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MILITARY SPECIFICATIONS

1:100,000 SCALE TOPOGRAPHIC MAPS

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

1. SCOPE

1.1 Scope. This specification defines requirements for the Defense Mapping Agency's (DMA) 1:100,000 Scale Topographic Maps.

1.2 Purpose. The purpose of this specification is to assure uniformity of treatment among all mapping and charting elements, primarily DMA and its contractors, engaged in a coordinated production and maintenance program for this product. Feature requirements are stated in terms of DMA's Feature Attribute Coding Standard (FACS), to maintain consistency between various production methods. The use of FACS in this specification is not intended to imply any external digital data coding standard used by DMA's Digital Production System (DPS). DPS is the primary intended, but not exclusive, method for production of this product at this time. The Digital Geographic Information Exchange Standard (DIGEST) Feature Attribute Coding Catalog (FACC), not FACS, is the approved coding standard for the exchange of digital geographic data, as well as the standard for DMA's Vector Product Format product line. FACC may be included in, or replace FACS in a future edition of this specification.

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, MAIL STOP A-13, 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.

AMSC N/A **AREA MCGT**

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

1.3 Security.

1.3.1 Security classification. This specification is UNCLASSIFIED. The security classification of the products generated by the use of this specification 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.

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).

STANDARDS

MILITARY

MIL-STD-129	-	Military Levels of Protection
MIL-STD-2402	-	MC&G Symbology
MIL-STD-2403	-	MC&G Product Generation Rules
MIL-STD-2408	-	MC&G Glossary of Feature/Attribute Definitions
MIL-STD-2409	-	MC&G Accuracy
MIL-STD-2410	-	MC&G Reproduction and Printing
MIL-STD-2414	-	Defense Mapping Agency Bar Coding

(Unless otherwise indicated, copies of federal and military specifications, and standards and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robins Ave., 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.

DMA Technical Manual (DMA TM) 8358.1 "Datum's, Ellipsoids, Grids and Grid Reference Systems."

DMA TM 8358.2 "The Universal Grids; UPS and UTM Grids."

(Copies of DMA TM 8358.1 and DMA TM 8358.2 are available from the Defense Mapping Agency Combat Support Center, Bethesda, Maryland 20816. Stock numbers DMATM8358.1TEXT and DMATM8358.2TEXT).

DoD Standard Printing Color (SPC) Catalog

DoD Standard Printing Screen (SPS) Catalog

(Copies of the DoD Standard Printing Color Catalog and DoD Standard Printing Screen Catalog are available from the Defense Mapping Agency Graphic Arts, Bethesda, Maryland 20816.

2.2 Non-Government publications. This section 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.

3. REQUIREMENTS

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

3.2 Accuracy.

3.2.1 Horizontal accuracy. Absolute horizontal accuracy is 1.0 mm (100 meters) CE at the 90% confidence level.

3.2.2 Vertical accuracy. Absolute vertical accuracy is one contour interval LE at 90% confidence level.

3.2.3 Displaced features. The accuracy's stated above are for well defined points such as cross roads, point features, diagnostic and control points, etc. Feature symbols which are displaced, are excluded from the accuracy requirement stated above.

3.3 Datum.

3.3.1 Horizontal datum. For new production, and as map/chart sheets are revised or updated for periodic maintenance, the WGS 84 or NAD 83 datum shall be applied and where appropriate a revised Military Grid system shall be depicted as the primary grid. The old (local) datum will be retained, only if present on revised or maintenance map/charts, as a secondary grid with tick

marks along the border of the sheet. Additionally, both the old and new 100,000 meter square two-letter identifiers shall be depicted on the map/chart, if applicable. Appropriate margin notes shall be added to explain the dual lettering. A grid conversion note shall also be placed in the margin area (see Appendix B, Style Sheet).

3.3.2 Vertical datum. Vertical Datum shall be mean sea level (MSL).

3.4 Adjoining data set and sheet match. Reasonable effort is made to match all new extracted data with adjoining sheets of existing maps/charts at the same scale. In attempting to match sheet border features, displacements are not introduced into the new data that exceed the permissible limits of accuracy, nor are features arbitrarily added or extended to effect a tie with the adjoining sheet.

3.5 Series. The following provides basic principles and concepts for the production of 1:100,000 Scale Topographic Map content.

3.5.1 Feature accuracy principles: General.

3.5.1.1 Finished map feature accuracy. The finished map can be no more accurate than its extracted data, nor will it contain more information than is incorporated in the extraction. Extreme care must be exercised in the selection and positioning of map detail so that the finished map will not only meet standards of accuracy, but will also satisfy the purpose of the map. The extracted data must be clear and legible and include every item to be shown on the finished map/chart, properly delineated and correctly positioned.

3.5.1.2 Symbol representation. The ideal situation in map/chart production is realized when map features are shown true in shape, orientation, and scale. However, such representation is impossible. This is evident when, for example, a 1 kilometer square on the surface of the earth at the scale of 1:100,000 must be condensed into a small square 10.0 mm by 10.0 mm. An attempt to plot each feature true to scale would result in a map difficult to read. Many features would be delineated so minutely as to defy recognition. To be intelligible, many of these features are shown by conventional signs and symbols which must necessarily be exaggerated in size well beyond the actual ground limits of the features represented. For example, at the reproduction scale of 1:100,000, and using prescribed symbolization's: a small house would cover an area on the ground equivalent to approximately 50 m by 50 m; the width of a road would be approximately 58 m; and the symbol for a single-track railroad would occupy a width equivalent to approximately 30 m. The portrayal of many other features requires similar exaggeration. Therefore, it is impossible to show each and every feature. Only the most important and most easily recognizable features should be shown,

especially those required for the specific use of the map. The omission of unimportant features detracts little from the value of the map. Their inclusion would not only create dangerous exaggerations of position, but would also clutter the map with a multitude of unnecessary detail, which would make it difficult for the map user to readily identify the more important features.

3.5.1.3 Selection of map features. Beyond basic principles, the selection of map features involves cartographic experience and an appreciation of the intent of the map. Little difficulty is encountered in selecting roads, railroads, large streams, vegetation, landmark buildings, etc., which constitute the outstanding characteristics of an area. Problems are encountered in the selection of features of secondary importance. This selection should be important from a military standpoint. Where choice lies among several secondary features, the most prominent landmark features are preferable. In areas of moderate or dense culture, a particular feature could be unimportant and its omission would not necessarily detract from the use of the map. On the other hand, a similar feature in an area of sparse culture would be important as an aid in orientation.

3.5.1.4 Required feature accuracy standards. The required accuracy standards are applied in the plotting of map detail. All line features are centered on their true representative position wherever scale permits. The center and orientation of a symbol should correspond with the center and orientation of the feature represented. Non-hydrographic features such as roads, railroads, power lines, levees, and like features lying parallel and close to each other may require an exception to these criteria. A displacement of the symbols may be necessary to show these major features by their proper symbols. Taking all features collectively, the parallel features are displaced outwardly from their collective center a minimum of 0.20 mm between each succeeding feature. Where said double-line drainage feature or shoreline constitute the parallel features, the remaining symbols are displaced outwardly. Contours are adjusted to the displaced symbols.

3.5.1.5 Plotted features. When the plotted feature exceeds the minimum size prescribed for the symbol, it is delineated true to scale except where indicated differently in the Table I inclusion conditions of this specification.

3.6 Scale. This product specification addresses the construction of topographic maps at a standard scale of 1:100,000.

3.7 Map design.

3.7.1 Sheet lines. Sheet lines are the means by which a geographic area is divided to establish the limits of individual sheets. Sheet lines are generally formed by parallels of latitude and meridians of longitude. The sheet lines of individual maps are also referred to as neatlines.

3.7.2 Work limits. Work limits define the area available for printing. Dimensions are expressed in linear units of measure. Maximum work limits are 558.80 mm by 723.90 mm except for areas falling between 4 degrees north and 4 degrees south where the east-west maximum limit is increased to 559.80 mm.

3.8 Size and dimensions. Trim size pertains to the overall dimensions to which a map is cut after printing. Trim size is 571.50 mm by 736.60 mm. On maps produced for use in North Atlantic Treaty Organization (NATO) areas of interest, the maximum work limits are 549.27 mm by 733.42 mm and the trim limits are 558.80 mm by 736.60 mm. The 736.60 mm trim limit for non-NATO maps may be increased, but not to exceed 762.00 mm. Figure 1 illustrates sheet lines, work limits, and trim size pictorially.

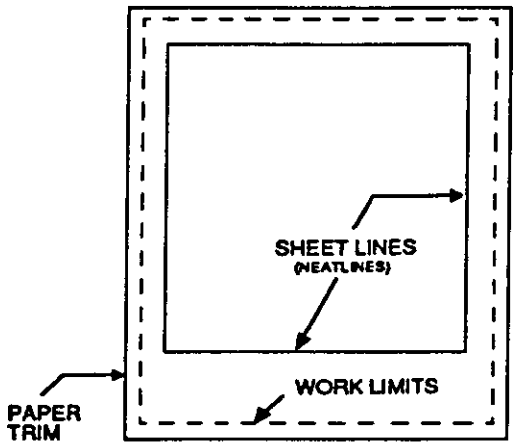


FIGURE 1. Trim size.

3.9 Projection. The projection for 1:100,000 Scale Topographic Maps product is the Transverse Mercator for 80 degrees south latitude to 84 degrees north latitude. Above or below these latitudes the projection is the Polar Stereographic. Additional information may be found in DMA Technical Manual (DMA TM) 8358.1 "Datum's, Ellipsoids, Grids and Grid Reference Systems" and DMA TM 8358.2 "The Universal Grids; UPS and UTM Grids" which contain explanatory data and specifications, including:

a. Descriptive data and parameters for worldwide application of datums, ellipsoids, projections, and grids.

b. Explanations on the use of the Military Grid Reference System, British Grid Reference Systems, and Geographic Coordinate Reference Systems.

c. Definitions, specifications, and illustrations of treatments of grid(s) and graticule for the map interior and map margin of the 1:100,000 scale and larger.

d. Treatment of grid and ellipsoid junctions.

e. Treatment of attendant declination diagrams.

f. Figures (diagrams) with definitive illustrations delimiting worldwide coverage of geodetic datums, ellipsoids, grids and grid reference systems.

g. A listing of related references, particularly those required in geodetic computations and projection plotting, for the major ellipsoids in use.

h. Appropriate sheet margin guidance for all subject related requirements.

3.9.1 Ellipsoids, projections, and grids.

a. An ellipsoid is a mathematical figure which differs little from a sphere. As a surface of reference for surveying and mapping, an ellipsoid is usually defined as an ellipse of revolution which closely approximates the geoid (or equipotential surface of the Earth) in size and shape. The ellipsoid is normally defined by the length of the semi-axes (a, b) or by the length of one of the semi-axes, most commonly the semi-major or equitorial semi-axes and the flattening (ellipticity) of the ellipse. There are seven different ellipsoids currently specified for DMA mapping areas of the world. They are each defined in DMA TM 8358.1.

b. A map projection is a system of lines drawn on a plane surface to represent parallels of latitude and meridians of longitude (the graticule) for a portion of the Earth. All DMA maps show the graticule in conventional sexagesimal units (degrees, minutes, and seconds of arc) with Greenwich as the meridian of reference. Different projections have unique characteristics and serve differing purposes. The projection is represented on the 1:100,000 scale map by limiting sheet lines (neatlines) and a series of evenly-spaced projection intersections in the map interior at 10 minutes of arc intervals. The sheet line of standard 1:100,000 scale maps show the meridians (lines of longitude) as straight lines, and parallels (lines of latitude) which effect curvature through the connection of straight line segments between successive intermediate projection intersections. Any requirement for any projection other than those mentioned in 3.9 will be specified in supplementary instructions provided as part of the project assignment.

c. A grid is a network of uniformly spaced straight lines intersecting at right angles. A military grid, constructed on a specific projection and referenced to a specific datum and ellipsoid, is used for referencing and measuring the location of a point. The grid interval on 1:100,000 scale maps is normally 1,000 meters in northing and easting. With the exception of certain areas specified in DMA TM 8358.1, where foreign grids are

still in use, the Universal Transverse Mercator (UTM) grid is used for DMA mapping in most areas of the world.

d. The positioning and plotting accuracies of the projection and grid are critical phases of the map preparation.

(1) The intersections of the parallels and meridians of the projection must be plotted within 0.15 mm of the computed position.

(2) The grid is constructed on a given sheet so that the distances between adjacent grid lines do not vary more than 0.15 mm from the computed grid interval; and the overall distances between the first full grid lines, complementing those of adjoining sheets, do not vary more than 0.15 mm from their computer measurements.

3.10 Reference systems.

3.10.1 Standard sheet lines. The 1:100,000-scale sheet lines are based on an established 1:100,000 scale format which was designed to incorporate pertinent worldwide map series (map sheets collectively identified and having the same scale and cartographic specifications). The establishment of sheet lines is based on the following principles:

a. Sheet lines are developed on a series or project basis.

b. Sheet lines are designed to provide map coverage of an area with the minimum number of sheets without unduly impairing the continuity of adjoining sheets.

c. Sheet lines are so positioned that they coincide with the grid, ellipsoid, and datum junctions wherever possible. Sheet lines may vary within a map series. The following table lists the standard 1:100,000 scale sheet line sizes and the latitudes at which they occur:

LATITUDE	SHEET SIZES 1:100,000 N-S		E-W
*0° to 36°	30'	X	30'
36° to 44°	30'	X	36'
44° to 50°	30'	X	40'
50° to 61°	30'	X	45'
61° to 67°	30'	X	60'
67° to 72°	30'	X	72'
72° and above	**		

*See Appendix B, Style Sheet for guidance and for treatment of margin data between 14° S and 14° N.

**As specified in instructions for the assignment.

3.10.2 Departures from standard sheet lines. Certain departures from the standard sheet lines may be required to avoid unnecessary sheets, thereby reducing the number of map sheets in a project. However, these departures shall be kept at a minimum and based on careful consideration of their impact on the overall requirement of continuity of standard sheet lines. Departures from standard sheet lines occur most often in coastal areas, long narrow islands, and large islands with varying widths. Base considerations when addressing the introduction of departures from standard sheet lines should include the following principles and options.

a. Adherence to specific maximum work limits.

b. Extent of land topography and the need to show landmark hydrographic feature.

c. The placement of margin data in open water areas.

d. Existence of grid, ellipsoid, and datum junctions.

e. Adjustment of sheet lines to avoid decimal parts of second-of-arc.

3.10.3 Examples of non-standard sheets. The following are examples of the departures from standard sheet lines:

a. A border break permits a gap in a sheet neatline to accommodate small points of land or islands of an adjoining area (Figures 2 and 3). When there is a choice of sheets which may contain a border break, the sheet which requires the least rearrangement of margin data is selected. The neatline is not shown through the protruding land mass.

FIGURE 2. Border break for island.

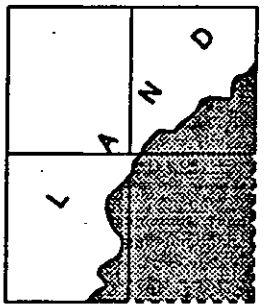


FIGURE 3. Border break for coastal land.

b. An extension (Figure 4) is the enlargement of a sheet by moving one or more sheet lines to include adjoining land areas.

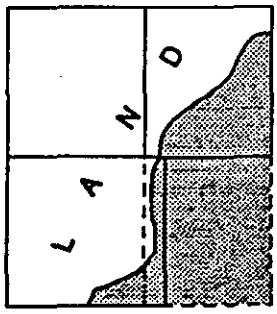
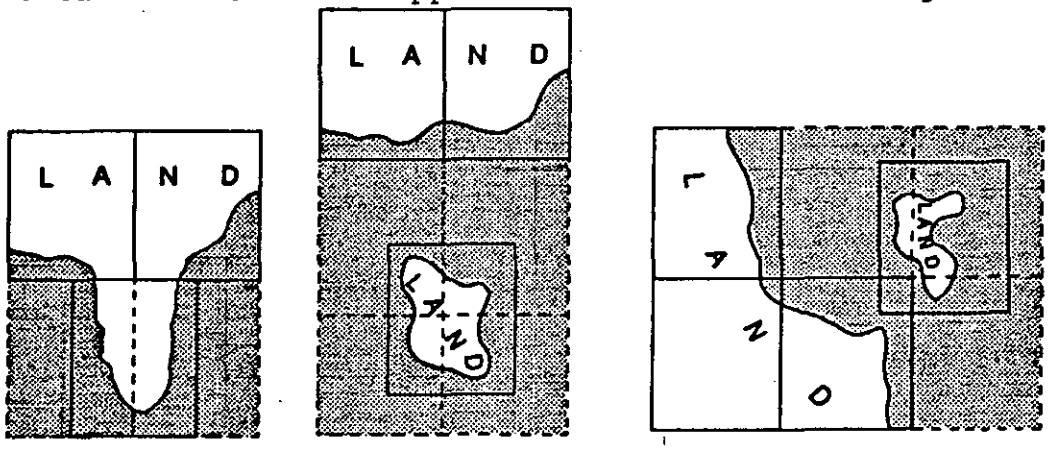


FIGURE 4. Sheet line extention.

c. A shift is a change in continuity of sheet lines to accommodate a land mass (Figures 5, 6, and 7). Sheets that are shifted usually retain the defined sheet dimensions for the area. A shift may involve more than one sheet. Overlapping sheets are to be avoided if the overlapped area contains land (Figure 7).



FIGURES 5, 6, and 7. Various landmass sheet line shifts.

d. Reproportionment (Figure 8) permits the adjustment of the latitudinal and longitudinal limits of the defined sheet lines.

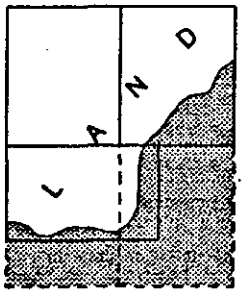


FIGURE 8. Reproportionment.

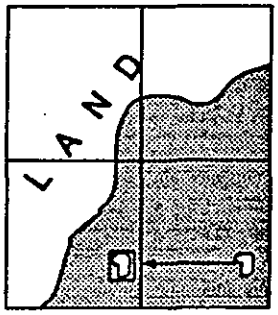


FIGURE 9. Insets.

e. An inset (Figure 9) is a shift of a portion of a sheet covering an island(s) to relocate it within the open water area of another sheet. The inset is relocated on the nearest sheet and preferably along the same line of latitude or longitude.

f. The presentation of the military grid information within an inset requires special treatment. When the grid or grid zone for the inset area differs from that of the map proper, the appropriate grid note is shown with the inset (see Appendix B, Style Sheet).

g. When the 100,000 unit identification letters of the inset area differ from those of the map proper, a miniature representation of the inset and its identification letters are indicated in the grid reference box and a grid convergence note for the center of the inset is shown. Example:

GRID CONVERGENCE FOR THE CENTER
OF THE INSET IS 2°36' (40 MILS) WESTERLY

3.11 Margin data.

3.11.1 Design and location. The design of margin items and their locations on the sheet are graphically illustrated on the Style Sheet, Appendix B. Adherence to the positioning of margin data, as specified on the style sheet, is not always possible because of limited space.

a. All margin data will be shown in Swiss 742 Condensed type. Refer to Appendix B, Style Sheet for proper color and specific type size and style. Use the style sheet as a guide for any items that do not contain exact type specifications.

b. When necessary, items of smaller areal extent, for example: Users' note, miscellaneous notes, Agency seal, etc. may be repositioned.

c. When the margin data cannot be effectively repositioned and the interior of the map includes expanses of open water areas, selected margin items (Glossary, Grid reference box, etc.) may be positioned therein. Remaining items are then re-positioned in the available margin space.

d. All margin notes and diagrams shown in this specification are portrayed in a convenient font type and size. The correct fonts (type, size and style), color, justification, format and placement for all margin notes and diagrams are provided on Appendix B, Style sheet.

3.11.2 Language requirements. When required by international map standardization agreements or bilateral cooperative mapping arrangements, certain margin items are translated. The language or languages to be shown, in addition to

English, are indicated in supplementary instructions for the project. As a minimum, the items listed below are translated:

a. Legend

b. Unit of Measure

c. Contour Interval Note

d. Grid and Projection Information

e. Instructions on Grid Referencing

f. Glossary

g. When required, the Users' Note. The foreign translations refer corrections to the mapping agency of the foreign government.

h. When required, the security classification and applicable notes.

i. Bar code text.

j. Copyright note.

k. For index purposes note (Location diagram).

l. When items in addition to those listed above are required, they are specified in the supplemental instructions for the project.

3.11.3 Language selection and sequence. A maximum of three languages (except glossaries) is shown on a map; one of the languages is always English. The selection of the languages other than English is governed by the provisions of map standardization agreements and map agreements applying to specific projects and are specified in supplemental instructions for the project. The sequence of presentation of the languages (except for glossaries) is governed by the following:

a. On a series of maps which predominantly cover the territory of only one member country of a treaty organization (NATO), the native language is listed first, followed by English; a third language, if required, is listed last.

b. The English language is listed first in all other circumstances where additional languages are required.

3.11.4 Map identifications. Map identifications are unique information that is scale specific which when applied provides immediate recognition of that product.

3.11.4.1 Map series.

a. Topographic maps are grouped into a map series to facilitate preparation, identification, indexing, storage, and distribution. Each series is identified by a series name and a series number.

b. A series consists of maps of a common scale, map projection, and cartographic presentation. Series are planned to cover all or part of a Continental, Regional, Sub-regional, or National area (see Appendix C, Index to Regional Areas).

(1) Peripheral sheets of a standard map series may have extended or broken projections to include small land areas. In special situations, standard sheet lines are shifted to reduce the number of sheets needed to map the area.

(2) A mapping project may include one or more sheets which fall within an adjacent Region or Sub-region which is unmapped at the scale of the project. If a series at the same scale is not planned for the adjacent Region or Sub-region, the sheets in question are assigned to the series covering the area of the project.

(3) Where a series exists for a specific area, a single map or a small number of maps of different scales, but within the same scale group and within the same area, are incorporated as part of the existing series instead of establishing a separate series for the odd sheets.

c. When determining the limits of a series, the area covered by the peripheral sheets is considered. Example: A series covering France will include some peripheral sheets which contain portions of Spain. If the portion of France, on a peripheral sheet, is greater than that of Spain, the sheet is included in the France series. If the portion of Spain is greater, the sheet is assigned to the Spain series. This rule is subject to modifications induced by special mapping requirements, bilateral mapping arrangements, etc.

3.11.4.2 Series name and scale.

a. The name assigned to a series is normally the geographic name of the area covered by the series. Rigid rules cannot be established for the assignment of all series names. With exceptions permissible for necessary deviations, the following guidance applies:

(1) When more than one series, at the same scale, are designed to cover a country or region, they are identified by the Country of Regional name, qualified by a geographic term. Example: Southern Honshu; Central Philippines; Western Russia; Northern Europe.

(2) When the series covers a large well known area, it is given the country name most commonly used to designate that area; usually this is a country name. In such cases, the name is spelled in accordance with DoD policy, which calls for the short form of the country name as approved by the U.S. Board on Geographic Names (BGN).

(3) When the series covers a small and not widely known area, it is identified by the accepted local name.

b. The scale of a series is the ratio of map distance to ground distance. When a series consists of maps of different scales, the appropriate scale is shown with the series name in the margin of the individual maps. For cataloging purposes, the scale of such a series is listed as: Various Scales.

3.11.5 Series number.

3.11.5.1 Series number unique identification. The series number provides a unique identification for a group of maps which are common to one another in that they:

a. Cover a particular geographic area.

b. Are on the same sheet line system.

c. Are of the same scale or within a scale group.

d. Prepared under the same cartographic specifications.

3.11.5.2 Indication of series number. The series number indicates:

a. Geographic area - a systematic breakdown of the world into Continental, Regional, and Sub-regional areas (see Appendix C, Index to Regional Areas).

b. Scale - indicated by scale range. The TLM 100K falls within scale range number 6, larger than 1:150,000 through 1:70,000.

c. Series designation is a specific identification which provides a distinction between series whose scale and geographic coverage are the same.

3.11.5.3 Series number forms. The series number is expressed in one of two forms depending on the scale and geographic extent of the series.

a. Form A is applicable for small to medium scale products starting with 1:250,000 and smaller and that extend over more than one regional area.

b. Form B is used for series which do not extend beyond one regional area. The number consists of four elements and is expressed by a capital letter followed by three or four numerals. Example:

SERIES U611 - Afghanistan, 1:100,000 Scale

c. The first element (capital letter) identifies the regional area within which the series falls.

d. The second element (first numeral) indicates the scale group within which the series falls.

e. The third element (second numeral) identifies the sub-regional area, the third element is a "0". An exception to the rule is in regional areas L and N where the zero is used to designate a sub-regional area.

f. The fourth element (third and fourth numerals) distinguishes between series whose first three elements are the same. The initial series of such a group is given the numeral "1" with subsequent series numbered consecutively as "2, 3, 4...9, 10, 11, etc." The number is not used a second time.

3.11.6 Edition number.

a. The edition number identifies the publication sequence of an individual map. Edition numbers run consecutively. A map bearing a higher edition number is assumed to contain more recent information than the same map bearing a lower edition number.

b. The standard edition designation consists of the word "Edition," a cardinal number, a dash, and the coded initial of the mapping agency responsible for the edition. Examples:

EDITION 1-DMA EDITION 2-MCE EDITION 3-GSGS

c. On maps produced by subsidiaries and affiliates of national mapping agencies, the coded initials of the preparing unit are included as suffixed parenthetical code. Example:

EDITION 2-DMA (USAEUR)

d. The following are the coded initials of some national mapping agencies which use the described edition designation system:

Australia	AAS
Belgium	IGNB
Canada	MCE
Denmark	GID
France	IGNF
	SGMF

German Federal Republic	DMG
Greece	HAGS
Italy	CIGA
	IGMA
Luxembourg	IGNF.CL
Netherlands	TDN
Norway	NOR
Portugal	SCEP
Turkey	TUHUM
United Kingdom	GSGS
	OSD
United States	DMA

e. The organization responsible for new military mapping in a given area is also responsible for coordinating the edition number. This does not prohibit another agency or its affiliate from producing a new edition. It is mandatory, however, for the producer to coordinate the edition number with the responsible organization. Similarly, it is mandatory that mapping units affiliated with DMA coordinate the assignment of edition numbers with DMA. "Edition 1" is always applied to maps which are produced for the first time.

f. The edition number is advanced in the following instances:

(1) Any map on which an alteration or revision is made to the factual data shown on the map, or any alteration that affects the operational soundness of the map. Examples would be the addition of a new grid or the revision of boundary information.

(2) A newly constructed map which is to replace an existing map.

(3) A map converted from a non-standard military scale within the same scale range. Example: A 1:100,000 scale map which replaces a 1:75,000 scale map and retains the same series number.

g. The edition number is not advanced for facsimile reprints on which no changes are made to map content or margin data. The only authorized modifications to the facsimile reprints are the addition of the DMA stock number and bar code to introduce map products of other national mapping agencies into the DMA distribution system, and the addition, deletion, or change of the coded initials of the printing element.

h. The word "edition" is used only in conjunction with the edition number. The words "provisional," "emergency," "special," "temporary," etc., are not used as prefixes to the word "edition." Such prefixes may be used in conjunction with the word "printing," in which case an edition number is not shown.

i. The advancement of an edition number constitutes authority to destroy stock and reproduction materials of the preceding edition.

3.11.7 Sheet name.

a. A map is normally named after its most outstanding cultural or natural feature. Names of cultural features are preferred over natural features; however, if a natural feature is better known than any cultural feature appearing on the map, the name of the natural feature is chosen. When the feature is divided by the neatline(s) separating two or more sheets and is the best known feature on each of the sheets, the feature name is followed by the geographic term in describing the portion of the feature for which the sheet is being named. Example:

STUTTGART (NORTH) AND STUTTGART (SOUTH)

b. When a sheet does not contain a named cultural or natural feature, the name of an adjacent sheet may be used in conjunction with the appropriate directional term. The adjacent sheet that has the most prominent name is selected. Example:

EAST OF TARA

c. When a map is copied from or based on a foreign map, and uses the same sheet line, the name of the original map is usually retained.

d. The selected sheet name is spelled exactly as it is shown in the map interior. Diacritics, hyphens, and apostrophes are shown only if they appear with the name in the interior of the map.

e. An alternate sheet name spelling (provided it appears in the map interior) is enclosed in parentheses, located immediately following the sheet name, and set in one size smaller type.

f. When a sheet covers portions of more than one country, all country names shall be shown (only in the lower left margin). In cases where map information has been expurgated, that country name will still be shown. The country containing the feature for which the sheet is named is shown first. Other country names are listed in descending order of their areal extent on the map.

g. Sheet names are not duplicated within a map series. Individual maps are given individual sheet names wherever possible.

3.11.8 Sheet number.

a. The basis for large scale sheet numbering is a 1:100,000 scale sheet layout with each sheet systematically identified by a four digit number. The four digit sheet number is comprised of two significant pairs of digits. The first two digits identify the column of 1:100,000 scale sheets, and the second two digits, the row of 1:100,000 scale sheets. The western most column of sheets is usually assigned the number 10 (first two digits), and the southern-most row of sheets the number 10 (second two digits). Therefore, the southwest sheet of the sheet number layout is identified as "Sheet 1010," and is referred to as the sheet of origin. The respective two digit numbers increase progressively from the sheet of origin. In large areas where the number of columns or rows of sheets exceed 99, the first column or row, depending on the extent of the area to be covered, must be given a lower number as 09, 08, 07, etc., to avoid running out of two digit numbers. The numbering system is not limited to a single map series. It may also include adjacent map series of the same format and scale.

b. For 1:100,000 scale maps, the 1:100,000 scale map is quartered. The four quarters retain the numbers of the 1:50,000 scale map, and are supplemented by the Roman numerals I, II, III, and IV, numbered clockwise, after the Arabic pairs, beginning with the northeast quarter of the 1:100,000 scale map. Example:

1010 IV 1010 I
1010
1010 III 1010 II

c. A sheet number is not affected by an extension of or a break in a sheet line which is made to include adjacent land areas, nor by the inclusion of an inset within the map.

d. For a sheet that is shifted from a standard sheet system, the sheet number assigned is that which, in the standard system, relates to the greater part of the sheet.

e. Special sheet numbering system: A series composed of a small group of sheets which cannot be logically tied to an established numbering system is assigned Arabic numerals beginning with "1". The area covered by the series is laid out with the numbers reading from left to right in rows which are arranged from top to bottom. The word "SHEET" precedes the numbers.
Example: SHEET 1

3.11.9. Bar code and stock numbers.

3.11.9.1 National stock number. The National Stock Number (NSN), in both bar code (left set of bars) and human readable form (HRI), is shown on each map, to uniquely identify the map in the DoD Logistics Standard Systems (DLSS). The first four digits of the NSN indicate the Federal Supply Classification (FSC), which is

7643 for topographic products. The next two digits indicate the National Codification Bureau that assigned the item identification number to the item of supply. The remaining seven digits are a nonsigificant, serially assigned item identification numbers identifing the map. The letters "NSN" are shown in front of the human readable National stock number to distinguish it from the DMA stock number (Figure 10).

3.11.9.2 DMA stock number. The DMA Stock Number (Figure 10) is shown in human readable form only. The second bar code represents the DMA edition number. For map requisitioning purposes within DMA, the DMA Stock Number will conform to the requirement of the DMA Automated Distribution Management System (DADMS). The DMA Stock Number will be maintained until which time the requirement to show both is phased out in favor of the NSN. The HRI edition number will remain. Both stock numbers and bar coding are shown in accordance with MIL-STD-2414, BAR CODING. The bar codes and stock numbers are shown in the bottom margin at the lower right work limit of the map (see Appendix B, Style Sheet).

FIGURE 10. Example stock numbers and bar codes.

a. The DMA HRI identification consists of the words "DMA STOCK NO." followed by an alphanumeric designation not to exceed 15 characters.

b. The first five units are reserved for the series number. The series number is contained in the first four units followed by the letter "X".

c. The 6th through 15th units are reserved for the sheet number (or sheet name for sheets not identified by number).

d. Examples of stock numbers used with the various large scale map types are shown as follows:

(1) For Series U611, Sheet Number 4779

DMA STOCK NO. U611X4779

(2) For Series M761, Sheet Numbers II16; XXII2; XI9-10; XXXVII

DMA STOCK NO. M761X0216
DMA STOCK NO. M761X2202
DMA STOCK NO. M761X110910
DMA STOCK NO. M761X37

e. When a modification of stock numbers is required for classified maps, guidance will be included in the pertinent classification guide.

f. The HRI portion of the bar code, as shown in Figure 10, will be Swiss 742 (or equivalent), condensed, 6 and 9 point upper case type. Printing color is black. See Appendix B, Style Sheet for the exact arrangement and position.

3.11.10 Adjoining sheets diagram. The adjoining sheets diagram consists of as many rectangles, representing adjoining sheets, as are necessary to surround the rectangle which represents the sheet under consideration. The diagram usually contains nine rectangles, but the number may vary depending on the locations of the adjoining sheets. In all instances, the entire limits of any adjoining sheet containing a land mass are represented (Figures 11 and 12). The diagram is not necessarily symmetrical as in Figure 13.

a. All represented sheets are identified by their sheet numbers.

b. Each 1:100,000 scale sheet rectangle contains the four corresponding 1:50,000 scale sheet numbers of an existing series.

c. Adjacent sheets within the same series, whether published or planned, are represented.

d. Geographic coordinates of the represented sheets are not shown.

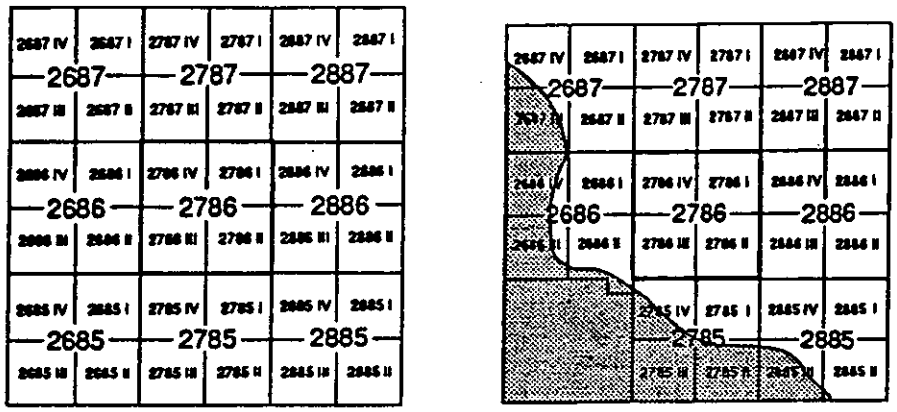
e. Coastlines, international boundaries, principal rivers, and lakes are represented in the diagram. The prime consideration for including these features is the value they afford for the geographic location of the sheets. Because of the small scale of the diagram, delineation's of the features are generalized.

(1) International boundaries appearing in the adjoining sheets diagram shall be symbolized in accordance with the Appendix B, Style Sheet. Country names shall be shown centered within the areas defined and aligned parallel to the bottom work limits. Country names may be letter-spaced where necessary to avoid overprinting sheetlines. Boundary symbols shall be broken to avoid conflict with sheet or series number identification.

(2) Space permitting, the names of major rivers and bodies of water may be shown to aid the map user in locating the geographical region portrayed.

(3) When a river/stream plots 0.5 mm or wider at the scale of the diagram it is shown as an inland open water area.

(4) The size of small islands may be exaggerated to delineate their shorelines. However, an island is omitted from the diagram if it plots less than 0.5 mm in width.



FIGURES 11 and 12. Sample nine sheet diagrams.

f. Sheets of an adjoining or overlapping series (Figure 13), whether published or planned, that are at the same scale are represented by dashed lines. The series number of the adjoining series is indicated along the appropriate side of the division line between their series.

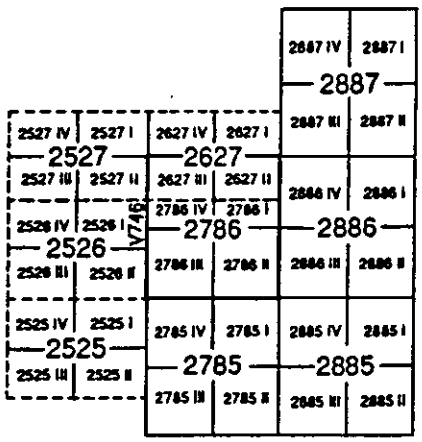


FIGURE 13. Adjoining or overlapping series diagram.

g. If a land area adjoins the series of the sheet being represented and no series exists or is planned for the area at the same scale, no attempt is made to show hypothetical sheet lines.

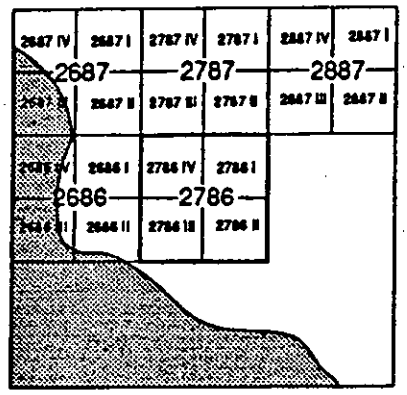


FIGURE 14. Water/Land diagram.

h. When the sheet under consideration adjoins an open water area, the diagram (Figure 14) is shown in the same overall size as for a nine-sheet representation.

i. In certain instances, a sheet is displaced from its normal position within a series to include an island or group of islands.

(1) If more than half of the sheet occurs within the area of the standard nine-sheet diagram (Figure 15), the entire sheet is represented.

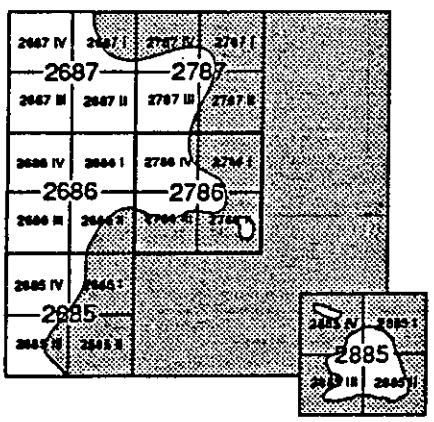


FIGURE 15. Displaced sheet within diagram area.

(2) If less than half of the sheet occurs within the area of the standard nine-sheet diagram, the entire sheet is omitted. Thus, the diagram is irregular in shape (Figure 16) and its limits follow, in part, the omitted sheet.

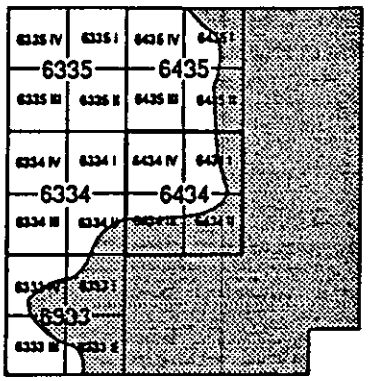


FIGURE 16. Irregular shaped diagram.

j. Insets which are shown on sheets to be included in the diagram are also represented.

(1) When the true geographic location of the inset area and the sheet containing the inset are both included within the limits of the diagram (Figure 17), the inset is shown in approximately the same shape and position on the sheet. An identical representation of the inset area is also shown in its approximate geographic location within the diagram. An arrow is shown pointing from the geographic location to the position of the inset.

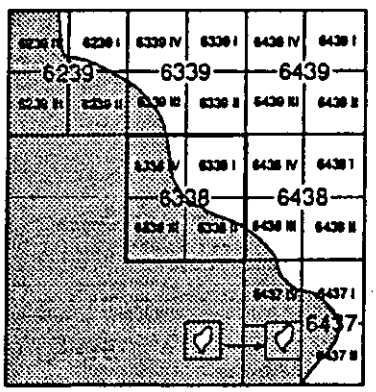


FIGURE 17. Diagram with inset within.

(2) When the true geographic location of the inset area is beyond the limits of the diagram, the inset (Figure 18) is shown in approximately the shape and position it occupies on the sheet. An arrow is shown pointing from the inset to the general geographic location of the inset area.

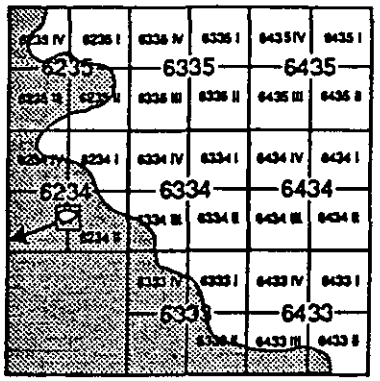


FIGURE 18. Inset beyond diagram.

(3) When the true geographic location of the inset area is within the limits of the diagram, but the sheet containing the inset is not, the inset area is shown in its approximate location within the diagram (Figure 19). An arrow is shown pointing in the direction of the sheet containing the inset.

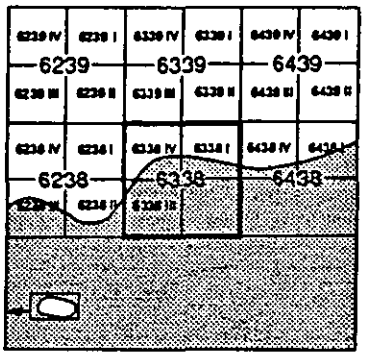


FIGURE 19. Inset and arrow within diagram.

k. When one sheet overlaps another (Figure 20), the sheet which is nearest to the normal position in the diagram is represented by full lines. The area of overlap of the second sheet is shown by dashed lines.

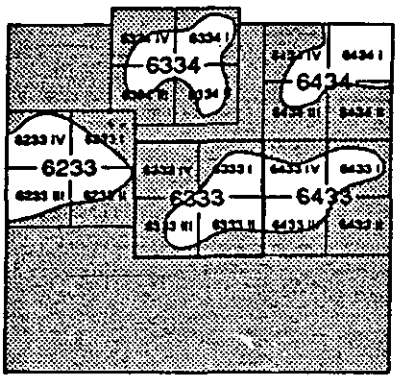


FIGURE 20. Diagram with overlap sheets.

(1) Circumstances will arise where the normal nine-sheet diagram is not practical for the portrayal of the relationship of the sheet under consideration to the other sheets. This condition may occur when the sheet under consideration contains all or part of a group of islands and it is desirable to reflect the relative position of all islands in the group, or is part of a group of sheets which cover a region which is peninsular in shape.

(2) Under these and similar circumstances the diagram is shown at a reduced scale and includes the representation of as many sheets as is necessary to reflect the relationship of the sheet under construction to the surrounding sheets. A common diagram may be shown on all sheets concerned, with the sheet under consideration accentuated by a heavy line.

l. A note is centered under the diagram identifying the Series 1501 sheet covering the 1:100,000 scale sheet and the 1:50,000 scale series number. For example:

Sheet 2890 falls within NL 34-01, 1501, 1:250,000
1,50,000 Scale Series M745

m. A note "For index purposes only - not necessarily an indication of published maps" is placed between the title and the top of the diagram as a preferred position as space allows. However, the note may be placed vertically to the right of the diagram as shown in Appendix B, Style Sheet.

3.11.11 Symbol legend.

a. The symbol legend defines and illustrates features represented on a map. A typical legend includes: populated places, roads, railroads, drainage, vegetation, boundaries and types of structures. Space permitting, all symbols on the map that require explanation are shown in the legend. Figure 21 illustrates the design and composition of a typical symbol legend. By no means is this example legend to be considered a complete one.

(1) For map projects (a series or group of maps of a particular geographical area), a standard legend may be used for a majority of the sheets. All the symbols included on the standard legend need not appear on each sheet and are not deleted unless space is needed for modifying the legend.

(2) The standard legend is modified on a sheet-by-sheet basis as necessary to incorporate symbols appearing on the map that require explanation.

(3) If a feature appears only once or sometimes twice and is symbolized by a unique symbol, it should be labeled in the map interior rather than added to the legend.

LEGEND

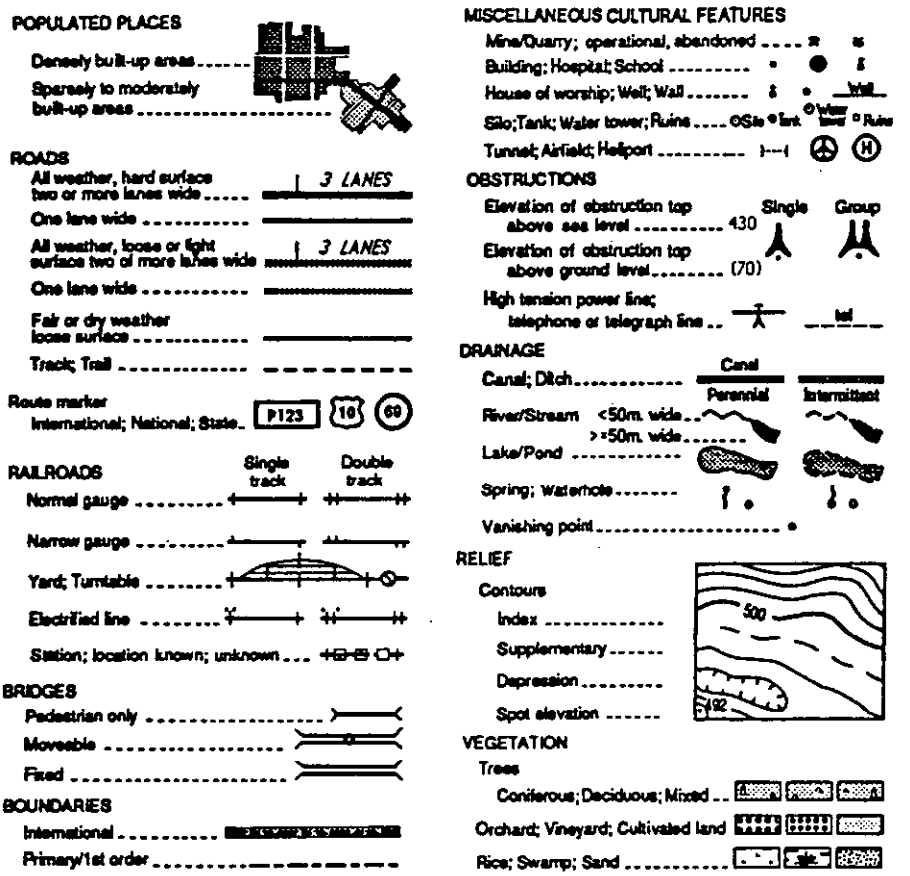


FIGURE 21. Symbol legend.

b. When required, the terminology of a legend is expressed in other languages in addition to English. If English is the only language required, foreign generic terms of administrative divisions are included in the legend rather than in the glossary. The generic terms are shown in parenthesis following the English terminology. Examples:

First-order Administrative (Khoveng)
Second-order Administrative (Muang or Kong)

c. Terms translated in the legend are not shown in the glossary.

d. Each symbol in the legend is shown in its proper color unless that color does not appear on the map. In such instances the word "NONE" is placed within the box and will appear in the appropriate type size/style to match the legend. Example:

Woodland..... NONE

e. When coastal hydrographic features appear on a map, a hydrographic legend is shown in the open water area. If the open water area cannot accommodate the hydrographic legend, the required hydrographic symbols are included in the symbol legend and the hydrographic datum note is added to the credit and miscellaneous data listing. Figure 22 illustrates the composition of the hydrographic legend.

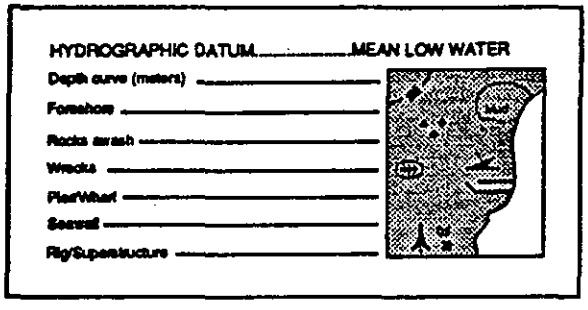


FIGURE 22. Hydrographic legend.

3.11.12 Glossary.

a. When the map contains foreign generic terms, they are listed alphabetically in the glossary according to English rules, regardless of the language. The initial letter of a term is shown as a capital or lowercase letter to agree with the form appearing on the map. When the term in the interior appears in all capitals, it is shown in the glossary in caps and lowercase. All variants of a term which appear in the map are listed.

b. When translation to English only is required, and available space in the map margin is a critical factor, terms which occur least are translated in the interior of the map.

c. When other translations in addition to English are required, all terms, regardless of the frequency with which they appear on the map, are listed in the glossary. If space in the map margin becomes a factor, the provisions of 3.11.1 apply.

d. The generic terms within the glossary are arranged as follows:

(1) The foreign generic terms appearing in the map interior are arranged alphabetically and shown as the first column (Figure 23).

GLOSSARY

akna ..... mine shaft
Banya, banya ..... mine
Berc, berc ..... peak
Domb, domb ..... hill
erdo ..... forest
Hegy, hegy ..... mountain
hora ..... mountain
menedekhaz ..... inn
mysilvna ..... hunting lodge
oldal ..... slope
orhaz ..... peak
Orom ..... stream
pusta , puszta ..... estate
Taro, taro ..... mine shaft
tele ..... settlement

FIGURE 23. Glossary with foreign generic terms.

(2) When more than one foreign language appears in the map interior, the generic terms are arranged alphabetically in the same column and shown as the first column (Figure 24).

GLOSSARY

Alomas ..... railroad station
dolina ..... valley
Domb ..... hill
dvoe ..... estate
Erdo , erdo ..... forest
Forras ..... spring
Hegy , hegy ..... mountain
hora ..... mountain
kut ..... well
major ..... estate
Megallo ..... railroad stop
Patak, patak, potok ..... stream
pusta , puszta ..... estate

FIGURE 24. Glossary with multiple foreign language generic terms.

(3) For multilingual margins which include a foreign language (Figure 25) which does not appear in the map interior, the generic terms of that language are shown to the right of their English equivalents.

GLOSSARY

Berg berg bergl	mountauin	Berg	monte
doline	valley	Tal	valle
dvar	estate	Gut	proprieta
Erad	forest	Wald	bosco
hajovna	Foresters lodge	Foresters	casa forestaie
hora	mountain	Berg	monte
hostinec	inn	Wirtshaus	osteria
Kunyha	hut	Hutte	capanna
les	forset	Wald	bosco
luky	meadows	Wiesen	prati
potak	stream	Bach	rio
Ruine	ruins	Runie	runie
Schloss	castle	Schloss	castello
vrch	peak	Berggipfel	picco
Wald	forest	Wald	bosco
Wiese	meadow	Wiese	prato

FIGURE 25. Glossary for multilingual margins.

e. When project specifications require the use of foreign characters (Fighure 26) in addition to the Romanized terms, generic terms are treated as previously stated. Descriptive terms used in the map interior and their corresponding characters are listed alphabetically following the generic forms in the map glossary.

GLOSSARY 어휘

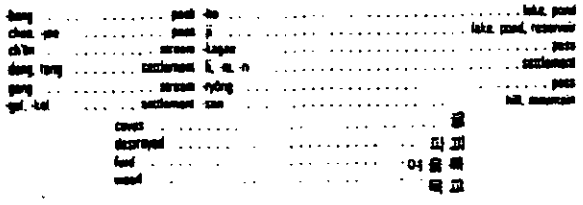


FIGURE 26. Glossary with foreign characters.

f. Glossaries are prepared on a sheet-by-sheet basis.

g. Further glossary information/guidance can be found at 3.19.10.

3.11.13 Scale note and bar scale.

a. The scale note is a representative fraction which gives the ratio of a map distance to the corresponding distance on the Earth's surface. The scale 1:100,000 indicated that one unit of measure on the map equals 100,000 units of the same measure on the ground.

b. Bar scales are graphic expressions of the map scale which provide means for making measurements. A combination of bar scales, consisting of three units of measure, is established with the zero points of the bar scales vertically aligned. Figure 27 illustrates the standard bar scales.

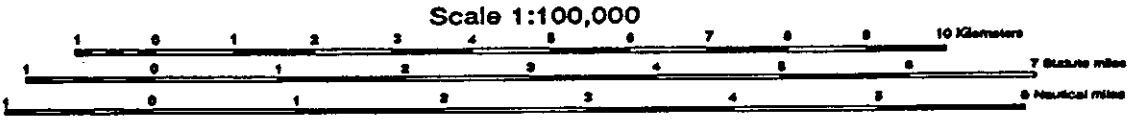


FIGURE 27. Representative 1:100,000 bar scale and notes.

3.11.14 Unit of elevation note. The unit of elevation note gives the unit of vertical measure and reads:

ELEVATIONS IN METERS

3.11.15 Contour interval note.

a. The contour interval note gives the elevation difference between successive intermediate contour lines. The note further indicates, when appropriate, the use of supplementary contours, form lines, and combinations thereof.

b. Examples of various conditions and the appropriate notes are given below:

(1) When one contour interval is used on the map, the note reads, for example:

CONTOUR INTERVAL 20 METERS

(2) When more than one contour interval is used on the map, the note reads, for example:

CONTOUR INTERVAL 20 METERS, CHANGING AT
THE 500 METER CONTOUR TO 50 METERS

(3) When the map contains supplementary contours, the note is patterned after the following:

CONTOUR INTERVAL 20 METERS
SUPPLEMENTARY CONTOURS 10 METERS

(4) If relief is shown by form lines, the note indicates the method used. Examples:

RELIEF SHOWN BY FORM LINES

CONTOUR INTERVAL 20 METERS
RELIEF PARTIALLY SHOWN BY FORM LINES

(5) If the highest elevation on a map is lower than the contour interval specified for the map series, or for the surrounding maps, the note reads, for example:

MAXIMUM ELEVATION 9 METERS

(6) When no contours fall on a sheet because the range of elevation is within the contour interval, the value of the contours between which the elevation of the sheet falls is included in the note, and patterned after the following:

THE TERRAIN ON THIS MAP IS BETWEEN 1040 AND 1060 METERS ABOVE _____
(Insert vertical datum)

3.11.16 Ellipsoid note, projection, grid and declination data.

a. A reference to the ellipsoid(s) used on a map is included in a note patterned after the following examples:

(1) For sheets containing one ellipsoid:

ELLIPSOID.....WORLD GEODETIC SYSTEM 1984

(2) For sheets which contain two ellipsoids, the reference to the ellipsoids is included in the grid note. Examples:

GRID.....1,000 METER UTM, ZONE 48
(BLUE NUMBERED LINES)

1,000 METER UTM, ZONE 49, INTERNATIONAL ELLIPSOID
(RED/BROWN NUMBERED LINES)

b. Detailed specifications pertaining to the composition and portrayal of projection and grid notes, grid reference diagrams, and declination data are contained in DMA TM 8358.1, and Appendix B, Style Sheet of this specification.

3.11.17 Datum notes. Horizontal, vertical, and hydrographic datums are specified in supplementary instructions for the project and are patterned after examples shown on Appendix B, Style Sheet of this specification.

3.11.18 Elevation guide. The elevation guide (Figure 30) is designed to provide a rapid evaluation of general landforms and to accentuate the highest and lowest terrain on a map. The guide includes selected elevation bands, spot elevations, and drainage features. The guide is constructed on a sheet-by-sheet basis. No effort is made to match or tie the drainage or elevation bands shown on elevation guides on adjoining sheets.

3.11.18.1 Drainage. Sufficient drainage is shown to enhance the portrayal of the landforms. The diagram includes principal rivers, lakes, and coastlines. All major drainage shown in the boundaries diagram is shown in the elevation diagram; additionally, other drains may be added to point out high areas and land slopes.

3.11.18.2 Elevation bands. Contour lines delimiting the elevation bands are selected from the contours appearing on the map so that the high ground is immediately evident. The contours are selected at intervals to permit the best representation of the landforms.

Contour Interval of Base Map (meters)	Number of Elevation Bands for Range of Elevation				
	100m. and less	100-300m.	300-600m.	600-1200m.	1200m. and more
10	2	3	4	4	
20	*	3	3	4	4
40	**	2	3	4	4

* Two elevation bands may be necessary to point out land slope

** Selected highest and lowest spot elevations only. The elevation band index below the guide is not shown

FIGURE 28. Table for determining the number of elevation bands to be shown.

a. Guidance for selection of the limiting contours and the number of elevation bands is provided in Figure 28. The number of elevation bands indicated are based on the difference in elevation between the lowest and highest point of the sheet.

b. The elevation bands should be sufficiently wide to lend some significance to the overall landforms. Figure 29 is provided to assist in the selection of the area coverage of the elevation bands, and is used primarily in areas of uniform slope and rugged relief. The figure does not apply to sheets containing large valley floors, coastal plains or extensive low and flat areas. In such cases, the limit of the low area is that contour line which includes the greatest portion of the area. In effect, the low area might constitute 80 percent of the map. Similar treatment is applied when selecting the limiting contours for extensive plateaus.

Number of Elevation Bands	% Area Ratio			
	Low	Medium	High	Highest
2	60		40	
3	30	40	30	
4	20	30	30	20

FIGURE 29. Percent area ratio for elevation bands.

ELEVATION GUIDE

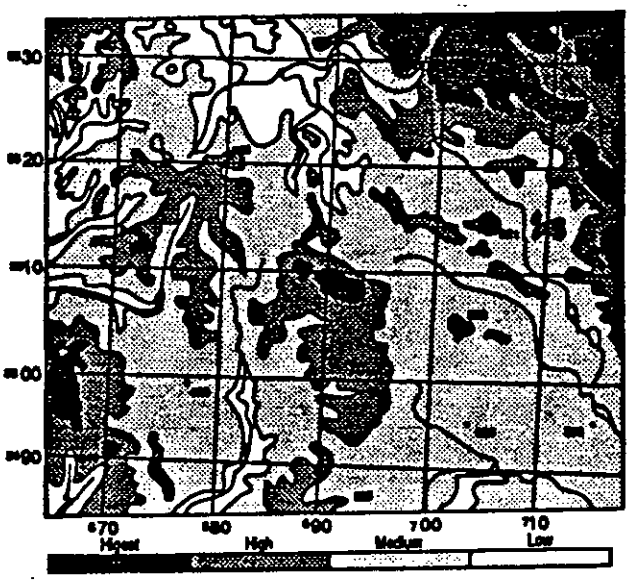


FIGURE 30. Sample elevation guide.

3.11.18.3 Spot elevations in the elevation guide diagram. Spot elevations are included in the diagram to augment the terrain presentation. The highest and lowest elevations on the sheet plus the highest of major relief formations are shown.

a. Where the information is available and the area of open water is sufficiently large to accommodate the type, water surface elevations are shown. The values are shown in the same size and style of type as is used for the spot elevations and are printed in blue.

b. Care should be taken when placing the elevation values in the diagram that the value and dot which locates the elevation will not appear to be a decimal figure. The limiting contours are broken for the elevation values.

c. Below sea level elevations are preceded by a minus sign (-).

d. A maximum of ten spot elevations, including the highest spot elevation, are shown in the diagram.

3.11.18.4 Insignificant relief. When the range of elevation change is insignificant, generally less than 50 meters, the elevation guide shows only selected spot elevations and the drainage patterns; the index of elevation bands is not shown.

a. In the flat coastal plains where there are no pronounced land forms, it is not required to add additional elevations in the elevation guide. The prime purpose of the box is to point out to the user major relief forms and the highest

areas on the sheet. The value of the guide is reduced in the flat areas where the slope of the land is evident on the map.

b. In the flat coastal and delta areas, when the highest point's location cannot be determined because of lack of relief, it is not required to show any value in the elevation guide.

3.11.18.5 Incomplete or unreliable relief. On sheets having areas of incomplete relief, the elevation guide is treated in the following manner:

a. For sheets having small areas of incomplete relief information or form lines, an effort is made to complete the tint bands by logically extending the limiting lines across these areas. The bands should never be extended where they would possibly misrepresent the actual land forms.

b. For sheets having large areas of incomplete relief information or form lines, the tint bands are omitted when the limiting lines are not readily interpretable or when the tints would not portray the land forms and their relative heights. The limits of the area are delineated within the elevation guide with a black dashed line 1.0 mm in length, 0.3 mm space, and 0.1 mm line weight.

c. The elevation guide is not shown on sheets where the relief is shown entirely by form lines or where the relief information is incomplete or not available.

3.11.18.6 Grid lines. To aid in referencing points in the diagram to points on the map, the 10,000 unit lines of the grid are normally plotted on the diagram. The lines are labeled on the west and south sides of the diagram.

3.11.19 Boundary diagram. The boundaries diagram (Figure 31) is a miniature representation of the map under consideration. The diagram includes coastlines, principal rivers (less than 0.5 mm; single line, equal to or more than 0.5 mm; double line), lakes and the administrative boundaries which appear on the map. Islands that plot less than 0.5 mm wide at the scale of the diagram are not shown. Exact delineation of the above is not required, but relative positions and shapes are represented.

a. When possible, administrative divisions are labeled within the diagram as shown in Figure 31.

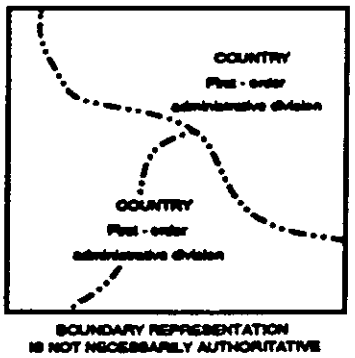


FIGURE 31. Boundary diagram.

(1) If the sheet contains more than one country name, the names are shown in the diagram with capital letters, extended where necessary to afford a pleasing appearance. When the map falls within one country, the country name is omitted from the diagram, except in those instances where the series name does not reflect the country name, e.g., a sheet covering a portion of Southern Honshu would carry the name "JAPAN" in the Boundary Diagram.

(2) Names of other administrative divisions are placed within their areas of the diagram.

(3) If no boundaries occur in the interior of the map, the names of the administrative divisions covering the sheet are centered in the diagram in descending order of importance. The first-order administrative division name may be extended for a pleasing appearance.

b. On sheets where the above treatment is not feasible, administrative divisions are listed below the diagram (or to the left of the diagram as an option) and keyed by letters and numbers to the diagram. Country names are shown as illustrated in Figure 32.

c. The First-order administrative divisions are keyed with capital letters. Further administrative breakdowns are keyed consecutively by Arabic numerals and by lowercase letters. Letter and number designations are not repeated. The entire listing is arranged in a logical manner with lesser administrative divisions indented below their respective higher administrative divisions.

d. In certain countries, lack of information regarding internal administration divisions precludes their accurate delineation in the body of the map. In such cases, the boundaries are approximated in the diagram and an explanatory note is shown below the diagram. The treatment is specified in supplementary instructions for the mapping project.

e. Reservations, national parks, and third-order administrative boundaries are shown only when specified in supplementary instructions for the project.

f. In certain areas, information concerning other lines of separation, limit of zone of occupation, etc., are included in the diagram. When required, the boundaries data and descriptive type are shown within the diagram printed in red-brown; related notes are positioned below the diagram and are printed in red-brown. The appropriate boundaries, their labels, and related notes to be used are specified in supplementary instructions for the project.

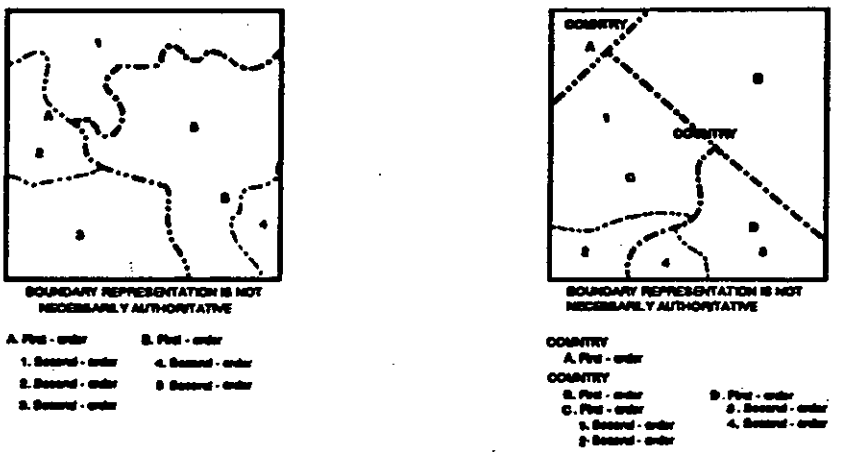


Figure 32. Boundary diagram.

3.11.20 Disclaimer notes.

3.11.20.1 International boundary disclaimer note. This note appears on all maps that show a boundary or a line separating areas of sovereignty (e.g., armistice lines, cease fire lines) in the map or in a diagram in the margin of the map.

a. For maps showing lines separating areas of sovereignty and for maps showing international boundaries or both, the note reads:

BOUNDARY REPRESENTATION IS NOT NECESSARILY AUTHORITATIVE

b. Exceptions are those maps that show the International boundaries between the United States and Canada and between the United States and Mexico where the note is not required.

3.11.20.2 Internal boundary disclaimer note. In certain areas, a disclaimer note concerning administrative divisions of a country may be necessary. When required, the note is placed directly below, or in the location specified for the boundary disclaimer note. Other notes and variations from the following example are specified in supplementary instructions for the project.

THE INTERNAL ADMINISTRATIVE BOUNDARIES ARE NOT NECESSARILY AUTHORITATIVE

3.11.20.3 Names disclaimer note. This note appears on maps which contain names that do not necessarily reflect the officially recognized political status or sovereignty of the areas concerned.

GEOGRAPHIC NAMES OR THEIR SPELLING DO NOT NECESSARILY REFLECT RECOGNITION OF THE POLITICAL STATUS OF AN AREA BY THE UNITED STATES GOVERNMENT

3.11.21 Currency notes.

a. The currency notes are positive statements that aid the map user in evaluating the currency of the map information. The notes are shown immediately below the credit note.

b. The date (year) is shown as part of the currency note and refers to the currency of the source data used to produce the map.

c. When all features of a map have been collected or revised using the same source materials, a "standard currency note" is used to express the significant year date in the currency note. For example:

(1) If the materials and their significant dates are: Map source, 1978: aerial photography, 1988, the currency note reads: MAP INFORMATION AS OF 1988

(2) If the map was extracted using source maps, 1984; aerial photography, 1985; and the map is field checked in 1987, the currency note reads: MAP INFORMATION AS OF 1987

(3) If the entire map is extracted using aerial photography, then the largest area of coverage (greater than 50% of the multi-coverage's) date will be used as the notes date.

(4) If revision was accomplished for a limited number of features on the map, the standard currency note is replaced with statements explaining the significant date associated with the revision. In each case, the currency of the unrevised map information is given in a note which reads "Other Information" (date). Composite examples of the notes are shown below.

ROAD DATA (date) - OTHER INFORMATION (date)
VEGETATION DATA (date) - OTHER INFORMATION (date)
MAJOR ROAD DATA (date) - OTHER INFORMATION (date)
ROAD AND VEGETATION DATA (date) - OTHER INFORMATION (date)

d. To further aid the map user in evaluating the currency of the map information, a note is shown stating whether or not the map has been field checked. The term "field checked" signifies sending personnel into the area being mapped for the purpose of classifying roads and railroads, identifying buildings, locating boundaries, verifying place names, classifying vegetation and drainage, and gathering any other pertinent data.

e. The field checked note is shown only on maps of the United States. The date of the field check is expressed by year only. Examples:

MAP FIELD CHECKED 1995

MAP NOT FIELD CHECKED

3.11.22 Miscellaneous notes. A miscellaneous note is any information statement which relates specifically to the mapped area and has a bearing on the operational usefulness of the map. The notes are stated as briefly as clarity permits. Examples:

A LANE IS CONSIDERED TO BE 2.5 TO LESS THAN 5.5 METERS WIDE.

BLACK FIGURES ALONG ROADS INDICATE ROAD WIDTHS IN METERS.

WHEN REFERRING TO POPULATED PLACE NAMES, INCLUDE UTM GRID COORDINATES.

3.11.23 Conversion graph.

a. A graph is shown to permit the conversion from meters to feet.

b. The graph shows meters in 10 meter increments and feet in 50 foot increments.

c. The Conversion graph includes only the elevation range depicted on the map. The length of the graph is adjusted to the first 100 meters above the highest point on the sheet and to the first 100 meters below the lowest point on the sheet. The highest point on the sheet is not limited to the spot elevations depicted on the map, but includes all areas of relief within the neatline as well as man-made objects.

d. The graph is not extended below zero to convert minus values.

e. When the elevation range exceeds 700 meters, the graph is shown in two equal segments or near equal segments with the shorter segment as the right column.

f. An example of a Conversion Graph is shown in Figure 33.

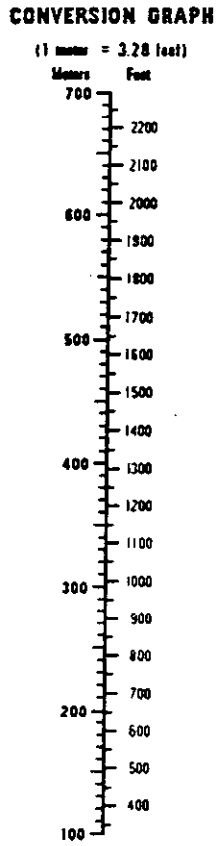


FIGURE 33. Sample conversion graph.

3.11.24 Slope guide.

a. A Slope Guide (diagram) is shown for ascertaining terrain slope graphically as a percentage and as a gradient (degree). The range of the guide is from 5 percent (2.9°) to 15 percent (8.5°).

b. The slope guide is not shown on a map that does not contain slopes greater than 5 percent. In this case, a note is shown in the miscellaneous notes that reads:

SLOPES ON THIS MAP ARE LESS THAN 5%

c. The guide consists of 11 horizontal lines (5 percent through 15 percent) and 6 vertical lines (representing a span of 6 contours). The intersections of these lines are the distances at the scale of the map between contours for the given percents (degrees).

d. The slope graphic is adjusted to the contour interval shown on the map.

e. One sample of a slope guide is shown in Figure 34.

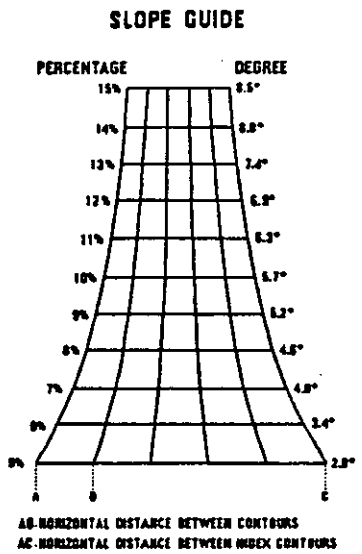


FIGURE 34. Slope guide.

3.11.25 Red-Light readable note.

a. A note is shown in the lower right margin to indicate the map is readable under Red-Light conditions. The note reads:

THIS MAP IS RED-LIGHT READABLE

3.11.26 Publication note and credit listings.

a. Each map produced by or for the Defense Mapping Agency (DMA) contains a publication note as follows.

Prepared and published by the Defense Mapping Agency.

b. When a map is produced under a cooperative mapping agreement, with another agency or country, the note is patterned after the following:

Prepared and published by the Defense Mapping Agency
in cooperation with (Country/Agency concerned).

c. When specified in supplementary project instructions, credit is given to other topographic units and cooperating agencies for their contributions to certain phases of a mapping project.

d. The credits refer to the work done by the contributing units or agencies in connection with a current map project and not to any work on antecedent map sources.

e. The notes are patterned after the following:

CONTROL BY.....NGS VIETNAM
NAMES DATA BY.....USARPAC, NGS VIETNAM

3.11.27 Printing note.

a. The printing note will identify the center printing the map, plus the month and year of printing.

b. For maps printed at DMA, the printing credit will be shown as:

PRINTED BY.....DMA 8-94

c. For maps printed by other agencies or military commands, the note will be shown as:

PRINTED BY .....(AGENCY NAME) 8-94

3.11.28 DMA seal.

a. The Defense Mapping Agency seal is shown on maps prepared by or for DMA. The seal appears in the lower margin as shown on the Style Sheet, Appendix B, and is printed in black.

b. The DMA seal is shown on maps prepared by DMA for other agencies unless specific directions to the contrary are stated in supplementary instructions for the project.

3.11.29 Users note.

a. Each unclassified map prepared by or for DMA contains a Users note which reads:

USERS SHOULD REFER CORRECTIONS, ADDITIONS, AND COMMENTS FOR IMPROVING THIS PRODUCT TO: DIRECTOR, DEFENSE MAPPING AGENCY; ATTN.: PR; 8613 LEE HIGHWAY, FAIRFAX, VA 22031-2137.

b. For treatment of translated users note, see 3.11.2.

c. The note is shown on all maps.

3.11.30 Security classification notes.

3.11.30.1 Classification marking. Under certain circumstances maps are required to bear a security classification marking. The degree of classification is determined in accordance with the provision of Department of Defense Regulation 5200.1.R, "Information Security Program Regulation." The appropriate classification marking is indicated in the security classification guidance for the project.

3.11.30.2 Downgrading/declassification note. Each map bearing a security classification marking also identifies the classifier and contains downgrading/declassification instructions. The appropriate note or statement is determined in accordance with the provisions of DoD Regulation 5200.1.R. The specific note is indicated in pertinent security classification guidance for the project.

3.11.30.3 Special handling notes. Certain maps, classified or unclassified require notes which restrict their distribution. When required, the appropriate note is specified in the security classification guidance pertaining to the project.

a. A Caveat or Special Handling Note may be required on maps classified CONFIDENTIAL or higher. Example:

NOT RELEASABLE TO FOREIGN NATIONALS

b. A Restricted Dissemination Note may be required on unclassified maps. Example:

LIMITED DISTRIBUTION Distribution authorized to DoD, and to nonDoD Government Agencies under M.O.U., IAW 10 U.S.C. §§130 & 2796. Release authorized to U.S. DoD contractors, IAW 48 C.F.R. §252.245-7000. Refer other requests to Headquarters, DMA, ATTN: Release Officer, Stop A-10. Destroy as "For Official Use Only."
"Removal of this caveat is prohibited"

3.11.30.4 Security classification printing colors. The security classification notes are printed in red for SECRET sheets, in blue for CONFIDENTIAL sheets, and in black for UNCLASSIFIED sheets.

3.11.31 Grid conversion note. A grid conversion note is added when it is specified that a secondary grid be shown and when the secondary grid differs uniformly from the major grid, a coordinate conversion note may be used in lieu of showing the secondary grid. Reference DMA TM 8358.1, Datums, Ellipsoids, Grids and Grid Reference Systems and DMA TM 8358, Series Transition Phase Standard Operating Procedures, dated 21 September 1989. When a coordinate note is necessary for a secondary grid the note will be patterned after the following example:

COORDINATE CONVERSION WGS 84 TO ED
Grid: Add 30 meters E., Substract 9 meters. N.
Geographic: Add 1.1" Long., Subtract 0.1" Lat.

The note is placed in close proximity to the Grid Reference Diagram (usually above) space permitting. See Appendix B, Style Sheet.

3.11.32 Copyright note. A copyright note is applied to all maps produced over foreign areas. The note is placed at the (Preferred, space permitting). See Appendix B, Style Sheet. An example of the note is as follows:

© COPYRIGHT (YEAR) BY THE UNITED STATES GOVERNMENT
NO COPYRIGHT CLAIMED UNDER TITLE 17 U.S.C.

3.12 Culture.

3.12.1 Cultural development: General.

a. Consistent with map legibility and the density of cultural development, large scale topographic maps require maximum portrayal of road and railroad features. When necessary,

supplemental information is provided in the project directive memorandums defining the physical nature and economic and cultural development of the area.

b. To ensure map readability, symbol sizes are usually larger than actual map scale size. The symbols, therefore, are plotted (in most cases, see MIL-STD-2402 - SYMBOLOGY; "ORIGIN") so that their centers coincide with the true position centers of the represented features. Deviations from this requirement are permissible where displacement is unavoidably necessary because of the close proximity of other plotted features. In such cases, displacement is held to the absolute minimum consistent with map legibility.

3.12.2 Road classifications. A road more than two lanes wide will contain a label indicating the number of lanes. When road width information is available or the road width can be determined, only the traveled way is considered. Road shoulders, ditch limits, and right-of-way limits are disregarded. The following criteria are applied unless otherwise specified in supplementary project instructions.

a. Hard surface, all weather roads. These are roads that are traversable throughout the year to a volume of traffic never appreciably less than their maximum dry weather capacity. Minimum maintenance is required. Surfaces are waterproof. Construction is usually concrete, bituminous surface, brick, or stone pavement.

(1) More than two lanes wide. A constructed roadway at least 8.2 m wide. The number of lanes is indicated by labeling parallel to the road.

(2) Two lanes wide. A constructed roadway at 5.5 m and less than 8.2 m wide. No lane information is required in the map interior.

(3) One lane wide. A constructed roadway at least 2.5 m and less than 5.5 m wide. No lane information is required in the map interior.

b. Loose or light surface, all weather roads. These are roads designed to carry light traffic in all weather. The volume of traffic in bad weather is considerably less than dry weather capacity. Heavy use of the road during bad weather may cause complete collapse of the road. Periodic maintenance is required. Surfaces are not waterproof but are graded and drained. Construction is usually crushed rock or waterbound macadam, gravel or stone-sand clay, oil-treated gravel, or broken stone and cinders.

(1) More than two lanes wide. A constructed roadway at least 8.2 m wide. The number of lanes is indicated by labeling parallel to the road.

(2) Two lanes wide. A constructed roadway at 5.5 m and less than 8.2 m wide. No lane information is required in the map interior.

(3) One lane wide. A constructed roadway at least 2.5 m and less than 5.5 m wide. No lane information is required in the map interior.

c. Loose surface, fair or dry weather roads. These types of roads are designed to carry light traffic in dry weather only. In bad weather , roads quickly become impassable to normal traffic. Surfaces are sometimes graded and drained. The roads may not be maintained. If maintained, continual maintenance is required. Construction is usually of natural or stabilized soil, sand-clay, shell-cinders, or disintegrated granite or rock. The following types of roads are also in this category:

(1) Lumber or logging roads. Most of these roads are temporary and used only as long as the camp or sawmill is in operation. Only those roads considered permanent and which serve as connecting links to the regular road network are mapped.

(2) Abandoned roads. These are roads that are no longer maintained and in normal use. When shown, they are identified by the term *ABANDONED*.

(3) Corduroy roads. These are roads sometimes found in swamps, peat, and on other unstable soils; they are constructed of a corduroy foundation or by an interweaving of gravel, logs, and rocks. These roads are shown only if they form part of the regular road network, or are the only means of surface travel in the area being mapped. The roads are identified by the term *CORDUROY*.

(4) Firelanes. Firelanes are cleared land through wooded areas, designed to facilitate the movement of fire-fighting equipment. Only those roads connected to the regular road network are shown. Firelanes are not to be confused with firebreaks.

d. Cart track. A natural traveled way which can accommodate four-wheeled or tracked vehicles and is at least 1.5 m but less than 2.5 m wide is classified as a track.

e. Trail. A natural traveled way less than 1.5 m wide is classified as a trail.

f. If a road can be classified in more than one category , the lower category is selected to classify the road. This includes roads with lanes of varying construction. However, a road which is predominantly of one category, but contains short stretches of another category, is classified entirely in the category which predominates. Short stretches are interpreted to be less than 13 mm in length at publication scale. Road segments longer than the above length are appropriately classified.

3.12.3 Special road classification principles. A road with one lane on either side of a median strip is symbolized as a standard two lane road.

3.12.4 Roads under construction.

a. A road is under construction when work is actually started on the right-of-way.

b. Roads under repair, whether open or closed to traffic, are not considered to be under construction.

3.12.5 Private roads. Private roads are maintained by private funds and are not normally open to the public. A private road that has continuity with the public road system is shown in accordance with standard classification procedures.

3.12.6 Through routes and streets in populated places. A distinction is made between through routes (through streets) and other streets in populated places.

a. For purposes of delineating those features, a populated place is defined as a developed area which contains a systematic pattern of streets. Populated places are depicted as outlined, tinted areas with street patterns provided they meet the minimum inclusion condition requirement for a built-up area.

b. A few buildings along a road, as at a road intersection, do not constitute a populated place for the purpose of delineating streets even though the area is identified with a populated place name.

c. Roads, including tracks and trails, which enter populated places are symbolized as streets in the outlined, tinted area unless selected as a through route. Point of change of symbolization is the point of entry into the tinted area.

d. Roads that border on but do not enter the tinted area of a built-up area are depicted by their normal symbolization.

3.12.6.1 Through routes.

a. Through routes are the main arteries of intersection through a populated place and may include both the direct routes and the alternate routes that bypass the congested areas in the city.

b. Determination of streets to be symbolized as through routes is made by reference to available source material, including aerial photography.

c. A through route will be symbolized at the same classification as the road that entered the tinted area unless the road changes to a different classification within the tinted area.

d. Route markers are placed in the tinted areas in order to clearly identify through routes.

e. Median strips are shown only if the plotted median is at least .25 mm in width between the inside edges of each symbolized road at map scale.

3.12.6.2 Streets.

a. Streets are symbolized by the street symbol regardless of type of construction. This includes tracks and trails.

b. Between small detached built-up tinted areas which are integral parts of a larger built-up area, roads that are not through routes are symbolized as streets. Excepted are track and trails which retain their normal symbolization.

3.12.6.3 Approximate road alignments. Road alignments that can only be approximated due to the lack of information are labeled *APPROXIMATE ALIGNMENT* or *APPROX ALIGN.* Approximate alignments less than 13 mm at publication scale are not indicated.

3.12.6.4 Road names. Names (if known) are shown for important named arterial roads. Example: *PAN AMERICAN HIGHWAY*

3.12.7 Points of change in roads information. Points of change in road information are indicated by a tick perpendicular to the upper side of the road.

3.12.8 Route markers.

a. Route markers are official numbered designations that identify international, national, and secondary routes. Secondary routes include roads under the jurisdiction of states, provinces, prefectures, and similar administrative divisions.

b. Route marker symbols are preferably centered on the roads, positioned parallel with the bottom neatline. In extremely congested areas the symbol may be positioned adjacent to the road.

c. To be fully effective, a judicious positioning of symbols is necessary.

(1) For roads that continue onto adjoining sheets, they are shown close to the neatline in an unobscured position.

(2) They are shown close to and within large populated areas.

(3) They are shown as often as necessary to preclude any ambiguities, especially to define through routes within built-up tinted areas.

(4) They are shown as close as possible to major road junctions and intersections.

(5) Individual route numbers are shown for roads which are identified by more than one number. The markers are preferably shown in close proximity for easy identification.

3.12.9 Road objectives.

a. A road objective is a selected designation, and distance thereto, of a road that continues beyond the limits of the map.

b. A destination is usually the nearest populated place, numbered or named highway, or prominent landmark feature on the adjacent sheet; however, in sparsely developed areas it may be necessary to select an objective two or more sheets away from the map under consideration.

c. Double road objectives may be shown, space permitting, for primary routes. A double objective consists of the nearest destination and a distant, more important designation. Double road objectives are not shown in densely developed area.

d. The selection of road objectives is based on the density of the road network.

(1) Objectives are normally shown for all hard surface and loose surface, all weather roads. In developed areas with a dense concentration of hard surface roads, objectives are shown only for the primary or numbered highways.

(2) In underdeveloped areas, objectives are shown for all main routes regardless of classification. This includes tracks and trails, where appropriate.

(3) A populated place may be designated as a road objective even though the road in question actually bypasses the town. The distance is computed to the town and not to the nearby road junctions.

(4) If a road enters a populated place which straddles a sheet neatline, no objective is shown for the road.

e. Portrayal:

(1) The design and positioning of road objectives are illustrated on the Style Sheet, Appendix B.

(2) Road distances are expressed in kilometers and are always abbreviated as "km".

(3) Distances of 10 or more kilometers are shown to the nearest full unit; decimal fractions are omitted. Example: 12 km.

(4) Distances of less than 10 units are shown to the nearest tenth of a unit. Examples: 8.3 km; 7.0 km.

(5) Distances of less than one unit are expressed in zero units and tenths. Example: 0.3 km.

(6) The leader arrow represents a directional extension of the road. If the road branches at the neatline, two arrows are shown emanating from a common point.

(7) When two roads having a common destination, are a short distance apart at the neatline, a single objective is shown for both roads. A leader arrow is shown for each road.

(8) A single arrow is shown for double road objectives. Both destinations are centered over the arrow with the nearest destination shown closer to the map neatline.

(9) If the road objective is a numbered highway, the objective reads: 12 km to MEXICO 75.

(10) If the road is a named highway, the objective reads: ALCAN HIGHWAY 20 km.

(11) If the objective is both a numbered and named highway, the numbered designation is used as the destination.

3.12.10 Plazas, town squares.

a. These features are shown only if their plotted sizes, at publication scale, exceed the widths of the entering roads and streets. The roads and streets remain open where they enter the plaza or town square.

b. Road fills are omitted within the limits of these features.

3.12.11 Traffic circles.

a. A traffic circle is a junction of roads or streets at a circular plot of ground around which traffic normally moves in one direction.

b. The feature is delineated by the prescribed symbol. If the size of the feature at publication scale exceeds the prescribed symbol size, it is shown to scale in its true shape.

c. Small traffic circles that cannot be portrayed without excessive exaggeration are omitted.

3.12.12 Interchanges.

a. An interchange is a system of access roads designed to facilitate entrance or exit between merging of intersecting highways.

b. These features are delineated in their true shape, scale, and alignment. If necessary, the scale may be slightly exaggerated in order to portray the access roads and grade separations legibly.

3.12.13 Bridges, causeways, viaducts, and elevated highways.

a. Bridges.

(1) Bridge symbols are usually representative in that their length must be exaggerated in order to portray these features legibly. The minimum plotted length for any bridge is 1.5 mm at publication scale.

(2) Bridges are shown wherever they relate to the road network portrayed on a map.

(3) Bridges that plot longer than 1.5 mm at publication scale are shown to scale in length.

(4) A bridge that carries both a road and a railroad is shown by the road bridge symbol only. The railroad symbol is dropped at the bridge abutments at each end.

(5) River/streams, shorelines, and open water are broken for all bridges except foot bridges.

(6) When a bridge is an obstruction (≥ 46 meters in height), both symbols are shown on the finished map with the obstruction symbol placed at the highest point of the bridge.

b. Causeways.

(1) A causeway is a constructed passageway for roads or railroads across open water. They may contain bridges to permit passage of boats.

(2) The feature is not specially symbolized. The label ***CAUSEWAY*** is added parallel to the road or railroad alignment.

(3) The shorelines are not delineated unless the plotted space between the shoreline and the road or railroad is 0.25 mm or more at the publication scale.

c. Viaducts and elevated highways.

(1) Both features are symbolized with the bridge symbol. See 3.12.13.

(2) Label elevated highways or railroads *ELEVATED* when the length of the feature is long enough to contain the label.

3.12.14 Overpasses and tunnels.

a. Road overpasses are symbolized by the bridge symbol or labeled as elevated. See 3.12.13.

b. The same treatment is used to portray a grade separation of more than two levels. The bridges at each level below the top level are portrayed as broken bridge symbols where they enter and exit under the above level bridge.

c. All tunnels outside of populated places are shown. To insure legibility, the minimum plotted size for any tunnel is 1.50 mm at publication scale. Tunnels that plot longer are plotted to scale in length only.

d. Tunnels are portrayed within a populated place only when they are part of the selected "through route" system.

e. Names of prominent, important tunnels, if available, are shown above and parallel to the symbol.

f. Tunnels are appropriately labeled if neither end of the tunnel appears on the sheet of consideration.

3.12.15 Ferries and fords.

a. Vehicular and railroad ferries are portrayed only when they are in regular operation for the purpose of transporting traffic between two points separated by water.

b. Ferry route destinations beyond the neatlines of a sheet are shown in the same manner as road objectives.

c. Pedestrian ferries are not shown unless they are the only means of crossing in the area.

d. Fords are shown only when they relate to roads depicted on the map.

3.12.16 Roads in mountainous areas.

a. Roads in mountainous areas frequently contain sharp (hairpin) turns which must be represented without excessive scale distortion.

b. To avoid excessive displacement, the turns are symbolized with a common symbolized edge-line as each turn is made back on itself.

3.12.17 Railroad categories. Railroads are classified and symbolized as to gauge, number of tracks, and whether operating or non-operating, or electric.

a. Railroad track classification.

(1) A single track railroad has one set of tracks.

(2) A double track railroad has two sets of tracks on the same railroad.

(3) A multiple track railroad has three or more sets of tracks on the same railroad. The number of tracks is indicated by labeling parallel to the symbol.

(4) The point of change in the number of tracks is indicated by the prescribed symbol and is appropriately labeled as close as possible to the point of change symbol.

(5) If two railroads are in juxtaposition, that is, closely parallel but on separate roadbeds, each line is symbolized individually. If the distance between the roadbeds is too narrow to plot to scale, the space is exaggerated to 3.0 mm.

b. Operating railroads.

(1) An operating railroad is one that is at least in limited use over a maintained, permanent right-of-way.

(2) Monorails, logging, cog, and decauville railroads are considered permanent narrow gauge railroads.

(3) Portable type railroads, such as those used in cane fields and in strip mining, are not considered permanent railroads and are not mapped.

c. Non-operating railroads.

(1) A non-operating railroad is one that is not in use and is not maintained.

(2) Abandoned railroad. A railroad that is not in use and the right-of-way is not maintained; however, the roadbed, trackage, and bridges are largely intact and the line can be made operational with a minimum amount of repair.

(3) Destroyed railroad. A railroad with its roadbed, trackage, or bridges at least partially destroyed and which would require more than minor repairs to be made operational. If

intelligence information indicates a destroyed railroad is being repaired, it is shown as an operating railroad.

(4) Railroad under construction. A new railroad on which construction has actually been started. Proposed railroads, including those for which the right-of-way has been established, do not come within the meaning of "under construction" and are not shown.

(5) A dismantled railroad is one where its roadbed, trackage, and bridges are removed or destroyed. The remaining evidence of a railroad is primarily the cleared right-of-way. If the right-of-way is used as a road, the appropriate road symbol is used to portray the feature.

d. Railroad gauges. The normal gauge classification is established on a country basis. It is possible for a railroad to have more than one gauge if the line continues from one country to another. Under such circumstances, the normal gauge for each country is indicated by an appropriate note in the map legend. Examples:

Normal railroad gauge in Russia is 1.52 m.

Normal railroad gauge in Poland is 1.44 m.

e. Number of tracks. A distinction is shown between single track railroads and those with more than one set of tracks. Spurs and sidings are not considered in determining the number of tracks of a railroad.

3.12.18 Sidings and spur tracks. Sidings and spurs are shown to the extent that the map scale, density of other detail, and the length of the features permit. When the distance between the main line and a siding is too small to plot to scale, the space between is exaggerated to 3.0 mm. Sidings and spurs are shown joining main lines in a smooth curve.

3.12.19 Railroad yards.

a. Railroad yards are shown in their true shape and size as determined by the limiting tracks. Only a general representative pattern of the interior tracks and switching lines are portrayed.

b. Main lines running through railroad yards receive their normal symbolization.

3.12.20 Railroad stations.

a. Railroad stations are shown by the appropriate symbol, depending upon location. If the station location cannot be verified, the "location unknown" symbol is used.

b. Flag stops, halts, and similar features are shown as stations only if they include a permanent building or structure, such as a platform for loading passengers or freight.

c. Railroad stations are not labeled as such, unless they are identified with a proper name. Stations in populated places are not named if the name is the same as that of the populated place.

3.12.21 Snowsheds.

a. A snowshed is a long structure erected over a railroad track and is designed to protect the right-of-way against blockage by snow slides. These features are distinctive landmarks and are always shown.

b. If the snowshed is unusually long, or cuts across the corner of the sheet, it is then appropriately identified by labeling.

3.12.22 Railroads in populated places.

a. Railroads on their own right-of-way are shown by normal symbolization.

b. Railroads on narrow piers and wharves are usually symbolized by the crossties only. If the pier or wharf is wide enough to portray the complete railroad symbol, the line delineating the track is shown.

c. Underground railroads are portrayed by the railroad tunnel symbol, provided the alignments can be plotted accurately. If the alignment is unknown, the dashed lines representing the underground alignment are omitted, however, the wing ticks and "headwall" symbols representing the limits of the tunnel are shown.

d. Minor sidings and spurs may be omitted in populated places if the density of other detail does not permit legible portrayal.

e. Subways are not shown.

3.12.23 Railroads in roads and streets.

a. Operating railroads in roads or streets are shown by their prescribed symbol. Gauges are not indicated.

b. Non-operating railroads are not shown in roads or streets. The alignments of such features are suppressed where they enter the road or street symbol.

3.12.24 Railroad electrification. Electrification is indicated by unique symbology. Two dots are positioned on the top

side of the track with each pair straddling the single (or double) cross ticks and thereafter displayed at alternating cross ticks.

3.12.25 Railroad names.

a. Names are shown parallel to and, if possible, along straight segments of the railroad symbol.

b. The terms RAILROAD, RAILWAY, LINE, SYSTEM, and similar terms and abbreviations of those terms, are not included with a name unless the term is part of the official name.
Example: *CENTRAL RAILROAD OF NEW JERSEY*

c. Normally, names are not abbreviated. However, when space limitations preclude showing the full name, official abbreviations may be used.

3.12.26 Railroad Bridges, Tunnels, Viaducts, Causeways, and Overpasses.

a. The requirements for showing these features are the same as those specified for roads.

b. Railroad crossties are omitted within the bridge or viaduct symbol and within 6.50 mm of the abutment ticks.

3.12.27 Railroad objectives.

a. A railroad objective is a selected destination, and distance thereto, of a railroad that continues beyond the limits of the map. In sparsely developed areas, the destination may be two or three sheets away from the sheet under consideration. The destination is usually a large or important place.

b. Railroad objectives are always shown on maps that contain a sparse network of roads. However, a profusion of both railroad and road objectives is undesirable. When such conditions occur, road objectives are given preference.

c. The destination and distance of railroad objectives are shown in the same manner as specified for road objectives.

3.12.28 Car lines.

a. A car line is any type permanent roadbed with rails that provide a track for light-car units. The cars are designed primarily for suburban or interurban transportation of passengers.

b. The distinction between operating and non-operating car lines is the same as for railroads (See 3.12.17).

c. Operating car lines are shown only outside of populated places.

d. Non-operating car lines are not shown within outlined populated places. They are shown outside of populated places when the rights-of-way are not in a road. A non-operating car line is suppressed at the point where it becomes coincident with a road or when it enters a populated place.

e. The gauge and number of tracks of car lines is not indicated.

f. Car line stops or stations are not symbolized. Permanent buildings used as car line stations are not especially identified.

g. Objectives are not shown for car lines.

3.12.29 Other transportation features.

a. Included in this category are all linear features of a permanent nature, other than railroads and car lines, which serve to transport passengers or material. These features are usually above ground level and are supported by towers, pylons, or similar structures.

b. Aerial cableways and ski lifts are shown if they exceed 7.50 mm at publication scale.

c. Conveyor belts are shown only outside of outlined populated places, provided that they are at least 7.50 mm at publication scale and begin and end at a symbolized feature.

3.12.30 Populated places.

3.12.30.1 Description of populated places. The term populated places includes cities, towns, villages, settlements, hamlets, communal farms, and all other places where more than one family (or family group) lives as a community. Populated places vary in size and density from hard-core, nucleated cities to tiny hamlets and widely scattered or dispersed villages.

3.12.30.2 Characteristics of populated places. Due to the varying cultural, economic, climate, and political conditions, populated places take on different characteristics in different areas of the world. The main factors that affect the nature and, subsequently, the treatment of populated places in general are:

a. The relative density or concentration of buildings and the size of the buildings and streets.

b. The symmetry of the buildings and street patterns.

c. The architectural design and the type of materials used to construct the various types of buildings.

3.12.30.3 Populated places treatment: General. The prime consideration when portraying populated places is to reflect the distinguishing characteristics of each place and to use the same treatment and symbols for similar places regardless of the region being mapped. To portray these characteristics, populated places are represented by individual building symbols (on a one-for-one basis): a light tint for moderately to sparsely built-up areas: or a heavier tint for densely built-up areas for differentiation and clarification. A large metropolitan area may require the use of all three types of treatment to properly portray the entire populated area.

3.12.31 Classification of populated places. The relative importance of populated places is determined on a regional aspect. Symbolized classified places are classified in five categories which are determined as follows.

3.12.31.1 Population or administrative. Populated places are classified by population and by administrative importance. When population data are not available, populated places are classified solely by administrative importance.

3.12.31.2 Population figures. When complete and up-to-date population figures are available, they serve as the breakdown of the five categories. The detailed division into categories by population may vary by region.

a. Populated places are classified by population and by administrative importance. An example of population breakdown and the relative importance equivalent in a culturally developed area would be:

(1)	More than 500,000	or 1st importance.
(2)	100,000 to 500,000	or 2nd importance.
(3)	25,000 to less than 100,000	or 3rd importance.
(4)	5,000 to less than 25,000	or 4th importance.
(5)	Less than 5,000	or 5th importance.

b. An example of population breakdown and the relative importance breakdown equivalent in an area not yet well-developed culturally would be:

(1)	More than 100,000	or 1st importance.
(2)	50,000 to 100,000	or 2nd importance.
(3)	10,000 to less than 50,000	or 3rd importance.
(4)	2,000 to less than 10,000	or 4th importance.
(5)	Less than 2,000	or 5th importance.

c. In the absence of population data, the populated places are classified solely by administrative importance. The categories of administrative importance may vary from region to region. Examples of administrative breakdown and the relative importance breakdown equivalent are:

(1)	National capital	- 1st importance.
(2)	Province, state, or department capital	- 2nd importance.
(3)	County seat or chartered city	- 3rd importance.
(4)	Town	- 4th importance.
(5)	Village or settlement	- 5th importance.

d. The relative importance of populated places is shown on the final product by the unique type style used.

e. Where portions of several countries appear on the same sheet, more than one category (either by population or administrative importance) may be necessary.

f. When a sheet (map) is classified entirely as fifth class, a note is added to the notes column in the margin which reads as follows:

All POPULATED AREAS ON THIS SHEET ARE FIFTH CLASS

3.12.32 Built-up areas.

a. Types of built-up areas. Most of the large populated places of the world have at least a portion of their developed areas falling into the built-up area categories. Included in this type of area are:

(1) The old town, hard core sections of the nucleated cities with their narrow, winding streets and continuous roof cover.

(2) The industrial and commercial districts and public buildings.

(3) The urban residential areas made up of closely spaced or attached permanent dwellings and apartment complexes.

(4) Casbah-type areas consisting of a dense agglomeration of masonry or clay, permanent-type dwellings, with courtyards, typifying the cities of North Africa and the Middle East.

b. Density requirements.

(1) The degree of building density and extent of the area are the main criteria used to determine when an area is to be portrayed by one of the built-up area tints or by building symbols. It is important for the final symbolization to reflect a gradual transition in building density between the sparse and more concentrated portions of the populated place whenever such a transition actually exists. In the case of most large cities, the resultant symbolization, progressing inward to the center of the city, will be individual building symbols, moderately to sparsely built-up tint, and then densely built-up tint.

(2) When portraying the limiting outlines for the areas to be represented by the built-up area tints, the density requirements are met when the individually symbolized buildings coalesce.

(a) The requirement for densely built-up area tint is satisfied only when, after having represented the streets by their proper symbolization and density to reflect the characteristic pattern of the street network, most (approximately 75%) of the buildings in the identified area coalesce both side-to-side and back-to-back if drawn at their minimum size.

(b) The requirement for moderately to sparsely built-up tint is satisfied only when, after representing the streets by their proper symbolization and density to reflect the characteristic pattern of the street network, most (approximately 75%) of the buildings if drawn at their minimum size coalesce in a side-to-side direction along the street but the space between the backs of the buildings may be such that coalescence does not occur.

(3) Buildings in fringe areas sometimes have an inconsistent density pattern in which some of the buildings coalesce at the scale of the map and others do not. In such cases, the built-up area symbol is used only if coalescence occurs.

(4) When all other factors have been considered and the density or arrangement of buildings in a particular area is such that some doubt still exists as to the tint portrayal for densely built-up area tint versus moderately to sparsely built-up area tint, the following guides are applied: doubtful areas are shown by the densely built-up area tint whenever they are surrounded by (or are contiguous to) areas that are obviously densely built-up areas; doubtful areas which are not contiguous are shown by the moderately to sparsely built-up area tint.

(5) Populated places that are essentially alike receive the same treatment and type of symbolization regardless of some slight difference in degree of density. For example, if the populated places on a sheet are all of the compact-village type

and differ only slightly in density, they are shown with the same type of tint symbol.

c. The size requirements for the use of the built-up area tints are met when the area is a minimum of approximately 2.5 mm by 2.5 mm or its equivalent area, providing the narrowest dimension is not less than 1.3 mm.

3.12.33 Establishing limits of built-up area tints.

a. The limits of a built-up area are delineated whenever possible to coincide with mapped linear features such as streams, roads, and railroads. When built-up area limits are not coincident with linear features, the outline is delineated to create an accurate portrayal.

b. The limits of the built-up area tints are not based on administrative limits.

c. Along the periphery of the built-up areas, factory complexes, refineries, railroad yards, port facilities, and similar building complexes which have extensive areas of open ground are not included within the built-up area limits. These features are portrayed by their appropriate symbols.

3.12.34 Open areas within built-up area tints.

a. Areas of little or no development falling inside the overall built-up area tint are excluded from the tint area, provided they are 2.5 mm by 2.5 mm or larger. All other areas that are below the minimum size are included as part of the built-up area tint.

b. Parks, cemeteries, universities, and hospital complexes having extensive open grounds are treated as open areas if they meet the minimum size requirements. Factory complexes and railroad yards are given similar treatment. Buildings or other features in these open areas are portrayed as individual buildings or by an appropriate symbol.

3.12.35 Settlements (Southeast Asia).

a. The typical settlements in this area are dispersed along and straddle the major land routes and extend alongside the large canals and major ditches. They are made up of a fairly dense pattern of buildings with each individual dwelling being surrounded by a small garden plot outlined or delimited by tall trees. The buildings generally are made of wood or bamboo and are in uniformly dense patterns with no transition between the center and the outer limits of the settlement. Because of the landmark prominence of the trees, this type of settlement is portrayed by a combination of the woodland symbol and individual building symbols. The treatment or positioning of the building symbols

varies with the density of the tree cover and the density and symmetry of the building alignments.

b. When the actual positions of the dwellings are unknown, either because they are obscured by trees or because of the nature of the symbolization on the base source maps, the settlement is portrayed by a random pattern of building symbols. The outline of the woodland symbol (the limits of the trees and gardens) is used as the limit of the building pattern; the buildings are spaced .50 mm apart.

c. When the tree canopy is less dense and most of the dwellings are visible, the building symbols in a representative building pattern are positioned and oriented to reflect the density and degree of symmetry of the dwellings in each particular settlement.

d. The trees and garden areas are depicted by the woodland symbol. Open garden areas that measure 2.5 mm by 2.5 mm or larger are excluded from the woodland symbol and shall be portrayed as open areas.

e. The woodland tint is devoid of the tree symbol in this instance.

3.12.36 Shanty towns.

a. These types of developments are primarily located on the outskirts of the large cities worldwide. They are made up of tightly packed, impoverished dwellings made from salvaged materials with no streets or modern facilities. They have rather distinct limits since the tin-roofed shanties are so jumbled together that they present practically continuous roof cover.

b. A distinctive symbol is used to portray shanty towns when the developments are at least 2.5 mm by 2.5 mm; those which do not meet this minimum size are included in the built-up area tint.

c. The shanty town symbol is portrayed in the legend and appropriately identified to coincide with the terminology of the country.

3.12.37 Special types of populated places. The types of villages indicated below, because of their unique makeup, are identified on the names data source package so they can be distinguished from the standard, compact developments.

a. Dispersed villages (similar to those found in former eastern Yugoslavia) are made up of numerous individual farmsteads scattered over a relatively large area.

b. Scattered villages such as the communidads of South America and the Streusudlung of Eastern Europe are made up of widely scattered individual buildings.

3.12.38 Farmsteads.

a. A farm or farmstead is made up of a dwelling with its accompanying barns and sheds. The farmstead usually has only one house (permanent dwelling); however, in some areas of the world, members of the same family erect additional homes in close proximity to the original dwelling.

b. When the individual farmsteads have names and supplementary project instructions require that they be shown, they will be indicated in the source package.

c. The buildings are depicted by individual building symbols.

3.12.39 Buildings.

a. Scale permitting, buildings are portrayed wherever they exist by properly oriented individual building symbols; the center of the symbol is positioned over the center of the feature. When a building scales larger than the standard 0.5 mm by 0.5 mm building symbol, it will then be portrayed at its true scale size.

b. When buildings occur in groups and in conjunction with mapped linear features such as roads, railroads, and ditches, the density of the buildings and the displacement due to symbolization may make it impossible to position all of the building symbols in their true positions. Often building symbols must be moved slightly to achieve a good representative building pattern portrayal. The following limiting dimensions are used when spacing buildings under these circumstances:

(1) The minimum space between building symbols is 0.20 mm side to side.

(2) When there is a small cluster of buildings and buildings must be displaced from their true positions to avoid coalescing with each other, a displacement not to exceed 0.50 mm is permitted.

(3) Displacement of buildings is often necessary along symbolized roads, streets, tracks, trails, and railroads because of the exaggerated width of the symbolized feature. The minimum distance for the displaced building is 0.2 mm from these features.

(4) A clear space of at least 0.20 mm is shown between the road and the building symbol when the edge of the building is further than 6 m or less from the edge of the road.

(5) The building symbol is plotted in its true position wherever an open space of 0.20 mm or more exists between the building and road symbols. No attempt is made to show the true ground distance between the two features.

(6) A minimum space 0.20 mm is shown between building symbols and tracks and trails.

c. When two or more dwellings are actually attached (like a townhouse/rowhouse development), they are depicted by a single symbol scaled to the length of the row, with the width depicted to scale or at a minimum of 0.50 mm. This treatment applies only in areas or developments that are not considered built-up areas.

d. When buildings are in clusters and will coalesce if portrayed at their minimum size even if displaced, they are then depicted by a built-up tint. See paragraph 3.12.32.b for density requirements for the built-up area tint.

3.12.40 Important buildings (Landmarks).

a. Buildings that are important because of their military significance, cultural importance, unique appearance or construction, or orientation value are identified by the appropriate symbol and/or labeling.

b. Where there are numerous important buildings in the built-up tint area, only the most outstanding are portrayed. It is undesirable to have a profusion of important buildings, especially ones that require labeling, in these areas. Where a selection is required, those that are visible from afar have first preference for retention.

c. In the areas outside of the built-up tint area where the selecting-out process is not required, all of the important buildings are portrayed by appropriate symbol and/or label.

d. Listed below are the important buildings that are shown by unique symbols. When used, these symbols are represented in the legend in the map margin.

(1) Religious buildings.

(2) Hospitals.

(3) Schools.

(4) Forts (too small to plot to scale).

e. Listed below are important buildings (or building complexes) that are portrayed as a building symbol(s) (or if larger, depicted at scale) and identified by appropriate label.

(1) Industrial or commercial complex, e.g., Copper smelter, Brick kiln, etc.

(2) Prominent factories, e.g., Cement factory.

(3) Government buildings, such as Capitol buildings, City or Town halls, Custom houses, Post offices, etc.

(4) Communication centers.

(5) Military installations.

(6) Museums.

(7) Prisons or landmark police posts.

(8) Large forts and castles.

(9) Isolated landmark chateaus.

(10) Monasteries.

(11) Historic buildings.

(12) Ranger stations, Forester lodges.

(13) Any other types of important buildings peculiar to the area being mapped.

f. Important buildings are treated as indicated below:

(1) The symbols that are always aligned with the south neatline of the map are indicated in the symbol portion of this section.

(2) Any symbol with a distinguishing characteristic attached, such as the church and school symbol, generally has the staff of the symbol at right angles to the street or road. In congested areas, the staff can be moved from its preferred position to one of the other sides, or the staff can be adjusted in length, and, as in the case of the school symbol, the direction of the pennant can be changed to avoid overprinting other features.

(3) When a feature is made up of several buildings, the distinguishing characteristic is depicted on the most prominent building in the group. This applies to universities, monasteries, schools, hospital complexes, and similar features.

g. Important buildings are labeled as indicated below.

(1) Important buildings which have no characteristic symbol are identified in as concise a form as possible.

(2) The generic part of a proper name is not shown when the identity of the feature is apparent from its distinctive symbol. For example, St. Patrick's Cathedral or St. John's School is shortened to St. Patrick's and St. John's, respectively. The Church of the Sacred Heart is shortened to Sacred Heart.

3.12.41 Cave dwellings. Dwellings of this type are not uncommon throughout the world, but are most prevalent in the loess area of China. They consist of a room or a series of rooms dug into the side of ravines. The symbol is included in the map legend and is labeled Cave dwelling(s).

3.12.42 Underground dwellings. This type of dwelling is found in the loess plateaus and consists of underground rooms grouped around a vertical entrance shaft. The symbol is included in the map legend and is labeled Underground dwelling(s).

3.12.43 Tent dwellings.

a. These types of dwellings (used primarily by nomadic people) are constructed of canvas, hides, or bark, stretched over or held up by poles. Normally, the tents are moved from site to site; however, there are some instances of permanently located tent settlements.

b. Permanently located tent settlements and nomadic tent sites used on a seasonal basis are depicted by a representative pattern of tent symbols aligned with the south neatline. Sites used regularly on a seasonal basis are labeled Winter location or Summer location. When the tent settlement has a name, the labeling is shown in conjunction with the place name.

c. Tents used by non-nomadic people for recreational purposes or military operations on a temporary basis are not portrayed. Permanently located military tent camps are depicted and labeled.

3.12.44 Huts.

a. Huts are defined as very crude dwellings of a semi-permanent nature, built of mud, grass, reeds, barks, and other similar materials. Their characteristics differ on regional or tribal basis.

b. Huts are specially treated only when they can be positively distinguished from permanent-type buildings in the same area. When information is not available, they are then portrayed by the standard building symbol.

c. Rows of huts with common walls are portrayed by connecting single hut symbols together, overlapping the common joining walls to form a single line between symbols.

d. Specifications and guidance applicable to buildings in settlements relative to representative patterns, selection, density, and plotting of symbols also apply to the treatment of huts.

3.12.45 Destroyed buildings and populated places.

a. A destroyed building or populated place is indicated as one that is uninhabitable as a result of a natural or man-made catastrophe or military operation.

b. When a populated place has been destroyed (in whole or in part) and it is evident that the rubble has been cleared, leaving no obstruction to cross-country movement, the area is delineated with a dashed line and labeled Destroyed. The place name is retained.

c. When a populated place has been destroyed (in whole or in part) and the gutted buildings are still standing, the destroyed area is portrayed as a gray tint for symbolization. This symbol is added to the map legend and identified as Destroyed area. This treatment applies to populated places that would be (or were) portrayed as individual buildings or built-up tint areas.

d. Individual gutted buildings outside the gray tinted area are depicted by open square, open rectangle symbols, or, if larger, outlined to scale. The symbol(s) is (are) labeled Destroyed within the interior of the map or is indicated in map legend as Destroyed buildings, whichever is more appropriate.

3.12.46 Ruins.

a. Ruins are abandoned buildings or other manmade structures similar to buildings that are in such a state of disrepair or decay that they cannot be used for their original purpose. These features are depicted for their landmark, cultural, or historic significance.

b. The label "Ruins" is shown in conjunction with the symbol unless there are numerous ruins scattered throughout the map, in which case the symbol is shown in the legend and the labeling omitted from the map interior.

c. Large (2.5 mm by 2.5 mm and larger) areas of ruins, which have deteriorated to the point of being mostly rubble, are enclosed within a dashed outline and labeled Ruins.

3.13 Miscellaneous cultural features.

a. The miscellaneous cultural features referred to in this section are features that are the results of the workings of man. Excepted are: roads, railroads, and related features, populated places and buildings all of which are discussed in 3.12.

b. The amount of cultural features in an area is directly related to the physical nature and economic development of the area. The scale permitting, and unless otherwise indicated, all features are depicted for which symbolization is furnished in the symbol standard, MIL-STD-2402 and Appendix A to that standard.

c. Where selectivity is required because of the density of detail, features that have landmark significance are always retained. A landmark is any feature of sufficient interest or prominence in relation to its surroundings to make it outstanding as an orientation point for determination of a location from the air, ground or sea. Landmark type features are discussed in 3.12.

d. Refer to MIL-STD-2402 for type styles and sizes.

3.13.1 Mining features. All mining features are shown in areas of sparse culture; in other areas they are shown if they do not interfere with the legibility of the other features.

a. When a number of mines cover a general area, individual mine symbols are not shown. Instead the area is portrayed by combining a mine symbol within an outlined area symbol along with its associated label.

b. When practicable the material mined is indicated by labeling.

c. Abandoned mines are shown if they have landmark value; otherwise, all mining features are omitted where there is no evidence of recent or current works.

3.13.1.1 Underground mines. No distinction in symbolization is made between mines with vertical shafts and those with horizontal shafts (mine tunnels).

3.13.1.2 Open-cast mines. Open cast mines are those in which the excavations are performed from the surface. Included are strip mines, placer mines, open-pit mines, quarries, and gravel and borrow pits.

a. Strip mining may result in several types of temporary or permanent surface displacements. Strip mines usually contain deep-furrowed patterns, but in some instances, hollows and holes may result. The area of the strip mine is outlined and appropriately labeled.

b. Placer mines which are worked by hydraulic or dredging methods, are recognizable by the rows of disc-shaped soil deposited by the mining equipment.

c. Open-pit mines and quarries are worked from the surface and are represented by the escarpment symbol.

(1) The mine symbol is not used for open-pit mines. The product of the mine is indicated by labeling.

(2) For quarries, the escarpment symbol is augmented by the mine symbol centered within the area.

d. Gravel and borrow pits are open excavations and are shown by the escarpment symbol. The mine symbol is not shown. These features are always labeled.

3.13.1.3 Tailing piles and mine dumps. Tailing piles and mine dumps are formed by the debris deposited by the mining operations.

3.13.1.4 Prospects. A prospect is a partly developed mine of unproved mineral content. Large areas containing numerous prospects are outlined and labeled "Prospects."

3.13.2 Harbor and coastal structures. Harbor and coastal structures are cultural features which project from the coastline into areas of open water. Typical structures are wharves, piers, jetties, docks, breakwaters, seawalls, revetments, diversion dams, marine railroads, ramps, and similar features.

a. A structure with a plotted thickness of 0.4 mm and larger at map scale is represented in true width and shape; all other same structures less than 0.4 mm wide are to be shown 0.2 mm wide with the linear shape retained. Sandbag revetments, unless extensive and periodically maintained, are not shown. Floating dry docks are not shown.

b. Where required for clarity, structures are identified by appropriate labeling.

c. When any part of a structure is submerged at high tide, the symbol for the submerged part is represented by dashed lines.

d. Shorelines are not portrayed that are coincident with these types of structures.

3.13.3 Located objects.

a. A located object is a landmark feature other than a building or area feature which, because of size, shape, or location, serves as a means of positive identification. Some located object examples are: towers, chimneys, media masts, air beacons, lighthouses, watermills, windmills, tombs, and monuments.

b. In urban areas where there are numerous landmark type buildings, features which would be selected as located objects in other areas are not selected for symbolization unless they are of unusual prominence.

c. Located objects less than 46 meters height above ground level are represented by the standard located object symbol or by a characteristic symbol. The standard located object symbol along with its identifying label, is used for all features that do not have a characteristic symbol. The dot of the standard symbol marks the actual location of the feature.

d. All located objects which extend 46 meters or more above the surrounding terrain are considered a hazard to flight (obstructions) and are portrayed by the obstruction symbol and labeled, indicating the nature of obstruction.

(1) The height of the structure above ground level, as well as the elevation of the top of the obstruction above sea level, shall be portrayed when they are known or can be estimated. These elevation values shall be positioned alongside (preferably to the right of) the obstruction symbol. The height above ground level shall be portrayed in parentheses. Deviation from the specified positioning is permissible to avoid undue congestion or the overprinting of other significant detail on the graphic.

(2) The estimation, based on best source available, must be high enough to assure clearance of the structure. Estimated heights shall be portrayed on the graphic in the same manner as accurate heights, without an indication of reliability, except for the rounding off of the last digit to the next higher even five.

e. The located object (non-obstruction) symbol is labeled as to its identity. The symbol is centered over the actual location of the feature.

(1) Names of lighthouses are shown where practicable.

(2) No symbol distinction is made between water mills, windmills and windpumps, only their appropriate labeling. In areas where these features are common, their value as a landmark object is relative to the number of similar features in the area.

3.13.4 Pumping stations and water pumps.

a. A pumping station is usually a structure which houses the machinery used to raise the level of a fluid system.

(1) Pumping stations are portrayed when they are important because of their usage or prominence in an area. Important pumping stations include those which are used as boosters on pipelines, aqueducts and irrigation conduits.

(2) The feature is labeled Pumping station.

b. Water pumps located in a structure are symbolized the same as water station. When the water pump is not in a structure

it is symbolized as a well. In both cases the symbol is labeled Water pump.

3.13.5 Pipelines.

a. Pipelines are those that convey gases or liquids. For the purposes of symbolization, the water pipeline is portrayed as a blue line; all others are portrayed as a black line and labeled as to what product is carried by it.

b. A pipeline may exist above or below ground level. It is portrayed as a continuous line feature with the delineation broken for outlined built-up areas and when coincident to other line features. An exception is in desert areas where both are portrayed..

(1) Above-ground pipelines are depicted when they are either of landmark or military significance.

(2) Underground pipelines are depicted in open areas when necessary to indicate continuity with above-ground pipelines and where their existence is evidenced by conspicuous earth scars which would have landmark significance.

c. Pipelines coincident with traveled ways are not shown, except in desert areas.

d. The product carried by the pipeline shall be indicated by labeling, except for elevated pipelines.

3.13.6 Wells, tanks and reservoirs.

a. Water wells. See 3.15.8.f.

b. Wells (other than water).

(1) Wells drilled for gas, oil, brine, etc., are portrayed if they are in operation.

(2) The type of well is indicated when practicable. The well symbol is supplemented by the label Gas, Oil, Brine, etc.

(3) Abandoned wells are portrayed only if they are of landmark significance. The well is labeled Abandoned and without identification of its type.

(4) In concentrated groups of similar wells, no attempt is made to symbolize each well; a representative pattern is used for this situation. The retained wells are not individually identified. Appropriate labeling is applied to the pattern, as: Oil wells, Gas wells, etc.

c. Tanks and reservoirs.

(1) A tank is a manmade receptacle used for storage of gas, oil, water, or other liquids or gases.

(a) Individual tanks (except water tanks) are labeled as to their contents, Gas, Oil, etc. If the contents are unknown, the symbol is labeled simply Tank.

(b) Water towers are depicted by the tank symbol and labeled.

(c) In areas where numerous tanks exist, a representative pattern is used which will retain the general layout of the entire tank area. Appropriate labeling is applied to the pattern (e.g., Gas tanks, Oil tanks, etc.).

(d) A tank(s) surrounded by a dike or levee is portrayed within the levee/dike symbol and appropriately labeled as Oil tank(s), etc.

(2) Open manmade reservoirs used for the temporary storage of asphalt, oil, or liquids other than water are portrayed if they are large enough to plot to scale. Those that plot less than minimum size are exaggerated to minimum size only if they are of landmark significance. Labeling, identifying the contents, is shown in conjunction with the symbol (e.g., Asphalt, Oil, etc.).

(3) Underground storage facilities that can be plotted to scale are portrayed and appropriately labeled (e.g., Underground oil tank, Underground water reservoir, etc.).

3.13.7 High-tension power lines.

a. High-tension power transmission lines are portrayed as continuous features, regardless of their landmark significance. The delineation is depicted parallel to roads, railroads, canals, and other linear features. The symbol is broken only for symbolized populated places. Underground power lines are not portrayed.

b. The pylons of the symbol are always located at points of pronounced directional change and the pylons are appropriately spaced between such points at approximately 12.5 mm intervals. The pylon symbol is portrayed at right angles to the line with one exception: that is the directional change where the pylon will split the angle equally. The pylon's "legs" are to point in the easterly to southerly direction while remaining at a right angle to its line.

c. If a power transformer station is plottable to scale, a dashed line is used to outline this area. A label which appropriately identifies the area feature is used in conjunction with the dashed line (e.g., Power transformer station, Power transformer yard,

etc.). If the feature is less than minimum size, a symbol that is characteristic of the feature is used.

3.13.8 Telephone and telegraph lines.

a. Only those portions which are of landmark significance are portrayed. Any line is considered a landmark if it is conspicuous enough because of its height, cleared right-of-way, or the sparsity of other cultural features in the vicinity. Examples:

(1) A line which runs for a long distance across grazing or other open areas.

(2) A line, not parallel to a road, railroad, or other linear feature, which runs across mountainous terrain.

(3) A line which crosses valleys and canyons.

b. No distinction is made between telephone and telegraph lines. The names of the line (even if known) are not retained.

3.13.9 Walls and fences.

a. Walls and fences that assume military importance as obstacles or serve as landmarks in open areas of country are portrayed. Walls around cities and fortifications are always portrayed.

b. Fences are omitted along roads, railroads, and other linear features.

3.13.10 Recreational areas.

a. Included as recreational areas are fairgrounds, race tracks, stadiums, golf courses, rifle ranges, amusement parks, sports centers, and similar features.

b. These features are plotted to scale with their prescribed symbolization and named or appropriately labeled.

c. Walls or fences which enclose recreational areas are not portrayed. The limits of the area are represented by a dashed line.

3.13.11 Cemeteries.

a. Cemeteries and churchyard cemeteries are usually portrayed wherever they exist. Very small cemeteries (less than 2.5 mm by 2.5 mm) may be omitted unless they serve as landmarks in areas of sparse culture.

b. The limits of cemeteries and churchyards are plotted to scale in their correct alignments. The dashed outline is omitted when it is coincident with a linear feature.

c. The religious denomination of the cemetery is indicated by the appropriate symbol positioned within the outline. If the information is not available, the abbreviated word "Cem" is placed within the outline or adjacent to it if the outlined area is too small to contain the word, otherwise, the complete word "Cemetery" is used.

d. Mausoleums are not portrayed on this product.

e. Isolated graves are found in desert and other generally uninhabited areas. They are not usually planned burial grounds and are symbolized by their prescribed symbols. If more than one grave exists in the area, a representative pattern is portrayed.

3.13.12 Cuts and fills.

a. A cut is an excavation of earth and rock at a consistent grade or level which provides a passageway for a line of communication such as a road, railroad, canal, etc.

b. A fill is an embankment at a constant grade or level constructed to provide a passageway for a line of communication such as a road, railroad, canal, etc.

c. Cuts and fills are shown when they are at least 2.5 mm in length at publication scale, and at least 3 meters in actual height.

(1) Where practicable, the top of the cut line is drawn in its true position and shape with the ticks extending to .25 mm of the line feature.

(2) Railroad symbol crosstie ticks may extend into the cut or fill symbol.

3.13.13 Culverts.

a. A culvert is masonry or metal conduit which serves as a channel-crossing for water beneath a railroad embankment or a road.

b. Large culverts (2.5 meters and greater) at the base of fills and embankments are shown if they have landmark significance. Small culverts (less than 2.5 meters) are not symbolized.

3.13.14 Dams, levees, dikes and related features.

a. Dams.

(1) A distinction is made between earthen and masonry dams by labeling. Dams with vertical sides (line representation) and those with sloped sides (area representation) will be depicted.

(2) In congested areas and in areas of numerous small dams, those across single-line drains without backup water may be omitted or thinned out.

b. Levees.

(1) Levees, spoil banks, dikes, fortification scarps and similar earthen features having vertical or sloping sides are symbolized in the same manner.

(2) A contour which approaches a levee is drawn into the levee symbol at the point where it becomes part of the levee symbol.

3.13.15 Locks and sluice gates.

a. Where the map scale permits, locks are shown in their true shapes.

b. The point of the lock or sluice gate symbol is shown pointing upstream.

c. When practicable, the names of these features are shown.

3.14 Aeronautical data.

a. The aeronautical data to be depicted includes airports, airfields, heliports, seaplane bases, anchorages and obstructions to flight as treated in 3.13.3.d.

(1) These features may be temporary or permanent, and with or without supporting facilities.

(2) No distinction is made between military or civilian features; both types are portrayed.

(3) The name of the feature is portrayed if known.

b. Airports and airfields are plotted to scale. An airfield (or landing area) as distinguished from an airport, usually has only one runway and few, if any, other supporting facilities.

(1) The limiting line, when it can be determined, of the facility is omitted when it is coincident with any other linear feature.

(2) Runways, taxiways and dispersal areas are portrayed to scale. The runway surface characteristic, hard surface, soft surface, or surface unknown, is indicated by labeling. The elevation of the feature is depicted, preferably below the surface characteristic label.

(3) Radio masts, observation towers, and air beacons are portrayed as located objects and are appropriately labeled.

(4) Where airfield limits and runway information are not available, the feature is represented by the characteristic symbol.

c. Heliports with landing pads and supporting facilities are portrayed provided the symbol does not obscure other detail. Rooftop landing areas are omitted.

d. Seaplane bases and anchorages are plotted to scale by symbolizing the ramps, hangars, buildings, wharves, and other appurtenances.

(1) A seaplane base is a tract of land adjoining a body of water with facilities for mooring, shelter, and repair of aircraft which land and takeoff on water. It is in regular use for receiving and discharging passengers and cargo. An anchorage, as distinguished from a seaplane base, provides mooring and few, if any, other facilities.

(2) The water limits of the features, or designated takeoff and landing areas, are not portrayed except where dredged or dug channels have been prepared in shoal water. The channels are represented by dashed lines marking these channels.

(3) The names of the features are indicated when known. If unknown, the features are appropriately identified as: Seaplane base, or Seaplane anchorage.

(4) The elevation of the feature, if not mean sea level, is preferably portrayed below the feature name or identification.

(5) Where the feature is abandoned or the location is approximate, the information is indicated by a label enclosed in parentheses. Example: (Abandoned), (Approximate location).

3.15 Hydrography.

3.15.1 Inland hydrographic features: General.

a. This section provides the basic specifications for the portrayal of inland hydrographic (drainage) features. As used in these specifications, the term "drainage" includes those inland features, natural or manmade, of which water is a constituent part. The amount of water may be considerable, as in rivers, lakes, and aqueducts; it may be moderate, as in marshes, intermittent streams and lakes; or the degree of wetness, may be a temporary condition, as in washes and areas subject to inundation. Drainage features are therefore categorized as perennial, intermittent, and dry. As a general rule, but not as a rigid practice, a feature is considered perennial if it contains water for an average of six (6) or more months of the year; it is considered intermittent if it contains water for an average of less than six (6) months annually; and it is considered dry if it seldom contains water, or contains water only during very short periods. When necessary, the supplementary instructions for the mapping project contain information to aid the cartographer in determining the appropriate category. This supplemental information should also identify geographic regions defined as having sparse drainage or hydrographic features. For regions of this type, all hydrographic features will be portrayed on the map sheet.

b. Drainage features create obstacles and directly affect cross-country movement of troops and material. The possibility of transport by navigable waterways is important. A stream junction, an abrupt change in the course of a river, a group of small lakes, and an isolated pond may serve as orientation and check points. The drainage pattern, therefore, must be as complete as the scale of the map allows.

c. The amount of detail to be shown is directly related to the physical and economic nature of the area under consideration, and to the importance of a drainage feature as related to other drainage, cultural, and hypsographic features shown on the map. The amount of detail should increase in inverse ratio to the amount of existing water resources.

(1) In predominantly wet or well watered regions, small tributary streams, ponds, and features of small areal extent may be omitted, especially if they tend to impair the legibility of the more important features.

(2) In arid and moderately watered areas, the presence and location of water is important, both for survival and as a means of orientation. In these areas, as many drainage features as possible should be shown.

(3) In small localized areas of a map wherein similar features are either too small or too numerous to show to scale

(such as wells, springs, ditches, and small ponds), no attempt is made to show every feature. Instead a representative pattern of the symbols is shown covering the localized area, augmented by an explanatory note (label) such as: Numerous small ponds; Numerous springs, etc. Small ponds may be slightly exaggerated in size.

d. The minimum lengths for drainage and the minimum sizes of areal features to be depicted are left to Table I of this specification and the cartographic experience and judgment of the cartographer. In the selection of features to be shown that will best satisfy the purpose of the map, the relative importance of drainage features are evaluated from a standpoint of the geographic area involved, prevalence of drainage, and map scale.

e. Refer to MIL-STD-2402 - SYMBOLOGY, Category 2 - HYDROGRAPHY for individual feature symbol requirements.

3.15.2 Shorelines.

a. In tidal waters the shoreline delineates the limits of land features at mean high water level.

b. In non-tidal water, the shoreline is the line of contact with the land at a water level which prevails during six (6) or more months of the year. This line is the normal stage of water.

c. Shorelines for islands are delineated at the same hydrographic datum used for the shoreline of the adjacent mainland. Features which uncover at a stage of water lower than the datum used for the mainland shoreline are not shown as islands but as foreshore features (See 3.15.10).

d. A distinction is made between natural and man-made shorelines.

(1) The natural shoreline is not broken for single-line piers, jetties, breakwaters, isolated ferry slips, ramps, or short seawalls and revetments.

(2) The natural shoreline is omitted for extensive waterfronts, wharves, long seawalls, and long revetments, etc.

(3) A shoreline is depicted when it is coincident with a linear feature whose prescribed symbol includes short ticks; e.g., levees, fills, escarpments, etc.

e. A definite shoreline is one in which the position and shape have been accurately determined.

f. An indefinite or unsurveyed shoreline is one in which the position and shape are subject to change or have not been accurately determined. If the progress of work indicates that the

shore is not permanently established, the shoreline is considered as indefinite or unsurveyed.

g. A "pinpoint" island is a small island whose shoreline tends to coalesce at the publication scale. "Pinpoint islands" are depicted by exaggerating the feature to the minimum size as defined in Table I of this specification. The shapes of the islands are retained when the scale permits.

3.15.3 Lakes, ponds, and similar features. Lakes, ponds, and similar features are categorized as perennial, intermittent, or dry.

a. Perennial lake. A perennial lake or pond contains water for an average of six (6) or more months annually. The shoreline may be definite or indefinite and corresponds to the prevailing water level (normal stage) for that geographic region.

b. Intermittent lake. An intermittent lake or pond contains water for an average of less than six (6) months annually. Where a shoreline corresponds to the outer limits of another feature (often the line of permanent vegetation) the shoreline would be delineated with the indefinite or unsurveyed symbol for that portion of the shoreline. A portion of a large intermittent lake which always contains water is delineated as a perennial feature; i.e., the actual condition is represented by a perennial lake within the intermittent lake. Similarly, an island occurring within an intermittent lake is delineated with the indefinite shoreline symbol; the diagonal ruling is omitted from the enclosed island.

c. Dry lake. A dry (or cyclical) lake or pond seldom contains water or contains water for only short periods of time; the outer limits are delineated by the indefinite or unsurveyed shoreline symbol. Included in this category are playas and salt or alkali flats; these features are appropriately labeled.

(1) Permanently drained lakes are not considered dry lakes.

(2) A portion of a dry lake which contains water at such periodic intervals as to be considered an intermittent lake is represented as an intermittent lake within a dry lake.

d. Salt lake. A salt lake is a perennial or intermittent body of brackish water. It is symbolized the same as any other lake, except that it is labeled as Salt. If the lake is named, the label is enclosed in parentheses (salt) and will be placed immediately after or below the name. If the term "salt" is part of the name, no additional labeling is shown.

e. Reservoir. A reservoir with a natural shoreline is an artificial lake formed by the water impounded by a dam; it is always categorized as a perennial lake or pond feature with the

natural shoreline representing the normal stage of water as controlled by the dam. The natural shoreline is omitted where it coincides with the dam.

3.15.4 Streams and related features.

a. The term "river/stream" includes rivers, streams, creeks, brooks, runs, etc. Streams are delineated in an amount sufficient to serve as the framework for the hypsographic portrayal; to provide immediate recognition of land forms and direction of slope; and to reflect the existing type of drainage patterns.

(1) Small tributary streams are shown to the extent necessary to reflect the distinguishing characteristics of the existing drainage pattern. Short branches of streams which are clearly evident from the contour portrayal may be omitted.

(2) In areas of limited relief, streams are delineated to their sources to point up the drainage divides.

(3) In arid and undeveloped areas, it is important to depict as many drains as the map scale will allow. Short streams less than 12.8 mm in length may be omitted, unless they are of landmark significance.

(4) Streams are classified and symbolized in accordance with their width; i.e., 50 meters or over and those less than 50 meters in width.

(5) Rivers/Streams are broken (suppressed) for bridges in the color separation finishing process.

b. Perennial streams. A perennial stream contains water for an average of six (6) or more months annually.

c. Braided stream. A braided stream is a water course of numerous subdivisions. The braiding and shifting of the channels is caused by deposits of sand and gravel bars on the channel floor. The main channels and a pattern of the secondary channels are shown to reflect the limits and braided characteristics.

d. Meandering stream. A meandering stream is a stream which follows a winding course through level land. Because of natural runoff of water, the alignment of the stream and the location of islands and sandbars therein are subject to change. The shoreline is delineated at the normal stage of water. Sandbars, flats, etc., which fall below this stage of water are not shown except if they occur at the mouth of a river which is affected by the tides; in this instance, they are delineated as foreshore features.

e. Intermittent or dry stream. An intermittent or dry stream (wash, wadi, waddi, arroyo) contains water for an average

of less than six (6) months annually. The banks of the feature at flood stage are used for determining stream width and for delineating streams. Permanent channels within the wash areas are shown as perennial or intermittent, as appropriate.

f. Dissipating stream. A dissipating stream is a watercourse which dissipates by seeping into the ground in flat or level plains. If the stream branches out before dissipating, the separate branches are shown to scale, when possible. The points of dissipation are shown.

g. Disappearing stream. A disappearing stream is a watercourse which flows into a sinkhole and continues its course in a subterranean channel. The point of disappearance is shown; the underground channel is not depicted.

h. Falls. Falls are created by a vertical or near vertical descent of a stream; small falls are sometimes called a cascade.

i. Rapids. Rapids and cataracts are formed where the current of a river moves with great swiftness, the surface being broken by obstructions such as rocks and boulders. On double-line (area) rivers, the beginning and end of the feature are indicated by separate lines at these points.

3.15.5 Canals and canalized streams.

a. Navigable canal or canalized stream. A navigable canal or canalized stream is a maintained waterway used by commercial craft. Canals 50 meters wide and over are plotted to scale. If the feature is undergoing repair and will be ready for operation by the time of publication of the map, the feature is labeled as being "Navigable."

b. Abandoned canal. An abandoned canal containing water is a canal, or portion thereof, which is not in use and is not maintained; it contains water sufficient for operation; the locks and gates are operational or could be made operational with a minimum of repairs.

c. An abandoned dry canal is a canal, or portion thereof, which is dry or contains water insufficient for operation and there is no evidence of any plans to make it operable.

d. A canal under construction is a new canal being constructed or an existing canal, or portion thereof, which is being repaired or restored to operation; there is no evidence that the work will be completed by the time the map is published. If the alignment of a new canal is not definite, the label Approximate alignment is added.

3.15.6 Drainage and irrigation ditches.

a. Perennial double-line ditch. A perennial double-line ditch is a manmade excavation or trench 50 meters or more in width which is used for the control and movement of water. The feature contains water for an average of six (6) or more months annually.

b. Perennial single-line ditch. A perennial single-line ditch is the same as a. above, except that the feature is less than 50 meters in width.

(1) Ditches are used to drain swamps and areas subject to natural inundation. These are delineated as perennial ditches.

(2) A distinction is made between major and minor single-line ditches. Minor ditches are those which connect the main supply (major) ditches; minor ditches are also the smaller feeder ditches which form the basic network of the drainage or irrigation system.

c. Intermittent ditch. An intermittent ditch is a manmade excavation or trench which contains water for an average of less than six (6) months annually. Regardless of the width, all intermittent ditches are symbolized alike.

d. In a network of irrigation ditches, the major supply ditches are usually perennial. The minor feeder ditches may be either perennial or intermittent.

3.15.7 Water conduits.

a. A conduit is an artificial or natural channel which carries water for either domestic or industrial purposes. Included in this category are aqueducts, flumes, pipelines, penstocks, and similar features. They may occur at ground level, underground, or they may be elevated.

(1) Aqueduct. An aqueduct is an open or covered channel which carries large quantities of water. The aqueduct may be constructed of brick, stone or concrete, or tunnel through rock.

(2) Flume. A flume is an open and inclined channel, usually V-shaped, which carries water at a constant gradient. Flumes are mainly used in mining, irrigation, or logging operations.

(3) Penstock. A penstock is a closed pipe or channel used by hydroelectric installations to carry water, by gravity or under pressure, to the generating plant.

b. Ground level conduits. For the "ground level conduits" the distinction between aqueducts, flumes, pipelines, and penstocks is indicated by appropriate labeling.

c. Elevated water conduits. For these conduits, the term "Elevated" is added at appropriate intervals, as Elevated aqueduct, when the feature extends for a long distance. The wing tick part of the symbol is omitted when an aqueduct or penstock enters a building. If an aqueduct is carried by an viaduct or similar feature, the aqueduct symbol is retained on the carrying feature.

d. Underground water conduits. Only the main lines are shown; short feeder lines to houses or villages are omitted. If another surface feature (such as a road or trail, a prominent fence, etc.) is located over the underground feature, the presence of the underground feature is indicated by labeling added to the symbol of the surface feature; e.g., Underground aqueduct.

e. Aqueducts in tunnels. Aqueducts in tunnels are symbolized according to traversability of the tunnel. A tunnel is considered traversable if it permits through traffic by foot. It is nontraversable if foot traffic is not possible.

3.15.8 Miscellaneous inland hydrographic features.

a. Karez. A "karez" (kanat, qanat, etc.) is an underground conduit which carries water from its source to points of distribution. A unique characteristic of the feature is the regularly spaced shafts or outlets which provide entry for construction and maintenance. The map scale permitting, the location of the shafts is retained.

b. Salt evaporators. Salt evaporators are shown by delineating the outline and major separations. When the map scale does not permit inclusion of all the secondary separations, a representative pattern is portrayed. The feature is appropriately labeled.

c. Fish ponds and hatcheries. Fish ponds and hatcheries are shown when large enough to plot to scale. The limits may be exaggerated if the features are of landmark significance. The criterion for showing the separations is the same as stated above for salt evaporators.

d. Sewage disposal and filtration beds. Sewage disposal and filtration beds are shown when large enough to plot to scale. The limits may be exaggerated if the features are of landmark significance. The criterion for showing the separations is the same as stated above for salt evaporators.

e. Swimming pools and manmade reservoirs. Swimming pools and manmade reservoirs are shown when large enough to plot to scale. The limits may be exaggerated if the features are of landmark significance.

f. Water wells. A water well is a pit or hole which is sunk by digging or drilling below the ground level to reach a supply of water.

(1) A symbol distinction is made between perennial and intermittent wells. The feature is considered as perennial if water is available for an average of six (6) months or more annually, and intermittent (or dry) when less than six (6) months annually. When available information does not permit this distinction, the feature is considered to be perennial.

(2) Well labeling. When practicable, the proper name of the well is included with the symbol. Additionally, labels indicating the characteristic(s) of the well are portrayed when known, such as: Alkaline, Mineral, Potable, Unpotable, etc.

(3) Waterholes, walled in springs, artesian wells, and fountains are to be depicted as wells. They are appropriately labeled.

g. Cistern. A cistern is a tank or similar artificial enclosure which is used for the collection and storage of water. Underground cisterns are symbolized as a well and appropriately labeled.

h. Spring. A spring is a natural outflow of water from a subsurface level. A distinction is made between perennial and intermittent springs. The feature is considered perennial if the outflow of water occurs for an average of six (6) or more months annually. The treatment for this feature is similar to that prescribed for wells.

i. Flow arrow. A flow arrow is shown when the direction of the flow of water of perennial (double-line and single-line) features is not apparent from relief portrayal. The arrow is added parallel and adjacent to the symbol when it cannot be accommodated within the outer limits of the symbol. The arrow is also added to the ends of streams whose water course cannot be determined after entering areas of large swamps or rice fields.

j. Water surface elevations. Water surface elevations will be shown when practicable, for large lakes (generally 50.0 mm square and greater at map scale) rivers, and inland seas. These elevations correspond to the normal stage of water.

3.15.9 Area features. The features discussed below are shown if they are equivalent to, or exceed, an area of 2.5 mm by 2.5 mm. See the Inclusion conditions, Table I to this specification for the actual area dimensions.

a. Marsh in tidal waters. A marsh in tidal waters is saturated land that covers and uncovers with the tide and supports reed or grasslike aquatic growths. It is symbolized as ordinary marsh or swamp, except that the shoreline is delineated as the

limits of the open water (seaside) side of the feature, and not the mean high water line.

b. Marsh in nontidal waters. A marsh in nontidal waters is saturated land, usually covered with standing water, that supports reed or grasslike growths. It is shown in the open water area, with its landside limits delineated as the shoreline.

c. Swamp. A swamp is land which is saturated, though not usually covered with water. Cross-country movement through the area is difficult or impossible except during periods of drought or when frozen. Vegetation occurring in a swamp is shown with its own prescribed symbol overprinting the swamp symbol.

d. Peat bog and peat cuttings. Peat bog and peat cuttings are symbolized as swamps. The areas are appropriately labeled Peat bog, Peat cuttings. The peat cutting symbol(s) is shown, in addition to labeling, if the location of the cuttings can be determined and if the area is large enough to accommodate at least one symbol.

e. Cranberry bog. Cranberry bog is a periodically flooded area in which cranberries are cultivated. The area is confined and subdivided by ditches or small levees. The characteristic pattern of the feature is preserved by the delineation of an outline and the portrayal of the major separations within. Minor separations are added insofar as the map scale permits. All ditch separations are shown as perennial ditches. Areas of uncultivated cranberries growing in boggy land are delineated as swamp. Both types are labeled as Cranberry bog.

f. Rice. Rice fields are periodically flooded areas in which rice is grown. The areas are confined and subdivided by drainage ditches or small levees. The characteristic pattern of the feature is preserved by showing the outline and the major separations. Minor separations are added insofar as the map scale permits. Prominent levees are symbolized as such. The ditch separations are portrayed as such and are always perennial. Terraced rice fields are portrayed as dashed outlined areas with appropriate labeling applied; Terraced, Numerous terraced areas. Dry rice areas are indicated with the rice area pattern only.

g. Clearings. Clearings within swamps and rice fields such as hummocks, ridges, and dry areas, are shown when they are at least or exceed 2.5 mm square and are at least 2.5 mm at their narrowest dimension. This symbol is also used to depict small clearings which are not evident by the omission of the swamp or rice symbol.

h. Land subject to controlled inundation. This is land that is flooded by the regulation of the level of water impounded by a dam. The outer limits of the area are shown by a dashed line which represents the maximum extent of the inundation.

(1) The permanent pool or reservoir is symbolized as such.

(2) When a dam is under construction, the area is shown as land subject to controlled inundation. The limits of this area coincide with the planned water level of the reservoir. If the planned water level is not known, the probable limits of the inundated area are shown and augmented by the label **Probable extent of the reservoir**. With the exception of vegetation, all existing features within the probable area of inundation are delineated as prescribed.

i. Land subject to natural inundation. This is land which is covered by water as a result of the natural and periodic overflowing of a body of water. Also included in this category are land areas which are constantly flooded, year by year, during rainy seasons.

(1) Basin-type features in arid and semi-arid regions (such as playas, chotts, cyclical lakes, etc.) which are filled to varying degrees by the collection of runoff water are not considered to be in this category.

(2) Land subject to natural inundation is never regarded as swamp.

j. Mangrove. This feature is a thick impenetrable growth of tangled aerial roots which appears in tropical and semitropical regions. It occurs in low lying areas along seacoasts, and along the banks of tidal waters up to the limits of the tidal influence. Where the exact location of the shoreline (mean high water) is not apparent, the water-side limit of the feature is annotated as the shoreline. The feature is delineated both as a drainage and vegetation feature. See 3.17.9 for mangrove as vegetation.

k. Nipa. Nipa is a dense growth of stemless palms found in tropical and semitropical tidal brackish waters. It usually occurs farther inland than mangrove, and generally forms strips in channels through which tides ebb and flow. The feature is sometimes cultivated and systematically planted; such plantings are to be symbolized as nipa and not as an orchard. The shoreline is delineated as the open water or seaside limit of the feature. The shoreline is delineated both as a drainage and vegetation feature. See 3.17.10 for nipa as vegetation.

l. Wet sand. Wet sand constitutes sandy areas in arid regions adjacent to coastal waters; the areas are continuously wet due to water seepage. Unlike sabkha areas, the wet sand is traversable. This feature is labeled to differentiate it from a sabkha area.

m. Sabkha (kavir, etc.). Sabkha is a flat plain of salt-encrusted clayey soil which occurs in inland desert areas and adjacent to coastal waters in arid and semiarid regions. The

crusts break up into a ragged surface which is usually impassable. When the clayey soil is saturated with water the crust will not support cross-country movement.

3.15.10 Coastal hydrography. Coastal hydrographic features are shown in areas of tidal waters or in large lakes and rivers. Except for some basic hydrographic data, coastal hydrographic features included in these specifications are selected primarily for their landmark significance and include relatively permanent cultural and natural features.

3.15.10.1 Coastal hydrography definitions.

a. Tidal waters are those natural bodies of water, such as oceans, gulfs, bays, rivers, etc., which are subject to periodic rising and falling or flowing and ebbing.

b. The hydrographic datum is the plane of reference for soundings. It is that stage of low tide (low water line) to which depths are referenced.

c. Foreshore area is that area which is bare or awash at the hydrographic datum (low water) but which is covered at mean high water.

(1) Foreshore flats occur in the foreshore areas of tidal waters only and may be either contiguous to or detached from the shore. If information indicating the composition of the flat is available, the area is labeled accordingly. The composition of foreshore flats usually consists of the following substances:

Sand	Sand and Mud
Gravel	Mud
Sand and gravel	Clay

(2) When the area is composed of more than one substance, the labeling is positioned to indicate the area change. When the composition of the flat is unknown or consists of small areas of different substances, the area is indicated as a Tidal flat but the label is omitted from the final publication.

d. Offshore area is that area which is always covered at the hydrographic datum.

e. A shoreline is the line that delineates the limit of land features of mean high water in tidal waters.

f. Figure 35 illustrates these definitions.

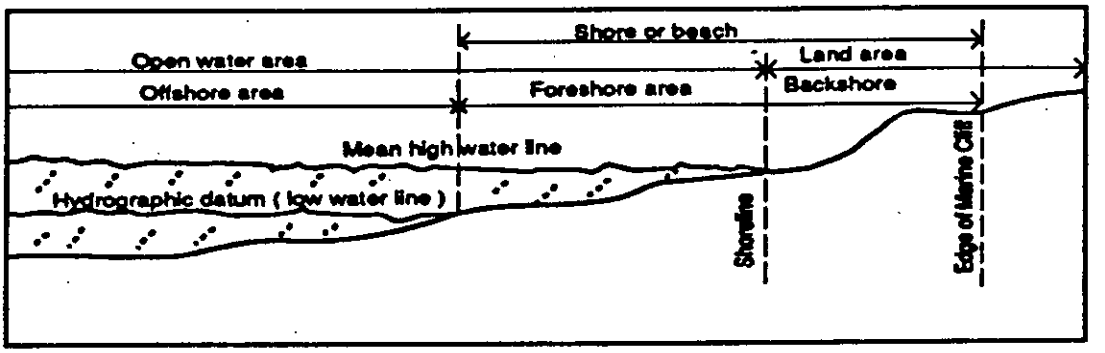


FIGURE 35. Illustration of coastal terms.

3.15.10.2 Reefs and rocky ledges.

a. A reef is a rock or coral feature that is shown only when it extends above the hydrographic datum and has landmark significance. A rocky reef is detached from the shore, whereas a ledge is a rocky formation connected with and fringing the shore.

b. Reefs and ledges are shown by the reef symbol, and when the composition is known, it is labeled **Coral** or **Rocky**, for example.

c. An isolated reef measuring less than 2.5 mm at the map scale is depicted by the rock awash symbol.

d. Elongated areas of reefs measuring less than 2.5 mm in width at map scale are symbolized by delineating the area and labeling, **Rocky reef**, **Coral reef**, or **Reef**.

3.15.10.3 Rocks (Bare or awash). Rocks are classified as bare (uncovered) or awash (covering/uncovering). With the exception of groups of rocks, the center of the rock symbol marks the location of the rock.

a. Bare rocks are those that are exposed at high water. Bare rocks that measure 0.73 mm or more in area at map scale are depicted as islands. Those measuring less than 0.73 mm are depicted as "pinpoint" islands and are plotted to scale. The minimum size for a "pinpoint" island is 0.30 mm. Bare rocks measuring less than 0.30 mm in area are enlarged to the minimum dimension.

b. Rocks awash are exposed at any stage of the tide between mean high water and the hydrographic datum. Large groups of rocks awash (2.5 mm and greater in length) are symbolized by outlining the area which encloses a random arrangement of rock awash symbols. Elongated areas measuring less than 2.5 mm in length at the map scale are shown by rocks awash point symbol and labeled **Rocks awash**.

3.15.10.4 Wrecks.

a. An exposed or stranded wreck is one which has any portion of the hull or superstructure above the hydrographic datum. The base line of the symbol is shown parallel to the bottom of the map and the circle on the base line marks the location of the wreck.

b. A sunken wreck with masts exposed, is one whose hull and superstructure is below the hydrographic datum and where the masts are exposed.

c. Exposed wreckage is symbolized by delineating the area containing the wreckage, and labeling the area Exposed wreckage.

3.15.10.5 Dolphins, Pilings, and Stumps.

a. Dolphins, pilings, and stumps are shown only when they protrude above the hydrographic datum (low water line).

b. Dolphins, pilings, and stumps are symbolized by a small circle or a group of small circles in a representative pattern with appropriate labeling.

c. Extensive areas are shown by delineating the area and appropriately labeling.

3.15.10.6 Principles of coastal hydrographic features.

a. Coastal hydrographic features are obtained from hydrographic charts and survey manuscripts; these sources may be supplemented by aerial photographs. Accuracy, currency, and other factors being equal, preference for use is given to source materials at the largest scale available. Small scale charts are used as supplementary source; the use of large scale insets on these charts is to be given primary consideration.

b. Natural and relatively permanent cultural features which extend above the low water line in the open water area are shown. When the elimination of coastal hydrographic features is necessary because of congestion, the more important landmark features are always retained.

3.15.10.7 Depth contours.

a. A depth contour is a bathemetric line connecting points of equal depth below the hydrographic datum. They are shown on topographic maps as an extension of the relief form.

b. When hydrographic charts with English system units of

measure are used as source material, the following conversions are used.

36 ft. or 6 fathom line - 10 m.
60 ft. or 10 fathom line - 20 m.
100 ft. or 15 fathom line - 30 m.
120 ft. or 20 fathom line - 40 m.

c. The depth contour interval will be the same as the contour interval of the map sheet. However, where source data does not match the contour interval of the sheet, any known depth contour(s) within 40 meters is/are permissible to be indicated. Depth contours will not be shown beyond 40 meters of depth.

3.15.10.8 Offshore oil/gas rigs. Oil/gas rigs are shown in open sea areas whenever possible. Each structure is accurately plotted in its true geographic location. They are symbolized by the obstruction symbol regardless of height. The height above sea level is shown.

3.16 Hypsography/Physiography.

3.16.1 Landform depiction: General.

a. It is required that the user be presented with maximum graphic information that is consistent with the scale and operational use of the map. To achieve this aim, relief shall be portrayed by contours, spot elevations, form lines, special symbols, area patterns, and descriptive labeling.

b. The configuration of land forms shall be presented by contours based on an established vertical datum, usually mean sea level.

c. Contour values and spot elevations shall be shown in a manner that will facilitate the reading and interpretation of elevations expressed by contour lines.

d. The unit of measure shall be the meter unless otherwise specified in supplementary instructions.

e. Refer to MIL-STD-2402 - SYMBOLOGY HYPSOGRAPHY/PHYSIOGRAPHY, (Categories 3 and 4) for individual symbol requirements.

3.16.2 Horizontal and vertical control. Guidance for the placement of elevation values and horizontal control point identification is contained in Names and Labeling 3.19.17 and 3.19.18. All horizontal control points used for control are usually symbolized on the map in areas where there is an abundance of control, points are shown approximately 73 mm to 125 mm apart, with point of higher order accuracy given preferences.

3.16.3 Contours.

a. A contour is a line on a map which represents an imaginary line on the ground, all points of which are of equal elevation as referred to a specified common datum plane. There are four principal types of contours; Index, Intermediate, Supplementary, and Depression.

b. An index contour is a contour accentuated in line weight to indicate a multiple of the basic contour interval. Conventionally, the index contour is a multiple of 50 or 100 and, depending upon the interval, is usually every fourth or fifth contour. For example, the 0, 100, 200, 300, etc., contours serve as indexes when the interval is 20 or 25. The 0, 50, 100, 150, 200, etc., contours serve as indexes when the interval is 10.

c. Intermediate contours are lines at the prescribed interval which appear between the index contours.

d. Supplementary contours are represented on the map as dashed lines which are portrayed at one-half or one-quarter of the basic contour interval. These contours are used to augment the relief presentation where significant topographic features are not depicted by the prescribed contour interval.

e. Depression contours are ticked contour lines that delimit areas of lower elevation than the surrounding terrain. The ticks on depression contours are always directed towards the bottom of the feature. Depression contours are comprised of, some or all of, the three types of contours but with ticks (See 3.16.3.5).

f. A contour turnback is that portion of a contour line that serves to emphasize incised features such as streams, gullies, revines, etc. Contour turnbacks are always directed upslope and are generally drawn in alignment with one another.

3.16.3.1 Contour interval.

a. The selection of the contour interval shall be based upon a study of blocks of contiguous sheets, rather than upon individual sheets. Since it is desirable to have as consistent an interval as possible thoughout a series, the area to be mapped must be analyzed to determine which interval would best portray the overall terrain configuration. Rather than change the contour interval to accommodate isolated formations on individual sheets, supplementary contours should be used to portray those features which otherwise could not be shown within the specified interval.

b. In those instances where it is impossible to join two blocks or groups of sheets with a common interval, the limits of each interval shall coincide with sheet junctions so that no map contains more than one basic contour interval.

c. A guide for the selection of contour intervals at the 1:100,000 scale follows. It is based on uniform slope and is largely reliant on observation and experience.

Relief Category	Slope %	Contour Interval
Low	0 - 5	10 m w/5 m supplements
Low-medium	5 - 20	20 m
Medium	20 - 45	40 m
High	45 and greater	80 m

3.16.3.2 Index contours. Index contours are drawn continuously throughout the sheet even where they may coalesce. Contour values are always shown for index contours.

3.16.3.3 Intermediate contours. Intermediate contours are shown at a prescribed interval between index contours. They are drawn continuously, except in very steep areas of uniform slope where the spacing between index contours does not allow the showing of all intermediate contours. Contour values are not shown for intermediate contours except in extremely flat areas.

3.16.3.4 Supplementary contours.

a. Supplementary contours are shown only where necessary to depict significant relief features that would not be shown by the normal contour interval.

b. Supplementary contours may be shown in any length segments in which their presence adds to the readability of the topography; they may be shown at one-half or one-quarter of the prescribed contour interval. The one-half interval supplementary contours are used when the prescribed contour interval:

(1) Does not adequately portray the character of relief and slope in flat areas.

(2) Does not point up isolated relief formations.

(3) Does not provide sufficient elevations to aid in determining undulating surfaces.

(4) In unusual cases where the foregoing conditions cannot be adequately satisfied with one-half interval supplementary contours, the one-quarter interval shall be introduced.

c. Supplementary contours are used only where necessary to depict significant relief features which would not be shown by the normal contour interval. For example, supplementary contours should be used to indicate sharp summits or isolated tops if their omission would present the top of the feature as being much flatter than it actually is.

d. Supplementary contours need not be continuous. They may be shown in sections of any length, whenever their presence adds to the readability of the topography. However, supplementary contours, when shown in sections, must start and end at interpolative points between the normal contours.

e. Contour values may be shown on the one-half interval supplementary contours to assist in the interpolation of relief in flat areas. Contour values are always shown on the one-quarter supplementary contour interval.

3.16.3.5 Depression contours.

a. Depression contours are used to depict closed areas of lower elevation than the surrounding terrain. They are most commonly employed in the portrayal of regions containing vast limestone deposits.

b. The depth of a depression may be greater or less than the contour interval. Under normal circumstances, only those depressions which are equal to or greater than the contour interval are depicted.

c. Depressions are portrayed by contours augmented with ticks pointing toward the bottom of the feature. The spacing between ticks increases on each successive contour from the center of the depression.

d. Where the slope of a depression is such that the contours become very close (near coalescence), the ticks may be reduced in length. If this is not sufficient to prevent the ticks from touching the contours below, intermediate contours are omitted as necessary to achieve legibility.

e. In areas of intricate topography or in deep depressions, spot elevations are added at the bottom of the depression, especially if some of the depression contours forming the feature have been omitted.

f. Wherever possible, index contour values are added to contours in a depression and to contours in the neighborhood of a depression.

g. Mounds within depressions are shown by ticks added to the lowest contour defining the mound.

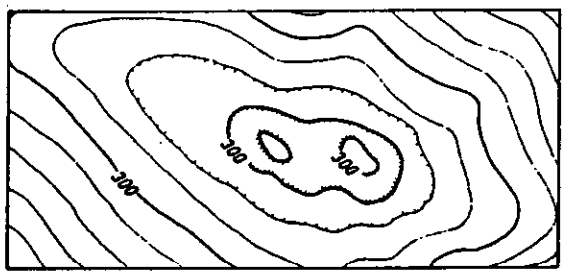


FIGURE 36. Treatment of mounds in a depression.

h. In areas containing numerous small depressions too small to plot to scale, a representative pattern of depressions sufficiently exaggerated to permit correct symbolization portrayal.

i. Depressions less than the contour interval are depicted only when they are of landmark value or are so numerous that they present an obstacle to cross-country movement. The requirement to depict shallow depressions shall be contained in supplementary project instructions.

3.16.4 Form lines.

a. Form lines are a system of dashed lines applied on a map to indicate the general shapes of land forms. They are used to show relief only when source materials are not adequate to permit portrayal by normal contouring techniques.

b. No attempt shall be made to add elevation values to form lines. However, spot elevations shall be shown within areas depicted by form lines whenever the information is available.

c. Since form lines do not represent a common interval and have little or no references to the established vertical datum, they should never be drawn as continuations of contours.

d. A definitive break between contours and form lines shall be shown by a symmetrical gap area 1.30 mm wide.

3.16.5 Relief data incomplete. Where source materials are insufficient to depict a complete illustration of the relief either by contours or form lines, a note Relief data incomplete shall be placed within the void area and centered. Large areas shall carry an additional note that says Limits of reliable relief information appropriately repeated as necessary along the perimeter of the contoured area.

3.16.6 Topographic principles of contouring.

3.16.6.1 Topographic expression.

a. Contour lines should express the character of the terrain being mapped; i.e., whether the surface is flat, rolling,

mountain, smooth, rough, or dissected. Contours should be drawn and spaced to emphasize the significant shapes of the terrain, omitting small, relatively unimportant detail, and yet retaining the continuity of important features that fall between the specified interval.

b. Generalization of contours is necessary since their exact representation would result in irregular and jagged patterns which would hamper readability. In such instances, the contours are symmetrically smoothed, but not to the extent that the displacement exceeds the geometric accuracy requirement for the map or misrepresents the physical characteristics of the terrain.

c. The drainage network serves as a natural skeleton for the construction of contours. Consequently, the cartographer should plot the drainage before contouring a particular area (Figure 37). In some cases, it may be helpful to consider small tributaries that are too short to appear on the final map. This allows a further refinement and enhancement of the contours, and the resulting turnbacks present a more realistic portrayal of the terrain.

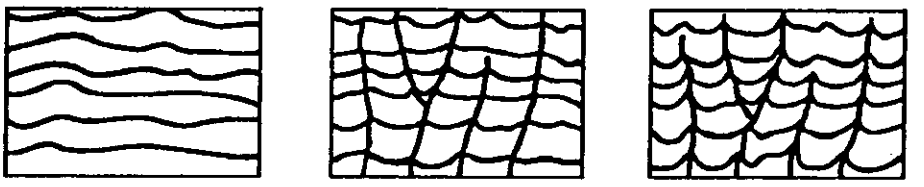


FIGURE 37. Development of shape by use of small drains.

3.16.6.2 Steep areas of uniform slope. In steep areas of uniform slope, the index contours are always shown continuous. When the space between index contours does not permit the showing of all the intermediate contours (minimum 0.20 mm clearance), the intermediate contours are suppressed (dropped) in compliance with the order of retention shown in Figure 38.

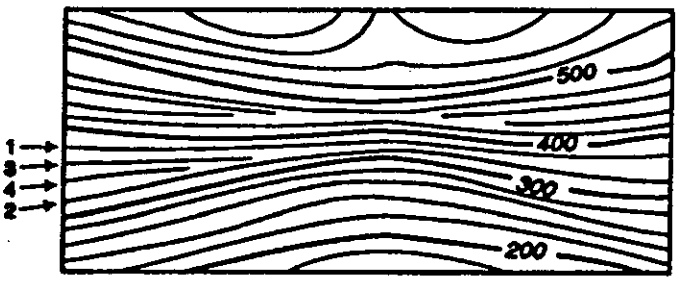
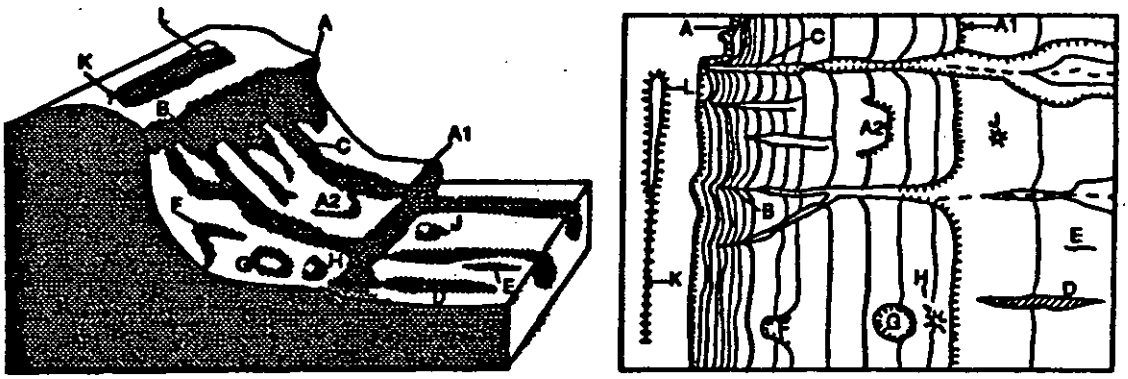


FIGURE 38. Contour treatment in steep area off uniform slope.

3.16.6.3 Abrupt changes in slope. Terrain features formed by abrupt changes in slope are significant because of their landmark value and their impact on cross-country movement. They are given special treatment to assure immediate recognition.

Figure 39 illustrates these types of land forms and the appropriate map symbols.



A, A1, A2. Escarpments and Cliffs
B. Narrow Incision
C. Incised Stream
D. Crevasse
E. Crevice
F. Incised Escarpments
G. Depression (crater-like)
H. Conical Pinnacle
J. Truncated Pinnacle
K. Arete (sharp edge)
L. Flattened Area

FIGURE 39. Pictorial illustration and identification of terrain features appearing in abrupt changes in slope.

3.16.7 Spot elevations support to relief.

a. An adequate number of spot elevations in support of the relief presentations is a critical requirement. Whenever practicable, spot elevations are shown for selected, readily identifiable ground features.

b. When the absence of spot elevations results in an incomplete relief presentation, interpolated spot elevations are added to reflect the configuration of the terrain. Interpolation of spot elevations shall be accomplished by adding one-half of the basic contour interval to the value of the contour that encloses the point for which the elevation is required. This method will be used to determine the highest elevation when the indicated (accurate) spot elevation values are not the highest on the sheet. This procedure dictates the need to indicate the interpolated elevation value as an approximate elevation and is symbolized as such with a combination plus-minus symbol (±) immediately following the interpolated spot value.

c. Spot elevations shall not be shown indiscriminately on the side of slopes or in those areas where they cannot be readily identified with a topographic or cultural feature.

d. A dot shall mark the exact location of spot elevations except for those instances where the elevations are coincident

retired grade crossing, stream forks, and islands too small to show a locator dot. In these instances the locator dots are not shown and the elevations are positioned so that there is no question as to the feature it is identifying.

e. The highest elevation on each map shall be emphasized. When a spot elevation is not available for the highest feature, the value shall be interpolated.

f. Spot elevation values shall be shown for permanent natural features such as hilltops, knolls, isolated summits, mountain tops, mountain passes, saddles, and other high points that dominate an area.

g. Whenever the information is available and their presence will significantly add to the relief presentation, elevation volume shall also be shown for:

(1) Road junctions.

(2) Railroad grade crossings.

(3) High points on grades of highways and railroads.

(4) Extensive flat areas.

(5) Rims and bottoms of significant depressions.

(6) Water surfaces of lakes and ponds.

(7) Stream junctions.

3.16.8 Treatment of specified topographic features. The following paragraphs provide guidance and prescribe the treatment for relief features that are most frequently encountered. Guidance with respect to the treatment of unusual terrain conditions shall be provided in supplemental project instructions.

3.16.8.1 Tops and saddles. Contouring of the tops of mountains, ridges, hills, and their connecting saddles must be given careful attention as these features are usually most prominent and significant. They define the extent of watersheds, often define international and civil boundaries, and may directly control the distribution and location of routes of communication. Where the terrain is relatively flat and of considerable extent, the proper use of supplementary contours will often provide for the adequate portrayal of some of these features. The most troublesome situation is usually encountered when the relief along the top of a ridge falls within the range of one or two contour intervals. A ridge may consist of a series of distinct tops; but, when strict adherence to the contour interval is maintained, the contours may indicate a smooth unbroken profile. In such cases, the judicious use of spot elevations and supplementary contours, and the application of sufficient amount of topographic exaggeration may be necessary to bring out the distinctive characteristics of the landform.

3.16.8.2 Ridges. Contours portraying the tops of ridges are depicted in their true position and are not displaced even though space does not permit them to be drawn as continuous and separate lines. Precipitous terrain along steep ridges (Figure 40) shall be emphasized by the escarpment symbol. Contours defining the tops of steep ridges shall be allowed to coalesce at the points where they merge with escarpments.

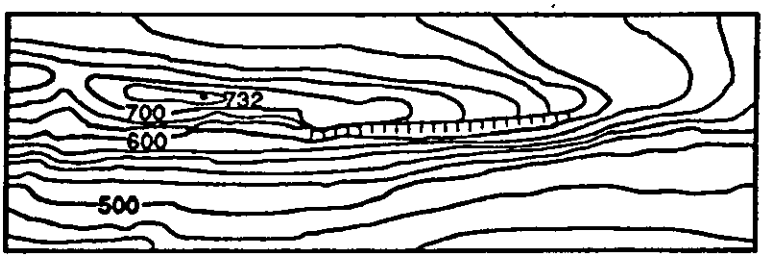


FIGURE 40. Precipitous ridge.

3.16.8.2 Escarpments. Escarpments are characterized as abrupt, steep-faced slopes which separate relief formations that are at distinctly different levels. Escarpments that are equal to or greater than the contour level are symbolized by a continuous line with perpendicular ticks on the downslope. Escarpments less than contour interval are symbolized by a dashed line with perpendicular ticks on the downslope.

3.16.8.3 Cliffs. A cliff is defined as a very steep, perpendicular or overhanging face of rock or earth of significant height. Cliffs equal to or greater than the contour interval shall be depicted by contours augmented by short ticks on the downslope (Figure 41). Cliffs with heights less than the contour interval shall be omitted unless they are considered a definite obstacle to cross-country movement because of their length or location. Where the slope of a cliff is such that the contours become very close, the contours shall be omitted as necessary to achieve legibility.

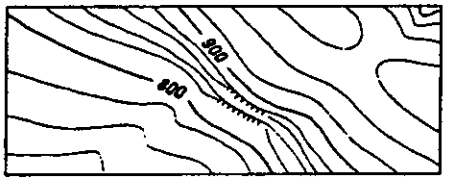


FIGURE 41. Cliffs equal to or greater than the contour interval.

3.16.8.4 Ridges. Contours portraying the tops of ridges are shown in their true position and are not displaced even though space does not permit them to be drawn as continuous and separate lines. Precipitous terrain along steep ridges shall be emphasized by the escarpment symbol.

3.16.8.5 Pinnacles, needle-type peaks, columnar rock formations and buttes. Pinnacles, needle-type peaks, columnar rock formations, and buttes with nearly perpendicular sides offer perplexing problems of portrayal, and their proper delineation is of extreme importance. These produce symmetrical, angular, and precipitous formations. Precipitous features such as these are often impossible to depict by contours alone because of coalescence. Therefore, the cartographer must employ the use of escarpment and cliff symbols, where appropriate, to properly reflect the actual terrain conditions. Small pinnacles and needle-type peaks that are less then 3.8 mm in diameter at map scale and do not lend to portrayal by contours shall be shown by a standard symbol. Spot elevations for the tops of these features shall be shown whenever the information is available and when map density permits.

3.16.8.6 Incised features. Incised features such as ravines, gorges, canyons, etc., are the result of gradual eroding of the land by glaciers, wind, rain, and streams. They are steep-sided and vary in width, length, and depth.

a. Narrow incised features less than 0.50 mm in width at map scale shall be portrayed by contour turnbacks.

b. Incised features 0.50 mm to 1.00 mm in width at map scale shall be plotted true to scale with their limits delineated by a solid line. Whenever the width of an incised feature exceeds 1.00 mm at map scale, perpendicular ticks shall be added on the downslope of the limiting lines.

c. Contours shall be broken for incised features represented by limiting lines.

3.16.8.7 Crevices. A crevice is a narrow opening in the earth, snow, or ice, that plots less than 1.00 mm in width at map scale. These features shall be portrayed by a solid limiting line augmented by a ruled diagonal line fill. Labeling is added if the feature is not shown in the map symbol legend.

3.16.8.8 Crevasses. A crevasse is a deep crevice or fissure in the earth, snow, or ice, with a relatively wide opening, plotting 1.00 mm or more in width at map scale. These features shall be portrayed by a solid limiting line augmented by a ruled line fill. Descriptive labeling shall be added if the feature is not shown in the map symbol legend.

3.16.8.9 Faults. Faults are fractures in the Earth's crust, accompanied by a displacement of rock strata on one side of the fracture with respect to the other. Displacement is usually in a direction parallel to the fracture. Faults appear in various elongated patterns and forms and often resemble crevasses and escarpments. Contour, escarpment, and crevice symbols shall be applied as necessary to accurately depict fault formations. The

names of faults shall be shown whenever the information is available.

3.16.8.10 Fault-line scarps. Fault-line scarps shall be symbolized by a solid line with short ticks portrayed on the downslope as illustrated in Figure 42. Contours displaced by the shifting of the earth's strata along the fault shall be depicted in their true alignment on each side and will break at the fault line.

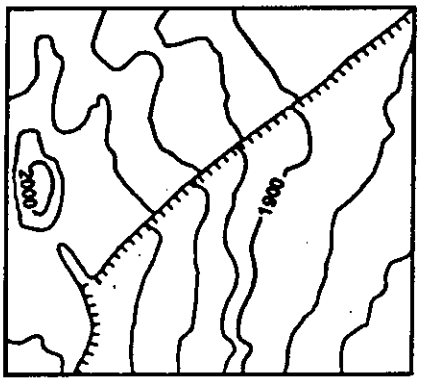


FIGURE 42. Fault-line scarp.

3.16.8.11 Cuts and fills. The specifications and treatment for cuts and fills are prescribed in 3.13.12.

3.16.8.12 Caves and caverns. Caves and caverns are natural underground chambers that open to the ground surface. Names are added when known. The V-part of the symbol shall mark the location of the entrance, and the shaft of the symbol should extend in the same general direction as the cave.

3.16.8.13 Karst.

a. Karst is a limestone region of varying physical stages in which the topography may be marked by disappearing streams, basins, sinkholes, mounds, scarps, and fractures. It may be low and undulating and interspersed with abrupt ridges, irregular rock projection, caverns, and underground streams. There are few small surface streams; the surface drainage consists principally of springs and a few large streams.

b. Small areas of karst, at least 12.0 mm square, but no more than 26.0 mm square at map scale and presenting obstacles to cross-country movement shall be depicted by the distorted surface pattern (AP-103) and labeled Karst.

c. Karst areas covering more than 26.0 mm at map scale shall not be distinctly symbolized; the nature of the terrain will be apparent from the standard contouring and symbolization treatments. The descriptive label Karst shall be added throughout these areas, as necessary, to define the overall extent of the feature.

3.16.8.14 Miscellaneous distorted-surface areas. While a given contour interval may adequately portray general land forms, there are instances where contours alone cannot properly reflect small surface irregularities. Included in this category are gas or oil blisters; rock outcrops; lava; loess and rock or boulder covered terrain. Features such as these shall be treated in the same manner as karst and shall be identified by descriptive labeling wherever they occur.

3.16.8.15 Cinder cones. Cinder cones are formed by an accumulation of loose cinders around volcanic vents. When cinder cones are so small that they cannot be portrayed by the contour interval and attendant symbolization, the standard cinder cone symbols are used.

3.16.8.16 Fumaroles, geysers, and hot springs. These features are found in volcanic regions in the form of fissures or holes from which steam and other gases escape. They are symbolized identically and labeled according to their predominant characteristics.

3.16.8.17 Asphalt lakes.

a. Asphalt lakes are large pools of natural deposits of asphalt. They may be located in swampy areas or covered with water. The origin of the asphalt lakes and springs generally can be attributed to an exuding of the material from the earth in a manner similar to spring-fed lakes.

b. Asphalt lakes shall be shown by a dashed outline marking their limits and shall be appropriately labeled.

3.16.8.18 Levees and dikes. Specifications and prescribed treatment for these features is found in 3.13.14.

3.16.8.19 Dry lakes, washes, dry streams, and wadis.

a. Specifications and prescribed treatment for these features is found in 3.15.3 and 3.15.4.

b. Contours are portrayed within the limits of these features.

3.16.8.20 Sand and gravel areas.

a. Sand and gravel areas plotting 6.35 mm square and larger at map scale are to be portrayed.

b. Sand and gravel areas carry contour symbol representation.

c. The treatment of sand and gravel occurring in tidal waters is prescribed in 3.15.10.1.c.

3.16.8.21 Sand dunes.

a. Sand dunes are hills or ridges of sand which are formed by prevailing winds and the shifting of those winds. Sand dunes are represented by special patterns which are designed to simulate the configuration of the following types of sand dunes.

(1) Star dunes

(2) Lateral (or longitudinal) dunes

(3) Crescent dunes

(4) Ripple dunes

(5) Transverse dunes

(6) Sand dunes

b. Sand dune patterns shall be positioned to indicate their true orientation with respect to the prevailing winds for the area being mapped.

c. When a particular type of sand dune is not known or the mixture cannot be depicted satisfactorily by the prepared dune patterns, the sand pattern symbol (AP-95) is used and the label DUNES is applied at sufficient intervals to define the overall extent of the feature.

d. Sand dune areas shall be portrayed whenever they cover an area larger than 6.0 mm square at map scale.

e. Contours shall be broken (interrupted) for sand dunes at the limits of the area patterns.

3.16.8.22 Terraces.

a. A terrace is a horizontal or gently sloping earthwork constructed on a hillside to conserve moisture or to minimize erosion. The tops of terraces are level and frequently contain food-producing crops.

b. Terraced areas must cover an area that is at least 12.0 mm square or greater at map scale. The extent of terraced areas shall be indicated by a dashed outline. Terraced areas are appropriately labeled; e.g., Terraces, Low terraces, Numerous terraces, etc.

c. Contours are depicted in the symbolized terrace areas.

3.16.9 Permanent snow fields, ice fields, glaciers and attendant features.

3.16.9.1 Permanent snowfields and icefields.

a. Snowfields and icefields occur in areas where warm-weather melting and evaporation fail to remove winter snowfalls, resulting in successive ice packing and snow coverage.

b. Areas of permanent snowfields and icefields shall be depicted by blue contours or by form lines when contouring cannot be achieved.

c. When the relief for snowfields and icefields cannot be depicted by contours or form lines, the features are depicted by applying a blue screen dot fill of 4%, with a blue dashed outline depicting the features limits.

3.16.9.2 Glaciers.

a. Icefields, after attaining a critical thickness in steep sloped areas, begin to creep slowly downslope. The moving ice mass is referred to as a glacier.

b. The limits of glaciers shall be depicted by a blue dashed outline. The configuration of glaciers shall be expressed by a blue area pattern (AP-104) within the limiting outline.

3.16.9.3 Nunataks and ice peaks.

a. A nunatak is a bare rocky peak projecting above a surrounding area of permanent ice or snow. An ice peak is a similarly situated feature except that it is perpetually covered with snow.

b. Nunataks are symbolized by contours, are printed in red/brown, if they can be portrayed at map scale. If they cannot be depicted by contours, usually because they are too small, they are then depicted by the standardized pinnacle symbol in red/brown.

c. Ice peaks follow the same guidelines for nunataks and are symbolized the same except that the symbols are shown in blue.

3.16.9.4 Ice cliff.

a. An ice cliff is a sheer-faced front of a glacier or ice shelf where it meets the sea.

b. The symbol for the ice cliff is shown in blue and shall mark the limits of the open water area so that the normal shoreline is omitted.

3.16.9.5 Ice shelf.

a. An ice shelf is a floating ice sheet of considerable thickness, attached to the coast, and showing 3 m to 60 m above sea level. It is usually of great horizontal extent with a level or gently undulating surface. The ice shelf is nourished by annual snow accumulation and often by the seaward extension of the land glaciers. Limited areas may be aground. The seaward edge of the feature is termed an ice front.

b. The open water limits of the ice shelf shall be shown by a blue dashed outline and labeled Limits of ice shelf. If the feature is named, the name shall be incorporated in the labeling. When the date of the observed limits of the ice shelf is known, that date shall be added in parentheses.

c. If an ice cliff forms the seaward edge of the ice shelf, it shall be symbolized by the blue ice cliff symbol and the dashed outline shall be omitted.

d. The ice shelf shall be devoid of any open water tint.

3.16.9.6 Moraine.

a. Moraines are an accumulation of earth and stone debris carried and finally deposited by a glacier. To be included on this product, the area covered must exceed 6.4 mm square.

b. Areas covered by moraine shall be indicated by scattered red/brown dots (AP-95) covering the general area of the feature.

3.16.9.7 Ice escarpments, crevices, crevasses, and depressions. These features in permanent snow fields and ice fields are symbolized in the same manner as the earthen features but are to be printed in blue.

3.16.9.8 Pack ice.

a. Pack ice includes any area of ice originating from the freezing of sea water. It is usually formed by the crushing together of ice floes and massive ice fragments.

b. Areas of pack ice is represented on the map in blue by a distinguishing overprint pattern which is enclosed by a limiting outline indicating the extent of the feature. The month and the year of the source from which the limits are derived is included when this information is known.

3.17 Vegetation.

3.17.1 Vegetation: General.

a. As used in these specifications, the term vegetation

refers to the various types of plant life indigenous to the project area. For concealment, both on the ground and from the air, vegetation is extremely important to military forces; in areas lacking significant landmark features, vegetation assumes landmark importance. Vegetation generally restricts visibility and, depending upon the type and nature of the growth, presents obstacles to free movement. It can also serve as a means of physical orientation both on the ground and from the air. In areas of this type (usually when the vegetation is sparse) all vegetation features will be shown on the map sheet.

b. The amount and type of vegetation to be shown are directly related to the permanency of the vegetation and the scale of the map. Generally, a distinction is made between natural vegetation and planned plantings.

c. Vegetation features to be mapped are those listed below:

(1) Woodland; Coniferous/Evergreen, Deciduous, Mixed coniferous/evergreen and deciduous.

(2) Scattered trees.

(3) Scrub.

(4) Plantations, Orchards, and Nurseries.

(5) Vineyards.

(6) Mangrove

(7) Nipa.

(8) Tropical grass.

(9) Cultivated land.

(10) Isolated tree(s).

(11) Clearings.

(12) Hedgerows.

d. Refer to MIL-STD-2402 -SYMBOLOGY, CATEGORY 5 - VEGETATION for individual feature requirements.

3.17.2 Vegetation principles.

a. Insofar as the map scale permits, areas of vegetation are shown in their true shapes.

b. The vegetation features listed above, except scattered trees, are depicted provided they meet the inclusion conditions

for that feature. The minimum width for area vegetation features is 1.24 mm.

c. Clearings and clumps of vegetation too small to be shown individually may be combined into one area of clearing or vegetation if the distance between these clearings or vegetation clumps is less than 2.5 mm. Clearings less than 2.5 mm by 2.5 mm are not retained.

d. Small areas of vegetation, less than the inclusion condition, and when interspersed within larger areas of another type of vegetation, are symbolized the same as the larger areas.

e. Generally, narrow strips of vegetation less than 1.24 mm in width at map scale are omitted. Exceptions are made in areas containing sparse vegetation. In such cases, small clumps or narrow strips which provide concealment or orientation are retained.

f. Closely spaced rows of trees and rows of trees along roads which provide concealment or orientation are retained.

g. Areas of vegetation are not spaded (suppressed) for other features portrayed as single-line features. Vegetation is spaded from double-line area drainage, roads, route markers, and horizontal control points.

h. Firebreaks less than 50 meters in width are depicted by a minimum clearing of 0.5 mm in width; those that are larger are plotted to scale. When firebreaks become so numerous that their portrayal is of questionable value to the user, the major firebreaks (or representative pattern if major firebreaks are not obvious) are shown and the area labeled Numerous firebreaks. If a firebreak deviates from the uniform pattern and can be linked to the communication network in the area, or if it leads to a landmark feature, it will then be depicted as a track. Minor tracks or trails depicted entering a wooded area are terminated at the entrance of a firebreak.

i. Isolated trees normally are not depicted unless they serve as landmarks in specific areas, as in a desert.

j. Wooded marshes (cypress, swamp, sage swamps, etc.) other than mangrove and nipa require no special symbolization. The vegetation occurring in the marshes is depicted with its prescribed symbol overprinting the drainage feature.

3.17.3 Woodland.

a. Woodland is a natural growth of perennial vegetation of sufficient density (approximately 51 percent or more crown cover) and 3 meters or more in height which affords effective concealment for troops and may present obstacles to free passage.

b. Included in the woodland category are rain-forest and/or moist evergreens, jungle (clear and dense), palm, palmetto, bamboo, orchards or plantations which are of irregular planting or wild growth, reforested areas, mesquite trees, and stunted trees (scrub oak or scrub pine) which comply with the woodland definition of density and height.

c. Excluded from the woodland category are: scattered trees; isolated tree(s); tropical grass; mangrove; nipa; orchards; plantations; and nurseries of symmetrically planted trees; and tall shrubs, cactus, thick low growths such as mesquite brush, sagebrush, and dwarf trees (willow, birch, etc.) which are less than 3 meters in height.

d. The kinds of trees that comprise a woodland area are identified by symbols overprinting the woodland tint.

(1) The kinds of trees are:

(a) Coniferous/Evergreen.

(b) Deciduous.

(c) A mixture of coniferous/evergreen and deciduous.

(2) Each separate area of woodland contains the symbol or symbols of the kind or kinds of trees that comprise it. A separate area is defined as one detached or non-contiguous with other woodland areas, or are wholly delineated by a linear feature (excluding contours) such as firebreaks, drainage, trails, roads, etc.

(a) Each woodland area should contain at least one symbol of each kind of tree that comprises it.

(b) For any mixed tree area that is smaller than 20.0 mm square, the overprinted tree symbol is not necessary to be shown, only the green background tint is necessary.

(3) Where the area is comprised of <u>one kind</u> of tree, but is interspersed with stands of the other kind measuring 20.0 mm square or larger at map scale, the appropriate symbols for the stands are shown among the symbols for the predominant kind.

(4) Where the woodland area is comprised of <u>one kind</u> of tree, but is interspersed with stands of the other kind measuring less than 20.0 mm square at map scale, the symbol for the predominant kind is shown over the whole area.

(5) Where the woodland area is comprised of both coniferous/evergreen and deciduous trees dispersed throughout the whole area and no single stand of either kind measures more than 20.0 mm square at map scale, the treatment is as follows:

(a) If one kind of tree constitutes 75 percent or more of the total, the symbol for it is shown over the whole area.

(b) If both kinds of tree are distributed approximately equally, the symbol for both kinds (mixed trees) is shown over the whole area.

(6) Where the woodland area is comprised of both kinds of trees distributed approximately equally except for stands of one kind, each measuring 20.0 mm square or larger at map scale, the appropriate symbols are shown among the symbols for mixed trees.

3.17.4 Burned-over areas. Areas of vegetation appearing in burned-over and/or logged-off areas, which comply in density and meet the minimum height requirements of the woodland definition, are included in the woodland category; otherwise they are treated as part of the burned-over and/or logged-off area and annotated as clearings.

3.17.5 Scattered trees.

a. The term scattered trees implies a growth of perennial vegetation of sufficient density (25 to 50 percent crown cover) and 3 meters or more in height which affords partial concealment for troops and may present obstacles to free passage.

b. Included in this category are various types of trees, orchards, or plantations which are of irregular plantings or wild growth, reforested areas, mesquite trees, and stunted trees which comply to the scattered-tree definition and height.

c. Areas of scattered trees are shown provided they are 5.0 mm square or its equivalent in area and provided the narrowest dimension is no less than 2.5 mm.

d. Excluded from this category are areas of woodland; isolated trees; tropical grass; mangrove; nipa; orchards, plantations, and nurseries of systematically planted trees; and tall shrubs, cactus, thick low growths such as mesquite bush, sagebrush, and dwarf trees (willow, birch, etc.) which are less than 3 meters high.

3.17.6 Scrub. Scrub is a low stunted vegetation such as cactus, mesquite bushes, sagebrush, dwarf trees less than 3 meters in height), stunted shrubs, thickets, and other low plants which may present obstacles to free passage or may serve as landmarks in areas devoid of recognizable features.

3.17.7 Orchards, plantations, and nurseries.

a. Orchards, plantations, and nurseries are areas covered by systematic plantings of perennial vegetation which yield

fruits, nuts, spices, or other commercial products exclusive of timber.

(1) Regularly planted palms, palmetto, bamboo, coffee, rubber, etc., are shown in this category and are identified. Tree nurseries consisting of systematic plantings are also included in this category.

(2) Orchards of the common fruit or nut variety are not labeled.

b. Where the area covered by the orchard or plantation is less than the equivalent of 12.5 mm square, the feature is indicated by the appropriate symbol but is not labeled.

3.17.8 Vineyards.

a. Vineyards are areas covered by the systematic planting of perennial vinelike growths, usually planted with close rows of supported vines.

b. No distinction is made between types of vineyards, nor are they labeled.

3.17.9 Mangrove. Mangrove is a thick growth of trees with tangled aerial roots which appears in tropical and semi-tropical regions. It occurs in low-lying areas along seacoasts and along the banks of tidal waters up to the limits of the tidal influence. The water-side limit of the feature is always depicted by a dashed line. The land-side limits (mean high water line) is depicted when known. The feature is delineated both as a drainage and a vegetation feature.

3.17.10 Nipa. Nipa is a dense growth of stemless palms found in tropical and semi-tropical tidal or brackish waters. It usually occurs farther inland than mangrove and generally forms strips in channels, through which tides ebb and flow. The feature is sometimes cultivated and systematically planted; such plantings are symbolized as nipa, not as an orchard. The water-side limit of the feature is always depicted by a dashed line. The land-side limits (mean high water line) are depicted when known. The feature is delineated both as a drainage and a vegetation feature.

3.17.11 Tropical grass.

a. Tropical grass is a dense growth of tall grass occurring in tropical or semi-tropical climates which affords concealment for and prevents rapid movement of troops.

b. Low grass not capable of providing concealment is not shown.

3.17.12 Cultivated land.

a. Cultivated land is tilled soil for the growing of crops. Ground which is left fallow on a seasonal basis is also included in this category.

b. Normally, cultivated land is not shown. When required, criteria for portrayal of cultivated land will be set forth in supplemental instructions or at the very least, as directed in Appendix A-Product Rules.

3.17.13 Hedgerows.

a. A hedgerow is a row of scrub or trees enclosing or separating fields.

b. Hedgerows are shown when they constitute an obstacle to cross country movement or afford cover or concealment.

3.18 Demarcation. Refer to MIL-STD-2402 - SYMBOLOGY, CATEGORY 6 - DEMARCATION for feature identifications.

3.18.1 Demarcation policy. The boundaries to be shown are determined on a country by country basis, since the available information and the type of boundaries vary between countries. Where the information is available, boundaries listed below are normally shown. Other boundaries may be shown when specified in supplementary instructions. All boundaries on the sheet are included in the legend. Boundaries which fall within the purview of the Department of State, must be in accordance with prevailing policies of the Department.

3.18.1.1 Boundaries commonly shown.

a. International boundary.

b. First-order administrative boundary.

c. Second-order administrative boundary.

d. Third-order administrative boundary.

e. Reserve area.

f. Reservation.

3.18.1.2 Other boundaries.

a. Other lines of separation shall be the term used for the following:

(1) Line of control

(2) Claim line

(3) Armistice line

(4) Cease-fire line

(5) Limits of occupation

(6) De facto boundary

(7) Demilitarized zone (DMZ)

(8) Demilitarized line (DML)

The requirement to use this type of symbol and/or any special labeling will be specified in supplementary instructions for the project.

b. First-order administrative boundaries define the limits of the principal divisions of a country, such as provinces in China; prefectures in Japan; states in the United States; or equivalents.

c. Second-order administrative boundaries define the division of the first-order subdivision, such as the counties in the United States.

d. Third-order administrative boundaries define the division of the second-order subdivision and are shown if directed by supplementary instructions.

e. The Reserve area boundary symbol shall be used to show the following:

(1) Tribal reservations.

(2) National parks.

(3) Forest preserves.

(4) Animal sanctuaries.

(5) Prohibited areas.

3.18.2 Approximate boundaries.

a. An Approximate boundary is one that can only be plotted approximately because of inadequate information.

b. Where source material is insufficient to permit delineation of an approximate boundary, no boundary shall be shown on the map and an appropriately worded note shall be shown in the margin below the Boundaries Diagram explaining the condition. Example:

Boundary between Provincia de Estramadura and Provincia de Ribatejo
omitted since location cannot be determined.

3.18.3 Boundary names and labeling.

a. The international boundary is always identified in the map interior by showing country names opposite each other on the appropriate sides of the boundary symbol.

b. Where no boundaries of any kind fall on the sheet, the primary and secondary administrative divisions are identified in the Boundary Diagram only.

c. Boundaries of subordinate administrative divisions (first, second, and third-order) are identified in the Boundary Diagram. However, where insufficient information exists for plotting subordinate administrative boundaries, administrative names are shown in the map interior, centered as nearly as possible in their respective areas.

d. Where the information can be adequately indicated by a note beneath or to the side of the Boundaries Diagram, labeling is omitted from the face of the map.

e. Where appropriate, labeling which describes the status of a non-definitive boundary is shown parallel to the boundary symbol. The label is repeated as necessary for clarity. Examples are: *IN DISPUTE*; *APPROXIMATE*; or *APPROX*; *INDEFINITE*; etc. When shown in connection with a country name, the label is shown in parentheses following the country name.

f. The point of change in the status of a boundary is shown by a tick placed perpendicular on the boundary symbol. The tick is omitted if the point of change occurs at a symbolized boundary marker. Appropriate labeling is shown at the point of change. A boundary alignment that is considered to be accurate is not labeled.

3.18.4 Special treatments for boundaries.

a. When the limit of a lesser administrative division is coincident with that of a higher division, the symbol for the higher division is shown.

b. Boundaries in roads.

(1) A boundary that occurs within a double-line (dual/divided) road is delineated in its correct alignment. Every third unit of the appropriate boundary symbol is shown; the component lengths and spaces of the symbol are maintained, and the line weight is reduced to a 0.1 mm line. Additional complete units are added at salient points--road junctions, angles, departures from the road--to provide continuity of the boundary alignment. The boundary overprint, if applicable, is shown as a continuous band.

(2) When a boundary follows an edge of a road, track, or trail, every third unit of the appropriate boundary symbol is shown overprinting the edge of the road symbol. Additional complete units are added at salient points to provide continuity. If applicable, the boundary overprint is shown touching the road edge. The width of the overprint is reduced to one-half of its normal width.

(3) When it is uncertain whether a boundary follows the center or the edge of the road, it is shown in the center of the road and labeled *BOUNDARY APPROXIMATE* or *BDRY APPROX.*

c. Boundaries in drains.

(1) The boundary is completely delineated in correct position when it occurs in a double-line drain which is wide enough to accommodate the delineation. When the correct position is unknown, the boundary symbol is centered in the drain and labeled *APPROXIMATE*. Where the boundary follows a shoreline of such a drain, and information is available that the boundary coincides with the high-water line, every third unit of the appropriate boundary symbol is shown overprinting the shoreline.

(2) A boundary coincident with a single-line drain is shown in its correct position. Every third unit of the boundary symbol is shown. Additional units are added at salient points--drains junctions, departures from the drain--to provide continuity of the boundary alignment. The boundary overprint, when appropriate, is applied to the entire boundary.

(3) The boundary symbol is completely delineated through areas of braided drains. When the alignment is not precisely known, the boundary is labeled *APPROXIMATE.*

d. Boundaries in open water.

(1) A boundary which crosses a lake, either completely on one sheet or on two adjacent sheets, is shown in its entirety. Where delineation is approximate, the label *APPROXIMATE* is not shown.

(2) A boundary (other than international) which crosses a large body of open water is shown in its entirety if its alignment is fixed. When the boundary alignment is not fixed, the boundary is shown in the open water area at the points of entry. At appropriate intervals, depending on the size of the body of water, two or three continuous units of the symbol are shown in logical position. Where the delineation is approximate, the label *APPROXIMATE* is not shown.

(3) International boundaries are not shown crossing a large body of open water. The symbol will terminate at the points of entry into the open water area. Exceptions will be specified in supplementary instructions.

e. Boundaries coincident with projection lines.

(1) A boundary which is coincident with a projection line is shown in its entirety and centered on the projection line.

(2) An exception to the foregoing is when the line weight of the boundary symbol is the same line weight as the projection line. In this case the boundary is delineated in its entirety .25 mm inside the projection line.

f. Boundary markers.

(1) Boundary markers or monuments are shown when their location can be accurately plotted.

(2) Space permitting, the designating names or numbers, if any, are shown.

3.18.4.1 Expurgated areas and boundaries.

a. An expurgated area of the map is an area that is devoid of map features or detail for a given country(s) usually as a result of no mapping agreements between the countries to be mapped.

b. The expurgated area (country) is left completely blank except for the labeling of that countries name along the international boundary separating the countries.

3.19 Names and labeling.

a. Refer to MIL-Standards MIL-STD-2402 - SYMBOLOGY, MIL-STD-2403 - PRODUCT RULES and Table I of this specification for proper naming and labeling of applicable features.

b. The following is a list of features which may not appear in MIL-STD-2408 - GLOSSARY or in Table I of this specification, but may be named on the final product.

Name	Example
Banks	Outer Banks
Basin	Great Basin
Bay	Chesapeake Bay
Beach	Virginia Beach
Bench	
Bend	
Bluff	
Bottom	
Break	
Butte	
Canyon	Grand Canyon
Cape	Cape of Good Hope

Name	Example
Channel	English Channel
City	New York City
Cliff	
Corner	Tyson's Corner
Crossing	
Desert	Sahara Desert
Dispersed Village	
Dome	
Everglade	Florida Everglades
Falls	
Flat	
Flats	
Forest	
Gap	
Gorge	
Gulch	
Gulf	Gulf of Mexico
Gut	
Hamlet	
Harbor	Boston Harbor
Head	
Highland	
Hill	
Hole	
Hollow	
Inlet	Hamilton Inlet
Island Chain	Hawaiian Islands
Junction	
Jungle	
Knob	
Knoll	
Lagoon	
Lake	
Lands	
Lookout	
Marina	
Mesa	
Mountain	
Mountain Range	Rocky Mountains
Narrows	
Neck	
Ocean	Atlantic Ocean
Park	Yellowstone National Park
Pass	
Passage	
Patch	
Peak	Pikes Peak
Plain	Great Plains
Plateau	Colorado Plateau
Point	
Pool	

Name	Example
Port	
Range	Coastal Range
Ravine	
Region	
Ridge	
River	
Roadstead	
Rock	
Sands	
Scattered Village	communidads of South America streusudlung of Eastern Europe
Sea	Caribbean Sea
Sea Mount	
Shelf	
Shoals	
Sink	
Sound	Puget Sound
Spit	
Spring	
Spur	
Strait	Bering Strait
Summit	
Town	
Valley	Death Valley
Village	Greenwich Village
Wood	

3.19.1 Names treatment: General.

a. This section provides basic guidance for the treatment of names, descriptive information, and expressions of political status on maps at the standard scales of military mapping.

b. Names and descriptive information are integral components of the map which provide necessary aids to the identification of features depicted on the map; they also provide important information that cannot be portrayed by map symbols.

c. Names data include the identification of geographic features portrayed on the map, descriptive terms, administrative division and sovereignty nomenclature, and statements of political and administrative status, as well as certain information that appears in the map margin.

3.19.2 Policies for spelling of geographic names.

a. The spelling of geographic names on maps generally is consistent with the form prescribed, or acknowledged as official, by the United States Board on Geographic Names (BGN).

b. Names of countries, statements of political status, and descriptive information along boundaries (armistice lines, treaty lines, and other demarcations that delimit the extent of political or administrative control) are in accord with the policies of the U.S. State Department.

c. Exceptions to these policies are made:

(1) When international standardization agreements and bilateral cooperative mapping arrangements prescribe spellings different from those of the BGN.

(2) When conclusive information of spellings which differ from those of the BGN are available, and this information post-dates the BGN decisions.

(3) When military necessity dictates deviation.

3.19.3 Name descriptions.

a. A *toponym* is a word, or group of words, identifying a geographic feature or reflecting a conceptual location used in mapping. The study of geographic names is called *toponymy*. Toponyms include:

(1) Proper place names that identify geographic features without benefit of generic terms. Examples:

Chicago	Andes
Scotland	Everglades

(2) Geographic expressions which are comprised of a generic term and specific elements. Examples:

Bay of Biscay	Alcan Highway
North Sea	Charles Town
Lake of the Woods	

(3) Conceptual locations.
Examples:

Tropic of Capricorn
Arctic Circle
Greenwich Prime Meridian

b. A *descriptive term* is a word or group of words, not part of a name, giving some characteristic of a feature or area. Descriptive terms are always shown in English in the map interior. Examples:

Impassable in rainy weather
Under French administration
Numerous wells
Status in dispute

c. A *conventional term* is one rendered in common American usage and declared a conventional term by the BGN. Examples:

Canton (China)
Alexandria (Egypt)
Danube
Moscow

d. The *alternate name* is usually a former name or a name derived from a different Romanization system which may or may not be recognized as official.

e. An *ideograph* is a composite graphic symbol expressing an idea; such graphic symbols are used, as an example, in Chinese writing.

f. A *diacritic* (mark) is a mark attached to or in association with a letter to distinguish this letter from another of similar form, or to show that the marked letter stands for a particular sound as distinguished from its other sounds. It may also be used to indicate a stressed syllable. Examples:

Á, ö, ţ, Ḥ, ï, Đ, ñ, ü, Š, Ł, è, t'

g. A *master glossary* is a list of the generic and descriptive terms, plus their English equivalents, that appear on the sources used for a specific mapping assignment. The master glossary is intended as an aid to the cartographer in preparing the tailored glossary.

h. A *tailored glossary* is a list of generic and descriptive terms that appear on the individual map, plus their translated equivalents.

i. *Romanization* is the process of converting non-alphabetic characters, such as ideographs into Latin alphabet.

j. A *Romanization system* is a set of rules governing the rendition of characters, such as ideographs, in approximately phonetic Latin-alphabet equivalents. Systems that have been approved as official by the BGN are used.

k. A *specific term is* that part of the toponym which specifies the particular geographic feature described by the generic portion. Examples:

Long	as in Long Island
Potomac	as in Potomac River
Winds	as in Cave of the Winds
Ontario	as in Lake Ontario
Fuji	as in Fuji San

l. A *generic term* is that part of a geographic expression that indicates the nature of the feature to which the toponym applies. Examples:

Island	in Long Island
River	in Potomac River
Cave	in Cave of the Winds
Lake	in Lake Ontario
San	in Fuji San

m. A *syllabary* is a specific set of written symbols, each symbol typically (but not necessarily) representing a particular syllable which may be employed in the representation of the phonological elements of the language.

n. *Transliteration* is the process of recording the graphic symbols of one writing system in terms of corresponding graphic symbols of a second writing language.

o. A *transliteration system* is a set of rules for converting non-Latin alphabet words into the Latin alphabet. Based on phonetics, these rules state what Latin letters or combinations of letters are to replace corresponding non-Latin alphabet letters. Transliteration systems that have been approved as official by the BGN are used.

3.19.4 Collection of toponymy.

a. Geographic names and descriptive terms are collected from three main sources:

(1) Cartographic materials such as maps, charts, plans, railroad diagrams, and other related graphic materials.

(2) Textual materials such as gazetteers, census reports, postal guides, railroad time schedules, geographic studies, and other related publications and documents.

(3) Field classification survey and field edit materials.

b. Foreign cartographic materials, especially large scale topographic maps, constitute the largest part of the fund of geographic names available for mapping projects, since the toponymy thereon has been processed and verified by the native mapping authority.

c. Textual materials are used for various facets of names servicing, including:

(1) Verifying and correcting the spelling of names.

(2) Bringing names up to date and incorporating name changes.

(3) Clarifying the nature of features not adequately symbolized or described on other source materials.

(4) Establishing changes in the nomenclature of political and administrative divisions or changes in the status of countries, territories, and other political entities.

(5) Providing names that do not appear on other source materials.

d. Field classification survey materials, when available, constitute a good source of descriptive information for a mapping project. Quantitatively, they may also be a satisfactory source of geographic names. Such materials are preferred for relating names and descriptive information to the symbols represented on maps.

3.19.5 Analysis, evaluation, and selection of toponymy.

a. The selection of names source materials must take into account the following factors:

(1) Insofar as is possible the sources selected should have been prepared by an authority or authorities native to the area to be mapped.

(2) The authority who prepared the sources should have been sanctioned as official by the native government. Exceptions to this practice are made when the political status or sovereignty of the area is not officially recognized. When the United States Department of State does not recognize the political status or sovereignty of an area but approves the use of de facto geographic names for military maps, an appropriate names disclaimer note is placed in the margin of the map.

b. The toponymy on the selected source materials is analyzed and evaluated for adequacy in terms of servicing the mapping project. The factors taken into consideration include:

(1) Currency of information.

(2) Density of names.

(3) Legibility.

(4) Tie-in of names to symbolization and placement of type in relation to the map features represented.

(5) Descriptive information.

(6) Regional geographic peculiarities that might require special treatment.

(7) Local language characteristics that might deserve special attention.

c. The final selection of names and descriptive terms to be shown depends on the geographic area that is being mapped, on the prominence or importance of specific geographic features in the area, on the scale of the map and on the military requirements levied for the project. There can be no rigid rules established for an order of importance in naming features: populated places may take precedence in heavily populated temperate climate areas, wells may attain prime importance in dessert areas, and glaciers in polar, sub-polar, and high-mountain regions.

3.19.6 Recording of toponymy.

a. The recording of foreign geographic names and descriptive terms is divided into four broad categories:.

(1) Adaptation of names in Latin alphabet areas to standard cartographic practice as established herein.

(2) Transliteration of names in non-Latin alphabet areas.

(3) Romanization of names in areas using ideographs.

(4) Translation of generic terms, descriptive terms, and map marginal information into English.

b. The process of transliteration as it applies to military mapping, refers to the rendition of non-Latin alphabet and syllabary names in phonetic Latin-alphabet equivalents. Transliteration systems that are approved as official by the BGN for United States government agencies are used.

c. The process of Romanization, as it applies to military mapping, refers to the rendition of Chinese, Japanese, and Korean characters (ideographs) in phonetic or near-phonetic Latin-alphabet equivalents.

d. All foreign-language information, including generic terms on a map, is translated into English for the purpose of identifying features that appear within the neatline, for aiding the cartographer in interpreting the map and the margin information, and for satisfying research requirements.

3.19.7 Treatment of geographic names.

3.19.7.1 Forms of geographic names presentation.

a. In Latin-alphabet areas, geographic names that reflect features entirely contained within the limits of a country or other similar political entity are presented in their full (unabbreviated) native forms. All generic terms, modified

letters, diacritics, and other language peculiarities are retained in the presentation. Examples:

Duričkovići	not Durickovici
Æbeltoft	not Aebeltoft
München	not Munchen

b. All geographic names in non-Latin alphabet and ideograph areas are presented in their full (unabbreviated) transliterated or Romanized forms. Examples:

San'ā'	not Sana
Moskva	not Moscow

c. The conventional name, if one officially exists, is added in parentheses along with the native name, when required. Examples:

Ṭarābulus (Tripoli)
Cabo de Hornos (Cape Horn)

d. Geographic names that reflect features which constitute, straddle, or cross international boundaries are rendered in their conventional forms. Examples:

Pyrenees
Dead Sea

(1) When no conventional name is available for a geographic feature that encroaches on two or more political jurisdictions, the name accepted by each country is placed on the map, within the bounds of that country. This is an instance of dual nomenclature when neither name is given preference or enclosed in parentheses.

(2) When no conventional name is available for a feature as described above, and only the name used by one of the countries is available, that name is used within the bounds of the country of origin.

(3) When no conventional name is available for an international feature but the countries that share the feature call it by the same name, that name is used on the map.

e. Names of countries and similar political entities are always shown in the short conventional form. Examples:

Jordan	not Hashmite Kingdom of the Jordan
Pakistan	not Islamic Republic of Pakistan

f. Names for all international bodies of water are shown in the conventional form. Examples:

English Channel	not La Manche
North Atlantic Ocean	not Oceano Atlantico
Danube	not Donau

(1) For streams, such as the Danube, that constitute international boundaries in certain sections but flow entirely within a single political jurisdiction in other sections, only the conventional name followed by the native in parentheses is shown along sections of the stream that fall within the limits of a single political jurisdiction. Examples:

Danube (Dunau),	within Germany
Danube (Duna),	within Hungary

g. In denoting possession or territorial sovereignty, the official name of the administering country is placed in parentheses following the name of the political or geographic entity involved. Examples:

Curaçao (Netherlands)	not Curaçao (Dutch)
Bermuda (United Kingdom)	not Bermuda (British)

(1) Conventional abbreviations for the administering authority are permissible. Examples:

US	United States
Fr	France
Sp	Spain
UK	United Kingdom

(2) No sovereignty or administering authority is indicated south of the 60° South parallel.

h. The use of alternate names on military maps is discouraged, although requirements of the area being mapped may occasionally call for the presentations of alternative names.

i. Railroad stations (stops, sidings, etc.) identified by designation of distance (usually in kilometers) are treated as follows on names manuscripts:

(1) The generic term is translated into English.

(2) The term "kilometers" is abbreviated to km.

Examples:

Station	26 km.
Siding	397 km.
Stop	804 km.

3.19.8 Classification of names.

a. All names processed for presentation on maps are classified as to the type of feature they identify. This is accomplished by means of the classification code.

b. Names are classified as an aid in the selection of type fonts, as a guide in the preparation of gazetteers, and as a reference for researchers.

c. The classification of names on large scale maps is not necessarily coincident with the classification of the same names on maps of other scales. For example, a name which identifies a widely scattered pattern of habitation may be classified as an area name on a 1:50,000 scale map but, because of reduction in scale may be properly classified as a populated place name on maps of 1:250,000 and 1:100,000 scales. Names of communes in Cambodia, Laos, and Vietnam, parishes in Spain, and the Oaza (area name) in Japan exemplify this variation in the classification of names on maps of different scales.

3.19.9 Agreement of names between maps of different scales.

a. As a rule, all geographic names that appear on the body of small scale maps are shown in the same form as on medium scale maps, and names that appear on medium scale maps are shown on large scale maps covering the same area.

b. Exceptions to this rule occur when:

(1) The toponyms reflect major physiographic formations such as continents, mountain systems, or deserts, such terms as "Asia," "Sahara," and "Rocky Mountains," for example, appear on maps at 1:10,000,000 scale but are not repeated on each of the 1:100,000 scale maps covering these respective areas.

(2) Several years have elapsed between the printing of the maps at different scales, and considerations of currency and military requirement call for deviation from standard procedure. This is likely to happen when political changes take place, as is the case with the newly created nations of Africa and Asia; when the language of the area changes, as has happened in East Prussia, Palestine (Israel), and Indochina (Laos, Cambodia, Vietnam); and when catastrophic natural disasters strike an area (the earthquakes of Chile and Alaska, for example), thereby producing a need for change in toponymy and descriptive information.

(3) A name is extremely long on the large scale map and it is convenient to shorten the designation but not lose

identification at the medium and small scales. Example:

Map Scale is	Name is
1:100,000	National Orthopedic and Rehabilitation Hospital
1:250,000	Orthopedic hospital
1:1,000,000	Hospital

(4) In shortening the identifying nomenclature, no license is taken with the spelling or form of the proper name. In the above example only the form on the 1:100,000 scale map is a proper name; on the 1:250,000 and 1:1,000,000 scale maps, the proper name has been replaced with descriptive nomenclature.

3.19.10 Tailored glossary.

a. Tailored glossaries are prepared for maps that contain foreign generic terms and related foreign language terminology.

b. Care is taken not to include false generic terms (pseudo generics), which are misleading to the map reader, in the glossary. A false generic term is that part of a toponym that has lost its original meaning and no longer expresses the nature of the feature it names. Examples of false generic terms in American toponym are as follows:

Fort	in Fort Worth (city)
River	in Detroit River (strait)
Vineyard	in Martha's Vineyard (island)
Forest	in Wake Forest (city)

(1) Glossary translations need not be literal or linguistically reliable. It is their purpose to identify features on the map for the map user. Therefore, deviations may be made from dictionary translations, when required, to bring the tailored glossary into accord with map conditions.

(2) In identifying all natural linear drainage features that are characterized by running water, the general term "stream" is used, and translations such as "river," "brook," "creek," "run," "rill," and so forth are avoided. This helps to unify glossary translations from the various foreign languages and to standardize usage. The same principles are applied to all other translations where a single general term can be used rather than numerous words that exhibit minor semantic differences or local linguistic peculiarities.

(3) In the treating of polysemantics, (words that have more than one meaning), only the specific definition or definitions that apply to the features depicted on the map are shown on the glossary. For example, the Spanish term "arroyo" refers to both streams and ravines, but if the map in question

shows only ravines then that is the sole translation that is to appear in the glossary.

3.19.11 Classification code. The classification code (Figure 43) is a series of underscoring used to identify the type of feature identified by the nomenclature on the names manuscript. These underscorings are normally made in black so they may be reproduced in monochrome without losing the classification.

3.19.11.1 Additional classification codes. Additional underscoring may be developed in addition to the existing codes table for special categories and other regional peculiarities that may be encountered during the course of research for a mapping assignment.

Populated Places	not underscored
Spot Features and Descriptive Terms	——— . ———
Hydrographic Features	——— .. ———
Hypsographic Features	——— — ———
Area Names	———
Vegetation	— — — — — — — — —
Roads and Railroads	═══
Administrative Divisions	——— / ———

FIGURE 43. Classification code legend for manual mapping.

3.19.12 Typography.

a. This section provides the basic guidelines for the placement and selection of all interior type on the 1:100,000 scale topographic map.

b. The proper selection and placement of type are of extreme importance, not only to the map user, but also because of the impact on the final appearance of the map. Poor or careless type treatments can cause complications in map reading and destroy the cartographic quality of the map.

c. Type selection and placement are governed by the nature, size, and relative importance of the feature to be identified.

d. Preferred positioning of type as outlined in these specifications is established to assure standard treatment of definitive labeling.

e. Punctuation is omitted except for hyphens and apostrophes which are integral parts of official designations. Periods are not used with abbreviations.

3.19.13 Principles of type placement.

a. While this section establishes the basic guidelines for type placement as applied to individual situations, it is emphasized that these rules are subject to exceptions, such as when the juxtaposition of situations causes conflict in the rules. In such situations the over riding factors in judging which rule(s) takes precedence are determined from a standpoint of graphic legibility and order of importance.

b. Interior type is positioned to assure immediate and unmistakable identification of the feature being labeled. When possible, type is placed in areas of sparse symbolization to avoid obscuring important land formations and other detail.

c. Type is placed either in a straight line or smooth curve depending on the character of the feature being identified (Figure 44).

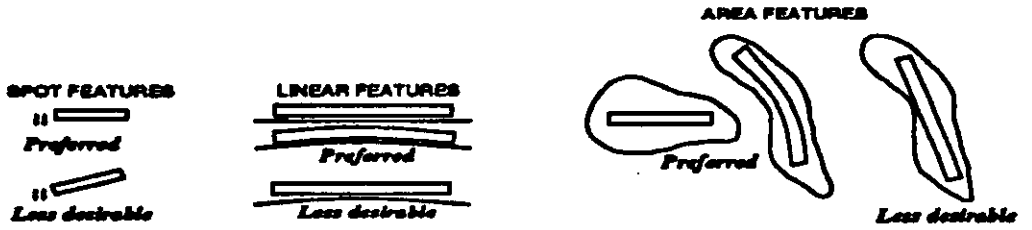


FIGURE 44. Straight line or smooth curve type placement.

d. The orientation or type placement (Figure 45), to read from left to right, are shown by the direction of the arrows in the diagram below. The one exception to these established orientations occurs when adjacent linear features are nearly parallel to a perpendicular orientation. In this case, the orientation of type for the labeling of the near-parallel adjacent features is made to agree with that of the perpendicular orientation.

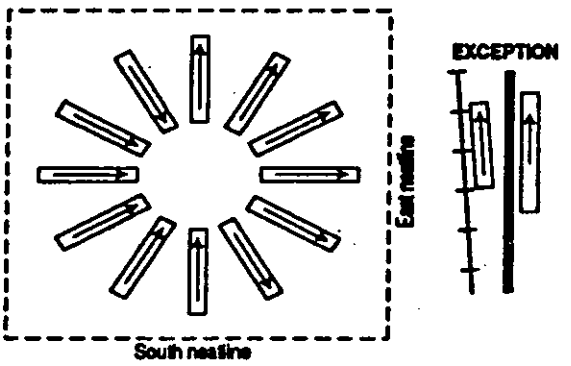


FIGURE 45. Orientation for type placement.

e. When labeling individual symbols or small concentrated groups of symbols comprising a single feature, the type is positioned adjacent to the feature or symbol defined. Preferred and acceptable alternate positioning of type, with exception of control and spot elevations, is illustrated in Figure 46.

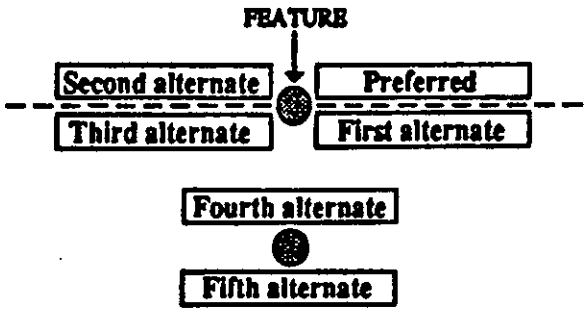


FIGURE 46. Labeling of a single or small concentrated groups of like symbols.

f. There are some cases that require cartographic judgment in the placement, spacing, and treatment of type. The following paragraphs provide guidance for treatment of such cases.

(1) When map detail is extremely dense, it may be necessary to place type a distance from a feature to avoid obscuring the detail. An arrow (Figure 47) is positioned so as to point from the label to the feature symbol.

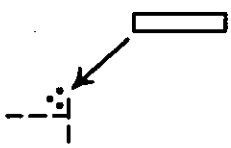


FIGURE 47. Type placement with a pointer arrow.

(2) Space permitting, names consisting of all capital letters are centered within an area being identified. Built-up areas are excepted. If the area is extensive, letter-spacing is desirable (Figure 48). When letter spacing is used and the name is composed of two or more words, the space between words is equal to three times the space between letters. Type which is letter or word spaced must be positioned so that the name stands out distinctly as a complete name. In congested areas, caution is advised on the use of maximum spacing since the continuity of names may be disrupted.

(3) Only in unusual cases is it permissible to letter-space names shown in both capital and lower case lettering. Conditions where this treatment is desirable are exemplified in the labeling of dispersed and scattered villages.

(4) Regardless of the type style, when letters are spaced on a curve, the letters are always aligned perpendicular to the curve.

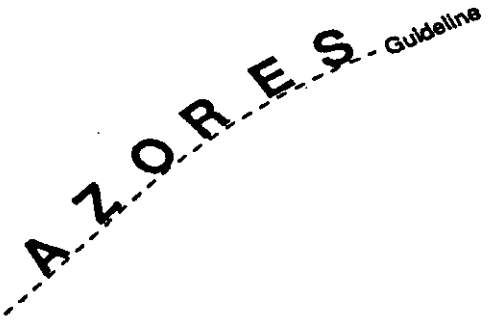


FIGURE 48. Area names type letter spaced.

(5) Alternate names are preferably positioned below the primary name in the case of point or area features, and following the primary name in the case of linear features. Alternate names are enclosed by parentheses and shown in the same style of type as the primary name, but one size smaller. An exception to this rule occurs when the primary name is in the smallest type available or is the smallest legible size.

(6) In areas where ideograph translation of Romanized names data is required, the placement of ideographs is accomplished in compliance with subparagraph (5) (above), except that: parentheses are not used; the ideograph type size is to be compatible with the Romanized version; and the legibility of the ideograph is maintained.

(7) When a descriptive term is added for the purpose of clarifying a primary space, it is enclosed by parentheses and shown in lowercase lettering. The parenthesized type is preferably centered directly below or positioned immediately following the primary name it clarifies.

(8) When descriptive labels consist of more than one word, e.g., "Numerous wells," "Strip mines," "Gravel pits," etc., only the first letter of the first word is capitalized.

g. Where possible, overprinting of type and detail which print in the same color is avoided. Nevertheless, all interior type printing in black and blue are processed for 0.2 mm halo for all culture (black) line work, grid lines, and tree symbols.

3.19.14 Populated places names. Populated places are depicted on the map by either individual buildings or outlined as tints. The type size and style for place names are selected to fit predetermined classifications relative to population or political importance.

3.19.14.1 Built-up area names placement.

a. When identifying a built-up area, the name is placed adjacent to the feature and aligned in accordance with 3.19.14.2.

b. Proper names of well-known sections within a city, or outlying suburban areas, are shown in populated place type. The type is shown in capitol and lower case lettering and is centered in the area concerned. The type size is scaled relative to the size of the subject area.

3.19.14.2 Towns and villages. The names for developed areas represented by concentrated individual building symbols are positioned in close proximity to the subject area (Figure 49). The type is preferably placed at, or near, the junction of the most heavily traveled routes passing through the village.

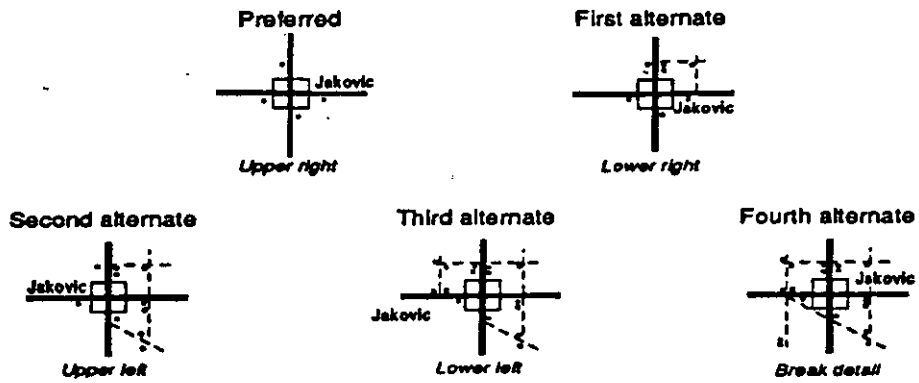


FIGURE 49. Small built-up tint areas or concentrated buildings.

3.19.14.2.1 Dispersed villages. A dispersed village comprised of numerous individual farmsteads requires unique treatment (Figure 50). The letters in the name are spaced over the approximate center of the area covered by the village. Although it is preferable for the type to be placed parallel to the south neatline, it may be placed in an angular position or curve to better identify the approximate limits of the village.

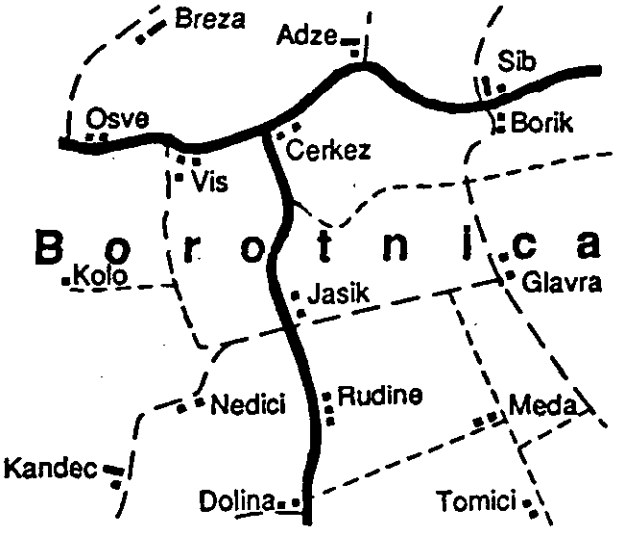


FIGURE 50. Type placement for dispersed villages.

3.19.14.2.2 Scattered villages. In labeling villages represented by widely scattered building symbols (Figure 51), the type is letter-spaced or extended to indicate the approximate limits of the area defined.

FIGURE 51. Labeling villages with widely scattered buildings.

a. The name labeling, where villages are comprised of semi-scattered dwellings strung out along the major communication routes, is placed adjacent to the junction of the main thoroughfares bisecting the village (Figure 52).

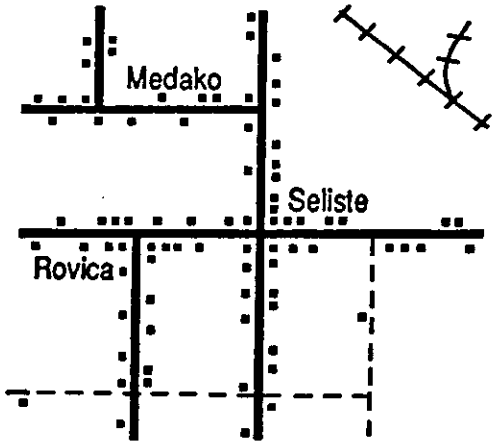


FIGURE 52. Names type placement along major communication routes.

b. In some rural areas, populated places are comprised of widely dispersed buildings. These areas are often identified by references to prominent local features (Figure 53). Where this occurs, the name is positioned in the immediate vicinity of the feature referenced and extended toward the general area it serves to identify.

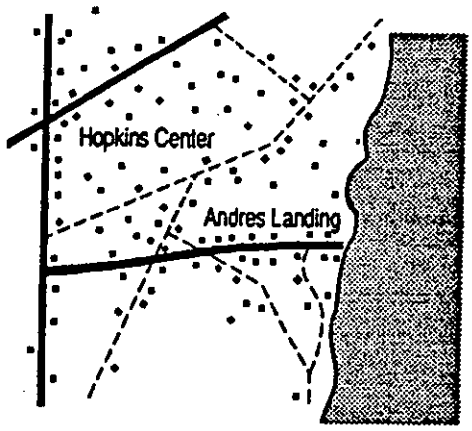


FIGURE 53. Type placement relative to prominent local features.

3.19.14.3 Names for populated places located near shorelines.

a. Names for populated places that are located along shorelines are placed entirely in the open water area (Figure 54). Where developed areas are located adjacent to (but inland from) the shoreline, the name is placed entirely on the land area. Only in extreme cases is it permissible to overprint the shoreline with type.

FIGURE 54. Placement of names along a shoreline.

b. In cases when the generic term associated with populated places is repeated numerous times on a map sheet, the generic term is abbreviated. The full generic term and its properly abbreviated form is shown in the map glossary. Where mapping situations warrant this treatment, the authority to abbreviate the generic term will be included in supplementary project instructions.

c. When a populated place is comprised of a group of individual hamlets and each hamlet is referred to by the same name, a distinction is made for reference purposes. The names of the hamlets are followed by a number enclosed by parentheses. The numbers are assigned in order, based on the entire group. To avoid repetition the number sequence is not restricted to individual sheet lines where the group falls on more than one sheet. When this occurs, a note is added to the map legend stipulating that the number in parentheses indicates that more than one hamlet is so named.

3.19.15 Spot features. A spot feature consists of either an individual symbol or small group of symbols (Figure 55) whose area is too small to accommodate the identifying type. The labels for spot features are usually descriptive. When a particular spot feature appears many times (two or more) on the same sheet, the symbol is added to the map legend with its appropriate description, thus eliminating the need for repeated labeling.

FIGURE 55. Spot feature labeling placement.

3.19.16 Linear features. Linear features include such items as roads, railroads, powerlines, pipelines, double and single line drainage, and features. When labeling linear features, it is preferable that the type be placed parallel to the upper side of the symbol as viewed from the south neatline.

a. Names for linear features are never letter spaced or extended. When name placed at the middle point of a linear feature does not identify it sufficiently, the name is repeated at appropriate intervals to further clarify the symbol.

b. Wherever possible, labeling is placed along the straight segments of linear features rather than the curved portions. When there is no alternative but to label these features along a curve, a curving of type is desirable.

c. When labeling international boundaries, the names of the countries are placed on the side of the boundary which corresponds with the area being identified (Figure 56). It is preferred that the country names be positioned adjacent to one another and parallel to the boundary symbol separating them.

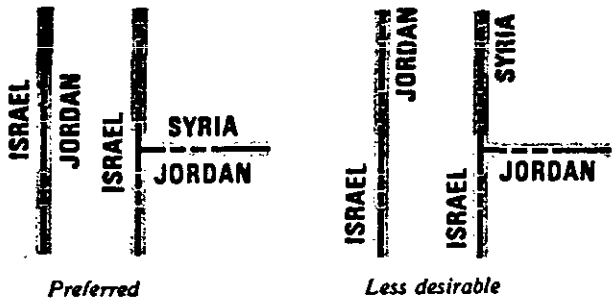


FIGURE 56. Boundary labeling.

d. In the placement of drainage type, "U" or inverted "U" shaped labeling is avoided. When labeling double line drainage, it is desirable to have the name within the shorelines, provided the feature is wide enough (Figure 57) to accommodate the entire name. Type is never positioned partially in or out of double line streams.

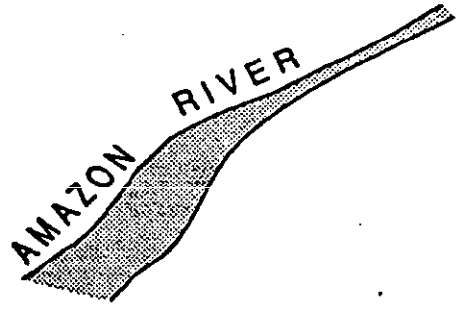


FIGURE 57. Labeling area drainage features.

e. The names for smaller streams which form tributaries of a river or larger drain are positioned as close to their outlet as is reasonably possible (Figure 58). When labeling streams containing an open water fill the name is shown in all capital letters. The names for drainage symbolized by a single line are shown in upper and lower case lettering.

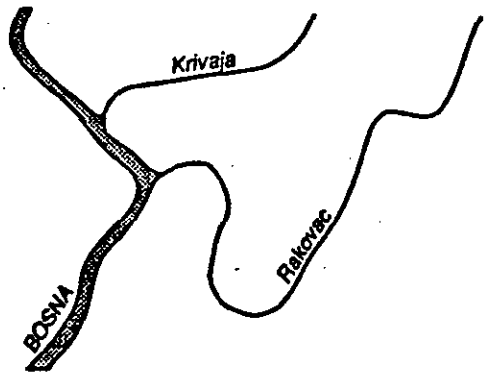


FIGURE 58. Labeling of small streams and tributaries.

f. Identifying type is omitted where linear features are not long enough to accommodate the entire name or its authorized abbreviation.

3.19.17 Control points.

a. The elevation values for horizontal control points are preferably positioned to the southeast side of the point, and the top of the value aligned with the horizontal center of the symbol (Figure 59). When preferred positioning cannot be adhered to, the selection of alternative positioning is made.

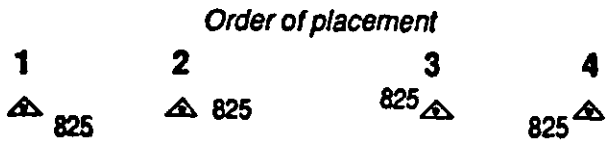


FIGURE 59. Control point labeling.

b. There are instances when control points are identified with a name or a station number. When this occurs, the name or number is positioned as indicated in Figure 60.

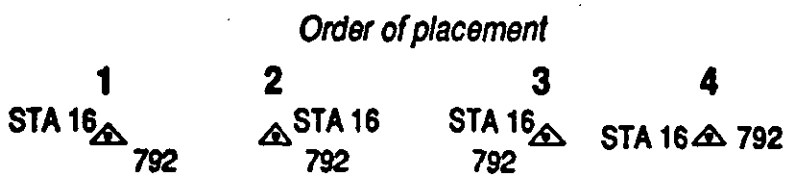


FIGURE 60. Type placement for control points with a name.

c. When labeling bench marks (Figure 61), the bottom of the type "BM" (Bench mark) or "VABM" (Vertical angle bench mark) is aligned with the horizontal center of the point and preferably positioned on the northwest side.

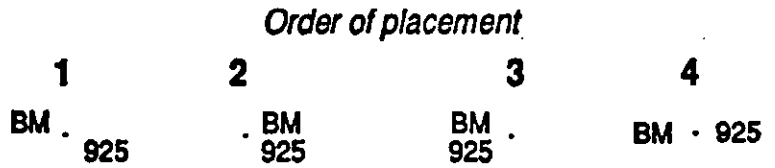


FIGURE 61. Bench mark label placement.

3.19.18 Spot elevation type placement.

a. Spot elevation values are positioned in close proximity to the symbol they identify (Figure 62). Where possible, elevation values are placed to avoid obscuring features of importance for the map user; i.e., small tops, ridges, saddles, etc. It is preferred that the values be positioned to the southeast of the defined point, with the top of the numerals aligned with the horizontal center of the symbol referenced. Spot elevation values are never positioned so that the dot depicting the precise location of the elevation may be mistaken for a decimal point.

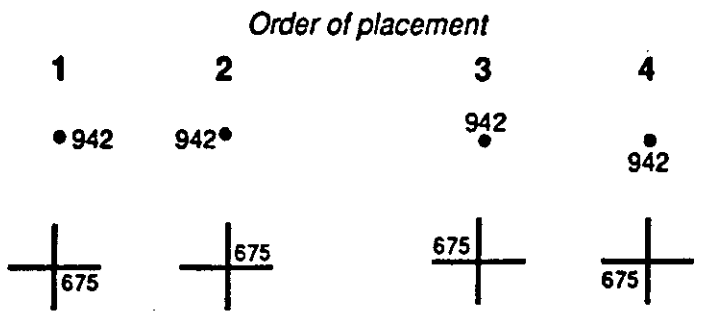


FIGURE 62. Spot height type placement.

b. Water surface elevations are shown in blue and preferably centered within the limits of the feature.

c. Instances will occur where spot elevations are provided for islands too small to accommodate the values. In such cases the value is positioned adjacent to the island (Figure 63) and aligned in accordance with 3.19.18.a. When the island is identified by a proper name, the value is centered below the name.

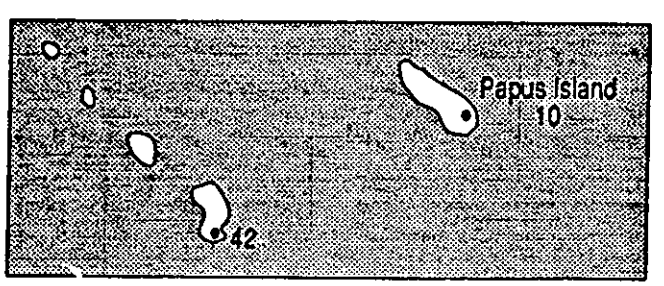


FIGURE 63. Alternative spot elevation placement for small islands.

3.19.19 Contour values.

a. Contour values provide a convenient means of reading elevations portrayed by contour lines. The number and location of contour values is governed by the nature of the terrain, density of contours, and the number of control points and spot elevations. Areas of complex topography require a greater number of contour values than do areas of simple terrain.

b. The following guidelines deal with prevalent cases in the labeling and positioning of contour values.

(1) When labeling contours, sets of numerals are positioned so that they progress in smooth-flowing curves (Figure 64) toward the higher elevations, a mechanical or stepladder-like appearance is avoided.

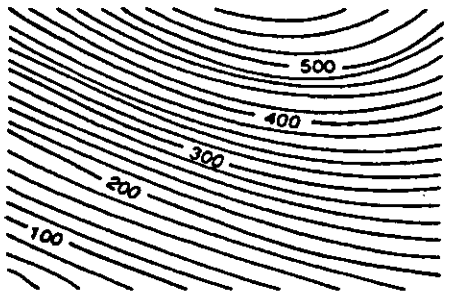


FIGURE 64. Sample of smooth-flowing contour value labeling.

(2) Contour values are most effective when positioned on slopes near the ends of spurs, the side of ridges, and at pronounced changes in topography (Figure 65). Under no circumstances are values positioned in mirror-like sequence on each side of a particular ridge or landform.

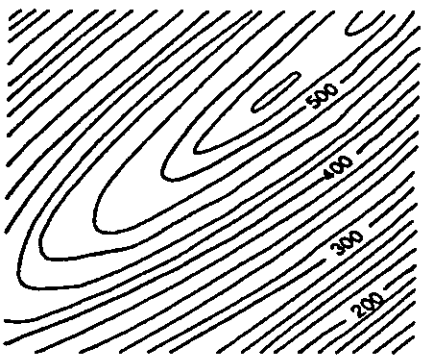


FIGURE 65. Sample positioning of contour values on ends of spurs, sides of ridges, and pronounced changes in topography.

(3) Sets of contour values are evenly distributed throughout the map sheet, thus enabling the user to determine elevation without a prolonged search for reference points.

(4) Space permitting, contour values are added to supplementary and depression contours wherever they are shown.

(5) All contour lines are blocked-out a distance of 0.50 mm from contour values.

c. Contours above the datum plane are labeled with numerals. These coinciding with the datum plane are labeled with the word *ZERO* and those below the datum plane, including bathymetric contours, are labeled with numerals prefixed with the word *MINUS*. The negative (-) sign and the number zero (0) are not used when labeling contours, but are always spelled out.

(1) During the labeling of contours, every effort is made to position the type reading uphill towards the higher elevation and to make it legible from either the south or east neatline. Values for "MINUS" and "ZERO" contours are always positioned in this manner.

(2) In the majority of cases, it is only necessary to label the index contours. However, in flat areas widely spaced intermediate contours are labeled to facilitate the interpretation of terrain.

(3) Contour values are centered on the axis of contour lines, and are not positioned in the immediate vicinity of control points, bench marks, or spot elevations.

d. Sets of contour values are evenly distributed throughout the map sheet, thus enabling the user to determine elevation without a prolonged search for reference points. When labeling contours portraying major landforms, sets of values are repeated at distances of from 10 cm to 15 cm.

3.19.20 Hypsographic features. Features included in this category are: mountains, mountain ranges, mesas, ridges, valleys, plains, canyons, peaks, hills, and topographic surface characteristics. The following are guidelines for the positioning of type for hypsographic features:

a. When hypsographic features are extensive in size, the type is positioned slightly above the axis of the land form as viewed from the south neatline. The name is letter spaced (Figure 66) and aligned parallel to the general formation of the feature.

b. The names of narrow valleys, canyons, gorges, and similar features are preferably placed on the upper side of, and parallel to, the axis of the feature identified.

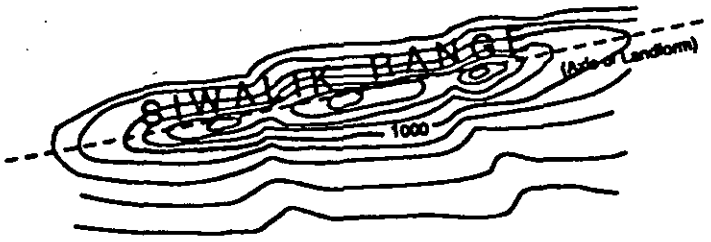


FIGURE 66. Placement of topography name for long linear features.

c. When labeling hills, pinnacles, mountain peaks, and similar features, the type is centered above the summit of the feature, provided it does not obscure other prominent detail and the continuity of the relief remains unchanged. Preferred and acceptable alternate positioning of names is established by the following examples in Figure 67.

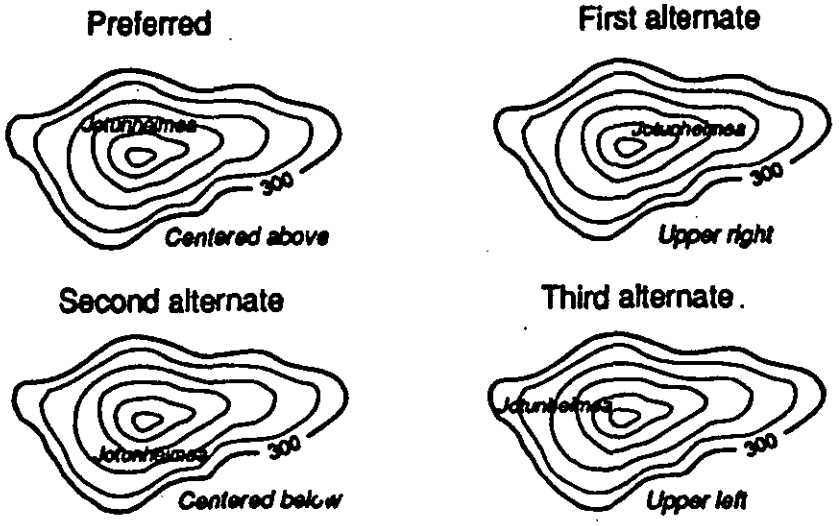


FIGURE 67. Label placement for tops of various types of topography.

d. Terms describing the nature of surface terrain, such as karst, lava, and rocky, are required when such features cannot be precisely identified with reference to the map symbol legend or where definitive labels must serve as the only means of aerial identification. When supported by a symbol pattern, labels are centered within the subject area. When labeling large areas void of distinctive symbolization, the term is repeated as often as necessary to properly define aerial coverage and the approximate limits of the feature.

3.19.21 Woodland features.

a. Names for small wooded sections which are integral parts of a larger named forest are shown when considered to be of importance to the map user. When labeling the smaller tracts, the type is positioned so that it cannot be confused with the forest name (Figure 68) that is dominant throughout the entire area.

FIGURE 68. Type placement for small wooded areas.

b. The proper names for forests, orchards, vineyards, and plantations are shown whenever there is sufficient space to accommodate the labeling. In labeling vegetation features, the type is covered within the overall limits of the area to be identified. The names are aligned either parallel to the south neatline or placed to follow the general character of the feature. When labeling large expanses of vegetation, letter-spacing of type is desirable.

3.19.22 Enclosure type placement. Included in this category are features whose limits are clearly defined by outlines supplemented by descriptive labeling. It is preferred that the type be centered within the outlined area (Figure 69). Labels are aligned either parallel to the south neatline or positioned to follow the character of the feature.

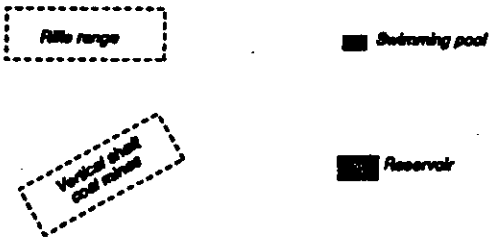


FIGURE 69. Enclosure labeling.

3.19.23 Area names.

a. In some parts of the world, large tracts of terrain are identified by proper names. These named tracts are sparsely populated and may not have definite boundaries; the name refers to a general area and not a specific hydrographic, hypsographic, vegetation, or cultural feature. When shown, the names are designated as "area names" in the map symbol legend.

b. Proper names used by the local inhabitants to identify the general area in which they live are also considered area names. They are important, administratively, for facilitating postal operations and provide the map user a way to more readily locate a particular area of interest. When area names in this

category can be expressly identified as a communal village, parish, or similar area, they are so defined in the map symbol legend. This type of area name is shown only when specified in supplementary project instructions.

c. Area names are positioned so that the area represented is clearly defined (Figure 70). This may require the name to be letter-spaced, curved, or placed in an angular position similar to hydrographic labeling.

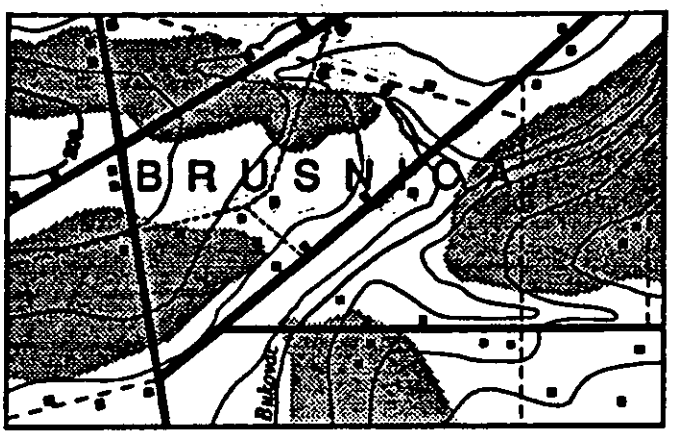


FIGURE 70. Area names labeling.

d. The identifying names for marshes, swamps, bogs, and similar features (Figure 71) are centered within the limits of the feature defined. The type is preferably aligned parallel to the south neatline, and when the area is extensive, letter-spacing is desirable.

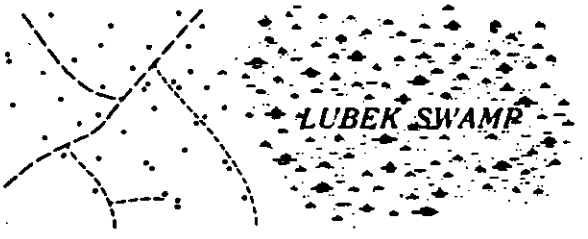


FIGURE 71. Identifying names placement for marshes, swamp, bogs, and similar features.

3.19.24 Tribal names. Tribal names are shown when specified in supplemental project instructions. When required, they are treated in the same manner as that described for area names. When area names appear elsewhere on the map, tribal names are shown in a distinctive style of type which is specified by supplementary instructions. The identification of tribal names is included in the map legend where applicable.

3.19.25 Open water and marshland.

a. In labeling bodies of water (Figure 72) whose limits can accommodate the entire name, the type is centered within limits of the feature.

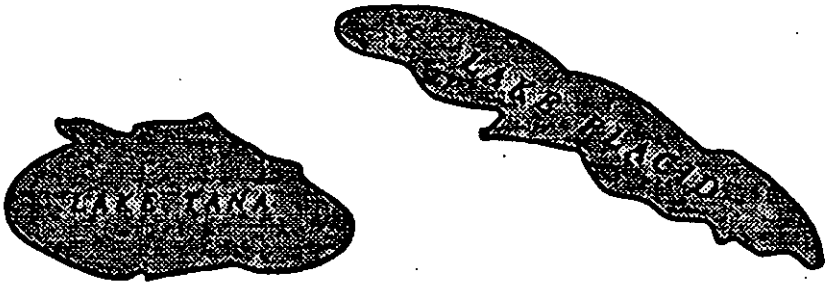


FIGURE 72. Label position for bodies of water.

b. When labeling small lakes and ponds, the names are positioned and aligned in accordance with 3.19.13.c.

3.19.26 Capes and islands. Names labeling examples:

a. Island chains and peninsulas (Figure 73).

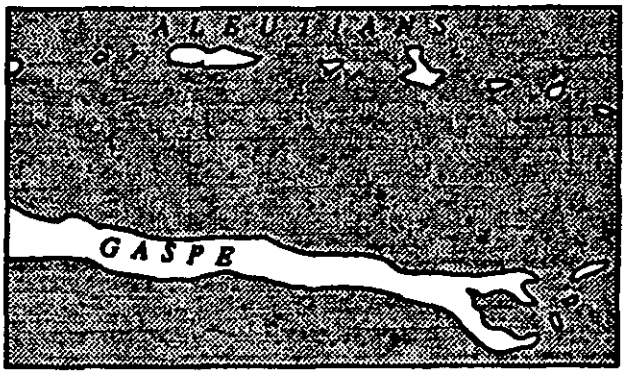


FIGURE 73. Labeling peninsulas, and island chains.

b. Capes, points and small islands (Figure 74).

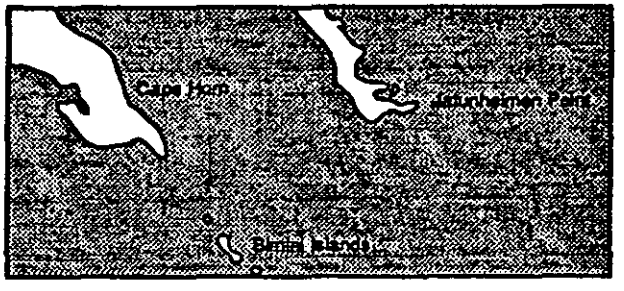


FIGURE 74. Labeling capes, points, and small islands.

c. When labeling large capes and large islands, the type is centered within the land area and parallel to the south neatline when possible; otherwise, the type should be placed to conform with the general configuration of the feature.

d. The names for peninsulas and island chains are placed parallel to the general information of the feature. When possible, the type identifying peninsulas is positioned within the land area.

e. The names of capes, points, and small islands are placed in the open water adjacent to the feature defined. Whenever possible, the type is positioned to the right and slightly above the feature. Names are always placed to avoid overprinting the shoreline.

3.19.27 Coastal hydrographic features.

a. Coastal hydrographic landmark features require the use of descriptive notes. Definitive labels for coastal hydrographic landmark features are positioned as close to their precise locations as possible.

b. Depth contour values (Figure 75) are positioned similar to contour values. Where possible, the values are placed so that they are readable from the south or east neatline. Depth contours are always labeled to read toward the deepest depth, i.e., reading from the shoreline area toward the outer area of the open water. All depth contours are labeled and blocked out a distance of 0.50 mm from the value.

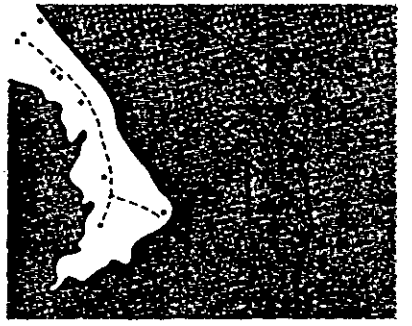


FIGURE 75. Depth contour values.

3.19.28 Route marker type placement.

a. Figure 76 is an example of positioning for route markers.

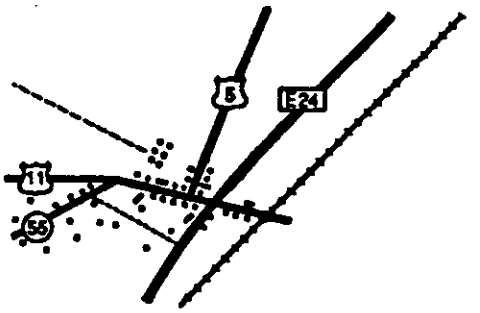


FIGURE 76. Route marker positioning.

b. The following are guidelines of route markers to assure maximum effectiveness.

(1) Route markers are positioned in areas free of congested map detail.

(2) Route markers are shown close to populated places.

(3) Route markers are shown as often as required to insure identification and reader continuity.

(4) Route markers are shown in the vicinity or road junctions and intersections.

(5) On roads which continue onto adjoining sheets, route markers are shown close to the map neatline.

(6) Individual route markers are shown for roads which are designated as a combination of two or more numbered roads. When this occurs, the markers are preferably shown in close proximity.

c. Route markers are centered on their respective road symbols and aligned parallel to the south neatline. Whenever possible, route markers are positioned so as to avoid grid lines, linear drainage symbols, and congested map detail. All map detail is blocked out for route markers.

3.19.29 Type sizes. The type sizes prescribed in MIL-STD-2402 are to be maintained whenever possible. Where the type specifications permit a range of type sizes based on the aerial limits of a feature, the Type Template (APPENDIX D) is used as a guide to assure uniformity of selections. When space prohibits the use of a prescribed type size, or the size indicated by the template will obviously distort the relative importance of the feature, a more appropriate size is selected by the cartographer.

3.19.30 Type printing colors. With exceptions noted below, all interior type is to print in black.

a. Contour values print in red-brown.

b. All type pertaining to hydrographic features is shown in blue; included is descriptive type related to hydrographic features and water surface elevations. Snowfields, icefields, ice crevices, glaciers (and their elevations), and ice shelf limits, while considered relief features are labeled in blue. Excepted is type pertaining to features such as reservoirs with man-made limits, swimming pools, filtration and sewage disposal beds, and peat cuttings, all of which are shown in black with varying blue fill patterns.

c. Type for aeronautical data prints in aero blue.

3.20 Radar. This section is not applicable to this specification.

3.21 Annotation. This section is not applicable to this specification.

3.22 Special area. This section is not applicable to this specification.

3.23 Symbology. Symbology shall be in accordance with MIL-STD-2402, MC&G SYMBOLOGY. Unless otherwise specified, the center of a symbol shall correspond to the true location of the feature being represented. Displacement of symbology, when necessary, should be in compliance with APPENDIX A, Product Rules or MIL-STD-2403, MC&G Product Rules.

3.24 Reproduction. This section specifies the printing colors and reproduction process screens used in the reproduction of 1:100,000 scale topographic maps.

a. The colors and screens used for special maps, reprints, and military installation maps are specified in supplementary instructions for the project.

b. For 1:100,000 scale topographic maps refer to MIL-STD-2410, MC&G REPRODUCTION AND PRINTING for a complete listing and examples of printing screens for map features.

3.24.1 Paper. Topographic maps are printed on JCP E-30 (Map Litho Finish, Chemical, Wood, White) paper.

3.24.2 Tolerances.

a. The registration of the color images is accurate to within 0.5 mm of the map projection and to each other as measured from one corner to another along the longest dimensions of the

neatline, and does not exceed 0.5 mm in any direction. Map features register within ± 0.15 mm between component color parts.

b. Color control blocks are positioned outside the trim limits and are retained after trimming.

3.24.3 Identification of copy.

a. Each piece of reproduction material will be identified.

b. The identification will be located between the registration punch holes as negative see through film emulsion images. The identification will be in Swiss 742, 12 point bold condensed, upper case type, or equivalent, set on one line. If the terms exceed the space allowed between the punch holes, the security classification may be extended beyond the second punch hole.

c. The identification will be comprised of the terms in the sequence listed as follows:

(1) Series number.

(2) Sheet number (key number for certain classified maps).

(3) Edition number.

(4) Map feature.

(5) Security classification.

d. Each piece in the set of reproduction material for a classified sheet will show the security classification. This is the only security classification marking required outside the trim limit. The declassification note and restrictive dissemination notes will not be included as a part of the identification.

e. On composites, only the most significant map feature will be retained for the identification label item.

3.24.4 Printing colors and screens.

a. The DoD Standard Printing Color (SPC) Catalog, Stock No. CATLXPRTGCOLRN72, contains samples of, and standards for, colors used in the lithographic printing of large scale topographic maps.

b. The DoD Standard Printing Screen (SPS) Catalog, Stock No. CATLXPRTGSCRN72, contains samples of, and standards for, screens used in the lithographic printing of large scale topographic maps.

c. The following colors and screens are established for the 1:100,000 scale topographic map product:

SEPARATION	SCREEN	SPC COLOR
Culture: Projection; Tracks and Trails; Railroads and Related Features; Coastal Hydrography	Solid	58600 Black
Culture: Road (FDW)	Solid	58600 Black
Culture Type	Solid	58600 Black
Destroyed-Area Tint	21%-120D-45°	58600 Black
Shanty Town	AP-132	58600 Black
Foreshore Flats	12%-120D-15°	58600 Black
Coniferous Trees (overprints woodland tint)	AP-60	58600 Black
Deciduous Trees (overprints woodland tint)	AP-54	58600 Black
Mixed Trees (overprints woodland tint)	AP-63	56800 Black
Elevation Guide		
Highest Tint	42%-120D-45°	58600 Black
High Tint	21%-120D-45°	58600 Black
Medium Tint	7%-120D-45°	58600 Black
Low Tint	--	Paper White
Built-Up Area Tints		
Dense	54%-120D-45°	58600 Black
Sparse to Moderate	31%-120D-45°	58600 Black
Settlement (Southeast Asia)	21%-120D-45°	58600 Black
Roads (AWHS)	Solid	61121 Red/Brown
Roads (AWLS)	67%-240D-30°/60°	61121 Red/Brown
Contours; Form Lines; Contour Values	Solid	61121 Red/Brown

SEPARATION	SCREEN	SPC COLOR
Cuts; Fills; Levees; Faults; Embankments; Cliffs and Escarpments; Incised features; Geothermal features	Solid	61121 Red/Brown
Sand	AP-95	61121 Red/Brown
Distorted Surface Area	Labeled	61121 Red/Brown
Gravel	AP-99	61121 Red/Brown
Sand Dunes		
Star Dunes	AP-120	61121 Red/Brown
Lateral Dunes	AP-118	61121 Red/Brown
Crescent Dunes	AP-108	61121 Red/Brown
Ripple Dunes	AP-112	61121 Red/Brown
Sand Mounds	AP-126	61121 Red/Brown
Transverse Dunes	AP-127	61121 Red/Brown
Cultivated Land	7%-120D-45°	61121 Red/Brown
Grid Lines	Solid	58600 Blue
*Grid Values	Solid	58600 Blue
Drainage: Shorelines; Rivers and Streams; Canals; Ditches; Water Conduits; Miscellaneous Water Features	Solid	48253 Blue
Drainage Type	Solid	48253 Blue
Open Water Tint	31%-120D-45°	48253 Blue
Intermittent Lake Fill	LP-3	48253 Blue
Dry or Cyclical Lake Fill; Intermittent Double-Line Stream or Wadi Fill; Wet Sand	AP-95	48253 Blue

*Printing color for British grid values is specified in the project instructions.

SEPARATION	SCREEN	SPC COLOR
Marsh; Swamp	AP-12	48253 Blue
Rice Field	AP-4	48253 Blue
Land Subject to Inundation	AP-10	48253 Blue
Sabkha	AP-103	48253 Blue
Snow Field; Ice Field	7%-120D-45°	48253 Blue
Pack Ice	AP-103	48253 Blue
Glacier	AP-104	48253 Blue
Mangrove (overprints Open Water Tint)	AP-8	52813 Green
Nipa (overprints Open Water Tint)	AP-7	52813 Green
Woodland	31%-120D-45°	52813 Green
Scattered Trees	AP-44	52813 Green
Scrub	AP-68	52813 Green
Orchard	AP-74	52813 Green
Vineyard	AP-77	52813 Green
Tropical Grass	AP-66	52813 Green

d. All interior type printing in black and blue are processed for a 0.2 mm halo of:

(1) All culture (black) linework.

(2) Grid lines and interior grid valves.

(3) Tree Symbols (AP-54, AP-60, AP-63).

e. Woodland tint and vegetation patterns are masked to prevent overprinting of:

(1) Roads.

(2) Route markers.

(3) Double-line drains.

(4) Horizontal control points (Trig point symbols)

f. Drainage and open water tint is masked to prevent overprinting bridges.

g. All features are masked to prevent overprinting route markers.

3.24.5 Finishing instructions.

a. Topographic maps at 1:100,000 scale are trimmed 571.50 mm by 736.60 mm.

b. Maps produced for use in NATO areas of interest are trimmed 558.80 mm by 736.60 mm.

c. At the prerogative of the production element, the 736.60 mm trim limit for non-NATO maps may be increased but not exceed 762.00 mm. Refer to project specifications for applicable sizes.

d. The final 1:100,000 scale topographic map will be folded and will display the sheet classification on both the front and back of these folds so that the classification is visible after folding.

3.25 Feature/Attribute.

3.25.1 Feature/Attribute contents: General. This section contains feature, feature attributes category, feature attribute category value, inclusion condition and specific rules corresponding to 1:100,000 Topographic Line Map production.

3.25.2 Feature/Attribute category, inclusion conditions and product rules. The following is an explanation of the heading and sub-heading format for TABLE I. See Table I "set-up" example at the bottom of the seven format explanations:

(1) F(Feature)Code - 5 digit alpha numeric, Feature Attribute Coding Standard (FACS) Code assigned to each feature (e.g. 1U030-Aircraft Facility). The first two digits identify the category and sub category to which each feature belongs (e.g. 1 = Culture Category, U = Airports sub category).

(2) Feature - Name of feature as specified in the FACS. A feature is a physical (e.g. Vertical Obstruction) or conceptual (e.g. Airspace) entity of the real world which has one or more set of coordinates to be included on a product.

(3) Feature Type - designation of a feature type.

Area(A) - More than two sets of coordinates defining a closed area; areas may span more than one map sheet or geographic area requirement.

Line(L) - Two or more coordinate sets defining a series of line segments.

Point(P) - One set of coordinates.

NOTE: If there is more than one Feature Type (area, line or point) for the feature, then the ACode and Inclusion conditions are stated separately for each type.

(4) A(Attribute)Code - Three digit alpha or alpha numeric character (acronym) FACS code assigned to each attribute category which identifies the attribute category (e.g., EXS - Existence Category). Attribute categories are defined by mutually exclusive sets of attribute values which are feature dependent. Attribute values relative to product are normally contained in MIL-STD-2402 under column headed "AValue", a few exceptions are contained in the inclusion conditions.

(5) Attribute - Name of attribute category required by the feature as specified in the FACS. Attribute categories are characteristics in menu form relative to a specified feature or features.

(6) Inclusion conditions - Conditions under which the feature/attribute(s) are required by the product (e.g., Tower, (1T080), is included on a particular product only if Height (HGT) >= 46m). Inclusion conditions are stated in Boolean logic and expanded English.

(7) Rule - 5 digit alpha-numeric code indicating rules (listed in MIL-STD-2403) which specify requirements for a feature to satisfy final product format/requirements. TABLE I and APPENDIX A of this specification also provide the rule numbers for features and feature types on this product only. A Table I example format is shown in Figure 77.

TABLE I Feature/Attribute category, Inclusion conditions and product rules.

PRODUCT: 1:100,000 TLM (product type)
CATEGORY: Culture (1) (feature category)
SUBCATEGORY: Extraction (1A) (feature subcategory)

TLM100 TLM100 TLM100 TLM100 TLM100TLM100 TLM100 TLM100 TLM100 TLM100TLM100 TLM100 TLM100 TLM100 TLM100 TLM100

FCode (1) **Feature (2)**
FT (3)

Attributes **Rules (7)**
XXX (4) **Attribute (5)**

Inclusion Conditions: (6)

TLM100 TLM100 TLM100 TLM100 TLM100TLM100 TLM100 TLM100 TLM100 TLM100TLM100 TLM100 TLM100 TLM100 TLM100 TLM100

FIGURE 77. Example Table I format.

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 inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own 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 sections 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.

4.4 Visual examination. The map/chart shall be examined for defects and errors as specified by the contract or Government. Required corrections shall be made to manuscripts, drafting positives, and reproducible material before the map/chart is sent to the next production stage. Defects detected during the inspection of the printed "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 map/chart shall be maintained. The records shall document sources, decisions regarding reconciliation of conflicting data, etc. Chart records/construction histories shall be reviewed concurrently with visual examinations (see 4.4) to ensure that proper cartographic 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.

5. PACKAGING

5.1 Packaging: General. 1:100,000 topographic maps will be issued as folded stock. Unless a specific requirement exists for initial automatic distribution of flat stock to support certain agencies and users, all 1:100,000 topographic maps shall be folded and packaged as described below. Flat stock will not be available after automatic distribution.

5.2 Folding.

a. The map shall be folded in such a way as to display the Bar Code (lower right corner of the map margin data), any classification top and bottom (when applicable). The classification is to be indicated on both the front fold (bottom margin data) and back (top margin data) of the same front fold.

b. The final folded dimensions are as follows:

18.415 cm by 29.210 cm

5.3 Packaging.

5.3.1 Level of protection. Packaging shall be level C (see 6.2) unless otherwise specified. This packaging provides minimum protection, and is needed to protect material under known 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 transit delays.

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

5.3.2 Package size. Folded 1:100,000 topographic maps are shrink-wrapped in packages of fifty (50) copies each, 25 copies in one direction with the remaining 25 copies rotated 180° from the first 25. The packages are consistent of the same map. When packaged, the top map in the package shall display the lower right corner containing the bar code, classification (when the classification is present), and any special handling notes. The back of the last folded flap (which is the top-right side of the printed side of the map that has the bar code at the bottom when folded over) shall display the classification (when the classification is present).

5.4 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.

6. NOTES

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

6.1 Intended use. The intended use of 1:100,000 Topographic Map is primarily used by land and air forces in support of ground operations for planning, tactical operations, target acquisition, and fire support.

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 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 acquisition documents regarding arrangement for selection, inspection, and approval of the first article.

6.4 Supersession. These specifications supersede DEFENCE MAPPING AGENCY PRODUCT SPECIFICATIONS FOR TOPOGRAPHIC MAPS, 1:100,000, SECOND EDITION, PS/3AG/201, MARCH 1990.

6.5 Definitions, first article.

6.5.1 Circular error (CE). An accuracy figure representing the stated percentage of probability that any point expressed as a function of two linear components (e.g., horizontal position) will be within the given figure.

6.5.2 Linear error (LE). A one dimensional error (such as an error in elevation) defined by the normal distribution function.

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.

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 section is not applicable to this specification.

6.8 Changes from previous issue. Margin notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Extraction (1A)
*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1A010 MINE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0007
EXS	EXISTENCE CATEGORY	G-0010
LMC	LANDMARK CATEGORY	G-0012
MIN	MINING CATEGORY	G-0013
NAM	NAME CATEGORY	L-0061
PRO	PRODUCT CATEGORY	L-4007
		L-4008
		L-4010
		R-2244
		R-2494

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 0(UNKNOWN) or 28(OPERATIONAL)
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and EXS(EXISTENCE CATEGORY) 6(ABANDONED)
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	D-1653
EXS	EXISTENCE CATEGORY	G-0005
LMC	LANDMARK CATEGORY	L-0061
MIN	MINING CATEGORY	L-4007
NAM	NAME CATEGORY	L-4010
PRO	PRODUCT CATEGORY	R-2248

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 0(UNKNOWN) or 6(ABANDONED) or 28(OPERATIONAL)
and ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1A030 QUARRY
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0007
EXS	EXISTENCE CATEGORY	G-0010
LMC	LANDMARK CATEGORY	G-0012
PRO	PRODUCT CATEGORY	G-0013
		L-0061
		L-4010
		R-2494

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Extraction (1A)

1A030 QUARRY (Cont.)
AREA

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 0(UNKNOWN) or 28(OPERATIONAL)
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and EXS(EXISTENCE CATEGORY) 6(ABANDONED)
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	D-1653
EXS	EXISTENCE CATEGORY	G-0005
LMC	LANDMARK CATEGORY	L-0061
PRO	PRODUCT CATEGORY	L-4010
		R-2248

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 0(UNKNOWN) or 6(ABANDONED) or 28(OPERATIONAL)
and ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1A040 RIG /SUPERSTRUCTURE
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-0061
HGT	HEIGHT ABOVE SURFACE LEVEL	L-3972
LMC	LANDMARK CATEGORY	L-5040
LOC	LOCATION /ORIGIN CATEGORY	R-0046
PRO	PRODUCT CATEGORY	T-0304
ZVL	Z VALUE	

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)

OR LOC(LOCATION/ORIGIN CATEGORY) 9(OTHER)
and HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m

OR LOC(LOCATION/ORIGIN CATEGORY) 9(OTHER)
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1A050 WELL
POINT

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	D-1653
HYC	HYDROGRAPHIC CATEGORY	L-0061
LMC	LANDMARK CATEGORY	L-4008
NAM	NAME CATEGORY	L-4009
PRO	PRODUCT CATEGORY	L-4706
SCC	SPRING /WELL CHARACTERISTIC CATEGORY	L-4813
WFT	WELL FEATURE TYPE	O-3155

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Extraction (1A)

1A050 WELL (Cont.)
POINT

Attributes — PG Rules
R-2244
R-2248
T-0300

Inclusion Conditions:

PRO(PRODUCT CATEGORY) 0(UNKNOWN) or 12(NATURAL GAS) or 18(OIL)
and EXS(EXISTENCE CATEGORY) 28(OPERATIONAL)
OR PRO(PRODUCT CATEGORY) 0(UNKNOWN) or 12(NATURAL GAS) or 18(OIL)
and EXS(EXISTENCE CATEGORY) 6(ABANDONED)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)
OR PRO(PRODUCT CATEGORY) 27(WATER)
and HYC(HYDROGRAPHIC CATEGORY) 0(UNKNOWN) or
or 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING)
or 8(PERENNIAL/PERMANENT)
and EXS(EXISTENCE CATEGORY) 28(OPERATIONAL)
OR PRO(PRODUCT CATEGORY) 27(WATER)
and EXS(EXISTENCE CATEGORY) 6(ABANDONED)
and HYC(HYDROGRAPHIC CATEGORY) 3(DRY)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1B000 DISPOSAL SITE /WASTE PILE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0006
LMC	LANDMARK CATEGORY	G-0010
PRO	PRODUCT CATEGORY	G-0012
		L-0061
		R-2494

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1B010 WRECKING YARD /SCRAP YARD
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
		R-2494
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Processing Industry (1C)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1C000 PROCESSING PLANT /TREATMENT PLANT
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
NAM	NAME CATEGORY	G-0012
PRO	PRODUCT CATEGORY	L-0061
WID	WIDTH	L-4008
		L-4010
		L-4027
		L-4813
		R-2494

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	C-0022
NAM	NAME CATEGORY	D-1653
PRO	PRODUCT CATEGORY	L-0061
		L-4008
		L-4010
		L-4813
		R-2248

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1C020 CATALYTIC CRACKER
POINT

Attributes	PG Rules
NO ATTRIBUTE REQUIRED	C-0022
	D-1653
	L-3505

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1C030 SETTLING BASIN /SLUDGE POND
AREA

Attributes		PG Rules
LMC	LANDMARK CATEGORY	G-0006
WID	WIDTH	G-0012
		L-3505
		R-2494

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Processing Industry (1C)

1C030 SETTLING BASIN /SLUDGE POND (Cont.)
AREA

Inclusion Conditions:

WID(WIDTH) >= 250 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1D010 POWER PLANT FACILITY
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
NAM	NAME CATEGORY	L-0050
PPC	POWER PLANT CATEGORY	L-4008
WID	WIDTH	L-4011
		L-4813

Inclusion Conditions:

WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1D020 SOLAR PANEL
POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	C-0022
		D-1653
		L-3505
		R-2248

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 130 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1D030 SUBSTATION /TRANSFORMER YARD
AREA

Attributes		PG Rules
WID	WIDTH	G-0006
		G-0010
		G-0012
		L-3505
		L-3506

Inclusion Conditions:

WID(WIDTH) >= 80 m

POINT

Attributes		PG Rules
LMC	LANDMARK CATEGORY	C-0022
WID	WIDTH	D-1653
		R-2248

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Power Generation (1D)

1D030 SUBSTATION /TRANSFORMER YARD (Cont.)
POINT

Inclusion Conditions:

WID(WIDTH) < 80 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1F010 CHIMNEY /SMOKESTACK
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	D-1653
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC	LANDMARK CATEGORY	R-0046
ZVL	Z VALUE	R-2248

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1F020 CONVEYOR
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	R-2331

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 750 m
OR
LMC(LANDMARK CAREGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1F030 COOLING TOWER
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	D-1653
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC	LANDMARK CATEGORY	R-0046
ZVL	Z VALUE	R-2248

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Associated Industrial Structures (1F)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1F040 CRANE
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	D-1653
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC	LANDMARK CATEGORY	R-0046
ZVL	Z VALUE	R-2248

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1F070 FLARE PIPE
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	D-1653
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
LOC	LOCATION /ORIGIN CATEGORY	R-0046
ZVL	Z VALUE	R-2248
		R-2251

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)
OR LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)
and HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1H045 FIRING RANGE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	L-3505
WID	WIDTH	L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1H050 FORT
AREA

Attributes		PG Rules
NAM	NAME CATEGORY	G-0010
WID	WIDTH	G-0012
		L-0050
		L-4008
		L-4813

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Institutional /Governmental (1H)

1H050 FORT (Cont.)
AREA

Inclusion Conditions:

WID(WIDTH) >= 80 m

POINT

Attributes		PG Rules
LMC	LANDMARK CATEGORY	C-0022
NAM	NAME CATEGORY	D-1653
WID	WIDTH	G-0008
		L-4008
		L-4813

Inclusion Conditions:

WID(WIDTH) < 80 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1I020 MOBILE HOME PARK
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
		L-0050
		R-2494
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1J030 FEED LOT /STOCKYARD /HOLDING PEN
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0012
LMC	LANDMARK CATEGORY	L-0050
TXT	TEXT ATTRIBUTE	L-3505
		L-3506
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Agricultural (1J)

1J030 FEED LOT /STOCKYARD /HOLDING PEN (Cont.)
POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	L-3505
LMC	LANDMARK CATEGORY	
TXT	TEXT ATTRIBUTE	

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1J050 WINDMILL /WINDMOTOR
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	D-1653
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC	LANDMARK CATEGORY	R-0046
ZVL	Z VALUE	R-2248

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K020 AMUSEMENT PARK ATTRACTION
POINT

Attributes		PG Rules
APS	AMUSEMENT PARK STRUCTURE	D-1653
COE	CERTAINTY OF EXISTENCE	L-5040
HGT	HEIGHT ABOVE SURFACE LEVEL	R-0046
LMC	LANDMARK CATEGORY	R-2248
ZVL	Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K030 AMUSEMENT PARK
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
NAM	NAME CATEGORY	L-0050
		L-4008
		L-4813
		R-2494
		R-3730
		R-3732
		R-3733

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Recreational (1K)

1K030 AMUSEMENT PARK (Cont.)
AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K040 ATHLETIC FIELD
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0006
LMC	LANDMARK CATEGORY	G-0012
NAM	NAME CATEGORY	L-0050
		L-4008
		L-4813
		R-2494

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 32,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K060 CAMPGROUND /CAMPSITE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0012
LMC	LANDMARK CATEGORY	L-0050
NAM	NAME CATEGORY	L-4008
		L-4813
		R-2242
		R-2494
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K070 DRIVE-IN THEATER
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
		R-2494
		R-3730
		R-3732
		R-3733

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Recreational (1K)

1K070 DRIVE-IN THEATER (Cont.)
AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K090 FAIRGROUNDS
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
NAM	NAME CATEGORY	L-0050
		L-4008
		L-4813
		R-2494
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K100 GOLF COURSE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
NAM	NAME CATEGORY	L-0050
		L-4008
		L-4813
		R-2494
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K115 OUTDOOR THEATER /AMPHITHEATER
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0012
LMC	LANDMARK CATEGORY	L-4008
NAM	NAME CATEGORY	L-4813
		R-2494
		R-3730
		R-3732

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Recreational (1K)

1K115 OUTDOOR THEATER /AMPHITHEATER (Cont.)
AREA

R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K120 PARK
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	L-0050
LMC	LANDMARK CATEGORY	L-3505
NAM	NAME CATEGORY	L-3506
USE	USE STATUS	L-4008
		R-2494
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and USE(USE CATEGORY) 4(NATIONAL)
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K130 RACE TRACK
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	L-3505
NAM	NAME CATEGORY	L-4008
		L-4813

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 130 m
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K150 SKI JUMP
LINE

Attributes		PG Rules
HGT	HEIGHT ABOVE SURFACE LEVEL	G-0012
LEN	LENGTH /DIAMETER	L-3505
		O-0020

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Recreational (1K)

1K150 SKI JUMP (Cont.)
LINE

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 250 m

POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	D-1653
HGT	HEIGHT ABOVE SURFACE LEVEL	L-3505
LEN	LENGTH /DIAMETER	L-5040
ZVL	Z VALUE	R-0046

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 250 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K160 STADIUM
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0012
HGT	HEIGHT ABOVE SURFACE LEVEL	L-4008
LMC	LANDMARK CATEGORY	L-4813
NAM	NAME CATEGORY	R-2240
		R-2494
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-5040
HGT	HEIGHT ABOVE SURFACE LEVEL	R-0046
ZVL	Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K170 SWIMMING POOL
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0012
LEN	LENGTH /DIAMETER	O-1101
LMC	LANDMARK CATEGORY	
WID	WIDTH	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Recreational (1K)

1K170 SWIMMING POOL (Cont.)
AREA

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1K180 ZOO
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
NAM	NAME CATEGORY	L-0050
		L-4008
		L-4813
		R-2494
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L015 BUILDING
AREA

Attributes		PG Rules	PG Rules
ARA	AREA COVERAGE ATTRIBUTE	D-1652	O-3008
BFC	BUILDING FUNCTION CATEGORY	D-1654	O-6200
EXS	EXISTENCE CATEGORY	G-0012	R-0046
HGT	HEIGHT ABOVE SURFACE LEVEL	L-3959	R-2265
HWT	HOUSE OF WORSHIP TYPE	L-3960	R-2337
LEN	LENGTH /DIAMETER	L-4008	R-2340
LMC	LANDMARK CATEGORY	L-4018	R-2341
NAM	NAME CATEGORY	L-4028	R-2495
TUC	TRANSPORTATION USE CATEGORY	O-0020	
WID	WIDTH		

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 1250 m square
and WID(WIDTH) >= 50 m

LINE

Attributes		PG Rules	PG Rules
BFC	BUILDING FUNCTION CATEGORY	D-1652	O-3008
EXS	EXISTENCE CATEGORY	D-1654	O-6200
HGT	HEIGHT ABOVE SURFACE LEVEL	G-0012	R-0046
HWT	HOUSE OF WORSHIP TYPE	L-3959	R-2265
LEN	LENGTH /DIAMETER	L-3960	R-2337
LMC	LANDMARK CATEGORY	L-4008	R-2340
NAM	NAME CATEGORY	L-4018	R-2341
TUC	TRANSPORTATION USE CATEGORY	L-4028	R-2495
WID	WIDTH	O-0020	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Miscellaneous Features (1L)

1L015 BUILDING (Cont.)
LINE

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 50 m
and WID(WIDTH) < 50 m

POINT

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	C-0022	L-5040
AOO	ANGLE OF ORIENTATION	D-1652	O-3008
ARA	AREA COVERAGE ATTRIBUTE	D-1654	O-6200
BFC	BUILDING FUNCTION CATEGORY	G-0008	R-0046
COE	CERTAINTY OF EXISTENCE	L-3959	R-2265
EXS	EXISTENCE CATEGORY	L-3960	R-2337
HGT	HEIGHT ABOVE SURFACE LEVEL	L-4008	R-2340
HWT	HOUSE OF WORSHIP TYPE	L-4018	R-2341
LEN	LENGTH /DIAMETER	L-4028	R-2495
LMC	LANDMARK CATEGORY	L-4813	R-9041
NAM	NAME CATEGORY		
TUC	TRANSPORTATION USE CATEGORY		
ZVL	Z VALUE		

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 1250 m square
and LEN(LENGTH/DIAMETER) < 50 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L020 BUILT-UP AREA
AREA

Attributes		PG Rules	PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0006	R-2333
BAC	BUILT-UP AREA CLASSIFICATION	G-0010	R-2334
EXS	EXISTENCE CATEGORY	G-0012	R-2345
		L-1650	R-3730
		R-2178	R-3732
		R-2179	R-3733
		R-2305	

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and BAC(BUILT-UP AREA CATEGORY) 1(SPARSE TO MODERATE) or 2(DENSE)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L025 CAIRN
POINT

Attributes		PG Rules
LMC	LANDMARK CATEGORY	-None

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Miscellaneous Features (1L)

1L025 CAIRN (Cont.)
POINT

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L030 CEMETERY
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
NAM	NAME CATEGORY	L-0050
REL	RELIGIOUS DENOMINATION	L-4008
WID	WIDTH	L-4813
		R-2333
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

POINT

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	D-1653
LMC	LANDMARK CATEGORY	G-0004
REL	RELIGIOUS DENOMINATION	

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 31(ISOLATED)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L060 DRAGON (TIGER) TEETH
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
WID	WIDTH	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 250 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L070 FENCE
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	R-2352
PFH	PREDOMINANT FEATURE HEIGHT	R-2353

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Miscellaneous Features (1L)

1L070 FENCE (Cont.)
LINE

Inclusion Conditions:

PFH(PREDOMINANT FEATURE HEIGHT) >= 1.5 m
and LEN(LENGTH/DIAMETER) >= 250 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L085 GEOPHYSICAL PROSPECTING GRID
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012 L-4260

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,250 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L100 HUT
POINT

Attributes		PG Rules
LMC	LANDMARK CATEGORY	C-0022 L-3505 R-2343

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L130 MONUMENT
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-3505
HGT	HEIGHT ABOVE SURFACE LEVEL	L-4008
LMC	LANDMARK CATEGORY	L-5040
NAM	NAME CATEGORY	R-0046
SSC	STRUCTURE SHAPE CATEGORY	R-2248
ZVL	Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L135 NATIVE SETTLEMENT
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	R-2333
NAS	NATIVE SETTLEMENT TYPE	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Miscellaneous Features (1L)

1L135 NATIVE SETTLEMENT (Cont.)
AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and NAS(NATIVE SETTLEMENT TYPE) 2(CONTINUOUS HABITATION)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L140 NUCLEAR ACCELERATOR
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0010
LMC	LANDMARK CATEGORY	G-0012
		L-3505

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L160 PIPELINE /PIPE
LINE

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	G-0012	L-4260
EXS	EXISTENCE CATEGORY	L-0061	L-4261
LEN	LENGTH /DIAMETER	L-3633	R-2231
LMC	LANDMARK CATEGORY	L-4010	R-2249
LOC	LOCATION /ORIGIN CATEGORY	L-4012	R-2349
PRO	PRODUCT CATEGORY	L-4013	R-3920
		L-4014	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 2,500 m
and LOC(LOCATION/ORIGIN CATEGORY) 1(BELOW GROUND SURFACE)
or 3(ON GROUND SURFACE) or 4(SUSPENDED) OR ELEVATED ABOVE GROUND OR WATER)
and PRO(PRODUCT CATEGORY) 0(UNKNOWN) or 6(CHEMICAL) or 12(NATURAL GAS)
or 13(GASOLINE) or 18(OIL) or 27(WATER)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L170 PLAZA /CITY SQUARE
AREA

Attributes		PG Rules
NAM	NAME CATEGORY	G-0006
WID	WIDTH	G-0012
		L-0050
		L-4008
		R-3903

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Miscellaneous Features (1L)

1L170 PLAZA /CITY SQUARE (Cont.)
AREA

Inclusion Conditions:

WID(WIDTH) >= 50 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L180 PUMPING STATION
AREA

Attributes		PG Rules
LMC	LANDMARK CATEGORY	G-0012
PRO	PRODUCT CATEGORY	L-0061
WID	WIDTH	R-2333

Inclusion Conditions:

WID(WIDTH) >= 250 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

POINT

Attributes		PG Rules
LMC	LANDMARK CATEGORY	D-1654
PRO	PRODUCT CATEGORY	G-0008
WID	WIDTH	L-0061

Inclusion Conditions:

WID(WIDTH) < 250 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L200 RUINS
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0006
HGT	HEIGHT ABOVE SURFACE LEVEL	G-0012
LMC	LANDMARK CATEGORY	L-0050
LOC	LOCATION /ORIGIN CATEGORY	L-3505
NAM	NAME CATEGORY	L-3506
		L-4008
		L-4813
		R-2333

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	C-0022
HGT	HEIGHT ABOVE SURFACE LEVEL	D-1654
LMC	LANDMARK CATEGORY	L-3505
LOC	LOCATION /ORIGIN CATEGORY	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Miscellaneous Features (1L)

1L200 RUINS (Cont.)
POINT

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square
and LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L208 SHANTY TOWN
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		L-0050
		R-2178
		R-2179
		R-2333
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L210 SNOW SHED /ROCK SHED
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
SIT	SHED IDENTIFIER TYPE	R-2254
TUC	TRANSPORTATION USE CATEGORY	X-8108

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 150 m

POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	C-0013
SIT	SHED IDENTIFIER TYPE	C-0023
TUC	TRANSPORTATION USE CATEGORY	G-0008
		R-2254
		X-8108

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 150 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Miscellaneous Features (1L)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L228 TENT DWELLINGS
AREA

Attributes		PG Rules	PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010	L-3506
NAM	NAME CATEGORY	G-0012	L-4008
STL	SEASONAL TENT LOCATION	L-0050	R-3730
WID	WIDTH	L-1001	R-3732
		L-1002	R-3733
		L-3505	

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	L-1002
LMC	LANDMARK CATEGORY	L-3505
NAM	NAME CATEGORY	L-4008
STL	SEASONAL TENT LOCATION	

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L240 TOWER (NON- COMMUNICATION)
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	C-0022
HGT	HEIGHT ABOVE SURFACE LEVEL	L-3505
LMC	LANDMARK CATEGORY	L-5040
TTC	TOWER TYPE CATEGORY	O-3008
ZVL	Z VALUE	R-0046
		R-2240

Inclusion Conditions:

TTC(TOWER TYPE CATEGORY) 0(UNKNOWN) or 2(OBSERVATION/LOOKOUT) or 3(OTHER)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L250 UNDERGROUND DWELLING
POINT

Attributes		PG Rules
LMC	LANDMARK CATEGORY	L-3505

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Miscellaneous Features (1L)
*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1L260 WALL
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	L-0051
PFH	PREDOMINANT FEATURE HEIGHT	R-2250
		R-2353

Inclusion Conditions:

PFH(PREDOMINANT FEATURE HEIGHT) >= 1.5 m
and LEN(LENGTH/DIAMETER) >= 250 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1M010 DEPOT (STORAGE)
AREA

Attributes		PG Rules
LMC	LANDMARK CATEGORY	G-0006
LOC	LOCATION /ORIGIN CATEGORY	G-0012
WID	WIDTH	L-0050
		L-4016
		R-2494

Inclusion Conditions:

WID(WIDTH) >= 250 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1M020 GRAIN BIN
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	C-0022
		G-0007
		G-0012

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 80 m

POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	C-0022
		D-1654
		G-0005
		L-3505

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 80 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Storage (1M)
*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1M030 GRAIN ELEVATOR
AREA

Attributes		PG Rules
HGT	HEIGHT ABOVE SURFACE LEVEL	G-0007
LEN	LENGTH /DIAMETER	G-0012
		O-0020

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 80 m

POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-3505
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
LEN	LENGTH /DIAMETER	R-0046
LMC	LANDMARK CATEGORY	
ZVL	Z VALUE	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 80 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1M050 SILO
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-3505
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC	LANDMARK CATEGORY	R-0046
ZVL	Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1M060 STORAGE BUNKER /STORAGE MOUND
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0006
PRO	PRODUCT CATEGORY	G-0012
		L-0050
		L-0061
		L-3505
		L-3506

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Storage (1M)

1M060 STORAGE BUNKER /STORAGE MOUND (Cont.)
AREA

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 80 m

POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0004
PRO	PRODUCT CATEGORY	L-0061

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1M070 TANK
AREA

Attributes		PG Rules
HGT	HEIGHT ABOVE SURFACE LEVEL	G-0012
LEN	LENGTH /DIAMETER	L-0061
LOC	LOCATION /ORIGIN CATEGORY	L-4034
PRO	PRODUCT CATEGORY	O-0020
		T-0301

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 80 m

POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-0061
HGT	HEIGHT ABOVE SURFACE LEVEL	L-3505
LEN	LENGTH /DIAMETER	L-4034
LOC	LOCATION /ORIGIN CATEGORY	L-5040
PRO	PRODUCT CATEGORY	R-0046
ZVL	Z VALUE	T-0301

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 80 m
OR
HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
and LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1M080 WATER TOWER
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-3505
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC	LANDMARK CATEGORY	R-0046
ZVL	Z VALUE	R-2240

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Storage (1M)

1M080 WATER TOWER (Cont.)
POINT

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1N010 RAILROAD TRACK
LINE

Attributes		PG Rules	PG Rules	PG Rules
ACC	ACCURACY CATEGORY	C-0017	L-4008	R-2327
EXS	EXISTENCE CATEGORY	D-1650	L-4016	R-2328
GAW	GAUGE WIDTH	G-0012	L-4260	R-2329
LOC	LOCATION /ORIGIN CATEGORY	L-3956	L-4261	R-2601
LTN	LANE/TRACK NUMBER	L-3957	L-4284	R-3801
NAM	NAME CATEGORY	L-3961	L-4284	S-0103
RGC	RAILROAD GAUGE CATEGORY	L-3962	R-2229	S-7030
RPS	RAILROAD POWER SOURCE	L-3963	R-2324	
RRC	RAILROAD /ROAD CATEGORIES			
RTA	RAILROAD TRACK ARRANGEMENT			

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1N050 RR SIDING /RR SPUR
LINE

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	C-0017
RGC	RAILROAD GAUGE CATEGORY	D-1651
RPS	RAILROAD POWER SOURCE	G-0012
RSA	RAIL SIDING /SPUR ATTRIBUTE	L-4284
		R-2239
		R-2326
		X-8110

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1N075 RR TURNTABLE
POINT

Attributes	PG Rules
NO ATTRIBUTE REQUIRED	G-0008

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Transportation R/R (1N)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1N080 RR YARD
AREA

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	G-0006
		G-0010
		G-0012
		L-3562
		L-3633
		O-0002
		R-2238
		X-8110

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1N090 TRAMWAY /INCLINE RAILWAY
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 750 m
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1P010 CART TRACK
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	C-0009
TUC	TRANSPORTATION USE CATEGORY	D-1652
WTC	ROUTE WEATHERABILITY CATEGORY	G-0012
		O-0004
		O-3156
		R-2341
		T-0028

Inclusion Conditions:

WTC(ROUTE WEATHERABILITY CATEGORY) 2(FAIR/DRY WEATHER) or 3(WINTER ONLY)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1P020 INTERCHANGE
LINE

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	G-0012
LOC	LOCATION /ORIGIN CATEGORY	R-2233
LTN	LANE/TRACK NUMBER	
RST	ROAD/RUNWAY SURFACE TYPE	
TUC	TRANSPORTATION USE CATEGORY	
WTC	ROUTE WEATHERABILITY CATEGORY	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Transportation /Roads (1P)

1P020 INTERCHANGE (Cont.)
LINE

Inclusion Conditions:

RST(ROAD/RUNWAY SURFACE TYPE) 1(HARD/PAVED)
and TUC(TRANSPORTATION USE CATEGORY) 4(ROAD) or 7(THROUGH ROUTES)
and EXS(EXISTENCE CATEGORY) 5(UNDER CONSTRUCTION) or 28(OPERATIONAL)
and WTC(ROUTE WEATHERABILITY CATEGORY) 1(ALL WEATHER)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1P030 ROAD
LINE

Attributes		PG Rules	PG Rules	PG Rules
ACC	ACCURACY CATEGORY	C-0009	L-3953	R-2233
EXS	EXISTENCE CATEGORY	C-0017	L-3955	R-2300
LEN	LENGTH /DIAMETER	D-1510	L-4008	R-2301
LOC	LOCATION /ORIGIN CATEGORY	D-1652	L-4016	R-2305
LTN	LANE/TRACK NUMBER	D-7027	L-4260	S-0102
MED	MEDIAN CATEGORY	G-0012	L-4261	S-1010
MWD	MEDIAN WIDTH	L-3951	O-0004	T-0029
NAM	NAME CATEGORY	L-3952	R-0060	T-0030
RST	ROAD/RUNWAY SURFACE TYPE			
TUC	TRANSPORTATION USE CATEGORY			
WTC	ROUTE WEATHERABILITY CATEGORY			

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 160 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1P050 TRAIL
LINE

Attributes		PG Rules
LMC	LANDMARK CATEGORY	C-0009
WTC	ROUTE WEATHERABILITY CATEGORY	D-1652
		G-0012
		L-4033
		O-0004
		T-0022

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q010 AERIAL CABLEWAY LINE /SKI LIFT LINE
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	L-4260
USE	USE STATUS	L-4261

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Associated Transportation (1Q)

1Q010 AERIAL CABLEWAY LINE /SKI LIFT LINE (Cont.)
LINE

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 750 m
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q040 BRIDGE /OVERPASS /VIADUCT
LINE

Attributes		PG Rules
BOT	BRIDGE OPENING TYPE	C-0008
BVC	BRIDGE/VIADUCT CATEGORY	G-0012
EXS	EXISTENCE CATEGORY	O-0023
LEN	LENGTH /DIAMETER	R-2236
LMC	LANDMARK CATEGORY	R-2316
NAM	NAME CATEGORY	S-0104
TUC	TRANSPORTATION USE CATEGORY	

Inclusion Conditions:

TUC(TRANSPORTATION USE CATEGORY) 1(BOTH ROAD AND RAILROAD) or 3(ROAD)
or 4(RAILROAD) or 19(AQUEDUCT) or 20(CANAL)
and LEN(LENGTH/DIAMETER) >= 150 m
OR
TUC(TRANSPORTATION USE CATEGORY) 17(PEDESTRIAN)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)
and LEN(LENGTH/DIAMETER) >= 150 m

POINT

Attributes		PG Rules
BVC	BRIDGE/VIADUCT CATEGORY	C-0006
COE	CERTAINTY OF EXISTENCE	C-0007
EXS	EXISTENCE CATEGORY	L-5040
LEN	LENGTH /DIAMETER	S-0104
LMC	LANDMARK CATEGORY	
NAM	NAME CATEGORY	
OHB	OVERALL HEIGHT OF BRIDGE	
TUC	TRANSPORTATION USE CATEGORY	
ZVL	Z VALUE	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 150 m
and TUC(TRANSPORTATION USE CATEGORY) 1(BOTH ROAD AND RAILROAD) or 3(RAILROAD) or 4(ROAD) or 19(AQUEDUCT) or 20(CANAL)
OR
TUC(TRANSPORTATION USE CATEGORY) 17(PEDESTRIAN)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)
and LEN(LENGTH/DIAMETER) < 150 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Associated Transportation (1Q)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q050 BRIDGE SUPERSTRUCTURE
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-3505
OHB	OVERALL HEIGHT OF BRIDGE	L-5040
ZVL	Z VALUE	

Inclusion Conditions:

OHB(OVERALL HEIGHT OF BRIDGE) >= 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q060 CONTROL TOWER
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-5040
HGT	HEIGHT ABOVE SURFACE LEVEL	O-3008
ZVL	Z VALUE	R-0046
		R-2495

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q065 CULVERT
POINT

Attributes		PG Rules
WGP	WIDTH WITH GREATER PRECISION	C-0007
		R-0080
		R-2231

Inclusion Conditions:

WGP(WIDTH WITH GREATER PRECISION) >= 5.0 m and < 10.0 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q070 FERRY CROSSING
LINE

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	G-0012
FCL	FERRY CROSSING LENGTH	L-4008
NAM	NAME CATEGORY	L-4032
TUC	TRANSPORTATION USE CATEGORY	L-4260
		L-4261
		L-4813
		R-2232
		R-2320

Inclusion Conditions:

FCL(FERRY CROSSING LENGTH) >= 50 m
and EXS(EXISTENCE CATEGORY) 28(OPERATIONAL)

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Associated Transportation (1Q)

1Q070 FERRY CROSSING (Cont.)
POINT

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	L-4008
FCL	FERRY CROSSING LENGTH	L-4031
LMC	LANDMARK CATEGORY	L-4032
NAM	NAME CATEGORY	L-4813
TUC	TRANSPORTATION USE CATEGORY	R-2232

Inclusion Conditions:

FCL(FERRY CROSSING LENGTH) < 50 m
and TUC(TRANSPORTATION USE CATEGORY) 1(BOTH ROAD AND RAILROAD) or 3(RAILROAD) or 4(ROAD)
and EXS(EXISTENCE CATEGORY) 28(OPERATIONAL)

OR FCL(FERRY CROSSING LENGTH) < 50 m
and TUC(TRANSPORTATION USE CATEGORY) 17(PEDESTRIAN)
and EXS(EXISTENCE CATEGORY) 28(OPERATIONAL)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q110 MOORING MAST
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-5040
HGT	HEIGHT ABOVE SURFACE LEVEL	R-0046
ZVL	Z VALUE	

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q115 REST AREA /VEHICLE STOPPING AREA
AREA

Attributes		PG Rules
LMC	LANDMARK CATEGORY	G-0012
WID	WIDTH	L-3505
		L-3506
		R-2231
		R-2494

Inclusion Conditions:

WID(WIDTH) >= 250 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q116 ROUTE MARKER
POINT

Attributes		PG Rules
NAM	NAME CATEGORY	L-3996
USE	USE STATUS	R-2260
		R-2264
		R-2302
		R-2307
		R-2312

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Associated Transportation (1Q)

1Q116 ROUTE MARKER (Cont.)
POINT

Inclusion Conditions:

USE(USE STATUS) 4(NATIONAL) or 5(STATE) or 23(INTERNATIONAL)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q131 TUNNEL
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
NAM	NAME CATEGORY	L-4008
TRA	TRAVERSABILITY ATTRIBUTE	L-4260
TUC	TRANSPORTATION USE CATEGORY	L-4261
		L-4813
		R-2318
		R-2325
		X-8108

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 150 m

POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
NAM	NAME CATEGORY	L-3505
TRA	TRAVERSABILITY ATTRIBUTE	L-4008
TUC	TRANSPORTATION USE CATEGORY	R-2318
		R-2325

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 150 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1Q140 VEHICLE STORAGE /VEHICLE PARKING
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0012
LMC	LANDMARK CATEGORY	L-3505
MOT	MODE OF TRANSPORT	L-3506
		R-2494
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and MOT(MODE OF TRANSPORT) 4(AUTOMOTIVE)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Communication /Transmission (1T)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1T010 DISH
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-5040
HGT	HEIGHT ABOVE SURFACE LEVEL	R-0046
LMC	LANDMARK CATEGORY	
ZVL	Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1T030 POWER TRANSMISSION LINE
LINE

Attributes		PG Rules
ACC	ACCURACY CATEGORY	G-0012
LEN	LENGTH /DIAMETER	L-4012
LMC	LANDMARK CATEGORY	L-4260
TST	TRANSMISSION LINE SUSPENSION TYPE	R-0006
		R-0030
		R-2275
		R-2492

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 700 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1T040 POWER TRANSMISSION PYLON
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	L-3505
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
ZVL	Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

HGT(HEIGHT/DIAMETER) >= 46 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1T050 COMMUNICATIONS FACILITY
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
NAM	NAME CATEGORY	G-0012
NST	RADIO NAVIGATION /COMMUNICATION	L-4008
		L-4813

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Communication /Transmission (1T)

1T050 COMMUNICATIONS FACILITY (Cont.)
AREA

Inclusion Conditions:

ARA >= 62,500 m square

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1T060 TELEPHONE LINE /TELEGRAPH LINE
LINE

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	G-0012
LEN	LENGTH /DIAMETER	L-4260
LMC	LANDMARK CATEGORY	L-4261
		R-0006
		R-0030

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 5,000 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1T080 TOWER (COMMUNICATION)
POINT

Attributes		PG Rules
COE	CERTAINTY OF EXISTENCE	G-0008
HGT	HEIGHT ABOVE SURFACE LEVEL	L-4813
LMC	LANDMARK CATEGORY	L-5040
NAM	NAME CATEGORY	
NST	RADIO NAVIGATION /COMMUNICATION	
ZVL	Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1U025 AIRCRAFT LANDING PAD
POINT

Attributes		PG Rules
AFT	AIRCRAFT FACILITY TYPE	-None
NAM	NAME CATEGORY	
USE	USE STATUS	

Inclusion Conditions:

AFT(AIRCRAFT FACILITY TYPE) 2(HELIPORT)
and USE(USE STATUS) 10(OTHER) or 43(HOSPITAL)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Airports (1U)
*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1U030 AIRCRAFT FACILITY
AREA

Attributes		PG Rules
AFT	AIRCRAFT FACILITY TYPE	G-0010
COD	CERTAINTY OF DELINEATION	G-0012
EXS	EXISTENCE CATEGORY	L-4008
NAM	NAME CATEGORY	L-4813
USE	USE STATUS	R-2333
ZVL	Z VALUE	R-2494
		R-2495

Inclusion Conditions:

AFT(AIRCRAFT FACILITY TYPE) 1(AIRPORT) or 3(SEAPLANE BASE)
and COD(CERTAINTY OF DELINEATION) 1(LIMITS AND INFO KNOWN)
and EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)
and USE(USE STATUS) 0(UNKNOWN) or 8(MILITARY) or 22(JOINT MILITARY/CIVILIAN)
or 23(INTERNATIONAL) or 49(CIVILIAN)

POINT

Attributes		PG Rules
AFT	AIRCRAFT FACILITY TYPE	G-0008
COD	CERTAINTY OF DELINEATION	L-4008
EXS	EXISTENCE CATEGORY	L-5011
NAM	NAME CATEGORY	O-0024
USE	USE STATUS	

Inclusion Conditions:

AFT(AIRCRAFT FACILITY TYPE) 1(AIRPORT)
and USE(USE STATUS) 0(UNKNOWN)
and COD(CERTAINTY OF DELINEATION) 2(LIMITS AND INFO UNKNOWN)
OR AFT(AIRCRAFT FACILITY TYPE) 3(SEAPLANE BASE))
and USE(USE STATUS) 0(UNKNOWN) or 8(MILITARY) or 22(JOINT MILITARY/CIVILIAN)
or 23(INTERNATIONAL) or 49(CIVILIAN)
and EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)
and COD(CERTAINTY OF DELINEATION) 2(LIMITS AND INFO UNKNOWN)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1U040 AIRCRAFT FACILITY BEACON
POINT

Attributes		PG Rules
LFA	LIGHT FUNCTION ATTRIBUTE	-None

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1U060 APRON /HARDSTAND
AREA

Attributes		PG Rules
WID	WIDTH	C-0017
		G-0006
		G-0012

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Culture (1)
SUBCATEGORY: Airports (1U)

1U060 APRON /HARDSTAND (Cont.)
AREA

Inclusion Conditions:

WID(WIDTH) >= 40 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1U130 OVERRUN /STOPWAY
AREA

Attributes		PG Rules
	NO ATTRIBUTE REQUIRED	G-0012

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1U160 RUNWAY
AREA

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	C-0017
RST	ROAD/RUNWAY SURFACE TYPE	G-0012
ZVL	Z VALUE	L-4017
		L-4892

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

1U200 TAXIWAY
AREA

Attributes		PG Rules
	NO ATTRIBUTE REQUIRED	C-0017
		G-0012

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2A010 COASTAL SHORELINE
LINE

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	G-0012	R-2372
SLT	SHORELINE TYPE CATEGORY	G-0013	R-2437
VDC	VERTICAL DATUM CATEGORY	L-4132	R-2440
VDR	VERTICAL DATUM RECORD	R-1200	R-3735
		R-2023	R-3910
		R-2316	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Coastal Hydro (2A)

2A010 COASTAL SHORELINE (Cont.)
LINE

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2A020 FORESHORE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0006
MCP	MATERIAL COMPOSITION PRIMARY	G-0010
MCS	MATERIAL COMPOSITION SECONDARY	G-0012
WID	WIDTH	L-4706
		R-2316
		R-2825

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 130 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2A040 OPEN WATER (EXCEPT INLAND)
AREA

Attributes		PG Rules
WID	WIDTH	G-0010
		G-0012
		G-0013
		R-2316
		R-3708

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2B010 ANCHORAGE
AREA

Attributes		PG Rules
ANC	ANCHORAGE TYPE CATEGORY	G-0007
ARA	AREA COVERAGE ATTRIBUTE	G-0010
		G-0012
		R-2232

Inclusion Conditions:

ANC(ANCHORAGE TYPE CATEGORY) 9(SEAPLANE)
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

POINT

Attributes		PG Rules
ANC	ANCHORAGE TYPE CATEGORY	G-0005
ARA	AREA COVERAGE ATTRIBUTE	R-2232

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Ports and Harbors (2B)

2B010 ANCHORAGE (Cont.)
POINT

Inclusion Conditions:

ANC(ANCHORAGE TYPE CATEGORY) 9(SEAPLANE)
and ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2B040 BREAKWATER
AREA

Attributes		PG Rules
VRC	VERTICAL REFERENCE CATEGORY	G-0006
WID	WIDTH	G-0012
		R-2232
		R-3708

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and WID(WIDTH) > 40 m

LINE

Attributes		PG Rules
LMC	LANDMARK CATEGORY	R-2232
VRC	VERTICAL REFERENCE CATEGORY	
WID	WIDTH	

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and WID(WIDTH) <= 40 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2B080 DOLPHIN
POINT

Attributes	PG Rules
NO ATTRIBUTE REQUIRED	G-0004
	L-3505
	L-3506

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2B090 DRYDOCK
AREA

Attributes		PG Rules
LMC	LANDMARK CATEGORY	G-0012
LOC	LOCATION /ORIGIN CATEGORY	
WID	WIDTH	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Ports and Harbors (2B)

2B090 DRYDOCK (Cont.)
AREA

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 7(NON-FLOATING)
and WID(WIDTH) >= 40 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2B140 JETTY
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0007
VRC	VERTICAL REFERENCE CATEGORY	G-0012
WID	WIDTH	R-2232
		R-3708

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and WID(WIDTH) >= 40 m
and LEN(LENGTH/DIAMETER) >= 200 m

LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	R-2232
VRC	VERTICAL REFERENCE CATEGORY	
WID	WIDTH	

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and WID(WIDTH) < 40 m
and LEN(LENGTH/DIAMETER) >= 200 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2B190 PIER, WHARF
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
WID	WIDTH	R-2232

Inclusion Conditions:

WID(WIDTH) >= 40 m
and LEN(LENGTH/DIAMETER) >= 200 m

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Ports and Harbors (2B)

2B190 PIER, WHARF (Cont.)
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	R-2232
WID	WIDTH	

Inclusion Conditions:

WID(WIDTH) < 40 m
and LEN(LENGTH/DIAMETER) >= 200 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2B220 RAMP
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
VRC	VERTICAL REFERENCE CATEGORY	L-3505
WID	WIDTH	L-3506
		R-2232
		R-3708

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and WID(WIDTH) >= 40 m
and LEN(LENGTH/DIAMETER) >= 100 m

LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
VRC	VERTICAL REFERENCE CATEGORY	L-3505
WID	WIDTH	R-2232

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and WID(WIDTH) < 40 m
and LEN(LENGTH/DIAMETER) >= 100 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2B230 SEAWALL
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Ports and Harbors (2B)

2B230 SEAWALL (Cont.)
LINE

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 200 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2D100 PILING
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0006
VRC	VERTICAL REFERENCE CATEGORY	G-0012
		L-3505
		L-3506
		R-3708

Inclusion Conditions:

VRC(VERTICAL REFERENCE CAREGORY) 1(ABOVE SURFACE/DOES NOT COVER(AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0004
VRC	VERTICAL REFERENCE CATEGORY	L-3505

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2D120 REEF
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0006
COD	CERTAINTY OF DELINEATION	G-0010
MCP	MATERIAL COMPOSITION PRIMARY	G-0012
NAM	NAME CATEGORY	L-0050
VRC	VERTICAL REFERENCE CATEGORY	L-3505
		L-3506
		R-3708
		R-3730

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 2(AWASH AT SOUNDING DATUM)
or 8(COVERS AND UNCOVERS)
and COD(CERTAINTY OF DELINEATION) 1(LIMITS AND INFO KNOWN)
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Dangers and Underwater Features (2D)

2D120 REEF (Cont.)
LINE

Attributes		PG Rules
COD	CERTAINTY OF DELINEATION	G-0012
LEN	LENGTH /DIAMETER	L-0051
MCP	MATERIAL COMPOSITION PRIMARY	L-3505
NAM	NAME CATEGORY	L-3506
VRC	VERTICAL REFERENCE CATEGORY	

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 2(AWASH) or 8(COVERS AND UNCOVERS)
and COD(CERTAINTY OF DELINEATION) 1(LIMITS AND INFO KNOWN)
and LEN(LENGTH/DIAMETER) >= 250 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2D130 ROCK
POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0008
MCP	MATERIAL COMPOSITION PRIMARY	L-3505
NAM	NAME CATEGORY	T-0836
VRC	VERTICAL REFERENCE CATEGORY	

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 2(AWASH AT SOUNDING DATUM)
or 8(COVERS AND UNCOVERS)
and MCP(MATERIAL COMPOSITION PRIMARY) 19(CORAL) or 66(ROCK)
and LEN < 30 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2D140 SHAG /STUMP
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0006
VRC	VERTICAL REFERENCE CATEGORY	G-0012
		L-3505
		L-3506
		R-3708

Inclusion Conditions:

VRC(VERTICAL REFERENCE CAREGORY) 1(ABOVE SURFACE/DOES NOT COVER(AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0004
VRC	VERTICAL REFERENCE CATEGORY	L-3505

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Dangers and Underwater Features (2D)

2D140 SNAG /STUMP (Cont.)
POINT

Inclusion Conditions:

VRC(VERTICAL REFERENCE CAREGORY) 1(ABOVE SURFACE/DOES NOT COVER(AT HIGH WATER)) or 8(COVERS AND UNCOVERS)
and ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2D180 WRECK
POINT

Attributes		PG Rules
EPA	EXPOSED PORTION ATTRIBUTE	G-0008
LMC	LANDMARK CATEGORY	R-2232
VRC	VERTICAL REFERENCE CATEGORY	R-2451

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER))
and LMC(LANDMARK CATEGORY) 1(LANDMARK)
and EPA(EXPOSED PORTION ATTRIBUTE) 1(MAST) or 2(FUNNEL) or 3(SUPERSTRUCTURE)
or 4(HULL) or 5(MAST AND FUNNEL)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2E015 DEPTH CONTOUR
LINE

Attributes		PG Rules
CRV	DEPTH CURVE OR CONTOUR VALUE	L-3995
UNI	UNITS CATEGORY	R-2262
		V-1002

Inclusion Conditions:

Same as contour 3A010(CONTOUR (LAND)) interval on map sheet in work to maximum depth of 40 m CRV(DEPTH CURVE OR CONTOUR VALUE) <= 40)
and UNI(UNITS CATEGORY) 13(METERS)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2G010 CURRENT ARROW /FLOW ARROW
POINT

Attributes		PG Rules
CUR	CURRENT TYPE CATEGORY	C-0014
DOF	DIRECTION OF FLOW	R-2436
		R-2467

Inclusion Conditions:

CUR(CURRENT TYPE CATEGORY) 4(RIVER FLOW)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)
*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H010 AQUEDUCT
AREA

Attributes		PG Rules
ATC	AQUEDUCT TYPE CATEGORY	L-0051
EXS	EXISTENCE CATEGORY	L-0062
LOC	LOCATION /ORIGIN CATEGORY	L-3518
NAM	NAME CATEGORY	L-3641
WID	WIDTH	R-2432

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 1(BELOW GROUND SURFACE) or 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)
and ATC(AQUEDUCT TYPE CATEGORY) 2(OTHER) or 3(UNDERGROUND AQUEDUCT)
and WID(WIDTH) >= 50 m

LINE

Attributes		PG Rules
ATC	AQUEDUCT TYPE CATEGORY	D-1654
EXS	EXISTENCE CATEGORY	G-0012
LEN	LENGTH /DIAMETER	L-0051
LOC	LOCATION /ORIGIN CATEGORY	L-3970
WID	WIDTH	R-2432
		R-2433

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 1(BELOW GROUND SURFACE) or 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)
and ATC(AQUEDUCT TYPE CATEGORY) 2(OTHER) or 3(UNDERGROUND AQUEDUCT)
and LEN(LENGTH/DIAMETER) >= 150 m
and WID(WIDTH) < 50 m

POINT

Attributes		PG Rules
ATC	AQUEDUCT TYPE CATEGORY	D-1654
LOC	LOCATION /ORIGIN CATEGORY	R-0034
		R-0035

Inclusion Conditions:

ATC(AQUEDUCT TYPE CATEGORY) 1(QANAT/KANAT/KAREZ MAINTENANCE SHAFT)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H020 CANAL
AREA

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	G-0003	L-4008
EXS	EXISTENCE CATEGORY	G-0010	L-4260
HYC	HYDROGRAPHIC CATEGORY	G-0012	L-4261
LEN	LENGTH /DIAMETER	G-0013	L-4813
NAM	NAME CATEGORY	L-0051	R-2316
SLT	SHORELINE TYPE CATEGORY	L-0062	S-1500
WID	WIDTH		

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)

2H020 CANAL (Cont.)
AREA

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY) or 8(PERENNIAL/PERMANENT)
and WID(WIDTH) >= 50 m

LINE

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	G-0012
HYC	HYDROGRAPHIC CATEGORY	G-0013
LEN	LENGTH /DIAMETER	L-0051
NAM	NAME CATEGORY	L-4008
WID	WIDTH	L-4260
		L-4261
		L-4813
		O-0005
		R-2231

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY) or 8(PERENNIAL/PERMANENT)
and WID(WIDTH) < 50 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H030 DITCH
AREA

Attributes		PG Rules	PG Rules
HYC	HYDROGRAPHIC CATEGORY	D-1653	L-4260
LEN	LENGTH /DIAMETER	G-0003	L-4261
WID	WIDTH	G-0010	R-2231
		G-0012	R-2316
		G-0013	S-1500
		L-0062	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 640 m
and WID(WIDTH) >= 50 m

LINE

Attributes		PG Rules
HYC	HYDROGRAPHIC CATEGORY	D-1653
LEN	LENGTH /DIAMETER	G-0012
WID	WIDTH	G-0013
		L-4260
		L-4261
		O-0005
		R-2231
		R-2267

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)

2H030 DITCH (Cont.)
LINE

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 640 m
and WID(WIDTH) < 50 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H040 FILTRATION /AERATION BEDS
AREA

Attributes		PG Rules
LMC	LANDMARK CATEGORY	G-0012
WID	WIDTH	L-3505
		L-3506

Inclusion Conditions:

WID(WIDTH) >= 150 m
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H050 FISH HATCHERY
AREA

Attributes		PG Rules
LMC	LANDMARK CATEGORY	G-0006
WID	WIDTH	G-0012
		L-3505
		L-3506
		R-2231

Inclusion Conditions:

WID(WIDTH) >= 150 m
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H060 FLUME
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	L-4260
LOC	LOCATION /ORIGIN CATEGORY	L-4261
		R-2231

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 150 m
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H070 FORD
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
		L-4260
		L-4261
		R-2232
		R-2321
		R-3902

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 50 m

POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0008
		R-2232
		R-2321
		R-3902

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 50 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H075 INLAND SHORELINE
LINE

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	G-0012	R-2425
AHC	ASSOCIATED HYDROGRAPHIC CATEGORY	G-0013	R-2426
SLT	SHORELINE TYPE CATEGORY	L-4132	R-2739
		R-2023	R-3735
		R-2316	R-3910
		R-2372	

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H080 LAKE /POND
AREA

Attributes		PG Rules	PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010	L-4008
HYC	HYDROGRAPHIC CATEGORY	G-0012	L-4722
LMC	LANDMARK CATEGORY	G-0013	L-4821
NAM	NAME CATEGORY	L-0050	R-2270
WID	WIDTH	L-3983	R-2316
WSC	WATER SALINITY CATEGORY	L-4005	R-2425
ZVL	Z VALUE		

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)

2H080 LAKE /POND (Cont.)
AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H090 LAND SUBJECT TO INUNDATION
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
HOC	HYDROGRAPHIC ORIGIN CATEGORY	G-0012
WID	WIDTH	R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H110 PENSTOCK
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	L-4260
LOC	LOCATION /ORIGIN CATEGORY	L-4261
		R-3930

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 150 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H120 RAPIDS
LINE

Attributes		PG Rules
WID	WIDTH	G-0012
		G-0013
		L-3505
		R-2232
		R-2429
		X-8101

Inclusion Conditions:

WID(WIDTH) >= 50 m

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)

2H120 RAPIDS (Cont.)
POINT

Attributes		PG Rules
LMC	LANDMARK CATEGORY	C-0007
WID	WIDTH	L-3505
		R-2232
		X-8101

Inclusion Conditions:

WID(WIDTH) < 50 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H130 RESERVOIR
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
EXS	EXISTENCE CATEGORY	G-0012
LMC	LANDMARK CATEGORY	L-3505
		L-3506
		R-2230

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H140 RIVER /STREAM
AREA

Attributes		PG Rules
ACC	ACCURACY CATEGORY	G-0003
HYC	HYDROGRAPHIC CATEGORY	G-0010
LEN	LENGTH /DIAMETER	G-0012
NAM	NAME CATEGORY	G-0013
SLT	SHORELINE TYPE CATEGORY	L-0062
TID	TIDAL /NON-TIDAL CATEGORY	L-4008
WID	WIDTH	L-4824
		R-0031
		R-2299
		S-1500

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY)
or 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING)
or 8(PERENNIAL/PERMANENT)
and WID(WIDTH) >= 50 m

LINE

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	G-0012
HYC	HYDROGRAPHIC CATEGORY	G-0013
LEN	LENGTH /DIAMETER	L-0051
NAM	NAME CATEGORY	L-0062
WID	WIDTH	L-4008
		L-4260

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)

2H140 RIVER /STREAM (Cont.)
LINE

L-4261
R-0031
R-0031

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY)
or 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING) or 8(PERENNIAL/PERMANENT)
and WID(WIDTH) < 50 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H145 RIVER OR STREAM VANISHING POINT
POINT

Attributes		PG Rules
DOF	DIRECTION OF FLOW	G-0008
HFC	HYDROGRAPHIC FORM CATEGORY	R-2232
		R-3901

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H150 SALT EVAPORATOR
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
		G-0013
		L-3505
		L-3506
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H160 SABKHA
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		G-0013
		R-3730
		R-3732
		R-3733

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)

2H160 SABKHA (Cont.)
AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H170 SPRING
POINT

Attributes		PG Rules
DOF	DIRECTION OF FLOW	G-0008
HYC	HYDROGRAPHIC CATEGORY	L-3505
SCC	SPRING /WELL CHARACTERISTIC CATEGORY	L-4009
		R-2231
		R-3900

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY)
or 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING)
or 8(PERENNIAL/PERMANENT)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2H180 WATERFALL
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
NAM	NAME CATEGORY	G-0013
		L-3505
		L-4008
		L-4813
		R-2232
		X-8101

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 50 m

POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	C-0004
NAM	NAME CATEGORY	G-0008
		L-3505
		L-4008
		L-4813
		R-2232
		X-8101

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)

2H180 WATERFALL (Cont.)
POINT

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 50 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2I010 CISTERN
POINT

Attributes

NO ATTRIBUTE REQUIRED

PG Rules
C-0022
G-0008
L-3505

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2I020 DAM
AREA

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	C-0017
MCP	MATERIAL COMPOSITION PRIMARY	G-0012
NAM	NAME CATEGORY	L-3505
TUC	TRANSPORTATION USE CATEGORY	L-4008
WID	WIDTH	L-4813
		R-0004
		X-8101

Inclusion Conditions:

WID(WIDTH) >= 50 m

LINE

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	C-0017
LEN	LENGTH /DIAMETER	G-0012
MCP	MATERIAL COMPOSITION PRIMARY	L-3505
NAM	NAME CATEGORY	L-4008
TUC	TRANSPORTATION USE CATEGORY	L-4813
WID	WIDTH	R-0004
		R-2232
		V-1013
		X-8101

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 50 m
and WID(WIDTH) < 50 m

POINT

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	C-0003
LEN	LENGTH /DIAMETER	C-0017
MCP	MATERIAL COMPOSITION PRIMARY	C-0023
NAM	NAME CATEGORY	L-3505

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Miscellaneous Inland Water (2I)

2I020 DAM (Cont.)
POINT

Attributes	PG Rules
	L-4008
	L-4813
	R-2232
	V-1013
	X-8101

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 50 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2I030 LOCK
AREA

Attributes		PG Rules
NAM	NAME CATEGORY	G-0007
WID	WIDTH	G-0012
		L-4008
		L-4813
		R-2232
		R-2371
		X-8103

Inclusion Conditions:

WID(WIDTH) >= 50 m

POINT

Attributes		PG Rules
LMC	LANDMARK CATEGORY	L-3505
WID	WIDTH	R-2232
		R-2371
		X-8103

Inclusion Conditions:

WID(WIDTH) < 50 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2I040 SLUICE GATE
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
		L-3505
		R-2232
		R-2371

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Miscellaneous Inland Water (2I)

2I040 SLUICE GATE (Cont.)
LINE

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 50 m

POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	L-3505
LMC	LANDMARK CATEGORY	R-2232
		R-2371

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 50 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2I050 WATER INTAKE TOWER
AREA

Attributes		PG Rules
WID	WIDTH	G-0007
		G-0012
		R-2232

Inclusion Conditions:

WID(WIDTH) >= 80 m

POINT

Attributes		PG Rules
WID	WIDTH	G-0005
		L-3505
		R-2232

Inclusion Conditions:

WID(WIDTH) < 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2J020 GLACIAL MORAINE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0006
WID	WIDTH	G-0010
		G-0012
		G-0013
		R-2316

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Snow /Ice (2J)

2J020 GLACIAL MORAINE (Cont.)
AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 409,600 m square
and WID(WIDTH) >= 640 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2J030 GLACIER
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
		G-0012
		G-0013
		R-2316
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2J040 ICE CLIFF
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
		G-0013
		R-2128
		R-2399

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 400 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2J060 ICE PEAK, NUNATAK
POINT

Attributes		PG Rules
HGT	HEIGHT ABOVE SURFACE LEVEL	G-0008
LMC	LANDMARK CATEGORY	
MCP	MATERIAL COMPOSITION PRIMARY	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 80 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2J065 ICE SHELF
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		G-0013
		L-0062

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Snow /Ice (2J)

2J065 ICE SHELF (Cont.)
AREA

R-2256
R-3730
R-3732
R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2J070 PACK ICE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
HSA	HYDROGRAPHIC SEASONAL ATTRIBUTE	G-0012
		G-0013
		L-0062
		R-0061
		R-2316
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2J100 SNOW FIELD /ICE FIELD
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
SIC	SNOW /ICE CATEGORY	G-0012
WID	WIDTH	G-0013
		L-0050
		L-0062
		L-3505
		R-2316
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

2J110 TUNDRA
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LEN	LENGTH /DIAMETER	G-0012
WID	WIDTH	G-0013
		L-0050
		R-2316

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Hydrography (2)
SUBCATEGORY: Snow /Ice (2J)

2J110 TUNDRA (Cont.)
AREA

R-3730
R-3732
R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

3A010 CONTOUR (LAND)
LINE

Attributes		PG Rules	PG Rules	PG Rules
HQC	HYPSOGRAPHY PORTRAYAL CATEGORY	L-3966	R-2043	R-2377
MCP	MATERIAL COMPOSITION PRIMARY	L-3967	R-2045	R-2378
ZVL	Z VALUE	L-3985	R-2094	R-2379
		L-3986	R-2115	R-2382
		L-3987	R-2261	R-2389
		L-3989	R-2269	R-2394
		L-3998	R-2376	R-2396
		O-0025		

Inclusion Conditions:

HQC(HYPSOGRAPHY PORTRAYAL CATEGORY) 1(INDEX) or 2(INTERMEDIATE)
or 3(SUPPLEMENTARY (1/2)) or 4(FORM LINES) or 5(DEPRESSION INDEX)
or 6(DEPRESSION INTERMEDIATE) or 8(MOUND INDEX) or 9(MOUND INTERMEDIATE)
or 14(SUPPLEMENTARY (1/4)) or 16(DEPRESSION SUPPLEMENTARY (1/2))
or 17(DEPRESSION SUPPLEMENTARY (1/4))

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

3A030 SPOT ELEVATION
POINT

Attributes		PG Rules
ACC	ACCURACY CATEGORY	L-0072
ELA	ELEVATION ACCURACY	L-0073
MCP	MATERIAL COMPOSITION PRIMARY	L-0074
ZVL	Z VALUE	L-3802
		L-3984
		R-0053
		R-2063
		R-2225
		R-2383
		R-2385

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4A005 ASPHALT LAKE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		G-0013
		L-3505

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Physiography (4)
SUBCATEGORY: Exposed Surface Material (4A)

4A005 ASPHALT LAKE (Cont.)
AREA

L-3506
R-3730
R-3732
R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4A010 GROUND SURFACE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
MCP	MATERIAL COMPOSITION PRIMARY	G-0012
		G-0013
		L-0050
		R-2316
		R-2392
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 1,440,000 m square
and MCP(MATERIAL COMPOSITION PRIMARY) 6(BOULDERS) or 30(GAS/OIL BLISTER)
or 40(KARST) or 43(LAVA) or 44(LOESS) or 117(ROCKY)
OR
ARA(AREA COVERAGE ATTRIBUTE) >= 403,220 m square
and MCP(MATERIAL COMPOSITION PRIMARY) 35(GRAVEL) or 69(SAND)
or 118(SAND AND GRAVEL) or 119(SAND AND MUD) or 120(SAND AND BOULDERS)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4A020 SALT PAN
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		G-0013
		L-0050
		L-3505
		L-3506
		R-2316
		R-3730
		R-3732
		R-3733

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Physiography (4)
SUBCATEGORY: Exposed Surface Material (4A)

4A020 SALT PAN (Cont.)
AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B010 BLUFF /CLIFF, ESCARPMENT
LINE

Attributes		PG Rules
GLI	GREATER THAN/LESS THAN CONTOUR INTERVAL	G-0012
LEN	LENGTH /DIAMETER	G-0013
PFH	PREDOMINANT FEATURE HEIGHT	R-2387
		R-2388

Inclusion Conditions:

PFH(PREDOMINANT FEATURE HEIGHT) >= 3 m
and LEN(LENGTH/DIAMETER) >= 500 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B030 CAVE DWELLING
POINT

Attributes		PG Rules
AOO	ANGLE OF ORIENTATION	G-0008
NAM	NAME CATEGORY	L-3505
		L-4709
		L-4813
		R-2391

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B060 CREVICE /CREVASSE
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0002
MCP	MATERIAL COMPOSITION PRIMARY	G-0010
WID	WIDTH	G-0012
		G-0013
		L-3505

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 840 m
and WID(WIDTH) >= 100 m

LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
MCP	MATERIAL COMPOSITION PRIMARY	G-0013
WID	WIDTH	L-3630

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Physiography (4)
SUBCATEGORY: Landforms (4B)

4B060 CREVICE /CREVASSE (Cont.)
LINE

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 840 m
and WID(WIDTH) >= 50 m and < 100 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B071 CUT LINE
LINE

Attributes		PG Rules
GLI	GREATER THAN/LESS THAN CONTOUR INTERVAL	G-0012
LEN	LENGTH /DIAMETER	G-0013
PFD	PREDOMINANT FEATURE DEPTH	R-2231
		R-2499

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 500 m
and PFD(PREDOMINANT FEATURE DEPTH) >= 3 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B090 EMBANKMENT
AREA

Attributes		PG Rules
EFI	EMBANKMENT /FILL IDENTIFIER	G-0006
LEN	LENGTH /DIAMETER	G-0012
PFH	PREDOMINANT FEATURE HEIGHT	L-3505
TUC	TRANSPORTATION USE CATEGORY	L-3506
VRC	VERTICAL REFERENCE CATEGORY	R-2115
WID	WIDTH	R-2269

Inclusion Conditions:

EFI(EMBANKMENT/FILL IDENTIFIER) 2(LEVEE/DIKE)
and WID(WIDTH) >= 100 m
and LEN(LENGTH/DIAMETER) >= 500 m
and PFH(PREDOMINANT FEATURE HEIGHT) >= 3 m
and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 1(EQUAL TO OR GREATER THAN CONTOUR INTERVAL) or 2(LESS THAN CONTOUIR INTERVAL)
OR EFI(EMBANKMENT/FILL IDENTIFIER) 3(CAUSEWAY)
and VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER))
and LEN(LENGTH/DIAMETER) >= 150 m
and WID(WIDTH) >= 100 m
and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 3(NOT APPLICABLE)

LINE

Attributes		PG Rules
EFI	EMBANKMENT /FILL IDENTIFIER	G-0012
GLI	GREATER THAN/LESS THAN CONTOUR INTERVAL	L-3630
LEN	LENGTH /DIAMETER	R-2115
PFH	PREDOMINANT FEATURE HEIGHT	R-2231
TUC	TRANSPORTATION USE CATEGORY	R-2269
VRC	VERTICAL REFERENCE CATEGORY	
WID	WIDTH	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Physiography (4)
SUBCATEGORY: Landforms (4B)

4B090 EMBANKMENT (Cont.)
LINE

Inclusion Conditions:

EFI(EMBANKMENT/FILL IDENTIFIER) 1(FILL)
and PFH(PREDOMINANT FEATURE HEIGHT) >= 3 m
and LEN(LENGTH/DIAMETER) >= 500 m
and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 1(EQUAL TO OR GREATER THAN CONTOUR INTERVAL) or 2 (LESS THAN CONTOUR INTERVAL)
OR EFI(EMBANKMENT/FILL IDENTIFIER) 2(LEVEE/DIKE)
and PFH(PREDOMINANT FEATURE HEIGHT) >= 3 m
and LEN(LENGTH/DIAMETER) >= 500 m
and WID(WIDTH) < 100 m
and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 1(EQUAL TO OR GREATER THAN CONTOUR INTERVAL) or 2(LESS THAN CONTOUR INTERVAL)
OR EFI(EMBANKMENT/FILL IDENTIFIER) 3(CAUSEWAY)
and VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER))
and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 3(NOT APPLICABLE)
and LEN(LENGTH/DIAMETER) >= 150 m
amd WID(WIDTH) < 100 m
and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 3(NOT APPLICABLE)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B100 ESKER
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	G-0013
		L-3505

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 150 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B110 FAULT
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
NAM	NAME CATEGORY	G-0013
		L-0051
		L-4002
		L-4008
		L-4260
		L-4261

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 250 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Physiography (4)
SUBCATEGORY: Landforms (4B)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B115 GEOTHERMAL FEATURE
POINT

Attributes		PG Rules
DOF	DIRECTION OF FLOW	L-3505
GFT	GEOTHERMAL FEATURE TYPE	R-3900
LMC	LANDMARK CATEGORY	T-0303

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B135 ISLAND
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
NAM	NAME CATEGORY	G-0012
		G-0013
		L-0050
		L-3505
		L-3506
		L-4709
		L-4746
		R-1902
		R-1903

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B150 MOUNTAIN PASS
POINT

Attributes		PG Rules
AOO	ANGLE OF ORIENTATION	G-0008
NAM	NAME CATEGORY	L-3505
ZVL	Z VALUE	L-4008
		L-4813

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B160 ROCK FORMATION
AREA

Attributes		PG Rules
HGT	HEIGHT ABOVE SURFACE LEVEL	G-0006
LMC	LANDMARK CATEGORY	G-0010
RKF	ROCK FORMATION TYPE	G-0012
		G-0013

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Physiography (4)
SUBCATEGORY: Landforms (4B)

4B160 ROCK FORMATION (Cont.)
AREA

Inclusion Conditions:

RKF(ROCK FORMATION TYPE) 1(COLUMNAR)
and HGT(HEIGHT ABOVE SURFACE LEVEL) >= 40 m

OR RKF(ROCK FORMATION TYPE) 1(COLUMNAR)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

POINT

Attributes		PG Rules
HGT	HEIGHT ABOVE SURFACE LEVEL	-None
LMC	LANDMARK CATEGORY	
RKF	ROCK FORMATION TYPE	

Inclusion Conditions:

RKF(ROCK FORMATION TYPE) 3(PINNACLE)
and HGT(HEIGHT ABOVE SURFACE LEVEL) >= 40 m

OR RKF(ROCK FORMATION TYPE) 3(PINNACLE)
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B170 SAND DUNES /SAND HILLS
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
SDO	SAND DUNE ORIENTATION	G-0012
SSC	STRUCTURE SHAPE CATEGORY	G-0013
		L-3969
		R-2255
		R-2316
		R-2395
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 360,000 m square

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

4B180 VOLCANO
AREA

Attributes		PG Rules
HGT	HEIGHT ABOVE SURFACE LEVEL	L-0050
LOC	LOCATION /ORIGIN CATEGORY	L-3505
NAM	NAME CATEGORY	L-3506
VGT	VOLCANO GEOLOGIC TYPE	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Physiography (4)
SUBCATEGORY: Landforms (4B)

4B180 VOLCANO (Cont.)
AREA

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)
and VGT(VOLCANIC GEOLOGIC TYPE) 1(VOLCANO)
and HGT(HEIGHT ABOVE SURFACE LEVEL) >= the contour interval

POINT

Attributes		PG Rules
HGT	HEIGHT ABOVE SURFACE LEVEL	L-3505
LOC	LOCATION /ORIGIN CATEGORY	
VGT	VOLCANO GEOLOGIC TYPE	

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)
and VGT(VOLCANIC GEOLOGIC TYPE) 2(CINDER CONE)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5A010 CROPLAND (CULTIVATED)
AREA

Attributes		PG Rules	PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010	R-2316
FTC	FARMING TYPE CATEGORY	G-0012	R-3730
VEG	VEGETATION CHARACTERISTICS	G-0013	R-3732
		L-0050	R-3733
		L-3505	S-0110
		L-3506	

Inclusion Conditions:

FTC(FARMING TYPE CATEGORY) 4(TERRACED)
and ARA(AREAS COVERAGE ATTRIBUTE) >= 1,440,000 m square
OR FTC(FARMING TYPE CATEGORY) 3(OTHER)
and ARA(AREAS COVERAGE ATTRIBUTE) >= 62,500 m square

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5A020 HEDGEROW
LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
LMC	LANDMARK CATEGORY	
PFH	PREDOMINANT FEATURE HEIGHT	
WID	WIDTH	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,000 m
and WID(WIDTH) >= 124 m
and PFH(PREDOMINENT FEATURE HEIGHT) >= 3 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Vegetation (5)
SUBCATEGORY: Cropland (5A)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5A030 NURSERY AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
WID	WIDTH	G-0013
		L-3505
		L-3506
		R-2316
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 124 m
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5A040 ORCHARD /PLANTATION AREA

Attributes		PG Rules	PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010	L-3701
LMC	LANDMARK CATEGORY	G-0012	L-4010
PRO	PRODUCT CATEGORY	G-0013	R-2316
WID	WIDTH	L-3505	R-3730
		L-3506	R-3732
		L-3700	R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 124 m
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5A050 VINEYARD /HOPS AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
LMC	LANDMARK CATEGORY	G-0012
WID	WIDTH	G-0013
		R-2316
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 124 m
OR
LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Vegetation (5)
SUBCATEGORY: Rangeland (5B)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5B010 GRASSLAND AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		G-0013
		R-2316
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5B020 SCRUB /BRUSH AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
PHT	PREDOMINANT HEIGHT	G-0012
		G-0013
		R-2316
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and PHT(PREDOMINANT HEIGHT) < 3 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5C010 BAMBOO CANE AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		G-0013
		R-2316
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5C015 FIREBREAK AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0013
WID	WIDTH	L-0062

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Vegetation (5)
SUBCATEGORY: Woodland (5C)

5C015 FIREBREAK (Cont.)
AREA

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 2,500 m
and WID(WIDTH) >= 50 m

LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	G-0012
WID	WIDTH	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 2,500 m
and WID(WIDTH) < 50 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5C020 OASIS
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
NAM	NAME CATEGORY	G-0012
WID	WIDTH	L-0050
		L-3505
		L-3506
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0005
		L-3505

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5C030 TREES
AREA

Attributes		PG Rules	PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010	R-2438
COD	CERTAINTY OF DELINEATION	G-0012	R-2440
DMT	DENSITY MEASURE (% TREE /CANOPY COVER)	G-0013	R-3730
EXS	EXISTENCE CATEGORY	L-0050	R-3732
LMC	LANDMARK CATEGORY	L-3505	R-3733
NAM	NAME CATEGORY	L-3506	R-3802
PHT	PREDOMINANT HEIGHT	L-4008	R-3940
TRE	TREE CATEGORY	R-2316	
VEG	VEGETATION CHARACTERISTICS		

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Vegetation (5)
SUBCATEGORY: Woodland (5C)

5C030 TREES (Cont.)
AREA

Attributes		PG Rules	PG Rules
WID	WIDTH		

Inclusion Conditions:

DMT(DENSITY MEASURE (% TREE/CANOPY COVER) >= 25% and < 51%
and PHT(PREDOMINANT HEIGHT) >= 3 m
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

OR DMT(DENSITY MEASURE (% TREE/CANOPY COVER) >= 51%
and PHT(PREDOMINANT HEIGHT) >= 3 m
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

OR VEG(VEGETATION CHARACTERISTICS) 16(NIPA PALM) or 19(MANGROVE)
and ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)
and EXS(EXISTENCE CATEGORY) 42(NOT ISOLATED)

POINT

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	-None
LMC	LANDMARK CATEGORY	

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)
and EXS(EXISTENCE CATEGORY) 31(ISOLATED)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5D010 BOG
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
VEG	VEGETATION CHARACTERISTICS	G-0012
WID	WIDTH	G-0013
		L-0050
		L-3505
		L-3506
		R-2316
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5D020 HUMMOCK
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		R-2316
		R-3730

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Vegetation (5)
SUBCATEGORY: Wetlands (5D)

5D020 HUMMOCK (Cont.)
AREA

R-3732
R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5D030 SWAMP
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		G-0013
		R-2316
		R-3730
		R-3732
		R-3733
		R-9044

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

5D040 MARSH
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		G-0013
		R-2316
		R-3730
		R-3732
		R-3733
		R-9044

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

6A000 ADMINISTRATIVE BOUNDARY
LINE

Attributes		PG Rules	PG Rules	PG Rules
ACC	ACCURACY CATEGORY	C-0001	L-4879	R-2363
BST	BOUNDARY STATUS TYPE	D-1655	R-2277	R-2365
NM3	NAME 3	G-0011	R-2358	R-2366
NM4	NAME 4	L-3630	R-2359	R-2469
USE	USE STATUS	L-4037	R-2360	R-2496
		L-4707	R-2361	R-2497
		L-4746	R-2362	R-2498

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Demarcation (6)
SUBCATEGORY: Boundaries /Limits /Zones (Topographic) (6A)

6A000 ADMINISTRATIVE BOUNDARY (Cont.)
LINE

Inclusion Conditions:

USE(USE STATUS) 23(INTERNATIONAL) or 26(PRIMARY/1ST ORDER) or 30(2ND ORDER) or 31(3RD ORDER) by special instruction only
or 32(INSULAR) or 89(RESERVE AREA) or 90(TRIBAL RESERVATION) or 91(PROHIBITED AREA)
or 92(ANIMAL SANCTUARY) or 93(FORREST PRESERVE)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

6A020 ARMISTICE LINE
LINE

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	C-0001	R-2361
NM3	NAME 3	D-1655	R-2362
NM4	NAME 4	G-0011	R-2363
		L-3630	R-2365
		L-4037	R-2469
		R-2359	R-2496
		R-2360	R-2498

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

6A030 CEASE-FIRE LINE
LINE

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	C-0001	R-2361
		D-1655	R-2362
		G-0011	R-2363
		L-3630	R-2365
		L-4037	R-2469
		R-2359	R-2496
		R-2360	R-2498

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

6A050 INTERNATIONAL MARITIME BOUNDARY
LINE

Attributes		PG Rules
NM3	NAME 3	L-3803
NM4	NAME 4	R-2756
TXT	TEXT ATTRIBUTE	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Demarcation (6)
SUBCATEGORY: Boundaries /Limits /Zones (Topographic) (6A)

6A050 INTERNATIONAL MARITIME BOUNDARY (Cont.)
LINE

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

6A060 DEFACTO BOUND. /OTHER LINE OF SEPARATION
LINE

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	C-0001	R-2359
NM3	NAME 3	D-1655	R-2360
NM4	NAME 4	G-0011	R-2361
TXT	TEXT ATTRIBUTE	L-3630	R-2362
USE	USE STATUS	L-4037	R-2363
		L-4707	R-2365
		R-2276	R-2469
		R-2277	R-2496
		R-2358	R-2498

Inclusion Conditions:

USE(USE STATUS) 23(INTERNATIONAL) or 26(PRIMARY/1ST ORDER)
or 30(2ND ORDER)
or 31(3RD ORDER) by special instruction only

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

6A070 DEMILITARIZED ZONE
AREA

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	D-1655	R-2361
		G-0011	R-2362
		L-0050	R-2363
		L-4037	R-2365
		R-2358	R-2366
		R-2359	R-2496
		R-2360	R-2498

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

6A110 INTERNATIONAL DATE LINE
LINE

Attributes	PG Rules
NO ATTRIBUTE REQUIRED	C-0001
	G-0011
	L-4817
	R-2496

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: Demarcation (6)
SUBCATEGORY: Boundaries /Limits /Zones (Topographic) (6A)

6A110 INTERNATIONAL DATE LINE (Cont.)
LINE

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

6A170 ZONE OF OCCUPATION
AREA

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	D-1655	R-2361
NM3	NAME 3	G-0011	R-2362
		L-0050	R-2363
		L-3630	R-2365
		L-4037	R-2366
		R-2358	R-2496
		R-2359	R-2498
		R-2360	

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

9B030 BOUNDARY MARKER
POINT

Attributes		PG Rules
NAM	NAME CATEGORY	L-3505

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

9B035 CONTROL POINT
POINT

Attributes		PG Rules
CPA	CONTROL POINT ATTRIBUTE	L-3505
NAM	NAME CATEGORY	L-4008
ZVL	Z VALUE	R-2374

Inclusion Conditions:

CPA(CONTROL POINT ATTRIBUTE) 1(BENCH MARK) or 2(HORIZONTAL) or 3(HORIZONTAL WITH BENCH MARK) or 5(VERTICAL)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

9D012 MISCELLANEOUS CULTURAL FEATURE
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	L-0050
LMC	LANDMARK CATEGORY	L-3505
NAM	NAME CATEGORY	L-3506
TXT	TEXT ATTRIBUTE	
WID	WIDTH	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: General (9)
SUBCATEGORY: Miscellaneous (9D)

9D012 MISCELLANEOUS CULTURAL FEATURE (Cont.)
AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and WID(WIDTH) >= 80 m

LINE

Attributes		PG Rules
LEN	LENGTH /DIAMETER	L-0051
LMC	LANDMARK CATEGORY	L-4260
NAM	NAME CATEGORY	L-4261
TXT	TEXT ATTRIBUTE	
WID	WIDTH	

Inclusion Conditions:

WID(WIDTH) < 50 m
and LEN(LENGTH/DIAMETER) >= 50 m
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	L-3505
LMC	LANDMARK CATEGORY	
NAM	NAME CATEGORY	
TXT	TEXT ATTRIBUTE	

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 62,500 m square
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

9D015 POINT OF CHANGE
POINT

Attributes		PG Rules
PCI	POINT OF CHANGE IDENTIFIER	C-0016
		L-3958
		R-2173
		R-2175
		R-2176
		R-2357
		R-2430
		R-2498

Inclusion Conditions:

PCI(POINT OF CHANGE INDICATOR) 1(TRANSPORTATION/ROAD OR RAILROAD)
or 2(HYDROGRAPHY/DRAINAGE) or 3(BOUNDARIES)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: General (9)
SUBCATEGORY: Miscellaneous (9D)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

9D020 VOID COLLECTION AREA
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	G-0011
VCA	VOID COLLECTION ATTRIBUTE	L-0050
VCT	VOID COLLECTION TYPE	L-3505
		L-3506
		L-3968

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 62,500 m square
and VCA(VOID COLLECTION ATTRIBUTE) 2(AREA TO ROUGH TO COLLECT)
or 3(NO AVAILABLE IMAGERY) or 6(NO AVAILABLE MAP SOURCE)
or 7(NO SUITABLE IMAGERY)

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

9D040 NAMED LOCATION
AREA

Attributes		PG Rules
CSI	CATEGORY/SUBCATEGORY INDEX	L-0050
NAM	NAME CATEGORY	L-0060
PPL	POPULATED PLACE CATEGORY	L-3505
		L-3506
		L-3630

Inclusion Conditions:

All required

LINE

Attributes		PG Rules
CSI	CATEGORY/SUBCATEGORY INDEX	L-0051
NAM	NAME CATEGORY	L-0060
PPL	POPULATED PLACE CATEGORY	L-3630

Inclusion Conditions:

All required

POINT

Attributes		PG Rules
CSI	CATEGORY/SUBCATEGORY INDEX	L-0060
NAM	NAME CATEGORY	L-3505
PPL	POPULATED PLACE CATEGORY	

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

9D045 TEXT DESCRIPTION
AREA

Attributes		PG Rules
CSI	CATEGORY/SUBCATEGORY INDEX	L-0050
LAB	LABEL OF THE FEATURE	L-3505

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: 1:100,000 TOPOGRAPHIC LINE MAPS
CATEGORY: General (9)
SUBCATEGORY: Miscellaneous (9D)

9D045 TEXT DESCRIPTION (Cont.)
AREA

Inclusion Conditions:

All required

LINE

Attributes		PG Rules
CSI	CATEGORY/SUBCATEGORY INDEX	L-0051
LAB	LABEL OF THE FEATURE	L-4260
		L-4261

Inclusion Conditions:

All required

POINT

Attributes		PG Rules
CSI	CATEGORY/SUBCATEGORY INDEX	L-3505
LAB	LABEL OF THE FEATURE	

Inclusion Conditions:

All required

*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K*TLM 100K

APPENDIX A

1:100,000 TOPOGRAPHIC SCALE MAP PRODUCT RULES

10. SCOPE

10.1 Scope. This Appendix provides information about the product rules necessary for the production of 1:100,000 TOPOGRAPHIC LINE MAPS. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

20.1.1 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).

MILITARY STANDARDS

MIL-STD-2402	-	MC&G Symbology
MIL-STD-2403	-	MC&G Product Generation Rules

MILITARY HANDBOOKS

MIL-HDBK-857	-	Glossary of MC&G Feature and Attribute Definitions

20.2 Order of precedence. In the event of a conflict between the text of this appendix and either Table I of this specification, or MIL-STD-2403 cited above, the Table I and MIL-STD-2403 take precedence.

30. PRODUCT RULES

30.1 Classification of rules. Rules are classified into the following types:

a.	A-Segregation	g.	O-Override
b.	C-Conflict	h.	R-Representation
c.	D-Displacement	i.	S-Suppression
d.	G-Generalization	j.	T-Thinning
e.	L-Labeling	k.	V-Value added
f.	N-No rules written	l.	X-Data segregation

30.2 Appendix organization This appendix lists in alphanumeric order the rule numbers and rule text for each feature type (area, line and point) of each FACS feature listed in Table I to this specification.

FEATURE: MINE...1A010 (AREA)

MINE...1A010 (AREA)

G-0007 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-4007 If MIN=000, omit MIN window.

L-4008 If NAM = unknown, omit NAM window.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

R-2244 If EXS 006 (Abandoned), use only if LMC 001 (Landmark).

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

MINE...1A010 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

G-0005 A cluster of 3 or more coalescing similar point features having matching coded attribution will be aggregated to form an area multiple feature outline.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-4007 If MIN=000, omit MIN window.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

QUARRY...1A030 (AREA)

G-0007 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

QUARRY...1A030 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

FEATURE: QUARRY...1A030 (POINT)

G-0005 A cluster of 3 or more coalescing similar point features having matching coded attribution will be aggregated to form an area multiple feature outline.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

RIG /SUPERSTRUCTURE...1A040 (POINT)

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-3972 If Rigs coalesce and area is < 2.5 mm x 2.5 mm, show one Rig symbol and label "RIGS." If area >= 2.5 mm x 2.5 mm, show dashed outline and label "NUMEROUS RIGS.".

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

T-0304 If Rig /Superstructure (1A040)'s coalesce and area is < 2.5 mm x 2.5 mm, show one Rig /Superstructure symbol in its true geographic location. If area is > 2.5 mm x 2.5 mm, show a dashed outline.

WELL...1A050 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-4008 If NAM = unknown, omit NAM window.

L-4009 If SCC=000, omit SCC window.

L-4706 If the attribute value is not known, or the attribute value for none or not applicable, delete window and condense remaining windows.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

O-3155 When the project area or sheet falls within an area defined as having sparse drainage; the inclusion condition defaults to all required.

R-2244 If EXS 006 (Abandoned), use only if LMC 001 (Landmark).

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

T-0300 If well symbols (1A050) coalesce, and there are less than four individual wells, show one symbol and label "Wells". If there are four or more, and the area is >= 2.5 mm x 2.5 mm, show a representative pattern and label "Numerous wells" (see 9D045 Text Description). The predominant PRO shall be applied to the labeling.

DISPOSAL SITE /WASTE PILE...1B000 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: DISPOSAL SITE /WASTE PILE...1B000 (AREA)

L-0061 When PRO=000 (Unknown), omit the PRO label.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

WRECKING YARD /SCRAP YARD...1B010 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

PROCESSING PLANT /TREATMENT PLANT...1C000 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-4008 If NAM = unknown, omit NAM window.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

L-4027 In an area of much detail, labeling of descriptive type may be shortened - omit PRO to leave generic (i.e., AUTOMOBILE FACTORY to FACTORY).

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

PROCESSING PLANT /TREATMENT PLANT...1C000 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-0061 When PRO=000 (Unknown), omit the PRO label.

FEATURE: PROCESSING PLANT /TREATMENT PLANT...1C000 (POINT)

L-4008 If NAM = unknown, omit NAM window.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

CATALYTIC CRACKER...1C020 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

SETTLING BASIN /SLUDGE POND...1C030 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

POWER PLANT FACILITY...1D010 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: POWER PLANT FACILITY...1D010 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4008 If NAM = unknown, omit NAM window.

L-4011 If PPC=000, omit PPC window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

SOLAR PANEL...1D020 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

SUBSTATION /TRANSFORMER YARD...1D030 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: SUBSTATION /TRANSFORMER YARD...1D030 (AREA)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

SUBSTATION /TRANSFORMER YARD...1D030 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

CHIMNEY /SMOKESTACK...1F010 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

CONVEYOR...1F020 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2331 The Conveyor symbol shall only be shown outside of a Built-up Area tint, and begin and end at another symbolized feature.

COOLING TOWER...1F030 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

FEATURE: CRANE...1F040 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

FLARE PIPE...1F070 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

R-2251 Omit HGT window if LOC 002 (offshore).

FIRING RANGE...1H045 (AREA)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

FORT...1H050 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.

06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area

Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

FEATURE: FORT...1H050 (AREA)

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

FORT...1H050 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

MOBILE HOME PARK...1I020 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

FEATURE: FEED LOT /STOCKYARD /HOLDING PEN...1J030 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring.detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

FEATURE: FEED LOT /STOCKYARD /HOLDING PEN...1J030 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

WINDMILL /WINDMOTOR...1J050 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

AMUSEMENT PARK ATTRACTION...1K020 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

AMUSEMENT PARK...1K030 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

FEATURE: AMUSEMENT PARK...1K030 (AREA)

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

ATHLETIC FIELD...1K040 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

CAMPGROUND /CAMPSITE...1K060 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4008 If NAM = unknown, omit NAM window.

FEATURE: CAMPGROUND /CAMPSITE...1K060 (AREA)

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2242 If area feature symbol is <= 2.5 mm at map scale (125 meters on ground at 1:50,000 scale) from another (area) feature with unlike attributes, the larger of the feature outline may be extended to touch the other's outline. They would have one dividing line between them and where the outlines would coalesce, one of the features would omit that portion.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

DRIVE-IN THEATER...1K070 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

FEATURE: FAIRGROUNDS...1K090 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

GOLF COURSE...1K100 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4008 If NAM = unknown, omit NAM window.

FEATURE: GOLF COURSE...1K100 (AREA)

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

OUTDOOR THEATER /AMPHITHEATER...1K115 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

FEATURE: PARK...1K120 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

L-4008 If NAM = unknown, omit NAM window.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

RACE TRACK...1K130 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: RACE TRACK...1K130 (LINE)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

SKI JUMP...1K150 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

O-0020 If HGT > = 46 meters, then depict as an obstruction symbol.

SKI JUMP...1K150 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

FEATURE: STADIUM...1K160 (AREA)

STADIUM...1K160 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2240 Omit feature < 46 m HGT in Built-up Area (1L020), unless LMC 001.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

STADIUM...1K160 (POINT)

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

SWIMMING POOL...1K170 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

O-1101 Symbolize feature (at map scale) 2.5 mm length, and 1.3 mm width when the feature is less than this size at its ground equivalent.

ZOO...1K180 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

FEATURE: ZOO...1K180 (AREA)

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

BUILDING...1L015 (AREA)

D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

D-1654 When symbolized feature is < 0.2 mm from a line feature, displace to 0.2 mm (map scale).

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3959 Passenger terminals (BFC 27) shall not be labeled, unless they are identified with a proper name (NAM attribute).

L-3960 Passenger terminal (BFC 27) in Built-up Areas shall not be named if the name is the same as the populated place name.

L-4008 If NAM = unknown, omit NAM window.

L-4018 If BFC=000 (Unknown), omit BFC window. If BFC=039 (Other), identify the building's function using 9D045 Text Description.

L-4028 The generic part of a name (NAM) is not shown when the building (1L015) has a posicut identification (i.e., ST. PATRICKS CATHEDRAL is shortened to ST. PATRICKS).

O-0020 If HGT > = 46 meters, then depict as an obstruction symbol.

O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

O-6200 Omit within Built-Up Area (1L020) unless: LMC=1 or HGT >= 46m.

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2265 Building symbols with a distinguishing characteristic attached shall show the staff of the symbol at right angles to the Road. If the symbol coalesces with another symbol, the staff shall be repositioned to an unobstructed side of the Building.

FEATURE: BUILDING...1L015 (AREA)

R-2337 Spacing between Building symbols shall be not less than 0.2 mm.

R-2340 The Building symbol shall be shown in its true position if a space of >= 0.2 mm (map scale) exists between the Building and Road symbols on map.

R-2341 A space of not less than 0.2 mm shall be shown between Building symbols and Tracks and Trails.

R-2495 Symbolize apron/hardstands (1Q060), and buildings (1L015) inside areal aircraft facilities (1U030, AFT001 (Airport), or 003 (Seaplane Base)).

BUILDING...1L015 (LINE)

D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

D-1654 When symbolized feature is < 0.2 mm from a line feature, displace to 0.2 mm (map scale).

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3959 Passenger terminals (BFC 27) shall not be labeled, unless they are identified with a proper name (NAM attribute).

L-3960 Passenger terminal (BFC 27) in Built-up Areas shall not be named if the name is the same as the populated place name.

L-4008 If NAM = unknown, omit NAM window.

L-4018 If BFC=000 (Unknown), omit BFC window. If BFC=039 (Other), identify the building's function using 9D045 Text Description.

L-4028 The generic part of a name (NAM) is not shown when the building (1L015) has a posicut identification (i.e., ST. PATRICKS CATHEDRAL is shortened to ST. PATRICKS).

O-0020 If HGT > = 46 meters, then depict as an obstruction symbol.

O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

O-6200 Omit within Built-Up Area (1L020) unless: LMC=1 or HGT >= 46m.

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2265 Building symbols with a distinguishing characteristic attached shall show the staff of the symbol at right angles to the Road. If the symbol coalesces with another symbol, the staff shall be repositioned to an unobstructed side of the Building.

R-2337 Spacing between Building symbols shall be not less than 0.2 mm.

R-2340 The Building symbol shall be shown in its true position if a space of >= 0.2 mm (map scale) exists between the Building and Road symbols on map.

R-2341 A space of not less than 0.2 mm shall be shown between Building symbols and Tracks and Trails.

R-2495 Symbolize apron/hardstands (1Q060), and buildings (1L015) inside areal aircraft facilities (1U030, AFT001 (Airport), or 003 (Seaplane Base)).

BUILDING...1L015 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

FEATURE: BUILDING...1L015 (POINT)

D-1654 When symbolized feature is < 0.2 mm from a line feature, displace to 0.2 mm (map scale).

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-3959 Passenger terminals (BFC 27) shall not be labeled, unless they are identified with a proper name (NAM attribute).

L-3960 Passenger terminal (BFC 27) in Built-up Areas shall not be named if the name is the same as the populated place name.

L-4008 If NAM = unknown, omit NAM window.

L-4018 If BFC=000 (Unknown), omit BFC window. If BFC=039 (Other), identify the building's function using 9D045 Text Description.

L-4028 The generic part of a name (NAM) is not shown when the building (1L015) has a posicut identification (i.e., ST. PATRICKS CATHEDRAL is shortened to ST. PATRICKS).

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

O-6200 Omit within Built-Up Area (1L020) unless: LMC=1 or HGT >= 46m.

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2265 Building symbols with a distinguishing characteristic attached shall show the staff of the symbol at right angles to the Road. If the symbol coalesces with another symbol, the staff shall be repositioned to an unobstructed side of the Building.

R-2337 Spacing between Building symbols shall be not less than 0.2 mm.

R-2340 The Building symbol shall be shown in its true position if a space of >= 0.2 mm (map scale) exists between the Building and Road symbols on map.

R-2341 A space of not less than 0.2 mm shall be shown between Building symbols and Tracks and Trails.

R-2495 Symbolize apron/hardstands (1Q060), and buildings (1L015) inside areal aircraft facilities (1U030, AFT001 (Airport), or 003 (Seaplane Base)).

R-9041 Buildings (1L015 P), single or occurring in rows or clusters, shall be shown in their true orientation except when falling <= 0.2 mm of the following linear features: Road (1P030), Railroad Track (1N010),Cart Track (1P010), Trail (1P050), Aqueduct (2H010), Canal (2H020), and Ditch (2H030). In these cases, Buildings (1L015 P), single (or occurring in rows or clusters with <= 0.2 mm separation between buildings) shall be collectively oriented parallel to those linear features at a distance of 0.2 mm.

BUILT-UP AREA...1L020 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-1650 When EXS is not equal to 007 (Destroyed), drop EXS window.

FEATURE: BUILT-UP AREA...1L020 (AREA)

R-2178 When a Wall symbol (1L260) coalesces with Built-up Area (1L020) outline, or Shantytown (1L208) outline, omit Built-up Area or Shantytown outline, and show Wall with Built-up Area tint only.

R-2179 Where a Wall is around a populated place that is not symbolized as Built-up Area or Shantytown, the Wall symbol shall be omitted but "(Walled)" will be labeled in parentheses below the place name when place name is known.

R-2305 The Built-up Area tint (1L020) shall be cleared from all through Routes (TUC 007) and streets (TUC 006).

R-2333 The limiting outline of the Built-up Area tint shall be dropped when it overprints linear features (Streams, Roads, and Railroads, etc.), or if the space between the symbols is < 0.5 mm.

R-2334 Areal features (parks, railroad yards, factory complexes, port facilities, fabrication complexes, hospital complexes, cemeteries, and other similar complexes) within the Built-up Area tint shall be void of the built-up area tint if >= 2.5 mm x 2.5 mm.

R-2345 If a Built-up Area (1L020) has been destroyed, the area limits shall be shown with a dashed outline and labeled "DESTROYED".

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

CAIRN...1L025 (POINT)

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CEMETERY...1L030 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used.
Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4008 If NAM = unknown, omit NAM window.

FEATURE: CEMETERY...1L030 (AREA)

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2333 The limiting outline of the Built-up Area tint shall be dropped when it overprints linear features (Streams, Roads, and Railroads, etc.), or if the space between the symbols is < 0.5 mm.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

CEMETERY...1L030 (POINT)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

G-0004 A cluster of 3 or more coalescing similar point feature having matching coded attribution will be aggregated when an area delineation is supported by the product.

DRAGON (TIGER) TEETH...1L060 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

FENCE...1L070 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2352 Fences shall not be shown if parallel to and < 25 m from any linear feature.

R-2353 Walls or Fences which enclose the following areal features shall not be shown: Mobile Home Park, Amusement Park, Athletic Field, Campground, Drive-In Theater, Fairgrounds, Golf Course, Stadium, Zoo, and Cemetery.

GEOPHYSICAL PROSPECTING GRID...1L085 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

FEATURE: HUT...1L100 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2343 Rows of huts with common walls shall be shown with each individual hut symbol abutting together, showing one common line between each.

MONUMENT...1L130 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2248 If >= 3 equal symbols would coalsece at map scale, portray with a representative pattern.

NATIVE SETTLEMENT...1L135 (AREA)

R-2333 The limiting outline of the Built-up Area tint shall be dropped when it overprints linear features (Streams, Roads, and Railroads, etc.), or if the space between the symbols is < 0.5 mm.

NUCLEAR ACCELERATOR...1L140 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: NUCLEAR ACCELERATOR...1L140 (AREA)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

PIPELINE /PIPE...1L160 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-3633 Remove "EXS" window when EXS = 28, operational.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

L-4012 If ACC=001 (Accurate), omit ACC window.

L-4013 Where 1L160 (Pipeline) is coincident with a linear feature and LOC=001, label feature "Underground Pipeline" (once every 25.5 mm at map scale). Avoid overprinting of other features.

L-4014 When labeling ACC 002 (Approximate), label once for every 25.5 mm at map scale. Avoid overprinting of other features when possible.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

R-2231 Omit from Built-up Area (1L020).

R-2249 Show pipelines (1L160) that are below ground surface (LOC 001) to show connections to pipelines that are on ground surface (LOC003) or elevated (LOC 004), or when scars in the earth from underground feature is a landmark (LMC 001).

R-2349 Pipelines shall not be shown when coincident with Roads and Railroads, except in desert regions or arctic regions where LMC = 1.

R-3920 Pipelines coincident with traveled ways are not shown, except in desert areas.

PLAZA /CITY SQUARE...1L170 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: PLAZA /CITY SQUARE...1L170 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4008 If NAM = unknown, omit NAM window.

R-3903 If the width (WID) of the symbolized Road (1P030) is greater than the width (WID) of the Plaza (1L170), then suppress the Plaza (1L170).

PUMPING STATION...1L180 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0061 When PRO=000 (Unknown), omit the PRO label.

R-2333 The limiting outline of the Built-up Area tint shall be dropped when it overprints linear features (Streams, Roads, and Railroads, etc.), or if the space between the symbols is < 0.5 mm.

PUMPING STATION...1L180 (POINT)

D-1654 When symbolized feature is < 0.2 mm from a line feature, displace to 0.2 mm (map scale).

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-0061 When PRO=000 (Unknown), omit the PRO label.

RUINS...1L200 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

FEATURE: RUINS...1L200 (AREA)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2333 The limiting outline of the Built-up Area tint shall be dropped when it overprints linear features (Streams, Roads, and Railroads, etc.), or if the space between the symbols is < 0.5 mm.

RUINS...1L200 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

D-1654 When symbolized feature is < 0.2 mm from a line feature, displace to 0.2 mm (map scale).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

SHANTY TOWN...1L208 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: SHANTY TOWN...1L208 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

R-2178 When a Wall symbol (1L260) coalesces with Built-up Area (1L020) outline, or Shantytown (1L208) outline, omit Built-up Area or Shantytown outline, and show Wall with Built-up Area tint only.

R-2179 Where a Wall is around a populated place that is not symbolized as Built-up Area or Shantytown, the Wall symbol shall be omitted but "(Walled)" will be labeled in parentheses below the place name when place name is known.

R-2333 The limiting outline of the Built-up Area tint shall be dropped when it overprints linear features (Streams, Roads, and Railroads, etc.), or if the space between the symbols is < 0.5 mm.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

SNOW SHED /ROCK SHED...1L210 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2254 If a Snow Shed/Rock Shed (1L210) falls on more than one sheet, it will be labeled on both.

X-8108 If a feature is not associated with (touching) a road (1P030) or railroad track (1N010), omit the feature.

SNOW SHED /ROCK SHED...1L210 (POINT)

C-0013 The feature shall be aligned with a road (1P030), interchange (1P020), railroad track (1N010), or RR siding/RR spur (1N050).

C-0023 The feature symbology shall be positioned such that the longest axis of the symbol is aligned coincident with the centerline of the associated road (1P030), railroad track (1N010), or RR siding/RR spur (1N050) feature.

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

FEATURE: SNOW SHED /ROCK SHED...1L210 (POINT)

R-2254 If a Snow Shed/Rock Shed (1L210) falls on more than one sheet, it will be labeled on both.

X-8108 If a feature is not associated with (touching) a road (1P030) or railroad track (1N010), omit the feature.

TENT DWELLINGS...1L228 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

L-4008 If NAM = unknown, omit NAM window.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

FEATURE: TENT DWELLINGS...1L228 (AREA)

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

TENT DWELLINGS...1L228 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

TOWER (NON- COMMUNICATION)...1L240 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2240 Omit feature < 46 m HGT in Built-up Area (1L020), unless LMC 001.

FEATURE: UNDERGROUND DWELLING...1L250 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

WALL...1L260 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

R-2250 Omit feature when it is coincident with another unlike line feature.

R-2353 Walls or Fences which enclose the following areal features shall not be shown: Mobile Home Park, Amusement Park, Athletic Field, Campground, Drive-In Theater, Fairgrounds, Golf Course, Stadium, Zoo, and Cemetery.

DEPOT (STORAGE)...1M010 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4016 When LOC = 3 (On ground surface), omit LOC window.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

GRAIN BIN...1M020 (AREA)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

G-0007 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: GRAIN BIN...1M020 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

D-1654 When symbolized feature is < 0.2 mm from a line feature, displace to 0.2 mm (map scale).

G-0005 A cluster of 3 or more coalescing similar point features having matching coded attribution will be aggregated to form an area multiple feature outline.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

GRAIN ELEVATOR...1M030 (AREA)

G-0007 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.

G-0012 Area and line features will be generalized to detail compatible with scale.

O-0020 If HGT > = 46 meters, then depict as an obstruction symbol.

GRAIN ELEVATOR...1M030 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

FEATURE: SILO...1M050 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

STORAGE BUNKER /STORAGE MOUND...1M060 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

FEATURE: STORAGE BUNKER /STORAGE MOUND...1M060 (POINT)

G-0004 A cluster of 3 or more coalescing similar point feature having matching coded attribution will be aggregated when an area delineation is supported by the product.

L-0061 When PRO=000 (Unknown), omit the PRO label.

TANK...1M070 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-4034 When LOC=003 (On Ground Surface), no LOC label is required.

O-0020 If HGT > = 46 meters, then depict as an obstruction symbol.

T-0301 If tank symbols coalesce and there are less than 4, show one symbol and label "Tanks". If there are 4 or more, and area is >= 2.5 mm x 2.5 mm, show areal symbol as dashed outline and label "Numerous tanks". The predominant PRO shall be applied to the labeling.

TANK...1M070 (POINT)

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4034 When LOC=003 (On Ground Surface), no LOC label is required.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

T-0301 If tank symbols coalesce and there are less than 4, show one symbol and label "Tanks". If there are 4 or more, and area is >= 2.5 mm x 2.5 mm, show areal symbol as dashed outline and label "Numerous tanks". The predominant PRO shall be applied to the labeling.

WATER TOWER...1M080 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

FEATURE: WATER TOWER...1M080 (POINT)

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2240 Omit feature < 46 m HGT in Built-up Area (1L020), unless LMC 001.

RAILROAD TRACK...1N010 (LINE)

C-0017 Contours (3A010) will be adjusted to planimetric features.

D-1650 If two Railroads are on separate roadbeds, and the symbols coalesce, the spacing between rail lines shall be 3.0 mm. When the distance between two parallel railroads is too small to plot to scale without the symbols coalescing, the distance between the center lines is exagerated to 3.0 mm.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3956 Broad gauge Railroads shall be labeled parallel to the Railroad alignment.

L-3957 The gauge label of narrow gauge Railroads with lines of varying widths shall be positioned parallel to the alignment of each gauge.

L-3961 Electrified Railroads shall be labeled "ELECTRIFIED" positioned parallel to the Railroad alignment.

L-3962 The label "ELECTRIFIED" shall be dropped when the Railroad name indicates the rail is electrified (example: "OHIO ELECTRIC").

L-3963 Names shall be shown and positioned parallel to the Railroad alignment.

L-4008 If NAM = unknown, omit NAM window.

L-4016 When LOC = 3 (On ground surface), omit LOC window.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

L-4284 If RGC is 001, label "Broad".
If RGC is 003, delete RGC label.

L-4284 If RGC is 001, label "Broad".
If RGC is 003, delete RGC label.

R-2229 Railroad (1N010) crosstie ticks may overlap cut line (4B071) and embankment (4B090) symbols.

R-2324 If Railroads and Piers /Wharves symbologies coalesce, only the Pier /Wharf and crossties of the Railroad shall be shown.

R-2327 Only operational (EXS 028) Railroad Tracks (1N010) shall be shown in Roads (1P030)

R-2328 Railroad symbol ticks shall begin and end not less than 6.5 mm from the Bridge ticks.

R-2329 Car lines (RRC 2), operating or non-operating, shall not be shown within Built-up Areas (1L020).

FEATURE: RAILROAD TRACK...1N010 (LINE)

R-2601 When a Railroad (1N010) Main line/Branch line (RRC 1 or 3) enters a Railroad Yard (1N080), the Main line/Branch line shall remain at its portrayed lineweight whether or not the track terminates at, in or passes through the yard feature.

R-3801 A car line (1N010, RRC 002) shall be dropped where it coincides with a road (1P030).

S-0103 When a Road (1P030) or a Railroad (1N010) coincide or coalesce at map scale when on the same Bridge (1Q040), the Railroad (1N010) shall be suppressed to a distance of 0.25 mm back from the wing ticks at each end of the bridge.

S-7030 If a Railroad Track (L1N010) is coincident with features P1Q131 (Tunnel), or L1Q131 (Tunnel), then suppress that section of the Railroad Track.

RR SIDING /RR SPUR...1N050 (LINE)

C-0017 Contours (3A010) will be adjusted to planimetric features.

D-1651 If the Railroad and Siding or Spur coalesce, the Siding/Spur center line shall be displaced to 3.0 mm from the Railroad center line.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4284 If RGC is 001, label "Broad".
If RGC is 003, delete RGC label.

R-2239 IF RSA is 002 (Siding) or 003 (Passing), the RGC, EXS and RPS shall be equal to associated railroad (1N010).

R-2326 Spurs and Sidings shall not be shown in Built-up Areas when their symbology coalesces with other features.

X-8110 If a feature is not associated with (touching, stacked_on, etc.) a railroad track (1N010), omit the feature.

RR TURNTABLE...1N075 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

RR YARD...1N080 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3562 If area is not large enough to place type within, move to outside and apply point hierarchy Rule L-3505.

L-3633 Remove "EXS" window when EXS = 28, operational.

O-0002 When Railroad Yard (1N080), or any part, is an area feature and does not converge on itself (open at one end), no hardline lineweight symbol shall be shown closing or connecting the feature symbol at the open end.

R-2238 Interior track alignment shall run parallel to the longest axis of the feature and conform to the true shape of the feature.

X-8110 If a feature is not associated with (touching, stacked_on, etc.) a railroad track (1N010), omit the feature.

TRAMWAY /INCLINE RAILWAY...1N090 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: CART TRACK...1P010 (LINE)

CART TRACK...1P010 (LINE)

C-0009 The feature which coalesces (< 0.2 mm) with a railroad track (1N010) or RR siding/RR spur (1N050) shall be displaced to a minimum of 0.2 mm apart.

D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

G-0012 Area and line features will be generalized to detail compatible with scale.

O-0004 For Road (1P030, TUC 4), Cart Track (1P010, TUC 18), and Trail (1P050) within Built-Up Area (1L020); Symbolize the portion of the feature within the Built-Up Area (1L020) as white 1P03L007.

O-3156 When the project area or sheet falls within an area defined as having sparse culture; the inclusion condition defaults to all required.

R-2341 A space of not less than 0.2 mm shall be shown between Building symbols and Tracks and Trails.

INTERCHANGE...1P020 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2233 Feature under construction (EXS 005), to be operational (EXS 028) by the time the map in progress is to be complete, shall be symbolized as operational.

ROAD...1P030 (LINE)

C-0009 The feature which coalesces (< 0.2 mm) with a railroad track (1N010) or RR siding/RR spur (1N050) shall be displaced to a minimum of 0.2 mm apart.

C-0017 Contours (3A010) will be adjusted to planimetric features.

D-1510 When a road (1P030) of any classification enters a "hairpin turn" condition, such as in a steep mountanous region, displace the coalescing road symbol apart 0.15mm (symbol - edge to edge).

D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

D-7027 If a road (Line 1P030) is coincident with features:
then supress that section of the road.

Point 1Q131 Tunnel
Line 1Q131 Tunnel

Coalesces - to grow together, blend, mingle
Coincident- occupy the same space

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3951 Road alignments that lack adequate information for proper alignment shall be labelled "APPROXIMATE ALIGNMENT" or "APPROX. ALIGN.".

L-3952 Approximate alignments less than 13 mm in length at map scale shall not be labeled.

L-3953 First preference for Road name position shall be along the upper side of the Road symbol.

L-3955 When an elevated highway is >= 12.5 mm long at map scale, it shall be labeled "ELEVATED" parallel to the Road.

L-4008 If NAM = unknown, omit NAM window.

L-4016 When LOC = 3 (On ground surface), omit LOC window.

FEATURE: ROAD...1P030 (LINE)

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

O-0004 For Road (1P030, TUC 4), Cart Track (1P010, TUC 18), and Trail (1P050) within Built-Up Area (1L020); Symbolize the portion of the feature within the Built-Up Area (1L020) as white 1P03L007.

R-0060 Retain any road (1P030) of any classification that is < 12.5 mm at map scale when part of the main road. Example: A two lane road that changes to a 3 or 4 lane road, and back again. When this condition exists, portray at the lower road classification.

R-2233 Feature under construction (EXS 005), to be operational (EXS 028) by the time the map in progress is to be complete, shall be symbolized as operational.

R-2300 If a Road (1P030) can be classified in more than one category (WTC, RST, LTN or EXS) where the total length (LEN) is ≤ 13.0 mm at map scale, then classify this road at the lowest road classification identified in this condition.

R-2301 A Road (1P030) that can predominantly be classified in one category (≥ 75% surface type, WTC & RST) within a distance of ≤13.0 mm at map scale shall be classified at that predominant road classification for this entire distance.

R-2305 The Built-up Area tint (1L020) shall be cleared from all through Routes (TUC 007) and streets (TUC 006).

S-0102 Suppress Road (TUC4) when Road (TUC 4), Railroad (TUC 3), or Railroad and road (TUC 1) are coincident with a Dam (2I020). Label as "Road on dam" for TUC 4, "Railroad on dam" for TUC 3, and "Railroad and road on dam" for TUC 1.

S-1010 Suppress any road (1P030) of any classification, cart track (1P010), or trail (1P050) that intersects one side, and that is < 7.5 mm at finishing scale, and does not terminate at a cultural feature. Exception: Any road (1P030), cart track, or trail must be retained when needed to complete the network.

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TRAIL...1P050 (LINE)

C-0009 The feature which coalesces (< 0.2 mm) with a railroad track (1N010) or RR siding/RR spur (1N050) shall be displaced to a minimum of 0.2 mm apart.

D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4033 When WTC=000 (Unknown) or 002 (Fair/Dry Weather), omit WTC window.

O-0004 For Road (1P030, TUC 4), Cart Track (1P010, TUC 18), and Trail (1P050) within Built-Up Area (1L020); Symbolize the portion of the feature within the Built-Up Area (1L020) as white 1P03L007.

FEATURE: TRAIL...1P050 (LINE)

T-0022 Thin Cart tracks (1P010) and Trails (1P050) in moderate to dense areas to a LEN <= 1500 m and a spacing of >= 6000 m, and for sparse to moderate areas to a LEN <= 1500 m and a spacing of >= 1250 m, unless needed to complete the road network. Two exceptions to the above rule for these features if they do not connect with an other "road like" feature:
1. If LEN is less than 1500 m and has a cultural feature at its terminus, retain this short segment to this feature.
2. Delete all of this feature if area is moderate to dense and there is no cultural feature at its terminus.

AERIAL CABLEWAY LINE /SKI LIFT LINE...1Q010 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

BRIDGE /OVERPASS /VIADUCT...1Q040 (LINE)

C-0008 The sides of a linear bridge (1Q040) which is stacked under a road (1P030) shall have the sides of the bridge abutted up against the sides of the road.

G-0012 Area and line features will be generalized to detail compatible with scale.

O-0023 If a bridge feature satisfies vertical obstruction criteria, then symbolize the bridge, and overprint with obstruction symbol (Posicut #3) and label.

R-2236 Show at least a 0.50 mm symbol overlap on shore for each terminis (end).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

S-0104 When a bridge is over land and elevated (LOC=004), suppress the bridge symbol and lable as "Elevated"

BRIDGE /OVERPASS /VIADUCT...1Q040 (POINT)

C-0006 A point bridge (1Q040) that is stacked under a road (1P030) shall have the sides of the bridge abutted up against the sides ot the road, and the bridgeoriented so that the bridge is aligned with the road.

C-0007 The supporting feature shall be aligned with a Cart Track (1P010), Trail (1P050), RR Track (1N010), and RR Siding/RR Spur (1N050).

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

S-0104 When a bridge is over land and elevated (LOC=004), suppress the bridge symbol and lable as "Elevated"

FEATURE: BRIDGE SUPERSTRUCTURE...1Q050 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

CONTROL TOWER...1Q060 (POINT)

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

R-2495 Symbolize apron/hardstands (1Q060), and buildings (1L015) inside areal aircraft facilities (1U030, AFT001 (Airport), or 003 (Seaplane Base)).

CULVERT...1Q065 (POINT)

C-0007 The supporting feature shall be aligned with a Cart Track (1P010), Trail (1P050), RR Track (1N010), and RR Siding/RR Spur (1N050).

R-0080 Orientation of the culvert symbol is with the headline parallel with the overpassing feature, and centered on the drain if possible.

R-2231 Omit from Built-up Area (1L020).

FERRY CROSSING...1Q070 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4008 If NAM = unknown, omit NAM window.

L-4032 Ferries may be abbreviated to "Fy" when the label coalesces with other detail.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2232 Omit if not shown in conjunction with a drainage feature.

FEATURE: FERRY CROSSING...1Q070 (LINE)

R-2320 Pedestrian Ferry Crossings (1Q070, TUC 017) are shown only when there is no Road (1P030), Bridge (1Q040), Causeway (4B090, EFI 003), Vehicular Ferry Crossing (1Q070, TUC 004), Railroad Ferry Crossing (1Q070, TUC 003), or Both Road and Railroad Ferry Crossing (1Q070, TUC 001) crossing the water body within 635 meters of the pedestrian ferry.

FERRY CROSSING...1Q070 (POINT)

L-4008 If NAM = unknown, omit NAM window.

L-4031 Position label to the right of the to be identified.

L-4032 Ferries may be abbreviated to "Fy" when the label coalesces with other detail.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2232 Omit if not shown in conjunction with a drainage feature.

MOORING MAST...1Q110 (POINT)

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

REST AREA /VEHICLE STOPPING AREA...1Q115 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-2231 Omit from Built-up Area (1L020).

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

ROUTE MARKER...1Q116 (POINT)

L-3996 Route Marker labels shall be shown centered on the Road symbol and positioned parallel to the south neatline. The Route Marker label shall not be shown in coincidence with grid lines or Open Water areas.

R-2260 When a combination of two or more Route Markers are shown for a Road, the Route Marker symbols shall be positioned <= 12 mm apart, and shall not coalesce with each other.

FEATURE: ROUTE MARKER...1Q116 (POINT)

R-2264 All map symbology shall be dropped within the Route Marker symbol.

R-2302 Route Markers shall be placed on Through Routes enclosed by tinted Built-up Areas (1L020).

R-2307 Route Markers shall be centered on the Roads, positoned parallel with the south neatline, except where the symbol would overprint another feature/symbol. In this case, it will be positioned adjacent to the Road, where space permits.

R-2312 Route Markers shall be shown for each Route number, for Roads which are identified by more than one Route number.

TUNNEL...1Q131 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4008 If NAM = unknown, omit NAM window.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the *midpoint of the line segment or symbol;* however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2318 Within Built-up Areas, include only tunnels relating to through routes.

R-2325 If the alignment of a Railroad (1N010) is approximate (ACC 002) and the Railroad enters/exits a Tunnel (1Q131), the dashed line representing the Tunnel symbol shall not be shown. Only the wing ticks and "headwall" at both ends of the Tunnel shall be shown.

X-8108 If a feature is not associated with (touching) a road (1P030) or railroad track (1N010), omit the feature.

TUNNEL...1Q131 (POINT)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. *top-centered (4th alternate)*
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

R-2318 Within Built-up Areas, include only tunnels relating to through routes.

FEATURE: TUNNEL...1Q131 (POINT)

R-2325 If the alignment of a Railroad (1N010) is approximate (ACC 002) and the Railroad enters/exits a Tunnel (1Q131), the dashed line representing the Tunnel symbol shall not be shown. Only the wing ticks and "headwall" at both ends of the Tunnel shall be shown.

VEHICLE STORAGE /VEHICLE PARKING...1Q140 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

DISH...1T010 (POINT)

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

POWER TRANSMISSION LINE...1T030 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: POWER TRANSMISSION LINE...1T030 (LINE)

L-4012 If ACC=001 (Accurate), omit ACC window.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

R-0006 Feature shall not be shown within Built-up Area (1L020).

R-0030 If feature parallels a Road (1P030), or Railroad (1N010) at a distance of <= 5.0 mm at map scale, then do not portray. Show only the segments that run across country.

R-2275 When powerlines (1T030) run through an area of trees (5C030), the area tree symbol is masked for 1.0 mm on each side of the powerline symbol, to represent the cleared way through which the powerlines run.

R-2492 Place Pylon symbols at 12.5 mm intervals along line feature, and also at points of line feature directional change.

POWER TRANSMISSION PYLON...1T040 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

COMMUNICATIONS FACILITY...1T050 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

TELEPHONE LINE /TELEGRAPH LINE...1T060 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

FEATURE: TELEPHONE LINE /TELEGRAPH LINE...1T060 (LINE)

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

R-0006 Feature shall not be shown within Built-up Area (1L020).

R-0030 If feature parallels a Road (1P030), or Railroad (1N010) at a distance of <= 5.0 mm at map scale, then do not portray. Show only the segments that run across country.

TOWER (COMMUNICATION)...1T080 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

AIRCRAFT LANDING PAD...1U025 (POINT)

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AIRCRAFT FACILITY...1U030 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2333 The limiting outline of the Built-up Area tint shall be dropped when it overprints linear features (Streams, Roads, and Railroads, etc.), or if the space between the symbols is < 0.5 mm.

R-2494 Limiting lines of feature are omitted if it coalesces with a road (1P030).

R-2495 Symbolize apron/hardstands (1Q060), and buildings (1L015) inside areal aircraft facilities (1U030, AFT001 (Airport), or 003 (Seaplane Base)).

AIRCRAFT FACILITY...1U030 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-4008 If NAM = unknown, omit NAM window.

L-5011 If NAM of Aircraft Facility (1U030) is identical to that of a named Built-up Area (1L020) feature or Navaid (1R030) facility within 25 mm radius of feature, then omit Aircraft Facility name.

O-0024 If Aircraft Facility (IU030) is COD 2 (Limits and info unknown), and runway (IU160) is COD 1 (Limits and info known), suppress Aircraft Facility (IU030) point symbol and retain Runway (IU160).

AIRCRAFT FACILITY BEACON...1U040 (POINT)

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APRON /HARDSTAND...1U060 (AREA)

C-0017 Contours (3A010) will be adjusted to planimetric features.

FEATURE: APRON /HARDSTAND...1U060 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

OVERRUN /STOPWAY...1U130 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

RUNWAY...1U160 (AREA)

C-0017 Contours (3A010) will be adjusted to planimetric features.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4017 When RST=006, label "Hard surface"
When RST=005 or 007, label "Soft surface"
When RST=000, label "Surface unknown"

L-4892 Delete EXS label if EXS is not 005 (Under Construction), or 006(Abandoned).

TAXIWAY...1U200 (AREA)

C-0017 Contours (3A010) will be adjusted to planimetric features.

G-0012 Area and line features will be generalized to detail compatible with scale.

... (POINT)

D-1654 When symbolized feature is < 0.2 mm from a line feature, displace to 0.2 mm (map scale).

COASTAL SHORELINE...2A010 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-4132 No type shall cross Shoreline. Type will either be shown entirely within the Open Water or entirely on land.

R-1200 Mean High Water (VDC=007) is the prefered vertical datum for shoreline portrayal. When Mean High Water is not available, the shoreline will be delineated by whatever means possible. There may never be a segment of missing shoreline (by definition, the line where a land mass is in contact with a body of open water.

R-2023 Shorelines (2A010 Coastal and 2H075 Inland) which are coincident with features 2B190 Pier/Wharf, 2B230 Seawall, 1P030 Road, 1N010 Railroad Tracks, 1N050 Siding/Spur, and 1L260 Wall are not shown.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-2372 Shoreline (2A010 or 2H075) shall not be shown where it becomes coincident with a manmade harbor or coastal structure.

R-2437 The coastal or inland shoreline will be shown when a swamp is adjacent to open water. The shoreline will separate the open water from the swamp symbol.

R-2440 The water side limit of Mangrove (5C030, VEG019) or Nipa (5C030, VEG016) is always shown by a dashed line. The landside limits (Mean High Water line = Coastal Shoreline (2A010) or Inland Shoreline (2H075)) is shown when known.

R-3735 When Shoreline (2A010 or 2H075) around an island (4B135) is smaller than the symbol for a point feature on the island, delete the shoreline and show the point feature symbol in the water.

FEATURE: COASTAL SHORELINE...2A010 (LINE)

R-3910 If the embankment having EFI = 3 (Causeway) is adjacent to a shoreline < .25 mm from or a road or a railroad, suppress the shoreline.

FORESHORE...2A020 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4706 If the attribute value is not known, or the attribute value for none or not applicable, delete window and condense remaining windows.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-2825 Delete dot portion of the symbol that is within 0.5 mm, at chart scale, of the shoreline (2A010 or 2H075).

OPEN WATER (EXCEPT INLAND)...2A040 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

ANCHORAGE...2B010 (AREA)

G-0007 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2232 Omit if not shown in conjunction with a drainage feature.

ANCHORAGE...2B010 (POINT)

G-0005 A cluster of 3 or more coalescing similar point features having matching coded attribution will be aggregated to form an area multiple feature outline.

R-2232 Omit if not shown in conjunction with a drainage feature.

BREAKWATER...2B040 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: BREAKWATER...2B040 (AREA)

R-2232 Omit if not shown in conjunction with a drainage feature.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

BREAKWATER...2B040 (LINE)

R-2232 Omit if not shown in conjunction with a drainage feature.

DOLPHIN...2B080 (POINT)

G-0004 A cluster of 3 or more coalescing similar point feature having matching coded attribution will be aggregated when an area delineation is supported by the product.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

DRYDOCK...2B090 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

JETTY...2B140 (AREA)

G-0007 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2232 Omit if not shown in conjunction with a drainage feature.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

JETTY...2B140 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2232 Omit if not shown in conjunction with a drainage feature.

PIER, WHARF...2B190 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2232 Omit if not shown in conjunction with a drainage feature.

PIER, WHARF...2B190 (LINE)

FEATURE: PIER, WHARF...2B190 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2232 Omit if not shown in conjunction with a drainage feature.

RAMP...2B220 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-2232 Omit if not shown in conjunction with a drainage feature.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

RAMP...2B220 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2232 Omit if not shown in conjunction with a drainage feature.

SEAWALL...2B230 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

OVERFALLS /TIDE RIPS...2D080 (POINT)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: PILING...2D100 (AREA)

PILING...2D100 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

PILING...2D100 (POINT)

G-0004 A cluster of 3 or more coalescing similar point feature having matching coded attribution will be aggregated when an area delineation is supported by the product.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

REEF...2D120 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: REEF...2D120 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

REEF...2D120 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

FEATURE: REEF...2D120 (LINE)

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

ROCK...2D130 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

T-0836 When central graphic symbols of hydrographic dangers, excluding the danger curve (dotted line) overprint or coalesce, they shall be thinned, with preference given to retaining those dangers with the shallower depth (HDP), if it is known. Danger curves shall not be affected by this rule.

SNAG /STUMP...2D140 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

FEATURE: SNAG /STUMP...2D140 (POINT)

G-0004 A cluster of 3 or more coalescing similar point feature having matching coded attribution will be aggregated when an area delineation is supported by the product.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

WRECK...2D180 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

R-2232 Omit if not shown in conjunction with a drainage feature.

R-2451 The base line of the Wreck symbol shall be shown parallel to the south neatline with the circle on the base line positioned at the location of the Wreck.

DEPTH CONTOUR...2E015 (LINE)

L-3995 Depth Curve values shall be centered on the axis of the Depth Curve line and positioned to read towards the deepest depth of the Open Water (2A040).

R-2262 Depth curve values shall be haloed 0.2 mm from the depth curve line and shall be repeated at intervals of >= 100 mm to <= 150 mm.

V-1002 The depth label (CRV) shall be shown in meters (UNI = 013).

CURRENT ARROW /FLOW ARROW...2G010 (POINT)

C-0014 The feature shall be aligned with a river/stream (2H140), canal (2H020), orditch (2H030).

R-2436 A Flow Arrow shall be positioned within the limits of a double-line River /Stream (2H140) without coincidence. The arrow shall be positioned parallel centered within the River/Stream symbol.

R-2467 Flow Arrow shall be centered between Shoreline symbols on area features with arrow pointing downstream or 0.25 mm away from linear feature. Repeat use of symbol every 25.0 mm.

AQUEDUCT...2H010 (AREA)

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

FEATURE: AQUEDUCT...2H010 (AREA)

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

L-3518 If feature is elevated (LOC 4), the feature shall be labeled "ELEVATED AQUEDUCT." When feature continues for a long distance (> 25 mm), the label shall be repeated at 152 mm intervals, and is not to overprint any type or symbology.

L-3641 If an elevated segment is short (i.e., <= 25 mm at map scale), then the feature is labeled only with the word "Elevated".

R-2432 If an Aqueduct (2H010) is coincident with a Bridge /Overpass /Viaduct (1Q040), the aqueduct symbol shall not be shown, but bridge should be labeled "Elevated aqueduct".

AQUEDUCT...2H010 (LINE)

D-1654 When symbolized feature is < 0.2 mm from a line feature, displace to 0.2 mm (map scale).

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

L-3970 If an on ground level feature is located over an underground feature, the underground feature shall be labeled alongside of the on ground level feature, but the symbol for the underground feature shall be supressed.

R-2432 If an Aqueduct (2H010) is coincident with a Bridge /Overpass /Viaduct (1Q040), the aqueduct symbol shall not be shown, but bridge should be labeled "Elevated aqueduct".

R-2433 Karez (2H010, ATC 001, LOC 001) shall be shown as an underground conduit which carries water from its source to points of distribution. A shaft or outlet which provides entry for construction and maintenance shall be shown at exact locations except when < 1.25 mm apart.

AQUEDUCT...2H010 (POINT)

D-1654 When symbolized feature is < 0.2 mm from a line feature, displace to 0.2 mm (map scale).

R-0034 Show actual aqueduct maintenance shafts (ATC 001) at all changes in aqueduct (2H010, LOC 003) direction when the shafts are >= 5.0 mm apart at map scale.

R-0035 Show actual Aqueduct maintenance shafts (ATC 001) between the changes in direction at 5.0 mm interval at map scale.

CANAL...2H020 (AREA)

G-0003 Rivers, canals, and ditches will be partially collapsed when area and line delineations are supported on the product and the area feature does not meet the minimum geometric inclusion condition.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: CANAL...2H020 (AREA)

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

L-4008 If NAM = unknown, omit NAM window.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

S-1500 Symbolize the casement portions (Left Bank / Right Bank) of the feature using the ACC and SLT attributes of the individual river or canal banks in conjunction with the inland shoreline (2H075) symbology. The AHC attribution of the inland shoreline (2H075) shall correspond to the HYC attribution of the associated water body as follows: HYC 008 = AHC 001, HYC 006 = AHC 002, and HYC 003 = AHC 003.

CANAL...2H020 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

L-4008 If NAM = unknown, omit NAM window.

FEATURE: CANAL...2H020 (LINE)

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

O-0005 Incorporate shorter Canals (2H020) and Ditches (2H030) <=320m LEN as a connector feature and incorporate spacing of >200m. Always retain the outermost limits of these features before generalization takes place.

R-2231 Omit from Built-up Area (1L020).

DITCH...2H030 (AREA)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

G-0003 Rivers, canals, and ditches will be partially collapsed when area and line delineations are supported on the product and the area feature does not meet the minimum geometric inclusion condition.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

R-2231 Omit from Built-up Area (1L020).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

FEATURE: DITCH...2H030 (AREA)

S-1500 Symbolize the casement portions (Left Bank / Right Bank) of the feature using the ACC and SLT attributes of the individual river or canal banks in conjunction with the inland shoreline (2H075) symbology. The AHC attribution of the inland shoreline (2H075) shall correspond to the HYC attribution of the associated water body as follows: HYC 008 = AHC 001, HYC 006 = AHC 002, and HYC 003 = AHC 003.

DITCH...2H030 (LINE)

D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

O-0005 Incorporate shorter Canals (2H020) and Ditches (2H030) <=320m LEN as a connector feature and incorporate spacing of >200m. Always retain the outermost limits of these features before generalization takes place.

R-2231 Omit from Built-up Area (1L020).

R-2267 Ditches to drain Swamps and areas subject to natural inundation shall be shown as perennial Ditches.

FILTRATION /AERATION BEDS...2H040 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

FISH HATCHERY...2H050 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

FEATURE: FISH HATCHERY...2H050 (AREA)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-2231 Omit from Built-up Area (1L020).

FLUME...2H060 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

R-2231 Omit from Built-up Area (1L020).

FORD...2H070 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

R-2232 Omit if not shown in conjunction with a drainage feature.

R-2321 Fords are shown where they relate to Roads (1P030), Cart Track (1P010), or Trail (1P050).

R-3902 Retain feature only when associated with Cart Track (1P010), Road (1P030), or Trail (1P050).

FEATURE: FORD...2H070 (POINT)

FORD...2H070 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

R-2232 Omit if not shown in conjunction with a drainage feature.

R-2321 Fords are shown where they relate to Roads (1P030), Cart Track (1P010), or Trail (1P050).

R-3902 Retain feature only when associated with Cart Track (1P010), Road (1P030), or Trail (1P050).

INLAND SHORELINE...2H075 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-4132 No type shall cross Shoreline. Type will either be shown entirely within the Open Water or entirely on land.

R-2023 Shorelines (2A010 Coastal and 2H075 Inland) which are coincident with features 2B190 Pier/Wharf, 2B230 Seawall, 1P030 Road, 1N010 Railroad Tracks, 1N050 Siding/Spur, and 1L260 Wall are not shown.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-2372 Shoreline (2A010 or 2H075) shall not be shown where it becomes coincident with a manmade harbor or coastal structure.

R-2425 A small area of land >= 1.5 mm in width occurring within an intermittent lake shall be shown as a dashed island shoreline.

R-2426 The Shoreline of a Lake is dropped where it coincides with a Dam

R-2739 Inland shoreline (2H075) shall only be included if its associated inland hydrographic feature is included on the product.

R-3735 When Shoreline (2A010 or 2H075) around an island (4B135) is smaller than the symbol for a point feature on the island, delete the shoreline and show the point feature symbol in the water.

R-3910 If the embankment having EFI = 3 (Causeway) is adjacent to a shoreline < .25 mm from or a road or a railroad, suppress the shoreline.

LAKE /POND...2H080 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

FEATURE: LAKE /POND...2H080 (AREA)

L-3983 Water-surface elevation values shall be shown centered within the limits of the water feature. If the feature can not accommodate the elevation figure without coincidence with its limits, the elevation value shall be positioned entirely outside the feature's limits.

L-4005 Water surface elevations shall be shown, when known, for Lakes and River/Streams, when they are >= 1.25 mm in width, at map scale.

L-4008 If NAM = unknown, omit NAM window.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4821 Descriptive type or name shall be positioned in the following priority:
(1) Horizontal within area feature, if the type will fit entirely within the area. If type consists of more than one word, it may be split into several lines if necessary.
(2) Use Rule L-4722 if type will not fit in area.

R-2270 If WSC is unknown, use WSC 002 (Fresh).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-2425 A small area of land >= 1.5 mm in width occurring within an intermittent lake shall be shown as a dashed island shoreline.

LAND SUBJECT TO INUNDATION...2H090 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

PENSTOCK...2H110 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: PENSTOCK...2H110 (LINE)

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

R-3930 Suppress the wing tick part of the symbol when in conflict with a Building (1L015).

RAPIDS...2H120 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2232 Omit if not shown in conjunction with a drainage feature.

R-2429 Rapid symbols shall be shown on double-line River/Stream (2H140) perpendicular to the River/Stream centerline. The Rapids LEN is to be considered coincident with the River/Stream centerline.

X-8101 If a feature is not associated with (touching) a river (2H140), omit the feature.

RAPIDS...2H120 (POINT)

C-0007 The supporting feature shall be aligned with a Cart Track (1P010), Trail (1P050), RR Track (1N010), and RR Siding/RR Spur (1N050).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2232 Omit if not shown in conjunction with a drainage feature.

FEATURE: RAPIDS...2H120 (POINT)

X-8101 If a feature is not associated with (touching) a river (2H140), omit the feature.

RESERVOIR...2H130 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-2230 Omit portion of outline which coalesces with a dam (2I020).

RIVER /STREAM...2H140 (AREA)

G-0003 Rivers, canals, and ditches will be partially collapsed when area and line delineations are supported on the product and the area feature does not meet the minimum geometric inclusion condition.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

L-4008 If NAM = unknown, omit NAM window.

L-4824 Name shall be positioned in the center of that part of a feature appearing on a chart, i.e., centered from bank to bank, and centered from mouth to neatline. Type shall run parallel to center line, reading left to right, or bottom to top if feature is vertical. Type may be moved sideways to avoid overprints or sharp bends (>= 5°).

FEATURE: RIVER /STREAM...2H140 (AREA)

R-0031 If River /Stream (2H140) is Perennial (HYC 8) and <= 3% slope along this feature and no contours (3A010) are present, then add Flow Arrow symbol (2G010P004) to indicate direction of water flow.

R-2299 Rivers (2H140) under the influence of the rise and fall of the tide (TID=002) shall have their banks delineated at the high water line. Inland of tidal influence (TID=001), average water level shall be shown for perennial rivers (HYC=008), and flood stage shall be shown for intermittent (HYC=006), or dry (HYC=003) rivers.

S-1500 Symbolize the casement portions (Left Bank / Right Bank) of the feature using the ACC and SLT attributes of the individual river or canal banks in conjunction with the inland shoreline (2H075) symbology. The AHC attribution of the inland shoreline (2H075) shall correspond to the HYC attribution of the associated water body as follows: HYC 008 = AHC 001, HYC 006 = AHC 002, and HYC 003 = AHC 003.

RIVER /STREAM...2H140 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

L-4008 If NAM = unknown, omit NAM window.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

R-0031 If River /Stream (2H140) is Perennial (HYC 8) and <= 3% slope along this feature and no contours (3A010) are present, then add Flow Arrow symbol (2G010P004) to indicate direction of water flow.

R-0031 If River /Stream (2H140) is Perennial (HYC 8) and <= 3% slope along this feature and no contours (3A010) are present, then add Flow Arrow symbol (2G010P004) to indicate direction of water flow.

RIVER OR STREAM VANISHING POINT...2H145 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

R-2232 Omit if not shown in conjunction with a drainage feature.

FEATURE: RIVER OR STREAM VANISHING POINT...2H145 (POINT)

R-3901 The apex of feature to point uphill, to align with direction of flow (DOF).

SALT EVAPORATOR...2H150 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

SABKHA...2H160 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

FEATURE: SABKHA...2H160 (AREA)

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

SPRING...2H170 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4009 If SCC=000, omit SCC window.

R-2231 Omit from Built-up Area (1L020).

R-3900 Squiggly tail of symbol to point downhill to align with the direction of flow (DOF). If DOF cannot be determined, then DOF shall180, which will orient the tail to bottom of the sheet.

WATERFALL...2H180 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

FEATURE: WATERFALL...2H180 (LINE)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2232 Omit if not shown in conjunction with a drainage feature.

X-8101 If a feature is not associated with (touching) a river (2H140), omit the feature.

WATERFALL...2H180 (POINT)

C-0004 The feature shall be oriented perpendicular (90 degrees) with respect to natural area drainage features (2H140 River/Stream).

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2232 Omit if not shown in conjunction with a drainage feature.

X-8101 If a feature is not associated with (touching) a river (2H140), omit the feature.

CISTERN...2I010 (POINT)

C-0022 The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

FEATURE: CISTERN...2I010 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

DAM...2I020 (AREA)

C-0017 Contours (3A010) will be adjusted to planimetric features.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-0004 Dams (2I020) across single line Streams without a back-up Lake/Pond (2H080) shall not be shown.

X-8101 If a feature is not associated with (touching) a river (2H140), omit the feature.

DAM...2I020 (LINE)

C-0017 Contours (3A010) will be adjusted to planimetric features.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: DAM...2I020 (LINE)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-0004 Dams (2I020) across single line Streams without a back-up Lake/Pond (2H080) shall not be shown.

R-2232 Omit if not shown in conjunction with a drainage feature.

V-1013 If MCP = 000, omit MCP window.

X-8101 If a feature is not associated with (touching) a river (2H140), omit the feature.

DAM...2I020 (POINT)

C-0003 The feature shall be oriented perpendicular (90 degrees) with respect to area drainage features (2H020 Canal, 2H030 Ditch, 2H140 River/Stream).

C-0017 Contours (3A010) will be adjusted to planimetric features.

C-0023 The feature symbology shall be positioned such that the longest axis of the symbol is aligned coincident with the centerline of the associated road (1P030), railroad track (1N010), or RR siding/RR spur (1N050) feature.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2232 Omit if not shown in conjunction with a drainage feature.

V-1013 If MCP = 000, omit MCP window.

X-8101 If a feature is not associated with (touching) a river (2H140), omit the feature.

FEATURE: LOCK...2I030 (AREA)

LOCK...2I030 (AREA)

G-0007 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2232 Omit if not shown in conjunction with a drainage feature.

R-2371 The point of the Lock or Sluice Gate symbol shall be positioned pointing upstream.

X-8103 If a feature is not associated with (touching, stacked_on, etc.) a river (2H140) or canal (2H020) or dam (2I020), omit the feature.

LOCK...2I030 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2232 Omit if not shown in conjunction with a drainage feature.

R-2371 The point of the Lock or Sluice Gate symbol shall be positioned pointing upstream.

X-8103 If a feature is not associated with (touching, stacked_on, etc.) a river (2H140) or canal (2H020) or dam (2I020), omit the feature.

SLUICE GATE...2I040 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2232 Omit if not shown in conjunction with a drainage feature.

FEATURE: SLUICE GATE...2I040 (LINE)

R-2371 The point of the Lock or Sluice Gate symbol shall be positioned pointing upstream.

SLUICE GATE...2I040 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2232 Omit if not shown in conjunction with a drainage feature.

R-2371 The point of the Lock or Sluice Gate symbol shall be positioned pointing upstream.

WATER INTAKE TOWER...2I050 (AREA)

G-0007 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2232 Omit if not shown in conjunction with a drainage feature.

WATER INTAKE TOWER...2I050 (POINT)

G-0005 A cluster of 3 or more coalescing similar point features having matching coded attribution will be aggregated to form an area multiple feature outline.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2232 Omit if not shown in conjunction with a drainage feature.

GLACIAL MORAINE...2J020 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: GLACIAL MORAINE...2J020 (AREA)

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

GLACIER...2J030 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

ICE CLIFF...2J040 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2128 When feature coincides with Coastal Shoreline (2A010) or River/Stream (2H140), feature shall replace Coastal Shoreline or River/Stream at coalescence.

R-2399 If an Ice Cliff is coincident with an Ice Shelf, the dashed outline of the Ice Shelf shall be dropped.

ICE PEAK, NUNATAK...2J060 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

ICE SHELF...2J065 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: ICE SHELF...2J065 (AREA)

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

R-2256 The open water tint shall not be shown within an ice shelf (2J065).

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

PACK ICE...2J070 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

R-0061 The limit of Pack Ice (2J070) shall represent the average extent of pack ice 1/8 (12.5%) concentration or greater, for the month of greatest extent. The month of greatest extent shall be shown by the HSA attribute.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

FEATURE: PACK ICE...2J070 (AREA)

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

SNOW FIELD /ICE FIELD...2J100 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

FEATURE: SNOW FIELD /ICE FIELD...2J100 (AREA)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

SNOW FIELD /ICE FIELD...2J100 (LINE)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

TUNDRA...2J110 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

FEATURE: TUNDRA...2J110 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

CONTOUR (LAND)...3A010 (LINE)

L-3966 Label only the index contours unless the area has < 5% rise.

L-3967 Contour values shall be labeled on the 1/2 and 1/4 interval supplementaries, at the ends, and where necessary, every 100 to 150 mm.

L-3985 Contours that are coincident with the datum plane shall be labeled "ZERO," and those Contours below the datum plane are labeled with numerals prefixed by the label "MINUS."

L-3986 The Contour values shall be positioned so that they progress in smooth-flowing curves, reading uphill towards the higher elevation. Contour values shall not be positioned upside down.

L-3987 Contour values shall be centered on the axis of the Contour line.

L-3989 Sets of Contour values shall be repeated at distances of from >= 100 mm to <= 150 mm.

L-3998 Contour values shall not be shown < 20 mm from a control point, bench mark or spot elevation.

O-0025 Contours shall intersect and cross the linear feature at a right angle to that feature with a right angle contour length of 0.25 mm out from each side of the crossed feature. Features are: road (1P030 line), railroad (1N010 line), and all Sub-Category 2H area and line features except for Lake/Pond (2H080).

FEATURE: CONTOUR (LAND)...3A010 (LINE)

R-2043 Where index contours begin to coalesce (< 0.5 mm from adjacent contours for any
interval) the following hierarchy shall apply for dropping intermediate contours:

(a) The two inner-most intermediate contours shall be dropped first.
(b) The two outer-most intermediate contours shall be last to be dropped.

All index contours shall remain unless they coalesce, then apply Rule R-2045.

R-2045 Index contours (HQC 001) shall be drawn continuously throughout the sheet graphic. When they coalesce, this condition shall be represented by a single index contour for the length of the coalescing condition.

R-2094 The ticks of the depression contour shall be shortened by one-half if distance between contours are <= 0.40 mm at map scale.

R-2115 Where a Cut Line (4B071) or Fill (4B090, EFI 001) coincides with a Contour (3A010), the Contour shall be supressed. The Cut Lines ticks shall point downhill towards the bottom of the cut.

R-2261 Contour values shall be haloed 0.2 mm from the contour line.

R-2269 When a Contour (3A010) coalesces with an Bluff/Cliff, Escarpment (4B010), Crevice, Crevasse (4B060), Esker (4B100), Fault (4B110), or Rock Formation (4B160), the coalescing portion of the Contour (3A010) shall be omitted.

R-2376 Supplementary contours shall be shown to indicate summits or tops when feature can not be shown by normal contour intervals.

R-2377 Supplementary contours need not be continuous. They shall be any length > 25 m. When shown in sections, they must start and end at interpolated points between normal contours.

R-2378 Supplementary contours shall be shown at one-half of the prescribed contour interval when: (a) the % of slope is > 2 <= 5, or (b) isolated relief formations need to be shown

R-2379 Supplementary contours shall be shown at one-quarter of the prescribed contour interval if the % of slope is <= 2.

R-2382 Form lines (HQC 004) shall not be shown as continuations of other contours (3A010). A space of 1.3 mm shall be between other contours and form lines.

R-2389 Contours shall be broken for Ravines /Gorges /Canyons, etc., represented by limiting lines, or the appropriate feature symbol.

R-2394 Sand and gravel areas shall be contoured

R-2396 Contours shall be broken for Sand Dunes at the limits of area patterns.

SPOT ELEVATION...3A030 (POINT)

L-0072 Spot elevation values (3A030, ZVL) are placed to avoid obscuring features of importance to the map user, such as small tops, ridges, and saddles. The order of precedence for placement is as follows:
Preferred: The bottom line of the value is aligned to the to the right side of the dot, with the horizontal center of the symbol referenced (dot).
Second: The top line of the value is aligned to the bottom left with the horizontal center of the symbol referenced (dot).
Third: Value is centered directly over the top of the symbol referenced (dot).
Fourth: Value is centered directly under the symbol referenced (dot).

L-0073 When a referenced spot elevation is located at a line feature intersection, the placement of the value is as follows:
Preferred: Bottom right quadrant
Second: Top right quadrant
Third: Top left quadrant
Fourth: Bottom left quadrant

FEATURE: SPOT ELEVATION...3A030 (POINT)

L-0074 When an island (4B135) is too small to accomodate the symbol referenced value (spot elevation 3A030), the value us placed adjacent to the island and aligned as defined in rule L-0072.

L-3802 Type for a spot elevation placed in the water shall be enclosed in parentheses, and print blue (SPC 48253)

L-3984 If an Island (area enclosed by Shoreline (2A010 or 2H075)) cannot accommodate a spot elevation value without overprinting its shoreline, the elevation figure shall be positioned adjacent to the spot and entirely in the open water area. If the Island is identified with a proper name, the elevation value shall be centered below the name.

R-0053 Each 30 minute x 15 minute area on the map, as defined by the latitude and longitude grid, should contain approximately 1-3 trig stations and/or bench marks when known, and supplemented with 3-5 additional normal spot elevations. In the absence of any trig stations or bench marks, show 6-8 normal spot elevations.

R-2063 When an elevation is identified with intersections of Roads (1P030), Railroads (1N010), Streams (2H140), or any crossing combination of the above, also to include Island Shorelines without Contours, the value shall be placed adjacent to the feature. No dot is shown.

R-2225 Whenever possible, Spot Elevations are shown for selected readily identifiable ground features, listed below:
-- Railroad junctions
-- Railroad gate crossings
-- high points on grades of Railroads and Roads
-- extensive flat areas
-- rims and bottoms of Depressions with diameter > 125 meters
-- Stream (2H140) junctions
Spot Elevations are also needed in support of the relief presentation:
-- on the sides of slopes
-- the highest elevation on each map sheet
-- the top of prominent natural features such as hilltops, isolated summits, mountain tops, Mountain Passes, saddles, and other high points.

R-2383 The highest elevation on the map sheet shall be emphasized by using larger type size, 10 point Swiss 742, color #58600 Black-Solid.

R-2385 Spot Elevation values, when known, shall be shown for hilltops, knolls, isolated summits, mountain tops, Mountain Passes, saddles, Road junctions, Railroad crossings, high points on grades of highways and Railroads, areas >= 150 mm x 150 mm without Contour feature and % of slope is < 5, rims and bottoms of Depressions >= 25 mm x 25 mm, water surfaces of Lakes and Ponds, and Stream junctions. Type size is 8 point Swiss 742 color #58600 Black-Solid.

ASPHALT LAKE...4A005 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

FEATURE: ASPHALT LAKE...4A005 (AREA)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

GROUND SURFACE...4A010 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

FEATURE: GROUND SURFACE...4A010 (AREA)

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-2392 Karst areas >= 25.4 mm square at map scale shall not be symbolized with the area pattern (AP 103). Standard contouring shall depict the area and the description label KARST shall be added throughout such areas.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

SALT PAN...4A020 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

FEATURE: SALT PAN...4A020 (AREA)

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

BLUFF /CLIFF, ESCARPMENT...4B010 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2387 If a Bluff/Cliff, Escarpment height is less than the contour interval, the Bluff /Cliff, Escarpment symbol shall be omitted, unless it is an obstacle to cross country movement (SGC >= 45 deg., and HGT > 1.5 m, and LEN > 2,500 m), or LMC = 1.

R-2388 If a Bluff /Cliff, Escarpment is greater in height than one contour interval and the contours coalesce, the contours shall be dropped the entire length of the Bluff /Cliff, Escarpment.

CAVE DWELLING...4B030 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

FEATURE: CAVE DWELLING...4B030 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

R-2391 The V-part of the symbol (Cave, 4B030) shall mark the location of the entrance, and the shaft of the symbol shall extend in the same direction as the Cave.

CREVICE /CREVASSE...4B060 (AREA)

G-0002 When any portion of the area feature does not meet the minimum geometric inclusion condition and line delineation for the feature is supported on the product, the area feature will be partially collapsed.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

CREVICE /CREVASSE...4B060 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

CUT LINE...4B071 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: CUT LINE...4B071 (LINE)

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2231 Omit from Built-up Area (1L020).

R-2499 Show longest length of line feature in ground truth position.

EMBANKMENT...4B090 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-2115 Where a Cut Line (4B071) or Fill (4B090, EFI 001) coincides with a Contour (3A010), the Contour shall be supressed. The Cut Lines ticks shall point downhill towards the bottom of the cut.

R-2269 When a Contour (3A010) coalesces with an Bluff/Cliff, Escarpment (4B010), Crevice, Crevasse (4B060), Esker (4B100), Fault (4B110), or Rock Formation (4B160), the coalescing portion of the Contour (3A010) shall be omitted.

EMBANKMENT...4B090 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

R-2115 Where a Cut Line (4B071) or Fill (4B090, EFI 001) coincides with a Contour (3A010), the Contour shall be supressed. The Cut Lines ticks shall point downhill towards the bottom of the cut.

R-2231 Omit from Built-up Area (1L020).

R-2269 When a Contour (3A010) coalesces with an Bluff/Cliff, Escarpment (4B010), Crevice, Crevasse (4B060), Esker (4B100), Fault (4B110), or Rock Formation (4B160), the coalescing portion of the Contour (3A010) shall be omitted.

ESKER...4B100 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

FEATURE: ESKER...4B100 (LINE)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

FAULT...4B110 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

L-4002 The names of Faults shall be shown along the fault line when known.

L-4008 If NAM = unknown, omit NAM window.

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

GEOTHERMAL FEATURE...4B115 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-3900 Squiggly tail of symbol to point downhill to align with the direction of flow (DOF). If DOF cannot be determined, then DOF shall180, which will orient the tail to bottom of the sheet.

T-0303 In areas where fumaroles, geysers, and hot springs, are too numerous to symbolize, a representative pattern, and any landmark (LM C001) feature shall be symbolized and labeled.

FEATURE: ISLAND...4B135 (AREA)

ISLAND...4B135 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4746 Possession of islands and island groups shall be shown by placing the country name in parentheses below the island name or island group name. If all of the islands in an Island group belong to one country, the country name shall be placed under the island group name only. If islands within the same island group belong to different countries, the country name shall be placed under each island name, and not under the island group name. Islands administered jointly by two countries shall show both country names, separated by a dash, e.g., (UK-US). Country names shall be abbreviated in the manner approved by the Board of Geographic Names. Type size for country names shall be 2/3 the size of the island name or island group name, but shall not be less than 5 point.

R-1902 Any island (4B135) or group of islands (when agglomerated) seaward of coastal shoreline (2A010), that is to small to plot at map or chart scale will be portrayed as paper white 0.25 mm. diameter within 0.20 mm. lineweight.

R-1903 If Island (4B135) is inland, surrounded by Inland Shoreline (2H075), is <= 2.5 mm square ARA at map/chart scale, then delete the Island and its associated features.

FEATURE: MOUNTAIN PASS...4B150 (POINT)

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4008 If NAM = unknown, omit NAM window.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

ROCK FORMATION...4B160 (AREA)

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

ROCK FORMATION...4B160 (POINT)

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SAND DUNES /SAND HILLS...4B170 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3969 If the type of Sand Dunes is unknown (SSC=000), the label "DUNES" is positioned at 100.0 mm intervals to the overall extent of the area.

R-2255 Use structure shape (SSC) which most closely approximates the configuration of the dunes.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-2395 Sand Dune (4B170) patterns shall be positioned according to SDO, to the nearest 15° increment, to indicate their orientation relative to the prevailing winds.

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

FEATURE: SAND DUNES /SAND HILLS...4B170 (AREA)

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

VOLCANO...4B180 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

VOLCANO...4B180 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

FEATURE: CROPLAND (CULTIVATED)...5A010 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

FEATURE: CROPLAND (CULTIVATED)...5A010 (AREA)

S-0110 Apply the Inclusion condition to Cultivated Land (5A010) only when the project area or sheet is nearly devoid (≤10%) of vegetation (Subcategory 5B/5C), or by special instruction.

HEDGEROW...5A020 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

NURSERY...5A030 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (Ist alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

FEATURE: ORCHARD /PLANTATION...5A040 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

L-3700 If PRO = 56 (Common Fruit and/or Nuts), omit PRO window.

L-3701 Where the area covered by the orchard or plantation is less than the equivalent of 12.5 mm by 12.5 mm at map scale, the feature is indicated by the appropriate symbol, but is not labeled.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

FEATURE: VINEYARD /HOPS...5A050 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

GRASSLAND...5B010 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

FEATURE: GRASSLAND...5B010 (AREA)

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

SCRUB /BRUSH...5B020 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

BAMBOO CANE...5C010 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

FEATURE: BAMBOO CANE...5C010 (AREA)

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

FIREBREAK...5C015 (AREA)

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

FIREBREAK...5C015 (LINE)

G-0012 Area and line features will be generalized to detail compatible with scale.

OASIS...5C020 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point ~ ≤ 770 mm sq. area and ≤ 14 mm width
07 point ~ ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point ~ ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point ~ ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point ~ ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point ~ ≤ 24,960 mm sq. area and ≤104 mm width
16 point ~ > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used.
Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

FEATURE: OASIS...5C020 (AREA)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

OASIS...5C020 (POINT)

G-0005 A cluster of 3 or more coalescing similar point features having matching coded attribution will be aggregated to form an area multiple feature outline.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

FEATURE: TREES...5C030 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

L-4008 If NAM = unknown, omit NAM window.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-2438 Vegetation tint shall be shown when coincident with Swamp or Marsh symbol.

R-2440 The water side limit of Mangrove (5C030, VEG019) or Nipa (5C030, VEG016) is always shown by a dashed line. The landside limits (Mean High Water line = Coastal Shoreline (2A010) or Inland Shoreline (2H075)) is shown when known.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

FEATURE: TREES...5C030 (AREA)

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

R-3802 When LMC = 1, and ARA < 15,625 m square, show minimum size =15,625 m square.

R-3940 Create separate polygons to support extraction of DMT >= 25 < 51 (Scattered Tree Cover) and DMT >= 51 (Dense Tree Cover).

Symbolize as separate polygons those areas >= 25% and < 51% DMT (scattered tree cover), and those areas >= 51% DMT (dense tree cover).

TREES...5C030 (POINT)

BOG...5D010 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
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14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

FEATURE: BOG...5D010 (AREA)

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

HUMMOCK...5D020 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

SWAMP...5D030 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

FEATURE: SWAMP...5D030 (AREA)

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

R-9044 Show direction of flow arrows within the Swamp and Marsh feature to show water flow only when drainage patterns are not present or when feature draining flow may be questionable.

MARSH...5D040 (AREA)

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

FEATURE: MARSH...5D040 (AREA)

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

R-9044 Show direction of flow arrows within the Swamp and Marsh feature to show water flow only when drainage patterns are not present or when feature draining flow may be questionable.

ADMINISTRATIVE BOUNDARY...6A000 (LINE)

C-0001 A Boundary marker (9B030) will be aligned with the feature.

D-1655 If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in it's entirety 0.25 mm inside the projection line.

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

L-4037 If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4746 Possession of islands and island groups shall be shown by placing the country name in parentheses below the island name or island group name. If all of the islands in an Island group belong to one country, the country name shall be placed under the island group name only. If islands within the same island group belong to different countries, the country name shall be placed under each island name, and not under the island group name. Islands administered jointly by two countries shall show both country names, separated by a dash, e.g., (UK-US). Country names shall be abbreviated in the manner approved by the Board of Geographic Names. Type size for country names shall be 2/3 the size of the island name or island group name, but shall not be less than 5 point.

L-4879 If BST=001 (Definite), delete the BST label.

R-2277 International boundaries and other lines of separation, and their associated labels, are shown in margin diagrams as well as in the body of the map or chart.

R-2358 If the limits of a lesser Administrative Boundary division is coincident with that of a higher division, the symbol for the higher boundary division shall be shown, in descending order - USE 23 (International), 26 (Primary/1st Order), 30 (2nd Order), 31 (3rd Order), 16 (City).

R-2359 Every third unit of the boundary symbol shall be shown when a boundary is coincident within a Road. When the boundary is International, the International boundary overprint shall be shown as a continuous band.

R-2360 If a boundary follows an edge of a Road, Track, Trail or Railroad, every third unit of the boundary symbol shall be shown coincident with the feature. When the boundary is International, the width of the International boundary overprint shall be reduced to one-half of its normal width.

R-2361 If a boundary follows a Road and the exact location is unknown, the symbol shall be shown in the center of the Road with every third unit of the boundary symbol.

FEATURE: ADMINISTRATIVE BOUNDARY...6A000 (LINE)

R-2362 If a boundary follows a Shoreline (Coastal or Inland), every third unit of the boundary symbol shall be shown where coincident with the Shoreline.

R-2363 If a boundary is coincident with a single-line or narrow double-line stream, (i.e., width < 3 mm at map scale) only every third unit of the boundary symbol shall be shown.

R-2365 If a boundary crosses a body of Open Water (2HXXX) or (2A040) >= 20 mm width and alignment is known, the complete boundary symbol shall be shown. If the boundary alignment is unknown, the boundary symbol shall be shown in the Open Water area at the points of entry. If the size of the Open Water permits, show complete units of the boundary symbol.

R-2366 International boundary symbols shall not be shown crossing bodies of Open Water (2HXXX) or (2A040) with width >= 20 mm at map scale. The symbol shall terminate at points of entry into the Open Water area.

R-2469 If a boundary location is known and occurs within a double-line Stream the complete boundary symbol shall be shown. If the boundary location is unknown, the boundary symbol shall be centered in the Stream and labeled "APPROXIMATE"

R-2496 Boundaries shown shall be included in legend.

R-2497 In areas where there is no defined boundary between two countries (BST=004), center NM3 and NM4 in the approximate area on their respective sides of the label "NO DEFINED BOUNDARY" Pairs of labels may be repeated if necessary for large areas, but pairs should be positioned far enough apart so that they DO NOT imply a specific division line between the two countries.

R-2498 Use a point of change (9D015) for changes in status on an administrative boundary (6A000),
armistice line (6A020), Cease-fire line (6A030), defacto boundary (6A060), demilitarized zone (6A070), or zone of occupation (6A170), unless change occurs at a symbolized boundary marker (9B030).

ARMISTICE LINE...6A020 (LINE)

C-0001 A Boundary marker (9B030) will be aligned with the feature.

D-1655 If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in it's entirety 0.25 mm inside the projection line.

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

L-4037 If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".

R-2359 Every third unit of the boundary symbol shall be shown when a boundary is coincident within a Road. When the boundary is International, the International boundary overprint shall be shown as a continuous band.

R-2360 If a boundary follows an edge of a Road, Track, Trail or Railroad, every third unit of the boundary symbol shall be shown coincident with the feature. When the boundary is International, the width of the International boundary overprint shall be reduced to one-half of its normal width.

R-2361 If a boundary follows a Road and the exact location is unknown, the symbol shall be shown in the center of the Road with every third unit of the boundary symbol.

R-2362 If a boundary follows a Shoreline (Coastal or Inland), every third unit of the boundary symbol shall be shown where coincident with the Shoreline.

FEATURE: ARMISTICE LINE...6A020 (LINE)

R-2363 If a boundary is coincident with a single-line or narrow double-line stream, (i.e., width < 3 mm at map scale) only every third unit of the boundary symbol shall be shown.

R-2365 If a boundary crosses a body of Open Water (2HXXX) or (2A040) >= 20 mm width and alignment is known, the complete boundary symbol shall be shown. If the boundary alignment is unknown, the boundary symbol shall be shown in the Open Water area at the points of entry. If the size of the Open Water permits, show complete units of the boundary symbol.

R-2469 If a boundary location is known and occurs within a double-line Stream the complete boundary symbol shall be shown. If the boundary location is unknown, the boundary symbol shall be centered in the Stream and labeled "APPROXIMATE"

R-2496 Boundaries shown shall be included in legend.

R-2498 Use a point of change (9D015) for changes in status on an administrative boundary (6A000),
armistice line (6A020), Cease-fire line (6A030), defacto boundary (6A060), demilitarized zone (6A070), or zone of occupation (6A170), unless change occurs at a symbolized boundary marker (9B030).

CEASE-FIRE LINE...6A030 (LINE)

C-0001 A Boundary marker (9B030) will be aligned with the feature.

D-1655 If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in it's entirety 0.25 mm inside the projection line.

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

L-4037 If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".

R-2359 Every third unit of the boundary symbol shall be shown when a boundary is coincident within a Road. When the boundary is International, the International boundary overprint shall be shown as a continuous band.

R-2360 If a boundary follows an edge of a Road, Track, Trail or Railroad, every third unit of the boundary symbol shall be shown coincident with the feature. When the boundary is International, the width of the International boundary overprint shall be reduced to one-half of its normal width.

R-2361 If a boundary follows a Road and the exact location is unknown, the symbol shall be shown in the center of the Road with every third unit of the boundary symbol.

R-2362 If a boundary follows a Shoreline (Coastal or Inland), every third unit of the boundary symbol shall be shown where coincident with the Shoreline.

R-2363 If a boundary is coincident with a single-line or narrow double-line stream, (i.e., width < 3 mm at map scale) only every third unit of the boundary symbol shall be shown.

R-2365 If a boundary crosses a body of Open Water (2HXXX) or (2A040) >= 20 mm width and alignment is known, the complete boundary symbol shall be shown. If the boundary alignment is unknown, the boundary symbol shall be shown in the Open Water area at the points of entry. If the size of the Open Water permits, show complete units of the boundary symbol.

R-2469 If a boundary location is known and occurs within a double-line Stream the complete boundary symbol shall be shown. If the boundary location is unknown, the boundary symbol shall be centered in the Stream and labeled "APPROXIMATE"

FEATURE: CEASE-FIRE LINE...6A030 (LINE)

R-2496 Boundaries shown shall be included in legend.

R-2498 Use a point of change (9D015) for changes in status on an administrative boundary (6A000),
armistice line (6A020), Cease-fire line (6A030), defacto boundary (6A060), demilitarized zone (6A070), or zone of occupation (6A170), unless change occurs at a symbolized boundary marker (9B030).

INTERNATIONAL MARITIME BOUNDARY...6A050 (LINE)

L-3803 Position type 3 mm away from line on each side, reading left to right, or bottom to top if line is vertical. Position country names adjacent to each other, and TXT label to the right of NM3 label.

R-2756 When the US-Russia International Maritime Boundary is shown on the map/chart, a legend "See note" shall be shown next to the boundary, and the following note shown in the margin of the map/chart, or if necessary, in any open water area:

NOTE
Maritime boundary provisionally applied
pending formal exchange of insturments
of ratification.

DEFACTO BOUND. /OTHER LINE OF SEPARATION...6A060 (LINE)

C-0001 A Boundary marker (9B030) will be aligned with the feature.

D-1655 If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in it's entirety 0.25 mm inside the projection line.

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

L-4037 If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

R-2276 If a boundary is not recognized by the U.S. Deptartment of State as an official international boundary, but falls under the category of "Other Line of Separation", and the type of boundary is not portrayed by another Subcategory 6A FACS feature, the TXT attribute is used to label the line in accordance with Geonames/Boundary guidance; e.g. "Administrative Line", "Provisional Administrative Line."

R-2277 International boundaries and other lines of separation, and their associated labels, are shown in margin diagrams as well as in the body of the map or chart.

R-2358 If the limits of a lesser Administrative Boundary division is coincident with that of a higher division, the symbol for the higher boundary division shall be shown, in descending order - USE 23 (International), 26 (Primary/1st Order), 30 (2nd Order), 31 (3rd Order), 16 (City).

R-2359 Every third unit of the boundary symbol shall be shown when a boundary is coincident within a Road. When the boundary is International, the International boundary overprint shall be shown as a continuous band.

R-2360 If a boundary follows an edge of a Road, Track, Trail or Railroad, every third unit of the boundary symbol shall be shown coincident with the feature. When the boundary is International, the width of the International boundary overprint shall be reduced to one-half of its normal width.

R-2361 If a boundary follows a Road and the exact location is unknown, the symbol shall be shown in the center of the Road with every third unit of the boundary symbol.

FEATURE: DEFACTO BOUND. /OTHER LINE OF SEPARATION...6A060 (LINE)

R-2362 If a boundary follows a Shoreline (Coastal or Inland), every third unit of the boundary symbol shall be shown where coincident with the Shoreline.

R-2363 If a boundary is coincident with a single-line or narrow double-line stream, (i.e., width < 3 mm at map scale) only every third unit of the boundary symbol shall be shown.

R-2365 If a boundary crosses a body of Open Water (2HXXX) or (2A040) >= 20 mm width and alignment is known, the complete boundary symbol shall be shown. If the boundary alignment is unknown, the boundary symbol shall be shown in the Open Water area at the points of entry. If the size of the Open Water permits, show complete units of the boundary symbol.

R-2469 If a boundary location is known and occurs within a double-line Stream the complete boundary symbol shall be shown. If the boundary location is unknown, the boundary symbol shall be centered in the Stream and labeled "APPROXIMATE"

R-2496 Boundaries shown shall be included in legend.

R-2498 Use a point of change (9D015) for changes in status on an administrative boundary (6A000),
armistice line (6A020), Cease-fire line (6A030), defacto boundary (6A060), demilitarized zone (6A070), or zone of occupation (6A170), unless change occurs at a symbolized boundary marker (9B030).

DEMILITARIZED ZONE...6A070 (AREA)

D-1655 If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in it's entirety 0.25 mm inside the projection line.

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-4037 If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".

R-2358 If the limits of a lesser Administrative Boundary division is coincident with that of a higher division, the symbol for the higher boundary division shall be shown, in descending order - USE 23 (International), 26 (Primary/1st Order), 30 (2nd Order), 31 (3rd Order), 16 (City).

R-2359 Every third unit of the boundary symbol shall be shown when a boundary is coincident within a Road. When the boundary is International, the International boundary overprint shall be shown as a continuous band.

R-2360 If a boundary follows an edge of a Road, Track, Trail or Railroad, every third unit of the boundary symbol shall be shown coincident with the feature. When the boundary is International, the width of the International boundary overprint shall be reduced to one-half of its normal width.

R-2361 If a boundary follows a Road and the exact location is unknown, the symbol shall be shown in the center of the Road with every third unit of the boundary symbol.

R-2362 If a boundary follows a Shoreline (Coastal or Inland), every third unit of the boundary symbol shall be shown where coincident with the Shoreline.

FEATURE: DEMILITARIZED ZONE...6A070 (AREA)

R-2363 If a boundary is coincident with a single-line or narrow double-line stream, (i.e., width < 3 mm at map scale) only every third unit of the boundary symbol shall be shown.

R-2365 If a boundary crosses a body of Open Water (2HXXX) or (2A040) >= 20 mm width and alignment is known, the complete boundary symbol shall be shown. If the boundary alignment is unknown, the boundary symbol shall be shown in the Open Water area at the points of entry. If the size of the Open Water permits, show complete units of the boundary symbol.

R-2366 International boundary symbols shall not be shown crossing bodies of Open Water (2HXXX) or (2A040) with width >= 20 mm at map scale. The symbol shall terminate at points of entry into the Open Water area.

R-2496 Boundaries shown shall be included in legend.

R-2498 Use a point of change (9D015) for changes in status on an administrative boundary (6A000),
armistice line (6A020), Cease-fire line (6A030), defacto boundary (6A060), demilitarized zone (6A070), or zone of occupation (6A170), unless change occurs at a symbolized boundary marker (9B030).

INTERNATIONAL DATE LINE...6A110 (LINE)

C-0001 A Boundary marker (9B030) will be aligned with the feature.

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-4817 "INTERNATIONAL DATE LINE (MONDAY)" will be labeled on the west side, reading left to right or bottom to top, with "(SUNDAY)" centered under MONDAY. Label twice on each chart, with a 1 mm space between the type and date line.

R-2496 Boundaries shown shall be included in legend.

ZONE OF OCCUPATION...6A170 (AREA)

D-1655 If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in it's entirety 0.25 mm inside the projection line.

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

L-4037 If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".

R-2358 If the limits of a lesser Administrative Boundary division is coincident with that of a higher division, the symbol for the higher boundary division shall be shown, in descending order - USE 23 (International), 26 (Primary/1st Order), 30 (2nd Order), 31 (3rd Order), 16 (City).

R-2359 Every third unit of the boundary symbol shall be shown when a boundary is coincident within a Road. When the boundary is International, the International boundary overprint shall be shown as a continuous band.

FEATURE: ZONE OF OCCUPATION...6A170 (AREA)

R-2360 If a boundary follows an edge of a Road, Track, Trail or Railroad, every third unit of the boundary symbol shall be shown coincident with the feature. When the boundary is International, the width of the International boundary overprint shall be reduced to one-half of its normal width.

R-2361 If a boundary follows a Road and the exact location is unknown, the symbol shall be shown in the center of the Road with every third unit of the boundary symbol.

R-2362 If a boundary follows a Shoreline (Coastal or Inland), every third unit of the boundary symbol shall be shown where coincident with the Shoreline.

R-2363 If a boundary is coincident with a single-line or narrow double-line stream, (i.e., width < 3 mm at map scale) only every third unit of the boundary symbol shall be shown.

R-2365 If a boundary crosses a body of Open Water (2HXXX) or (2A040) >= 20 mm width and alignment is known, the complete boundary symbol shall be shown. If the boundary alignment is unknown, the boundary symbol shall be shown in the Open Water area at the points of entry. If the size of the Open Water permits, show complete units of the boundary symbol.

R-2366 International boundary symbols shall not be shown crossing bodies of Open Water (2HXXX) or (2A040) with width >= 20 mm at map scale. The symbol shall terminate at points of entry into the Open Water area.

R-2496 Boundaries shown shall be included in legend.

R-2498 Use a point of change (9D015) for changes in status on an administrative boundary (6A000),
armistice line (6A020), Cease-fire line (6A030), defacto boundary (6A060), demilitarized zone (6A070), or zone of occupation (6A170), unless change occurs at a symbolized boundary marker (9B030).

BOUNDARY MARKER...9B030 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

CONTROL POINT...9B035 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

FEATURE: CONTROL POINT...9B035 (POINT)

L-4008 If NAM = unknown, omit NAM window.

R-2374 Control Points shall not be shown < 75 mm apart. In areas of high concentration of points, (more than one every 75 mm), the points of the higher order of preference will be shown no less than 75 mm nor more than 125 mm apart. The order of preference is - 1) trig stations, 2) bench marks, 3) spot heights.

MISCELLANEOUS CULTURAL FEATURE...9D012 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

MISCELLANEOUS CULTURAL FEATURE...9D012 (LINE)

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

FEATURE: MISCELLANEOUS CULTURAL FEATURE...9D012 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

POINT OF CHANGE...9D015 (POINT)

C-0016 The feature shall be perpendicular to a road (1P030), interchange (1P020), railroad track (1N010), administrative boundary (L6A000), armistice line (6A020), cease-fire line (6A030), defacto boundary (6A060), international date, or river/stream (2H140).

L-3958 The Point of Change in the number of Tracks shall be symbolized and labeled <= 6.2 mm to the Point of Change on both sides.

R-2173 Point of Change symbol (9D015) shall be added where approximate alignment begins and ends and placed on top of Road where labels would be placed, perpendicular to Road symbolization with staff end of symbol just touching the Road.

R-2175 Add Point of Change (9D015) ticks at the beginning and end of Roads labeled LTN >= 3.

R-2176 LTN labels shall be positioned adjacent to Point of Change (9D015) ticks on road stretches >= 2.0 mm at map scale.

R-2357 The "Point of Change" symbol shall be shown at 90 degrees on the north or upper side of the boundary when there is a change in the status of a boundary. The symbol shall not overprint a symbolized boundary monument.

R-2430 A limiting tick shall be shown at points indicating a change in navigability of a canal.

R-2498 Use a point of change (9D015) for changes in status on an administrative boundary (6A000),
armistice line (6A020), Cease-fire line (6A030), defacto boundary (6A060), demilitarized zone (6A070), or zone of occupation (6A170), unless change occurs at a symbolized boundary marker (9B030).

VOID COLLECTION AREA...9D020 (AREA)

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-0050 Type sizes per area sizes at map/chart scale: Area features only.

06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area

Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

FEATURE: VOID COLLECTION AREA...9D020 (AREA)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

L-3968 An area void of Contours or form lines due to lack of, or poor quality source data, shall be labeled "RELIEF DATA INCOMPLETE". An area void of relief which is greater than 75 mm x 75 mm at map scale shall carry the additional note "Limits of Reliable Relief Information" repeated along the perimeter of the contoured area.

NAMED LOCATION...9D040 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.

06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area

Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

FEATURE: NAMED LOCATION...9D040 (AREA)

L-0060 Populated places are classified by complete up-to-date population figures, and by administrative importance. When complete up-to-date population data is not available, populated places are classified solely by administrative importance.

First order of precedence:
Population classification for culturally developed areas:
>= 500,000 (PPL 001), first importance
14 point bold condensed, upper case
>= 100,000 and < 500,000 (PPL 002), second importance:
10 point bold condensed, upper case
>= 25,000 and < 100,000 (PPL 003), third importance
10 point bold condensed, upper and lower case
>= 5,000 and < 25,000 (PPL 004), fourth importance
10 point condensed, upper and lower case
< 5,000 (PPL 005), fifth importance:
8 point condensed, upper and lower case

Second order of precedence:
Population and relative importance classification for an area not as yet well culturally developed:
>= 100,000 (PPL 001), first importance
14 point bold condensed, upper case
>= 50,000 and < 100,000 (PPL 002), second importance
10 point bold condensed, upper case
>= 10,000 and < 50,000 (PPL 003), third importance
10 point bold condensed, upper and lower case
>= 2,000 and < 10,000 (PPL 004), fourth importance
10 point condensed, upper and lower case
< 2,000 (PPL 005), fifth importance
8 point condensed, upper and lower case

Third order of precedence:
The categories of administrative importance may vary from region to region
National capital (PPL 001), first importance
14 point bold condensed, upper case
Province, state, or department capital (PPL 002), second importance
10 point bold condensed, upper case
County seat or chartered city (PPL 003), third importance
10 point bold condensed, upper and lower case
Town (PPL 004), fourth importance
10 point condensed, upper and lower case
Village or settlement (PPL 005), fifth importance
8 point condensed, upper and lower case

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

FEATURE: NAMED LOCATION...9D040 (AREA)

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

NAMED LOCATION...9D040 (LINE)

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

L-0060 Populated places are classified by complete up-to-date population figures, and by administrative importance. When complete up-to-date population data is not available, populated places are classified solely by administrative importance.

First order of precedence:
Population classification for culturally developed areas:
>= 500,000 (PPL 001), first importance
14 point bold condensed, upper case
>= 100,000 and < 500,000 (PPL 002), second importance:
10 point bold condensed, upper case
>= 25,000 and < 100,000 (PPL 003), third importance
10 point bold condensed, upper and lower case
>= 5,000 and < 25,000 (PPL 004), fourth importance
10 point condensed, upper and lower case
< 5,000 (PPL 005), fifth importance:
8 point condensed, upper and lower case

Second order of precedence:
Population and relative importance classification for an area not as yet well culturally developed:
>= 100,000 (PPL 001), first importance
14 point bold condensed, upper case
>= 50,000 and < 100,000 (PPL 002), second importance
10 point bold condensed, upper case
>= 10,000 and < 50,000 (PPL 003), third importance
10 point bold condensed, upper and lower case
>= 2,000 and < 10,000 (PPL 004), fourth importance
10 point condensed, upper and lower case
< 2,000 (PPL 005), fifth importance
8 point condensed, upper and lower case

Third order of precedence:
The categories of administrative importance may vary from region to region
National capital (PPL 001), first importance
14 point bold condensed, upper case
Province, state, or department capital (PPL 002), second importance
10 point bold condensed, upper case
County seat or chartered city (PPL 003), third importance
10 point bold condensed, upper and lower case
Town (PPL 004), fourth importance
10 point condensed, upper and lower case
Village or settlement (PPL 005), fifth importance
8 point condensed, upper and lower case

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

FEATURE: NAMED LOCATION...9D040 (POINT)

L-0060 Populated places are classified by complete up-to-date population figures, and by administrative importance. When complete up-to-date population data is not available, populated places are classified solely by administrative importance.

First order of precedence:
Population classification for culturally developed areas:
>= 500,000 (PPL 001), first importance
14 point bold condensed, upper case
>= 100,000 and < 500,000 (PPL 002), second importance:
10 point bold condensed, upper case
>= 25,000 and < 100,000 (PPL 003), third importance
10 point bold condensed, upper and lower case
>= 5,000 and < 25,000 (PPL 004), fourth importance
10 point condensed, upper and lower case
< 5,000 (PPL 005), fifth importance:
8 point condensed, upper and lower case

Second order of precedence:
Population and relative importance classification for an area not as yet well culturally developed:
>= 100,000 (PPL 001), first importance
14 point bold condensed, upper case
>= 50,000 and < 100,000 (PPL 002), second importance
10 point bold condensed, upper case
>= 10,000 and < 50,000 (PPL 003), third importance
10 point bold condensed, upper and lower case
>= 2,000 and < 10,000 (PPL 004), fourth importance
10 point condensed, upper and lower case
< 2,000 (PPL 005), fifth importance
8 point condensed, upper and lower case

Third order of precedence:
The categories of administrative importance may vary from region to region
National capital (PPL 001), first importance
14 point bold condensed, upper case
Province, state, or department capital (PPL 002), second importance
10 point bold condensed, upper case
County seat or chartered city (PPL 003), third importance
10 point bold condensed, upper and lower case
Town (PPL 004), fourth importance
10 point condensed, upper and lower case
Village or settlement (PPL 005), fifth importance
8 point condensed, upper and lower case

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

FEATURE: TEXT DESCRIPTION...9D045 (AREA)

L-0050 Type sizes per area sizes at map/chart scale: Area features only.
06 point - ≤ 770 mm sq. area and ≤ 14 mm width
07 point - ≤ 2,296 mm sq. area and ≤ 28 mm width
09 point - ≤ 5,192 mm sq. area and ≤ 44 mm width
10 point - ≤ 9,796 mm sq. area and ≤ 62 mm width
12 point - ≤ 16,632 mm sq. area and ≤ 84 mm width
14 point - ≤ 24,960 mm sq. area and ≤104 mm width
16 point - > 24,960 mm sq. area
Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

TEXT DESCRIPTION...9D045 (LINE)

L-0051 Type sizes for single line features at map/chart scale.
06 point - ≤ 80 mm length
07 point - ≤ 160 mm length
09 point - > 160 mm length

L-4260 Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

L-4261 Feature name, label, data information holder, and/or symbol shall be positioned, reading left to right, parallel to the tangent of the center of the southern neatline of the map sheet.

TEXT DESCRIPTION...9D045 (POINT)

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
   a. northeast (preferred position).
   b. southeast (1st alternate).
   c. northwest (2nd alternate)
   d. southwest (3rd alternate)
   e. top-centered (4th alternate)
   f. bottom-centered (5th alternate)
   (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

APPENDIX B

1:100,000 TOPOGRAPHIC SCALE MAP STYLE SHEET

10. SCOPE

10.1 Scope. This Appendix is a graphic illustration of the design, composition, and location of the margin data. This Appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

20.1.1 Specifications, standards and handbooks.

See section 2. APPLICABLE DOCUMENTS

20.2.1 Other government documents, drawings, and publications.

This section is not applicable to this specification.

20.2 Non-government publications.

This section is not applicable to this specification.

30. 1:100,000 SCALE TOPOGRAPHIC MAP STYLE SHEET

30.1 Style sheet. See next page for style sheet information foldout.

The digital copy of MIL-T-89306, dated 28 February 1995 does not include appendix "B", or "C". Copies of these appendixes must be ordered separately, please fax this page to 215-697-2247 and include your complete mailing address below.

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APPENDIX C

INDEX TO REGIONAL AREAS

10. SCOPE

10.1 Scope. This Appendix is a graphic illustration of the design, composition, and location of the sheet series. This Appendix is not a mandatory part of the specification. The information contained herein is intended for information only.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

20.1.1 Specifications, standards and handbooks.

This section is not applicable to this specification.

20.2.1 Other government documents, drawings, and publications.

This section is not applicable to this specification.

20.2 Non-government publications.

This section is not applicable to this specification.

30. INDEX TO REGIONAL AREAS

30.1 Index to Regional Areas. See next page for graphic information foldout.

The digital copy of MIL-T-89306, dated 28 February 1995 does not include appendix "B", or "C". Copies of these appendixes must be ordered separately, please fax this page to 215-697-2247 and include your complete mailing address below.

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APPENDIX D

TYPE TEMPLATE

10. SCOPE

10.1 Scope. This Appendix is intended as a tool to provide assistance where type sizes are in question or where type ranges are indicated in the referenced MIL-STD-2402.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

This section is not applicable to this specification.

20.2 Non-government publications.

This section is not applicable to this specification.

30. TYPE TEMPLATE

30.1 Type template. See next page for the type template.

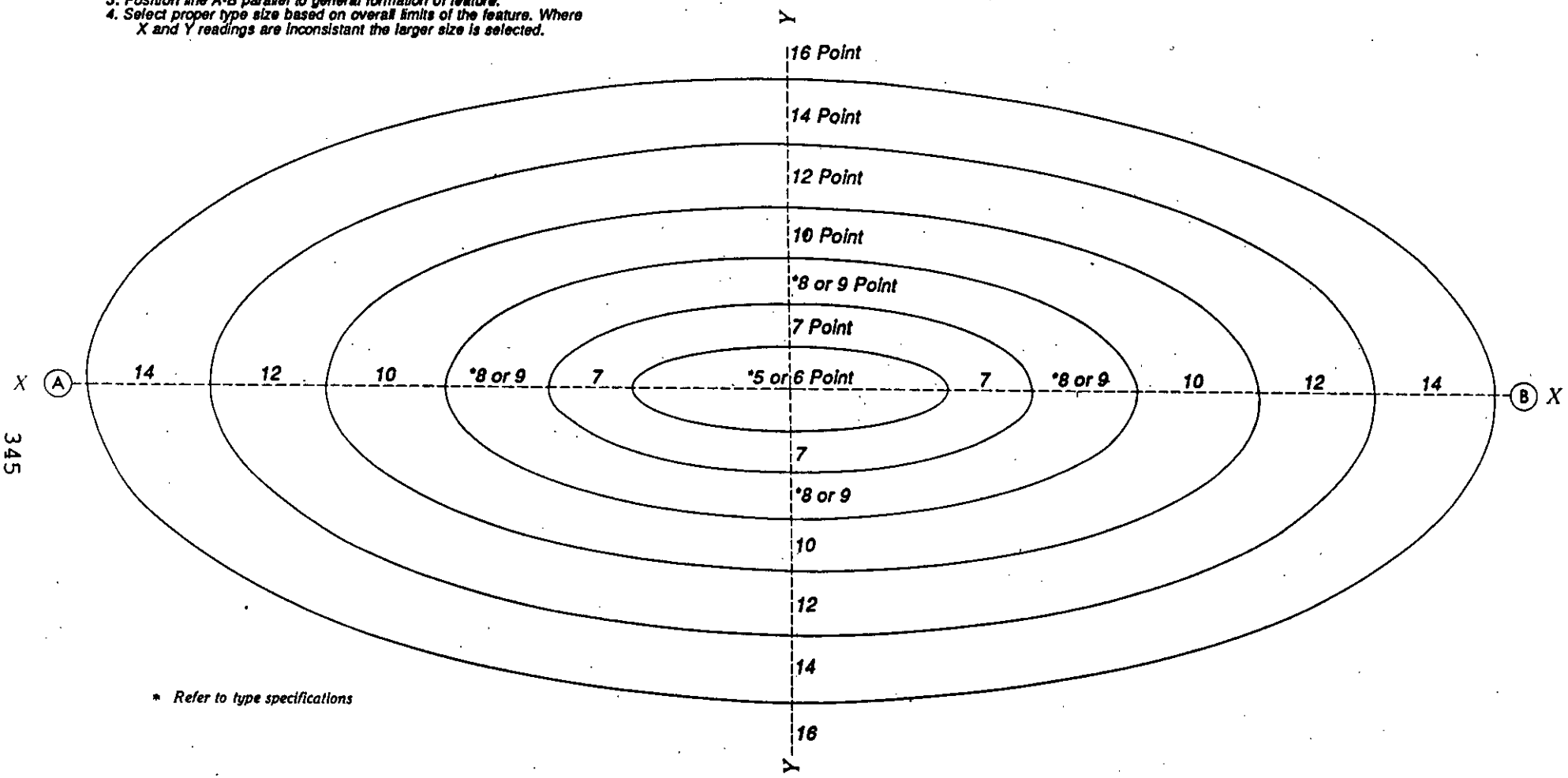
APPENDIX D

TYPE TEMPLET

Instructions:

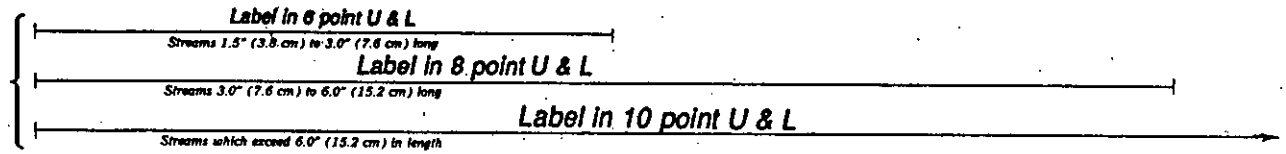
1. *All type fonts and sizes are Swiss 742.*
2. *Center template over approximate center of feature.*
3. *Position line A-B parallel to general formation of feature.*
4. *Select proper type size based on overall limits of the feature. Where X and Y readings are inconsistant the larger size is selected.*

AREA FEATURES



* *Refer to type specifications*

SINGLE LINE DRAINAGE



INDEX

	Paragraph	Page
Abrupt changes in slope	3.16.6.3	93
Accuracy	3.2	3
Acquisition Requirement	6.2	152
Additional classification codes	3.19.11.1	124
Adjoining data set and sheet match	3.4	4
Adjoining sheets diagram	3.11.10	20
Aeronautical data	3.14	73
Agreement of names between maps of different scales	3.19.9	122
Air Standardization Coordinating Committee Agreements (ASCCs)	6.6.3	153
Analysis, evaluation, and selection of toponymy	3.19.5	118
Annotation	3.21	143
APPENDIX A - 1:100,000 SCALE TOPOGRAPHIC LINE MAP PRODUCT RULES		229
APPENDIX B - 1:100,000 SCALE TOPOGRAPHIC LINE MAP STYLE SHEET		341
APPENDIX C - INDEX TO REGIONAL AREAS		343
APPENDIX D - TYPE TEMPLATE		345
APPLICABLE DOCUMENTS	2.	2
Approximate boundaries	3.18.2	109
Approximate road alignments	3.12.6.3	46
Area features	3.15.9	82
Area names	3.19.23	138
Asphalt lakes	3.16.8.17	99
Bar code and DMA stock number	3.11.9	18
Boundaries commonly shown	3.18.1.1	108
Boundary diagram	3.11.19	34
Boundary names and labeling	3.18.3	110
Bridges, causeways, viaducts, and elevated highways	3.12.13	49
Buildings	3.12.39	61
Built-up area names placement	3.19.14.1	128
Built-up areas	3.12.32	57
Burned-over areas	3.17.4	106
Canals and canalized streams	3.15.5	79
Capes and islands	3.19.26	140
Car lines	3.12.28	54
Cave dwellings	3.12.41	64
Caves and caverns	3.16.8.12	98
Cemeteries	3.13.11	71
Changes from previous issue	6.8	154
Characteristics	3.12.30.2	55
Cinder cones	3.16.8.15	99
Circular error (CE)	6.5.1	153
Classification code	3.19.11	124
Classification marking	3.11.30.1	41
Classification of inspection	4.2	150
Classification of names	3.19.8	122
Classification of populated places	3.12.31	56

INDEX

	Paragraph	Page
Cliffs	3.16.8.3	96
Coastal hydrographic features	3.19.27	141
Coastal hydrography	3.15.10	85
Coastal hydrography definitions	3.15.10.1	85
Collection of toponymy	3.19.4	117
Contour interval	3.16.3.1	89
Contour interval note	3.11.15	30
Contour values	3.19.19	135
Contours	3.16.3	89
Control points	3.19.17	133
Conversion graph	3.11.23	38
Copyright note	3.11.32	42
Crevasses	3.16.8.8	97
Crevices	3.16.8.7	97
Cultivated land	3.17.12	108
Cultural development: General	3.12.1	42
Culture	3.12	42
Culverts	3.13.13	72
Currency notes	3.11.21	37
Cuts and fills	3.13.12	72
Cuts and fills	3.16.8.11	98
Dams, levees, dikes and related features	3.13.14	73
Datum	3.3	3
Datum notes	3.11.17	31
Definitions, first article	6.5	153
Demarcation	3.18	108
Demarcation policy	3.18.1	108
Departures from standard sheet lines	3.10.2	9
Depression contours	3.16.3.5	91
Depth contours	3.15.10.7	87
Description of populated places	3.12.30.1	55
Design and location	3.11.1	11
Destroyed buildings and populated places	3.12.45	65
Disclaimer notes	3.11.20	36
Dispersed villages	3.19.14.2.1	128
Displaced features	3.2.3	3
DMA seal	3.11.28	41
Dolphins, Pilings, and Stumps	3.15.10.5	87
Downgrading/declassification note	3.11.30.2	41
Drainage	3.11.18.1	31
Drainage and irrigation ditches	3.15.6	80
Dry lakes, washes, dry streams, and wadis	3.16.8.19	99
Edition number	3.11.6	15
Elevation bands	3.11.18.2	31
Elevation guide	3.11.18	31
Ellipsoid, note, projection, grid and declination data	3.11.16	31
Ellipsoids, projections, and grids	3.9.1	7
Enclosures, type placement for	3.19.22	138
Escarpments	3.16.8.2	96
Establishing limits of built-up area tints	3.12.33	59

INDEX

	Paragraph	Page
Examples of non-standard sheets	3.10.3	9
Executive Orders	6.6.5	153
Expurgated areas and boundaries	3.18.4.1	112
Farmsteads	3.12.38	61
Fault-line scarps	3.16.8.10	98
Faults	3.16.8.9	97
Feature accuracy principles: General	3.5.1	4
Feature/Attribute category, inclusion conditions and product rules	3.25.2	148
Feature/Attribute contents: General	3.25.1	148
Feature/Attribute	3.25	148
Ferries and fords	3.12.15	50
Finished map feature accuracy	3.5.1.1	4
Finishing instructions	3.24.5	148
First article	3.1	3
First article	6.3	152
First article inspection	4.3	150
Folding	5.2	151
Form lines	3.16.4	92
Forms of geographic names presentation	3.19.7.1	119
Fumaroles, geysers, and hot springs	3.16.8.16	99
Glaciers	3.16.9.2	101
Glossary	3.11.12	27
Government documents	2.1	2
Government furnished material	4.6	151
Government property surplus	4.7	151
Grid conversion note	3.11.31	42
Grid lines	3.11.18.6	34
Harbor and coastal structures	3.13.2	67
Hedgerows	3.17.13	108
High-tension power lines	3.13.7	70
Horizontal accuracy	3.2.1	3
Horizontal and vertical control	3.16.2	88
Horizontal datum	3.3.1	3
Huts	3.12.44	64
Hydrography	3.15	75
Hypsographic features	3.19.20	136
Hypsography/Physiography	3.16	88
Ice cliff	3.16.9.4	101
Ice escarpments, crevices, crevasses, and depressions	3.16.9.7	102
Ice shelf	3.16.9.5	102
Identification of copy	3.24.3	144
Important buildings (Landmarks)	3.12.40	62
Incised features	3.16.8.6	97
Incomplete or unreliable relief	3.11.18.5	34
Index contours	3.16.3.2	90
Inland hydrographic features: General	3.15.1	75
Insignificant relief	3.11.18.4	33
Intended use	6.1	152
Inter-Agency Agreements	6.6.6	153

INDEX

	Paragraph	Page
Interchanges	3.12.12	49
Intermediate contours	3.16.3.3	90
Internal boundary disclaimer note	3.11.20.2	36
International boundary disclaimer note	3.11.20.1	36
International MC&G Agreements	6.6.4	153
Karst	3.16.8.13	98
Lakes, ponds, and similar features	3.15.3	77
Landform depiction: General	3.16.1	88
Language requirements	3.11.2	11
Language selection and sequence	3.11.3	12
Levees and dikes	3.16.8.18	99
Level of protection	5.3.1	151
Linear error (LE)	6.5.2	153
Linear features	3.19.16	131
Located objects	3.13.3	67
Locks and sluice gates	3.13.15	73
Mangrove	3.17.9	107
Map design	3.7	5
Map identifications	3.11.4	12
Map series	3.11.4.1	13
Margin data	3.11	11
Marking	5.4	152
Mining features	3.13.1	66
Miscellaneous cultural features	3.13	65
Miscellaneous distorted-surface areas	3.16.8.14	99
Miscellaneous inland hydrographic features	3.15.8	81
Miscellaneous notes	3.11.22	38
Moraine	3.16.9.6	102
Name descriptions	3.19.3	115
Names and labeling	3.19	112
Names disclaimer note	3.11.20.3	37
Names for populated places located near shorelines	3.19.14.3	130
Names treatment: General	3.19.1	114
NATO Standardization Agreements (STANAGs)	6.6.1	153
Nipa	3.17.10	107
Non-Government publications	2.2	3
NOTES	6.	152
Nunataks and ice peaks	3.16.9.3	101
Offshore oil/gas rigs	3.15.10.8	88
Open areas within built-up area tints	3.12.34	59
Open cast mines	3.13.1.2	66
Open water and marshland	3.19.25	140
Orchards, plantations, and nurseries	3.17.7	106
Order of precedence	2.3	3
Other boundaries	3.18.1.2	108
Other Documentation	6.6.7	153
Other government documents, drawings, and publications	2.1.2	2
Other transportation features	3.12.29	55
Overpasses and tunnels	3.12.14	50

INDEX

	Paragraph	Page
Pack ice	3.16.9.8	102
Package size	5.3.2	152
PACKAGING	5.	151
Packaging	5.3	151
Packaging: General	5.1	151
Paper	3.24.1	143
Permanent snow fields, ice fields, glaciers and attendant features	3.16.9	101
Permanent snowfields and icefields	3.16.9.1	101
Pinnacles, needle-type peaks, columnar rock formations and buttes	3.16.8.5	97
Pipelines	3.13.5	69
Plazas, town squares	3.12.10	48
Plotted features	3.5.1.5	5
Points of change in roads information	3.12.7	46
Policies for spelling of geographic names	3.19.2	114
Populated places	3.12.30	55
Populated places names	3.19.14	127
Populated places treatment: General	3.12.30.3	56
Population figures	3.12.31.2	56
Population or administrative	3.12.31.1	56
Principles of coastal hydrographic features	3.15.10.6	87
Principles of type placement	3.19.13	125
Printing colors and screens	3.24.4	144
Printing note	3.11.27	41
Private roads	3.12.5	45
Projection	3.9	6
Prospects	3.13.1.4	67
Publication note and credit listings	3.11.26	40
Pumping stations and water pumps	3.13.4	68
Purpose	1.2	1
Quadripartite Standardization Agreements (QSTAGs)	6.6.2	153
QUALITY ASSURANCE PROVISIONS	4.	150
Radar	3.20	143
Railroad Bridges, Tunnels, Viaducts, Causeways, and Overpasses	3.12.26	54
Railroad categories	3.12.17	51
Railroad electrification	3.12.24	53
Railroad names	3.12.25	54
Railroad objectives	3.12.27	54
Railroad stations	3.12.20	52
Railroad yards	3.12.19	52
Railroads in populated places	3.12.22	53
Railroads in roads and streets	3.12.23	53
Recording of toponymy	3.19.6	119
Recreational areas	3.13.10	71
Red-Light readable note	3.11.25	40
Reefs and rocky ledges	3.15.10.2	86
Reference systems	3.10	8
Relief data incomplete	3.16.5	92
Reproduction	3.24	143

INDEX

	Paragraph	Page
Required feature accuracy standards	3.5.1.4	5
REQUIREMENTS	3.	3
Responsibility for compliance	4.1.1	150
Responsibility for inspection	4.1	150
Review of construction records	4.5	150
Ridges	3.16.8.4	96
Road classifications	3.12.2	43
Road names	3.12.6.4	46
Road objectives	3.12.9	47
Roads in mountainous areas	3.12.16	50
Roads under construction	3.12.4	45
Rocks (Bare or awash)	3.15.10.3	86
Route markers	3.12.8	46
Route markers	3.19.28	141
Ruins	3.12.46	65
Sand and gravel areas	3.16.8.20	99
Sand dunes	3.16.8.21	100
Scale	3.6	5
Scale note and bar scale	3.11.13	29
Scattered trees	3.17.5	106
Scattered villages	3.19.14.2.2	129
SCOPE	1.	1
Scope	1.1	1
Scrub	3.17.6	106
Security	1.3	1
Security classification printing colors	3.11.30.4	42
Security classification	1.3.1	1
Security classification notes	3.11.30	41
Selection of map features	3.5.1.3	5
Series	3.5	4
Series name and scale	3.11.4.2	13
Series number	3.11.5	14
Settlements (Southeast Asia)	3.12.35	59
Shanty towns	3.12.36	60
Sheet lines	3.7.1	5
Sheet name	3.11.7	17
Sheet number	3.11.8	18
Shorelines	3.15.2	76
Sidings and spur tracks	3.12.18	52
Size and dimensions	3.8	6
Slope guide	3.11.24	39
Snowsheds	3.12.21	53
Special area	3.22	143
Special handling notes	3.11.30.3	42
Special road classification principles	3.12.3	45
Special treatments for boundaries	3.18.4	110
Special types of populated places	3.12.37	60
Specifications, standards, and handbooks	2.1.1	2
Spot elevation type placement	3.19.18	134
Spot elevations	3.11.18.3	33
Spot elevations support to relief	3.16.7	94

INDEX

	Paragraph	Page
Spot features	3.19.15	131
Standard sheet lines	3.10.1	8
Standardization agreements	6.6	153
Steep areas of uniform slope	3.16.6.2	93
Streams and related features	3.15.4	78
Streets	3.12.6.2	46
Subject term (key word) listing	6.7	154
Supersession	6.4	153
Supplementary contours	3.16.3.4	90
Symbol legend	3.11.11	25
Symbol representation	3.5.1.2	4
Symbology	3.23	143
Tailing piles and mine dumps	3.13.1.3	67
Tailored glossary	3.19.10	123
Telephone and telegraph lines	3.13.8	71
Tent dwellings	3.12.43	64
Terraces	3.16.8.22	100
Through routes	3.12.6.1	45
Through routes and streets in populated places	3.12.6	45
Tolerances	3.24.2	143
Topographic principles of contouring	3.16.6	92
Topographic expression	3.16.6.1	92
Tops and saddles	3.16.8.1	95
Towns and villages	3.19.14.2	128
Traffic circles	3.12.11	48
Treatment of geographic names	3.19.7	119
Treatment of specified topographic features	3.16.8	95
Tribal names	3.19.24	139
Tropical grass	3.17.11	107
Type printing colors	3.19.30	143
Type sizes	3.19.29	142
Typography	3.19.12	124
Underground dwellings	3.12.42	64
Underground-mines	3.13.1.1	66
Unit of elevation note	3.11.14	30
Users note	3.11.29	41
Vegetation	3.17	102
Vegetation: General	3.17.1	102
Vegetation principles	3.17.2	103
Vertical accuracy	3.2.2	3
Vertical datum	3.3.2	4
Vineyards	3.17.8	107
Visual examination	4.4	150
Walls and fences	3.13.9	71
Water conduits	3.15.7	80
Wells, tanks and reservoirs	3.13.6	69
Woodland	3.17.3	104
Woodland features	3.19.21	137
Work limits	3.7.2	6
Wrecks	3.15.10.4	87

CONCLUDING MATERIAL

Custodians:
DMA - MP

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