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METRIC

MIL-I-89014
AMENDMENT 5
22 April 1994
SUPERSEDING
AMENDMENT 4
10 December 1993

MILITARY SPECIFICATION

INTERIM TERRAIN DATA (ITD)/PLANNING INTERIM TERRAIN DATA (PITD)

This amendment forms a part of MIL-I-89014, dated 30 November 1990, and is approved for use by all Departments and Agencies of the Department of Defense.

The attached insertable replacement pages listed below are replacements for stipulated pages. When new pages have been entered in the document, insert the amendment as the cover sheet to the specification.

Replacement page	Page replaced
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
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15a	New Page
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15c	New Page
16	16
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39	Reprinted without change
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42	Reprinted without change
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The following changes, corrections, and/or clarifications will require hand entry in the appropriate place in the specifications.

PAGES 18 - 22

* Delete from Vegetation features all occurances of the line:

* F-16 GR1 0-21 General Roughness Category

PAGES 19, 20, and 22

* Add a value of zero (0=Unknown) as a valid attribute value in each occurance of the line, "F-7 VEG 0 *(to be added)*, (code number) __ Vegetation Characteristics", in the Orchard/Plantation (5A040) and Swamp (5D040) features only.

PAGES 24 - 30

* Delete from Surface Materials features all occurances of the five lines:

F-16 GR1 0-21 General Roughness Category
* F-17 GR2 0-21 General Roughness Category
* F-18 GR3 0-21 General Roughness Category
* F-19 GR4 0-21 General Roughness Category
* F-20 GR5 0-21 General Roughness Category

PAGE 31

* Delete from the Surface Drainage feature Covered Drainage (2H010) the line:

F-38 LEN 0,100-998 Length/Diameter of Feature

PAGES 31 - 54

* Add a value of zero (0 = Unknown) as a valid attribute in each occurance of the following attributes: HYC, LTC, RRA, RRC, RST, TUC, TWC, and WTC..

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NOTE: (1) The margins of this amendment are marked with asterisks to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

(2) All amendments are cumulative until a new edition of the specification is approved and released for distribution.

(3) Changes from previous amendment. The major change in this amendment from the fourth amendment is the addition of a zero value (0 = Unknown for the following attributes in Appendix A: HYC, LTC, RRA, RRC, RST, TUC, TWC, and WTC. Other changes involve corrections to page 2 of the amendment itself (spefified Feature Attribute Numbers (F-number fields) of the GR1 to GR5 attributes to be deleted are corrected), and some minor corrections to various features and attributes. The latter include, but are not limited to the following changes in Appendix B: (1) Maximum attribute value for both BGL and BGR is increased from 100 to 998 percent, (2) The attribute value of zero (0 = Unknown) is deleted from the allowable values for the BRN attibute, (3) The attribute value three (3 = Elevated on Grade/Levee (Earthwork) is deleted from the allowable values for the RSC attibute, (4) For the WDA attribute, the attribute values one and five have been corrected to read, "1 = <=0.8 meters" and "5 = <=1.2m), (5) Top of page 40, "Gorge, Narrow, Continued" is changed to "Gorge, Medium, Continued", (6) Addition of the word "format" at the end of the TTADB and PTADB definitions on page 15b, (7) Deletion of the bracketed "(Soils)" from the Surface Materials line of the key word listing on page 15c, and (8) the replacement of Appendix B.

Custodian:
DMA - MP

Review activities:
Army - PO
Air Force - 09
Navy - NO

Preparing activity:
DMA - MP

(project MCGT-0143)

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METRIC

MIL-I-89014
30 NOVEMBER 1990

MILITARY SPECIFICATION

INTERIM TERRAIN DATA (ITD)/PLANNING INTERIM TERRAIN DATA (PITD)

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

1. SCOPE

1.1 Scope.

a. This specification establishes the first edition military specification requirements for the Defense Mapping Agency's (DMA) Interim Terrain Data (ITD) and Planning Interim Terrain Data (PITD). This document specifies the format, content, and product design of ITD and PITD, which are unsymbolized digital data sets. They are based on the level of detail represented, in the case of ITD, in
* the 1:50,000/1:100,000 scale Tactical Terrain Analysis Data Base (TTADB) or, in the case of PITD, in the 1:250,000 scale Planning Terrain Analysis Data Base (PTADB). Both ITD and PITD have an enhanced transportation network, and are provided in a standardized digital format. ITD and PITD are portrayals of analyzed attributes of terrain features (both natural and man-made) that are of significance to tactical (ITD) and planning (PITD) military operations.

b. The DMA Terrain Analysis Program is a dynamic program. This manual identifies specifications encountered in the production of the ITD and PITD thematic files. Supplementary instructions may need to be generated as this product evolves. Modifications will be handled through Configuration Management procedures.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to : Director, Defense Mapping Agency, ATTN: PR, 8613 Lee Highway, Fairfax, VA. 22031-2137 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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1.2 Purpose. Conformance to these specifications will assure uniformity of treatment among all mapping and charting elements engaged in a coordinated production and maintenance program for this product.

1.3 Security.

1.3.1 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 will be accomplished in accordance with established national security procedures.

1.4 Applicability.

* a. For the remainder of this document, the term ITD will be used
* generically to describe both ITD and PITD. Where it is important to distinguish
* between the two, this document will do so. Likewise, the term TADB will be used
* generically to describe both TTADB and PTADB.

* b. These specifications apply to all ITD produced by the Defense Mapping Agency and those produced for the Defense Mapping Agency as a result of either government contract or unit tasking.

* c. These specifications apply to all activities involved in the preparation and maintenance of ITD.

1.5 ITD design.

* a. ITD is a product developed to satisfy the armed services short-term and mid-term requirements for digital terrain analysis data.

* b. In the case where TADBs are used as the primary source, ITD will reflect the specification current at the time of TADB collection. In all other cases, the currently configured baselined TADB specification will be used.

* c. ITD is designed to use the Defense Mapping Agency Feature File (DMAFF) coding scheme (see 2.1.2.b.), and the DPS Standard Linear Format (SLF) for Digital Cartographic Feature Data (see 2.1.2.a.), for data format and structure.

* d. ITD is independent of the method of its production. The production methods result in a standard product that meets the requirements of this specification.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 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).

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SPECIFICATIONS

MILITARY

MIL-D-89000 - Digital Topographic Elevation Data (DTED) Level 1

MIL-J-89100 - Joint Operation Graphics Series 1501A (AIR) and 1501 (GROUND) (JOG A/G)

MIL-T-89301 - 1:50,000 Scale Topographic Maps of Foreign Areas

MIL-T-89304 - Tactical Terrain Analysis Data Base (TTADB) Scale 1:50,000/1:100,000

MIL-P-89305 - Planning Terrain Analysis Data Base (PTADB) Scale 1:250,000

STANDARDS

MILITARY

MIL-STD-600004 - MC&G Geographic Names

MIL-STD-600010 - DMA Stock Number Bar Coding

(Unless otherwise indicated, copies of federal and military specifications,
* standards, and handbooks are available from the Standardization Documents Order
* Desk, 700 Robbins Avenue, Bldg. 4D, Philadelphia, PA 19111-5094).

2.1.2 Other government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

* a. Draft, Military Handbook Standard Linear Format (SLF) for Digital
* Cartographic Feature Data, MIL-HDBK-854, 29 April 1994.

b. Second Edition, DMA Feature File (DMAFF), August 1989.

c. Datums, Ellipsoids, Grids, and Grid Reference Systems, DMA TM 8358.1,
* DMA Stock No. DMATM83581TEXT.

(Copies of the above are available from the Defense Mapping Agency, ATTN: PR, 8613 Lee Highway, Fairfax, VA. 22031-2137.)

2.2 Non-Government publications. This paragraph is not applicable to this specification.

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, specification sheets, or MS standards) the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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3. REQUIREMENTS

* 3.1 First article. When specified (see 6.2), a sample shall be subject
* to first article inspection (see 6.3) in accordance with 4.3.

* 3.2 Accuracy.

* 3.2.1 Horizontal accuracy. The horizontal accuracy of ITD is based on the accuracy of the source materials and the production system constraints.

* 3.2.2 Thematic file relationships.

a. ITD thematic files, shall be prepared such that when the files of a given geographic area are registered together (combined/stacked), they shall bear the same geographic relationship to each other that exists in the source from which they were digitized.

b. Common Open Water (COW) bodies are areal drainage features that meet the minimum size requirements for inclusion in the TADB thematic overlays.

(1) COW bodies are common to four thematic files of a given data set (Surface Configuration, Vegetation, Surface Materials, and Surface Drainage).

(2) COW bodies will be digitized once and replicated into the remaining three files. When digitization is from TADB source, the Surface Drainage COW will be the one digitized.

(3) Subsequent processing of the files may result in slight differences in the final shape of the COW bodies on the four files.

* 3.3 Datum.

* 3.3.1 Horizontal datum. Horizontal datum of ITD files shall be the current World Geodetic System - 1984 (WGS 84), or a local datum from DMA TM 8358.1 when no conversion to WGS 84 exists and the source material is an existing TADB on the local datum.

* 3.3.2 Vertical datum. Vertical datum shall be Mean Sea Level.

* 3.4 Data density levels.

a. ITD/PITD data is collected at a density of detail that approximates
* that of the TTADB/PTADB overlays, respectively. Therefore, normal data collection
* density is 1:50,000 for the ITD and 1:250,000 for the PITD.

* b. Based on its data collection density, if ITD or PITD are to be output
* in hardcopy form, the appropriate scale for this output is 1:50,000/1:100,000 for
* ITD and 1:250,000 for PITD. The 1:100,000 ITD output is the result of a 2x scale
* reduction of a block of four 1:50,000 ITD data collection cells.

3.5 Data set size. The geographic area of the ITD or PITD data set is based
* on the 1:50,000/1:100,000 or 1:250,000 topographic map sheet lines, respectively.

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* 3.6 Continuity (adjoining data set match).

a. Each ITD file area joins the adjacent ITD file area to form a continuous data base with no gaps between files. No file area overlap exists between adjacent files.

b. Features crossing file boundaries shall be continuous, i.e., a feature's geographic position which is located on a file boundary is common to all adjacent files. The only exceptions to this rule are when more current source is used and the feature on the ground has changed (e.g. new road), or when the mismatch is due to different TADB specifications. In these cases, there may be a discontinuity along a file boundary.

* 3.7 Dimensions.

* 3.7.1 Unit of measure. The Unit of Measure for the ITD/PITD is Metric.

* 3.7.2 Minimum sizes. The minimum and maximum sizes of features digitized in most of the thematic files are stated in the TADB specifications current at the time of collection. The features may be digitized as points, lines, or areas depending on the measured values from the source.

* 3.8 Feature and attribute coding system. ITD feature and attribute coding shall be in accordance with the DMAFF reference (see 2.1.2.b.).

* 3.9 ITD file. ITD will be produced in the DPS SLF format, which provides a standard format for digital cartographic feature data. Refer to the DPS SLF Specification (see 2.1.2.a.), for more detail on SLF format and structure. Appendix XVI to the SLF provides specific guidance for the implementation of ITD.

* 3.9.1 Magnetic tape media.

a. Physical characteristics - ITD will be distributed on
* 9 track, 6250 BPI, 1/2 inch magnetic tapes.

b. Magnetic tape label - The magnetic tape label shall be affixed to the side of the magnetic tape. At a minimum the label shall contain:

(1) Name of the type of data (e.g., ITD).

(2) Date and edition of data.

(3) Area identifier.

(4) Production center tape number

(5) Tape density

(6) Blocking of data

(7) Number of records

* (8) Copyright note. DMA products may be copyrighted in the name of
* the U.S. Government in foreign countries that are signatories to the Universal

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* Copyright Convention. To claim this protection, a notice shall be placed on the
* magnetic tape label as follows:

*	©COPYRIGHT (YEAR) BY THE UNITED STATES GOVERNMENT	- 8 pt. Caps.
*	NO COPYRIGHT CLAIMED UNDER TITLE 17 U.S.C.	- 6 pt. Caps.

(9) Security classification of the tape contents

c. Refer to DPS SLF (see 2.1.2.a.), for further information.

* 3.10 Thematic file sequence.

a. The respective digital ITD files will be referred to as "thematic files".

b. The ITD shall be produced as a set of six segregated thematic files, duplicating the content of the six TADB thematic overlays, with the addition of enhanced transportation.

c. The six segregated thematic files are listed below and will be stored or written to tape in this order:

SURFACE CONFIGURATION (SLOPE)
VEGETATION
SURFACE MATERIALS
SURFACE DRAINAGE
TRANSPORTATION
OBSTACLES

* 3.11 ITD/PITD features and attributes.

* a. Except as noted in paragraphs 3.12 to 3.17, the features and attributes carried in the ITD thematic files, as per Appendix A, are the same as those required
* by the TTADB and PTADB specifications (MIL-T-89304 and MIL-P-89305, respectively).
* See those specifications for feature and attribute definitions, minimum sizes, usage limitations, placement rules, etc.

b. See Appendixes A and B for a listing of the features, feature codes, and their associated attributes, attribute codes, and attribute value meanings allowable for the ITD thematic files.

c. All features in the ITD thematic files will carry an Overlay Category (OVC) attribute code value corresponding to the particular thematic on which it appears. If a feature appears on more than one overlay, i.e., common open water, it will have that thematic's particular OVC code in each file in which it appears. OVC attribute values are shown in Appendix B.

* 3.12 Surface Configuration (Slope). This section provides the basic guidance for the production of the Surface Configuration (Slope) thematic file for ITD.

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* 3.12.1 General slope information.

a. Information contained in this file represents the maximum slope of the surface at each point on the ground, expressed as percent slope (tangent of the slope angle x 100), rather than in degrees. Slope is defined as (1) ground whose surface forms an angle with the plane of the horizon (a natural or artificial incline), or (2) the degree or extent of deviation from the horizontal. Although there are an infinite number of slope values at a given point, the maximum slope is the critical limiting value for tactical military operations.

b. See Appendix A for a listing of features and their attributes permitted.

c. Areal extent. Whereas surface configuration is represented by an areal file, all areas within the data set boundary must be labeled with a feature code. There will be no void areas in the file.

d. All features in the Surface Configuration thematic file will carry the OVC attribute code of "1".

* 3.12.2 Miscellaneous Surface Configuration features. Unique and significant slope-related features that have not been otherwise described but are deemed to be militarily significant will be collected as DMAFF Miscellaneous Graphic Features (9D010) and described in the ITD SLF text record of the file.

* 3.13 Vegetation. This section provides the basic guidance for the production of the Vegetation thematic file for ITD.

* 3.13.1 General Vegetation information.

a. Vegetation features shown include those which:

(1) Provide orientation.

(2) Afford concealment for troops, vehicles or unattended ground sensors.

(3) Present obstacles to cross-country movement.

(4) Serve as landmarks.

(5) Provide other significant land use information with military significance.

b. Whereas the manually produced hard copy TADB Vegetation thematic overlays could be compiled as either one or two overlays, the ITD Vegetation thematic file will be assembled as a single thematic file.

c. See Appendix A for a listing of features and their attributes permitted for this thematic file.

d. Areal extent. Whereas vegetation is represented by an areal file, all areas within the data set boundary must be labeled with a feature code. There will be no void areas in the file.

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e. All features in the Vegetation thematic file will carry the OVC attribute code "2".

f. The identification of features reflect similarities in military significance and not taxonomy.

g. For areas that contain a variety of vegetation categories which are below minimum size specifications, the recommended procedure is to group the area into the most restrictive category (i.e., most conservative in terms of movement and concealment).

* h. Whereas previously produced manual hardcopy TADB Vegetation thematic
* overlays may contain information concerning Vegetation Roughness Factor (VRF)
* numerical values, this data will **not** be incorporated into the ITD Vegetation
* thematic file.

* 3.13.2 Miscellaneous Vegetation features. Additional unique and significant vegetation features may be encountered which are of importance to military operations. In some geographic settings, features such as isolated trees, small clumps of trees, golf courses, cemeteries, etc., may be of significance. If a unique and significant vegetation feature (not present in the main body of the specification) is encountered on the source, it will be collected as a DMAFF Miscellaneous Graphic Feature (9D010) and described in the ITD SLF text record of the file.

* 3.14 Surface Materials. This section provides the basic guidance for the
* production of the Surface Materials thematic file for ITD.

* 3.14.1 General Surface Materials information.

a. The treatment of surface materials is limited to those parameters of soils and other surface materials identified as significant for tactical military operations.

b. Soil is defined as the unconsolidated material that overlies bedrock.

c. The Unified Soil Classification System (USCS) is the system used to classify all unconsolidated material (soil). This system classifies soils into 15 categories based primarily on grain size (texture), plasticity, and organic matter content. These features are coded to reflect observed occurrences of the above USCS soil types and other attributes including soil depth, moisture content, and surface roughness characteristics.

d. Surface materials consist of soils and a number of other materials including rock outcrops, permanent snowfields, and evaporites found from the surface to a depth of 50cm, with particular emphasis on the depth between 15 to 38cm (6 to 15 inches) below the surface. This is generally the critical layer where the rating cone index (an indicator of the soil load bearing capacity) is considered the most significant measure of trafficability.

e. See Appendix A for a listing of features and their attributes permitted for this thematic file.

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f. Areal extent. Whereas surface materials are represented by an areal file, all areas within the data set boundary must be labeled with a feature code. There will be no void areas in the file.

* g. All features in the Surface Materials thematic file will carry the OVC attribute code of "3".

* 3.14.2 Miscellaneous Surface Materials features. If a unique and significant surface materials feature (not present in the main body of the specification) is encountered on the source, it will be collected as a DMAFF Miscellaneous Graphic Feature (9D010) and described in the ITD SLF Text record of the file.

* 3.14.3 Not Evaluated areas (9D020).

a. The not-evaluated code may be used in areas of surface materials identified as being disturbed by man. Examples are towns, cities, railroad yards, airports, etc. Other areas may include extensive slag piles, mine tailings, land fills, garbage dumps, etc., where the USCS coding would be inappropriate.

b. Since the Ground Surface feature (4A010) and the Soil Type Category attribute do not adequately describe these areas, descriptive information for 9D020 features will be stored in the ITD SLF Text record (Miscellaneous Text record).

* 3.14.4 Surface roughness classification and coding.

a. Surface roughness is synonymous with microrelief and covers the expression of the land surface or surface geomorphic features which are less than the contour interval of the base map in height. Surface roughness is that aspect of the microrelief on the land surface (boulder fields, hummocky ground, gullies, * rugged bedrock, etc.) which reduces the rate of cross-country movement for vehicles or foot troops.

b. Surface Roughness Qualifier (SRQ=0-98) (attribute/value numbers). Surface roughness is classified and coded in the surface materials thematic file by a project-tailored set of sequential numbers designating the surface roughness type. Each separate surface roughness type found in the project area is assigned a Surface Roughness Qualifier or type number. The only surface material types not assigned surface roughness type numbers are the Not-Evaluated and COW features.

c. Surface Roughness Qualifier (SRQ=0-98) (attribute value meaning descriptors).

(1) Each surface roughness type identified and number coded in the project is given a corresponding surface roughness descriptor.

(2) The surface roughness descriptors are a set of generalized statements about the small-scale differences in relief (natural and/or cultural) that are not normally shown or interpretable on a regular topographic map. These descriptors shall detail the surface roughness within specific mapping units rather than combining several different and separately occurring surface roughness descriptions together.

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(3) The actual surface roughness descriptions associated with each Surface Roughness Qualifier are stored in the ITD SLF text record (Surface Roughness Table).

(4) The surface roughness type numbers 0, 1, and 2 are standardized. Refer to the T/PTADB specifications and the DPS SLF-A, Appendix XVI.

(5) The remaining surface roughness type numbers and descriptors (SRQ=03-98) are the analyst tailored types and are formatted as described in DPS SLF-A, Appendix XVI.

* (6) Whereas previously produced manual hardcopy TADB Surface
* Materials thematic overlays may contain information concerning Surface Roughness
* Factor (SRF) numerical values accompanying each Surface Roughness Qualifier and
* Description, these SRF numerical values will **not** be incorporated into the ITD
* Surface Materials thematic file.

* 3.15 Surface Drainage. This section provides the basic guidance for the production of the Surface Drainage thematic file for ITD.

* 3.15.1 General Surface Drainage information.

a. See Appendix A for a listing of features and their attributes permitted for the Surface Drainage thematic file. See TADB specifications for specific inclusion conditions.

b. Linear and areal extent. Whereas Surface Drainage is represented by a combination of feature types (mostly linear with some point and areal features) most of the area within the data set boundary of the covered area is not assigned a feature and/or attribute codes.

c. All features in the Surface Drainage thematic file will carry the OVC attribute code of "4".

* 3.15.2 Miscellaneous Surface Drainage features. Additional Surface Drainage features may be encountered which are of major significance to military operations, especially river and channel crossings and/or landings. In some environments, features such as intermittent lakes, washes/wadis, anastomosing streams, elevated aqueducts, tidal flats, weirs, features under construction, etc., may be of operational and landmark significance. Unique and significant Surface Drainage features not found in the specification will be shown as DMAFF Miscellaneous Graphic Features (9D010) and described (along with any new measurements made for the features) in the ITD SLF text record of the file.

* 3.16 Transportation. This section provides the basic guidance for the production of the Transportation thematic file for the ITD.

* 3.16.1 General Transportation Information.

a. The features and attributes in this thematic file represent transportation features over which troops and supplies can be moved during a tactical military operation. The transportation thematic file consists of features required in TADB specifications in addition to the enhanced transportation guidelines as outlined in this section.

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b. If associated attributes for a feature are unknown, guidelines presented in DMAFF specifications should be followed.

c. Whereas Transportation is represented by a combination of feature types (mostly linear with some point and areal features) most of the area within the data set boundary of the covered area is not assigned a feature and/or attribute codes.

d. See Appendix A for a listing of features and their attributes permitted for the Transportation thematic file.

e. Every feature in the Transportation thematic file will carry the OVC attribute value of "5".

* 3.16.2 Railroads. Railroad tracks are classified and attributed as a track type, track gage, number of tracks, and electrification status.

* 3.16.3 Roads.

a. Enhanced transportation. The following describes the collection density and attribution of roads.

(1) Road features required in the TADB specifications will be portrayed and fully attributed.

(2) All roads attributed on specialized "Road and Bridge" maps, where available, will be digitized and fully attributed as per those sources.

(3) All roads, cart tracks and larger, derived solely from the base map source will be divided into four categories with the following road characteristics as their standardized attributes:

(a) All Weather, Hard Surface Highway/Roads (1P030, OVC=5,
* WTC=1, RST=1, WDD=6).

(b) All Weather, Loose Surface Roads (1P030, OVC=5, WTC=1,
* RST=2, WDD=5).

(c) Fair Weather, Loose Surface Roads (1P030, OVC=5, WTC=2,
* RST=2, WDD=4).

* (d) Cart Track (1P010, OVC=5, ACC=0 or 2 [if base map says
* "Approximate" or "Approximate Alignment" or similar phrase]).

(4) Enhanced transportation will not affect portrayal of road networks in urban areas. Inside urban areas only a representative pattern of roads will be shown. This pattern will include all major through routes.

b. A road segment is a single section of road between two nodes. Road segments carry the same classification and attribute characteristics throughout their length. A road feature is a road segment or segments of a road that carry the same classification and attribute characteristics throughout lengths.

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(1) Individual road segments are formed at road junctions (intersections). Road features are formed at points of attribute changes.

(2) Railroads crossing road features form segments of each feature. New features are not formed. A node is placed at the point of intersection.

(3) Point features associated with roads, such as sharp curves, drop gates, etc., do not affect road features. Individual road segments are formed.

(4) Bridges, tunnels, and other features that roads pass over or through do not affect road features as long as the road has the same classification and attributes on both sides. If they are different at each end of the feature, the higher road classification, consistent with the design and structural characteristics of the feature, is considered to cross over or through the feature and then change on the other side.

(5) A road intersection is an at-grade crossing, meeting, or junction of two or more roads. Roads overpassing or underpassing other roads on bridges (or elevated structures) or through tunnels do not affect road features. Individual road features are not formed, unless the classification and/or attributes are different on each side of the feature.

* 3.16.4 Bridges.

a. Bridges that are required in TADB specifications are portrayed and fully attributed.

b. All road bridges derived solely from specialized "Road and Bridge" maps are to be digitized and fully attributed per that source.

c. Road bridges derived solely from the base map source are portrayed
* with a unique bridge number (as per 3.16.4d. below). All remaining attributes
* shall either default to "Unknown" or have valid values entered, if available from
* source materials. All such bridges will be point features as their lengths are unknown.

d. All road bridges on the Transportation thematic file are given a unique integer bridge number. This information is stored in the Bridge Reference Number (BRN).

e. Bridge spans (1Q045) are sections of the bridge between successive supports (i.e., pillars, piers, or abutments). These features are portrayed as a point or a line centered at either the mid-point of its associated bridge feature or at the point where the underpassing feature(s) (e.g. canal, stream, road, railroad, etc.) is beneath it.

(1) Bridge spans are portrayed for road bridges only.

(2) The Bridge Reference Number (BRN) serves to tie the bridge span information back to the bridge. The associated component bridge spans of a bridge receive the same BRN value as the bridge itself.

(3) Span length is the bridge centerline distance from the intersection point of the load carrying spanning members or surface with the end

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plate on the abutment or support at one end to the same on the other end. The length is measured in decimeters. This is the span length which must be replaced if the span is removed.

(4) If the bearing to bearing length of spans is the only span length known, it will be shown with a warning note to this effect attached to the ITD SLF text record.

* 3.16.5 Tunnels.

a. All tunnels along the railroads and roads that can be identified on the source and those along roads that can be derived from the base topographic map are included in this thematic file.

b. The hidden inner road or railroad passing through the tunnel is given an approximate delineation in this thematic file.

* 3.16.6 Miscellaneous Transportation features. In some geographic settings, unique transportation features may be encountered which are significant to military operations along the transportation network. Such features as route segment vertical lifts, trails, overhead obstructions, restricted passages, snowsheds, canals, culverts, elevated transportation structures, etc., in certain environments and conditions may play a critical role in on-route operations. Unique and significant transportation features found on the source which are not specifically identified in Appendix A, will be shown as DMAFF Miscellaneous Graphic Features (9D010) and described in the ITD SLF text record file.

* 3.17 Obstacles. This section provides the basic guidance for the production of the Obstacles thematic file for ITD.

* 3.17.1 General Obstacles information.

a. The treatment of obstacles is limited to any natural and/or man-made features that divert ground based military cross-country movement.

b. As much as possible, obstacles should be considered as independent of vehicle/troop type, (i.e., medium and large tanks, large wheeled vehicles, small wheeled vehicles, small tracked vehicles, and foot troops).

c. See Appendix A for a listing of features and their attributes permitted for this thematic file.

d. Whereas obstacles are represented by linear features (with some point and areal features), most of the area within the data set boundary is not assigned a feature and/or attribute codes.

e. All features in the Obstacles thematic file will carry the OVC attribute code "6".

* 3.17.2 Miscellaneous Obstacle features. Additional obstacle features are those features that hinder or obstruct military ground movement. In some geographic settings, features such as shelterbelts, on the ground aqueducts, elevated structures, kanats, wooded gullies, permanent military obstructions such as anti-tank ditches, impact areas, minefields, etc., may be of significance. If a unique

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and significant obstacle feature is present on the source, it will be collected as a DMAFF Miscellaneous Graphic Feature (9D010) and described in the ITD SLF text record of the file.

3.18 Deliverable data. The user shall receive the following items:

a. Transmittal summary sheet.

b. ITD on magnetic tape.

c. Digital Terrain Elevation Data on magnetic tape will always be transmitted with ITD.

3.19 Names and Labeling.

a. In the ITD thematic files, features are normally identified by feature type and/or attribute code value and not by name(s). In the rare case that a miscellaneous or unique feature should need to be named in the thematic file, the name should be taken from the base map to which the digitized thematic overlay would be registered.

b. Names are not normally included in ITD. If they are entered in Text files, they shall be those names approved by the U.S. Board of Geographic Names. Normally, U.S. maps of similar scale serve as a guide to features to be named. Individual features of a group are not labeled, instead the names of groups of features are recorded (e.g., archipelago, mountain range, etc.).

3.20 Reproduction and Storage. The ITD thematic files will be reproduced and stored as 9 track, 6250 BPI, magnetic tapes.

3.21 Appendix A.

a. This table is broken into six sections which are representative of the six ITD thematic files. The six section headings are: Surface Configuration (Slope), Vegetation, Surface Materials, Surface Drainage, Transportation, and Obstacles. The miscellaneous feature code (9D010) has been provided for each section, and is available for use in the event that a feature or features are encountered that are not described in this specification. Text descriptions are used to describe the miscellaneous feature(s) in the ITD SLF text record.

b. Appendix A presents information about different features, and the feature attributes.

(1) The first column, labeled "F Code", contains the DMA Feature File (DMAFF) code.

(2) The second column labeled (ITD and PITD) is used to indicate which features are required in the ITD/PITD specifications. If the feature is required in only a ITD, then a letter "T" is placed in the column. If the feature is required in only a PITD, then a letter "P" is placed in the column. No entry in this column means that the feature is applicable to both ITD and PITD files.

(3) The third column is labeled "Feature Name" with a designation in brackets "[DMAFF Feature Name]." The first name is the feature name for this

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item as defined for ITD. The second name located within brackets [ ] is the name for the same item found in DMAFF with that particular feature code number.

(4) The fourth column labeled "F Type" designates which feature types are allowable for this feature, that is: point, line, or area.

(5) The fifth column labeled "F At. No." is the field attribute number, which is the feature header field (location) in the digital data where this attribute is stored.

(6) The sixth column labeled "At. Code" contains the attribute code. This is the three character alphanumeric designation of the different attribute codes which the particular feature can have.

(7) In the seventh column labeled "Values" are the allowable values that the attribute code can have.

(8) In the eighth column labeled "Attribute" is the name of the attribute code designated in column six.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspections required (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of paragraphs 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

* 4.2 Classification of inspection. The inspection requirements specified
* herein are classified as follows:

* a. Visual examination (see 4.4)

* b. Review of construction records (see 4.5)

* 4.3 First article inspection. When a first article inspection is required
* (see 3.1 and 6.2), it shall be examined for defects as specified in 4.4, and the
* construction record reviewed for compliance with 4.5.

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* 4.4 Visual inspection. The ITD thematic files shall be examined for defects
* and errors as specified by the contract or government. Required corrections shall
* be made to all files and reproducible materials before being sent to the next
* production stage. Defects detected during the inspection of the reproduced "catch
* copy" shall be evaluated by DMA for criticality, and suitable corrective action.

* 4.5 Review of construction records. Records about the construction of
* the ITD files shall be maintained. The records shall document sources, decisions
* regarding reconciliation of conflicting data, etc. ITD file records/ construction
* histories shall be reviewed concurrently with visual examinations (see 4.4). to
* ensure that proper cartographic and data processing procedures have been followed.

* 4.6 Government furnished material. The contractor shall not duplicate,
* copy, or otherwise reproduce the MC&G property for purposes other than those
* necessary for the performance of the contract.

* 4.7 Government property surplus. At the completion of performance of the
* contract, the contractor, as directed by the contracting officer, shall either
* destroy or return to the government all government-furnished MC&G property not
* consumed in the performance of the contract.

* 4.8 Final product quality. Final product quality will reflect the quality
* expressed by each applicable military standard and specification.

5. PACKAGING

* 5.1 General. ITD files produced in accordance with these specifications
* shall be issued as magnetic tape media, as specified in 3.9.1. As per 3.18, a
* complete ITD package shall also include a transmittal sheet, and the corresponding
* Digital Terrain Elevation Data (DTED), also on magnetic tape.

* 5.2 Packaging. Packaging shall be level C (see 6.2), unless otherwise
* specified. This packaging provides minimum protection, and it is needed to protect
* material under favorable conditions. The following criteria determine the
* requirements for this degree of protection:

* a. Use or consumption of the item at the first destination.

* b. Shock, vibration, and static loading during the limited transportation
* cycle.

* c. Favorable warehouse environment for a maximum of 18 months.

* d. Effects of environmental exposure during shipment and in transit
* delays.

* e. Stacking and supporting superimposed loads during shipment and
* temporary storage.

* 5.3 Marking. In addition to any special markings required by the contract
* or order, markings shall be in accordance with requirements of MIL-STD-129 for
* military levels of protection.

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6. NOTES

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

6.1 Intended use. ITD is a product developed to satisfy the armed services short-term and mid-term requirements for digital Terrain Analysis data.

* 6.2 Acquisition requirement. Acquisition documents must specify the
* following:

* a. Title, number, and date of this specification.

* b. Issue of the DODISS to be cited in the solicitation, and if required,
* the specific issue of the individual documents referenced (see 2.1.1 and 2.2).

* c. When a first article is required (see 3.1, 4.3, and 6.3).

* d. Levels of packaging (see 5.2).

* 6.3 First article. When a first article is required, it shall be inspected
* and approved under appropriate provisions of FAR 52.209. The contracting officer
* shall specify the appropriate type of first article and the number of units to
* be furnished in the solicitation/contract. The contracting officer shall also
* include specific instructions in the acquisition documents regarding arrangement
* for selection, inspection, and approval of the first article.

* 6.4 Supersession. This section is not applicable to this specification.

* 6.5 Definitions.

* 6.5.1 TTADB. The Tactical Terrain Analysis Data Base (TTADB) is a 1:50,000/
* 1:100,000 scale geographic information system type data base consisting of a set
* of selected single subject thematic terrain information overlays used to satisfy
* tactical military requirements. Data on the physical, biological and cultural
* features of the Earth's surface is presented in a hard copy cartographic format.

* 6.5.2 PTADB. The Planning Terrain Analysis Data Base (PTADB) is a 1:250,000
* scale geographic information system type data base consisting of a set of selected
* single subject thematic terrain information overlays used to satisfy planning
* military requirements. Data on the physical, biological and cultural features
* of the Earth's surface is presented in a hard copy cartographic format.

* 6.6 Standardization agreements. Certain provisions of this specification
* may be subject to international standardization agreements. When amendment,
* revision, or cancellation of this specification is proposed that will modify the
* international agreement concerned, the preparing activity will take appropriate
* action through international standardization channels, including departmental
* standardization offices, to change the agreement, or make other appropriate
* accommodations.

* 6.6.1 NATO standardization agreements (STANAGs).

* This section is not applicable to this specification.

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* 6.6.2 Quadripartite standardization agreements (QSTAGs).

* This section is not applicable to this specification.

* 6.6.3 Air standardization coordinating committee agreements (ASCCs).

* This section is not applicable to this specification.

* 6.6.4 International MC&G agreements.

* This section is not applicable to this specification.

* 6.6.5 Executive orders.

* This section is not applicable to this specification.

* 6.6.6 Inter-Agency agreements.

* This section is not applicable to this specification.

* 6.6.7 Other documentation.

* This section is not applicable to this specification.

* 6.7 Subject term (key word) 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, "Military Specifications, Interim Terrain Data (ITD)/ Planning Interim Data (PITD):

* Airfields
* Bridges/Bridge Spans
* Defense Mapping Agency Feature File (DMAFF)
* Enhance Transportation
* Landing Areas
* Miscellaneous Features
* Obstacles
* Open Water
* Planning Terrain Analysis Data Base (PTADB)
* Railroads
* Roads
* Runways
* Soil Moisture
* Standard Linear Format (SLF)
* Streams
* Surface Configuration (Slope)
* Surface Drainage
* Surface Materials
* Surface Roughness Qualifiers/Descriptions
* Transportation
* Tactical Terrain Analysis Data Base (TTADB)
* Thematic File

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* Tunnels
* Vegetation
* Unified Soil Classification System

* 6.8 Changes from previous issue.

* This section is not applicable to this specification.

* 6.9 Classification and special handling of thematic files.

a. The classification of the final ITD 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.

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Surface Drainage (Continued)

F Code	ITD(T) PITD(P)	Feature Name [DMAFF Feature Name]	F Type	F At. No.	At. Code	Values	Attribute
2H140		Braided Streams, Wide (Continued)		F-19	SBV	0,1,2,3,4	Stream Bank Vegetation
				F-25	BGR	0-998	Bank Gradient-Right Bank
				F-26	BGL	0-998	Bank Gradient-Left Bank
				F-36	BHR	0-9998	Bank Height Cat.-Right Bank
				F-37	BHL	0-9998	Bank Height Cat.-Left Bank
				F-38	GWD	181-50,000 (T)	Gap Width (Decimeters)
				F-38	GWD	1421-50,000 (P)	Gap Width (Decimeters)
2H140	(T)	Gorge {Narrow} [Same]	Line	F-5	RRC	4	Railroad/Road Drainage Category
				F-6	HYC	11	Hydrographic Category
				F-15	OVC	4	Overlay Category
				F-16	WVA	0,1,2	Water Velocity
				F-17	WDA	0-4	Water Depth Average
				F-18	MCC	0,5,14,35,57 66,69,76 (T)	Material Composition Category
				F-19	SBV	0,1,2,3,4	Stream Bank Vegetation
				F-25	BGR	0-998	Bank Gradient-Right Bank
				F-26	BGL	0-998	Bank Gradient-Left Bank
				F-36	BHR	0-9998	Bank Height Cat.-Right Bank
				F-37	BHL	0-9998	Bank Height Cat.-Left Bank
				F-38	GWD	0-45	Gap Width (Decimeters)
2H140		Gorge {Medium} [Same]	Line	F-5	RRC	7	Railroad/Road Drainage Category
				F-6	HYC	11	Hydrographic Category
				F-15	OVC	4	Overlay Category
				F-16	WVA	0,1,2	Water Velocity
				F-17	WDA	0-4 (T)	Water Depth Average
				F-17	WDA	0,4,5,6 (P)	Water Depth Average
				F-18	MCC	0,5,14,35,57 66,69,76 (T)	Material Composition Category
				F-18	MCC	0,5,14,57 66,69 (P)	Material Composition Category
				F-19	SBV	0,1,2,3,4	Stream Bank Vegetation

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Surface Drainage (Continued)

F Code	ITD(T) PITD(P)	Feature Name [DMAFF Feature Name]	F Type	F At. No.	At. Code	Values	Attribute
2H140	(T)	Gorge (Medium) (Continued)		F-25	BGR	0-998	Bank Gradient-Right Bank
				F-26	BGL	0-998	Bank Gradient-Left Bank
				F-36	BHR	0-9998	Bank Height Cat.-Right Bank
				F-37	BHL	0-9998	Bank Height Cat.-Left Bank
				F-38	GWD	46-180 (T)	Gap Width (Decimeters)
				F-38	GWD	181-1420 (P)	Gap Width (Decimeters)
2H140		Gorge (Wide) [Same]	Area	F-5	RRC	9	Railroad/Road Drainage Category
				F-6	HYC	11	Hydrographic Category
				F-15	OVC	4	Overlay Category
				F-16	WVA	0,1,2	Water Velocity
				F-17	WDA	0-4 (T)	Water Depth Average
				F-17	WDA	0,4,5,6 (P)	Water Depth Average
				F-18	MCC	0,5,14,35,57 66,69,76 (T)	Material Composition Category
				F-18	MCC	0,5,14,57 66,69 (P)	Material Composition Category
				F-19	SBV	0,1,2,3,4	Stream Bank Vegetation
				F-25	BGR	0-998	Bank Gradient-Right Bank
				F-26	BGL	0-998	Bank Gradient-Left Bank
				F-36	BHR	0-9998	Bank Height Cat.-Right Bank
				F-37	BHL	0-9998	Bank Height Cat.-Left Bank
				F-38	GWD	181-50,000 (T)	Gap Width (Decimeters)
				F-38	GWD	1421-50,000 (P)	Gap Width (Decimeters)
2I020		Dam * [Same]	Point	F-2	MCC**	0,18,23,86	Material Composition Category
				F-8	EXS**	0,1,5	Existence Category
				F-10	HGT	0,3,5-998	Height of Feature (Meters)
				F-12	WID**	0-100	Width (Meters)
				F-15	OVC	4	Overlay Category
				F-38	LEN**	0-99(T)	Length/Diameter of Feature
				F-38	LEN**	0-499(P)	Length/Diameter of Feature

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Surface Drainage (Continued)

F Code	ITD(T) PITD(P)	Feature Name [DMAFF Feature Name]	F Type	F At. No.	At. Code	Values	Attribute
2I020		Dam* (Continued)	Line	F-2	MCC**	0,18,23,86	Material Composition Category
				F-8	EXS**	0,1,5	Existence Category
				F-10	HGT	0,3,5-998	Height of Feature (Meters)
				F-12	WID**	0-100	Width (Meters)
				F-15	OVC	4	Overlay Category
				F-38	LEN**	0,100-99998(T)	Length/Diameter of Feature
* *				F-38	LEN**	0,500-99998(P)	Length/Diameter of Feature
		* This feature not collected for PTADB if HGT < 5 meters				** Attribute not collected on TTADB if HGT < 5 meters	
2I030		Lock [Same]	Point	F-8	EXS	0,1,5	Existence Category
				F-12	WID	0-100	Width (Meters)
				F-15	OVC	4	Overlay Category
				F-38	LEN	0-99(T)	Length/Diameter of Feature
* *				F-38	LEN	0-499(P)	Length/Diametet of Feature
			Line	F-8	EXS	0,1,5	Existence Category
				F-12	WID	0-100	Width (Meters)
				F-15	OVC	4	Overlay Category
*				F-38	LEN	0,100-99998(T)	Length/Diameter of Feature
* *				F-38	LEN	0,500-99998(P)	Length/Diameter of Feature
9D010*		Miscellaneous Surface Drainage Feature [Miscellaneous Graphic Features]	Point	F-15	OVC	4	Overlay Category
			Line	F-15	OVC	4	Overlay Category
			Area	F-15	OVC	4	Overlay Category

* In the ITD/PITD SLF text record enter the complete feature description and dimensional value for all characteristics of the Miscellaneous surface drainage features.

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Section 5 TRANSPORTATION

F Code ITD(T) PITD(P)	Feature Name [DMAFF Feature Name]	F Type	F At. No.	At. Code	Values	Attribute
1N010	Single Track, Narrow Gauge [Railroad Tracks]	Line	F-4	RRA	1,5	Railroad Attributes
			F-5	RRC	4	Road/Railroad Categories
			F-6	LTC	4	Lane/Track Characteristics
			F-8	EXS	1,5	Existence Category
			F-15	OVC	5	Overlay Category
1N010	Single Track, Normal Gauge [Railroad Tracks]	Line	F-4	RRA	1,5	Railroad Attributes
			F-5	RRC	5	Road/Railroad Categories
			F-6	LTC	4	Lane/Track Characteristics
			F-8	EXS	1,5	Existence Category
			F-15	OVC	5	Overlay Category
1N010	Single Track, Broad Gauge [Railroad Tracks]	Line	F-4	RRA	1,5	Railroad Attributes
			F-5	RRC	1	Road/Railroad Categories
			F-6	LTC	4	Lane/Track Characteristics
			F-8	EXS	1,5	Existence Category
			F-15	OVC	5	Overlay Category
1N010	Multiple Track, Narrow Gauge [Railroad Tracks]	Line	F-4	RRA	1,5	Railroad Attributes
			F-5	RRC	4	Road/Railroad Categories
			F-6	LTC	3	Lane/Track Characteristics
			F-8	EXS	1,5	Existence Category
			F-15	OVC	5	Overlay Category
1N010	Multiple Track, Normal Gauge [Railroad Tracks]	Line	F-4	RRA	1,5	Railroad Attributes
			F-5	RRC	5	Road/Railroad Categories
			F-6	LTC	3	Lane/Track Characteristics
			F-8	EXS	1,5	Existence Category
			F-15	OVC	5	Overlay Category

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ITD ATTRIBUTE LISTING

10. SCOPE

10.1 Scope. This appendix provides a guide to the ITD attribute codes, attribute values, and value meanings. This appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

This section is not applicable to this appendix.

30. ITD ATTRIBUTE CODE NAMES AND ATTRIBUTE VALUES

30.1 ITD attribute table.

Attribute Code	Attribute Values	Value Meaning
ACC	Accuracy Category	
	0	Unknown
	1	Accurate
	2	Approximate
BCC	Bypass Condition Category	
	0	Unknown
	1	Difficult
	2	Easy
	3	Impossible
BDC	Brushland Density Category	
	0	Unknown
	1	Open to Medium (0-50% Coverage)
	2	Medium to Dense (51-100% Coverage)
BGL	Bank Gradient (Slope) Category-Left Bank	
	0	Unknown
	1	1%
	.	
	.	
	.	
*	998	998%
BGR	Bank Gradient (Slope) Category-Right Bank	
	Same Values As BGL	
BHL	Bank Height Category-Left Bank	
	0	Unknown
	1	1 Decimeter
	.	
	.	
	.	
	9998	9998 Decimeter

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ITD attribute code name and attribute values (Continued)

Attribute Code	Attribute Values	Value Meaning
BHR	Bank Height Category-Right Bank	
	Same values as BHL	
BRN	Bridge Reference Number	
*	1	Bridge number 1
	.	
	.	
	.	
	9998	Bridge number 9998
DLA	Definition of Landing Area	
	0	Unknown
	1	No well defined runway
	2	Well defined runway
DMT	Density Measure (% of Tree/Canopy Cover)	
	0	Unknown
	1	1%
	.	
	.	
	.	
	100	100%
EXS	Existence Category	
	0	Unknown
	1	Definite
	5	Under Construction
	6	Abandoned/non-operational
	8	Dismantled
*		
GSC	Ground Slope Category	
	0	Unknown
	1	0-3%
	2	>3-10%
	3	>10-20%
	4	>20-30%
	5	>30-45%
	6	>45%
	7	0->45% (Naturally and/or culturally dissected land).
GWD	Gap Width Decimeters	
	0	Unknown
	1	1 Decimeter
	.	
	.	
	.	
	99998	99998 Decimeters

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ITD attribute code name and attribute values (Continued)

Attribute Code	Attribute Values	Value Meaning
HGT	Height of Feature Above Ground Level	
	0	Unknown
	1	1 Meter
	.	
	.	
	.	
	998	998 Meters
HLC	Hydrographic Location Category	
	0	Unknown
	19	Above Surface
HYC	Hydrographic Category	
	0	Unknown
	6	Non-Perennial/Intermittent/Fluctuating and Ephemeral
	8	Perennial/Permanent
	10	Tidal/Tidal Fluctuation
	11	Steep Sides
	14	Braided
LC1	Load Class Type: One-Way, Wheeled Vehicles	
	0	Unknown
	1	1 Short Ton
	.	
	.	
	.	
	200	200 Short Tons
LC2	Load Class Type: Two-way, Wheeled Vehicles	
	0	Unknown
	1	1 Short Ton
	.	
	.	
	.	
	200	200 Short Tons
LC3	Load Class Type:One-way, Tracked Vehicles	
	0	Unknown
	1	1 Short Ton
	.	
	.	
	.	
	200	200 Short Tons

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ITD attribute code name and attribute values (Continued)

Attribute Code	Attribute Values	Value Meaning
LC4	Load Class Type:Two-way, Tracked Vehicles	
	0	Unknown
	1	1 Short Ton
	.	
	.	
	.	
	200	200 Short Tons
LEN	Length/Diameter of Feature	
	0	Unknown
	1	1 Meter
	.	
	.	
	.	
	99998	99998 Meters
LND	Length in Decimeter	
	0	Unknown
	1	1 Decimeter
	.	
	.	
	.	
	99998	99998 Decimeters
LOC	Location/Origin Category	
	0	Unknown
	1	Below Ground Level
	3	On Ground Surface
	4	Suspended or Elevated
LTC	Lane/Track Characteristics	
	0	Unknown
	3	Multiple
	4	Single
MCC	Material Composition Category	
	0	Unknown
	4	Bare/Cleared
	5	Bedrock
	14	Clay
	18	Concrete
	23	Earthwork
	24	Evaporites
	35	Gravel
	48	Masonry (Stone/Brick)
	57	Paved
	60	Prestressed Concrete

(Continued)

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ITD attribute code name and attribute values (Continued)

Attribute Code	Attribute Values	Value Meaning
MCC	Material Composition Category (Continued)	
	65	Reinforced Concrete
	66	Rock, Rocky
	69	Sand
	76	Silt
	77	Soil
	83	Steel
	86	Stone
	94	Volcanic
	97	Wood
NOS	Number of Spans	
	0	Unknown
	1-98	(max. 2 digits)
OHD	Overhead Clearance-Decimeters	
	0	Unknown
	1	1 Decimeter
	.	
	.	
	.	
	500	500 Decimeters
	501	Unlimited
OVC	Overlay Category	
	0	Unknown
	1	Surface Configuration
	2	Vegetation
	3	Surface Materials
	4	Surface Drainage
	5	Transportation
	6	Obstacles
RRA	Railroad Attributes	
	0	Unknown
	1	Electrified
	5	Non-electrified
RRC	Railroad/Road Categories (For ITD, RRC is used for some Surface Drainage, as well as some Transportation Features)	
	0	Unknown
	1	Broad Gauge
	4	Narrow/Narrow Gauge
	5	Normal (Standard) Gauge
	7	Medium
	9	Wide

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ITD attribute code name and attribute values (Continued)

Attribute Code	Attribute Values	Value Meaning
RSC	Road/RR Structure Category	
	0	Unknown
	1	Non-elevated
*	6	Elevated on Structure
RST	Road/Runway Surface Type	
	0	Unknown
	1	Hard/Paved
	2	Loose/Unpaved
SBV	Stream Bank Vegetation	
	0	Unknown
	1	Dense Vegetation on the right bank
	2	Dense Vegetation on the left bank
	3	Dense Vegetation on both banks
	4	Neither bank contains dense vegetation
SDC	Soil Depth Category	
	0	Unknown
*	1	>= 0.5 meters
	2	< 0.5 meters
SDS	Stem Diameter Size	
	0	Unknown
	1	1 cm
	.	
	.	
	.	
	900	900 cm
SGC	Slope/Gradient Category	
	0	Unknown
	1	0 - <2%
	2	2
	3	3
	.	
	.	
	.	
	98	98%
SRQ	Surface Roughness Qualifier	
	0	No Data (Unknown) (Predefined for PTADB and TTADB)
	1	No Surface Roughness effect (Predefined for PTADB and TTADB)
	2	Area of high landslide potential (Predefined for TTADB)
	3-98	Unique descriptions tailored to individual project areas

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ITD attribute code name and attribute values (Continued)

Attribute Code	Attribute Values	Value Meaning
STC	Soil Type Category	
	0	Unknown
	1	GW - Well-graded gravels, gravel-sand mixtures, little or no fines.
	2	GP - Poorly graded gravels or gravel-sand mixtures, little or no fines.
	3	GM - Silty gravels, gravel-sand-silt mixtures.
	4	GC - Clayey gravels, gravel-sand-clay mixtures.
	5	SW - Well-graded sand, gravelly sands, little or no fines.
	6	SP - Poorly graded sands or gravelly sands, little or no fines.
	7	SM - Silty sands, sand-silt mixtures.
	8	SC - Clayey sands, sand-clay mixtures.
	9	ML - Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
	10	CL - Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
	11	OL - Organic silts and organic silty clays of low plasticity.
	12	CH - Inorganic clays of high plasticity, fat clays.
	13	MH - Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
	14	OH - Organic clays of medium to high plasticity, organic silts.
	15	PT - Peat and other highly organic soils.
SWC	Soil Wetness Category	
	0	Unknown
	1	Dry
	2	Moist
	3	Wet
TSD	Tree Spacing Category	
	0	Unknown
	1	1 Decimeter
	.	
	.	
	.	
	500	500 Decimeters
TUC	Transportation Use Category	
	0	Unknown
	3	Railroad
	4	Road

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ITD attribute code name and attribute values (Continued)

Attribute Code	Attribute Values	Value Meaning
TWC	Travelway Characteristics	
	0	Unknown
	1	Travelway for Dual/Divided Same Widths
	2	Travelway for Dual/Divided Different Widths
	3	Non-divided
UBD	Underbridge Clearance-Decimeters	
	0	Unknown
	1	1 Decimeter
	.	
	.	
	.	
	998	998 Decimeters
UGD	Undergrowth Density Category	
	0	Unknown
	1	None to sparse
	2	Medium to Dense
VEG	Vegetation Characteristics	
	0	Unknown
	1	Dry Crops
	2	Shifting (cultivation/usage)
	3	Terraced
	4	Rice Paddy
	5	Agriculture With Scattered Forests
	8	Grassland
	9	Grassland w/Scatt. Trees & Scrub Growth
	13	Deciduous
	14	Evergreen
	15	Mixed
	17	Palm
	19	Mangrove
	24	Forest Clearing
WDA	Water Depth Average	
	0	Unknown
*	1	<=0.8 meters
	2	>0.8 - 1.6 m
	3	>1.6 - 2.4 m
	4	>2.4 m
*	5	<=1.2 m
	6	>1.2 m - 2.4 m

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ITD attribute code name and attribute values (Continued)

Attribute Code	Attribute Values	Value Meaning
WDD	Width-Decimeters	
	0	Unknown
	1	1 Decimeter
	.	
	.	
	.	
	500	500 Decimeters
WID	Width	
	0	Unknown
	1	1 Meter
	.	
	.	
	.	
	998	998 Meters
WTC	Weather Type Category	
	0	Unknown
	1	All weather
	2	Fair/Dry Weather
WVA	Water Velocity Average	
	0	Unknown
*	1	<=1.5 m/sec.
*	2	>1.5 m/sec.

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CONCLUDING MATERIAL

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DMA - MP

* Review activities:
Army - PO
Air Force - 09
Navy - NO

Preparing activity:
DMA - MP

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