD3_YR	Modifier3 Year	SmallInteger	Integer	4	0	35
LU1_LEVEL1	Landuse1 Level1	String	String	2	0	35
LU1_LEVEL2	Landuse1 Level2	String	String	4	0	36
LU2_LEVEL1	Landuse2 Level1	String	String	2	0	36
LU2_LEVEL2	Landuse2 Level2	String	String	4	0	27
INFRA_CL	Infrastructure Class	Sting	String	2	0	27
INFRA_TY	Infrastructure Type	Sting	String	4	0	32
WTLD_TY	ABMI Wetland Type	String	String	4	0	33
NUTR_REG	Nutrient Regime	String	String	1	0	33

Field Name	Alias Name	Type	VarType	Length	Precision	Page
HYDR_REG	Hydrodynamic Regime	String	String	3	0	38
LC1	Landcover 1	String	String	3	0	38
LC2	Landcover 2	String	String	3	0	38
LC3	Landcover 3	String	String	4	0	13
ABMI_SITE	ABMI ID	Integer	Long	4	0	14
POINT_ID	Point ID	Integer	Long	8	0	43
POLY_NUM	Polygon Number	Integer	Long	4	0	43
PT_CNT	Point Count	SmallInteger	Integer	2	0	44
PT_AREA	Point Area	Double	Double	8	0	44
AVG_AREA	Average Area	Double	Double	8	0	44

3.1.4 Feature class: ABMI_PPLOT

Field Name	Alias Name	Type	VarType	Length	Precision	Page
OBJECTID	OBJECTID	OID	Long	4	0	13
Shape	Shape	Geometry	DataObject	0	0	41
Shape_Length	Shape_Length	Double	Double	8	0	42
Shape_Area	Shape_Area	Double	Double	8	0	41
ABMI_SITE	ABMI ID	Integer	Long	4	0	41
UTM_E	UTM Easting	Integer	Long	4	0	45
UTM_N	UTM Northing	Integer	Long	4	0	45
UTM_ZONE	UTM Zone	Integer	Short	2	0	45
NAT_SREG	Natural Subregion	String	String	30	0	45
SENS_NAME	Sensor Name	String	String	80	0	46
SENS_BANDS	Sensor Bands	String	String	80	0	46
IMG_DATE	Image Date	Date	Date	8	0	46
IMG_SCALE	Image Scale	String	String	8	0	46
IMG_RMSE	Image RSME	Double	Double	4	0	46
IMG_CO	Company	String	String	30	0	47
INT_NAME	Interpreter Name	String	String	30	0	47
INT_CO	Interpretation Company	String	String	30	0	47
INT_DATE	Interpretation Date	Date	Date	8	0	47
GWAREA_TY	Green/White area location of photo-plot	String	String	2	0	47
VERSION	ABMI mapping protocol version(s)	String	String	22	0	47
QC_NAME	QCed By	String	String	30	0	48
QC_CO	QC Company	String	String	30	0	48
QC_DATE	QC Date	Date	Date	8	0	48
SUBTYPE	Core / Buffer	Integer	Long	4	0	48

3.2 Attribute description

Attribute	Object (feature) identifier
Variable Name	**OBJECT_ID**
Description	The unique number used to identify a record within a table in the ABMI FGDB. Assigned automatically by the FGDB.
Permitted Values/Range	0 to 9999, <null>
Default value	Generated automatically in the FGDB
Format	Int 4
Rule(s)	Unique for each feature or record in a table, in a given ABMI site *i*

Attribute	Soil moisture regime
Variable Name	**MOIST_REG**
Description	Moisture regime of the soil, related to moisture availability and drainage: NA = not applicable (no soil, or most of the soil is covered by open water or an impervious material) VXR = very xeric (Water removed extremely rapidly in relation to supply; soil moist for negligible period of time following precipitation) XRC = xeric (Water removed rapidly in relation to supply; soil is moist for short periods following precipitation) SXR = subxeric (Water removed rapidly in relation to supply; soil moist for short periods following precipitation) SMS = submesic (Water removed readily in relation to supply; water available for moderately short periods following precipitation) MSC = mesic (Water removed somewhat slowly in relation to supply; soil may remain moist for a significant, but sometimes short period of the year. Available soil moisture reflects climatic inputs). SHG = subhygric (Water removed slowly enough to keep the soil wet for a significant part of the growing season; some temporary seepage and possibly mottling below 20 cm) HGC = hygric (Water removed slowly enough to keep the soil wet for most of the growing season; permanent seepage and mottling present; possibly weak gleying; considered to be categorized under the Alberta Vegetation Inventory's Mesic moisture code) SHD = subhydric (Water removed slowly enough to keep the water table at or near the surface for most of the year; gleying mineral or organic soils; permanent seepage less than 30 cm below the surface) HDC = hydric (Water removed so slowly that the water table is at or above the soil surface all year; gleying mineral or organic soils)
Permitted Values/Range	NA, VXR, XRC, SXR, SMS, MSC, SHG, HGC, SHD, HDC
Default value	NA
Format	Char 3

Rule(s)	Must have value If MOIST_REG <> NA, then DENSITY or UDENSITY = A, B, C, or D; Or, NTW_PER or NWOOD_PER >= 30%, or DENSITY or UDENSITY = Z and NTW_PER or NWOOD_PER >= 30%; Or, NV_TYPE = BU, CC, ES, RM, MU, or ON If MOIST_REG = NA, then DENSITY and UDENSITY <> A, B, C, or D; and, both NTW_PER and NWOOD_PER are < 30%; and, NV_TYPE = GL, SC, BR, RT, MO, RS, LS, AS, WL, WS, WR, WA, WW, or WT

Attribute	Management status
Variable Name	**STATUS**
Description	Management status of an area, or maintenance status of a infrastructure (e.g. in use vs. abandoned), or in the case of a cutblock or burn (LC3= ELCC or ELBU), regeneration status NU = Natural unmanaged land (if forest, old growth) NR = No regeneration (for ELCC or ELBU) RN = Regeneration, natural (for ELCC or ELBU) RA = Regeneration, artificial (for ELCC or ELBU; visible seedlings or young planted trees) IO = In operation (for industrial facilities, agricultural areas, mining areas, commercial areas, settlements, etc.; areas which are in use and not abandoned) AB = Abandoned or not maintained facility, utility, or field UC = Under construction UK = Unknown or undeterminable
Permitted Values/Range	NU, HV, NR, RN, RA, IO, AB, UC, UK
Default value	UK
Format	Char 2
Rule(s)	If STATUS = NU, then LU1_LEVEL2 and LU2_LEVEL2 = NUUD; MOD*x* <> A*xx* or T*xx*; INFRA_TY = <null> If LU1_LEVEL2 or LU2_LEVEL2 <> 'NUUD', or INFRA_TY <> <null>, or MOD*x* = A*xx* or T*xx*, then STATUS cannot = NU

Attribute	Observations
Variable Name	**OBS**
Description	Observations or clarifications about information that could not be recorded using the other attributes (e.g., name of the settlement or company name, pine beetle red attack in pockets, etc).
Default value	' '
Format	Char 80
Rule(s)	

Attribute	Feature width (**ABMI_LINE**)
Variable Name	**WIDTH**
Description	Average width (in meters, rounded to the closest integer) of the linear feature(s) represented by this line
Permitted Values/Range	1 to 19, <null> (before editing)
Default value	<null>
Format	Int 2
Rule(s)	Must be non-0 after editing

Attribute	Percent area represented by points in the polygon (**ABMI_POINT**)
Variable Name	**PER_PT**
Description	Percent gross area of associated polygon represented by points of the relevant multi-point feature.
Permitted Values/Range	0 – 100, <null>
Default value	<null>
Format	Short
Rule(s)	Must be non-0 if AVG_WIDTH is 0 (the latter is computed by script based on Shape_Area, PER_PT and PT_CNT)

Attribute	Mean width represented by a single point (**ABMI_POINT**)
Variable Name	**AVG_WIDTH**
Description	Rough estimate (meters) of the mean width of each individual ground features represented by the points of a multi-point feature
Permitted Values/Range	0 to 9,999,999, <null> (before editing)
Default value	<null>
Format	Int 7
Rule(s)/observations	Must be non-0 if PER_PT is 0 (the latter is computed by script based on Shape_Area, AVG_WIDTH and PT_CNT)

Attribute	Size variation (**ABMI_POINT**)
Variable Name	**SIZE_VAR**
Description	Variation in size of the individual patches of a cover type represented as multi-points in a polygon: VL = low (all the patches of this cover type in polygon have roughly the same size) LO = low (the largest 10% of the patches are on average less than 2 times larger than the smallest 10% of the patches) ME = medium (the largest 10% of the patches are on average between 2 and 4 times larger than the smallest 10% of the patches) HI = high (the largest 10% of the patches are on average between than 4 and 16 times larger than the smallest 10% of the patches) VH = very high (the largest 10% of the patches are on average more than 16 times larger than the smallest 10% of the patches)
Permitted Values/Range	VL, LO, ME, HI, VH
Default value	VL
Format	Char 2
Rule(s)/observations	

Attribute	Non-vegetated class
Variable Name	**NV_CLASS**
Description	Broad class of non-vegetated surface present in the feature: OW = Open water SI = Snow/ice RO = Rock/rubble EL = Exposed land and artificial surfaces
Permitted Values/Range	OW, SI, RO, EL, <null>
Default value	<null>

Format	Char 2
Rule(s)	If NV_TYPE = WL, WS, WR, WA, WW, or WT, then NV_CLASS = OW If NV_TYPE = BU, RS, CC, ES, LS, RM, MU, or AS, then NV_CLASS = EL If NV_TYPE = BR, RT, or MO, then NV_CLASS = RO If NV_TYPE = GL or SC, then NV_CLASS = SI If (NV_TYPE <> <null>) and (NV_PER <> <null>), then NV_CLASS <> <null>

Attribute	Non-vegetated type
Variable Name	**NV_TYPE**
Description	Type of non-vegetated surface present in the feature: GL = Glacier SC = Snow cover BR = Bedrock RT = Rubble, talus, blockfield MO = Moraine RS = River sediments LS = Pond or lake sediments RM = Reservoir margin MU = Mudflat sediment BU = Burned area CC = Clearcut (fresh) ES = Exposed soil, sediment or substratum AS = Artificial surface WL = Lakes WS = Salt water (standing water) WR = River WA = Reservoir WW = Shallow open water WT = Stream ON = Other non-vegetated
Permitted Values/Range	GL, SC, BR, RT, MO, RS, LS, RM, MU, BU, CC, ES, AS, WL, WS, WR, WA, WW, WT, ON, <null>
Default value	<null>
Format	Char 2
Rule(s)	If NV_CLASS = OW, then NV_TYPE must be WL, WS, WR, WA, WW, WT, or ON; If NV_CLASS = EL, then NV_TYPE must be BU, RS, CC, ES, LS, RM, MU, AS, or ON; If NV_CLASS = RO, then NV_TYPE must be BR, RT, MO, or ON; If NV_CLASS = SI, then NV_TYPE must be GL, SC, or ON

Attribute	Nonveg percent
Variable Name	**NV_PER**
Description	Approximate percent of feature area visibly covered by the non-vegetated land cover type identified in NV_TYPE N.B. This differs from tree species percent attributes in that it represents % ground area covered by the attribute rather than % crown closure
Permitted Values/Range	0 to 100, <null>
Default value	<null>

Format	Int 3
Rule(s)	If NV_TY <> <null>, then NV_PER <> <null> If NV_PER >90%, then LC2 = N*xx*

Attribute	Stand structure of tree canopy
Variable Name	**STAND_STRU**
Description	SNGL: Single storied. MULT: Two or more distinct canopy layers. COMP: Complex, non-distinct layers. NA: Non-applicable.
Permitted Values/Range	SNGL, MULT, COMP, NA
Default value	NA
Format	Char 4
Rule(s)	Must have value If DENSITY = Z or <null>, then STAND_STRU = NA If STAND_STRU = NA, then DENSITY and UDENSITY = Z or <null>; ORIGIN, ORIGIN_YR, SP1_PER, SITE_HT, UORIGIN, UORIGIN_YR, USP1_PER, and USITE_HT = <null> (unless DENSITY or UDENSITY = Z); LC2 <> VTW or VTU If STAND_STRU = SNGL, then SP1 and DENSITY must not be <null>; MOIST_REG <> NA If STAND_STRU = MULT, then SP1, DENSITY, USP1, and UDENSITY must not be <null>; MOIST_REG <> NA If STAND_STRU = COMP, then SP1 and DENSITY must not be <null>; MOIST_REG <> NA

Attribute	Origin of vegetation
Variable Name	**ORIGIN**
Description	Origin of the dominant tree canopy in the polygon: AFO = Afforestation (of previously non-forest land) HAR = Post harvest natural or artificial regeneration FIR = Post fire regeneration DIS = Other disturbance (e.g. insect outbreak, flood) UKN = Unknown
Permitted Values/Range	AFO, HAR, FIR, DIS, UKN
Default value	UKN
Format	Char 3
Rule(s)	Must have value If DENSITY = A, B, C, or D, ORIGIN cannot be <Null>

Attribute	Year of origin
Variable Name	**ORIGIN_YR**
Description	Year of origin for the dominant tree canopy in the polygon
Permitted Values/Range	1491 (precolumbian) to 9999, <null>
Default value	<null>
Format	Int 4 (YYYY)
Rule(s)	If not <null>, then ORIGIN_YR ≤ INT_DATE If ORIGIN is not <null>, then ORIGIN_YR must not be <null>

Attribute	Tree Canopy density
Variable Name	**DENSITY**
Description	Canopy density, expressed in AVI crown closure classes. Z = 1% to 5.9% A = 6% to 29.9 % B = 30% to 49.9 % C = 50% to 69.9 % D = 70 % +
Permitted Values/Range	A, B, C, D, Z, <null>
Default value	<null>
Format	Char 1
Rule(s)	If DENSITY = A, B, C, or D, then MOIST_REG cannot be <null>, and SP1, SP1_PER, STAND_STRU, ORIGIN, ORIGIN_YR, and SITE_HT cannot be <null>; LC2 = VTW or VTU If DENSITY = Z, then SP1 cannot be <null> If DENSITY = <null>, then SP1, SP1_PER, STAND_STRU, ORIGIN, ORIGIN_YR, SITE_HT, UDENSITY, USP*x*, USP*x*_PER, UORIGIN, UORIGIN_YR, and USITE_HT must be <null>

Attribute	Site height
Variable Name	**SITE_HT**
Description	Mean height of most abundant trees (i.e., the SP1), but not necessarily the tallest in the feature, in meters, to closest integer
Permitted Values/Range	0 to 40, <null>
Default value	<null>
Format	Int 2
Rule(s)	If SITE_HT > 0, then SP1 and DENSITY cannot be <null> If USITE_HT > 0, SITE_HT must be >= 3 m higher than USITE_HT

Attribute	1st (most abundant) overstory tree species
Variable Name	**SP1**
Description	Tree species codes: SW = White spruce (*Picea glauca*) SE = Engelmann spruce (*Picea engelmanni*) SB = Black spruce (*Picea mariana*) P = General *Pinus* PL = Lodgepole pine (*Pinus contorta*) PJ= Jack pine (*Pinus banksiana*) PA = White-bark pine (*Pinus albicaulis*) PF= Limber pine (*Pinus flexilis*) PY = Ponderosa pine (*Pinus ponderosa*) FB = Balsam fir (*Abies balsamea*) FA = Alpine fir (*Abies lasiocarpa*) FD = Douglas fir (*Pseudotsuga menziesii*) LA = Alpine larch (*Lariz lyallii*) LT = Tamarack (*Larix laricina*) LW = Western larch (*Larix occidentalis*) A = General *Populus* AW = Trembling aspen (*Populus tremuloides*) PB = Balsam poplar (*Populus balsamifera*) BW = Paper (White) birch (*Betula papyrifera*) MM = Manitoba maple (*Acer negundo*) CP = Plains cottonwood (*Populus deltoids*) CN = Narrow-leaf cottonwood (*Populus angustifolia*)

Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>
Format	Char 2
Rule(s)	If SP1 is not <null>, then DENSITY and SP1_PER cannot be <null> If SP2, SP3, SP4 or SP5 = A, then SP1 <> AW, PB, CP or CN If SP2, SP3, SP4 or SP5 = P, then SP1 <> PL, PJ, PA, PY or PF

Attribute	Species 1 percentage
Variable Name	**SP1_PER**
Description	Proportion of the total crown closure corresponding to trees of the species identified in SP1, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If SP1_PER > 0, then DENSITY and SP1 cannot be <null> Sum of SP1_PER, SP2_PER, SP3_PER, SP4_PER and SP5_PER cannot be > 10 (100%)

Attribute	2nd overstory tree species
Variable Name	**SP2**
Description	*See description for* SP1
Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>
Format	Char 2
Rule(s)	If SP2 is not <null>, then DENSITY, SP1, SP1_PER, and SP2_PER cannot be <null> If SP1, SP3, SP4 or SP5 = A, then SP2 <> AW, PB, CP, or CN If SP1, SP3, SP4 or SP5 = P, then SP2 <> PL, PJ, PA or PF

Attribute	Species 2 percentage
Variable Name	**SP2_PER**
Description	Proportion of the total crown closure corresponding to trees of the species identified in SP2, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If SP2_PER > 0, then DENSITY, SP1, SP1_PER, and SP2 cannot be <null> Sum of SP1_PER, SP2_PER, SP3_PER, SP4_PER and SP5_PER cannot be > 10 (100%)

Attribute	3rd overstory tree species
Variable Name	**SP3**
Description	*See description for* SP1
Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>

Format	Char 2
Rule(s)	If SP3 is not <null>, then DENSITY, SP1, SP1_PER, SP2, SP2_PER, and SP3_PER cannot be <null> If SP1, SP2, SP4 or SP5 = A, then SP3 <> AW, PB, CP, or CN If SP1, SP2, SP4 or SP5 = P, then SP3 <> PL, PJ, PA or PF

Attribute	Species 3 percentage
Variable Name	**SP3_PER**
Description	Proportion of the total crown closure corresponding to trees of the species identified in SP3, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If SP3_PER > 0, then DENSITY, SP1, SP1_PER, SP2, SP2_PER, and SP3 cannot be <null> Sum of SP1_PER, SP2_PER, SP3_PER, SP4_PER and SP5_PER cannot be > 10 (100%)

Attribute	4th overstory tree species
Variable Name	**SP4**
Description	*See description for* SP1
Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>
Format	Char 2
Rule(s)	If SP4 is not <null>, then DENSITY, SP1, SP1_PER, SP2, SP2_PER, SP3, SP3_PER, and SP4_PER cannot be <null> If SP1, SP2, SP3 or SP5 = A, then SP4 <> AW, PB, CP, or CN If SP1, SP2, SP3 or SP5 = P, then SP4 <> PL, PJ, PA or PF

Attribute	Species 4 percentage
Variable Name	**SP4_PER**
Description	Proportion of the total crown closure corresponding to trees of the species identified in SP4, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If SP4_PER > 0, then DENSITY, SP1, SP1_PER, SP2, SP2_PER, SP3, SP3, and SP4 cannot be <null> Sum of SP1_PER, SP2_PER, SP3_PER, SP4_PER and SP5_PER cannot be > 10 (100%)

Attribute	5th overstory tree species
Variable Name	**SP5**
Description	*See description for* SP1
Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>
Format	Char 2

Rule(s)	If SP5 is not <null>, then DENSITY, SP1, SP1_PER, SP2, SP2_PER, SP3, SP3_PER, SP4, SP4_PER, and SP5_PER cannot be <null> If SP1, SP2, SP3 or SP4 = A, then SP5 <> AW, PB, CP, or CN If SP1, SP2, SP3 or SP4 = P, then SP5 <> PL, PJ, PA or PF

Attribute	Species 5 percentage
Variable Name	**SP5_PER**
Description	Proportion of the total crown closure corresponding to trees of the species identified in SP5, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If SP5_PER > 0, then DENSITY, SP1, SP1_PER, SP2, SP2_PER, SP3, SP3, SP4, SP4_PER, and SP5 cannot be <null> Sum of SP1_PER, SP2_PER, SP3_PER, SP4_PER and SP5_PER cannot be > 10 (100%)

Attribute	Height of understory
Variable Name	**USITE_HT**
Description	Average height of the understorey if measurable, in meters, rounded to closest integer.
Permitted Values/Range	1 to 37, <null>
Default value	<null>
Format	Int 2
Rule(s)	If USITE_HT > 0, then SP1, DENSITY, USP1 and UDENSITY cannot be <null>; SITE_HT must be >= 3 m higher than USITE_HT

Attribute	Origin of understory vegetation
Variable Name	**UORIGIN**
Description	Origin of the young trees in the undestory: AFO = Afforestation (of previously non-forest land) HAR = Post harvest natural or artificial regeneration FIR = Post fire regeneration DIS = Other disturbance (e.g. insect outbreak) UKN = Unknown
Permitted Values/Range	AFO, HAR, FIR, DIS, UKN
Default value	<null>
Format	Char 3
Rule(s)	If UDENSITY = A, B, C, or D, then UORIGIN cannot be <Null>

Attribute	Year of origin of understorey vegetation
Variable Name	**UORIGIN_YR**
Description	Year of origin for the dominant vegetative stratum in the understory
Permitted Values/Range	1491 (precolumbian) to 9999, <null>
Default value	<null>
Format	Int 4 (YYYY)
Rule(s)	If UORIGIN_YR is not <null>, then UORIGIN_YR ≤ INT_DATE; If UORIGIN is not <null>, then UORIGIN_YR must not be <null>

Attribute	Understorey density
Variable Name	**UDENSITY**
Description	Understorey density, expressed in AVI crown closure classes: Z = 0% to 6% A = 7 to 30 % B = 31 to 50 % C = 51 to 70 % D = 70 % +
Permitted Values/Range	A, B, C, D, Z, <null>
Default value	<null>
Format	Char 1
Rule(s)	If UDENSITY = A, B, C, or D, then MOIST_REG cannot be <null>; SP1, DENSITY, USP1, USP1_PER, STAND_STRU, UORIGIN, UORIGIN_YR, and USITE_HT cannot be <null>; LC2 = VTW or VTU If UDENSITY = Z, then SP1, DENSITY, and USP1 cannot be <null> If UDENSITY = <null>, then USP*x*, USP*x*_PER, UORIGIN, UORIGIN_YR, USITE_HT, and UDENSITY must be <null>

Attribute	1st understory tree species
Variable Name	**USP1**
Description	Tree species codes: SW = White spruce (*Picea glauca*) SE = Engelmann spruce (*Picea engelmanni*) SB = Black spruce (*Picea mariana*) P = General *Pinus* PL = Lodgepole pine (*Pinus contorta*) PJ= Jack pine (*Pinus banksiana*) PA = White-bark pine (*Pinus albicaulis*) PF= Limber pine (*Pinus flexilis*) FB = Balsam fir (*Abies balsamea*) FA = Alpine fir (*Abies lasiocarpa*) FD = Douglas fir (*Pseudotsuga menziesii*) LA = Alpine larch (*Lariz lyallii*) LT = Tamarack (*Larix laricina*) LW = Western larch (*Larix occidentalis*) A = General *Populus* AW = Trembling aspen (*Populus tremuloides*) PB = Balsam poplar (*Populus balsamifera*) BW = Paper (White) birch (*Betula papyrifera*) MM = Manitoba maple (*Acer negundo*) CP = Plains cottonwood (*Populus deltoids*) CN = Narrow-leaf cottonwood (*Populus angustifolia*)
Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>
Format	Char 2
Rule(s)	If USP1 is not <null>, then DENSITY, SP1, UDENSITY, and USP1_PER cannot be <null> If USP2, USP3, USP4 or USP5 = A, then USP5 <> AW, PB, CP, or CN If USP2, USP3, USP4 or USP5 = P, then USP5 <> PL, PJ, PA or PF

Attribute	Understory species 1 percentage
Variable Name	**USP1_PER**
Description	Proportion of the understory density corresponding to trees of the species identified in USP1, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If USP1_PER > 0, then DENSITY, SP1, UDENSITY, and USP1 cannot be <null> Sum of USP1_PER, USP2_PER, USP3_PER, USP4_PER and USP5_PER cannot be > 10 (100%)

Attribute	2nd overstory tree species
Variable Name	**USP2**
Description	*See description for* USP1
Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>
Format	Char 2
Rule(s)	If USP2 is not <null>, then DENSITY, SP1, UDENSITY, USP1, USP1_PER, and USP2_PER cannot be <null> If USP1, USP3, USP4 or USP5 = A, then USP2 <> AW, PB, CP, or CN If USP1, USP3, USP4 or USP5 = P, then USP2 <> PL, PJ, PA or PF

Attribute	Understory species 2 percentage
Variable Name	**USP2_PER**
Description	Proportion of the understory density corresponding to trees of the species identified in USP2, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If USP2_PER > 0, then DENSITY, SP1, UDENSITY, USP1, USP1_PER, and USP2 cannot be <null> Sum of USP1_PER, USP2_PER, USP3_PER, USP4_PER and USP5_PER cannot be > 10 (100%)

Attribute	3rd overstory tree species
Variable Name	**USP3**
Description	*See description for* USP1
Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>
Format	Char 2
Rule(s)	If USP3 is not <null>, then DENSITY, SP1, UDENSITY, USP1, USP1_PER, USP2, USP2_PER, and USP3_PER cannot be <null> If USP1, USP2, USP4 or USP5 = A, then USP3 <> AW, PB, CP, or CN If USP1, USP2, USP4 or USP5 = P, then USP3 <> PL, PJ, PA or PF

Attribute	Understory species 3 percentage
Variable Name	**USP3_PER**
Description	Proportion of the understory density corresponding to trees of the species identified in USP3, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If USP3_PER > 0, then DENSITY, SP1, UDENSITY, USP1, USP1_PER, USP2, USP2_PER, and USP3 cannot be <null> Sum of USP1_PER, USP2_PER, USP3_PER, USP4_PER and USP5_PER cannot be > 10 (100%)

Attribute	4th overstory tree species
Variable Name	**USP4**
Description	*See description for* USP1
Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>
Format	Char 2
Rule(s)	If USP4 is not <null>, then DENSITY, SP1, UDENSITY, USP1, USP1_PER, USP2, USP2_PER, USP3, USP3_PER, and USP4_PER cannot be <null> If USP1, USP2, USP3 or USP5 = A, then USP4 <> AW, PB, CP, or CN If USP1, USP2, USP3 or USP5 = P, then USP4 <> PL, PJ, PA or PF

Attribute	Understory species 4 percentage
Variable Name	**USP4_PER**
Description	Proportion of the understory density corresponding to trees of the species identified in USP4, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If USP4_PER > 0, then DENSITY, SP1, UDENSITY, USP1, USP1_PER, USP2, USP2_PER, USP3, USP3_PER, and USP4 cannot be <null> Sum of USP1_PER, USP2_PER, USP3_PER, USP4_PER and USP5_PER cannot be > 10 (100%)

Attribute	5th overstory tree species
Variable Name	**USP5**
Description	*See description for* USP1
Permitted Values/Range	SW, SE, SB, P, PL, PJ, PA, PF, PY, FB, FA, FD, LA, LT, LW, A, AW, PB, BW, MM, CP, CN, <null>
Default value	<null>
Format	Char 2

Rule(s)	If USP5 is not <null>, then DENSITY, SP1, UDENSITY, USP1, USP1_PER, USP2, USP2_PER, USP3, USP3_PER, USP4, USP4_PER, and USP5_PER cannot be <null> If USP2, USP3, USP4 or USP5 = A, then USP5 <> AW, PB, CP, or CN If USP2, USP3, USP4 or USP5 = P, then USP5 <> PL, PJ, PA or PF

Attribute	Understory species 5 percentage
Variable Name	**USP5_PER**
Description	Proportion of the understory density corresponding to trees of the species identified in USP5, in tenths (i.e. 3=3/10)
Permitted Values/Range	0-10, <null>
Default value	<null>
Format	Int 2
Rule(s)	If USP5_PER > 0, then DENSITY, SP1, UDENSITY, USP1, USP1_PER, USP2, USP2_PER, USP3, USP3_PER, USP4, USP4_PER, and USP5 cannot be <null> Sum of USP1_PER, USP2_PER, USP3_PER, USP4_PER and USP5_PER cannot be > 10 (100%)

Attribute	Non-treed woody vegetation type
Variable Name	**NTW_TY**
Description	Non-treed woody vegetation, i.e. shrub and bushes. Codes: AL = Alder BH = Beaked hazel SA = Saskatoon berry PC = Pin cherry CR = High-bush cranberry WI = Willow RO = Prickly rose BI = Bog birch BU = Buffaloberry DW = Red-osier dogwood RA = Wild red rasberry CU = Currant SN = Western snowberry BB = Blueberry CI = Shrubby cinquefoil BL = Bog laurel LA = Labrador tea LE = Leatherleaf BE = Bearberry LC = Low-bush cranberry SV = Silver sagebrush MJ = Rocky Mountain juniper SS = Short shrub (< 2 m tall) TS = Tall shrub (>= 2 m tall)
Permitted Values/Range	AL, BH, SA, PC, CR, WI, RO, BI, BU, DW, RA, CU, SN, BB, CI, BL, LA, LE, BE, LC, SV, MJ, SS, TS,<null>
Default value	<null>
Format	Char 2
Rule(s)	If NTW_TY is not <null>, then NTW_PER cannot be <null> and NTW_HT must be > 0

Attribute	Non-treed woody vegetation percent
Variable Name	**NTW_PER**
Description	Percent (to closest 1%) of feature area visibly covered by non-treed woody vegetation type identified in NTW_TY N.B. This differs from tree species percent attributes in that it represents % ground area covered by the relevant vegetation rather than percent contribution to the total crown closure
Permitted Values/Range	0 to 100, <null>
Default value	<null>
Format	Int 3
Rule(s)	If NTW_PER > 0, then NTW_TY cannot be <null> and NTW_HT must be > 0

Attribute	Non-treed woody vegetation height
Variable Name	**NTW_HT**
Description	Average height of non-treed woody vegetation type identified in NTW_TY, in meters, to nearest integer
Permitted Values/Range	0.0 to 9.9
Default value	<null>
Format	Float 1.1
Rule(s)	If NTW_HT > 0, then NTW_TY and NTW_PER cannot be <null>

Attribute	Non-woody vegetation type
Variable Name	**NWOOD_TY**
Description	Non-treed, non-woody vegetation code: HG = Herbaceous grassland HF = Herbaceous forb HS = Herbaceous sedge HA = Herbaceous agriculture HE = Herbaceous undifferentiated FE = Fern MO = Moss LI = Lichen BY = Undifferentiated bryoids
Permitted Values/Range	HG, HF, HS, HA, HE, FE, MO, LI, BY, <null>
Default value	<null>
Format	Char 2
Rule(s)	If NWOOD_TY is not <null>, NWOOD_PER cannot be <null>

Attribute	Non-woody vegetation percent
Variable Name	**NWOOD_PER**
Description	Percent (to closest 1%) of feature area visibly covered by the non-treed non-woody vegetation type identified in NWOOD_TY N.B. This differs from tree species percent attributes in that it represents % ground area covered by the relevant vegetation rather than percent contribution to the total crown closure
Permitted Values/Range	0 to 100, <null>
Default value	<null>

Format	Int 3
Rule(s)	If NWOOD_PER is > 0, NWOOD_TY cannot be <null>

Attribute	White Area upland site type
Variable Name	**WAUL_TY**
Description	Native grassland site type; derived from existing GVI native upland site type calls that cover relevant ABMI polygons. See GVI Specifications (2010) for more information. Intended for native grassland features in the White Area or parkland/transition zones. Native upland site type codes: SB = Subirrigated OV = Overflow CY = Clayey LO = Loamy SY = Sandy LI = Limy SA = Sand BO = Blowouts/Solonetzic CS = Choppy sandhills TB = Thin breaks SG = Shallow to gravel SL = Saline lowland GR = Gravel BD = Badlands/Bedrock
Permitted Values/Range	SB, OV, CY, LO, SY, LI, SA BO, CS, TB, SG, SL, GR, BD, <null>
Default value	<null>
Format	Char 2
Rule(s)	If WAUL_TY is not <null>, then LU1_LEVEL2 and LU2_LEVEL2 = NU (or <null>); INFRA_TY = <null>; STATUS = NU; LC2 = VOU; and MOD*x* <> A*xx* or T*xx*

Attribute	AGRASID 3.0 soil symbol
Variable Name	**SOIL_TY**
Description	Intended for capturing soil information for native grassland polygon features in the White Area or parkland/transition zones where GVI data does not currently exist; a surrogate for GVI Native upland site type codes. The soil symbol can be found in the AGRASID 3.0 Polygon Attribute Table, attribute “MUNAME”, which is provided as ancillary information for plots in the White Area: E.g. ABC1/H1h, SCY2/U1I, LRC2/U1h, ZGW1/FP1, BBN1/I3md These soil symbols are described in more detail in the AGRASID Version 3.0 Soil Landscapes User’s Manual (see ABMI Photo-Plot Interpretation Manual for full reference)
Permitted Values/Range	Unlimited, <null>
Default value	<null>
Format	Char 18
Rule(s)	

Attribute	Modifier 1
Variable Name	**MOD1**
Description	A quality modifying the nature or condition of the feature. Use it to add additional info that cannot be inferred from other attributes. May refer to: • **Disturbance agent** (causing the most significant natural disturbance observable in the feature) DFI = Signs of a burn (if prescribed burning, used the TPB modifier instead) DCL = Clearing, complete removal of natural vegetation for purposes other than timber harvest DWI = Windthrow or broken tops observable in polygon DSN = Signs of significant snow damage observable DIT = Signs of significant vegetative insect attack DDI = Signs of significant vegetative disease outbreak DFL = Signs of flooding damage in an area that is not subject annually to flooding DOT = other (specify in the OBS field) • **Treatment** (an activity or treatment that occurred in a forest feature less than 5 years ago) TCC = Clearcut (>80% by crown area has been cut) TPC = Stand has been harvested in part (<80% by crown area of the previous forest cover remains). TDC = Deforestation TCL = Cleaning, including brushing and weeding. TSP = Juvenile spacing – altering the number of stems in the stand. TPR = Pruning TPT = Pre-commercial thinning (reduction of number of stems to increase spacing). TCT = Commercial thinning (partial cut in older immature stands). TST = Strip shelter (strip cutting, for thinning or harvesting) TFT = Fertilization TMP = Mechanical site preparation TPB = Prescribed burning TOT = Other (specify in the OBS field)

	• **Surface type** (applies especially to roads, but could be used for other cover types [e.g. pits, mines; settled]) SIP = Impervious (Asphalt, Cement [i.e., roofs, paved surface]) SCO = Coal SDT = Dirt SGV =Gravel SSA =Sand (including tar sands) SDD = River, lake, pond sediments SOT = Other (specify in the OBS field) • **Agricultural surface** (an activity or treatment that is visible on a surface used for agriculture) AIR = Irrigation (indicates visible evidence of an irrigation system on the surface; e.g. center pivot, overhead/sprinkler, ditch/furrow, terracing, etc.)\ ASN = Salinity (indicates evidence of soil salinity; e.g. atypical plant growth, salt deposits, seepage, etc.) AGP = Ploughed terrain (indicates visible evidence of ploughing in agricultural areas) • **Open water seasonality** (applies to seasonality of open water features, and NOT to features for which WAWL_TY is identified) WPR = Semi-permanent to permanent open water (exists throughout year for most years) WSN = Seasonal open water (exists for more than three weeks in spring/summer) WTM = Temporary open water (exists only in early spring and during heavy rainstorms) WAK = Alkali (presence of saline crust resulting from precipitation of alkali salts; often bright white in colour) • **Locational Context** LPN = Alpine (all land above the maximum elevation for tree species; treeless, with < 1% tree cover; dominated by shrubs, herbs, lichens, etc., or by rock, snow, and/or ice) RPN = Riparian (all land adjacent to a flowing water feature, such as a river or stream, seasonal or not; is transitional between the aquatic water feature and the surrounding upland area) • **Special Features** FSB = Shelterbelt (to be used where shelterbelts comprise or flank ≥ 10% of the relevant feature's border or length; e.g. around the perimeter of a farmstead or acreage, or along a road)
Permitted Values/Range	DFI, DCL, DWI, DSN, DIT, DDI, DFL, DOT, TCC, TPC,TDC, TCL,TSP,TPR, TPT, TCT, TST, TFT, TMP, TPB, TOT, SIP, SCO, SDT, SGV, SHB, SSA, SDD, SOT, AIR, ASN, WPR, WSN, WTM, WAK, LPN, RPN, FSB, <null>
Default value	<null>
Format	Char 3
Rule(s)	If MOD*x* = A*xx* or T*xx*, then STATUS <> NU, and LU1_LEVEL2 and LU2_LEVEL2 cannot both = NUUD If MOD*x* = A*xx*, then LU1_LEVEL1 or LU2_LEVEL2 = AG If MOD*x* = S*xx*, then NV_PER > 0, and NV_TY cannot be <null>

Attribute	Modifier 1 percentage
Variable Name	**MOD1_PER**
Description	Percent of polygon area, to the closest 10%, to which the quality or condition expressed by MOD1 applies, or in the case of FSB, percent of the perimeter (for polygons) or length (for lines) of the feature that is occupied by shelterbelts
Permitted Values/Range	0-100, <null>
Default value	<null>
Format	Int 3
Rule(s)	If MOD1 is not <null> , then MOD1_PER cannot be <null>

Attribute	Modifier 1 year of origin
Variable Name	**MOD1_YR**
Description	Year of origin for condition/quality listed in MOD1
Permitted Values/Range	1491 (precolumbian) to 9999, <null>
Default value	<null>
Format	Int 4
Rule(s)	If MOD1_YR <> <null>, then MOD1_YR ≤ INT_DATE If MOD1 = TCC, TPC, TDC, TCL, TSP, TPR, TPT, TCT, TFT, TMP, TPB, or TOT, then MOD1_YR ≤ (INT_DATE + 5 yrs)

Attribute	Modifier 2
Variable Name	**MOD2**
Description	*See description for* MOD1
Permitted Values/Range	DFI, DCL, DWI, DSN, DIT, DDI, DFL, DOT, TCC, TPC,TDC, TCL,TSP,TPR, TPT, TCT, TST, TFT, TMP, TPB, TOT, SIP, SCO, SDT, SGV, SHB, SSA, SDD, SFH, SHG, SBR, SSS, SST, SOT, AIR, ASN, WPR, WSN, WTM, WAK, LPN, RPN, FSB, <null>
Default value	<null>
Format	Char 3
Rule(s)	If MOD*x* = A*xx* or T*xx*, then STATUS <> NU, and LU1_LEVEL2 and LU2_LEVEL2 cannot both = NUUD If MOD*x* = A*xx*, then LU1_LEVEL1 or LU2_LEVEL2 = AG If MOD*x* = S*xx*, then NV_PER > 0, and NV_TY cannot be <null>

Attribute	Modifier 2 percentage
Variable Name	**MOD2_PER**
Description	Percent of polygon area, to the closest 10%, to which the quality or condition expressed by MOD2 applies
Permitted Values/Range	0-100, <null>
Default value	<null>
Format	Int 3
Rule(s)	If MOD2 is not <null> , then MOD2_PER cannot be <null>

Attribute	Modifier 2 year of origin
Variable Name	**MOD2_YR**
Description	Year of origin for condition/quality listed in MOD2
Permitted Values/Range	1491 (precolumbian) to 9999, <null>
Default value	<null>
Format	Int 4
Rule(s)	If MOD2_YR <> <null>, then MOD2_YR ≤ INT_DATE If MOD2 = TCC, TPC, TDC, TCL, TSP, TPR, TPT, TCT, TFT, TMP, TPB, or TOT, then MOD2_YR ≤ (INT_DATE + 5 yrs)

Attribute	Modifier 3
Variable Name	**MOD3**
Description	*See description for* MOD1
Permitted Values/Range	DFI, DCL, DWI, DSN, DIT, DDI, DFL, DOT, TCC, TPC,TDC, TCL,TSP,TPR, TPT, TCT, TST, TFT, TMP, TPB, TOT, SIP, SCO, SDT, SGV, SHB, SSA, SDD, SFH, SHG, SBR, SSS, SST, SOT, AIR, ASN, WPR, WSN, WTM, WAK, LPN, RPN, FSB, <null>
Default value	<null>
Format	Char 3
Rule(s)	If MOD*x* = A*xx* or T*xx*, then STATUS <> NU, and LU1_LEVEL2 and LU2_LEVEL2 cannot both = NUUD If MOD*x* = A*xx*, then LU1_LEVEL1 or LU2_LEVEL2 = AG If MOD*x* = S*xx*, then NV_PER > 0, and NV_TY cannot be <null>

Attribute	Modifier 3 percentage
Variable Name	**MOD3_PER**
Description	Percent of polygon area, to the closest 10%, to which the quality or condition expressed by MOD3 applies N.B. This differs from tree species percent attributes in that it represents % ground area covered by the attribute rather than % crown closure
Permitted Values/Range	0-100, <null>
Default value	<null>
Format	Int 3
Rule(s)	If MOD3 is not <null> , then MOD3_PER cannot be <null>

Attribute	Modifier 3 year of origin
Variable Name	**MOD3_YR**
Description	Year of origin for condition/quality listed in MOD3
Permitted Values/Range	1491 (precolumbian) to 9999, <null>
Default value	<null>
Format	Int 4
Rule(s)	If MOD3_YR <> <null>, then MOD3_YR ≤ INT_DATE If MOD3 = TCC, TPC, TDC, TCL, TSP, TPR, TPT, TCT, TFT, TMP, TPB, or TOT, then MOD3_YR ≤ (INT_DATE + 5 yrs)

Attribute	ABMI_wetland type
Variable Name	**WTLD_TY**
Description	The ABMI 4-letter code best describing the feature; based on the Alberta Wetland Inventory, incorporating elements from the Grassland Vegetation Inventory (for more detail, see the ABMI Interpretation Manual): BOXC = Bog, Open, permafrost, collapse scar BOXN = Bog, Open, permafrost, no internal lawns BTXC = Bog, Wooded, permafrost, collapse scar BFXC = Bog, Forested, permafrost, collapse scar BTXN = Bog, Wooded, permafrost, no internal lawns BFXN = Bog, Forested, permafrost, no internal lawns BTNN = Bog, Wooded, permafrost or patterning, no internal lawns BTNR = Bog, Wooded, permafrost or patterning, internal islands of forested peat plateau BTNI = Bog, Wooded, permafrost or patterning, internal lawns FOPN = Fen, Open, patterning, no internal lawns FTPN = Fen, Wooded, patterning, no internal lawns FONS = Fen, Open, permafrost or patterning, shrub cover FONG = Fen, Open, permafrost or patterning, graminoid cover FTNN = Fen, Wooded, permafrost or patterning, no internal lawns FTNR = Fen, Wooded, permafrost or patterning, internal islands of forested peat plateau FTNI = Fen, Wooded, permafrost or patterning, internal lawns MONG = Marsh, Open, permafrost or patterning, graminoid cover MOTG* = Marsh, Open, temporary, graminoid cover MOSG* = Marsh, Open, seasonal, graminoid cover MOQG* = Marsh, Open, semi-permanent to permanent, graminoid cover MOAG* = Marsh, Open, alkali, graminoid cover MOAX* = Marsh, Open, alkali, non-vegetated SFNN = Forested, permafrost or patterning, no internal lawns STNN = Wooded, permafrost or patterning, no internal lawns SONS = Open, permafrost or patterning, shrub cover SOTS* = Swamp, Open, temporary, shrub cover SOSS* = Swamp, Open, seasonal, shrub cover SOQS* = Swamp, Open, semi-permanent to permanent, shrub cover *These codes are intended exclusively for Alberta's White Area wetlands
Permitted Values/Range	BOXC, BOXN, BTXC, BFXC, BFXN, BTNN, BTNR, BTNI, FOPN, FTPN, FONS, FONG, FTNN, FRNR, FTNI, MONG, MOTG, MOSG, MOQC, MOAG, MOAX, SFNN, STNN, SONS, SOTS, SOSS, or SOQS
Default value	<null>
Format	Char 4
Rule(s)	If WTLD_TY = xxTx, xxSx, xxQx, or xxAx then MODx <> WPR, WSN, WTM, or WAK If WTLD_TY = xTxx, then DENSITY or UDENSITY must be A, B, or C If WTLD_TY = xFxx, then DENSITY or UDENSITY must be A, B, or C If WTLD_TY = xOxx, then DENSITY and UDENSITY must be Z or <nul> If WTLD_TY = xxxS, then NTW_TY cannot be <null>, and NTW_PER ≥ 25%

	If WTLD_TY = xxxG, then NWOOD_TY cannot be <null>, NWOOD_PER ≥ 6%, and NTW_PER < 25% If WTLD_TY = xxxX, then DENSITY and UDENSITY = Z or <null>, NTW_PER < 10%, and NWOOD_PER < 10%

Attribute	Nutrient regime
Variable Name	**NUTR_REG**
Description	Nutrient regime of a wetland feature: O = Oligotrophic (bogs) M = Mesotrophic (fens, swamps) E = Eutrophic (marshes, saline wetlands)
Permitted Values/Range	O, M, E, <null>
Default value	<null>
Format	Char 1
Rule(s)	This will be filled by an automated script.

Attribute	Hydrodynamic regime
Variable Name	**HYDR_REG**
Description	Hydrodynamic (water flow) regime of a Green Area wetland feature: STA = Stagnant (stable, non-flowing areas with no vertical hydro-period change: bogs) SLO = Slow moving (gradual flow through with minor vertical hydro-period change: fens) MOV = Moving (vertical hydroperiod change common, lateral water movement: swamps) DYN = Dynamic (Strong vertical/ lateral water movement: marshes) VDN = Very dynamic (high water displacement areas: open water)
Permitted Values/Range	STA, SLO, MOV, DYN, VDN, <null>
Default value	<null>
Format	Char 3
Rule(s)	This will be filled by an automated script.

Attribute	Landuse 1, level 1
Variable Name	**LU1_LEVEL1**
Description	Level 1 class of main land use identified at feature: NB. The value of this attribute is automatically derived from LU1_LEVEL2 AG = Agriculture FI = Fishing FO = Forestry IN = Industrial MI = Mining/Oil & Gas PL = Protected and limited use RC = Recreation RS = Residential SE = Services TR = Transportation, transmission and storage NU = No land use
Permitted Values/Range	AG, FI, FO, IN, MI, PL, RC, RS, SE, TR, NU
Default value	NU

Format	Char 2
Rule(s)	Must have value If INFRA_CL = AG, then LU1_LEVEL1 or LU2_LEVEL2 = AG If INFRA_CL = TR, then LU1_LEVEL1 or LU2_LEVEL2 = TR

Attribute	Landuse 1, level 2
Variable Name	**LU1_LEVEL2**
Description	Level 2 class of main land use identified at feature. See Appendices A and B for more detail. AGCA = Annual crops AGCP = Perennial non-forage crops AGCF = Perennial forage crops AGLV = Livestock and animal husbandry AGST = Agricultural storage (grains/crops, animal byproducts, machinery) FOHA = Forest harvesting INMA = Manufacturing industry INGE = Generation (of electricity) industry INDT = Disposing and treatment MIOG = Oil and gas extraction MIOP = Surface mining MIPE = Peat extraction NUUD = Undeveloped PLNP = National park PLPP = Provincial park PLHS = Historic site PLWS = Wildlife Sanctuary PLFN = Reserve RCOP = Passive outdoor recreation RCOA = Active outdoor recreation RSFD= Detached family houses RSFA = Attached family houses RSAB = Apartment buildings SEAC = Accommodation SESM = Commercial SEOF = Business SEHE = Health SEED = Education SERE = Religious SEPR = Protection SETR = Transportation SEDT = Waste disposal and treatment TRGP = Transportation of goods, people and equipment TREL = Transmission of electricity TRFL = Transmission of fluids (except water) TRIN = Transmission of information (antennae) TRST = Storage (non-agricultural) TRWT = Transportation, transmission, and storage of water
Permitted Values/Range	AGCA, AGCP, AGLV, AGST, FOHA, INMA, INGE, INDT, MIOG, MIOP, MIPE, NUUD, PLNP, PLPP, PLHS, PLWS, PLFN, RCOP, RCOA, RSFD, RSFA, RSAB, SEAC, SESM, SEOF, SEHE, SEED, SERE, SEPR, SETR, SEDT, TRGP, TREL, TRFL, TRIN, TRST, TRWT
Default value	NUUD

Format	Char 4
Rule(s)	Must have value If LU1_LEVEL1 = AG, then LU1_LEVEL2 = AGCA, AGCP, AGCF, AGLV or AGST If LU1_LEVEL1 = FO, then LU1_LEVEL2 = FOHA If LU1_LEVEL1 = IN, then LU1_LEVEL2 = INMA, INGE, or INDT If LU1_LEVEL1 = MI, then LU1_LEVEL2 = MIOG, MIOP, or MIPE If LU1_LEVEL1 = NU, then LU1_LEVEL2 = NUUD If LU1_LEVEL1 = PL, then LU1_LEVEL2 = PLNP, PLPP, PLHS, or PLFN If LU1_LEVEL1 = RC, then LU1_LEVEL2 = RCOP, or RCOA If LU1_LEVEL1 = RS, then LU1_LEVEL2 =, RSFD, RSFA, or RSAB If LU1_LEVEL1 = SE, then LU1_LEVEL2 = SEAC, SESM, SEOF, SEHE, SEED, SERE, SEPR, SEDT, or SETR If LU1_LEVEL1 = TR, then LU1_LEVEL2 = TRGP, TREL, TRFL, TRIN, TRWT, or TRST If LU1_LEVEL2 and LU2_LEVEL2 = NU, then STATUS = NU; INFRA_TY = <null>

Attribute	Landuse 2, level 1
Variable Name	**LU2_LEVEL1**
Description	*See description for* LU1_LEVEL1
Permitted Values/Range	AG, FI, FO, IN, MI, PL, RC, RS, SE, TR, NU
Default value	NU
Format	Char 2
Rule(s)	If INFRA_CL = AG, then LU1_LEVEL1 or LU2_LEVEL2 = AG If INFRA_CL = TR, then LU1_LEVEL1 or LU2_LEVEL2 = TR

Attribute	Landuse 2, level 2
Variable Name	**LU2_LEVEL2**
Description	*See description for* LU1_LEVEL2
Permitted Values/Range	AGCA, AGCP, AGLV, AGST, FOHA, INMA, INGE, INDT, MIOG, MIOP, MIPE, NUUD, PLNP, PLPP, PLHS, PLWS, PLFN, RCOP, RCOA, RSFD, RSFA, RSAB, SEAC, SESM, SEOF, SEHE, SEED, SERE, SEPR, SETR, SEDT, TRGP, TREL, TRFL, TRIN, TRST, TRWT
Default value	NUUD
Format	Char 4
Rule(s)	*See description for* LU1_LEVEL2

Attribute	Infrastructure class
Variable Name	**INFRA_CL**
Description	Broad infrastructure class to which feature belongs: NB. The value of this attribute is automatically derived from INFRA_TY TR = Transportation AG = Agriculture BU = Buildings UB = Urban Facilities MI = Mining and Industrial AQ = Aquatic CI = Compound Infrastructure (clusters of individual infrastructures functionally related)
Permitted Values/Range	TR, AG, BU, UB, MI, QA, CI, <null>
Default value	<null>
Format	Char 2
Rule(s)	If INFRA_CL = AG, then LU1_LEVEL1 or LU2_LEVEL2 = AG If INFRA_CL = TR, then LU1_LEVEL1 or LU2_LEVEL2 = TR

Attribute	Infrastructure type
Variable Name	**INFRA_TY**
Description	Infrastructure type to which the feature belongs. See Appendices A and B for more detail. TRRL = Railway TRRD = Road TRRT = Twinned/Divided Road TRPL = Pipeline TRPW = Powerline/transmission line TRCU = Cutline TRTR = Trail TRAR = Airport run, airfield strip MIWM = Windmill MIWL = Wellhead MICH = Chimney/flares MILF = Landfill MITL = Tailings pile MIRS = Rubbly mine spoils MIPT = Pit (gravel, borrow) MIYD = Yard or landing MIOT = Other mining/industry AGFL = Feedlot AGNU = Nursery AGSI = Silo UBPL = Parking lot UBGS = Green space UBSP = Outdoor sport area UBCE = Cemetery BUIP = Industrial plant/mill BUAN = Building for animals BUPL = Building for plants BUST = Storehouse BURS = Residential building BUOF = Office building BUSP = Indoor sport facility

	BUCO = Commercial building BUFA = Agricultural facility or building BUTW = Tower BUTK = Tank BUOT = Other types of buildings BUUK = Unknown building or infrastructure AQDA = Dam AQWE = Weir AQCL = Canal AQCU = Culvert AQBR = Bridge, aqueduct AQSW = Sewage lagoon AQTP = Tailings pond AQDG = Dugout AQWT = Water tank AQQU = Water-filled quarry AQDI = Ditch AQSP = Spillway AQWC = Water-control device AQDK = Dock AQRE = Reservoir AQOT = Other aquatic infrastructure CIAC = Acreage CIFM = Farmstead CIRS = Other residential (including villages, hamlets, ribbon developments, suburbs of adjacent acreages, and residential areas within towns and cities) CIIN = Industrial compounds or facilities (including oil and gas facilities, surface mining compounds, etc.) CIWL = Compound operating wellsite feature (generally includes multiple wellheads, buildings, tanks, etc.) CICM = Commercial (including malls, commercial parks, etc., which have little to no residential component to them)\ CIOT = Other compound infrastructures
Permitted Values/Range	TRRL , TRRD, TRRT, TRPL, TRPW, TRCU, TRTR, TRAR, MIWM, MIWL, MICH, MILF, MITL, MIRS, MIPT, MIYD, MIOT, AGFL, AGNU, AGSI, UBPL, UBGS, UBSP, UBCE, BUIP, BUAN, BUPL, BUST, BURS, BUOF, BUSP, BUFA, BUTW, BUTK, BUCO, BUOT, BUUK, AQDA, AQWE, AQCL, AQCU, AQBR, AQSW, AQTP, AQDG, AQWT, AQQU, AQDI, AQSP, AQWC, AQDK, AQRE, AQOT, CIAC, CIFM, CIRS, CIIN, CIWL, CICM, CIOT, <null>
Default value	<null>
Format	Char 4
Rule(s)	If INFRA_TY <> <null>, then LU1_LEVEL2 and LU2_LEVEL2 cannot = NUUD, STATUS cannot = NU, and WAUL_TY must be <null>

Attribute	Landcover class level 1
Variable Name	**LC1**
Description	Broad landcover class to which the feature belongs: VGT = Vegetated treed VGO = Vegetated non-treed NVG = Non-Vegetated
Permitted Values/Range	VGT, VGO, NVG, <null>
Default value	<null>
Format	Char 3
Rule(s)	Must have value; Automatically filled by script based on LC2 or LC3

Attribute	Landcover class level 2
Variable Name	**LC2**
Description	Level 2 landcover class to which the feature belongs: VTU = Vegetated treed upland VTW = Vegetated treed wetland VOU = Vegetated non-treed upland VOW = Vegetated non-treed wetland NOW = Open water (non-vegetated) NSI = Snow/ice (non-vegetated) NRO = Rock/rubble (non-vegetated) NEL = Exposed land (non-vegetated) NAS = Artificial surface (non-vegetated)
Permitted Values/Range	VTU, VTW, VUO, VUW, NOW, NSI, NRO, NEL, NAS, <null>
Default value	<null>
Format	Char 3
Rule(s)	Must have value; Automatically filled by script based on LC2 or LC3

Attribute	Landcover class level 3
Variable Name	**LC3**

Description	Level 3 landcover class to which the feature belongs. See Appendices A and B for more detail. TUFC = Forest conifer TUFD = Forest deciduous TUFM = Forest mixed BOXC = Bog, Open, permafrost, collapse scar BOXN = Bog, Open, permafrost, no internal lawns BTXC = Bog, Wooded, permafrost, collapse scar BFXC = Bog, Forested, permafrost, collapse scar BTXN = Bog, Wooded, permafrost, no internal lawns BFXN = Bog, Forested, permafrost, no internal lawns BTNN = Bog, Wooded, permafrost or patterning, no internal lawns BTNR = Bog, Wooded, permafrost or patterning, internal islands of forested peat plateau BTNI = Bog, Wooded, permafrost or patterning, internal lawns FOPN = Fen, Open, patterning, no internal lawns FTPN = Fen, Wooded, patterning, no internal lawns FONS = Fen, Open, permafrost or patterning, shrub cover FONG = Fen, Open, permafrost or patterning, graminoid cover FTNN = Fen, Wooded, permafrost or patterning, no internal lawns FTNR = Fen, Wooded, permafrost or patterning, internal islands of forested peat plateau FTNI = Fen, Wooded, permafrost or patterning, internal lawns MONG = Marsh, Open, permafrost or patterning, graminoid cover MOTG = Marsh, Open, temporary, graminoid cover MOSG = Marsh, Open, seasonal, graminoid cover MOQG = Marsh, Open, semi-permanent to permanent, graminoid cover MOAG = Marsh, Open, alkali, graminoid cover MOAX = Marsh, Open, alkali, non-vegetated SFNN = Swamp, Forested, permafrost or patterning, no internal lawns STNN = Swap, Wooded, permafrost or patterning, no internal lawns SONS = Swamp, Open, permafrost or patterning, shrub cover SOTS = Swamp, Open, temporary, shrub cover SOSS = Swamp, Open, seasonal, shrub cover SOQS = Swamp, Open, semi-permanent to permanent, shrub cover OUST = Tall shrub OUSS = Short shrub OUHG = Herbaceous grassland OUHF = Herbacesous forbs (non-wetland) OUBR = Bryophyte (moss, non-wetland) OWWL = Lake OWWS = Salt water OWWR = River OWWA = Reservoir OWWW = Shallow open water OWWT = Stream SISC = Snow cover SIGL = Glacier ROBR = Bedrock RORT = Rubble, talus, blockfield ROMO = Moraine ELBU = Burned area

	ELRS = River sediments ELLS = Pond or lake sediments ELCC = Clearcut (fresh) ELRM = Reservoir margin ELMU = Mudflat sediment ELES = Exposed soil or substratum ELON = Other non-vegetated, undeveloped ASAS = artificial surface/material (including mixed surfaces, e.g. suburbia)

Permitted Values/Range	TUFC, TUFD, TUFM, BOXC, BOXN, BTXC, BFXC, BTXN, BFXN, BTNN BTNR, BTNI, FOPN, FTPN, FONS, FONG, FTNN, FTNR, FTNI, MONG, MOTG, MOSG, MOQG, MOAG, MOAX, SFNN, STNN, SONS, SOTS, SOSS, SOQS, OUST, OUSS, OUHG, OUHF, OUBR, OWWL, OWWS, OWWR, OWWA, OWWW, OWWT, SISC, SIGL, ROBR, RORT, ROMO, ELBU, ELRS, ELLS, ELCC, ELRM, ELMU, ELES, ELON, ASAS, <null>
Default value	<null>
Format	Char 3
Rule(s)	Must have value *See Table 1 in Appendix A for rules on the LC3 attribute*

Attribute	ABMI photo-plot identifier
Variable Name	**ABMI_SITE**
Description	The unique ABMI photo-plot identification number that refers to the photo-plot in which the feature(s) occurs
Permitted Values/Range	1 to 1656
Default value	Generated automatically in the FGDB
Format	Int 4
Rule(s)	Must have value Unique to each ABMI site/photo-plot *i*

Attribute	Feature identifier (**index**) (**ABMI_POLYGON**)
Variable Name	**POLYGON_ID**
Description	The unique number used to identify a feature within the ABMI FGDB. Used as key field to index related tables and attributes. First four digits represent the ABMI photo-plot in which the feature is found (range: 0001 to 1656), second four digits represent the feature number (range: 0001 to 9999)
Permitted Values/Range	10001 to 16569999
Default value	Generated from ABMI_SITE and OBJECTID
Format	Int 8
Rule(s)	Must have value Unique for each polygon feature in a given ABMI site *i* Filled by script; filled only once (not overwritten if already exists)

Attribute	Shape of feature
Variable Name	**Shape**
Description	Geometrical feature shape
Permitted Values/Range	Polygon, line, multi-point
Default value	<null>
Format	Geometry
Rule(s)	Must be “polygon” for features in ABMI_POLYGON; must be “line” for features in ABMI_LINE; must be “multi-point” for features in ABMI_POINT

Attribute	Gross* area covered by the polygon (**ABMI_POLYGON, ABMI_PPLOT**)
Variable Name	**Shape_Area**

Description	Area of the feature, in square meters.
Permitted Values/Range	5000.00 to 23040000.00
Default value	0.00
Format	Float 10.2
Rule(s)	Sum of AREA of all polygons within an ABMI photo-plot must equal 2304 ha (working frame is 7.2 x 3.2 km) * Includes, in the case where the polygon contains multi-points or is traversed by lines, the area of the latter, which has to be subsequent-ly subtracted.

Attribute	Net area of the reported cover type in the polygon **(ABMI_POLYGON)**
Variable Name	**AREA_NET**
Description	Area (sq m) of a polygon excluding area from any ABMI_POINT or ABMI_LINE features that intersect the polygon. This is a calculated field populated through post interpretation script.
Permitted Values/Range	2500.00 to 20800000.00
Default value	0.00
Format	Float 10.2
Rule(s)	Computed by script. AREA_NET is the Shape_Area minus PT_AREA minus the total area of lines intersecting the polygon.

Attribute	Feature perimeter (**ABMI_POLYGON, ABMI_PPLOT**) or length (**ABMI_LINE**)
Variable Name	**Shape_Length**
Description	Total length of outlines representing the feature, in meters.
Permitted Values/Range	50.00 to 900000.0 (**ABMI_LINE**)
Default value	compiled from the shape geometry
Format	Float 10.2
Rule(s)	

Attribute	Number of multi-point features (**ABMI_POLYGON**)
Variable Name	**MPT_CNT**
Description	For complex polygons, number of additional covers types (different than the one assigned to it) that exist within the polygon
Permitted Values/Range	0,1,2,3
Default value	Generated through script
Format	Int 1
Rule(s)/observations	

Attribute	Percent area of the reported cover type in the polygon (**ABMI_POLYGON**)
Variable Name	**PER_POLY**
Description	Percent area represented by polygon excluding any associated point features. This is a calculated field populated through post interpreta-tion script.
Permitted Values/Range	0 to 100
Default value	100
Format	Int 3

Rule(s)	Must have value

Attribute	Feature identifier (**index**) (**ABMI_LINE**)
Variable Name	**ARC_ID**
Description	The unique number used to identify a line feature within the ABMI FGDB. Used as key field to index related tables and attributes. First four digits represent the ABMI photo-plot in which the feature is found (range: 0001 to 1656), second four digits represent the feature number (range: 0001 to 9999)
Permitted Values/Range	10001 to 16569999
Default value	Generated from ABMI Plot number and OBJECTID
Format	Int 8
Rule(s)	Must have value Unique for each feature in a given ABMI site *i* Filled by script; filled only once (not overwritten if already exists)

Attribute	Area represented by a linear feature (**ABMI_LINE**)
Variable Name	**ARC_AREA**
Description	Area (square meters) of a feature covered by the type represented an ABMI_LINE feature (LENGTH * WIDTH)
Permitted Values/Range	0 to 10400000.00
Default value	0.00
Format	Float 10.2
Rule(s)	Must have value

Attribute	Feature identifier (**index**) (**ABMI_POINT**)
Variable Name	**POINT_ID**
Description	The unique number used to identify a feature within the ABMI FGDB. Used as key field to index related tables and attributes. First four digits represent the ABMI photo-plot in which the feature is found (range: 0001 to 1656), second four digits represent the feature number (range: 0001 to 9999)
Permitted Values/Range	10001 to 16569999
Default value	Generated from ABMI Plot number and OBJECTID
Format	Int 8
Rule(s)	Must have value Unique for each feature in a given ABMI site *i* Filled by script; filled only once (not overwritten if already exists)

Attribute	Polygon in which a multi-point feature is located (**ABMI_POINT**)
Variable Name	**POLY_NUM**
Description	The POLYGON_ID of the polygon in which a given multi-point feature is located. This enables a relation between point features and their associated polygons.
Permitted Values/Range	10001 to 16569999
Default value	Generated through script through overlay with ABMI_POLYGON
Format	Int 8
Rule(s)	Must have value

Attribute	Number of individual points (**ABMI_POINT**)
Variable Name	**PT_CNT**
Description	Number of individual occurrences in a polygon of the cover type represented by a multi-point feature
Permitted Values/Range	1 to 999, 0 (before editing)
Default value	0
Format	Int 3
Rule(s)	Must have value

Attribute	Area represented by a point feature (**ABMI_POINT**)
Variable Name	**PT_AREA**
Description	area (sq m) of a polygon covered by the type represented an ABMI_POINT feature
Permitted Values/Range	0-10400000.00
Default value	0.00
Format	Float 10.2
Rule(s)	Must have value Computed by script PT_AREA = MPT_NPT*AVG_AREA *A new attribute will be created after interpretation for polygons, AREA_NET, that would return the net area of the polygon covered by the main cover type reported for the polygon, and that will be computed automatically as function of the multi-points and multipart lines present in the polygon

Attribute	Mean area represented by a single point (**ABMI_POINT**)
Variable Name	**AVG_AREA**
Description	estimated area (in sq m) of the mean size of the individual patches (each represented by a point) of the cover type represented by the multi-point feature in a polygon
Permitted Values/Range	5 to 9,999,999, 0 (before editing)
Default value	0
Format	Int 7
Rule(s)/observations	Must have value Computed by script based on AVG_WIDTH

Attribute	UTM easting centre coordinate (m) (**ABMI_PPLOT**)
Variable Name	**UTM_E**
Description	The Universal Transverse Mercator (UTM) easting describing the centre point location of the ABMI photo-plot of interest on the national grid, reported to nearest meter.
Permitted Values/Range	To be computed
Default value	Automatically generated, unique to each ABMI photo-plot
Format	Int 7
Rule(s)	Must have value

Attribute	UTM northing centre coordinate (m) (**ABMI_PPLOT**)
Variable Name	**UTM_N**
Description	The Universal Transverse Mercator (UTM) northing describing the centre point location of the ABMI photo-plot of interest on the national grid, reported to nearest meter.
Permitted Values/Range	To be computed
Default value	Automatically generated, unique to each ABMI photo-plot
Format	Int 7
Rule(s)	Must have value

Attribute	UTM zone centre coordinate (**ABMI_PPLOT**)
Variable Name	**UTM_ZONE**
Description	The Universal Transverse Mercator (UTM) zone in which the ABMI photo-plot centre point is located.
Permitted Values/Range	11, 12
Default value	Automatically generated, unique to each ABMI photo-plot
Format	Int 2
Rule(s)	Must have value

Attribute	Natural Subregion (**ABMI_PPLOT**)
Variable Name	**NAT_SREG**
Description	The Natural Subregion of Alberta in which all or the majority of the ABMI photo-plot falls (i.e. the Natural Subregion comprising the largest portion of the photo-plot in cases where the plot falls on multiple Subregions).
Permitted Values/Range	Alpine, Athabasca Plain, Boreal Subarctic, Central Mixedwood, Central Parkland, Dry Mixedgrass, Dry Mixedwood, Foothills Fescue, Foothills Parkland, Kazan Uplands, Lower Boreal Highlands, Lower Foothills, Mixedgrass, Montane, Northern Fescue, Northern Mixedwood, Peace River Parkland, Peace-Athabasca Delta, Subalpine, Upper Boreal Highlands, Upper Foothills
Default value	<null>
Format	Char 30
Rule(s)	Must have value

Attribute	Sensor name (**ABMI_PPLOT**)
Variable Name	**SENS_NAME**
Description	Name/type of sensor or camera used to acquire imagery used in the interpretation.
Permitted Values/Range	Unique to sensor
Default value	<null>
Format	Char 80
Rule(s)	Must have value

Attribute	Sensor bands (**ABMI_PPLOT**)
Variable Name	**SENS_BANDS**
Description	Type of film or spectral band specifications of the camera or sensor used to capture the imagery used in interpretation.
Permitted Values/Range	Unique to bands
Default value	<null>
Format	Char 80
Rule(s)	Must have value

Attribute	Image date (**ABMI_PPLOT**)
Variable Name	**IMG_DATE**
Description	Date of imagery acquisition
Permitted Values/Range	1491-01-01 to 9999-99-99
Default value	<null>
Format	Date 8
Rule(s)	Must have value

Attribute	Image scale (**ABMI_PPLOT**)
Variable Name	**IMG_SCALE**
Description	Scale of the imagery acquired for interpretation; denominator *x* in a 1:*x* of image scale (e.g. IMG_scale = 30000 for 1:30,000 scale image/air photo); OR pixel size of an ortho-image, in meters
Permitted Values/Range	00000000 to 99999999
Default value	<null>
Format	Char 8
Rule(s)	Must have value

Attribute	Image RMS error (**ABMI_PPLOT**)
Variable Name	**IMG_RMSE**
Description	Root mean square error of the ground control points used in ortho-rectification of the imagery in meters (indicates spatial accuracy)
Permitted Values/Range	0000.00 to 9999.99
Default value	<null>
Format	Float 4.2
Rule(s)	Must have value

Attribute	Imaging company (**ABMI_PPLOT**)
Variable Name	**IMG_CO**
Description	Name of the company that acquired the imagery for interpretation.
Permitted Values/Range	Unique to company
Default value	<null>
Format	Char 30
Rule(s)	Must have value

Attribute	Interpreter name (**ABMI_PPLOT**)
Variable Name	**INT_NAME**
Description	Name of individual who performed the interpretation of the ABMI photo-plot of interest.
Permitted Values/Range	Unique to interpreter
Default value	Char 30
Format	<null>
Rule(s)	Must have value

Attribute	Interpretation date (**ABMI_PPLOT**)
Variable Name	**INT_DATE**
Description	Date of completion of interpretation (before QC)
Permitted Values/Range	2009-01-01 to 9999-99-99
Default value	<null>
Format	Date 8
Rule(s)	Must have value

Attribute	Green or White Area type (**ABMI_PPLOT**)
Variable Name	**GWAREA_TY**
Description	Indicates the location of the photo-plot within Alberta's Green (GA) or White Area (WA), or its location in a transitional area between the two. A value of TR indicates the latter.
Permitted Values/Range	GA, WA, TR
Default value	<null>
Format	Char 2
Rule(s)	Must have value

Attribute	Mapping protocol version (**ABMI_PPLOT**)
Variable Name	**VERSION**
Description	The mapping protocol version to which the current plot was interpreted. Can also reflect situation where different versions of the manuals were used (e.g. different numbers for the Interpretation Manual and the QC Manual). Use "IM" to indicate just the Interpretation Manual, "DM" to indicate the Data Model document, and "QC" to indicate the QC Manual. E.g., if the Interpretation Manual and Data Model document were versions 2.4.0, but the QC manual was version 2.4.1 one could enter "IMDM2.4.0QC2.4.1" into this attribute
Permitted Values/Range	n/a
Default value	<null>

Format	Char 22
Rule(s)	Must have value

Attribute	Quality control name (**ABMI_PPLOT**)
Variable Name	**QC_NAME**
Description	Name of individual responsible for the quality control of the ABMI photo-plot of interest
Permitted Values/Range	Unique to individual
Default value	<null>
Format	Char 30
Rule(s)	Must have value

Attribute	Quality control company/affiliation (**ABMI_PPLOT**)
Variable Name	**QC_CO**
Description	Affiliation or company of the individual responsible for quality control
Permitted Values/Range	Unique to individual
Default value	<null>
Format	Char 30
Rule(s)	Must have value

Attribute	Quality control date (**ABMI_PPLOT**)
Variable Name	**QC_DATE**
Description	Date of completion of quality control
Permitted Values/Range	2009-01-01 to 9999-99-99
Default value	<null>
Format	Date 8
Rule(s)	Must have value

Attribute	Photo plot subtype (**ABMI_PPLOT**)
Variable Name	**SUBTYPE**
Description	Subtype of feature in ABMI_PPLOT feature class, used to differentiate between the 3 x 7 km ABMI photo-plot boundary (”CORE” = 1) and the 100 meter buffered 3.1 x 7.1 km photo-plot boundary (”BUFFER” = 2)
Permitted Values/Range	1,2
Default value	1
Format	Int 2
Rule(s)	Must have value

4 PHOTO-PLOT METADATA

NB1. One record per photo-plot
NB2. These are attributes of the ABMI_PPLOT feature class

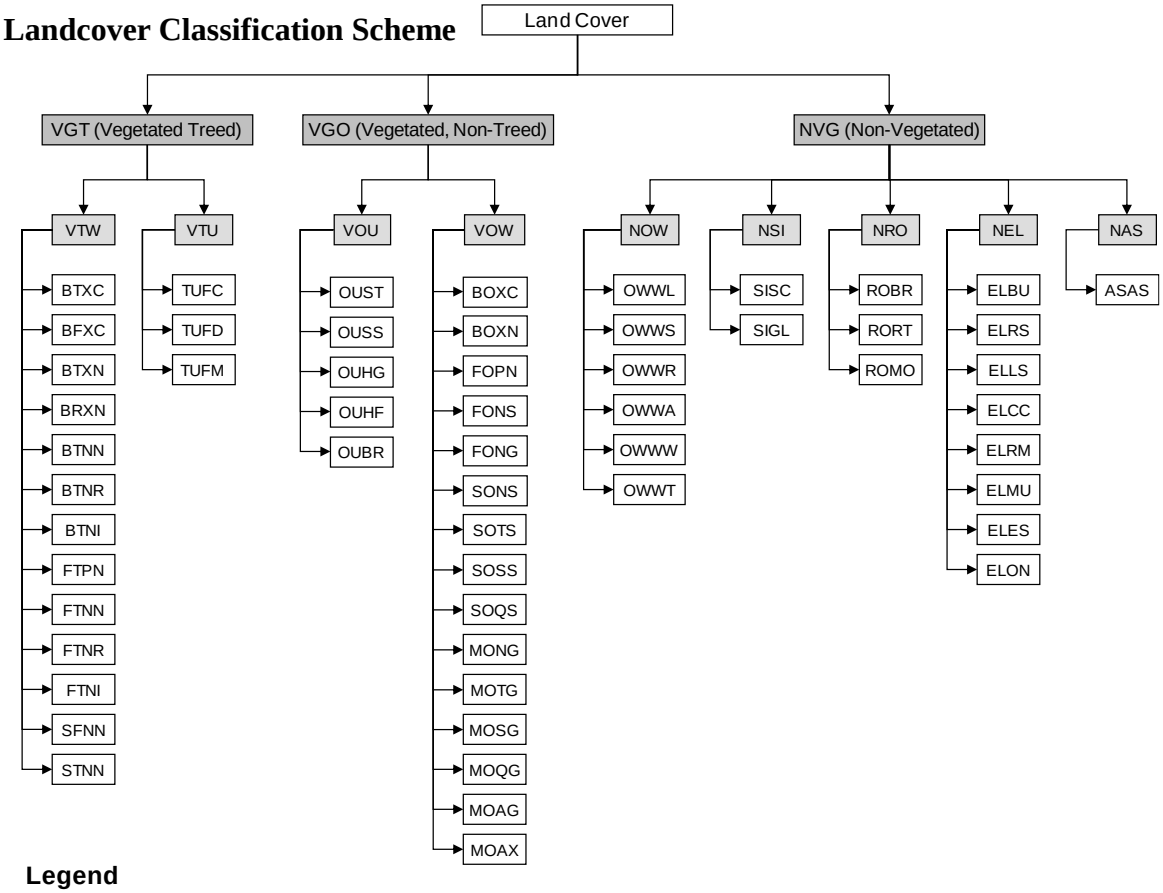
CODE	ATTRIBUTE	Format
ABMI_SITE	ABMI site identifier	Int 4
UTM_E	UTM easting	Int 7
UTM_N	UTM northing coordinate (m) of photo-plot centre	Int 7
UTM_ZONE	UTM zone in which the majority of the photo-plot is located	Int 2
NAT_SREG	Natural Subregion in which the majority of the photo-plot falls	Char 22
SENS_NAME	Name of sensor or camera	Char 80
SENS_BANDS	Type of film or spectral specs of the camera/sensor	Char 80
IMG_DATE	Date of acquisition of the imagery	YYYYMMDD
IMG_SCALE	Scale or pixel size (m) of the ortho-image(s)	Char 8
IMG_RMSE	RMSE of ground control points used in the ortho-rectification	Float 4.2
IMG_CO	Name of the company that acquired the image(s)	Char 22
INT_NAME	Name of the person who interpreted this photo-plot	Char 22
INT_CO	Interpreter's affiliation	Char 30
INT_DATE	Date of completion of the interpretation	YYYYMMDD
GWAREA_TY	Area of province where photo-plot is located – Green Area, White Area, or transitional between the two	Char 2
VERSION	Mapping protocol version to which interpretation was done	Char 22
QC_NAME	Person in charge of the Quality Control of this photo-plot	Char 22
QC_CO	QC company responsible's affiliation	Char 22
QC_DATE	Date of completion of theQC	YYYYMMDD
SUBTYPE	Subtype identifying the core and buffer boundary polygons	Int 2

5 GROUND TRUTH DATA AND METADATA

Due to financial constraints, no field work related to validation of the photo-plot data is foreseen within the scope of the ABMI photo-plots. However, when re-measurement data from the NFI plots become available, they could be incorporated into the ABMI geodatabase using this (to be implemented) ABMI_RSFIELD feature class.

APPENDIX A: ABMI PHOTO-PLOT CLASSIFICATION SCHEMES

Landcover Classification Scheme



Legend

VGT = Vegetated Treed

VTU = Vegetated Treed Upland
- TUFC = Forest conifer
- TUFD = Forest broadleaf
- TUFM = Forest mixed

VTW = Vegetated Treed Wetland
- BTXC = Bog, Wooded, permafrost, collapse scar
- BFXC = Bog, Forested, permafrost, collapse scar
- BTXN = Bog, Wooded, permafrost, no internal lawns
- BFXN = Bog, Forested, permafrost, no internal lawns
- BTNN = Bog, Wooded, permafrost or patterning, no internal lawns
- BTNR = Bog, Wooded, permafrost or patterning, internal islands of forested peat plateau
- BTNI = Bog, Wooded, permafrost or patterning, internal lawns
- FTPN = Fen, Wooded, patterning, no internal lawns
- FTNN = Fen, Wooded, permafrost or patterning, no internal lawns
- FTNR = Fen, Wooded, permafrost or patterning, internal islands of forested peat plateau
- FTNI = Fen, Wooded, permafrost or patterning, internal lawns
- SFNN = Swamp, Forested, permafrost or patterning, no internal lawns
- STNN = Swamp, Wooded, permafrost or patterning, no internal lawns

VGO = Vegetated Non-Treed

VOU = Vegetated Open Upland
- OUST = Tall shrub
- OUSS = Short shrub
- OUHG = Herbaceous grassland
- OUHF = Herbaceous forbs (non-wetland)
- OUBR = Bryophyte (moss, non-wetland)

VOW = Vegetated Open Wetland
- BOXC = Bog, Open, permafrost, collapse scar
- BOXN = Bog, Open, permafrost, no internal lawns
- FOPN = Fen, Open, patterning, no internal lawns
- FONS = Fen, Open, permafrost or patterning, shrub cover
- FONG = Fen, Open, permafrost or patterning, graminoid cover of forested peat plateau
- SONS = Swamp, Open, permafrost or patterning, shrub cover
- SOTS = Swamp, Open, temporary, shrub-dominated
- SOSS = Swamp, Open, seasonal, shrub-dominated
- SOQS = Swamp, Open, semi-permanent to permanent, shrub-dominated
- MONG = Marsh, Open, permafrost or patterning, graminoid cover
- MOTG = Marsh, Open, temporary, graminoid-Dominated
- MOSG = Marsh, Open, seasonal, graminoid-Dominated
- MOQG = Marsh, Open, semi-permanent to permanent, graminoid-dominated
- MOAG = Marsh, Open, alkali, graminoid-Dominated
- MOAX = Marsh, Open, alkali, non-vegetated

NVG = Non-Vegetated

NOW = Open water
- OWWL = Lakes
- OWWS = Salt water
- OWWR = River
- OWWA = Reservoir
- OWWW = Shallow open water
- OWWT = Stream

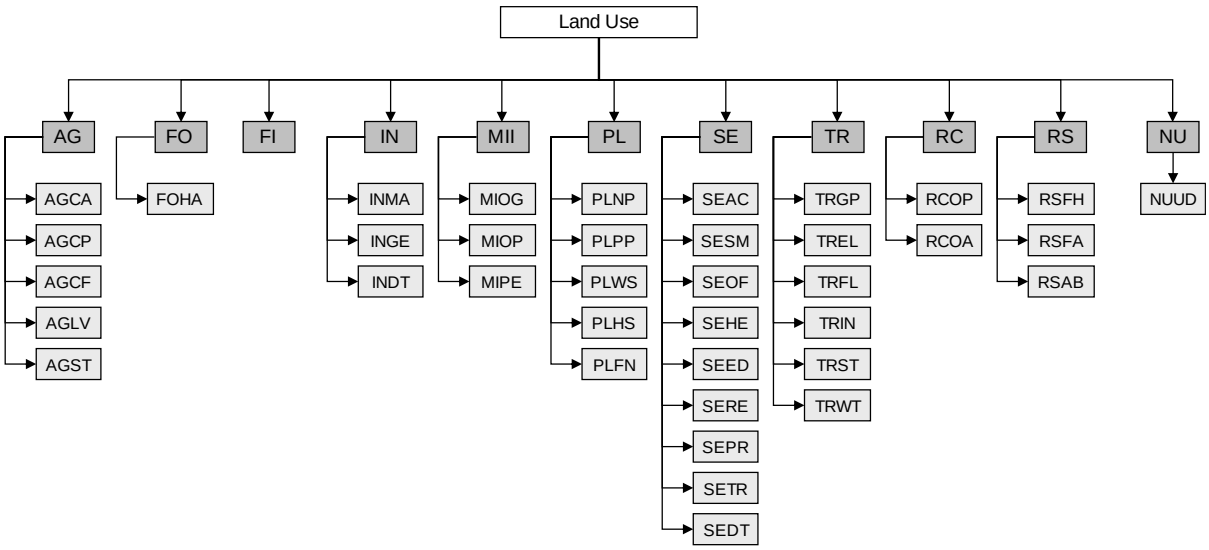
NSI = Snow/Ice
- SIGL = Glacier
- SISC = Snow cover

NRO= Rock/rubble
- ROBR = Bedrock
- RORT = Rubble, talus, blockfied
- ROMO = Moraine

NEL = Exposed land
- ELBU = Burned area
- ELRS = River sediments
- ELCC = Clearcut (fresh)
- ELES = Exposed soil or substratum
- ELLS = Pond or lake sediments
- ELRM = Reservoir margin
- ELMU = Mudflat sediment
- ELON = Other non-vegetated, undeveloped

NAS = Artificial surface
- ASAS = Artificial surface

Landuse Classification Scheme



Legend

AG = Agriculture

- AGCA = Annual crops
- AGCP = Perennial non-forage crops
- AGCF = Perennial forage crops
- AGRL = Livestock/Animal husbandry
- AGST = Agricultural storage

FO = Forestry

- FOHA = Forest harvesting

IN = Industrial

- INMA = Manufacturing industry
- INGE = Generation industry
- INDT = Disposal and treating

FI = Fishing

MI = Mining

- MIOG = Oil and gas extraction
- MIOP = Surface mining
- MIPE = Peat extraction

SE = Services

- SEAC = Accommodation
- SESM = Commercial
- SEOF = Business
- SEHE = Health
- SEED = Education
- SERE = Religious
- SEPR = Protection
- SETR = Transportation
- SEDT = Waste disposal and treatment

TR = Transportation, Transmission & Storage

- TRGP = Transportation of goods, people and equipment
- TREL = Transmission of electricity
- TRFL = Transmission of fluids
- TRIN = Transmission of information
- TRST = Storage
- TRWT = Transportation, transmission and storage of water

RS = Residential

- RSFH = Detached family houses
- RSFA = Attached family houses
- RSAB = Apartment buildings

RC = Recreation

- RCOP = Passive outdoor recreation
- RCOA = Active outdoor recreation

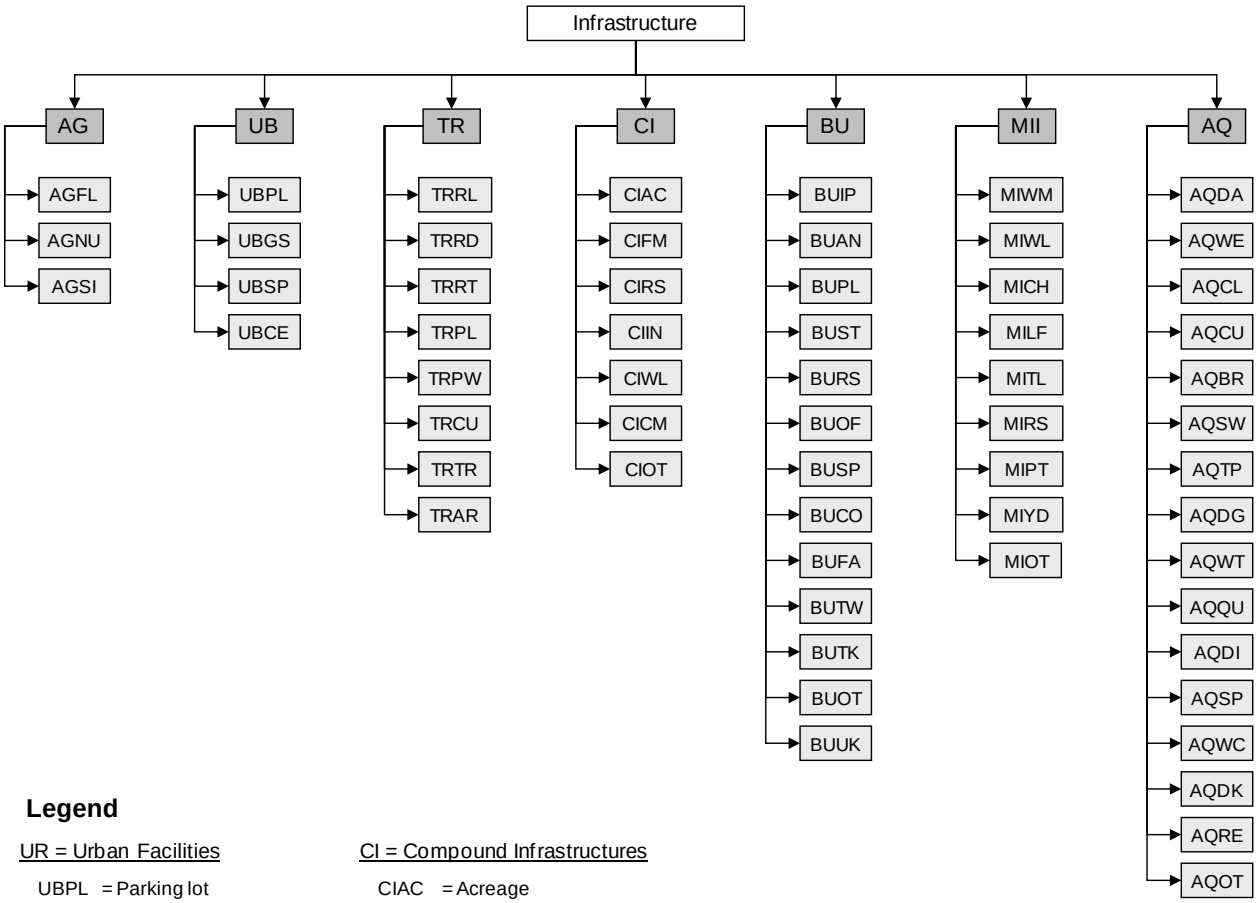
NU = No Land Use

- NUUD = Undeveloped

PL = Protected & Limited Use

- PLNP = National Park
- PLPP = Provincial Park
- PLWS = Wildlife Sanctuary
- PLHS = Historic Site
- PLFN = Reserve

Infrastructure Classification Scheme



Legend

UR = Urban Facilities

UBPL = Parking lot
UBGS = Green space
UBSP = Outdoor sport area
UBCE = Cemetery

AQ = Aquatic Infrastructure

AQDA = Dam
AQWE = Wier
AQCL = Canal
AQCU = Culvert
AQBR = Bridge, aqueduct
AQSW = Sewage lagoon
AQTP = Tailings pond
AQDG = Dugout
AQWT = Water tank
AQQU = Water-filled quarry
AQDI = Ditch
AQSP = Spillway
AQWC = Water-control device
AQDK = Dock
AQRE = Reservoir
AQOT = Other aquatic infrastructure

CI = Compound Infrastructures

CIAC = Acreage
CIFM = Farmstead
CIRS = Other residential
CIIN = Industrial compound
CIWL = Wellsite compound
CICM = Commercial compound
CIOT = Other compound infrastructure

BU = Buildings

BUIP = Industrial plant/mill
BUAN = Buildings for animals
BUPL = Buildings for plants
BUST = Storehouse
BURS = Residential building
BUOF = Office building
BUSP = Indoor sport facility
BUCO = Commercial building
BUFA = Agricultural building
BUTW = Tower
BUTK = Tank
BUOT = Other type of building
BUUK = Unknown building

MI = Mining and Industrial

MIWM = Windmill
MIWL = Wellhead
MICH = Chimney/flares
MILF = Landfill
MITL = Tailings pile
MIRS = Rubbly mine spoils
MIPT = Pit (gravel, borrow)
MIYD = Yard or landing
MIOT = Other mining/industry

AG = Agricultural Facilities

AGFL = Feedlot
AGNU = Nursery
AGSI = Silo

APPENDIX B: ABMI PHOTO-PLOT CLASSIFICATION CODE DESCRIPTIONS AND DEFINITIONS

Table 1: Landcover Code Descriptions and Attribute-Based Definitions

Land Cover Codes LC1	LC2	LC3	Description	Definition
VGT			**Vegetated treed**	DENSITY = A, B, C or D (not Z or <null>); MOIST_REG <> NA **LC2** = VTU or VTW **LC3** = TUFC, TUFD, TUFM, BXTC, BFXC, BTXN, BFXN, BTNN, BTNR, BRNI, FTPN, FTNN, FTNR, FTNI, SFNN, or STNN
	VTU		Vegetated treed upland	DENSITY = A, B, C or D (not Z or <null>); MOIST_REG = VXR, XRC, SXR, SMS, MSC, SHG, or HGC **LC3** = TUFC, TUFD, or TUFM
		TUFC	Forest conifer	DENSITY = A, B, C or D (not Z or <null>); MOIST_REG = VXR, XRC, SXR, SMS, MSC, SHG, or HGC; 70% or more of recorded overstory tree species are coniferous
		TUFD	Forest deciduous	DENSITY = A, B, C or D (not Z or <null>); MOIST_REG = VXR, XRC, SXR, SMS, MSC,, SHG, or HGC; 70% or more of recorded overstory tree species are deciduous
		TUFM	Forest mixed	DENSITY = A, B, C or D (not Z or <null>); MOIST_REG = VXR, XRC, SXR, SMS, MSC, , SHG, or HGC; Coniferous and deciduous overstory tree species each comprise <70% of total species
	VTW		Vegetated treed wetland	DENSITY = A, B, C or D (not Z or <null>); MOIST_REG = SHD, or HDC; **LC3** = BXTC, BFXC, BTXN, BFXN, BTNN, BTNR, BRNI, FTPN, FTNN, FTNR, FTNI, SFNN, or FTNN
		BTXC	Bog, Wooded, permafrost, collapse scar	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = O; HYDR_REG = STA; WTLD_TY = BTXC
		BFXC	Bog, Forested, permafrost, collapse scar	DENSITY = D; MOIST_REG = SHD, or HDC; NUTR_REG = O; HYDR_REG = STA; WTLD_TY = BFXC
		BTXN	Bog, Wooded, permafrost, no internal lawns	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = O; HYDR_REG = STA; WTLD_TY = BTXN

	BFXN	Bog, Forested, permafrost, no internal lawns	DENSITY = D; MOIST_REG = SHD, or HDC; NUTR_REG = O; HYDR_REG = STA; WTLD_TY = BFXN
	BTNN	Bog, Wooded, permafrost or patterning, no internal lawns	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = O; HYDR_REG = STA; WTLD_TY = BTNN
	BTNR	Bog, Wooded, permafrost or patterning, internal islands of forested peat plateau	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = O; HYDR_REG = STA; WTLD_TY = BTNR
	BTNI	Bog, Wooded, permafrost or patterning, internal lawns	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = O; HYDR_REG = STA; WTLD_TY = BTNI
	FTPN	Fen, Wooded, patterning, no internal lawns	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = M; HYDR_REG = SLO; WTLD_TY = FTPN
	FTNN	Fen, Wooded, permafrost or patterning, no internal lawns	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = M; HYDR_REG = SLO; WTLD_TY = FTNN
	FTNR	Fen, Wooded, permafrost or patterning, internal islands of forested peat plateau	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = M; HYDR_REG = SLO; WTLD_TY = FTNR
	FTNI	Fen, Wooded, permafrost or patterning, internal lawns	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = M; HYDR_REG = SLO; WTLD_TY = FTNI
	SFNN	Swamp, Forested, permafrost or patterning, no internal lawns	DENSITY = D; MOIST_REG SHD, or HDC; NUTR_REG = M; HYDR_REG = MOV; WTLD_TY = SFNN
	STNN	Swamp, Wooded, permafrost or patterning, no internal lawns	DENSITY = A, B, or C; MOIST_REG = SHD, or HDC; NUTR_REG = M; HYDR_REG = MOV; WTLD_TY = STNN
VGO		**Vegetated non-treed**	DENSITY = Z or <null> **LC2** = VOU or VOW **LC3** = OUST, OUSS, OUHG, OUHF, OUBR, BOXC, BOXN, FOPN, FONS, FONG, MONG. MOTG, MOSG, MOQG, MOAG, MOAX, SONS, SOQS, or SOAS

VOU		Vegetated non-treed upland	DENSITY = Z or <null>; MOIST_REG = VXR, XRC, SXR, SMS, MSC, or SHG **LC3** = ST, SS, HG, HF, BR
	OUST	Tall shrub	DENSITY = Z or <null>; MOIST_REG = VXR, XRC, SXR, SMS, MSC, , SHG, or HGC; NTW_TYPE <> SS ; NTW_PER = 30% or greater; NTW_HT = 2 or greater
	OUSS	Short shrub	DENSITY = Z or <null>; MOIST_REG = VXR, XRC, SXR, SMS, MSC, , SHG, or HGC; NTW_TYPE <> ST; NTW_PER = 30% or greater; NTW_HT = less than 2
	OUHG	Herbaceous grassland	DENSITY = Z or <null>; MOIST_REG = VXR, XRC, SXR, SMS, MSC, , SHG, or HGC; NWOOD_TY = HG, HS, HA, HE; NWOO_PER = 30% or greater NTW_PER = less than 30%
	OUHF	Herbaceous forbs (non-wetland)	DENSITY = Z or <null>; MOIST_REG = VXR, XRC, SXR, SMS, MSC, , SHG, or HGC; NWOOD_TY = HF, HA, HE, or HF; NWOO_PER = 30% or greater NTW_PER = less than 30%
	OUBR	Bryophyte (moss, non-wetland)	DENSITY = Z or <null>; MOIST_REG = VXR, XRC, SXR, SMS, MSC, , SHG, or HGC; NWOOD_TY = MO, LI, or BY; NWOO_PER = 30% or greater NTW_PER = less than 30%
VOW		Vegetated non-treed wetland	DENSITY = Z or <null>; MOIST_REG = SHD, or HDC **LC3** = BOXC, BOXN, FOPN, FONS, FONG, MONG, MOTG, MOSG, MOQG, MOAG, MOAX, SONS, SOQS, SOAS
	BOXC	Bog, Open, permafrost, collapse scar	DENSITY = Z or <null>; MOIST_REG = SHD, or HDC; NUTR_REG = O; HYDR_REG = STA; WTLD_TY = BOXC
	BOXN	Bog, Open, permafrost, no internal lawns	DENSITY = Z or <null>; MOIST_REG = SHD, or HDC; NUTR_REG = O; HYDR_REG = STA; WTLD_TY = BOXN
	FOPN	Fen, Open, patterning, no internal lawns	DENSITY = Z or <null>; MOIST_REG = SHD, or HDC; NUTR_REG = M; HYDR_REG = SLO; WTLD_TY = FOPN

	FONS	Fen, Open, permafrost or patterning, shrub cover	DENSITY = Z or <null>; MOIST_REG = SHD, or HDC; NUTR_REG = M; HYDR_REG = SLO; NTW_PER = 25% or greater; WTLD _TY = FONS
	FONG	Fen, Open, permafrost or patterning, graminoid cover of forested peat plateau	DENSITY = Z or <null>; MOIST_REG = SHD, or HDC; NUTR_REG = M; HYDR_REG = SLO; NTW_PER = 25% or less; NWOOD_PER = 6% or greater WTLD _TY = FONG
	MONG	Marsh, Open, permafrost or patterning, graminoid cover	DENSITY = Z or <null>; MOIST_REG = SHD, or HDC; NUTR_REG = E; HYDR_REG = DYN; NTW_PER = 25% or less; NWOOD_PER = 6% or greater WTLD _TY = MONG
	MOTG	Marsh, Open, temporary, graminoid cover	DENSITY = Z or <null>; NWOOD_PER = 6% or greater; NTW_PER < 25% WTLD _TY = MOTG
	MOSG	Marsh, Open,seasonal, graminoid cover	DENSITY = Z or <null>; NWOOD_PER = 6% or greater; NTW_PER < 25% WTLD _TY = MOSG
	MOQG	Marsh, Open, semi-permanent to permanent, graminoid cover	DENSITY = Z or <null>; NWOOD_PER = 6% or greater; NTW_PER < 25% WTLD _TY = MOQG
	MOAG	Marsh, Open, alkali, graminoid cover	DENSITY = Z or <null>; NWOOD_PER = 6% or greater; NTW_PER < 25% WTLD _TY = MOAG
	MOAX	Marsh, Open, alkali, no vegetation	DENSITY = Z or <null>; NWOOD_PER and NTW_PER < 6% WTLD _TY = MOAX
	SONS	Swamp, Open, perma-frost or patterning, shrub cover	DENSITY = Z or <null>; MOIST_REG = SHD, or HDC; NUTR_REG = M; HYDR_REG = MOV; NTW_PER = 25% or greater; WTLD_TY = SONS
	SOTS	Swamp, Open, tempo-rary, shrub cover	DENSITY = Z or <null>; NTW_PER = 25% or greater WTLD _TY = SOTS
	SOSS	Swamp, Open, seasonal, shrub cover	DENSITY = Z or <null>; NTW_PER = 25% or greater WTLD _TY = SOSS
	SOQS	Swamp, Open, semi-permanent to permanent, shrub cover	DENSITY = Z or <null>; NTW_PER = 25% or greater WTLD _TY = SOQS

NVG		**Non-vegetated**	DENSITY = <null> **LC2** = OW, SI, RO, EL, or AS **LC3** = OWWL, OWWS, OWWR, OWWA, OWWW, OWWT, SISC, SIGL, ROBR, RORT, ROMO, ELBU, ELRS, ELLS, ELCC, ELRM, ELMU, ELES, ELON, or ELAS
	NOW	Open water	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA **LC3** = OWWL, OWWS, OWWR, OWWA, OWWW, or OWWT
	OWWL	Lake	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TYPE = WL
	OWWS	Salt water	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TYPE = WS
	OWWR	River	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TYPE = WR
	OWWA	Reservoir	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TYPE = WA
	OWWW	Shallow open water	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TYPE = WW
	OWWT	Stream	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TYPE = WT
	NSI	Snow/ice	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA **LC3** = SISC or SIGL
	SISC	Snow cover	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TPYE = SC
	SIGL	Glacier	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TPYE = GL
	NRO	Rock/Rubble	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA **LC3** = ROBR, RORT or ROMO
	ROBR	Bedrock	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TPYE = BR

	RORT	Rubble, talus, blockfield	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TPYE = RT
	ROMO	Moraine	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TPYE = MO
NEL		Exposed land	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) **LC3** = ELBR, ELRT, ELMO, ELBU, ELRS, ELLS, ELCC, ELRM, ELMU, ELES, or ELON
	ELBU	Burned area	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) NV_TPYE = BU
	ELRS	River sediments	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TPYE = RS
	ELLS	Pond or lake sediments	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TPYE = LS
	ELCC	Clearcut (fresh)	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) NV_TPYE = CC
	ELRM	Reservoir margin	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) NV_TPYE = RM
	ELMU	Mudflat sediment	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) NV_TPYE = MU
	ELES	Exposed soil or substra-tum	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) NV_TPYE = ES
	ELON	Other non-vegetated, undeveloped	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) NV_TPYE = ON
NAS		Artificial surface	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA **LC3** = AS
	ASAS	artificial surface/material	DENSITY and UDENSITY <> A, B, C, or D NTW_PER and NWOOD_PER < 30% (ea) MOIST_REG = NA NV_TPYE = AM

Table 2: Land Use Code Descriptions and Definitions

Land Use Codes LU1	LU2	Description	Definition
AG		Agricultural	Land use for growing crops or raising livestock
	AGCA	Annual crops	Cultivated farmland or farmland planted with annual crop species
	AGCP	Perennial non-forage crops	Orchards, vineyards, berry crops, and similar crops
	AGCF	Perennial forage crops	Land used to grow cultivated forage species (e.g. hay, legumes) that are directly used for grazing livestock and/or harvested at least once a year; must show signs of cultivation
	AGLV	Livestock and Animal husbandry	Land devoted to activities concerned with the raising of livestock (e.g. cattle, sheep, chickens, pigs, etc.)
	AGST	Agricultural storage	Land used for the storage of agricultural products and equipment (e.g. grain, crops, animal products and byproducts (excluding live animals), machinery, etc.)
FO		Forestry	Land used for the management and harvesting of trees
	FOHA	Forest harvesting	Land on which harvesting of developed forest stands is occurring (e.g. cutting, logging, etc.); land in use for the extraction of forest products
IN		Industrial	Land used for manufacturing, power generation, and disposal/treatment of waste
	INMA	Manufacturing industry	Land used for the processing and/or assembly of raw materials into products (e.g. factories)
	INGE	Generation industry	Land associated with the production of heat and/or electrical energy
	INDT	Disposing and treating	Land on which waste is processed to be less harmful to people/the environment, or into a product (e.g. landfills, water treatment, recycling depot)
MI		Mining/oil & gas	Land use related to extraction, development, containment and disposal of non-renewable resources (e.g. oil, coal, gas, minerals, etc.)
	MIOG	Oil and gas extraction	Land use related to extraction, development, containment and disposal of oil and gas resources
	MIOP	Surface mining	Land use related to extraction, development, containment and disposal of non-renewable resources at and/or near the surface (e.g. coal, minerals, stone/rock, gravel, etc.)
	MIPE	Peat extraction	Land use related to mining, involving top soil removal
SE		Services	Land used for the provision of a useful product or result of labour that is distinct from a “good”
	SEAC	Accommodation	Land used for the provision of temporary overnight lodging in a non-residential facility (e.g. hotel, cabin, resort, bed and breakfast, etc.)
	SESM	Commercial	Land used for the provision of retail and food and beverage services (e.g. shopping and strip malls, associated parking, restaurants, etc.)
	SEOF	Business	Land associated with business functions occurring in an office setting (e.g. financial services, govern-

			ment services, research parks, etc.)
	SEHE	Health	Land used for the provision of professional medical and/or health and wellness (e.g. hospitals, clinics, etc.)
	SEED	Education	Land associated with the provision of learning facilities (e.g. schools, university/college campuses, etc.)
	SERE	Religious	Land used for the provision of religious services (e.g. churches, cemeteries, etc.)
	SEPR	Protection	Land associated with the provision of protection services to individuals and/or the community (e.g. police, fire department, military facilities)
	SETR	Transportation	Sites used for the loading or unloading of passengers or goods that have been or about to be transported (e.g. bus or train terminals, airports, etc.)
	SEDT	Waste disposal and treatment	Land devoted to the disposal and/or treatment of waste (e.g. landfills, sewage lagoons, etc.)
TR		Transportation, transmission and storage	Land used for the movement, transmission and/or storage of goods, people, energy or information from one location to another
	TRGP	Transportation of goods, people and equipment	Land used for the transportation of goods, people or equipment from one location to another (e.g. roads, railways, airfield runways)
	TREL	Transmission of electricity	Land associated with the storage and/or transmission of electricity (e.g. transmission lines and their right-of-ways)
	TRFL	Transmission of fluids	Land associated with the storage and transportation of fluid substances, with the exception of water (e.g. pipelines for gas, oil, etc.)
	TRIN	Transmission of information	Land used for the storage and/or transmission of digital or analogue information, including telephone services (e.g. satellite dishes, microwave or radio towers, etc.)
	TRST	Storage	Land used for the temporary/seasonal storage of goods (e.g. silos, container terminals, etc.)
	TRWT	Transportation, transmission and storage of water	Land devoted to the transportation, transmission and/or storage of water (e.g. dugouts, canals, reservoirs, ditches, etc.)
RS		Residential	Land associated with seasonal to permanent residence/human habitation
	RSFD	Detached family houses	Land used for detached, single unit dwellings on separate parcels of land, sharing no walls with other units (e.g. single houses)
	RSFA	Attached family houses	Land used for attached, single unit dwellings sharing one or more walls with other units but on separate parcel of land (e.g. townhouses, semi-detached houses)
	RSAB	Apartment buildings	Land used for a residential structure containing three or more single units that share two or more walls and are not on separate parcels of land (e.g. multi-story apartment building)
PL		Protected and limited use	Land associated with the limitation of public access and/or human development for the purposes of protection and/or conservation
	PLNP	National park	Land designated by the federal government as a National Park (e.g. Banff, Jasper National Parks)

	PLPP	Provincial park	Land designated by the provincial government as a Provincial Park (e.g. Dinosaur, Kananaskis Provincial Parks)
	PLWS	Wildlife sanctuary	Land associated with the provision of a protected (from human or other factors) environment for wildlife (e.g. Sheep River Wildlife Sanctuary, Inglewood Bird Sanctuary)
	PLHS	Historic site	Land used for the protection of historically important infrastructure and/or locations (e.g. Head-Smashed-In Buffalo Jump World Hertiage Site, Remington Ukranian Cultural Heritage Village, etc.)
	PLFN	Reserve	Land designated for the particular use of a specific group of individuals or community (e.g. military reserve, First Nations reserve, etc.)
NU		No land use	Land which shows no visible signs or evidence of past or present use, or evidence for future intended use
	NUUD	Undeveloped	Land on which no human infrastructure or alteration is visible (e.g. natural wetlands)

Table 3: Infrastructure Code Descriptions and Definitions

Infrastructure Codes		**Description**	**Definition**
INFRA1	**INFRA2**		
AG		Agricultural facilities	Infrastructure related to agricultural activities
	AGFL	Feedlot	Infrastructure associated with the storage and controlled feeding of livestock
	AGNU	Nursery	Infrastructure associated with the cultivation of young tree seedlings, shrubs, etc. for the purpose of future transplanting or reforestation
	AGSI	Silo	An enclosed, covered structure built for the storage of grain, fodder or other agricultural products
TR		Transportation utilities	Infrastructure related to the transportation of goods, people, fluids, electricity, equipment, etc.
	TRRL	Railway	A road or track for trains, consisting of parallel steel rails supported on wooden crossbeams
	TRRD	Road	A roadway constituting an access route for vehicular traffic; surface may be paved (asphalt, concrete), gravel, dirt; had one or more lanes
	TRRT	Road – Twinned/Divided	A roadway in which the two-way traffic is separated by a distinct, unpaved section of land (often grass-covered) at least 10 m wide
	TRPL	Pipeline	A line of underground or aboveground pipes, of considerable length and capacity, used for conveying fluids (e.g. petrochemicals, water, etc.)
	TRPW	Powerline/ transmission line	A corridor containing poles, towers and lines for the transmission of high voltage electricity
	TRCU	Cutline	A narrow linear clearing with light usage, may be the result of seismic exploration, or a corridor for minor pipelines; surface may be ex-

			posed soil, rock and/or low vegetation
	TRTR	Trail	A linear clearing constituting a minor vehicular access route, generally without bridges or ditches, surfaced with dirt and/or low vegetation
	TRAR	Airport runway, airfield strip	A licensed or unlicensed landing runway facility for aircraft; may be paved or surfaced with grass or gravel; may have lighting
UB		Urban facilities	Structures and facilities associated with urban land use
	UBPL	Parking lot	A paved (asphalt or cement), flat area constructed for the temporary storage and parking of motor vehicles
	UBGS	Green space	Vegetated space designated for (passive) public recreational activities (e.g. urban parks, public gardens)
	UBSP	Outdoor sport area	Structures and facilities associated with (active) recreation and leisure activities (e.g. golf course, soccer field, horse track, etc.)
	UBCE	Cemetery	Infrastructure associated with cemetery grounds (e.g. maintenance/storage buildings, access roads, etc.)
BU		Buildings	Enclosed structures and facilities
	BUIP	Industrial plant or mill	Buildings associated with industrial processing and manufacturing
	BUAN	Building for animals	Buildings constructed for the housing and/or storage of animals (e.g. barns, henhouses)
	BUPL	Building for plants	Buildings constructed for the cultivation and care of plants (e.g. greenhouses)
	BUST	Storehouse	Buildings used for the storage of goods and products (e.g. storage buildings, warehouses)
	BURS	Residential building	Buildings constructed for human habitation (e.g. houses, apartment buildings, cabins)
	BUOF	Office building	Buildings used for professional business purposes, not for human habitation (e.g. law, government offices, etc.)
	BUSP	Indoor sport facility	Buildings constructed for indoor recreational activities (e.g. indoor arenas, fitness clubs, etc.)
	BUCO	Commercial building	Buildings used for commercial and sales purposes, not for human habitation (e.g. shops, malls, etc.)
	BUFA	Agricultural facility or building	Buildings used for agricultural purposes (e.g. sheds, barns, etc.)
	BUTW	Tower	A vertical structure erected for the purpose of observation, long-range communication, etc. (E.g. look-out tower, radio tower, etc.)
	BUTK	Tank	Enclosed structure used for the storage and/or processing of fluids
	BUOT	Other types of buildings	Other building that are not adequately described by alternative designations
	BUUK	Unknown buildings	A building or construction that the interpreter is not able to identify
MI		Mining and industrial	Infrastructure associated with mining and industrial activities
	MIWM	Windmill	Mill or machine operated by wind using vanes or sails

	MIWL	Wellhead	Infrastructure and/or equipment constructed over a well (e.g. oil, gas, water wells)
	MICH	Chimney/flares	Infrastructure (usually vertical) constructed for the escape or expulsion of gasses from an industrial or mining facility
	MILF	Landfill	Infrastructure associated with the disposal of solid waste by burial between layers of dirt
	MITL	Tailings pile	Structures and facilities used in the storage of waste materials from industrial processes
	MIRS	Rubbly mine spoils	Discarded overburden or waste rock resulting from mining of ore
	MIPT	Pit (gravel, borrow)	Surface excavation for the purpose of extracting gravel, sand, etc.
	MIYD	Yard or landing	Open space used for the storage of mining or industrial materials; may be dirt, gravel, paved (e.g. storage of logs, other solid materials)
	MIOT	Other mining/industry	Other facilities or structures associated with mining and/or industrial activities
AQ		Aquatic infrastructure	Infrastructure associated with the control, transportation and/or storage of water
	AQDA	Dam	Anthropogenic structure constructed on a river or stream for holding back and storing water
	AQWE	Weir	A low dam (see AQDA) placed across a river or stream to raise or divert water flow; allows for water flow (i.e. not used for water storage)
	AQCL	Canal	Anthropogenic watercourse build to convey water for irrigation; has well-maintained reinforced banks
	AQCU	Culvert	Covered anthropogenic structure for conveying water flow under a road, railway or other obstruction, to divert run-off and prevent flooding and erosion
	AQBR	Bridge, Aqueduct	Road or walkway constructed for transportation of people, goods, or equipment over terrain (e.g. rivers) ;conduit constructed for carrying large quantities of flowing water above the terrain
	AQSW	Sewage lagoon	An artificial depression constructed to contain effluent or water for commercial, industrial or waste water treatment
	AQTP	Tailing pond	Ponds used for the storage and sedimentation of solid particles from water borne refuse material (tailings) resulting from industrial processes
	AQDG	Dugout	An artificial depression on agricultural land, constructed to catch run-off water for use by livestock
	AQWT	Water tank	An enclosed container, constructed for the storage of water
	AQQU	Water-filled quarry	An open excavation from which building stone, rock, sand or gravel was taken, that is partially or wholly filled with water; may also represent abandoned open mining pit
	AQDI	Ditch	Narrow anthropogenic watercourse build to convey or redirect water for irrigation or drainage; does not have well-maintained reinforced

			banks; may be covered with vegetation
	AQSP	Spillway	Anthropogenic structure build for the passage of superfluous water from a dam; in the form of a paved apron on a dam structure
	AQWC	Water-control device	An anthropogenic device on a ditch, canal, river or stream for controlling water flow or level, other than a weir or dam (e.g. sluice gates)
	AQDK	Dock	A water-side platform used for the loading or unloading of people, goods or equipment onto boats, ships or other watercraft
	AQRE	Reservoir	A water body (e.g. pond) formed within a catchment area, artificially modified to retain water (e.g. with a dam) for anthropogenic storage and use
	AQOT	Other types of aquatic infrastructure	Other infrastructure associated with the control, transportation and/or storage of water
CI		Compound Infrastructure	
	CIAC	Acreage	Single-family, isolated residential section of land (e.g. not part of a larger settlement), not associated with farming or agricultural activities (i.e. does not contain farming-related infrastructures)
	CIFM	Farmstead	Single-family, isolated residential section of land (e.g. not part of a larger settlement), associated with farming or agricultural activities (i.e. shows signs of farming infrastructure)
	CIRS	Other residential	Other clusters of residential-related infrastructures (e.g. villages, hamlets, ribbon developments, suburbs of adjacent acreages)
	CIIN	Industrial	Industrial compounds or facilities (e.g. oil and gas facilities and plants, surface mining infrastructures, etc.)
	CIWL	Wellsite	Operating wellsites containing wellheads, structures, tanks, and other features.
	CICM	Commercial	Cluster of commercial infrastructures (e.g. malls, commercial parks, etc.) that have no residential component to them
	CIOT	Other compound infrastructure	Other clusters of related or similar-purpose infrastructures