Idaho Technology Authority (ITA)

ENTERPRISE STANDARDS – S4000 – INFORMATION AND DATA

Category: S4259 – Data Standard for National Soil Survey Derived Data Layers

CONTENTS:

I. DEFINITION

See ITA Guideline G105 (ITA Glossary of Terms) for definitions.

II. RATIONALE

The standard described in this document falls entirely within the ITA Standard S4260 Soils Dataset Standard and the dataset described in this document is a subset of the National Soil Survey database described in ITA Standard S4260 Soils Dataset Standard. ITA Standard S4260 Soils Dataset Standard was approved by the IGC-EC on 11/16/2017. While it is unusual to have a standard for a subset of data already approved in an existing standard, the database described in ITA Standard S4260 Soils Dataset Standard is extensive and requires experience and manipulation before being able to use.

Public surveys conducted with stakeholders with a business need for soil data in 2023 established the most used data table from the National Soil Surveys

comprehensive database. Based on the survey results this standard describes two layers that captures the most requested data:

1. Depth to Restricted Layer
2. Farmland Classification

A statewide National Soil Survey Derived Data Layers and Farm Classification layer are part of the Geosciences data theme and are a critical source of information for natural resources, conservation, climatologists, agriculture, soil science, engineering, and more.

III. APPROVED STANDARD(S)

The standard described in this document falls completely under the ITA Standard S4260 Soils Dataset Standard The standard for the Statewide National Soil Survey Derived Data Layers and Farmland Classification layers is attached to this document.

IV. APPROVED PRODUCT(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 National Soil Survey Derived Data Layers dataset is a critical source of information as stated under 'II Rationale' in this standard. This data standard supports the use of the National Soil Survey Derived Data Layers and Farmland Classification layers to be able to provide this data in a predictable format, improve collaboration and encourage the use 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 ITA Standard S4250 GIS Data Sharing Standards.

VIII. PROCEDURE REFERENCE

The format, content and development of this standard adhere to ITA Policy P5030 Framework Standards Development, ITA Standard S4250 GIS Data Sharing Standards and ITA Standard S4220 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

05/16/2024 – Standard Presented to the IGC-EC

STATE OF IDAHO

Data Standard for National Soil Survey Derived Data Layers

Part of the Geosciences Theme

Version 1
Effective May 16, 2024

Developed by the Geosciences Technical Working Group

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CONTENTS

1. Introduction to the National Soil Survey Derived Data Layers Standard

The standard described in this document falls entirely within the ITA Standard S4260 Soils Dataset Standard and the dataset described in this document is a subset of the National Soil Survey database described therein. ITA Standard S4260 Soils Dataset Standard was approved by the IGC-EC on 11/16/2017. While it is unusual to have a standard for a subset of data already approved in an existing standard, the database described in ITA Standard S4260 Soils Dataset Standard is extensive and requires experience and manipulation before being able to use.

Public surveys conducted with stakeholders with a business need for soil data in 2023 established the most used data table from the National Soil Surveys comprehensive database. Based on the survey results this standard describes two layers that captures the most requested data:

1. Depth to Restricted Layer
2. Farmland Classification Layer

A statewide Depth to Restricted Layer and Farm Classification layer are part of the Geosciences data theme and are a critical source of information for natural resources, conservation, climatologists, agriculture, soil science, engineering, and more.

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

The Data Standard for National Soil Survey Derived Data Layers supports two statewide data layers that are consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the Soil Survey derived data layers. The Standard will communicate with and may have similar attributes to other Idaho data standards.

The National Soil Survey Derived Data Layers will be appropriately shared and beneficial to all. The fields in the National Soil Survey Derived Data Layers Data 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.

1.2. **Relationship to Existing Standards**

National Soil Survey Derived Data Layers Data Standard relates to existing standards as follows:

- This standard describes a subset of the data in ITA Standard S4260 Soils Dataset Standard.

1.3. **Description of the Standard**

This standard describes the vision and geospatial data structure of a National Soil Survey Derived Data Layers 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

1.4. **Applicability and Intended Uses**

This standard applies to the National Soil Survey element of the Geosciences theme of The Idaho Map (TIM) by describing frequently used subsets of data in the National Soil Survey.

The datasets are intended for use in natural resources, conservation, climatologists, agriculture, soil science, engineering, and more.

This standard does not consider data sharing agreements, contracts, transactions, privacy concerns, or any other issues relating to the acquisition and dissemination of National Soil Survey Derived Data Layers data.

1.5. **Standard Development Process**

The Geosciences Technical Working Group (TWG) is a voluntary group of private, city, county, tribal, state, and federal representatives.

The Geosciences TWG determined that the complexity of the National Soil Survey, the database approved in 2017 by the IGC-EC to be the soil component of Idaho's Spatial Data Infrastructure as described in ITA Standard S4260 Soils Dataset Standard, makes it too difficult to make this data available on a map, and Open Data site associated with The Idaho Map.

Public surveys conducted with stakeholders with a business need for soil data in 2023 established which data tables, and data views from the National Soil Surveys comprehensive database are most frequently used. Based on the survey the following two datasets are most used:

1. Depth to Restricted Layer

2. Farmland Classification Layer

A first draft of this standards document was created using the automation tools developed by the IGC-EC. This standard was then reviewed and edited by the members of the Geosciences 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 Standards Development.

1.6. **Maintenance of the Standard**

This standard will be revised as needed and in accordance with the ITA Policy P5030 Standards Development.

2. **Body of the Standard**

2.1. **Scope and Content**

The scope of the National Soil Survey Derived Data Layers Standard is to describe two statewide layers, one displaying Depth to Restricted Layer and the other displaying Farm Classifications. All data is derived from the National Soil Survey as described in ITA Standard S4260 Soils Dataset Standard.

2.2. **Need**

The National Soil Survey is a key dataset needed for natural resources, conservation, climatologists, agriculture, soil science, engineering, and more. This standard provides easier access to key data tables found in the National Soil Survey.

National Soil Survey data is needed because planning and analysis of soils data is necessary for natural resource management, conservation, climatologists, agriculture, soil science, engineering, and more.

2.3. **Participation in the Standard Development**

The development of the National Soil Survey Derived Data Layers Data Standard adheres to the ITA Policy P5030 Standards Development. The Geosciences Technical Working Group

tasked with developing this standard has invited input and comments from private, county, state, and federal organizations through Technical Working Group meetings, surveys and communications via email and information posted on https://gis.idaho.gov.

As the standard is reviewed in accordance with ITS Policy P5030 requirements, there has been 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 standards, public review, and comments on the National Soil Survey Derived Data Layers Data Standard is encouraged.

2.4. **Integration with Other Standards**

The National Soil Survey Derived Data Layers Data Standard follows the same format as other Idaho geospatial data standards. The National Soil Survey Derived Data Layers standard may contain some of the same attributes as other standards and may adopt the field name, definition, and domain from the other standards to promote consistency. This standard is closely related to ITA Standard S4260 Soils Dataset Standard.

2.5. **Technical and Operation Context**

2.5.1. **Data Environment**

The data environment is a digital vector polygon with a specific, standardized set of attributes pertinent to the National Soil Survey Derived Data Layers. National Soil Survey Derived Data Layers data shared under this standard must be in a format supporting vector polygons.

2.5.2. **Reference Systems**

The National Soil Survey Derived Data Layers will be published in the WGS 1984 Web Mercator coordinate system to increase interoperability with other datasets shared in a web environment. Data is not required to be submitted in the Idaho Transverse Mercator NAD83 (IDTM83) coordinate system but must have a defined coordinate system clearly described in the metadata.

2.5.3. **Global Positioning Systems (GPS)**

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

2.5.4. **Interdependence of Themes**

Not applicable

2.5.5. **Encoding**

When data is imported into and exported from the National Soil Survey Derived Data Layers, encoding will take place to convert data formats and attributes. Attributes, including those with coded values, are described in the metadata associated with the data layers.

2.5.6. **Resolution**

Vector data is derived by converting a raster with a cell size of 10 meters. Data for National Soil Survey of which the data described in this standard is a subset, is collected at scales ranging from 1:12,000 to 1:63,360. More details were gathered at a scale of 1:12,000 than at a scale of 1:63,360.

2.5.7. **Accuracy**

Not applicable.

2.5.8. **Edge Matching**

Not applicable.

2.5.9. **Unique Identifier**

Id

2.5.10. **Attributes**

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

2.5.11. **Stewardship**

Perpetual maintenance and other aspects of lifecycle management are essential to National Soil Survey Derived Data Layers. Data is maintained and updated by the National Resources Conservation Service (NRCS). Annual exports, at the start of the Federal Fiscal year in October, for both described data layers will be derived from the National Soil Survey in cooperation with the Idaho State Soil Scientist housed at the NRCS and hosted at the Data & Spatial Services Office within the Idaho Office of Information Technology Services.

2.5.12. **Records Management and Archiving**

Records are managed and archived by the National Resources and Conservation Service (NRCS). They are reviewed and updated annually at the start of the fiscal year in October.

2.5.13. **Metadata**

The National Soil Survey Derived Data Layers metadata will describe the methods used to update and aggregate the individual National Soil Survey Derived Data Layers including 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 Geospatial Metadata.

3. **Data Characteristics**

3.1. **Minimum Graphic Data Elements**

The geometry of the features in National Soil Survey Derived Data Layers is vector polygon.

3.2. **Optional Graphic Data Elements**

Not applicable.

3.3. **Standard Attribute Schema**

3.3.1. Depth to Restricted Layer

Field Name	Data Type	Length	Description	Examples
Shape	Geometry			
AREASYMBOL	Text	20	Symbol that uniquely identifies a single occurrence of a particular type of area.	Landcaster Co., NE is NE109
MUKEY	Text	30	Map unit key - Identifies the map unit in the soil survey.	2397025
DEP2ANYRES	Long		Depth to any restricted layer.	201

3.3.2. Farm Classification

Field Name	Data Type	Length	Description	Examples
Shape	Geometry			
AREASYMBOL	Text	20	Symbol that uniquely identifies a single occurrence of a particular type of area.	Landcaster Co., NE is NE109
SPATIALVER	Double		Denotes the serial version of the spatial data for a soil survey area.	5
MUSYM	Text	6	Symbol used to identify the soil map unit in the soil survey.	464
MUKEY	Text	30	Map unit key - Identifies the map unit in the soil survey.	2397025

FRMLNDCLS	Text	254	Identification as prime farmland, farmland of statewide importance, or farmland of local importance.	Prime farmland if protected from flooding or not frequently flooded during the growing season

3.4. **Data Quality**

Data quality considerations for National Soil Survey Derived Data Layers include:

- All National Soil Survey Derived Data Layers should have National Soil Survey Derived Data Layers IDs.

Appendix A: References

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

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

Idaho Technology Authority (ITA). *Standards S4000 Geographic Information Systems (GIS) Data, Category: S4260 Soils Dataset.* https://its.idaho.gov/psg/S4260.pdf

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at https://websoilsurvey.nrcs.usda.gov/.

Appendix B: Glossary

See ITA Guideline G105 - (ITA Glossary of Terms) for definitions.