

Land Information Ontario

Data Class Fact Sheet:

SPOT HEIGHT

Version 1.0

Issued: January 6, 2006

Table of Contents

<i>Table of Contents</i>	2
<i>Disclaimer</i>	3
<i>Additional Information</i>	3
1. <i>Introduction</i>	4
2. <i>Overview</i>	4
3. <i>Logical Data Model (Business View)</i>	6
4. <i>Data Dictionary</i>	7
<i>Appendix 1: Reading an Entity Relationship Diagram</i>	6
<i>Appendix 2: Interpreting a Data Dictionary</i>	12
<i>Document Control</i>	13
<i>Contributors</i>	13
<i>Approvals</i>	13

Disclaimer

This technical documentation has been prepared by the Ministry of Natural Resources (the “Ministry”), representing Her Majesty the Queen in right of Ontario. No warranties or representations, express or implied, statutory or otherwise shall apply or are being made by the Ministry with respect to the documentation, its accuracy or its completeness.

In no event will the Ministry be liable or responsible for any lost profits, loss of revenue or earnings, claims by third parties or for any economic, indirect, special, incidental, consequential or exemplary damage resulting from any errors, inaccuracies or omissions in this documentation; and in no event will the Ministry’s liability for any such errors, inaccuracies or omissions on any particular claim, proceeding or action, exceed the actual consideration paid by the claimant involved to the Ministry for the materials to which this instructional documentation relates. Save and except for the liability expressly provided for above, the Ministry shall have no obligation, duty or liability whatsoever in contract, tort or otherwise, including any liability or negligence. The limitations, exclusions and disclaimers expressed above shall apply irrespective of the nature of any cause of action, demand or action, including but not limited to breach of contract, negligence, strict liability, tort or any other legal theory, and shall survive any fundamental breach or breaches.

Additional Information

For more information about this document, please contact Land Information Ontario at (705) 755-1878 or info-access@webmail.mnr.gov.on.ca.

Published January 2006
© 2006, *Queen's Printer for Ontario*

1. Introduction

Data modeling involves identifying the things of importance to an organization (entities), the properties of those things (attributes) and how they are related to one another (relationships). This document provides the logical view of the data model. Appendix 1 provides details on understanding data models.

2. Overview

This data class is part an Information Class.

Information Class: **BDI EDITABLE CLASSES (BDICLASS)**

Data Classes are:

- i. Beaver Dam*
- ii. Building Symbolized*
- iii. Building To Scale*
- iv. Contour*
- v. Drainage Line*
- vi. Drainage Point*
- vii. Miscellaneous Line*
- viii. Spot Height*
- ix. Transport Line*
- x. Transport Point*
- xi. Wooded Area*

Spot Height (SPOTHT)

Measurement of an elevation in metres above sea level.

Abstract Class

Abstract Spatial Single-Point User Object.

One and only one point forms a single object.

Examples of sub classes of this class include feature types such as cabin, bird-nest, fire tower, etc ...

Custodian

None.

Geographic Unit Types

Spot Height (12692)

Elevation from mean sea level at a spot rounded to the nearest metre (1:20,000 scale), or to the nearest 0.5 metre (1:10,000 scale).

Vertical Control Point Photogram (2694)

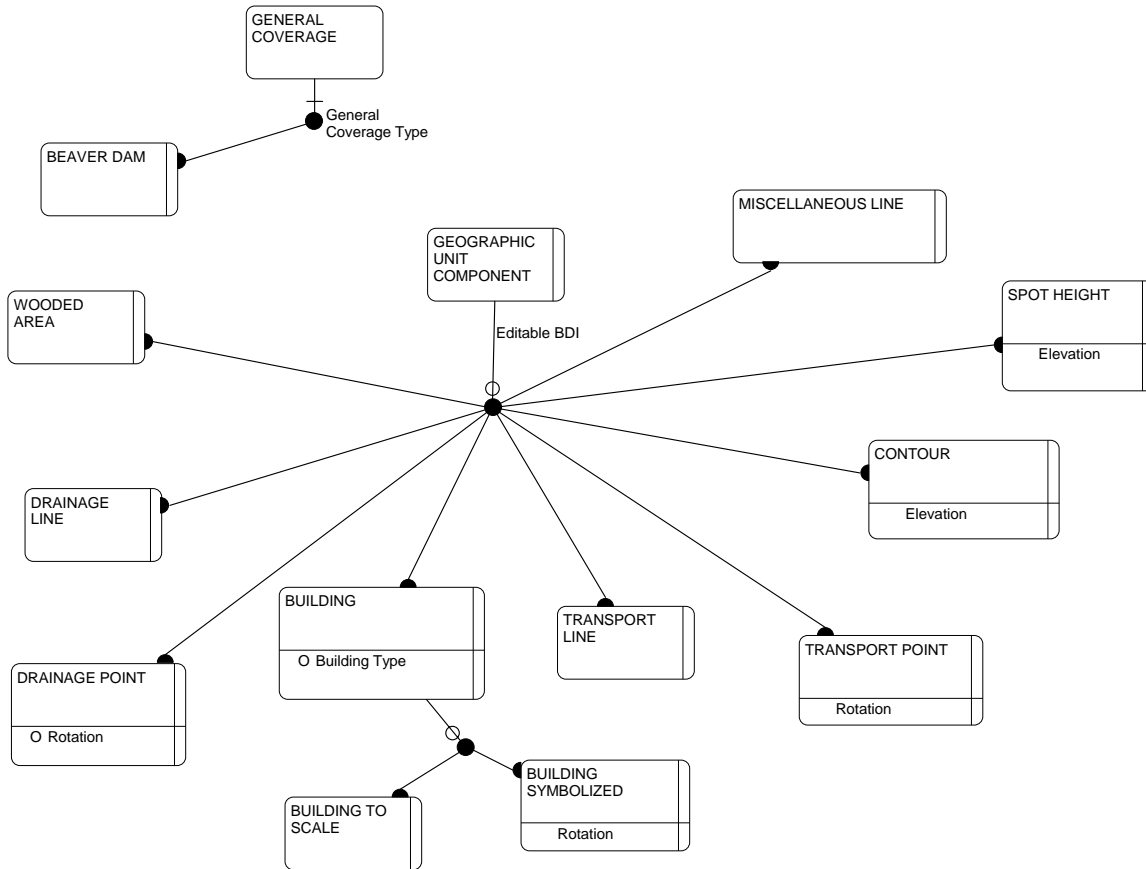
A Vertical Control Point Photogram is a spot elevation, typically found at a road intersection, with an accuracy of 0.1 metre.

Water Level - Lake Elevation (2695)

A spot elevation on a named lake.

3. Logical Data Model (Business View)

See appendix 1 for how to read an Entity Relationship Diagram.



4. Data Dictionary

See Appendix 2 for how to interpret a data dictionary.

Entity : BEAVER DAM

Description :

A dam constructed by beavers in a stream bed at a narrow point where the current is fastest. The dam itself is a layered construction, consisting of sticks, mud and stones. The dam creates a pond deep enough to provide suitable habitat and protection from predators, especially during winter months.

Subtype Of GENERAL COVERAGE

Entity : BUILDING

Description :

A structure that has a roof and walls and stands more or less permanently in one place. Small buildings have only their location recorded. When structures have one dimension larger than 50 metres for the 1:20000 scale and larger than 30 metres for the 1:10000 scale, their extents are recorded.

Building Type

Character (variable length string) 20 Optional

A general classification of a building, often by use, such as educational building, religious building, residence, police station, hospital, or fire station. Types and their descriptions come from the National Topographic Series specifications.

Class : Type

Valid values found in NRVIS_BUILDING_TYPE. Based on types and their descriptions in the National Topographic Series specifications.

Subtype Of GEOGRAPHIC UNIT COMPONENT

Entity : BUILDING SYMBOLIZED

Description :

Permanent walled and roofed construction. Small structures (including buildings less than 50 square metres) are not shown unless they constitute a point of orientation. When structures have one dimension larger than 50 metres for the 1:20000 source scale and larger than 30 metres for the 1:10000 source scale, they are considered to be polygons and entered as Building To Scale.

Rotation

Numeric 3 Mandatory

Amount in degrees that the representation of the feature should be rotated, with 0 representing no rotation.

Class : Quantity

Subtype Of BUILDING

Entity : BUILDING TO SCALE

Description :

Permanent walled and roofed construction. When structures have one dimension larger than 50 metres for the 1:20000 scale and larger than 30 metres for the 1:10000 scale, they are considered to be polygons. The National Topographic standard for 1:50000 views buildings with both dimensions larger than 30 metres as polygons.

Subtype Of BUILDING

Entity : CONTOUR

Description :

A continuous line formed of vertices located at a constant elevation from mean sea level (MSL). It is used to describe terrain relief.

Elevation

Numeric 10 Mandatory

Amount in metres that a geographic entity is above mean sea level.

Class : Measurement

Subtype Of GEOGRAPHIC UNIT COMPONENT

Entity : DRAINAGE LINE

Description :

Presence of fall or rapids on a river having a width greater than 40 metres at 1:20000 scale and 20 metres at 1:10000 scale (otherwise known as a double line river).

Subtype Of GEOGRAPHIC UNIT COMPONENT

Entity : DRAINAGE POINT

Description :

Presence of fall or rapids on a river having a width less than 40 metres at 1:20000 scale and 20 metres at 1:10000 scale (otherwise known as a single line river), or rocks which occur in waterbodies collected from interpreted aerial photography.

Rotation

Numeric 3 Optional

Amount in degrees that the representation of the feature should be rotated, with 0 representing no rotation.
[Do all GUTs in Drainage Point have an Orientation?]

Class : Quantity

Subtype Of GEOGRAPHIC UNIT COMPONENT

Entity : GENERAL COVERAGE

Description :

This super-type entity depicts those features that will be brought into the NRVIS database as a general coverage and will have NO tabular attributes.

Entity : GEOGRAPHIC UNIT COMPONENT

Description :

A Geographic Unit that may be included in a Geographic Unit Consolidation.

Location Accuracy

Character (variable length string) 2 Mandatory

The degree of conformity or closeness of a measurement within the database to its true value in the world.

Class : Code

Valid values in NRVIS_LOCATION_ACCURACY.

Subtype Of GEOGRAPHIC UNIT

Each GEOGRAPHIC UNIT COMPONENT May be One and only one FIRE DETAIL(s). Exclusive :

Each GEOGRAPHIC UNIT COMPONENT May be One and only one GEOGRAPHIC UNIT SENSITIVITY(s). Exclusive :

Each GEOGRAPHIC UNIT COMPONENT May be Defined By One or more DRAWING SCALE(s). Exclusive :

Entity : MISCELLANEOUS LINE

Description :

Prominent linear manmade or natural features that do not readily fit into other general groupings.

Subtype Of GEOGRAPHIC UNIT COMPONENT

Entity : SPOT HEIGHT

Description :

Identifies the elevation of a significant geographic feature.

Contains: Spot Height, Vertical Control Point Photogram, Water Level - Lake Elevation

Elevation

Numeric 10 Mandatory

Amount in metres that a geographic entity is above mean sea level.

Class : Measurement

Subtype Of GEOGRAPHIC UNIT COMPONENT

Entity : TRANSPORT LINE

Description :

Identifies a manmade linear feature in the transportation network other than road.

Contains: Aerial Cableway, Bridge - Pedestrian/Cycle, Bridge - Railway, Bridge - Railway and Roadway, Bridge - Roadway, Culvert - Railway, Culvert - Roadway, Parking Lot Limits, Tunnel - Railway, Tunnel - Roadway

Subtype Of GEOGRAPHIC UNIT COMPONENT

Entity : TRANSPORT POINT

Description :

Identifies a manmade point feature in the transportation network other than road.

Contains: Culvert - Railway - Symbolized, Culvert - Roadway - Symbolized, Turntable - Railway

Rotation Numeric 3 Mandatory
Amount in degrees that the representation of the feature should be rotated, with 0 representing no rotation.

Class : Quantity

Subtype Of GEOGRAPHIC UNIT COMPONENT

Entity : WOODED AREA

Description :

Identifies an area covered by trees. An Ontario Base Map feature (OBM).

Contains: Wooded Area, Wooded Area - Centroid

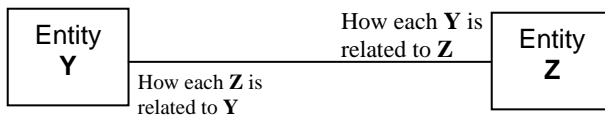
Subtype Of GEOGRAPHIC UNIT COMPONENT

Appendix 1: Reading an Entity Relationship Diagram

A modeler can define the data needs of a business using an **entity relationship diagram** (ERD). An ERD is a schematic representation showing entities and their relationship to other entities. An **entity** is a data object and a **relationship** is a model of the association between objects of one or more different entities. In an ERD, entities are rectangles connected to other entities by relationship lines. (Official definition excerpt from the *Information Modeling Handbook for the OPS* – Ontario Government Management Board Secretariat Corporate Architecture Branch)

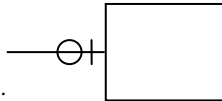
You will encounter the following symbology in an ERD.

General Notation: Text that describes a relationship between entities.

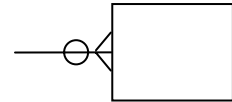


Relationship Cardinality Symbols:

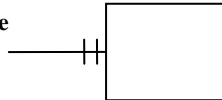
There *may* be **zero or one** occurrence of this entity. This means that the entity is optional.



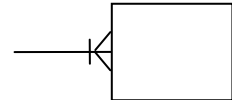
There *may* be **zero or more** occurrences of this entity. The relationship is optional.



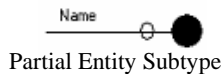
There *must* be **one and only one** occurrence of this entity. This means that the relationship is mandatory.



There *must* be **one or more** occurrences of this entity. The relationship is mandatory.

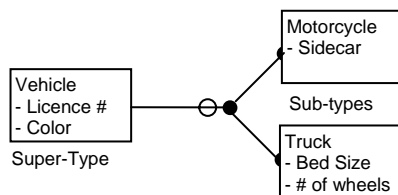


Entity Sub-type Groups: Entity subtype group icons link sub-type entities to the super-



type entity. All subtype entities inherit the characteristics of the super-type entity. For example: Entity subtype group icons link subtype entities to the super-type entity. All subtype entities inherit the characteristics of the super-type entity. For example:

The circle indicates that the definition of subtypes for the super-type Vehicle is only partially



The attributes for Motorcycle include not only Sidecar, but Licence # and Color.

The attributes for Truck include not only Bed Size and # of Wheels, but Licence # and Color.

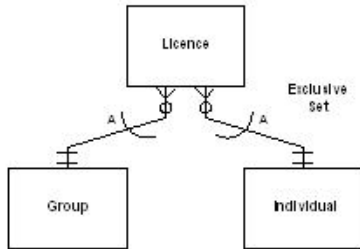
complete.

A line in this same location would indicate that all possible subtypes have been defined – indicating it as complete.

Types of vehicles that have not be explicitly defined would inherit only the characteristics of the Vehicle entity e.g. Car, ATV.

Exclusive Set:

An Exclusive Set describes a relationship between entities where, at any one time, only one of the relationships can be true. For example:



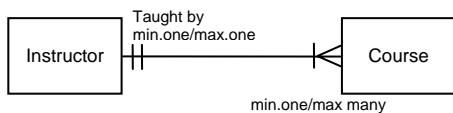
- A Group *may* be the holder of one or more Licences.
- An Individual *may* be the holder of one or more Licences.
- A Licence *must* be Issued to one and only one Group **or** One and only one Individual.
- One licence cannot be issued to both a group and an individual.

Additional Examples:

Interpreted as :

An Instructor *must be* teaching One or More Courses.

A Course *must* be taught by One and Only One Instructor.



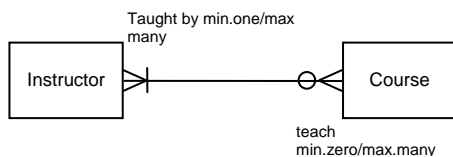
- An Instructor cannot exist unless they teach a course.
- A Course cannot exist unless it has an Instructor. Tag-Team teaching by Instructors is not permitted.
- A newly hired Instructor, not yet assigned to a course, may therefore not be part of this entity.

If the business rules dictate that this is not so, the relationship is incorrect. (See next example)

Interpreted as :

An Instructor *may be* teaching One or More Courses.

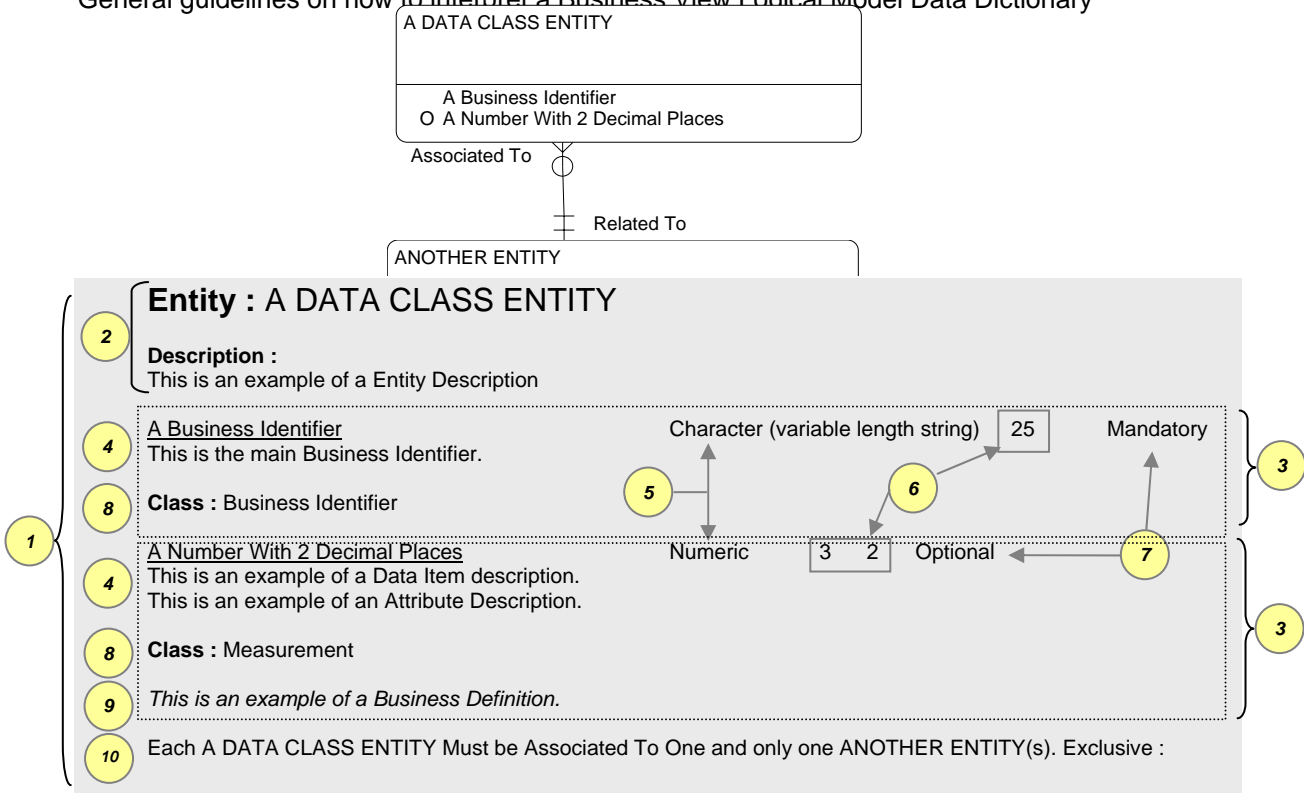
A Course *must* be taught by One or More Instructors.



- A newly hired Instructor, not yet assigned to a course, can exist.
- A new inexperienced Instructor, can be paired up with an experienced Instructor to teach a course until they are confident to teach solo.
- A Course cannot exist unless it has an Instructor.
- Once again, if the business rules dictate that this is not so, the relationship is incorrect.

Appendix 2: Interpreting a Data Dictionary

General guidelines on how to interpret a Business View Logical Model Data Dictionary



1. Entity Block
2. Entity Name and Description
3. Attribute Block
4. Attribute name (underlined) with item description (below). Sometimes, the item is also described at the attribute level to describe its specific usage within an entity.
5. Field Type. E.g.: Character, Numeric, Date etc...
6. Field Length and where applicable – number of decimal places. The maximum capacity for a field's content is determined by the Item's set length. With the examples above...
 - The 1st item, has been defined as a Character (Variable length string) field, with a maximum length of 25 characters.
 - The 2nd item has been defined a Numeric field with a width of 3 including 2 decimal places. (9.99)
Other numeric definition examples: 99.99 would be defined as 4 2, 999.9 as 4 1, 999 as 3 0 etc...
 Whenever numeric data items are defined, it is good practice to include an example in the item's description.
7. Attribute Optionality within Entity
8. Logical Class of the Data Item. Examples include:
 - Business Identifier: a field used by a business area as a reference to obtain more information.
 - Code: Where values are stored as a code – with the full value sometimes stored in a corresponding lookup table.
 - Date: For storing date information e.g.: Year, full or partial dates, character dates etc...
 - Description: For storing long descriptions.
 - Flag: Where the field is used to store a condition that may be used by the business area to trigger an event.
 - Identifier: Where field is used to store an identifier e.g.: a Licence Number.
 - Indicator: Usually Boolean e.g. Yes/No
 - Measurement: The unit of measure is also defined e.g.: mm, feet, kilograms etc...
 - Name: Where field is used to store a name. e.g.: Lake Rome
 - Quantity: Where a field stores a value that measures quantity. E.g.: Number of Moose Observed: 12
9. Business Definition. E.g.: *Valid Values in NRVIS_2NUM Lookup Table*
10. Entity Relationship Description

Document Control

Version	Date	Author/Editor	Comments
1.0	January 5, 2006	Victor AZONDEKON	First draft pending approval

Contributors

Approvals