METRIC
MIL-PRF-89049/1

SUPERSEDING
See Section 6.3

NOTE: This draft, dated 30 November 1998 prepared by the National Imagery and Mapping Agency, has not been approved and is subject to modification. DO NOT USE FOR ACQUISITION PURPOSES. (Project MCGT–0300)

ASSOCIATED PERFORMANCE SPECIFICATION
FOUNDATION FEATURE DATA (FFD)

This specification is ~~approved~~ for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This associated product specification, in conjunction with MIL-PRF-89049, defines the content and format requirements for the National Imagery and Mapping Agency's (NIMA) Foundation Feature Data (FFD), the initial feature data set under the Geospatial Information Framework. This product is designed to provide a basic foundation of service required features and is distributed on Compact Disc - Read Only Memory (CD - ROM). References to the FFD specification in this document assume the use of both the general and associated specifications.

1.2 Purpose. The purpose of this specification is to assure uniformity of treatment among all mapping and charting elements engaged in a coordinated production and maintenance program for this product. This specification provides a description of the content, accuracy, data format, and design of the FFD product, which is the baseline data set for digital feature data. FFD is a vector based product that portrays a selected set of key geographic features of military significance in a standardized georelational structure.

1.3 Classification. Data shall be collected at a density of detail that supports coordinated customer requirements. In areas where a high resolution or tactical level of detail is needed, FFD will be collected at a feature density equivalent to a 1:50,000 to 1:100,000 scale product. In areas where only a medium resolution or planning level of detail is needed, FFD will be collected at a feature density equivalent to a 1:200,000 to 1:250,000 scale product. Feature delineation and representation will always conform to the high resolution accuracy requirement. The feature portrayal criteria cited herein support the high resolution requirement; however, it can vary when collected at medium resolution. Table C-3 lists the FFD features that may be affected by differences in resolution, along with a comparison of minimum sizes at these resolutions. Use of medium resolution portrayal criteria shall always be documented in the lineage documentation table of the corresponding data library, as per MIL-PRF-89049, Section D.3.1.5.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Director, National Imagery and Mapping Agency, ATTN: NIMA Customer Support/COD, Mail Stop P-38, 12310 Sunrise Valley Drive, Reston, VA 20191-3449 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A **AREA MCGT**

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in Sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in Sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the current Department of Defense Index of Specifications and Standards (DoDISS) and the supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

DEPARTMENT OF DEFENSE

MIL-PRF-89049 - General Performance Specification Vector Products

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from DoD Single Stock Point (DoDSSP), Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094).

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications or specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS (The following sections provide specific FFD requirements in addition to those listed in MIL-PRF-89049. Any requirements not specifically listed in this section defer to MIL-PRF-89049.)

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Accuracy.

3.2.1 Absolute horizontal accuracy. The horizontal accuracy requirement for FFD is 25 meters circular error at 90 percent probability, except for the boundaries and vegetation coverages, which have a 50 meter requirement.

3.2.2 Absolute vertical accuracy. The vertical accuracy requirement for FFD is plus (+) or minus (-) 20 meters at 90 percent probability.

3.2.3 Relative accuracy. A formal relative accuracy for FFD has not been defined by the users of this product.

3.3 Datum.

3.3.1 Horizontal datum. The horizontal datum for this FFD product shall be the World Geodetic System 1984 (WGS84), as identified in NIMATR 8350.2 WGS84. If source map sheets are not referenced to WGS84, data used will be converted from their original horizontal datum to WGS84.

3.3.2 Vertical datum. The vertical datum for FFD shall be Mean Sea Level (MSL).

3.4 Security.

3.4.1 Security classification. The security classification of the products generated by the use of these specifications will be the lowest category practicable. When it is necessary to assign a security classification to the product, it shall be in accordance with established national security procedures.

3.4.2 Security classification of product. The CD-ROM discs containing FFD data vary in classification depending on the geographic location covered by the data. The CD-ROM will carry the classification of the most restrictive classification of any tile or library contained within that particular compact disk.

3.4.3 Security classification of specification. This performance specification, MIL-PRF-89049/1, is UNCLASSIFIED.

3.5 Continuity. All FFD data are subject to the portrayal criteria specified in Appendix B.

a. Each FFD database shall be organized into VPF libraries such that a seamless product is produced where data are present. Data gaps between FFD libraries may exist due to an absence of data. No data overlap shall exist in the libraries of FFD databases.

b. Where data collection procedures require individual source sheets, digital files or other media to be combined, features crossing source boundaries shall be continuous whenever possible. Exceptions to this rule occur when more current source data are used and the feature position or presence has changed, or a mismatch occurs due to different specifications of the incorporated source data. In these cases, a discontinuity along a source boundary shall occur and be documented in the Data Quality coverage.

3.6 Thematic layer organization. FFD products are organized into thematic layers. Each FFD thematic layer is stored as a single coverage at the VPF coverage level. As defined in MIL-PRF-89049, section 3.8, FFD has one Reference Library, composed of four coverages and one Data Library, composed of two reference coverages and seven data coverages. Within the Data Library there are six basic FFD terrain information coverages as listed in Table 2 of this associated specification.

3.7 Dimensions. The minimum size of features collected from source materials shall be in conformance with the portrayal criteria and attribute values provided in the FFD data dictionary, Appendix B. Features may be captured as points, nodes, lines, or areas. Text or annotation may also be captured with minimum point size determined in related attribute tables linked to each text feature table.

3.8 Feature and attribute coding scheme. FFD implements the NIMA Profile of Digital Geographic Information Exchange Standard (DIGEST), Feature and Attribute Coding Catalogue (FACC)(short version: NIMA Profile of DIGEST FACC) to define features, attributes, and values. See Appendix C for a listing of the FACC feature codes and attribute codes allowable for FFD thematic files.

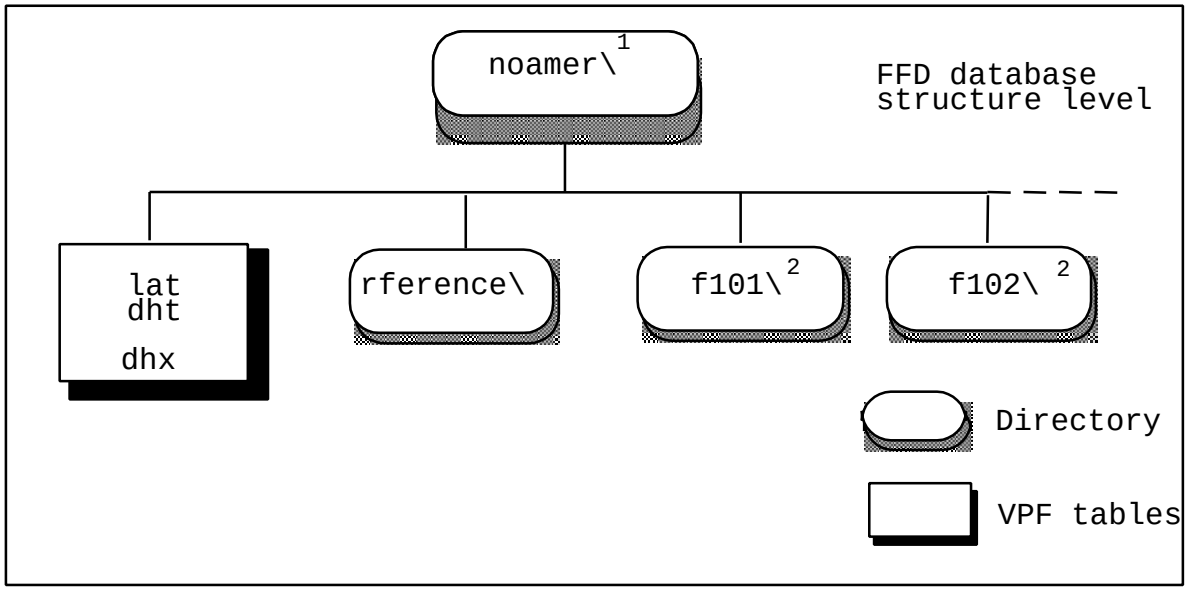
3.9 FFD directory organization.

3.9.1 FFD regional databases. FFD consists of four regional databases. Each CD-ROM shall contain a single database directory and two or more library directories including one reference library and at least one data library. The database header and library attribute tables shall be duplicated for each CD-ROM within a regional database area. Each data library contains a mix of reference coverages and thematic coverages.

3.10 VPF structure levels, tables, and files. The following sections identify VPF structure information specific to FFD. General database, library, and coverage level tables are defined in MIL-PRF-89049. The record layout and content of the FFD tables and files are described in Appendix B of this specification.

3.10.1 Database directory files.

a. The FFD product is composed of four regional databases that have their own unique data base directory files. The database directory name shall be represented in lower case characters. The appropriate database directory shall be present on each CD-ROM disc containing its own unique FFD libraries, and it shall be the first file appearing on a CD-ROM. The tables and files contained in the FFD database directory are described below. A representation of the tables and files appearing in the FFD database level are depicted in FIGURE 1.



[1]This is a representative directory name for a FFD database.
[2]These are representative directory names for FFD libraries.

FIGURE 1. FFD database directory.

b. As described in MIL-PRF-89049, section 3.16.1, and Appendix B therein, the database directory contains three required metadata tables. The required tables include the Library Attribute Table (lat), Database Header Table (dht),and Database Header Table variable length index (dhx), see Table 1.

TABLE 1. FFD database table and file names and description.

Table or File Description	Table or File Name
FFD database directory	noamer[1]
Library Attribute Table	lat
Database Header Table	dht
Database Header Table variable length index	dhx
Reference library	rference
FFD library directories	f101[2]

[1]This is a representative directory name for a FFD database.
[2]This is a representative directory name for a FFD library.

3.10.2 Database and library naming conventions.

a. The FFD product will contain four databases. The extent of each database will correspond to a quadrant of the world. The appropriate database name shall be one of: noamer, soamafr, sasaus, or eurnasia.

b. FFD library names are a four or five character code in which the first character is ‘f’ indicating foundation data of the FFD. The next three characters ‘xxx’ represent the VMap level 1 library codes: 1 to 240 (approximate number) libraries, which themselves may be subdivided depending on data density (the fifth character).

3.10.3 Library directory files. The contents of each FFD library are stored in a directory, whose name shall be no more than eight lower case alphanumeric characters in length. The entire contents of one or more FFD libraries shall be contained on a CD-ROM. A representation of the tables and files present in a FFD library is provided in MIL-PRF-89049, Figures 4 and 5.

3.10.3.1 Library metadata. The library metadata tables and their content are described in MIL-PRF-89049, section 3.16.2.1. Product specific information for FFD is provided in Appendix B of this specification.

3.10.3.2 Library reference coverages. Each tiled FFD data library shall contain the Tile Reference Coverage (tileref) and Library Reference Coverage (libref) as defined by MIL-PRF-89049, Appendix D.

3.10.4 Coverage directory files.

3.10.4.1 Coverage metadata. The coverage metadata tables and their content are described in MIL-PRF-89049, section 3.16.3.1. Product specific information for FFD is provided in Appendix B of this specification.

3.10.4.2 Data coverages. There are up to seven possible thematic coverage directories present in any FFD data library. Within a library, coverage directories shall not be included if data does not exist for that coverage within the library's geographic area. The contents of each FFD data coverage are stored in a directory whose name shall be represented in lower case letters, with a three character name representative of the thematic layer name (i.e., bnd for Boundaries coverage, trn for Transportation), as shown in Table 2. There are four thematic coverage directories present in the FFD reference library. These coverage directory names are shown in Figure 6 of MIL-PRF-89049.

3.10.4.3 Coverage topology. The topology level of each coverage is specified in the coverage attribute table (cat) within each library, see MIL-PRF-89049,section 3.16.2.1 and Appendix D. Topology is not supported between coverages. The cat for each library is tailored based on the coverages actually in the FFD product. Table 2 depicts the FFD cat containing all possible FFD coverages.

TABLE 2. FFD coverage attribute table.

{Header length}L; Coverage Attribute Table;-; id=I,1,U,Row Identifier,-,-,-,: coverage_name[1]=T,8,P,Coverage name,-,-,-,: description=T,24,N,Coverage description,-,-,-,: level[2]=I,1,N,Topology level,-,-,-,:;			
1	libref	Library Reference	2
2	tileref	Tile Reference	3
3	bnd	Boundaries	3
4	dq	Data Quality	3
5	ele	Elevation	3
6	hyd	Hydrography	3
7	pop	Population	3
8	trn	Transportation	3
9	veg	Vegetation	3

NOTES:

1. This table depicts all coverages which may be present in a FFD library. Presence of these coverages will vary with data availability. If a library does not contain any data for a particular coverage, then the record describing the coverage will not be present.

2. The number in the level column represents the topology of each coverage.

3.10.4.4 Standardized data content of coverages. FFD features are organized into thematic coverages in a manner similar to the topographic family of NIMA vector products described in Section 3.8.1 of MIL-PRF-89049.

3.10.5 Feature class structure level. FFD feature classes for thematic coverages are shown in Table 3. Only those feature classes containing data shall be present in the coverage. Description of feature classes, with the exception of those located in the Data Quality (dq) coverage, are found in Appendix B. For feature class descriptions of dq features, see MIL-PRF-89049, Appendix E.

3.10.5.1 Feature table structure and contents. Feature tables will be implemented per MIL-PRF-89049. In addition to implementing the required feature-to-primitive links using join tables for all line and area feature classes, FFD will also implement the feature-to-primitive links using join tables for all text feature classes.

3.10.5.2 Related attribute tables.

3.10.5.2.1 Notes related attribute table. The notes related attribute table (notes.rat) shall be implemented for all feature tables, when appropriate, in accordance with MIL-PRF-89049, section 3.16.4.2.1.

TABLE 3. FFD thematic coverages and feature classes.

Coverage name	Feature classes				
	Point	Node	Line	Area	Text
dq			dqline	dqarea dqvoida	dqtxt
bnd			coastl martbndl polbndl	polbnda bndvoida	bndtxt
ele	elevp		contourl depthl	elevoida	eletxt
hyd	damlockp	damlockc	chanell daml	chanela damlocka lakeresa watera hydvoida	hydrotxt
pop				builtupa embassya popvoida	poptxt
trn	aerofacp	aerofacc bridgec ferryc fordc tunnelc	bridgel ferryl fordl harborl railrdl roadl trackl traill tunnell	aerofaca harbora rryarda runwaya trnvoida	transtxt
veg				cropa treesa vegvoida	vegtxt

3.10.5.2.2 Other related attribute tables. In certain cases, FFD shall implement feature table specific related attribute tables (*.rat where * is equal to or based on the feature class name). Features are associated with entries in the corresponding feature table specific *.rat through an associated join table (*.rjt where * is the feature class name). Appendix B defines the format of the *.rat and *.rjt tables for the specific feature tables for which they are implemented in FFD.

3.10.5.3 Text feature class. The text feature class shall have an associated related attribute table called the symbol.rat, per MIL-PRF-89049, section 3.16.4.2.2. All text (both at the feature and primitive level) will be limited to the characters found in Latin alphabet primary code table, Figure 24 of MIL-STD-2407.

3.10.6 Primitive Tables and associated files. VPF uses the primitive tables defined in MIL-STD-2407 to model a feature's location, geometry and topology. See MIL-PRF-89049, section 3.16.5 for the format to be used for VPF primitive tables in FFD. The data coverages in FFD data libraries (bnd, ele, hyd, pop, trn, veg) shall implement 3-dimensional (3D) geometry for the coordinates. The dq coverage is also 3D, as per MIL-PRF-89049. The tileref and libref coverages of the FFD data libraries, as well as all coverages in the reference library shall be 2-dimensional (2D), as per MIL-PRF-89049.

3.11 FFD tiling schemes. FFD data libraries shall be partitioned in a systematic tile structure based primarily on data density, see MIL-PRF-89049, section 3.17. The tileref coverage defines the tiling scheme for each FFD library. The tiling schemes for FFD libraries will differ in their spatial extent and number of tiles per library.

3.11.1 FFD tiling scheme. The FFD database will contain data in variable sized tiles based on the GEOREF reference system as defined in the tileref of each library. Typically, one degree by one degree tiles will be used; however, the tiling scheme will change by library when data density indicates that smaller or larger tiles are desirable.

3.11.2 Cross-tile topology. Cross-tile topology ensures that topology is retained between the primitive tables across the tile boundaries. Topology across the tiles is maintained through the use of a reference tile ID in the edge and connected node primitive tables that establishes a "cross-tile" link over the tile partitions. This enables the database to function as a seamless unit for analysis purposes.

3.12 Distribution medium. All VPF based products, including FFD, shall be distributed on CD-ROM disc in accordance with MIL-PRF-89049, sections 3.18 and 3.19.

3.13 CD-ROM labeling and packaging. General CD-ROM labeling, labeling on the cardboard sleeve, or jewel case liner/information booklet, as applicable, shall be as described in MIL-PRF-89049. Items specific to FFD are shown below.

3.13.1 CD labeling. Labeling of the FFD CDs shall be in accordance with DMA PI 813-101 (therein see Figure 2 for unclassified FFDs or Figure 3 for classified FFDs).

3.13.1.1 Specific FFD labeling items.

a. Product Logo: FFD CDs shall show the VPF logo.

b. Product Description: Foundation Feature Data (FFD)

c. Series: FFD

d. Item: The NIMA item name/number.

e. Edition: Three digit edition number with left filled zeroes

f. National Stock Number: Assigned as per MIL-STD-2414.

3.13.2 Information booklet. Information booklets shall be provided for FFD CDs. Labeling of the FFD information booklet covers shall be in accordance with NIMA NI 8955.1 (therein see Figure 6 for unclassified FFDs or Figure 8 for classified FFDs).. When used in conjunction with the jewel case, the front cover of the information booklet also serves as the front cover of the case.

3.13.2.1 Information booklet FFD specific items. All information booklet FFD specific items are the same as those shown on the CD, see 3.13.1.1.

3.13.2.2 Information booklet text. The interior pages of the information booklet shall contain the following statements (note that type should be such that all fit within the two inner surfaces of the booklet):

Foundation Feature Data (FFD)

1. Introduction: FFD is a vector-based digital product that portrays a selected minimum set of geographic information features of aeronautical, topographic, and hydrographic military significance, as defined in various map and chart specifications for scales normally ranging from 1:50,000 to 1:250,000. The features, attributes, and attribute values presented herein are a subset of those allowed in National Imagery and Mapping Agency (NIMA) Vector Product Format (VPF) based products.

2. Purpose: FFD is designed to provide near-global coverage of photogrammetrically derived features to support military Geographic Information Systems (GIS) applications. This data will form NIMA's baseline set of features, which can be intensified to meet specific applications or missions.

3. Specifications and Standards: This FFD Compact Disc - Read Only Memory (CD-ROM) was produced under DoD Specification MIL-PRF-89049/1, Associated Performance Specification Foundation Feature Data (FFD), (date TBD). It is formatted as specified in DoD Standard, MIL-STD-2407, Vector Product Format (VPF) and coded as per the NIMA Profile of Digital Geographic Information Exchange Standard (DIGEST), Feature and Attribute Coding Catalogue (FACC).

4. Datum and Projection:
Horizontal datum: World Geodetic System 1984 (WGS 84).
Vertical datum: WGS-84 ellipsoid.
Projection: Not Applicable.

5. FFD Content: These FFD files are equivalent to a thinned combination of the feature, attribute, and value content of various 1:50,000 to 1:250,000 scale hardcopy products. All FFD product features, attributes, and values are individually organized into a data library of single subject thematic layers/coverages consisting of Boundaries, Elevation, Hydrography, Population, Transportation, and Vegetation, along with data supporting coverages of Library Reference, Tile Reference, and Data Quality.

6. Comments and Questions: For questions concerning this or other NIMA products or services, please telephone the NIMA Customer Help Desk: 1-800-455-0899, Commercial 314-260-1236, or DSN 490-1236, or write: Director, National Imagery and Mapping Agency, ATTN: NIMA Customer Support/COD, Mail Stop P-38, 12310 Sunrise Valley Drive, Reston, VA 20191-3449.

3.13.3 Jewel case liner (back cover of case). Labeling of the FFD jewel case liner shall be in accordance with NIMA NI 8955.1 (therein see Figure 7 for unclassified FFDs or Figure 9 for classified FFDs).

3.13.4 Cardboard sleeve mailer. If a cardboard mailing sleeve is specified in the contract, it shall be labeled in accordance with NIMA NI 8955.1(therein see Figure 11 for unclassified FFDs or Figure 12 for classified FFDs).

4. VERIFICATION

Verification shall be in accordance with MIL-PRF-89049, section 4.

5. PACKAGING

5.1 Packaging. Packaging shall be in accordance with MIL-PRF-89049, section 5.1.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use.

6.1.1 General usage. FFD is the feature component of the Foundation Information Concept of the Geospatial Information Infrastructure. The dataset contains key features and attributes defined in existing NIMA products. When this dataset is used with other components (elevation and imagery), it provides an unprecedented view and analysis capability of the mission space. This dataset will form a baseline of information, which can be enhanced or expanded into mission specific data sets. As such, FFD is a militarily unique product developed to satisfy the armed services short and mid-term requirements for a world wide foundation of digital geospatial data, for which there are no comparable commercial specifications. When needed, this data can be hastily intensified with additional features and attributes to either standardized products with known production time frames or just those needed for a single specific mission. Thus, FFD is designed for use as a general purpose database and to support a variety of basic military Geographic Information System (GIS) applications at a tactical or strategic level in rapidly developing situations over selected geographic ares.

6.1.1.1 Sources. The feature content of FFD, as defined in this specification, is primarily based on a combination of selected minimum sets of aeronautical, topographic, and hydrographic features. Sources used to support the photogrammetric collection of features, attributes, and attribute values during the compilation of this product may include information derived from (but not limited to) aerial photography, aeronautical/hydrographic charts, multi-spectral imagery, topographic maps, soil surveys, hydrographic studies, land use inventories, and transportation reports. Information also may have been derived from hardcopy thematic maps and charts at a variety of scales (normally from 1:50,000 to 1:250,000) or conversion from digital data in other formats and coding schems.

6.1.1.2 FFD organization. The feature content of FFD is organized into single subject thematic overlays or files consisting of: Boundaries (bnd), Elevation (ele), Hydrography (hyd), Population (pop), Transportation (trn), and Vegetation (veg), with special coverages of Library Reference, Tile Reference, and Data Quality. Thus, FFD feature and attribute content is consistent with other associated VPF products. This geospatial FFD data is collected at a density of detail that approximates selective features from large to medium scale products. Based on its data collection density, if FFD data is to be output in hardcopy form, the appropriate scale for this output would vary from 1:50,000 to 1:250,000, depending in part on the smallest scale source used for the library. The geographic extent of the FFD will be global and consist of four regional databases, each with multiple data libraries.

6.1.1.3 Potential uses. The feature content defined in this specification can be used to partially populate standardized NIMA products and support the intensify-as-needed concept. Through this concept, by intensification of the FFD base data, various levels or resolutions of information will be produced in an upwards compatible format to support various missions from humanitarian relief to tactical execution. The production time to complete this suite of data sets and/or standardized products will vary depending on the level of detail required by the user or product. A driving requirement is to be able to photogrammetrically collect data in a timely manner and provide sufficient content to meet a customer's requirement. While FFD establishes the minimum or base level of this concept, all upper levels of data can be intensified from it. Thus, NIMA is proposing the concept to populate various combinations of features and attributes increasing the level of detail to meet customer-specific missions in a timely manner. Customers will identify what level is needed to support various missions, what combination of features and attributes are required for specific missions, availability of data based on the amount of detail, and how their systems will exploit this data.

6.1.2 Analysis limitation. The analytical use of FFD data at a scale greater than 1:50,000 may be limited as the result of source material used in collection.

6.2 Acquisition requirements. Acquisition documents shall be in accordance with MIL-PRF-89049, section 6.2.

6.3 Supersession. These specifications supersede the Draft Associated Specification Foundation Feature Data (FFD), MIL-PRF-89049/1, 15 January 1998, and all earlier versions thereof (all draft).

6.4 Definitions. Refer to MIL-PRF-89049 and the NIMA Profile of DIGEST FACC for definitions of terms and acronyms used in this specification that are not defined herein.

6.4.1 Abbreviations and acronyms.

BND	Boundaries (coverage name)
CD-ROM	Compact Disc-Read Only Memory
CE	Circular Error
DESCR	Feature Class Description
DMA	Defense Mapping Agency (now National Imagery and Mapping Agency [NIMA])
DoD	Department of Defense
DoDISS	Department of Defense Index of Specifications and Standards
ELE	Elevation (coverage name)
FACC	Feature and Attribute Coding Catalogue
FFD	Foundation Feature Data
GEOREF	World Geographic Reference System
GIS	Geographic Information System
HYD	Hydrography (coverage name)
ID	Identifier

MC&G	Mapping, Charting, and Geodesy
MCGT	Mapping, Charting and Geodesy Technology
NIMA	National Imagery and Mapping Agency (formerly Defense Mapping Agency - DMA)
POP	Population (coverage name)
TLM	Topographic Line Map
TRN	Transportation (coverage name)
USIGS	United States Imagery and Geospatial Information System
VDT	Value Description Table
VEG	Vegetation (coverage name)
VPF	Vector Product Format
WGS	World Geodetic System

6.4.2 Actual definitions. For actual definitions of VPF terms used in this specification refer to MIL-STD-2407, section 3. For actual definitions of the aeronautical, topographic, and hydrographic features, attributes, and values used herein refer to the NIMA Profile of DIGEST FACC.

6.5 Subject term (keyword) listing. This paragraph contains an alphabetical listing of subject terms (key words) that allow for identification of the document during retrieval searches. Note subject terms do not repeat words from title of this document, "Associated Performance Specification, Foundation Feature Data (FFD)":

Aeronautical
Built-up Area
Boundaries (bnd)
Data Quality
Digital Geographic Information Exchange Standard (DIGEST)
Elevation (ele)
Feature and Attribute Coding Catalogue (FACC)
Geographic Information System (GIS)
Geographic Reference System (GEOREF)
Geospatial Information
Hydrography (hyd)
Map
Population (pop)
Thematic Layers
Topographic Data
Transportation (trn)
Vector Product Format (VPF)
Vegetation (veg)
World Geodetic System (WGS)

6.6 Standardization agreements. Standardization agreements and interoperability shall be in accordance with MIL-PRF-89049, sections 6.7 and 6.8.

6.7 Changes from previous issue.

This section is not applicable to this specification.

6.8 Classification and special handling of thematic files.

a. The classification of the final FFD files will be determined by the appropriate security section responsible for the final classification. The lowest possible classification of the final product is desired.

b. Even though the final thematic files might be unclassified, a handling caveat could be required. Some NATO and other countries have mapping and other agreements which dictate the handling of materials produced over their country. Security elements should check for caveat requirements at the beginning of each project.

6.9 NIMA customer help desk. For questions concerning this or other NIMA products, services, or specifications, please telephone the NIMA Customer Help Desk at 1-800-455-0899, Commercial 314-260-1236, or DSN 490-1236.

FOUNDATION FEATURE DATA (FFD) DATA DICTIONARY ORGANIZATION

A.1 SCOPE

A.1.1 Scope. This appendix provides information on the data dictionary organization for the FFD product. It is a mandatory part of this specification. The information contained herein is intended for compliance.

A.2 APPLICABLE DOCUMENTS

This section is not applicable to this appendix.

A.3 FFD DATA DICTIONARY ORGANIZATION

A.3.1 Data dictionary organization.

a. The data provided in these appendixes are organized according to VPF structure levels. The FFD database tables appear first, as described in MIL-PRF-89049, Appendix B. The information provided in the database tables applies to the entire database. The FFD database contains two types of libraries: the reference library described in MIL-PRF-89049, Appendix C, and data libraries (containing the product data) described in Appendix D of the same document.

b. Herein, Appendix B contains the data coverages. For each coverage there is a series of tables that describe the data in that coverage. Listed for each coverage is an index of FACC codes, feature types, and respective attributes, followed by the character value description table, integer value description table, feature tables, feature class attribute table, and feature class schema table.

c. The portrayal criteria give generalized information of how the particular feature, based on FACC code, may be represented in this specification. For example, a bridge AQ040 will be collected either as a point or a line based on its length. However, a bridge will not be portrayed if the associated road is not portrayed in a built-up area.

d. Appendix C contains two consolidated listings of the FFD features and attributes with page numbers herein, along with their respective feature types for the FFD libraries. They are designed as an index to the FFD features and attributes. The first is a table of the FFD coverages, with their FACC feature names and codes, their associated attribute names and codes, and the page numbers of their respective primitive type feature tables. The second is a similar consolidated listing of all the FFD features sorted by FACC feature code, without their associated attributes.

FFD THEMATIC COVERAGE DIRECTORY RECORD LAYOUT

B.1 SCOPE

B.1.1 Scope. This appendix contains the thematic coverage directory record layout for FFD data. It is a mandatory part of this specification. The information contained herein is intended for compliance.

B.2 APPLICABLE DOCUMENTS

This section is not applicable to this appendix.

B.3 FFD THEMATIC COVERAGE DIRECTORY RECORD LAYOUT.

B.3.1 General. Appendix B contains the data coverages for FFD. For each coverage there is a series of tables that describe the data in that coverage. Listed for each coverage is an index of FACC codes, feature types, and respective attributes, followed by the character value description table, integer value description table, feature tables, feature class attribute table, and feature class schema table. As shown in Table B-1, this appendix details 6 of the 7 data coverages contained in the FFD product; the Data Quality coverage is described in MIL-PRF-89049, Appendix E.

TABLE B-1. FFD data coverages.

Data Quality coverage	(dq)
Boundaries coverage	(bnd)
Elevation coverage	(ele)
Hydrography coverage	(hyd)
Population coverage	(pop)
Transportation coverage	(trn)
Vegetation coverage	(veg)

B.3.1.1 Data quality minimum size. For the data quality coverage, the minimum collection area size is 15,625 square meters.

B.3.2 Boundaries coverage.

TABLE B-2. Boundaries coverage feature and attribute page numbers by feature type with their FACC Codes.
(Primitive types are given in the header under the feature types)

Feature Name	Feature Code	Attr. Code	Point (END)	Node (CND)	Line (EDG)	Area (FAC)	Text (TXT)
Administrative Area	FA001					23	
Name		NAM					
Usage		USE					
Administrative Boundary	FA000				21		
Accuracy Category		ACC					
Boundary Status Type		BST					
Name 3		NM3					
Name 4		NM4					
Usage		USE					
Armistice Line	FA020				21		
Accuracy Category		ACC					
Name 3		NM3					
Name 4		NM4					
Cease-Fire Line	FA030				21		
Accuracy Category		ACC					
Text Attribute		TXT					
Coastline/Shoreline	BA010				19		
Accuracy Category		ACC					
Vertical Datum Category		VDC					
Maritime Limit Boundary	FC021				20		
Maritime Boundary Limit		MBL					
Name 3		NM3					
Name 4		NM4					
Named Location	ZD040	-					24
Text Description	ZD045	-					24
Void Collection Area	ZD020	-				24	
Void Collection Attribute		VCA					

TABLE B-3. Boundaries Character Value Description Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Feature Table Description: Boundaries Character Value Description Table
Table Name: char.vdt

{Header length}L; Boundaries Character Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,6,N,Column Name,-,-,-,: value=T,5,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	coastl.lft	f_code	BA010	Coastline/Shoreline
2	martbndl.lft	f_code	FC021	Maritime Boundary Limit
3	martbndl.lft	nm3	UNK	No entry present
4	martbndl.lft	nm4	UNK	No entry present
5	polbndl.lft	f_code	FA000	Administrative Boundary
6	polbndl.lft	f_code	FA020	Armistice Line
7	polbndl.lft	f_code	FA030	Cease-Fire Line
8	polbndl.lft	nm3	UNK	No entry present
9	polbndl.lft	nm4	UNK	No entry present
10	polbndl.lft	txt	UNK	No entry present
11	polbnda.aft	f_code	FA001	Administrative Area
12	polbnda.aft	nam	UNK	No entry present
13	bndvoida.aft	f_code	ZD020	Void Collection Area
14	bndtxt.tft	f_code	ZD040	Named Location
15	bndtxt.tft	f_code	ZD045	Text Description
16	fca	type	L	Line Feature
17	fca	type	A	Area Feature
18	fca	type	T	Text Feature

TABLE B-4. Boundaries Integer Value Description Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Feature Table Description: Boundaries Integer Value Description Table
Table Name: int.vdt

{Header length}L; Boundaries Integer Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,3,N,Column Name,-,-,-,: value=S,1,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	coastl.lft	acc	0	Unknown
2	coastl.lft	acc	1	Accurate
3	coastl.lft	acc	2	Approximate
4	coastl.lft	vdc	0	Unknown
5	coastl.lft	vdc	7	Mean High Water
6	coastl.lft	vdc	11	Mean Low Water
7	coastl.lft	vdc	15	Mean Sea Level
8	coastl.lft	vdc	999	Other
9	martbndl.lft	mbl	0	Unknown
10	martbndl.lft	mbl	9	International Boundary (at sea)
11	polbndl.lft	acc	1	Accurate
12	polbndl.lft	acc	2	Approximate
13	polbndl.lft	bst	0	Unknown
14	polbndl.lft	bst	1	Definite
15	polbndl.lft	bst	2	Indefinite
16	polbndl.lft	bst	3	In Dispute
17	polbndl.lft	bst	4	No Defined Boundary
18	polbndl.lft	use	0	Unknown
19	polbndl.lft	use	23	International
20	polbndl.lft	use	26	Primary/1st Order
21	polbnda.aft	use	0	Unknown
22	polbnda.aft	use	23	International
23	bndvoida.aft	vca	0	Unknown
24	bndvoida.aft	vca	2	Area Too Rough to Collect
25	bndvoida.aft	vca	3	No Available Imagery
26	bndvoida.aft	vca	6	No Available Map Source
27	bndvoida.aft	vca	7	No Suitable Imagery
28	symbol.rat	fon	1	Machine Default
29	symbol.rat	sty	1	Kern
30	symbol.rat	sty	2	Proportional
31	symbol.rat	sty	3	Constant
32	symbol.rat	clt	1	Black
33	symbol.rat	clt	2	Blue
34	symbol.rat	clt	3	Red-Brown
35	symbol.rat	clt	4	Magenta

TABLE B-5. Coastline Line Feature Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Feature Table Description: Coastline Line Feature Table
Table Name: coastl.lft
Thematic Index ID Number: 1
Portrayal Criteria: All

```
{Header length}L;
Coastline Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
acc=S,1,N,Accuracy Category,int.vdt,-,-,:
vdc=S,1,N,Vertical Datum Category,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BA010	Coastline/Shoreline	
acc	Accuracy Category			
		0	Unknown	BA010
		1	Accurate	BA010
		2	Approximate	BA010
vdc	Vertical Datum Category			
		0	Unknown	BA010
		7	Mean High Water	BA010
		11	Mean Low Water	BA010
		15	Mean Sea Level	BA010
		999	Other	BA010

TABLE B-6. Maritime Boundary Line Feature Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Feature Table Description: Maritime Boundary Line Feature Table
Table Name: martbndl.lft
Thematic Index ID Number: 2
Portrayal Criteria: For FC021 only international off-shore boundaries are portrayed by State Department guidance.

```
{Header length}L;
Maritime Boundary Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
mbl=S,1,N,Maritime Boundary Limit,int.vdt,-,-,:
nm3=T,*,N,Name 3,char.vdt,-,-,:
nm4=T,*,N,Name 4,char.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		FC021	Maritime Limit Boundary	
mbl	Maritime Boundary Limit			
		0	Unknown	FC021
		9	International Boundary (at sea)	FC021
nm3	Name 3 (name of the political entity on one side of a boundary)			
		Character text string		FC021
		UNK (No entry present)		FC021
nm4	Name 4 (name of the political entity on the other side of a boundary)			
		Character text string		FC021
		UNK (No entry present)		FC021

TABLE B-7. Political Boundary Line Feature Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Feature Table Description: Political Boundary Line Feature Table
Table Name: polbndl.lft
Thematic Index ID Number: 3
Portrayal Criteria: For FA000 only international and first order Demarcation are collected by State Department guidance.

```
{Header length}L;
Political Boundary Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code3.lti,-,:
acc=S,1,N,Accuracy Category,int.vdt,-,-,:
bst=S,1,N,Boundary Status Type,int.vdt,-,-,:
nm3=T,*,N,Name 3,char.vdt,-,-,:
nm4=T,*,N,Name 4,char.vdt,-,-,:
txt=T,*,N,Text Attribute,char.vdt,-,-,:
use=S,1,N,Usage,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		FA000	Administrative Boundary	
		FA020	Armistice Line	
		FA030	Cease-Fire Line	
acc	Accuracy Category			
		1	Accurate	FA000, FA020, FA030
		2	Approximate	FA000, FA020, FA030
bst	Boundary Status Type			
		-32768	Null	FA020,FA030,
		0	Unknown	FA000
		1	Definite	FA000
		2	Indefinite	FA000
		3	In Dispute	FA000
		4	No Defined Boundary	FA000
nm3	Name 3 (name of the political entity on one side of a boundary) Variable length text =			
		zero-length	Null	FA030
		Character text string		FA000, FA020
		UNK (No entry present)		FA000, FA020
nm4	Name 4 (name of the political entity on the other side of a boundary) Variable length text =			
		zero-length	Null	FA030
		Character text string		FA000, FA020
		UNK (No entry present)		FA000, FA020

txt	Text Attribute			
	Variable length text =			
		zero-length	Null	FA000, FA020
		Character text string		FA030
		UNK (No entry present)		FA030
use	Usage			
		-32768	Null	FA020, FA030
		0	Unknown	FA000
		23	International	FA000
		26	Primary/1st Order	FA000

TABLE B-8. Political Boundary Area Feature Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Feature Table Description: Political Boundary Area Feature Table
Table Name: polbnda.aft
Thematic Index ID Number: 4
Portrayal Criteria: Only international areas will be portrayed by State Department guidance.

```
{Header length}L;
Political Boundary Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
use=S,1,N,Usage,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		FA001	Administrative Area	
nam	Name			
		Character text string		FA001
		UNK (No entry present)		FA001
use	Usage			
		0	Unknown	FA001
		23	International	FA001

TABLE B-9. Boundaries Void Collection Area Feature Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Feature Table Description: Boundaries Void Collection Area Feature Table
Table Name: bndvoida.aft
Thematic Index ID Number: 5
Portrayal Criteria:
For ZD020 area >= 15,625 square meters

```
{Header length}L;
Boundaries Void Collection Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
vca=S,1,N,Void Collection Attribute,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD020	Void Collection Area	
vca	Void Collection Attribute			
		0	Unknown	ZD020
		2	Area Too Rough to Collect	ZD020
		3	No Available Imagery	ZD020
		6	No Available Map Source	ZD020
		7	No Suitable Imagery	ZD020

TABLE B-10. Boundaries Text Feature Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Feature Table Description: Boundaries Text Feature Table
Table Name: bndtxt.tft
Thematic Index ID Number: 6

```
{Header length}L;
Boundaries Text Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code6.tti,-,:
symbol.rat_id=I,1,N,Symbol Identification,-,-,-,:;
```

Column	Description	Value	Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD040	Named Location	
		ZD045	Text Description	

TABLE B-11. Boundaries Feature Class Attribute Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Table Description: Boundaries Feature Class Attribute Table
Table Name: fca

```
{Header length}L;
Boundaries Feature Class Attribute Table;-;
id=I,1,P,Row Identifier,-,-,-,:
fclass=T,8,U,Feature Class Name,-,-,-,:
type=T,1,N,Feature Type,char.vdt,-,-,:
descr=T,*,N,Description,-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable Feature Class for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
fclass	Feature Class Name			
		coastl		
		martbndl		
		polbndl		
		polbnda		
		bndvoida		
		bndtxt		
type	Feature Type			
		L	Line Feature	coastl, martbndl, polbndl
		A	Area Feature	polbnda, bndvoida
		T	Text Feature	bndtxt
descr	Description			
		Coastline/Shoreline		coastl
		Maritime Boundary		martbndl
		Political Boundary		polbndl
		Political Boundary Areas		polbnda
		Boundaries Void Collection Areas		bndvoida
		Boundaries Coverage Text		bndtxt

TABLE B-12. Content and Format for Boundaries Coverage Feature Class Schema Table.

Thematic Layer: Boundaries
Coverage Name: bnd
Feature Table Description: Boundaries Feature Class Schema Table
Table Name: fcs

```
{Header length}L;
Boundaries Feature Class Schema Table;-;
id=I,1,P,Row Identifier,-,-,-,:
feature_class=T,8,N,Name of Feature Class,-,-,-,:
table1=T,12,N,First Table,-,-,-,:
table1_key=T,16,N,Column Name in First Table,-,-,-,:
table2=T,12,N,Second Table,-,-,-,:
table2_key=T,16,N,Column Name in Second Table,-,-,-,:;
```

1	coastl	coastl.lft	id	coastl.ljt	coastl.lft_id
2	coastl	coastl.ljt	edg_id	edg	id
3	coastl	edg	id	coastl.ljt	edg_id
4	coastl	coastl.ljt	coastl.lft_id	coastl.lft	id
5	coastl	coastl.lft	id	coastl.njt	coastl.lft_id
6	coastl	coastl.njt	notes.rat_id	notes.rat	id
7	coastl	notes.rat	id	coastl.njt	notes.rat_id
8	coastl	coastl.njt	coastl.lft_id	coastl.lft	id
9	martbndl	martbndl.lft	id	martbndl.ljt	martbndl.lft_id
10	martbndl	martbndl.ljt	edg_id	edg	id
11	martbndl	edg	id	martbndl.ljt	edg_id
12	martbndl	martbndl.ljt	martbndl.lft_id	martbndl.lft	id
13	martbndl	martbndl.lft	id	martbndl.njt	martbndl.lft_id
14	martbndl	martbndl.njt	notes.rat_id	notes.rat	id
15	martbndl	notes.rat	id	martbndl.njt	notes.rat_id
16	martbndl	martbndl.njt	martbndl.lft_id	martbndl.lft	id
17	polbndl	polbndl.lft	id	polbndl.ljt	polbndl.lft_id
18	polbndl	polbndl.ljt	edg_id	edg	id
19	polbndl	edg	id	polbndl.ljt	edg_id
20	polbndl	polbndl.ljt	polbndl.lft_id	polbndl.lft	id
21	polbndl	polbndl.lft	id	polbndl.njt	polbndl.lft_id
22	polbndl	polbndl.njt	notes.rat_id	notes.rat	id
23	polbndl	notes.rat	id	polbndl.njt	notes.rat_id
24	polbndl	polbndl.njt	polbndl.lft_id	polbndl.lft	id
25	polbnda	polbnda.aft	id	polbnda.ajt	polbnda.aft_id
26	polbnda	polbnda.ajt	fac_id	fac	id
27	polbnda	fac	id	polbnda.ajt	fac_id
28	polbnda	polbnda.ajt	polbnda.aft_id	polbnda.aft	id
29	polbnda	polbnda.aft	id	polbnda.njt	polbnda.aft_id
30	polbnda	polbnda.njt	notes.rat_id	notes.rat	id
31	polbnda	notes.rat	id	polbnda.njt	notes.rat_id
32	polbnda	polbnda.njt	polbnda.aft_id	polbnda.aft	id
33	bndvoida	bndvoida.aft	id	bndvoida.ajt	bndvoida.aft_id
34	bndvoida	bndvoida.ajt	fac_id	fac	id
35	bndvoida	fac	id	bndvoida.ajt	fac_id
36	bndvoida	bndvoida.ajt	bndvoida.aft_id	bndvoida.aft	id
37	bndvoida	bndvoida.aft	id	bndvoida.njt	bndvoida.aft_id
38	bndvoida	bndvoida.njt	notes.rat_id	notes.rat	id
39	bndvoida	notes.rat	id	bndvoida.njt	notes.rat_id
40	bndvoida	bndvoida.njt	bndvoida.aft_id	bndvoida.aft	id
41	bndtxt	bndtxt.tft	id	bndtxt.tjt	bndtxt.tft_id

42	bndtxt	bndtxt.tjt	txt_id	txt	id
43	bndtxt	txt	id	bndtxt.tjt	txt_id
44	bndtxt	bndtxt.tjt	bndtxt.tft_id	bndtxt.tft	id
45	bndtxt	bndtxt.tft	symbol.rat_id	symbol.rat	id

B.3.3 Elevation coverage.

TABLE B-13. Elevation coverage feature and attribute page numbers by feature type with their FACC Codes.
(Primitive types are given in the header under the feature types)

Feature Name	Feature Code	Attr. Code	Point (END)	Node (CND)	Line (EDG)	Area (FAC)	Text (TXT)
Contour Line (Land)	CA010				31		
Hypsography Portrayal Category		HQC					
Highest Z-value		ZV2					
Depth Contour	BE015				32		
Accuracy Category		ACC					
Depth Curve or Contour Value		CRV					
Named Location	ZD040	-					33
Spot Elevation	CA030		30				
Accuracy Category		ACC					
Elevation Accuracy		ELA					
Highest Z-value		ZV2					
Text Description	ZD045	-					33
Void Collection Area	ZD020					33	
Void Collection Attribute		VCA					

TABLE B-14. Elevation Character Value Description Table.

Thematic Layer: Elevation
Coverage Name: ele
Feature Table Description: Elevation Character Value Description Table
Table Name: char.vdt

{Header length}L; Elevation Character Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,6,N,Column Name,-,-,-,: value=T,5,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	elevp.pft	f_code	CA030	Spot Elevation
2	contourl.lft	f_code	CA010	Contour Line (Land)
3	depthl.lft	f_code	BE015	Depth Contour
4	elevoida.aft	f_code	ZD020	Void Collection Area
5	eletxt.tft	f_code	ZD040	Named Location
6	eletxt.tft	f_code	ZD045	Text Description
7	fca	type	P	Point/Node Feature
8	fca	type	L	Line Feature
9	fca	type	A	Area Feature
10	fca	type	T	Text Feature

TABLE B-15. Elevation Integer Value Description Table.

Thematic Layer: Elevation
Coverage Name: ele
Feature Table Description: Elevation Integer Value Description Table
Table Name: int.vdt

{Header length}L; Elevation Integer Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,3,N,Column Name,-,-,-,: value=S,1,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	elevp.pft	acc	0	Unknown
2	elevp.pft	acc	1	Accurate
3	elevp.pft	acc	2	Approximate
4	elevp.pft	ela	0	Unknown
5	elevp.pft	ela	1	Accurate
6	elevp.pft	ela	2	Approximate
7	elevp.pft	zv2	-32767	Unknown
8	contourl.lft	hqc	0	Unknown
9	contourl.lft	hqc	1	Index
10	contourl.lft	hqc	2	Intermediate
11	contourl.lft	hqc	5	Depression Index
12	contourl.lft	hqc	6	Depression Intermediate
13	contourl.lft	zv2	-32767	Unknown
14	depthl.lft	acc	1	Accurate
15	depthl.lft	acc	2	Approximate
16	elevoida.aft	vca	0	Unknown
17	elevoida.aft	vca	2	Area Too Rough to Collect
18	elevoida.aft	vca	3	No Available Imagery
19	elevoida.aft	vca	6	No Available Map Source
20	elevoida.aft	vca	7	No Suitable Imagery
21	symbol.rat	fon	1	Machine Default
22	symbol.rat	sty	1	Kern
23	symbol.rat	sty	2	Proportional
24	symbol.rat	sty	3	Constant
25	symbol.rat	clt	1	Black
26	symbol.rat	clt	2	Blue
27	symbol.rat	clt	3	Red-Brown
28	symbol.rat	clt	4	Magenta

TABLE B-16. Elevation Point Feature Table.

Thematic Layer: Elevation
Coverage Name: ele
Feature Table Description: Elevation Point Feature Table
Table Name: elevp.pft
Thematic Index ID Number: 1

```
{Header length}L;
Elevation Point Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
acc=S,1,N,Accuracy Category,int.vdt,-,-,:
ela=S,1,N,Elevation Accuracy,int.vdt,-,-,:
zv2=S,1,N,Highest Z-value (meters),int.vdt,-,-,:
tile_id=S,1,N,Tile Reference ID,-,til1_id.pti,-,:
end_id=I,1,N,Entity Node Primitive ID,-,end1_id.pti,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		CA030	Spot Elevation	
acc	Accuracy Category			
		0	Unknown	CA030
		1	Accurate	CA030
		2	Approximate	CA030
ela	Elevation Accuracy			
		0	Unknown	CA030
		1	Accurate	CA030
		2	Approximate	CA030
zv2	Highest Z-value (meters)			
		-32767	Unknown	CA030
		-400 to 11999		CA030

TABLE B-17. Contour Line Feature Table.

Thematic Layer: Elevation
Coverage Name: ele
Feature Table Description: Contour Line Feature Table
Table Name: contourl.lft
Thematic Index ID Number: 2
Portrayal criteria: Depending upon the severity of the terrain, the contour interval will be either 50, 100, 250, or 500 meters. The contours will reflect only major landforms and topography. For 50 m interval, the maximum elevation difference range within a region is 0 to 300 meters; for 100 m interval, the difference is 301 to 800 meters; for 250 m interval, the difference is 801 to 2500 meters; and for 500 m interval, the difference is over 2500 meters

```
{Header length}L;
Contour Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
hqc=S,1,N,Hypsography Portrayal Category,int.vdt,-,-,:
zv2=S,1,N,Highest Z-value (meters),int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		CA010	Contour Line (Land)	
hqc	Hypsography Portrayal Category			
		0	Unknown (default)	CA010
		1	Index	CA010
		2	Intermediate	CA010
		5	Depression Index	CA010
		6	Depression Intermediate	CA010
zv2	Highest Z-value (meters)			
		-32767	Unknown	CA010
		-400 to 11950		CA010

TABLE B-18. Depth Line Feature Table.

Thematic Layer: Elevation
Coverage Name: ele
Feature Table Description: Depth Line Feature Table
Table Name: depthl.lft
Thematic Index ID Number: 3
Portrayal Criteria: This is not intended to be used for navigation, contours will be 10, 20, 100, and 200 meters only.

```
{Header length}L;
Depth Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
acc=S,1,N,Accuracy Category,int.vdt,-,-,:
crv=F,1,N,Depth Curve or Contour Value (meters),-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BE015	Depth Contour	
acc	Accuracy Category			
		1	Accurate	BE015
		2	Approximate	BE015
crv	Depth Curve or Contour Value (meters)			BE015

TABLE B-19. Elevation Void Collection Area Feature Table.

Thematic Layer: Elevation
Coverage Name: ele
Feature Table Description: Elevation Void Collection Area Feature Table
Table Name: elevoida.aft
Thematic Index ID Number: 4
Portrayal Criteria:
For ZD020 area >= 15,625 square meters

```
{Header length}L;
Elevation Void Collection Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
vca=S,1,N,Void Collection Attribute,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD020	Void Collection Area	
vca	Void Collection Attribute			
		0	Unknown	ZD020
		2	Area Too Rough to Collect	ZD020
		3	No Available Imagery	ZD020
		6	No Available Map Source	ZD020
		7	No Suitable Imagery	ZD020

TABLE B-20. Elevation Text Feature Table.

Thematic Layer: Elevation
Coverage Name: ele
Feature Table Description: Elevation Text Feature Table
Table Name: eletxt.tft
Thematic Index ID Number: 5

```
{Header length}L;
Elevation Text Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code5.tti,-,:
symbol.rat_id=I,1,N,Symbol Identification,-,-,-,:;
```

Column	Description	Value	Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD040	Named Location	
		ZD045	Text Description	

TABLE B-21. Elevation Feature Class Attribute Table.

Thematic Layer: Elevation
Coverage Name: ele
Table Description: Elevation Feature Class Attribute Table
Table Name: fca

```
{Header length}L;
Elevation Feature Class Attribute Table;-;
id=I,1,P,Row Identifier,-,-,-,:
fclass=T,8,U,Feature Class Name,-,-,-,:
type=T,1,N,Feature Type,char.vdt,-,-,:
descr=T,*,N,Description,-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable Feature Class for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
fclass	Feature Class Name	elevp contourl depthl elevoida eletxt		
type	Feature Type	P	Point/Node Feature	elevp
		L	Line Feature	contourl, depthl
		A	Area Feature	elevoida
		T	Text Feature	eletxt
descr	Description	Spot Elevations/Points		elevp
		Contour Lines		contourl
		Depth Contours		depthl
		Elevation Void Collection Areas		elevoida
		Elevation Coverage Text		eletxt

TABLE B-22. Content and Format for Elevation Coverage Feature Class Schema Table.

Thematic Layer: Elevation
Coverage Name: ele
Feature Table Description: Elevation Feature Class Schema Table
Table Name: fcs

```
{Header length}L;
Elevation Feature Class Schema Table;-;
id=I,1,P,Row Identifier,-,-,-,:
feature_class=T,8,N,Name of Feature Class,-,-,-,:
table1=T,12,N,First Table,-,-,-,:
table1_key=T,16,N,Column Name in First Table,-,-,-,:
table2=T,12,N,Second Table,-,-,-,:
table2_key=T,16,N,Column Name in Second Table,-,-,-,:;
```

1	elevp	elevp.pft	end_id	end	id
2	elevp	end	id	elevp.pft	end_id
3	elevp	elevp.pft	id	elevp.njt	elevp.pft_id
4	elevp	elevp.njt	notes.rat_id	notes.rat	id
5	elevp	notes.rat	id	elevp.njt	notes.rat_id
6	elevp	elevp.njt	elevp.pft_id	elevp.pft	id
7	contourl	contourl.lft	id	contourl.ljt	contourl.lft_id
8	contourl	contourl.ljt	edg_id	edg	id
9	contourl	edg	id	contourl.ljt	edg_id
10	contourl	contourl.ljt	contourl.lft_id	contourl.lft	id
11	contourl	contourl.lft	id	contourl.njt	contourl.lft_id
12	contourl	contourl.njt	notes.rat_id	notes.rat	id
13	contourl	notes.rat	id	contourl.njt	notes.rat_id
14	contourl	contourl.njt	contourl.lft_id	contourl.lft	id
15	depthl	depthl.lft	id	depthl.ljt	depthl.lft_id
16	depthl	depthl.ljt	edg_id	edg	id
17	depthl	edg	id	depthl.ljt	edg_id
18	depthl	depthl.ljt	depthl.lft_id	depthl.lft	id
19	depthl	depthl.lft	id	depthl.njt	depthl.lft_id
20	depthl	depthl.njt	notes.rat_id	notes.rat	id
21	depthl	notes.rat	id	depthl.njt	notes.rat_id
22	depthl	depthl.njt	depthl.lft_id	depthl.lft	id
23	elevoida	elevoida.aft	id	elevoida.ajt	elevoida.aft_id
24	elevoida	elevoida.ajt	fac_id	fac	id
25	elevoida	fac	id	elevoida.ajt	fac_id
26	elevoida	elevoida.ajt	elevoida.aft_id	elevoida.aft	id
27	elevoida	elevoida.aft	id	elevoida.njt	elevoida.aft_id
28	elevoida	elevoida.njt	notes.rat_id	notes.rat	id
29	elevoida	notes.rat	id	elevoida.njt	notes.rat_id
30	elevoida	elevoida.njt	elevoida.aft_id	elevoida.aft	id
31	eletxt	eletxt.tft	id	eletxt.tjt	eletxt.tft_id
32	eletxt	eletxt.tjt	txt_id	txt	id
33	eletxt	txt	id	eletxt.tjt	txt_id
34	eletxt	eletxt.tjt	eletxt.tft_id	eletxt.tft	id
35	eletxt	eletxt.tft	symbol.rat_id	symbol.rat	id

B.3.4 Hydrography coverage

TABLE B-23. Hydrography coverage feature and attribute page numbers by feature type with their FACC Codes.
(Primitive types are given in the header under the feature types)

Feature Name	Feature Code	Attr. Code	Point (END)	Point (CND)	Line (EDG)	Area (FAC)	Text (TXT)
Aqueduct Location Category	BH010	 LOC			41		
Canal Hydrological Category Width	BH020	 HYC WID			41	43	
Dam/Weir Existence Category Height Above Surface Level Length/Diameter Name Width	BI020	 EXS HGT LEN NAM WID	39	40	42	44	
Ditch Width	BH030	 WID			41	43	
Filtration Beds/Aeration Beds	BH040	-				46	
Fish Hatchery/Fish Farm/ Marine Farm	BH050	-				46	
Island Name	BA030	 NAM				46	
Lake/Pond Hydrological Category Name	BH080	 HYC NAM				45	
Land Subject to Inundation	BH090	-				46	
Lock Existence Category Length/Diameter Name Width	BI030	 EXS LEN NAM WID	39	40		44	
Named Location	ZD040	-					47
Reservoir Name	BH130	 NAM				45	
River/Stream Hydrological Category Width	BH140	 HYC WID			41	43	
Salt Evaporator	BH155	-				46	
Settling Basin/Sludge Pond	AC030	-				46	
Text Description	ZD045	-					47
Void Collection Area Void Collection Attribute	ZD020	 VCA				47	
Water (Except Inland) Name	BA040	 NAM				46	

TABLE B-24. Hydrography Character Value Description Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Hydrography Character Value Description Table
Table Name: char.vdt

{Header length}L; Hydrography Character Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,6,N,Column Name,-,-,-,: value=T,5,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	damlockp.pft	f_code	BI020	Dam/Weir
2	damlockp.pft	f_code	BI030	Lock
3	damlockp.pft	nam	UNK	No entry present
4	damlockc.pft	f_code	BI020	Dam/Weir
5	damlockc.pft	f_code	BI030	Lock
6	damlockc.pft	nam	UNK	No entry present
7	chanell.lft	f_code	BH010	Aqueduct
8	chanell.lft	f_code	BH020	Canal
9	chanell.lft	f_code	BH030	Ditch
10	chanell.lft	f_code	BH140	River/Stream
11	daml.lft	f_code	BI020	Dam/Weir
12	daml.lft	nam	UNK	No entry present
13	chanela.aft	f_code	BH020	Canal
14	chanela.aft	f_code	BH030	Ditch
15	chanela.aft	f_code	BH140	River/Stream
16	damlocka.aft	f_code	BI020	Dam/Weir
17	damlocka.aft	f_code	BI030	Lock
18	damlocka.aft	nam	UNK	No entry present
19	lakeresa.aft	f_code	BH080	Lake/Pond
20	lakeresa.aft	f_code	BH130	Reservoir
21	lakeresa.aft	nam	UNK	No entry present
22	watera.aft	f_code	AC030	Settling Basin/Sludge Pond
23	watera.aft	f_code	BA030	Island
24	watera.aft	f_code	BA040	Water (Except Inland)
25	watera.aft	f_code	BH040	Filtration Beds/Aeration Beds
26	watera.aft	f_code	BH050	Fish Hatchery/Fish Farm/Marine Farm
27	watera.aft	f_code	BH090	Land Subject to Inundation
28	watera.aft	f_code	BH155	Salt Evaporator
29	watera.aft	nam	UNK	No entry present
30	hydvoida.aft	f_code	ZD020	Void Collection Area
31	hydrotxt.tft	f_code	ZD040	Named Location
32	hydrotxt.tft	f_code	ZD045	Text Description
33	fca	type	P	Point/Node Feature
34	fca	type	L	Line Feature
35	fca	type	A	Area Feature
36	fca	type	T	Text Feature

TABLE B-25. Hydrography Integer Value Description Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Hydrography Integer Value Description Table
Table Name: int.vdt

{Header length}L; Hydrography Integer Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,3,N,Column Name,-,-,-,: value=S,1,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	damlockp.pft	exs	0	Unknown
2	damlockp.pft	exs	5	Under Construction
3	damlockp.pft	exs	28	Operational
4	damlockp.pft	len	-32767	Unknown
5	damlockp.pft	wid	-32767	Unknown
6	damlockc.pft	exs	0	Unknown
7	damlockc.pft	exs	5	Under Construction
8	damlockc.pft	exs	28	Operational
9	damlockc.pft	len	-32767	Unknown
10	damlockc.pft	wid	-32767	Unknown
11	chanell.lft	hyc	0	Unknown
12	chanell.lft	hyc	3	Dry
13	chanell.lft	hyc	6	Non-Perennial/Intermittent/Fluctuating
14	chanell.lft	hyc	8	Perennial/Permanent
15	chanell.lft	loc	0	Unknown
16	chanell.lft	loc	8	On Ground Surface
17	chanell.lft	loc	25	Suspended/Elevated above Ground or Water Surface
18	chanell.lft	loc	40	Underground
19	chanell.lft	wid	-32767	Unknown
20	daml.lft	exs	0	Unknown
21	daml.lft	exs	5	Under Construction
22	daml.lft	exs	28	Operational
23	daml.lft	len	-32767	Unknown
24	daml.lft	wid	-32767	Unknown
25	chanela.aft	hyc	0	Unknown
26	chanela.aft	hyc	3	Dry
27	chanela.aft	hyc	6	Non-Perennial/Intermittent/Fluctuating
28	chanela.aft	hyc	8	Perennial/Permanent
29	chanela.aft	wid	-32767	Unknown
30	damlocka.aft	exs	0	Unknown
31	damlocka.aft	exs	5	Under Construction
32	damlocka.aft	exs	28	Operational
33	damlocka.aft	hgt	-32767	Unknown
34	damlocka.aft	len	-32767	Unknown
35	damlocka.aft	wid	-32767	Unknown
36	lakeresa.aft	hyc	0	Unknown
37	lakeresa.aft	hyc	3	Dry
38	lakeresa.aft	hyc	8	Perennial/Permanent
39	hydvoida.aft	vca	0	Unknown
40	hydvoida.aft	vca	2	Area Too Rough to Collect
41	hydvoida.aft	vca	3	No Available Imagery
42	hydvoida.aft	vca	6	No Available Map Source
43	hydvoida.aft	vca	7	No Suitable Imagery
44	symbol.rat	fon	1	Machine Default
45	symbol.rat	sty	1	Kern

46	symbol.rat	sty	2	Proportional
47	symbol.rat	sty	3	Constant
48	symbol.rat	clt	1	Black
49	symbol.rat	clt	2	Blue
50	symbol.rat	clt	3	Red-Brown
51	symbol.rat	clt	4	Magenta

TABLE B-26. Dam/Lock Point Feature Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Dam/Lock Point Feature Table
Table Name: damlockp.pft
Thematic Index ID Number: 1
Portrayal Criteria:
For BI020 length and width < 25 meters. For BI030 width < 25 meters. Both will be shown only where associated with portrayed hydrography features.

```
{Header length}L;
Dam/Lock Point Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code1.pti,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
wid=S,1,N,Width (meters),int.vdt,-,-,:
tile_id=S,1,N,Tile Reference ID,-,til1_id.pti,-,:
end_id=I,1,N,Entity Node Primitive ID,-,end1_id.pti,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BI020	Dam/Weir	
		BI030	Lock	
exs	Existence Category			
		0	Unknown	BI020, BI030
		5	Under Construction	BI020, BI030
		28	Operational	BI020, BI030
len	Length/Diameter (meters)			
		-32767	Unknown	BI020, BI030
		< 25		BI020
		> 0		BI030
nam	Name			
		Character text string		BI020, BI030
		UNK (No entry present)		BI020, BI030
wid	Width (meters)			
		-32767	Unknown	BI020, BI030
		< 25		BI020, BI030

TABLE B-27. Dam/Lock Node Feature Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Dam/Lock Node Feature Table
Table Name: damlockc.pft
Thematic Index ID Number: 2
Portrayal Criteria:

For BI020 length < 25 meters. For BI030 width < 25 meters. Both will be shown only where associated with portrayed hydrography features.

```
{Header length}L;
Dam/Lock Node Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code2.pti,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
wid=S,1,N,Width (meters),int.vdt,-,-,:
tile_id=S,1,N,Tile Reference ID,-,til2_id.pti,-,:
cnd_id=I,1,N,Connected Node Primitive ID,-,cnd2_id.pti,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BI020	Dam/Weir	
		BI030	Lock	
exs	Existence Category			
		0	Unknown	BI020, BI030
		5	Under Construction	BI020, BI030
		28	Operational	BI020, BI030
len	Length/Diameter (meters)			
		-32767	Unknown	BI020, BI030
		< 25		BI020
		> 0		BI030
nam	Name			
		Character text string		BI020, BI030
		UNK (No entry present)		BI020, BI030
wid	Width (meters)			
		-32767	Unknown	BI020, BI030
		< 25		BI020, BI030

TABLE B-28. Channel Line Feature Table.

A related attribute table (chanel.rat) is used to store the authorative name as text for both line and area major streams and canals. The rat will contain the following fields: id and chanel_name (see Table B-29). This replaces the name attribute and adds flexibility to the dataset. If multiple authorative names exist over the same segment of a stream or canal, each name will be represented as a separate record in the related attribute table. When multiple names exist for a feature, the feature will have multiple records in the appropriate join table (chanell.rjt, see Table B-30). Each record will reference the applicable record in the chanel.rat. All alphabetic characters will be in uppercase and will contain complete names, avoiding the use of abbreviations.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Channel Line Feature Table
Table Name: chanell.lft
Thematic Index ID Number: 3
Portrayal Criteria: For BH020, BH030, and BH140 length >= 300 meters and water width < 25 meters. Only prominent channel features will be shown in built-up areas. BH010 is used only to portray kanats in arid regions, length >= 75 meters.

```
{Header length}L;
Channel Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code3.lti,-,:
hyc=S,1,N,Hydrological Category,int.vdt,-,-,:
loc=S,1,N,Location Category,int.vdt,-,-,:
wid=S,1,N,Width (meters),int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BH010	Aqueduct	
		BH020	Canal	
		BH030	Ditch	
		BH140	River/Stream	
hyc	Hydrological Category			
		-32768	Null	BH010, BH030
		0	Unknown	BH020, BH140
		3	Dry	BH020, BH140
		6	Non-Perennial/Inter-mittent/Fluctuating	BH140
		8	Perennial/Permanent	BH020, BH140
loc	Location Category			
		-32768	Null	BH020, BH030, BH140
		0	Unknown	BH010
		8	On Ground Surface	BH010
		25	Suspended/Elevated above Ground or Water Surface	BH010
		40	Underground	BH010

wid	Width (meters)			
		-32768	Null	BH010
		-32767	Unknown	BH020, BH030, BH140
		<25		BH020, BH030, BH140

TABLE B-29. Format for Channel Related Attribute Table (chanel.rat).

```
{Header length}L;
Channel Related Attribute Table;-;
id=I,1,P,Row Identifier,-,-,-,:
chanel_name=T,*,N,River/Canal Name,-,-,-,:;
```

TABLE B-30. Format for Channel Line Related Join Table (chanell.rjt).

```
{Header length}L;
Channel Line Related Join Table;-;
id=I,1,P,Row Identifier,-,-,-,:
chanell.lft_id=I,1,N,Feature Key,-,fid3.rti,-,:
chanel.rat_id=I,1,N,Related Attribute Table Row Identifier,-,rat3.rti,-,:;
```

TABLE B-31. Dam Line Feature Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Dam Line Feature Table
Table Name: daml.lft
Thematic Index ID Number: 4
Portrayal Criteria:

For BI020 length >= 25 meters and width < 25 meters. Features shown only on portrayed hydrographic features. Names will be associated only with major dams.

```
{Header length}L;
Dam Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
wid=S,1,N,Width (meters),int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BI020	Dam/Weir	
exs	Existence Category			
		0	Unknown	BI020
		5	Under Construction	BI020
		28	Operational	BI020
len	Length/Diameter (meters)			
		-32767	Unknown	BI020
		>= 25		BI020

nam	Name			
		Character text string		BI020
		UNK (No entry present)		BI020
wid	Width (meters)			
		-32767	Unknown	BI020
		< 25		BI020

TABLE B-32. Channel Area Feature Table.

A related attribute table (chanel.rat) is used to store the authorative name as text for both line and area major streams and canals. The rat will contain the following fields: id and chanel_name (see Table B-29). This replaces the name attribute and adds flexibility to the dataset. If multiple authorative names exist over the same segment of a stream or canal, each name will be represented as a separate record in the related attribute table. When multiple names exist for a feature, the feature will have multiple records in the appropriate join table (chanela.rjt, see Table B-33). Each record will reference the applicable record in the chanel.rat. All alphabetic characters will be in uppercase and will contain complete names, avoiding the use of abbreviations.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Channel Area Feature Table
Table Name: chanela.aft
Thematic Index ID Number: 5
Portrayal Criteria:
For BH020, BH030, and BH140 length >= 300 meters and water width >= 25 meters.

```
{Header length}L;
Channel Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code5.ati,-,:
hyc=S,1,N,Hydrological Category,int.vdt,-,-,:
wid=S,1,N,Width (meters),int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BH020	Canal	
		BH030	Ditch	
		BH140	River/Stream	
hyc	Hydrological Category			
		-32768	Null	BH030
		0	Unknown	BH020, BH140
		3	Dry	BH020, BH140
		6	Non-Perennial/ Intermittent/ Fluctuating	BH140
		8	Perennial/ Permanent	BH020,BH140
wid	Width (meters)			
		-32767	Unknown	BH020, BH030, BH140
		>= 25		BH020, BH030, BH140

TABLE B-33. Format for Channel Area Related Join Table (chanela.rjt).

```
{Header length}L;
Channel Area Related Join Table;-;
id=I,1,P,Row Identifier,-,-,-,:
chanela.aft_id=I,1,N,Feature Key,-,fid5.rti,-,:
chanel.rat_id=I,1,N,Related Attribute Table Row Identifier,-,rat5.rti,-,:;
```

TABLE B-34. Dam/Lock Area Feature Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Dam/Lock Area Feature Table
Table Name: damlocka.aft
Thematic Index ID Number: 6
Portrayal Criteria:
For BI020 width (base) >= 25 meters and for BI030 width >= 25 meters. Both are only shown if associated with portrayed hydrography features. Only major features will have a name associated with them.

```
{Header length}L;
Dam/Lock Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code6.ati,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
hgt=S,1,N,Height Above Surface Level (meters),int.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
wid=S,1,N,Width (meters),int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BI020	Dam/Weir	
		BI030	Lock	
exs	Existence Category			
		0	Unknown	BI020, BI030
		5	Under Construction	BI020, BI030
		28	Operational	BI020, BI030
hgt	Height Above Surface Level (meters)			
		-32768	Null	BI030
		-32767	Unknown	BI020
		> 0		BI020
len	Length/Diameter (meters)			
		-32767	Unknown	BI020, BI030
		>= 25		BI020, BI030
nam	Name			
		Character text string		BI020, BI030
		UNK (No entry present)		BI020, BI030

wid	Width (meters)			
		-32767	Unknown	BI020, BI030
		>= 25		BI020, BI030

TABLE B-35. Lake Reservoir Area Feature Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Lake Reservoir Area Feature Table
Table Name: lakeresa.aft
Thematic Index ID Number: 7
Portrayal Criteria: For BH080 and BH130 area >= 15,625 square meters, or BH080 area >= 5,625 square meters in arid areas. Only major water bodies will be named.

```
{Header length}L;
Lake Reservoir Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code7.ati,-,:
hyc=S,1,N,Hydrological Category,int.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BH080	Lake/Pond	
		BH130	Reservoir	
hyc	Hydrological Category			
		-32768	Null	BH130
		0	Unknown	BH080
		3	Dry	BH080
		8	Perennial/Permanent	BH080
nam	Name			
		Character text string		BH080, BH130
		UNK (No entry present)		BH080, BH130

TABLE B-36. Water Area Feature Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Water Area Feature Table
Table Name: watera.aft
Thematic Index ID Number: 8
Portrayal Criteria:
For AC030, BA030, BA040, BH040, BH050, BH090, and BH155 area >= 15,625 square meters. For BA030 and BA040 only major islands and water bodies are named.

```
{Header length}L;
Water Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code8.ati,-,:
nam=T,*,N,Name,char.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AC030	Settling Basin/Sludge Pond	
		BA030	Island	
		BA040	Water (Except Inland)	
		BH040	Filtration Beds/Aeration Beds	
		BH050	Fish Hatchery/Fish Farm/Marine Farm	
		BH090	Land Subject to Inundation	
		BH155	Salt Evaporator	
nam	Name			
	Variable length text =			
		zero length	Null	AC030, BH040, BH050, BH090, BH155
		Character text string		BA030, BA040
		UNK (No entry present)		BA030, BA040

TABLE B-37. Hydrography Void Collection Area Feature Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Hydrography Void Collection Area Feature Table
Table Name: hydvoida.aft
Thematic Index ID Number: 9
Portrayal Criteria:
For ZD020 area >= 15,625 square meters

```
{Header length}L;
Hydrography Void Collection Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
vca=S,1,N,Void Collection Attribute,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD020	Void Collection Area	
vca	Void Collection Attribute			
		0	Unknown	ZD020
		2	Area Too Rough to Collect	ZD020
		3	No Available Imagery	ZD020
		6	No Available Map Source	ZD020
		7	No Suitable Imagery	ZD020

TABLE B-38. Hydrography Text Feature Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Hydrography Text Feature Table
Table Name: hydrotxt.tft
Thematic Index ID Number: 10

```
{Header length}L;
Hydrography Text Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code10.tti,-,:
symbol.rat_id=I,1,N,Symbol Identification,-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD040	Named Location	
		ZD045	Text Description	

TABLE B-39. Hydrography Feature Class Attribute Table.

Thematic Layer: Hydrography
Coverage Name: hyd
Table Description: Hydrography Feature Class Attribute Table
Table Name: fca

```
{Header length}L;
Hydrography Feature Class Attribute Table;-;
id=I,1,P,Row Identifier,-,-,-,:
fclass=T,8,U,Feature Class Name,-,-,-,:
type=T,1,N,Feature Type,char.vdt,-,-,:
descr=T,*,N,Description,-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable feature Class for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
fclass	Feature Class Name			
		damlockp		
		damlockc		
		chanell		
		daml		
		chanela		
		damlocka		
		lakeresa		
		watera		
		hydvoida		
		hydrotxt		
type	Feature Type	P	Point/Node Feature	damlockp, damlockc
		L	Line Feature	chanell, daml,
		A	Area Feature	chanela, damlocka lakeresa, watera, hydvoida
		T	Text Feature	hydrotxt
descr	Description			
		Dam and Lock Point Feature		damlockp
		Dam and Lock Node Feature		damlockc
		Channel Line Feature		chanell
		Dam Line Feature		daml
		Channel Area Feature		chanela
		Dam and Lock Area Feature		damlockc
		Lake/Reservoir Area Feature		lakeresa
		Water Area Feature		watera
		Hydrography Void Collection Area		hydvoida
		Hydrography Coverage Text		hydrotxt

TABLE B-40. Content and format for Hydrography coverage feature class schema table.

Thematic Layer: Hydrography
Coverage Name: hyd
Feature Table Description: Hydrography Feature Class Schema Table
Table Name: fcs

{Header length}L; Hydrography Feature Class Schema Table;-; id=I,1,P,Row Identifier,-,-,-,: feature_class=T,8,N,Name of Feature Class,-,-,-,: table1=T,12,N,First Table,-,-,-,: table1_key=T,16,N,Column Name in First Table,-,-,-,: table2=T,12,N,Second Table,-,-,-,: table2_key=T,16,N,Column Name in Second Table,-,-,-,:;					
1	damlockp	damlockp.pft	end_id	end	id
2	damlockp	end	id	damlockp.pft	end_id
3	damlockp	damlockp.pft	id	damlockp.njt	damlockp.pft_id
4	damlockp	damlockp.njt	notes.rat_id	notes.rat	id
5	damlockp	notes.rat	id	damlockp.njt	notes.rat_id
6	damlockp	damlockp.njt	damlockp.pft_id	damlockp.pft	id
7	damlockc	damlockc.pft	cnd_id	cnd	id
8	damlockc	cnd	id	damlockc.pft	cnd_id
9	damlockc	damlockc.pft	id	damlockc.njt	damlockc.pft_id
10	damlockc	damlockc.njt	notes.rat_id	notes.rat	id
11	damlockc	notes.rat	id	damlockc.njt	notes.rat_id
12	damlockc	damlockc.njt	damlockc.pft_id	damlockc.pft	id
13	chanell	chanell.lft	id	chanell.ljt	chanell.lft_id
14	chanell	chanell.ljt	edg_id	edg	id
15	chanell	edg	id	chanell.ljt	edg_id
16	chanell	chanell.ljt	chanell.lft_id	chanell.lft	id
17	chanell	chanell.lft	id	chanell.njt	chanell.lft_id
18	chanell	chanell.njt	notes.rat_id	notes.rat	id
19	chanell	notes.rat	id	chanell.njt	notes.rat_id
20	chanell	chanell.njt	chanell.lft_id	chanell.lft	id
21	chanell	chanell.lft	id	chanell.rjt	chanell.lft_id
22	chanell	chanell.rjt	chanel.rat_id	chanel.rat	id
23	chanell	chanel.rat	id	chanell.rjt	chanel.rat_id
24	chanell	chanell.rjt	chanell.lft_id	chanell.lft	id
25	daml	daml.lft	id	daml.ljt	daml.lft_id
26	daml	daml.ljt	edg_id	edg	id
27	daml	edg	id	daml.ljt	edg_id
28	daml	daml.ljt	daml.lft_id	daml.lft	id
29	daml	daml.lft	id	daml.njt	daml.lft_id
30	daml	daml.njt	notes.rat_id	notes.rat	id
31	daml	notes.rat	id	daml.njt	notes.rat_id
32	daml	daml.njt	daml.lft_id	daml.lft	id
33	chanela	chanela.aft	id	chanela.ajt	chanela.aft_id
34	chanela	chanela.ajt	fac_id	fac	id
35	chanela	fac	id	chanela.ajt	fac_id
36	chanela	chanela.ajt	chanela.aft_id	chanela.aft	id
37	chanela	chanela.aft	id	chanela.njt	chanela.aft_id
38	chanela	chanela.njt	notes.rat_id	notes.rat	id
39	chanela	notes.rat	id	chanela.njt	notes.rat_id
40	chanela	chanela.njt	chanela.aft_id	chanela.aft	id
41	chanela	chanela.aft	id	chanela.rjt	chanela.aft_id
42	chanela	chanela.rjt	chanel.rat_id	chanel.rat	id

43	chanela	chanel.rat	id	chanela.rjt	chanel.rat_id
44	chanela	chanela.rjt	chanela.aft_id	chanela.aft	id
45	damlocka	damlocka.aft	id	damlocka.ajt	damlocka.aft_id
46	damlocka	damlocka.ajt	fac_id	fac	id
47	damlocka	fac	id	damlocka.ajt	fac_id
48	damlocka	damlocka.ajt	damlocka.aft_id	damlocka.aft	id
49	damlocka	damlocka.aft	id	damlocka.njt	damlocka.aft_id
50	damlocka	damlocka.njt	notes.rat_id	notes.rat	id
51	damlocka	notes.rat	id	damlocka.njt	notes.rat_id
52	damlocka	damlocka.njt	damlocka.aft_id	damlocka.aft	id
53	lakeresa	lakeresa.aft	id	lakeresa.ajt	lakeresa.aft_id
54	lakeresa	lakeresa.ajt	fac_id	fac	id
55	lakeresa	fac	id	lakeresa.ajt	fac_id
56	lakeresa	lakeresa.ajt	lakeresa.aft_id	lakeresa.aft	id
57	lakeresa	lakeresa.aft	id	lakeresa.njt	lakeresa.aft_id
58	lakeresa	lakeresa.njt	notes.rat_id	notes.rat	id
59	lakeresa	notes.rat	id	lakeresa.njt	notes.rat_id
60	lakeresa	lakeresa.njt	lakeresa.aft_id	lakeresa.aft	id
61	watera	watera.aft	id	watera.ajt	watera.aft_id
62	watera	watera.ajt	fac_id	fac	id
63	watera	fac	id	watera.ajt	fac_id
64	watera	watera.ajt	watera.aft_id	watera.aft	id
65	watera	watera.aft	id	watera.njt	watera.aft_id
66	watera	watera.njt	notes.rat_id	notes.rat	id
67	watera	notes.rat	id	watera.njt	notes.rat_id
68	watera	watera.njt	watera.aft_id	watera.aft	id
69	hydvoida	hydvoida.aft	id	hydvoida.ajt	hydvoida.aft_id
70	hydvoida	hydvoida.ajt	fac_id	fac	id
71	hydvoida	fac	id	hydvoida.ajt	fac_id
72	hydvoida	hydvoida.ajt	hydvoida.aft_id	hydvoida.aft	id
73	hydvoida	hydvoida.aft	id	hydvoida.njt	hydvoida.aft_id
74	hydvoida	hydvoida.njt	notes.rat_id	notes.rat	id
75	hydvoida	notes.rat	id	hydvoida.njt	notes.rat_id
76	hydvoida	hydvoida.njt	hydvoida.aft_id	hydvoida.aft	id
77	hydrotxt	hydrotxt.tft	id	hydrotxt.tjt	hydrotxt.tft_id
78	hydrotxt	hydrotxt.tjt	txt_id	txt	id
79	hydrotxt	txt	id	hydrotxt.tjt	txt_id
80	hydrotxt	hydrotxt.tjt	hydrotxt.tft_id	hydrotxt.tft	id
81	hydrotxt	hydrotxt.tft	symbol.rat_id	symbol.rat	id

B.3.5 Population coverage

TABLE B-41. Population coverage feature and attribute page numbers by feature type with their FACC Codes.
(Primitive types are given in the header under the feature types)

Feature Name	Feature Code	Attr. Code	Point (END)	Node (CND)	Line (EDG)	Area (FAC)	Text (TXT)
Built-Up Area	AL020					53	
Name		NAM					
World Port Index Code		WPI					
Complex Outline	AL045					54	
Building Function Category		BFC					
Name		NAM					
Named Location	ZD040	-					55
Native Settlement	AL135					53	
Name		NAM					
Settlement	AL105					53	
Name		NAM					
Populated Place Type		PPT					
Text Description	ZD045	-					55
Void Collection Area	ZD020					55	
Void Collection Attribute		VCA					

TABLE B-42. Population Character Value Description Table.

Thematic Layer: Population
Coverage Name: pop
Feature Table Description: Population Character Value Description Table
Table Name: char.vdt

{Header length}L; Population Character Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,6,N,Column Name,-,-,-,: value=T,5,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	builtupa.aft	f_code	AL020	Built-Up Area
2	builtupa.aft	f_code	AL105	Settlement
3	builtupa.aft	f_code	AL135	Native Settlement
4	builtupa.aft	nam	UNK	No entry present
5	builtupa.aft	wpi	N_A	Not a port
6	embassya.aft	f_code	AL045	Complex Outline
7	embassya.aft	nam	UNK	No entry present
8	popvoida.aft	f_code	ZD020	Void Collection Area
9	poptxt.tft	f_code	ZD040	Named Location
10	poptxt.tft	f_code	ZD045	Text Description
11	fca	type	A	Area Feature
12	fca	type	T	Text Feature

TABLE B-43. Population Integer Value Description Table.

Thematic Layer: Population
Coverage Name: pop
Feature Table Description: Population Integer Value Description Table
Table Name: int.vdt

{Header length}L; Population Integer Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,3,N,Column Name,-,-,-,: value=S,1,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	builtupa.aft	ppt	0	Unknown
2	builtupa.aft	ppt	2	Shantytown
3	embassya.aft	bfc	0	Unknown
4	embassya.aft	bfc	66	Embassy
5	popvoida.aft	vca	0	Unknown
6	popvoida.aft	vca	2	Area Too Rough to Collect
7	popvoida.aft	vca	3	No Available Imagery
8	popvoida.aft	vca	6	No Available Map Source
9	popvoida.aft	vca	7	No Suitable Imagery
10	symbol.rat	fon	1	Machine Default
11	symbol.rat	sty	1	Kern
12	symbol.rat	sty	2	Proportional
13	symbol.rat	sty	3	Constant
14	symbol.rat	clt	1	Black
15	symbol.rat	clt	2	Blue
16	symbol.rat	clt	3	Red-Brown
17	symbol.rat	clt	4	Magneta

TABLE B-44. Built-Up Area Area Feature Table.

Thematic Layer: Population
Coverage Name: pop
Feature Table Description: Built-Up Area Area Feature Table
Table Name: builtupa.aft
Thematic Index ID Number: 1
Portrayal Criteria: Contiguous regions of AL020, AL135, and AL105 with combined areas >=15,625 square.

```
{Header length}L;
Built-Up Area Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code1.ati,-,:
nam=T,*,N,Name,char.vdt,-,-,:
ppt=S,1,N,Populated Place Type,int.vdt,-,-,:
wpi=T,5,N,World Port Index Code,char.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AL020	Built-Up Area	
		AL105	Settlement	
		AL135	Native Settlement	
nam	Name			
		Character text string		AL020, AL105, AL135
		UNK (No entry present)		AL020, AL105, AL135
ppt	Populated Place Type			
		-32768	Null	AL020, AL135
		0	Unknown	AL105
		2	Shantytown	AL105
wpi	World Port Index Code			
		N/A	Null	AL105, AL135
		Character text string		AL020
		N_A	Not Applicable (Not a port)	AL020

TABLE B-45. Embassy Compound Area Feature Table.

Thematic Layer: Population
Coverage Name: pop
Feature Table Description: Embassy Compound Area Feature Table
Table Name: embassya.aft
Thematic Index ID Number: 2
Portrayal Criteria:
Outline the area of the embassy complex, include all NATO members (BE,CA,DA,FR,GE,GR,IC,IT,LU,NL,NO,PO,SP,TU,UK,US) and Australia.

```
{Header length}L;
Embassy Compound Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
bfc=S,1,N,Building Function Category,int.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AL045	Complex Outline	
bfc	Building Function	Category		
		0	Unknown	AL045
		66	Embassy	AL045
nam	Name			
		Character text string		AL045
		UNK	No entry present	AL045

TABLE B-46. Population Void Collection Area Feature Table.

Thematic Layer: Population
Coverage Name: pop
Feature Table Description: Population Void Collection Area Feature Table
Table Name: popvoida.aft
Thematic Index ID Number: 3
Portrayal Criteria:
For ZD020 area >= 15,625 square meters

```
{Header length}L;
Population Void Collection Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
vca=S,1,N,Void Collection Attribute,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD020	Void Collection Area	
vca	Void Collection Attribute			
		0	Unknown	ZD020
		2	Area Too Rough to Collect	ZD020
		3	No Available Imagery	ZD020
		6	No Available Map Source	ZD020
		7	No Suitable Imagery	ZD020

TABLE B-47. Population Text Feature Table.

Thematic Layer: Population
Coverage Name: pop
Feature Table Description: Population Text Feature Table
Table Name: poptxt.tft
Thematic Index ID Number: 4

```
{Header length}L;
Population Text Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code4.tti,-,:
symbol.rat_id=I,1,N,Symbol Identification,-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD040	Named Location	
		ZD045	Text Description	

TABLE B-48. Population Feature Class Attribute Table.

Thematic Layer: Population
Coverage Name: pop
Table Description: Population Feature Class Attribute Table
Table Name: fca

```
{Header length}L;
Population Feature Class Attribute Table;-;
id=I,1,P,Row Identifier,-,-,-,:
fclass=T,8,U,Feature Class Name,-,-,-,:
type=T,1,N,Feature Type,char.vdt,-,-,:
descr=T,*,N,Description,-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable Feature Class for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
fclass	Feature Class Name			
		builtupa		
		embassya		
		popvoida		
		poptxt		
type	Feature Type			
		A	Area Feature	builtupa, embassya, popvoida
		T	Text Feature	poptxt
descr	Description			
		Built-Up Area		builtupa
		Embassy Compound Area		embassya
		Population Void Collection Area		popvoida
		Population Coverage Text		poptxt

TABLE B-49. Content and format for Population coverage feature class schema table.

Thematic Layer: Population
Coverage Name: pop
Feature Table Description: Population Feature Class Schema Table
Table Name: fcs

{Header length}L;					
Population Feature Class Schema Table;-;					
id=I,1,P,Row Identifier,-,-,-,:					
feature_class=T,8,N,Name of Feature Class,-,-,-,:					
table1=T,12,N,First Table,-,-,-,:					
table1_key=T,16,N,Column Name in First Table,-,-,-,:					
table2=T,12,N,Second Table,-,-,-,:					
table2_key=T,16,N,Column Name in Second Table,-,-,-,:;					
1	builtupa	builtupa.aft	id	builtupa.ajt	builtupa.aft_id
2	builtupa	builtupa.ajt	fac_id	fac	id
3	builtupa	fac	id	builtupa.ajt	fac_id
4	builtupa	builtupa.ajt	builtupa.aft_id	builtupa.aft	id
5	builtupa	builtupa.aft	id	builtupa.njt	builtupa.aft_id
6	builtupa	builtupa.njt	notes.rat_id	notes.rat	id
7	builtupa	notes.rat	id	builtupa.njt	notes.rat_id
8	builtupa	builtupa.njt	builtupa.aft_id	builtupa.aft	id
9	embassya	embassya.aft	id	embassya.ajt	embassya.aft_id
10	embassya	embassya.ajt	fac_id	fac	id
11	embassya	fac	id	embassya.ajt	fac_id
12	embassya	embassya.ajt	embassya.aft_id	embassya.aft	id
13	embassya	embassya.aft	id	embassya.njt	embassya.aft_id
14	embassya	embassya.njt	notes.rat_id	notes.rat	id
15	embassya	notes.rat	id	embassya.njt	notes.rat_id
16	embassya	embassya.njt	embassya.aft_id	embassya.aft	id
17	popvoida	popvoida.aft	id	popvoida.ajt	popvoida.aft_id
18	popvoida	popvoida.ajt	fac_id	fac	id
19	popvoida	fac	id	popvoida.ajt	fac_id
20	popvoida	popvoida.ajt	popvoida.aft_id	popvoida.aft	id
21	popvoida	popvoida.aft	id	popvoida.njt	popvoida.aft_id
22	popvoida	popvoida.njt	notes.rat_id	notes.rat	id
23	popvoida	notes.rat	id	popvoida.njt	notes.rat_id
24	popvoida	popvoida.njt	popvoida.aft_id	popvoida.aft	id
25	poptxt	poptxt.tft	id	poptxt.tjt	poptxt.tft_id
26	poptxt	poptxt.tjt	txt_id	txt	id
27	poptxt	txt	id	poptxt.tjt	txt_id
28	poptxt	poptxt.tjt	poptxt.tft_id	poptxt.tft	id
29	poptxt	poptxt.tft	symbol.rat_id	symbol.rat	id

B.3.6 Transportation (TRN) coverage.

a. Where roads, railroads, and other related features have associated linear bridges, tunnels, ferries, and fords, those transportation features will share the same primitives.

b. Names will be associated only with major structures. For roads only interstate, regional, national route numbers or similar level will be carried with feature. Tunnels, airports, and railroads of either known importance or commonly referenced by its name will be populated. Having the 'name' attribute does not mean the feature must be explicitly labeled.

TABLE B-50. Transportation coverage feature and attribute page numbers by feature type with their FACC Codes.
(Primitive types are given in the header under the feature types.)

Feature Name	Feature Code	Attr. Code	Point (END)	Node (CND)	Line (EDG)	Area (FAC)	Text (TXT)
Airport/Airfield	GB005		64	65		79	
Existence Category		EXS					
ICAO Designator		IKO					
Name		NAM					
Usage		USE					
Bridge/Overpass/Viaduct	AQ040			66	69		
Existence Category		EXS					
Length/Diameter		LEN					
Minimum Traveled Way Width		WD1					
Transportation Use Category		TUC					
Cart Track	AP010				76		
Weather Type Category		WTC					
Ferry Crossing	AQ070			67	70		
Ferry Crossing Length		FCL					
Transportation Use Category		TUC					
Ford	BH070	-		67	70		
Heliport	GB035		64	65		79	
Existence Category		EXS					
ICAO Designator		IKO					
Name		NAM					
Usage		USE					
Named Location	ZD040	-					83
Pier/Wharf/Quay	BB190				71	80	
Length/Diameter		LEN					
Width		WID					
Railroad	AN010				72		
Existence Category		EXS					
Location Category		LOC					
Track/Lane Number		LTN					
Railroad Gauge Category		RGC					
Railroad Power Source		RRA					
Railroad Siding/Railroad Spur	AN050				72		
Existence Category		EXS					
Railroad Gauge Category		RGC					
Railroad Power Source		RRA					
Rail Siding/Spur Attribute		RSA					
Railroad Yard/Marshaling Yard	AN060					81	
Existence Category		EXS					
Road	AP030				74		
Accuracy Category		ACC					
Existence Category		EXS					
Location Category		LOC					

Median Category		MED					
Minimum Traveled Way Width		WD1					
Road/Runway Surface Type		RST					
Weather Type Category		WTC					
Runway	GB055					82	
Existence Category		EXS					
Length		LEN					
Road/Runway Surface Type		RST					
Width		WID					
Highest Z-value		ZV2					
Seaplane Base	GB065		64	65		79	
Existence Category		EXS					
Name		NAM					
Usage		USE					
Text Description	ZD045	-					83
Trail	AP050	-			77		
Tunnel	AQ130			68	78		
Existence Category		EXS					
Length/Diameter		LEN					
Name		NAM					
Transportation Use Category		TUC					
Void Collection Area	ZD020					83	
Void Collection Attribute		VCA					

TABLE B-51. Transportation Character Value Description Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Transportation Character Value Description Table
Table Name: char.vdt

{Header length}L; Transportation Character Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,6,N,Column Name,-,-,-,: value=T,5,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	aerofacp.pft	f_code	GB005	Airport/Airfield
2	aerofacp.pft	f_code	GB035	Heliport
3	aerofacp.pft	f_code	GB065	Seaplane Base
4	aerofacp.pft	iko	UNK	No entry present
5	aerofacp.pft	nam	UNK	No entry present
6	aerofacc.pft	f_code	GB005	Airport/Airfield
7	aerofacc.pft	f_code	GB035	Heliport
8	aerofacc.pft	f_code	GB065	Seaplane Base
9	aerofacc.pft	iko	UNK	No entry present
10	aerofacc.pft	nam	UNK	No entry present
11	bridgec.pft	f_code	AQ040	Bridge/Overpass/Viaduct
12	ferryc.pft	f_code	AQ070	Ferry Crossing
13	fordc.pft	f_code	BH070	Ford
14	tunnelc.pft	f_code	AQ130	Tunnel
15	tunnelc.pft	nam	UNK	No entry present
16	bridgel.lft	f_code	AQ040	Bridge/Overpass/Viaduct
17	ferryl.lft	f_code	AQ070	Ferry Crossing
18	fordl.lft	f_code	BH070	Ford
19	harborl.lft	f_code	BB190	Pier/Wharf/Quay
20	railrdl.lft	f_code	AN010	Railroad
21	railrdl.lft	f_code	AN050	Railroad Siding/Railroad Spur
22	roadl.lft	f_code	AP030	Road
23	trackl.lft	f_code	AP010	Cart Track
24	traill.lft	f_code	AP050	Trail
25	tunnell.lft	f_code	AQ130	Tunnel
26	tunnell.lft	nam	UNK	No entry present
27	aerofaca.aft	f_code	GB005	Airport/Airfield
28	aerofaca.aft	f_code	GB035	Heliport
29	aerofaca.aft	f_code	GB065	Seaplane Base
30	aerofaca.aft	iko	UNK	No entry present
31	aerofaca.aft	nam	UNK	No entry present
32	harbora.aft	f_code	BB190	Pier/Wharf/Quay
33	rryarda.aft	f_code	AN060	Railroad Yard/Marshalling Yard
34	runwaya.aft	f_code	GB055	Runway
35	trnvoida.aft	f_code	ZD020	Void Collection Area
36	transtxt.tft	f_code	ZD040	Named Location
37	transtxt.tft	f_code	ZD045	Text Description
38	fca	type	P	Point/Node Feature
39	fca	type	L	Line Feature
40	fca	type	A	Area Feature
41	fca	type	T	Text Feature

TABLE B-52. Transportation Integer Value Description Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Transportation Integer Value Description Table
Table Name: int.vdt

{Header length}L; Transportation Integer Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,3,N,Column Name,-,-,-,: value=S,1,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	aerofacp.pft	exs	0	Unknown
2	aerofacp.pft	exs	5	Under Construction
3	aerofacp.pft	exs	6	Abandoned/Disused
4	aerofacp.pft	exs	7	Destroyed
5	aerofacp.pft	exs	28	Operational
6	aerofacp.pft	exs	66	Damaged
7	aerofacp.pft	use	0	Unknown
8	aerofacp.pft	use	8	Military
9	aerofacp.pft	use	22	Joint Military/Civilian
10	aerofacp.pft	use	49	Civilian/Public
11	aerofacc.pft	exs	0	Unknown
12	aerofacc.pft	exs	5	Under Construction
13	aerofacc.pft	exs	6	Abandoned/Disused
14	aerofacc.pft	exs	7	Destroyed
15	aerofacc.pft	exs	28	Operational
16	aerofacc.pft	exs	66	Damaged
17	aerofacc.pft	use	0	Unknown
18	aerofacc.pft	use	8	Military
19	aerofacc.pft	use	22	Joint Military/Civilian
20	aerofacc.pft	use	49	Civilian/Public
21	bridgec.pft	exs	0	Unknown
22	bridgec.pft	exs	5	Under Construction
23	bridgec.pft	exs	7	Destroyed
24	bridgec.pft	exs	28	Operational
25	bridgec.pft	len	-32767	Unknown
26	bridgec.pft	tuc	0	Unknown
27	bridgec.pft	tuc	1	Both Road and Railroad
28	bridgec.pft	tuc	3	Railroad
29	bridgec.pft	tuc	4	Road
30	bridgec.pft	wd1	-32767	Unknown
31	ferryc.pft	fcl	-32767	Unknown
32	ferryc.pft	tuc	0	Unknown
33	ferryc.pft	tuc	1	Both Road and Railroad
34	ferryc.pft	tuc	3	Railroad
35	ferryc.pft	tuc	4	Road
36	tunnelc.pft	exs	0	Unknown
37	tunnelc.pft	exs	5	Under Construction
38	tunnelc.pft	exs	28	Operational
39	tunnelc.pft	len	-32767	Unknown
40	tunnelc.pft	tuc	0	Unknown
41	tunnelc.pft	tuc	1	Both Road and Railroad
42	tunnelc.pft	tuc	3	Railroad
43	tunnelc.pft	tuc	4	Road
44	bridgel.lft	exs	0	Unknown
45	bridgel.lft	exs	5	Under Construction

46	bridgel.lft	exs	7	Destroyed
47	bridgel.lft	exs	28	Operational
48	bridgel.lft	len	-32767	Unknown
49	bridgel.lft	tuc	0	Unknown
50	bridgel.lft	tuc	1	Both Road and Railroad
51	bridgel.lft	tuc	3	Railroad
52	bridgel.lft	tuc	4	Road
53	bridgel.lft	wd1	-32767	Unknown
54	ferryl.lft	fcl	-32767	Unknown
55	ferryl.lft	tuc	0	Unknown
56	ferryl.lft	tuc	1	Both Road and Railroad
57	ferryl.lft	tuc	3	Railroad
58	ferryl.lft	tuc	4	Road
59	harborl.lft	len	-32767	Unknown
60	harborl.lft	wid	-32767	Unknown
61	railrdl.lft	exs	0	Unknown
62	railrdl.lft	exs	5	Under Construction
63	railrdl.lft	exs	6	Abandoned/Disused
64	railrdl.lft	exs	7	Destroyed
65	railrdl.lft	exs	8	Dismantled
66	railrdl.lft	exs	28	Operational
67	railrdl.lft	loc	0	Unknown
68	railrdl.lft	loc	8	On Ground Surface
69	railrdl.lft	loc	25	Suspended/Elevated above Ground or Water Surface
70	railrdl.lft	ltn	-32767	Unknown
71	railrdl.lft	rgc	0	Unknown
72	railrdl.lft	rgc	1	Broad
73	railrdl.lft	rgc	2	Narrow
74	railrdl.lft	rgc	3	Normal
75	railrdl.lft	rra	0	Unknown
76	railrdl.lft	rra	1	Electrified Track
77	railrdl.lft	rra	3	Overhead Electrified
78	railrdl.lft	rra	4	Non-Electrified
79	railrdl.lft	rsa	1	Spur
80	railrdl.lft	rsa	2	Siding
81	railrdl.lft	rsa	3	Passing Track
82	roadl.lft	acc	0	Unknown
83	roadl.lft	acc	1	Accurate
84	roadl.lft	acc	2	Approximate
85	roadl.lft	exs	0	Unknown
86	roadl.lft	exs	5	Under Construction
87	roadl.lft	exs	28	Operational
88	roadl.lft	loc	0	Unknown
89	roadl.lft	loc	8	On Ground Surface
90	roadl.lft	loc	25	Suspended/Elevated above Ground or Water Surface
91	roadl.lft	med	0	Unknown
92	roadl.lft	med	1	With Median
93	roadl.lft	med	2	Without Median
94	roadl.lft	rst	0	Unknown
95	roadl.lft	rst	1	Hard/Paved
96	roadl.lft	rst	2	Loose/Unpaved
97	roadl.lft	wd1	-32767	Unknown
98	roadl.lft	wtc	0	Unknown
99	roadl.lft	wtc	1	All Weather
100	roadl.lft	wtc	2	Fair/Dry Weather
101	trackl.lft	wtc	0	Unknown
102	trackl.lft	wtc	2	Fair/Dry Weather
103	trackl.lft	wtc	3	Winter Only
104	tunnell.lft	exs	0	Unknown

105	tunnell.lft	exs	5	Under Construction
106	tunnell.lft	exs	28	Operational
107	tunnell.lft	len	-32767	Unknown
108	tunnell.lft	tuc	0	Unknown
109	tunnell.lft	tuc	1	Both Road and Railroad
110	tunnell.lft	tuc	3	Railroad
111	tunnell.lft	tuc	4	Road
112	aerofaca.aft	exs	0	Unknown
113	aerofaca.aft	exs	5	Under Construction
114	aerofaca.aft	exs	6	Abandoned/Disused
115	aerofaca.aft	exs	7	Destroyed
116	aerofaca.aft	exs	28	Operational
117	aerofaca.aft	exs	66	Damaged
118	aerofaca.aft	use	0	Unknown
119	aerofaca.aft	use	8	Military
120	aerofaca.aft	use	22	Joint Military/Civilian
121	aerofaca.aft	use	49	Civilian/Public
122	harbora.aft	len	-32767	Unknown
123	harbora.aft	wid	-32767	Unknown
124	rryarda.aft	exs	0	Unknown
125	rryarda.aft	exs	5	Under Construction
126	rryarda.aft	exs	6	Abandoned/Disused
127	rryarda.aft	exs	28	Operational
128	runwaya.aft	exs	0	Unknown
129	runwaya.aft	exs	5	Under Construction
130	runwaya.aft	exs	6	Abandoned/Disused
131	runwaya.aft	exs	7	Destroyed
132	runwaya.aft	exs	27	Closed/Locked
133	runwaya.aft	exs	28	Operational
134	runwaya.aft	exs	59	Not Usable
135	runwaya.aft	len	-32767	Unknown
136	runwaya.aft	rst	0	Unknown
137	runwaya.aft	rst	1	Hard/Paved
138	runwaya.aft	rst	2	Loose/Unpaved
139	runwaya.aft	wid	-32767	Unknown
140	runwaya.aft	zv2	-32767	Unknown
141	trnvoida.aft	vca	0	Unknown
142	trnvoida.aft	vca	2	Area Too Rough to Collect
143	trnvoida.aft	vca	3	No Available Imagery
144	trnvoida.aft	vca	6	No Available Map Source
145	trnvoida.aft	vca	7	No Suitable Imagery
146	symbol.rat	fon	1	Machine Default
147	symbol.rat	sty	1	Kern
148	symbol.rat	sty	2	Proportional
149	symbol.rat	sty	3	Constant
150	symbol.rat	clt	1	Black
151	symbol.rat	clt	2	Blue
152	symbol.rat	clt	3	Red-Brown
153	symbol.rat	clt	4	Magenta

TABLE B-53. Aircraft Facility Point Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Aircraft Facility Point Feature Table
Table Name: aerofacp.pft
Thematic Index ID Number: 1
Portrayal Criteria: For GB005, GB035, and GB065 area < 6250 square meters.

```
{Header length}L;
Aircraft Facility Point Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code1.pti,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
iko=T,4,N,ICAO Designator,char.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
use=S,1,N,Usage,int.vdt,-,-,:
tile_id=S,1,N,Tile Reference ID,-,til1_id.pti,-,:
end_id=I,1,N,Entity Node Primitive ID,-,end1_id.pti,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		GB005	Airport/Airfield	
		GB035	Heliport	
		GB065	Seaplane Base	
exs	Existence Category (some value added)			
		0	Unknown	GB005, GB035, GB065
		5	Under Construction (v/a)	GB005, GB035 GB065
		6	Abandoned/Disused	GB005, GB035, GB065
		7	Destroyed (va)	GB005, GB035, GB065
		28	Operational	GB005, GB035, GB065
		66	Damaged (v/a)	GB005, GB035, GB065
iko	ICAO (International Civil Aviation Organization) Designator			
		N/A	Null	GB065
		UNK (No entry present)		GB005, GB035
		Character text string		GB005, GB035
nam	Name			
		UNK (No entry present)		GB005, GB035, GB065
		Character text string		GB005, GB035, GB065
use	Usage			
		0	Unknown	GB005, GB035, GB065
		8	Military	GB005, GB035, GB065
		22	Joint Military/ Civilian	GB005, GB035, GB065
		49	Civilian/Public	GB005, GB035, GB065

TABLE B-54. Aircraft Facility Node Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Aircraft Facility Node Feature Table
Table Name: aerofacc.pft
Thematic Index ID Number: 2
Portrayal Criteria: For GB005, GB035, and GB065 area < 6250 square meters.

```
{Header length}L;
Aircraft Facility Node Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code2.pti,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
iko=T,4,N,ICAO Designator,char.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
use=S,1,N,Usage,int.vdt,-,-,:
tile_id=S,1,N,Tile Reference ID,-,til2_id.pti,-,:
cnd_id=I,1,N,Connected Node Primitive ID,-,cnd2_id.pti,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		GB005	Airport/Airfield	
		GB035	Heliport	
		GB065	Seaplane Base	
exs	Existence Category (some value added)			
		0	Unknown	GB005, GB035, GB065
		5	Under Construction (v/a)	GB005, GB035, GB065
		6	Abandoned/Disused	GB005, GB035, GB065
		7	Destroyed (v/a)	GB005, GB035, GB065
		28	Operational	GB005, GB035, GB065
		66	Damaged (v/a)	GB005, GB035, GB065
iko	ICAO (International Civil Aviation Organization) Designator			
		N/A	Null	GB065
		UNK (No entry present)		GB005, GB035
		Character text string		GB005, GB035
nam	Name			
		Character text string		GB005, GB035, GB065
		UNK (No entry present)		GB005, GB035, GB065
use	Usage			
		0	Unknown	GB005, GB035, GB065
		8	Military	GB005, GB035, GB065
		22	Joint Military/ Civilian	GB005, GB035, GB065
		49	Civilian/Public	GB005, GB035, GB065

TABLE B-55. Bridge Node Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Bridge Node Feature Table
Table Name: bridgec.pft
Thematic Index ID Number: 3
Portrayal Criteria: For AQ040 length < 75 meters and must be associated with a portrayed transportation feature. If the bridge is a single structure containing one or more spans, then only one bridge feature is collected. If two or more closely spaced bridge structures are separated, then the appropriate number of separated bridge features is created.

```
{Header length}L;
Bridge Node Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
tuc=S,1,N,Transportation Use Category,int.vdt,-,-,:
wd1=S,1,N,Minimum Traveled Way Width (decimeters),int.vdt,-,-,:
tile_id=S,1,N,Tile Reference ID,-,til3_id.pti,-,:
cnd_id=I,1,N,Connected Node Primitive ID,-,cnd3_id.pti,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AQ040	Bridge/Overpass/Viaduct	
exs	Existence Category			
		0	Unknown	AQ040
		5	Under Construction	AQ040
		7	Destroyed (v/a)	AQ040
		28	Operational	AQ040
len	Length/Diameter (meters)			
		-32767	Unknown	AQ040
		<75		AQ040
tuc	Transportation Use Category			
		0	Unknown	AQ040
		1	Both Road and Railroad	AQ040
		3	Railroad	AQ040
		4	Road	AQ040
wd1	Minimum Traveled Way Width (decimeters)			
		-32767	Unknown	AQ040
		> 0		AQ040

TABLE B-56. Ferry Crossing Node Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Ferry Crossing Node Feature Table
Table Name: ferryc.pft
Thematic Index ID Number: 4
Portrayal Criteria: For AQ070 length < 25 meters.

```
{Header length}L;
Ferry Crossing Node Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
fcl=S,1,N,Ferry Crossing Length (meters),int.vdt,-,-,:
tuc=S,1,N,Transportation Use Category,int.vdt,-,-,:
tile_id=S,1,N,Tile Reference ID,-,til4_id.pti,-,:
cnd_id=I,1,N,Connected Node Primitive ID,-,cnd4_id.pti,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AQ070	Ferry Crossing	
fcl	Ferry Crossing Length (meters)			
		-32767	Unknown	AQ070
		< 25		AQ070
tuc	Transportation Use Category			
		0	Unknown	AQ070
		1	Both Road and Railroad	AQ070
		3	Railroad	AQ070
		4	Road	AQ070

TABLE B-57. Ford Node Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Ford Node Feature Table
Table Name: fordc.pft
Thematic Index ID Number: 5
Portrayal Criteria: For BH070 length < 25 meters and associated with delineated transportation feature.

```
{Header length}L;
Ford Node Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
tile_id=S,1,N,Tile Reference ID,-,til5_id.pti,-,:
cnd_id=I,1,N,Connected Node Primitive ID,-,cnd5_id.pti,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BH070	Ford	

TABLE B-58. Tunnel Node Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Tunnel Node Feature Table
Table Name: tunnelc.pft
Thematic Index ID Number: 6
Portrayal Criteria: For AQ130 length <75 meters, and must be associated with portrayed transportation feature.

```
{Header length}L;
Tunnel Node Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
tuc=S,1,N,Transportation Use Category,int.vdt,-,-,:
tile_id=S,1,N,Tile Reference ID,-,til6_id.pti,-,:
cnd_id=I,1,N,Connected Node Primitive ID,-,cnd6_id.pti,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AQ130	Tunnel	
exs	Existence Category			
		0	Unknown	AQ130
		5	Under Construction	AQ130
		28	Operational	AQ130
len	Length/Diameter (meters)			
		-32767	Unknown	AQ130
		<75		AQ130
nam	Name			
		Character Text String		AQ130
		UNK (No entry present)		AQ130
tuc	Transportation Use Category			
		0	Unknown	AQ130
		1	Both Road and Railroad	AQ130
		3	Railroad	AQ130
		4	Road	AQ130

TABLE B-59. Bridge Line Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Bridge Line Feature Table
Table Name: bridgel.lft
Thematic Index ID Number: 7
Portrayal Criteria: For AQ040 length >= 75 meters and must be associated with a portrayed transportation feature. If the bridge is a single structure containing one or more spans, then only one bridge feature is collected. If two or more closely spaced bridge structures are separated, then the appropriate number of separated bridge features is created.

```
{Header length}L;
Bridge Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
tuc=S,1,N,Transportation Use Category,int.vdt,-,-,:
wd1=S,1,N,Minimum Traveled Way Width (decimeters),int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AQ040	Bridge/Overpass/Viaduct	
exs	Existence Category			
		0	Unknown	AQ040
		5	Under Construction	AQ040
		7	Destroyed (value added)	AQ040
		28	Operational	AQ040
len	Length/Diameter (meters)			
		-32767	Unknown	AQ040
		>= 75		AQ040
tuc	Transportation Use Category			
		0	Unknown	AQ040
		1	Both Road and Railroad	AQ040
		3	Railroad	AQ040
		4	Road	AQ040
wd1	Minimum Traveled Way Width (decimeters)			
		-32767	Unknown	AQ040
		> 0		AQ040

TABLE B-60. Ferry Crossing Line Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Ferry Crossing Line Feature Table
Table Name: ferryl.lft
Thematic Index ID Number: 8
Portrayal Criteria: For AQ070 length >=25 meters.

```
{Header length}L;
Ferry Crossing Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
fcl=S,1,N,Ferry Crossing Length (meters),int.vdt,-,-,:
tuc=S,1,N,Transportation Use Category,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AQ070	Ferry Crossing	
fcl	Ferry Crossing Length (meters)			
		-32767	Unknown	AQ070
		>= 25		AQ070
tuc	Transportation Use Category			
		0	Unknown	AQ070
		1	Both Road and Railroad	AQ070
		3	Railroad	AQ070
		4	Road	AQ070

TABLE B-61. Ford Line Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Ford Line Feature Table
Table Name: fordl.lft
Thematic Index ID Number: 9
Portrayal Criteria: For BH070 Length >= 25 meters and associated with delineated transportation feature.

```
{Header length}L;
Ford Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BH070	Ford	

TABLE B-62. Harbor Line Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Harbor Line Feature Table
Table Name: harborl.lft
Thematic Index ID Number: 10
Portrayal Criteria: For BB190 width < 20 meters and length >= 100 meters.

```
{Header length}L;
Harbor Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
wid=S,1,N,Width (meters),int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BB190	Pier/Wharf/Quay	
len	Length/Diameter (meters)			
		-32767	Unknown	BB190
		>= 100		BB190
wid	Width (meters)			
		-32767	Unknown	BB190
		< 20		BB190

TABLE B-63. Railroad Line Feature Table.

A related attribute table (railrdl.rat) is used to store the authorative name as text for major railroads. The rat will contain the following fields: id and railrdl_name (see Table B-64). This replaces the name attribute and adds flexibility to the dataset. If multiple authorative names exist over the same segment of a railroad, each name will be represented as a separate record in the related attribute table. When multiple names exist for a feature, the feature will have multiple records in the join table (railrdl.rjt, see Table B-65. Each record will reference the applicable record in the railrdl.rat. All alphabetic characters will be in uppercase and will contain complete names, avoiding the use of abbreviations.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Railroad Line Feature Table
Table Name: railrdl.lft
Thematic Index ID Number: 11
Portrayal Criteria: For AN010 and AN050 length >= 280 meters, inclined railroads are not portrayed.

```
{Header length}L;
Railroad Line Feature Table;railrdl.doc;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code11.lti,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
loc=S,1,N,Location Category,int.vdt,-,-,:
ltn=S,1,N,Track/Lane Number,int.vdt,-,-,:
rgc=S,1,N,Railroad Gauge Category,int.vdt,-,-,:
rra=S,1,N,Railroad Power Source,int.vdt,-,-,:
rsa=S,1,N,Rail Siding/Spur Attribute,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AN010	Railroad	
		AN050	Railroad Siding/Railroad Spur	
exs	Existence Category			
		0	Unknown	AN010, AN050
		5	Under Construction	AN010, AN050
		6	Abandoned/Disused	AN010, AN050
		7	Destroyed (v/a)	AN010, AN050
		8	Dismantled	AN010, AN050
		28	Operational	AN010, AN050
loc	Location Category			
		-32768	Null	AN050
		0	Unknown	AN010
		8	On Ground Surface	AN010
		25	Suspended/Elevated above Ground or Water Surface	AN010

ltn	Track/Lane Number			
		-32768	Null	AN050
		-32767	Unknown	AN010
		>0		AN010
rgc	Railroad Gauge Category			
		0	Unknown	AN010, AN050
		1	Broad	AN010, AN050
		2	Narrow	AN010, AN050
		3	Normal	AN010, AN050
rra	Railroad Power Source			
		0	Unknown	AN010, AN050
		1	Electrified Track	AN010, AN050
		3	Overhead Electrified	AN010, AN050
		4	Non-Electrified	AN010, AN050
rsa	Rail Siding/Spur Attribute			
		-32768	Null	AN010
		1	Spur	AN050
		2	Siding	AN050
		3	Passing Track	AN050

For AN010, the predominant Gauge Width (GAW), which is the distance between the two rails of a railroad track, shall be given for a particular country or region in a railrdl.doc file (see Table 66) associated with the railrdl.lft, if known. Otherwise, the file is not created. Information on individual features, which may differ from the regional information, shall be described in the notes.rat.

TABLE B-64. Format for Railroad Line Related Attribute Table (railrdl.rat).

```
{Header length}L;
Railroad Line Related Attribute Table;-;
id=I,1,P,Row Identifier,-,-,-,:
railrdl_name=T,*,N,Railroad Name,-,-,-,:;
```

TABLE B-65. Format for Railroad Line Related Join Table (railrdl.rjt).

```
{Header length}L;
Railroad Line Related Join Table;-;
id=I,1,P,Row Identifier,-,-,-,:
railrdl.lft_id=I,1,N,Feature Key,-,fid11.rti,-,:
railrdl.rat_id=I,1,N,Related Attribute Table Row Identifier,-,rat11.rti,-,:;
```

TABLE B-66. Format for Railroad Line Documentation Table (railrdl.doc).

```
{Header length}L;
Railroad Line Documentation Table;-;
id=I,1,P,Row Identifier,-,-,-,:
text=T,*,N,Gauge Width Information,-,-,-,:;
```

TABLE B-67. Road Line Feature Table.

A related attribute table (roadl.rat) is used to store the major authorative route numbers and names as text for major roads. The related attribute table will contain the following fields: id, country code, route_number, and name (see Table B-68). This replaces the name attribute and adds flexibility to the dataset. If multiple authorative route numbers exist over the same segment of the road, each route number and associated name will be represented as a separate entry in the related attribute table. In such cases, there will be multiple records for the feature in the join table (roadl.rjt, see Table B-69). Each will point to a separate record in the roadl.rat, which will contain the route number and any associated name.

Route numbers will take precedence over road names. The precedence of route numbers will be international, national, and/or equivalent. All alphabetic characters will be in upper case, for national and state names. Complete names will be used; abbreviations will be avoided. The country name code will use FIPS 10-4 country code for the country name. Blanks will not be used to separate international and national numbers and characters in the route number; however, they are permitted in the road name. For example, country code: US, route_number: I495, name: CAPITAL BELTWAY and country code: US, route_number: VA7, name: LEESBURG PIKE are valid entries; US-I-70 or US-I 70 are not valid.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Road Line Feature Table
Table Name: roadl.lft
Thematic Index ID Number: 12
Portrayal Criteria: For AP030 if 'med = 1 with median' (divided highway) each travel way is shown as a separate feature. Only a representative pattern of roads will be portrayed, with divided and hard surface taking precedence, along with a greater density of through routes and major roads associated with built-up areas. Unpaved roads and cart tracks will be portrayed only if no other roads exist within 3,000 meters of a paved road. Generally all roads must be greater than or equal to 300 meters in length, unless associated or connected with a portrayed feature or facility, e.g. airport, powerplant, etc. Roads on bridges shall be encoded as elevated.

```
{Header length}L;
Road Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
acc=S,1,N,Accuracy Category,int.vdt,-,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
loc=S,1,N,Location Category,int.vdt,-,-,:
med=S,1,N,Median Category,int.vdt,-,-,:
rst=S,1,N,Road/Runway Surface Type,int.vdt,-,-,:
wd1=S,1,N,Minimum Traveled Way Width (decimeters),int.vdt,-,-,:
wtc=S,1,N,Weather Type Category,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AP030	Road	

acc	Accuracy Category			
		0	Unknown	AP030
		1	Accurate	AP030
		2	Approximate	AP030
exs	Existence Category			
		0	Unknown	AP030
		5	Under Construction	AP030
		28	Operational	AP030
loc	Location Category			
		0	Unknown	AP030
		8	On Ground Surface	AP030
		25	Suspended/Elevated above Ground or Water Surface	AP030
med	Median Category			
		0	Unknown	AP030
		1	With Median	AP030
		2	Without Median	AP030
rst	Road/Runway Surface Type			
		0	Unknown	AP030
		1	Hard/Paved	AP030
		2	Loose/Unpaved	AP030
wd1	Minimum Traveled Way Width			
		-32767	Unknown	AP030
		> 0		AP030
wtc	Weather Type Category			
		0	Unknown	AP030
		1	All Weather	AP030
		2	Fair/Dry Weather	AP030

TABLE B-68. Format for Road Line Related Attribute Table (roadl.rat).

```
{Header length}L;
Road Line Related Attribute Table;-;
id=I,1,P,Row Identifier,-,-,-,:
country_code=T,2,N,Country Code,-,-,-,:
route_number=T,*,N,Route Number,-,-,-,:
name=T,*,N,Road Name,-,-,-,:;
```

TABLE B-69. Format for Road Line Related Join Table (roadl.rjt).

```
{Header length}L;
Road Line Related Join Table;-;
id=I,1,P,Row Identifier,-,-,-,:
roadl.lft_id=I,1,N,Feature Key,-,fid12.rti,-,:
roadl.rat_id=I,1,N,Related Attribute Table Row Identifier,-,rat12.rti,-,:;
```

TABLE B-70. Track Line Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Track Line Feature Table
Table Name: trackl.lft
Thematic Index ID Number: 13
Portrayal Criteria: Only a representative pattern of prominent cart tracks more than 3000 meters from a paved road will be shown, with greater density occurring where existing road network is less prominent or absent. Connections to paved roads will be shown. Generally all cart tracks must be greater than or equal to 300 meters in length, unless associated or connected with a portrayed feature or facility, e.g. airport, powerplant, etc.

```
{Header length}L;
Track Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
wtc=S,1,N,Weather Type Category,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AP010	Cart Track	
wtc	Weather Type Category			
		0	Unknown	AP010
		2	Fair/Dry Weather	AP010
		3	Winter Only	AP010

TABLE B-71. Trail Line Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Trail Line Feature Table
Table Name: traill.lft
Thematic Index ID Number: 14
Portrayal Criteria: Only a representative pattern of landmark trails more than 3000 meters from a paved road will be shown, with greater density occurring where no other transportation related features exist within the tile. Connections to paved roads and cart tracks will be shown. Generally all trails must be greater than or equal to 300 meters in length, unless associated or connected with a portrayed feature or facility, e.g. airport, powerplant, etc.

```
{Header length}L;
Trail Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code	AP050	Trail	

TABLE B-72. Tunnel Line Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Tunnel Line Feature Table
Table Name: tunnell.lft
Thematic Index ID Number: 15
Portrayal Criteria: For AQ130 length >= 75 meters, and must be associated with portrayed transportation feature.

```
{Header length}L;
Tunnel Line Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
tuc=S,1,N,Transportation Use Category,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		AQ130	Tunnel	
exs	Existence Category			
		0	Unknown	AQ130
		5	Under Construction	AQ130
		28	Operational	AQ130
len	Length/Diameter (meters)			
		-32767	Unknown	AQ130
		>= 75		AQ130
nam	Name			
		Character Text String		AQ130
		UNK (No entry present)		AQ130
tuc	Transportation Use Category			
		0	Unknown	AQ130
		1	Both Road and Railroad	AQ130
		3	Railroad	AQ130
		4	Road	AQ130

TABLE B-73. Aircraft Facility Area Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Aircraft Facility Area Feature Table
Table Name: aerofaca.aft
Thematic Index ID Number: 16
Portrayal Criteria: For GB005, GB035, and GB065 area >= 6250 square meters.

```
{Header length}L;
Aircraft Facility Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code16.ati,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
iko=T,4,N,ICAO Designator,char.vdt,-,-,:
nam=T,*,N,Name,char.vdt,-,-,:
use=S,1,N,Usage,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		GB005	Airport/Airfield	
		GB035	Heliport	
		GB065	Seaplane Base	
exs	Existence Category (some value added)			
		0	Unknown	GB005, GB035, GB065
		5	Under Construction (v/a)	GB005, GB035, GB065
		6	Abandoned/Disused	GB005, GB035, GB065
		7	Destroyed (v/a)	GB005, GB035, GB065
		28	Operational	GB005, GB035, GB065
		66	Damaged (v/a)	GB005, GB035, GB065
iko	ICAO (International Civil Aviation Organization) Designator			
		N/A	Null	GB065
		UNK (No entry present)		GB005, GB035
		Character text string		GB005, GB035
nam	Name			
		Character text string		GB005, GB035, GB065
		UNK (No entry present)		GB005, GB035, GB065
use	Usage			
		0	Unknown	GB005, GB035, GB065
		8	Military	GB005, GB035, GB065
		22	Joint Military/ Civilian	GB005, GB035, GB065
		49	Civilian/Public	GB005, GB035, GB065

TABLE B-74. Harbor Area Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Harbor Area Feature Table
Table Name: harbora.aft
Thematic Index ID Number: 17
Portrayal Criteria: For BB190 length >= 100 meters and width >= 20 meters.

```
{Header length}L;
Harbor Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
wid=S,1,N,Width (meters),int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BB190	Pier/Wharf/Quay	
len	Length/Diameter (meters)			
		-32767	Unknown	BB190
		>= 100		BB190
wid	Width (meters)			
		-32767	Unknown	BB190
		>= 20		BB190

TABLE B-75. Railroad Yard Area Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Railroad Yard Area Feature Table
Table Name: rryarda.aft
Thematic Index ID Number: 18
Portrayal Criteria: AN060 shall have 3 or more tracks; one or two tracks will be considered an AN050, Railroad Siding.

```
{Header length}L;
Railroad Yard Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code	AN060	Railroad Yard/Marshalling Yard	
exs	Existence Category	0	Unknown	AN060
		5	Under Construction	AN060
		6	Abandoned/Disused	AN060
		28	Operational	AN060

TABLE B-76. Runway Area Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Runway Area Feature Table
Table Name: runwaya.aft
Thematic Index ID Number: 19
Portrayal Criteria: All

```
{Header length}L;
Runway Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt, -,-,:
exs=S,1,N,Existence Category,int.vdt,-,-,:
len=S,1,N,Length/Diameter (meters),int.vdt,-,-,:
rst=S,1,N,Road/Runway Surface Type,int.vdt,-,-,:
wid=S,1,N,Width (meters),int.vdt,-,-,:
zv2=S,1,N,Highest Z-value (meters),int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		GB055	Runway	
exs	Existence Category			
		0	Unknown	GB055
		5	Under Construction	GB055
		6	Abandoned/Disused	GB055
		7	Destroyed	GB055
		27	Closed/Locked	GB055
		28	Operational	GB055
		59	Not Usable	GB055
len	Length/Diameter (meters)			
		-32767	Unknown	GB055
		>0		GB055
rst	Road/Runway Surface Type			
		0	Unknown	GB055
		1	Hard/Paved	GB055
		2	Loose/Unpaved	GB055
wid	Width (meters)			
		-32767	Unknown	GB055
		>0		GB055
zv2	Highest Z-value (meters)			
		-32767	Unknown	GB055
		-400 to 11999		GB055

TABLE B-77. Transportation Void Collection Area Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Transportation Void Collection Area Feature Table
Table Name: trnvoida.aft
Thematic Index ID Number: 20
Portrayal Criteria: For ZD020 area >= 15,625 square meters

```
{Header length}L;
Transportation Void Collection Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
vca=S,1,N,Void Collection Attribute,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD020	Void Collection Area	
vca	Void Collection Attribute			
		0	Unknown	ZD020
		2	Area Too Rough to Collect	ZD020
		3	No Available Imagery	ZD020
		6	No Available Map Source	ZD020
		7	No Suitable Imagery	ZD020

TABLE B-78. Transportation Text Feature Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Transportation Text Feature Table
Table Name: transtxt.tft
Thematic Index ID Number: 21

```
{Header length}L;
Transportation Text Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code21.tti,-,:
symbol.rat_id=I,1,N,Symbol Identification,-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD040	Named Location	
		ZD045	Text Description	

TABLE B-79. Transportation Feature Class Attribute Table.

Thematic Layer: Transportation
Coverage Name: trn
Table Description: Transportation Feature Class Attribute Table
Table Name: fca

```
{Header length}L;
Transportation Feature Class Attribute Table;-;
id=I,1,P,Row Identifier,-,-,-,:
fclass=T,8,U,Feature Class Name,-,-,-,:
type=T,1,N,Feature Type,char.vdt,-,-,:
descr=T,*,N,Description,-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
fclass	Feature Class Name			
		aerofacp		
		aerofacc		
		bridgec		
		ferryc		
		fordc		
		tunnelc		
		bridgel		
		ferryl		
		fordl		
		harborl		
		railrdl		
		roadl		
		trackl		
		traill		
		tunnell		
		aerofaca		
		harbora		
		rryarda		
		runwaya		
		trnvoida		
		transtxt		
type	Feature Type			
		P	Point/Node Feature	aerofacp, aerofacc, bridgec, ferryc, fordc, tunnelc
		L	Line Feature	bridgel, ferryl, fordl, harborl, railrdl, roadl, trackl, traill, tunnell
		A	Area Feature	aerofaca, harbora, rryarda, runwaya, trnvoida
		T	Text Feature	transtxt

descr	Description	
	Airport and Airfield Point Facilities	aerofacp
	Airport and Airfield Node Facilities	aerofacc
	Bridge Node Feature	bridgec
	Ferry Crossing Node Feature	ferryc
	Node Ford Sites On-road	fordc
	Tunnel Node Feature	tunnelc
	Bridge Line Feature	bridgel
	Ferry Crossing Line Feature	ferryl
	Ford Line Feature On-road	fordl
	Harbor Line Features	harborl
	Railroad Line Feature	railrdl
	Road Line Feature	roadl
	Cart Track Line Feature	trackl
	Trail Line Feature	traill
	Tunnel Line Feature	tunnell
	Airport and Airfield Areas	aerofaca
	Harbor Area Feature	harbora
	Railroad Yard Area Feature	rryarda
	Runway Area Feature	runwaya
	Transportation Void Collection Area	trnvoida
	Transportation Coverage Text	transtxt

TABLE B-80. Content and Format for Transportation Coverage Feature Class Schema Table.

Thematic Layer: Transportation
Coverage Name: trn
Feature Table Description: Transportation Feature Class Schema Table
Table Name: fcs

```
{Header length}L;
Transportation Feature Class Schema Table;-;
id=I,1,P,Row Identifier,-,-,-,:
feature_class=T,8,N,Name of Feature Class,-,-,-,:
table1=T,12,N,First Table,-,-,-,:
table1_key=T,16,N,Column Name in First Table,-,-,-,:
table2=T,12,N,Second Table,-,-,-,:
table2_key=T,16,N,Column Name in Second Table,-,-,-,:;
```

1	aerofacp	aerofacp.pft	end_id	end	id
2	aerofacp	end	id	aerofacp.pft	end_id
3	aerofacp	aerofacp.pft	id	aerofacp.njt	aerofacp.pft_id
4	aerofacp	aerofacp.njt	notes.rat_id	notes.rat	id
5	aerofacp	notes.rat	id	aerofacp.njt	notes.rat_id
6	aerofacp	aerofacp.njt	aerofacp.pft_id	aerofacp.pft	id
7	aerofacc	aerofacc.pft	cnd_id	cnd	id
8	aerofacc	cnd	id	aerofacc.pft	cnd_id
9	aerofacc	aerofacc.pft	id	aerofacc.njt	aerofacc.pft_id
10	aerofacc	aerofacc.njt	notes.rat_id	notes.rat	id
11	aerofacc	notes.rat	id	aerofacc.njt	notes.rat_id
12	aerofacc	aerofacc.njt	aerofacc.pft_id	aerofacc.pft	id
13	bridgec	bridgec.pft	cnd_id	cnd	id
14	bridgec	cnd	id	bridgec.pft	cnd_id
15	bridgec	bridgec.pft	id	bridgec.njt	bridgec.pft_id
16	bridgec	bridgec.njt	notes.rat_id	notes.rat	id
17	bridgec	notes.rat	id	bridgec.njt	notes.rat_id
18	bridgec	bridgec.njt	bridgec.pft_id	bridgec.pft	id
19	ferryc	ferryc.pft	cnd_id	cnd	id
20	ferryc	cnd	id	ferryc.pft	cnd_id
21	ferryc	ferryc.pft	id	ferryc.njt	ferryc.pft_id
22	ferryc	ferryc.njt	notes.rat_id	notes.rat	id
23	ferryc	notes.rat	id	ferryc.njt	notes.rat_id
24	ferryc	ferryc.njt	ferryc.pft_id	ferryc.pft	id
25	fordc	fordc.pft	cnd_id	cnd	id
26	fordc	cnd	id	fordc.pft	cnd_id
27	fordc	fordc.pft	id	fordc.njt	fordc.pft_id
28	fordc	fordc.njt	notes.rat_id	notes.rat	id
29	fordc	notes.rat	id	fordc.njt	notes.rat_id
30	fordc	fordc.njt	fordc.pft_id	fordc.pft	id
31	tunnelc	tunnelc.pft	cnd_id	cnd	id
32	tunnelc	cnd	id	tunnelc.pft	cnd_id
33	tunnelc	tunnelc.pft	id	tunnelc.njt	tunnelc.pft_id
34	tunnelc	tunnelc.njt	notes.rat_id	notes.rat	id
35	tunnelc	notes.rat	id	tunnelc.njt	notes.rat_id
36	tunnelc	tunnelc.njt	tunnelc.pft_id	tunnelc.pft	id
37	bridgel	bridgel.lft	id	bridgel.ljt	bridgel.lft_id
38	bridgel	bridgel.ljt	edg_id	edg	id
39	bridgel	edg	id	bridgel.ljt	edg_id
40	bridgel	bridgel.ljt	bridgel.lft_id	bridgel.lft	id
41	bridgel	bridgel.lft	id	bridgel.njt	bridgel.lft_id
42	bridgel	bridgel.njt	notes.rat_id	notes.rat	id
43	bridgel	notes.rat	id	bridgel.njt	notes.rat_id

44	bridgel	bridgel.njt	bridgel.lft_id	bridgel.lft	id
45	ferryl	ferryl.lft	id	ferryl.ljt	ferryl.lft_id
46	ferryl	ferryl.ljt	edg_id	edg	id
47	ferryl	edg	id	ferryl.ljt	edg_id
48	ferryl	ferryl.ljt	ferryl.lft_id	ferryl.lft	id
49	ferryl	ferryl.lft	id	ferryl.njt	ferryl.lft_id
50	ferryl	ferryl.njt	notes.rat_id	notes.rat	id
51	ferryl	notes.rat	id	ferryl.njt	notes.rat_id
52	ferryl	ferryl.njt	ferryl.lft_id	ferryl.lft	id
53	fordl	fordl.lft	id	fordl.ljt	fordl.lft_id
54	fordl	fordl.ljt	edg_id	edg	id
55	fordl	edg	id	fordl.ljt	edg_id
56	fordl	fordl.ljt	fordl.lft_id	fordl.lft	id
57	fordl	fordl.lft	id	fordl.njt	fordl.lft_id
58	fordl	fordl.njt	notes.rat_id	notes.rat	id
59	fordl	notes.rat	id	fordl.njt	notes.rat_id
60	fordl	fordl.njt	fordl.lft_id	fordl.lft	id
61	harborl	harborl.lft	id	harborl.ljt	harborl.lft_id
62	harborl	harborl.ljt	edg_id	edg	id
63	harborl	edg	id	harborl.ljt	edg_id
64	harborl	harborl.ljt	harborl.lft_id	harborl.lft	id
65	harborl	harborl.lft	id	harborl.njt	harborl.lft_id
66	harborl	harborl.njt	notes.rat_id	notes.rat	id
67	harborl	notes.rat	id	harborl.njt	notes.rat_id
68	harborl	harborl.njt	harborl.lft_id	harborl.lft	id
69	railrdl	railrdl.lft	id	railrdl.ljt	railrdl.lft_id
70	railrdl	railrdl.ljt	edg_id	edg	id
71	railrdl	edg	id	railrdl.ljt	edg_id
72	railrdl	railrdl.ljt	railrdl.lft_id	railrdl.lft	id
73	railrdl	railrdl.lft	id	railrdl.njt	railrdl.lft_id
74	railrdl	railrdl.njt	notes.rat_id	notes.rat	id
75	railrdl	notes.rat	id	railrdl.njt	notes.rat_id
76	railrdl	railrdl.njt	railrdl.lft_id	railrdl.lft	id
77	railrdl	railrdl.lft	id	railrdl.rjt	railrdl.lft_id
78	railrdl	railrdl.rjt	railrdl.rat_id	railrdl.rat	id
79	railrdl	railrdl.rat	id	railrdl.rjt	railrdl.rat_id
80	railrdl	railrdl.rjt	railrdl.lft_id	railrdl.lft	id
81	roadl	roadl.lft	id	roadl.ljt	roadl.lft_id
82	roadl	roadl.ljt	edg_id	edg	id
83	roadl	edg	id	roadl.ljt	edg_id
84	roadl	roadl.ljt	roadl.lft_id	roadl.lft	id
85	roadl	roadl.lft	id	roadl.njt	roadl.lft_id
86	roadl	roadl.njt	notes.rat_id	notes.rat	id
87	roadl	notes.rat	id	roadl.njt	notes.rat_id
88	roadl	roadl.njt	roadl.lft_id	roadl.lft	id
89	roadl	roadl.lft	id	roadl.rjt	roadl.lft_id
90	roadl	roadl.rjt	roadl.rat_id	roadl.rat	id
91	roadl	roadl.rat	id	roadl.rjt	roadl.rat_id
92	roadl	roadl.rjt	roadl.lft_id	roadl.lft	id
93	trackl	trackl.lft	id	trackl.ljt	trackl.lft_id
94	trackl	trackl.ljt	edg_id	edg	id
95	trackl	edg	id	trackl.ljt	edg_id
96	trackl	trackl.ljt	trackl.lft_id	trackl.lft	id
97	trackl	trackl.lft	id	trackl.njt	trackl.lft_id
98	trackl	trackl.njt	notes.rat_id	notes.rat	id
99	trackl	notes.rat	id	trackl.njt	notes.rat_id

100	trackl	trackl.njt	trackl.lft_id	trackl.lft	id
101	traill	traill.lft	id	traill.ljt	traill.lft_id
102	traill	traill.ljt	edg_id	edg	id
103	traill	edg	id	traill.ljt	edg_id
104	traill	traill.ljt	traill.lft_id	traill.lft	id
105	traill	traill.lft	id	traill.njt	traill.lft_id
106	traill	traill.njt	notes.rat_id	notes.rat	id
107	traill	notes.rat	id	traill.njt	notes.rat_id
108	traill	traill.njt	traill.lft_id	traill.lft	id
109	tunnell	tunnell.lft	id	tunnell.ljt	tunnell.lft_id
110	tunnell	tunnell.ljt	edg_id	edg	id
111	tunnell	edg	id	tunnell.ljt	edg_id
112	tunnell	tunnell.ljt	tunnell.lft_id	tunnell.lft	id
113	tunnell	tunnell.lft	id	tunnell.njt	tunnell.lft_id
114	tunnell	tunnell.njt	notes.rat_id	notes.rat	id
115	tunnell	notes.rat	id	tunnell.njt	notes.rat_id
116	tunnell	tunnell.njt	tunnell.lft_id	tunnell.lft	id
117	aerofaca	aerofaca.aft	id	aerofaca.ajt	aerofaca.aft_id
118	aerofaca	aerofaca.ajt	fac_id	fac	id
119	aerofaca	fac	id	aerofaca.ajt	fac_id
120	aerofaca	aerofaca.ajt	aerofaca.aft_id	aerofaca.aft	id
121	aerofaca	aerofaca.aft	id	aerofaca.njt	aerofaca.aft_id
122	aerofaca	aerofaca.njt	notes.rat_id	notes.rat	id
123	aerofaca	notes.rat	id	aerofaca.njt	notes.rat_id
124	aerofaca	aerofaca.njt	aerofaca.aft_id	aerofaca.aft	id
125	harbora	harbora.aft	id	harbora.ajt	harbora.aft_id
126	harbora	harbora.ajt	fac_id	fac	id
127	harbora	fac	id	harbora.ajt	fac_id
128	harbora	harbora.ajt	harbora.aft_id	harbora.aft	id
129	harbora	harbora.aft	id	harbora.njt	harbora.aft_id
130	harbora	harbora.njt	notes.rat_id	notes.rat	id
131	harbora	notes.rat	id	harbora.njt	notes.rat_id
132	harbora	harbora.njt	harbora.aft_id	harbora.aft	id
133	rryarda	rryarda.aft	id	rryarda.ajt	rryarda.aft_id
134	rryarda	rryarda.ajt	fac_id	fac	id
135	rryarda	fac	id	rryarda.ajt	fac_id
136	rryarda	rryarda.ajt	rryarda.aft_id	rryarda.aft	id
137	rryarda	rryarda.aft	id	rryarda.njt	rryarda.aft_id
138	rryarda	rryarda.njt	notes.rat_id	notes.rat	id
139	rryarda	notes.rat	id	rryarda.njt	notes.rat_id
140	rryarda	rryarda.njt	rryarda.aft_id	rryarda.aft	id
141	runwaya	runwaya.aft	id	runwaya.ajt	runwaya.aft_id
142	runwaya	runwaya.ajt	fac_id	fac	id
143	runwaya	fac	id	runwaya.ajt	fac_id
144	runwaya	runwaya.ajt	runwaya.aft_id	runwaya.aft	id
145	runwaya	runwaya.aft	id	runwaya.njt	runwaya.aft_id
146	runwaya	runwaya.njt	notes.rat_id	notes.rat	id
147	runwaya	notes.rat	id	runwaya.njt	notes.rat_id
148	runwaya	runwaya.njt	runwaya.aft_id	runwaya.aft	id
149	trnvoida	trnvoida.aft	id	trnvoida.ajt	trnvoida.aft_id
150	trnvoida	trnvoida.ajt	fac_id	fac	id
151	trnvoida	fac	id	trnvoida.ajt	fac_id
152	trnvoida	trnvoida.ajt	trnvoida.aft_id	trnvoida.aft	id
153	trnvoida	trnvoida.aft	id	trnvoida.njt	trnvoida.aft_id
154	trnvoida	trnvoida.njt	notes.rat_id	notes.rat	id
155	trnvoida	notes.rat	id	trnvoida.njt	notes.rat_id
156	trnvoida	trnvoida.njt	trnvoida.aft_id	trnvoida.aft	id
157	transtxt	transtxt.tft	id	transtxt.tjt	transtxt.tft_id
158	transtxt	transtxt.tjt	txt_id	txt	id

159	transtxt	txt	id	transtxt.tjt	txt_id
160	transtxt	transtxt.tjt	transtxt.tft_id	transtxt.tft	id
161	transtxt	transtxt.tft	symbol.rat_id	symbol.rat	id

B.3.7 Vegetation coverage. For FFD this coverage will not have complete (contiguous) area coverage.

TABLE B-81. Vegetation coverage feature and attribute page numbers by feature type with their FACC Codes.
(Primitive types are given in the header under the feature types)

Feature Name	Feature Code	Attr. Code	Point (END)	Node (CND)	Line (EDG)	Area (FAC)	Text (TXT)
Marsh/Swamp Surface Material Category Tree Type Category Vegetation Characteristic	BH095	 SMC TRE VEG				93	
Named Location	ZD040	-					94
Orchard/Plantation Tree Type Category	EA040	 TRE				93	
Rice Field	BH135	-				92	
Text Description	ZD045	-					94
Trees Tree Type Category	EC030	 TRE				93	
Void Collection Area Void Collection Attribute	ZD020	 VCA				94	

TABLE B-82. Vegetation Character Value Description Table.

Thematic Layer: Vegetation
Coverage Name: veg
Feature Table Description: Vegetation Character Value Description Table
Table Name: char.vdt

{Header length}L; Vegetation Character Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,6,N,Column Name,-,-,-,: value=T,5,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	cropa.aft	f_code	BH135	Rice Field
2	treesa.aft	f_code	BH095	Marsh/Swamp
3	treesa.aft	f_code	EA040	Orchard/Plantation
4	treesa.aft	f_code	EC030	Trees
5	vegvoida.aft	f_code	ZD020	Void Collection Area
6	vegtxt.tft	f_code	ZD040	Named Location
7	vegtxt.tft	f_code	ZD045	Text Description
8	fca	type	A	Area Feature
9	fca	type	T	Text Feature

TABLE B-83. Vegetation Integer Value Description Table.

Thematic Layer: Vegetation
Coverage Name: veg
Feature Table Description: Vegetation Integer Value Description Table
Table Name: int.vdt

{Header length}L; Vegetation Integer Value Description Table;-; id=I,1,P,Row Identifier,-,-,-,: table=T,12,N,Name of the Feature Table,-,-,-,: attribute=T,3,N,Column Name,-,-,-,: value=S,1,N,Unique Value of Attribute,-,-,-,: description=T,*,N,Description of Value,-,-,-,:;				
1	treesa.aft	smc	0	Unknown
2	treesa.aft	smc	200	Herbaceous/Scrub Vegetation (excluding trees)
3	treesa.aft	smc	201	Trees
4	treesa.aft	tre	0	Unknown
5	treesa.aft	tre	1	Deciduous
6	treesa.aft	tre	2	Evergreen
7	treesa.aft	tre	3	Mixed
8	treesa.aft	veg	0	Unknown
9	treesa.aft	veg	19	Mangrove
10	vegvoida.aft	vca	0	Unknown
11	vegvoida.aft	vca	2	Area Too Rough to Collect
12	vegvoida.aft	vca	3	No Available Imagery
13	vegvoida.aft	vca	6	No Available Map Source
14	vegvoida.aft	vca	7	No Suitable Imagery
15	symbol.rat	fon	1	Machine Default
16	symbol.rat	sty	1	Kern
17	symbol.rat	sty	2	Proportional
18	symbol.rat	sty	3	Constant
19	symbol.rat	clt	1	Black
20	symbol.rat	clt	2	Blue
21	symbol.rat	clt	3	Red-Brown
22	symbol.rat	clt	4	Magenta

TABLE B-84. Cropland Area Feature Table.

Thematic Layer: Vegetation
Coverage Name: veg
Feature Table Description: Cropland Area Feature Table
Table Name: cropa.aft
Thematic Index ID Number: 1
Portrayal Criteria:
For BH135 area >= 250,000 square meters.

```
{Header length}L;
Cropland Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BH135	Rice Field	

TABLE B-85. Trees Area Feature Table.

Thematic Layer: Vegetation
Coverage Name: veg
Feature Table Description: Trees Area Feature Table
Table Name: treesa.aft
Thematic Index ID Number: 2
Portrayal Criteria:
For BH095, EA040, and EC030 area >= 250,000 square meters.

```
{Header length}L;
Trees Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code2.ati,-,:
smc=S,1,N,Surface Material Category,int.vdt,-,-,:
tre=S,1,N,Tree Type Category,int.vdt,-,-,:
veg=S,1,N,Vegetation Characteristic,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		BH095	Marsh/Swamp	
		EA040	Orchard/Plantation	
		EC030	Trees	
smc	Surface Material Category			
		-32768	Null	EA040, EC030
		0	Unknown	BH095
		200	Herbaceous/Scrub Vegetation (excluding trees) [marsh-treeless bog]	BH095
		201	Trees [swamp]	BH095
tre	Tree Type Category			
		0	Unknown	BH095, EA040, EC030
		1	Deciduous	BH095, EA040, EC030
		2	Evergreen	BH095, EA040, EC030
		3	Mixed	BH095, EA040, EC030
veg	Vegetation Characteristic			
		-32768	Null	EA040, EC030
		0	Unknown	BH095
		19	Mangrove	BH095

TABLE B-86. Vegetation Void Collection Area Feature Table.

Thematic Layer: Vegetation
Coverage Name: veg
Feature Table Description: Vegetation Void Collection Area Feature Table
Table Name: vegvoida.aft
Thematic Index ID Number: 3
Portrayal Criteria:
For ZD020 area >= 15,625 square meters

```
{Header length}L;
Vegetation Void Collection Area Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,-,-,:
vca=S,1,N,Void Collection Attribute,int.vdt,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD020	Void Collection Area	
vca	Void Collection Attribute			
		0	Unknown	ZD020
		2	Area Too Rough to Collect	ZD020
		3	No Available Imagery	ZD020
		6	No Available Map Source	ZD020
		7	No Suitable Imagery	ZD020

TABLE B-87. Vegetation Text Feature Table.

Thematic Layer: Vegetation
Coverage Name: veg
Feature Table Description: Vegetation Text Feature Table
Table Name: vegtxt.tft
Thematic Index ID Number: 4

```
{Header length}L;
Vegetation Text Feature Table;-;
id=I,1,P,Row Identifier,-,-,-,:
f_code=T,5,N,FACC Feature Code,char.vdt,f_code4.tti,-,:
symbol.rat_id=I,1,N,Symbol Identification,-,-,-,:;
```

Column	Description	Value	Meaning	Applicable f_code for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		ZD040	Named Location	
		ZD045	Text Description	

TABLE B-88. Vegetation Feature Class Attribute Table.

Thematic Layer: Vegetation
Coverage Name: veg
Table Description: Vegetation Feature Class Attribute Table
Table Name: fca

```
{Header length}L;
Vegetation Feature Class Attribute Table;-;
id=I,1,P,Row Identifier,-,-,-,:
fclass=T,8,U,Feature Class Name,-,-,-,:
type=T,1,N,Feature Type,char.vdt,-,-,:
descr=T,*,N,Description,-,-,-,:;
```

Column	Description	Value	Value Meaning	Applicable feature Class for Each Attribute Value
id	Row Identifier	Sequential beginning with 1		
f_code	FACC Feature Code			
		cropa		
		treesa		
		vegvoida		
		vegtxt		
type	Feature Type			
		A	Area Feature	cropa, treesa, vegvoida
		T	Text Feature	vegtxt
descr	Description			
		Cropland		cropa
		Treed Area		treesa
		Vegetation Void Collection Area		vegvoida
		Vegetation Coverage Text		vegtxt

TABLE B-89. Content and format for Vegetation coverage feature class schema table.

Thematic Layer: Vegetation
Coverage Name: veg
Feature Table Description: Vegetation Feature Class Schema Table
Table Name: fcs

{Header length}L; Vegetation Feature Class Schema Table;-; id=I,1,P,Row Identifier,-,-,-,: feature_class=T,8,N,Name of Feature Class,-,-,-,: table1=T,12,N,First Table,-,-,-,: table1_key=T,16,N,Column Name in First Table,-,-,-,: table2=T,12,N,Second Table,-,-,-,: table2_key=T,16,N,Column Name in Second Table,-,-,-,:;					
1	cropa	cropa.aft	id	cropa.ajt	cropa.aft_id
2	cropa	cropa.ajt	fac_id	fac	id
3	cropa	fac	id	cropa.ajt	fac_id
4	cropa	cropa.ajt	cropa.aft_id	cropa.aft	id
5	cropa	cropa.aft	id	cropa.njt	cropa.aft_id
6	cropa	cropa.njt	notes.rat_id	notes.rat	id
7	cropa	notes.rat	id	cropa.njt	notes.rat_id
8	cropa	cropa.njt	cropa.aft_id	cropa.aft	id
9	treesa	treesa.aft	id	treesa.ajt	treesa.aft_id
10	treesa	treesa.ajt	fac_id	fac	id
11	treesa	fac	id	treesa.ajt	fac_id
12	treesa	treesa.ajt	treesa.aft_id	treesa.aft	id
13	treesa	treesa.aft	id	treesa.njt	treesa.aft_id
14	treesa	treesa.njt	notes.rat_id	notes.rat	id
15	treesa	notes.rat	id	treesa.njt	notes.rat_id
16	treesa	treesa.njt	treesa.aft_id	treesa.aft	id
17	vegvoida	vegvoida.aft	id	vegvoida.ajt	vegvoida.aft_id
18	vegvoida	vegvoida.ajt	fac_id	fac	id
19	vegvoida	fac	id	vegvoida.ajt	fac_id
20	vegvoida	vegvoida.ajt	vegvoida.aft_id	vegvoida.aft	id
21	vegvoida	vegvoida.aft	id	vegvoida.njt	vegvoida.aft_id
22	vegvoida	vegvoida.njt	notes.rat_id	notes.rat	id
23	vegvoida	notes.rat	id	vegvoida.njt	notes.rat_id
24	vegvoida	vegvoida.njt	vegvoida.aft_id	vegvoida.aft	id
25	vegtxt	vegtxt.tft	id	vegtxt.tjt	vegtxt.tft_id
26	vegtxt	vegtxt.tjt	txt_id	txt	id
27	vegtxt	txt	id	vegtxt.tjt	txt_id
28	vegtxt	vegtxt.tjt	vegtxt.tft_id	vegtxt.tft	id
29	vegtxt	vegtxt.tft	symbol.rat_id	symbol.rat	id

CONSOLIDATED FOUNDATION FEATURE DATA (FFD) DATA DICTIONARY LISTINGS

C.1 SCOPE

C.1.1 Scope. This appendix provides information on the feature and attribute organization of the data dictionary for the FFD product. It is a mandatory part of this specification. The information contained herein is intended for compliance.

C.2 APPLICABLE DOCUMENTS

This section is not applicable to this appendix.

C.3 FEATURE AND ATTRIBUTE DATA IN FFD DATA DICTIONARY

C.3.1 FFD feature and attribute data dictionary organization.

a. This appendix provides two tables detailing the location and types of features and attributes found in the FFD data dictionary. For a coverage there is a series of tables that describe the data in that coverage.

b. The first table is an index list by coverage of the FACC feature names and codes, their associated attribute names and codes, and table types with their respective locations by page number.

c. The second table is a similar consolidated index, but without attributes, sorted by FACC code, of the coverages, FACC feature names and codes, and primitive feature table type location page numbers.

C.4 FFD Features

C.4.1 FACC feature code by coverage and feature types. Table C-1 contains all valid FACC feature and attribute names and codes and the page numbers of their primitive types for each FFD coverage.

TABLE C-1. FFD FACC Feature and Attribute Codes by Coverage and Feature Type.

Layer	Feature Name	FACC Code	Attr. Code	END	CND	EDG	FAC	TXT
BND	Coastline/Shoreline	BA010	-			19		
	Accuracy Category		ACC			x		
	Vertical Datum Category		VDC			x		
BND	Administrative Boundary	FA000	-			21		
	Accuracy Category		ACC			x		
	Boundary Status Type		BST			x		
	Name 3		NM3			x		
	Name 4		NM4			x		
	Usage		USE			x		
BND	Administrative Area	FA001	-				23	
	Name		NAM				x	
	Usage		USE				x	
BND	Armistice Line	FA020	-			24		
	Accuracy Category		ACC			x		
	Name 3		NM3			x		
	Name 4		NM4			x		
BND	Maritime Limit Boundary	FC021	-			20		
	Maritime Boundary Limit		MBL			x		
	Name 3		NM3			x		
	Name 4		NM4			x		
BND	Cease-Fire Line	FA030	-			21		
	Accuracy Category		ACC			x		
	Text Attribute		TXT			x		
BND	Void Collection Area	ZD020	-				24	
	Void Collection Attribute		VCA				x	
BND	Named Location	ZD040	-					24
BND	Text Description	ZD045	-					24
ELE	Depth Contour	BE015	-			32		
	Accuracy Category		ACC			x		
	Depth Curve or Contour Value		CRV			x		
ELE	Contour Line (Land)	CA010	-			31		
	Hypsography Portrayal Category		HQC			x		
	Highest Z-value		ZV2			x		
ELE	Spot Elevation	CA030	-	30				
	Accuracy Category		ACC	x				

	Elevation Accuracy		ELA	x				
	Highest Z-value		ZV2	x				
ELE	Void Collection Area	ZD020	-				33	
	Void Collection Attribute		VCA				x	
ELE	Named Location	ZD040	-					33
ELE	Text Description	ZD045	-					33
HYD	Settling Basin/Sludge Pond	AC030	-				46	
HYD	Island	BA030	-				46	
	Name		NAM					
HYD	Water (Except Inland)	BA040	-				46	
	Name		NAM					
HYD	Aqueduct	BH010	-			41		
	Location Category		LOC			x		
HYD	Canal	BH020	-			41	43	
	Hydrological Category		HYC			x	x	
	Width		WID			x	x	
HYD	Ditch	BH030	-			41	43	
	Width		WID			x	x	
HYD	Filtration Beds/Aeration Beds	BH040	-				46	
HYD	Fish Hatchery/Fish Farm/ /Marine Farm	BH050	-				46	
HYD	Lake/Pond	BH080	-				45	
	Hydrological Category		HYC				x	
	Name		NAM				x	
HYD	Land Subject to Inundation	BH090	-				46	
HYD	Reservoir	BH130	-				45	
	Name		NAM				x	
HYD	River/Stream	BH140	-			41	43	
	Hydrological Category		HYC			x	x	
	Width		WID			x	x	
HYD	Salt Evaporator	BH155	-				46	
HYD	Dam/Weir	BI020	-	39	40	42	44	
	Existence Category		EXS	x	x	x	x	
	Height Above Surface Level		HGT	-	-	-	x	
	Length/Diameter		LEN	x	x	x	x	
	Name		NAM	x	x	x	x	
	Width		WID	x	x	x	x	
HYD	Lock	BI030	-	39	40		44	
	Existence Category		EXS	x	x		x	
	Length/Diameter		LEN	x	x		x	
	Name		NAM	x	x		x	
	Width		WID	x	x		x	
HYD	Void Collection Area	ZD020	-				47	
	Void Collection Attribute		VCA				x	
HYD	Named Location	ZD040	-					47
HYD	Text Description	ZD045	-					47
POP	Built-Up Area	AL020	-				53	
	Name		NAM				x	

	World Port Index Code		WPI				x	
POP	Complex Outline	AL045	-				54	
	Building Function Code		BFC				x	
	Name		NAM				x	
POP	Settlement	AL105	-				53	
	Name		NAM				x	
	Populated Place Type		PPT				x	
POP	Native Settlement	AL135	-				53	
	Name		NAM				x	
POP	Void Collection Area	ZD020	-				55	
	Void Collection Attribute		VCA				x	
POP	Named Location	ZD040	-					55
POP	Text Description	ZD045	-					55
TRN	Railroad	AN010	-			72		
	Existence Category		EXS			x		
	Location Category		LOC			x		
	Track/Lane Number		LTN			x		
	Railroad Gauge Category		RGC			x		
	Railroad Power Source		RRA			x		
TRN	Railroad Siding/Railroad Spur	AN050				72		
	Existence Category		EXS			x		
	Railroad Gauge Category		RGC			x		
	Railroad Power Source		RRA			x		
	Rail Siding/Spur Attribute		RSA			x		
TRN	Railroad Yard/Marshalling Yard	AN060	-				81	
	Existence Category		EXS				x	
TRN	Cart Track	AP010	-			76		
	Weather Type Category		WTC			x		
TRN	Road	AP030	-			74		
	Accuracy Category		ACC			x		
	Existence Category		EXS			x		
	Location Category		LOC			x		
	Median Category		MED			x		
	Road/Runway Surface Type		RST			x		
	Minimum Traveled Way Width		WD1			x		
	Weather Type Category		WTC			x		
TRN	Trail	AP050	-			77		
TRN	Bridge/Overpass/Viaduct	AQ040	-		66	69		
	Existence Category		EXS		x	x		
	Length/Diameter		LEN		x	x		
	Transportation Use Category		TUC		x	x		
	Minimum Traveled Way Width		WD1		x	x		
TRN	Ferry Crossing	AQ070	-		67	70		
	Ferry Crossing Length		FCL		x	x		
	Transportation Use Category		TUC		x	x		
TRN	Tunnel	AQ130	-		68	78		
	Existence Category		EXS		x	x		
	Length/Diameter		LEN		x	x		
	Name		NAM		x	x		

	Transportation Use Category		TUC		x	x		
TRN	Pier/Wharf/Quay	BB190	-			71	80	
	Length/Diameter		LEN			x	x	
	Width		WID			x	x	
TRN	Ford	BH070	-		67	70		
TRN	Airport/Airfield	GB005	-	64	65		79	
	Existence Category		EXS	x	x		x	
	ICAO Designator		IKO	x	x		x	
	Name		NAM	x	x		x	
	Usage		USE	x	x		x	
TRN	Heliport	GB035	-	64	65		79	
	Existence Category		EXS	x	x		x	
	ICAO Designator		IKO	x	x		x	
	Name		NAM	x	x		x	
	Usage		USE	x	x		x	
TRN	Runway	GB055	-				82	
	Existence Category		EXS				x	
	Length/Diameter		LEN				x	
	Road/Runway Surface Type		RST				x	
	Width		WID				x	
	Highest Z-value		ZV2				x	
TRN	Seaplane Base	GB065	-	64	65		79	
	Existence Category		EXS	x	x		x	
	Name		NAM	x	x		x	
	Usage		USE	x	x		x	
TRN	Void Collection Area	ZD020	-				83	
	Void Collection Attribute		VCA				x	
TRN	Named Location	ZD040	-					83
TRN	Text Description	ZD045	-					83
VEG	Marsh/Swamp	BH095	-				93	
	Surface Material Category		SMC				x	
	Tree Type Category		TRE				x	
	Vegetation Characteristic		VEG				x	
VEG	Rice Field	BH135	-				92	
VEG	Orchard/Plantation	EA040	-				93	
	Tree Type Category		TRE				x	
VEG	Trees	EC030	-				93	
	Tree Type Category		TRE				x	
VEG	Void Collection Area	ZD020	-				94	
	Void Collection Attribute		VCA				x	
VEG	Named Location	ZD040	-					94
VEG	Text Description	ZD045	-					94

C.4.2 FACC feature code index. Table C-2 contains a listing of all valid FFD features, their primitive types, and coverages, sorted by their FACC feature codes.

TABLE C-2. FFD FACC Feature Code Index.

Layer	FACC Code	Feature Name	END	CND	EDG	FAC	TXT
HYD	AC030	Settling Basin/Sludge Pond				46	
POP	AL020	Built-Up Area				53	
POP	AL045	Complex Outline				54	
POP	AL105	Settlement				53	
POP	AL135	Native Settlement				53	
TRN	AN010	Railroad			72		
TRN	AN050	Railroad Siding/Railroad Spur			72		
TRN	AN060	Railroad Yard/Marshalling Yard				81	
TRN	AP010	Cart Track			76		
TRN	AP030	Road			74		
TRN	AP050	Trail			77		
TRN	AQ040	Bridge/Overpass/Viaduct		66	69		
TRN	AQ070	Ferry Crossing		67	70		
TRN	AQ130	Tunnel		68	78		
BND	BA010	Coastline/Shoreline			19		
HYD	BA030	Island				46	
HYD	BA040	Water (Except Inland)				46	
TRN	BB190	Pier/Wharf/Quay			71	80	
ELE	BE015	Depth Contour			32		
HYD	BH010	Aqueduct			41		
HYD	BH020	Canal			41	43	
HYD	BH030	Ditch			41	43	
HYD	BH040	Filtration Beds/Aeration Beds				46	
HYD	BH050	Fish Hatchery/Fish Farm/Marine Farm				46	
TRN	BH070	Ford		67	70		
HYD	BH080	Lake/Pond				45	
HYD	BH090	Land Subject to Inundation				46	
VEG	BH095	Marsh/Swamp				93	
HYD	BH130	Reservoir				45	
VEG	BH135	Rice Field				92	
HYD	BH140	River/Stream			41	43	
HYD	BH155	Salt Evaporator				46	
HYD	BI020	Dam/Weir	39	40	42	44	
HYD	BI030	Lock	39	40		44	
ELE	CA010	Contour Line (Land)			31		
ELE	CA030	Spot Elevation	30				
VEG	EA040	Orchard/Plantation				93	
VEG	EC030	Trees				93	
BND	FA000	Administrative Boundary			21		
BND	FA001	Administrative Area				23	
BND	FA020	Armistice Line			21		

BND	FA030	Cease-Fire Line			21		
BND	FC021	Maritime Limit Boundary			20		
TRN	GB005	Airport/Airfield	64	65		79	
TRN	GB035	Heliport	64	65		79	
TRN	GB055	Runway				82	
TRN	GB065	Seaplane Base	64	65		79	
BND	ZD020	Void Collection Area				24	
ELE	ZD020	Void Collection Area				33	
HYD	ZD020	Void Collection Area				47	
POP	ZD020	Void Collection Area				55	
TRN	ZD020	Void Collection Area				83	
VEG	ZD020	Void Collection Area				94	
BND	ZD040	Named Location					24
ELE	ZD040	Named Location					33
HYD	ZD040	Named Location					47
POP	ZD040	Named Location					55
TRN	ZD040	Named Location					83
VEG	ZD040	Named Location					94
BND	ZD045	Text Description					24
ELE	ZD045	Text Description					33
HYD	ZD045	Text Description					47
POP	ZD045	Text Description					55
TNR	ZD045	Text Description					83
VEG	ZD045	Text Description					94

C.5 FFD High and Medium Resolution Features

C.5.1 FFD high verses medium resolution features. Table C-3 contains all the FFD features which may be affected by differences between the high and medium resolution requirements and their minimum sizes at these resolutions.

TABLE C-3. FFD High verses Medium Resolution Features.

Layer	FACC Code	Feature Name	Hi-Res Requirement	Med-Res Requirement
HYD	AC030	Settling Basin/Sludge Pond	15,625m^2	250,000m^2
HYD	BA030	Island	15,625m^2	250,000m^2
HYD	BA040	Water (Except Inland)	15,625m^2	250,000m^2
HYD	BH040	Filtration Beds/Aeration Beds	15,625m^2	250,000m^2
HYD	BH050	Fish Hatchery/Fish Farm/ /Marine Farm	15,625m^2	250,000m^2
HYD	BH080	Lake/Pond	15,625m^2 or 5625m^2 in arid areas	250,000m^2 or 90,000m^2 in arid areas
HYD	BH090	Land Subject to Inundation	15,625m^2	250,000m^2
HYD	BH130	Reservoir	15,625m^2	250,000m^2
HYD	BH155	Salt Evaporator	15,625m^2	250,000m^2
POP	AL020	Built-Up Area	15,625m^2	250,000m^2
POP	AL105	Settlement	15,625m^2	250,000m^2
POP	AL135	Native Settlement	15,625m^2	250,000m^2

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Army – TI
Navy – NO
Marine Corps - MC
DISA – DC2

Preparing activity:
NIMA - MP

(Project MCGT-0300)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8 and include as last page of document. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7, and submit to preparing activity.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copes of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	**1. DOCUMENT NUMBER** **MIL-PRF-89049/1**	**2. DOCUMENT DATE** *(YYMMDD)*

3. **DOCUMENT TITLE**

Performance Specification - Foundation Feature Data (FFD)

4. **NATURE OF CHANGE** (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*	b. ORGANIZATION	
c. ADDRESS *(Include Zip Code)*	d. TELEPHONE *(Include Area Code)* (1) Commercial (2) *AUTOVON* *(If applicable)*	**7. DATE SUBMITTED** *(YYMMDD)*

8. PREPARING ACTIVITY

a. NAME National Imagery and Mapping Agency	b. TELEPHONE *(Include Area Code)* (1) Commercial (703) 264-3106 (2) AUTOVON 570-3106
c. ADDRESS *(Include ZIP Code)* National Imagery and Mapping Agency ATTN: Customer Support /COD, Mail Stop P-38 12310 Sunrise Valley Drive Reston, VA 20191-3449	**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:** Defense Standardization Program Office 8725 John J. Kingman Road, Suite 2533 Fort Belvoir, VA 22060-6879 Telephone: (703) 767-6888, DSN: 427-6888