# Idaho Technology Authority (ITA)

# Enterprise standards – S4000 – INFORMATION AND DATA

## Category: S4XXX – Dam Inventory Standard

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**I.** **Definition**

See ITA Guideline [G105](https://ita.idaho.gov/psg/g105.pdf) (ITA Glossary of Terms) for definitions.

**ii.** **Rationale**

A statewide dam inventory layer and data standard, which is part of the Hazards data theme, is a critical source of information for land managers, emergency managers, transportation engineers, developers, and researchers. Standardized landslide inventory data supports those groups by providing an authoritative, centralized, statewide database.

**iii.** **APPROVED STANDARD(S)**

See Attachment

**iV.** **APPROVED PRODUCTS(S)**

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

**V.** **JUSTIFICATION**

A statewide dam inventory dataset is a critical source of information, as stated under ‘II Rationale’ in this standard. A data exchange standard supports the use of the dam inventory dataset to facility a predictable format, improve collaboration and encourage of this dataset.

**VI.** **Technical and Implementation Considerations**

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

**VII.** **emerging trends and architectural directions**

Data will be shared in accordance with Enterprise Standard [S4250](https://ita.idaho.gov/psg/s4250.pdf) – Enterprise

Geographic Information System (GIS) Data Sharing Standards.

**VIIi.** **Procedure reference**

The format, content and development of this standard adhere to Policy [P5030](https://ita.idaho.gov/psg/p5030.pdf) for Framework Standards, [S4250](https://ita.idaho.gov/psg/s4250.pdf) for Data Sharing Standards and [S4220](https://ita.idaho.gov/psg/s4220.pdf) for Geospatial Metadata.

**ix. review cycle**

Review will occur at least annually.

**X. CONTACT INFORMATION**

For more information, contact the ITA Staff at (208) 605-4064.

**Revision History**

XX/XX/202X – Standard Presented to the IGC-EC

 

STATE OF IDAHO

**Idaho Dam Inventory Standard**

Part of the Other Theme

Version 1

Effective Month Day, 2023

Developed by the Other Technical Working Group

Contact

ITA Staff

Office of Information Technology Services

(208) 605-4064

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1. **Introduction to the Dam Inventory Standard**

A statewide dam inventory is a critical source of information for land managers, emergency managers, transportation engineers, developers, and researchers. Those groups will benefit from this data because this standard is an authoritative, centralized, statewide landslide inventory. Many private sector and local, state, and federal government agencies have business needs for landslide inventory data.

A dam inventory Standard is intended to facilitate integration and sharing of up-to-date dam inventory data and enhance the dissemination and use of Dam inventory information. This standard does not instruct on how dam inventory databases are designed for internal use.

This standard was developed by the Hazards Technical Working Group, a subgroup of the Idaho Geospatial Council – Executive Committee (IGC-EC). This standard will be reviewed at least annually and updated as needed.

* 1. **Mission and Goals of the Standard**

The Dam Inventory Standard supports a statewide dataset that is consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the Dam Inventory Framework. The standard will communicate with and may have similar attributes to other Idaho Framework data standards. It encourages all Idaho-based agencies with geospatial dam inventory data to contribute to the Dam Inventory Framework.

The Dam Inventory Framework will be appropriately shared and beneficial to all. The fields in the Dam Inventory Data Exchange Standard will be general enough to incorporate basic information without requiring major changes in internal data models. This standard allows for expansion to a more complex data structure and schema.

* 1. **Relationship to Existing Standards**

This Dam Inventory Exchange Standard relates to existing standards as follows:

* No other standards apply.
  1. **Description of the Standard**

This standard describes the vision and geospatial data structure of a Dam Inventory Framework in the state of Idaho. This standard is devised to be:

* Simple, easy to understand, and logical.
* Uniformly applicable, whenever possible
* Flexible and capable of accommodating future expansions
* Dynamic in terms of continuous review
  1. **Applicability and Intended Uses**

This standard applies to the Dam inventory element of the Hazards theme of The Idaho Map (TIM).

When implemented, this standard will enable access to and exchange of Idaho’s dam data for both existing use and future planning. A predictable standard will support data collaboration, improve data collection techniques, help identify and report errors, correct inaccurate entries, and allow a variety of agencies to incorporate this data in their own data products with some known level of confidence in the veracity of the product.

This standard does not consider data sharing agreements, contracts, transactions, privacy concerns, or any other issues relating to the acquisition and dissemination of dam inventory data.

* 1. **Standard Development Process**

The Hazards Technical Working Group is a voluntary group of private, city, county, tribal, state, and federal representatives. In 2023, the Dam Inventory Lead began developing the standard for the Dam Inventory Framework using the standard development automation tools developed by the IGC-EC to generate the first draft of the Standard. This standard was then reviewed and edited by the members of the Hazards Technical Working Group.

After initial development, the draft standard document was shared with the Idaho Geospatial Council Executive Committee (IGC-EC) and the Idaho Geospatial Council (IGC) in accordance with the review and approval process described in ITA Policy [P5030](https://ita.idaho.gov/psg/p5030.pdf) Framework Standards Development.

The standard was presented to the IGC-EC in <<insert month and year>> and approved by the IGC-EC in <<insert month and year>>.

* 1. **Maintenance of the Standard**

This standard will be revised as needed and in accordance with the ITA Framework Standards Development Policy ([P5030](https://ita.idaho.gov/psg/p5030.pdf)).

1. **Body of the Standard**
   1. **Scope and Content**

The scope of the Dam Inventory Data Exchange Standard is to describe a statewide layer which identifies the physical locations and attributes of mapped dams in Idaho.

* 1. **Need**

Dam inventory maps are a key dataset needed for land managers, emergency managers, transportation engineers, developers, and researchers. This standard provides the foundation to aggregate dam data for centralized access and stewardship information.

Dam inventory data is needed because public access to locations of significant land features, such a water storage dams, benefits a vast audience; the list is nearly endless.

* 1. **Participation in the Standard Development**

The development of the Dam Inventory Data Exchange Standard adheres to the ITA Framework Standards Development Policy ([P5030](https://ita.idaho.gov/psg/p5030.pdf)). The Other Standard Team tasked with developing this standard invite input and comments from private, county, state, and federal organizations. As the standard is reviewed in accordance with Policy [P5030](https://ita.idaho.gov/psg/p5030.pdf) requirements, there will be an opportunity for broad participation and input by stakeholders in the development of this standard. The process will be equally broad for input on updates and enhancements to the standard. As with all Idaho Framework standards, public review, and comments on the Dam Inventory Data Exchange Standard is encouraged.

* 1. **Integration with Other Standards**

The Dam Inventory Data Exchange Standard follows the same format as other Idaho geospatial framework data standards. The dam inventory standard may contain some of the same attributes as other framework standards and may adopt the field name, definition, and domain from the other standards to promote consistency.

* 1. **Technical and Operation Context**
     1. **Data Environment**

The data environment is a digital vector point with a specific, standardized set of attributes pertinent to the Dam Inventory Framework. Dam inventory data shared under this standard must be in a format supporting vector points.

* + 1. **Reference Systems**

The Dam Inventory Framework will be published in the Idaho Transverse Mercator NAD83 (IDTM83) coordinate system, which is the State of Idaho’s single-zone coordinate system. Data is not required to be submitted in the IDTM83 coordinate system but must have a defined coordinate system clearly described in the metadata.

* + 1. **Global Positioning Systems (GPS)**

Some data provided might contain geometry from GPS methods, and the provided metadata should describe this, if applicable.

* + 1. **Interdependence of Themes**

Dam inventory geometry data may coincide with other framework data. For example, the aerial extent of the dam and the impounded reservoir must coincide exactly to the real property on which they both occupy. Vertical layers also must coincide, i.e., height, elevation, and bathymetry.

Attributes found in the dam inventory layer are related to the attributes found in the elevation data sets.

* + 1. **Encoding**

When data is imported into and exported from the Dam Inventory Framework, encoding will take place to convert data formats and attributes.

* + 1. **Resolution**

Resolution will be documented in the metadata.

* + 1. **Accuracy**

No specific requirements for accuracy are specified in this standard. Accuracy will be documented in the metadata.

* + 1. **Edge Matching**

No edge matching between jurisdictions is required.

* + 1. **Unique Identifier**

The unique identifier is NIDID, which is the National Dam ID assigned by the National Association of Dam Safety Officers.

* + 1. **Attributes**

Attributes for public and intergovernmental distribution are described in Section 3 of this standard.

* + 1. **Stewardship**

Perpetual maintenance and other aspects of lifecycle management are essential to Dam Inventory Framework. Details of stewards, their roles and responsibilities, and processes are set forth, or are being planned to set forth in a Dam Inventory Framework Stewardship Plan and related documents.

* + 1. **Records Management and Archiving**

Data are managed by the Idaho Department of Water Resources and hosted on ArcGIS Online.

* + 1. **Metadata**

The Dam Inventory Framework metadata will describe the methods used to update and aggregate the individual dam inventory data contributions, processes or crosswalks performed, definition of attributes, and other required information. This metadata will conform to the metadata standards as set out in ITA Standard [S4220](https://ita.idaho.gov/psg/s4220.pdf) Geospatial Metadata.

1. **Data Characteristics**
   1. **Minimum Graphic Data Elements**

The geometry of the features in the Dam Inventory Framework is vector point.

* 1. **Optional Graphic Data Elements**

Not applicable.

* 1. **Standard Attribute Schema**

| **Field Name** | **Data Type** | **Length** | **Description** | **Examples** |
| --- | --- | --- | --- | --- |
| DamID | Interger |  | Computer-generated unique ID for each dam record | 142 |
| NIDID | String | 20 | National Dam ID | ID06064 |
| StateID | String | 20 | Water right number associated with dam for storage or power purposes; if includes XXX, not water right is associated with the dam | 17-2000,  27-xx15 |
| DamName | String | 100 | Name of dam | SMITH POND |
| Status | String | 20 | Status of dam | REGULATED,  NON REGULATED |
| YearCompleted | Integer |  | Year dam construction was finished | 1975 |
| YearModified | Integer |  | Most recent year dam construction was modified from original specifications | 2005 |
| DamHeight | Double |  | Height of dam in feet measured from original ground surface to top | 35 |
| HydraulicHeight | Double |  | Height in feet from original ground surface to pool elevation | 29 |
| NormalStorage | Double |  | Storage in acre feet of the impounded water at design pool elevation | 880 |
| SurfaceArea | Double |  | Surface area in acres of impounded water at design pool elevation | 54.00 |
| DrainageArea | Double |  | Drainage area in square miles above dam location | 26.60 |
| DownStreamHazardPotential | String | 20 | Risk to property downstream of dam in event of dam failure | HIGH, LOW, NOT RATED, SIGNIFICANT |
| Source | String | 100 | Stream on which or nearest to which the dam is constructed | BIRCH CREEK |
| SourceQualifier | String | 100 | Qualifier to stream | WEST FORK |
| TributaryOf | String | 100 | Stream is tributary to this stream | BEAR RIVER |
| TributaryOfQualifier | String | 100 | Qualifier to TributaryOf stream | SOUTH FORK |
| DataSource | String | 550 | Method used to create the point for the dam’s location | Digitized, GPS - Downloaded |
| MetalTagNumber | String | 8 | Metal tag affixed to the dam or nearby | A0000111 |
| TRS | String | 36 | Concatenation of Public Land Survey Township/Range/Section the dam is located within | 09N42E28 |
| County | String | 50 | County dam in located in | FREMONT |
| SpatialDataID | Integer |  |  | 486796 |

* 1. **Data Quality**

Data quality considerations for Dam inventory include:

1. All Dam inventory should have Dam inventory IDs.

**Appendix A: References**

Idaho Technology Authority (ITA). *Information and Data Policy P5000, Category: P5030 Framework Standards Development Policy.* [https://ita.idaho.gov/psg/P5030.pdf](https://ita.idaho.gov/psg/p5030.pdf)

Idaho Technology Authority (ITA). *Enterprise Standards S4000 Geographic Information Systems (GIS) Data, Category: S4220 Geospatial Metadata.* [https://ita.idaho.gov/psg/S4220.pdf](https://ita.idaho.gov/psg/s4220.pdf)

Idaho Department of Water Resources (IDWR). *Dams of Idaho, Status and Downstream Hazard Potential*. <https://maps.idwr.idaho.gov/agol/DamsofIdaho/>

<< Add More References as Needed>>

# Appendix B: Glossary

See ITA Guideline [G105](https://nam01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fita.idaho.gov%2Fpsg%2Fg105.pdf&data=01%7C01%7Cpbond%40cityofboise.org%7C2ca8b62d08b14c86824608d6d25b20ad%7Cda3e15835c884f8ea832bd79cbd319cb%7C0&sdata=Nsvlb1tLNvY1YuorWK8VNvl5P4gRou8Pk0AkKq6iNp8%3D&reserved=0) (ITA Glossary of Terms) for definitions.

|  |
| --- |
| **Dam Inventory Nomination** |
| **Framework Data Theme:** Other |
| **Framework Dataset:** Dam inventory |
| **Proposed Framework Dataset Name:** Dam inventory |
| **Link to Publication Dataset of Proposed Framework Dataset:** I don't know |
| **Link to Metadata of Proposed Framework Dataset:** Which collection of metadata do you want to link? |
| **Authoritative Source(s) Description:** Agency creation and presently maintained by IDWR staff. No statute exists that would offer clear instruction as to how the data shall be collected, shared, revised, etc. |
| **Link to Data Exchange Standard:** <Will be added when standard is approved> |
| **Trusted Source Description:** Agency creation and presently maintained by IDWR staff. No statute exists that would offer clear instruction as to how the data shall be collected, shared, revised, etc. |
| **Please attach copies of the agreements between Authoritative Source(s) and Trusted Source.** |
| **Minimum Scale of Dataset:** |
| **Please describe the proposed maintenance schedule for the dataset:** Currently, maintained more or less on an as-needed basis; but not even near as well as it should be maintained. |
| **If this dataset is not a statewide coverage, please describe the methodology for developing or incorporating other data to make a statewide coverage:** |