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Standard Specification for
Content of Digital Geospatial Metadata[1]

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1. Scope

1.1 This specification covers the information content of metadata for a set of digital geospatial data. This specification provides a common set of terminology and definitions for concepts related to these metadata.

1.2 The use of the term "geographic information system" and its definition in this specification is not intended to introduce a standard definition.

1.3 This specification covers minimum content and processing requirements for geospatial metadata.

1.4 There are at least three categories of use for geospatial metadata: (1) to accompany data transfers as documentation, (2) internal, on-line documentation of processing steps and data lineage, and (3) as stand-alone data set synopses for use by spatial data catalogs, indexes, and referral services.

2. Referenced Documents

2.1 *ANSI Standards:*
ANSI X3.51 Representations of Universal Time, Local Time Differentials, and United States Time Zone Reference for Information Interchange[2]
ANSI X3.30 Representation for Calendar Date and Ordinal Date for Information Interchange[2]
ANSI Z39.50 Information Retrieval Service Protocol for Open Systems Interconnection[2]
2.2 *SDTS Standard:*
Federal Information Processing Standard 173 in SDTS 70-1[3]
2.3 *Military Standards:*
MIL-STD-600006 Vector Product Format[4]

MIL-A-89007 Military Specification ARC Digitized Raster Graphics (ADRG)[4]

3. Terminology

3.1 *abscissa*—the coordinate of a point in a plane cartesian coordinate system obtained by measuring parallel to the *x*-axis ("the $'x'$ value").

3.2 *accuracy*—the degree of conformity of a measured or calculated value to some recognized standard or specified value. This concept involves the systematic and random error of an operation.

3.3 *altitude*—elevation above or below a reference datum, as defined in Federal Information Processing Standard 70-1. See also *elevation*.

3.4 *area*—a generic term for a bounded, continuous, two-dimensional object that may or may not include its boundary.

3.5 *area chain*—a chain that explicitly references left and right polygons and its start and end nodes. It is a component of a two-dimensional manifold.

3.6 *area point*—a representative point within an area usually carrying attribute information about that area.

3.7 *attribute*—a defined characteristic of an entity type (for example, composition).

3.8 *attribute value*—a specific quality or quantity assigned to an attribute (for example, steel), for a specific entity instance.

3.9 *chain*—a directed non-branching sequence of non-intersecting line segments or arcs bounded by nodes, or both, not necessarily distinct, at each end. Area chain, complete chain, and network chain are special cases of chain, and share all characteristics of the general case as defined above.

3.10 *complete chain*—a chain that explicitly references left and right polygons and start and end nodes. It is a component of a two-dimensional manifold.

3.11 *compound element*—a group of data elements and other compound elements. Compound elements represent higher-level concepts that cannot be represented by individual data elements.

3.12 *coordinates*—pairs of numbers expressing horizontal distances along orthogonal axes; alternatively, triplets of numbers measuring horizontal and vertical distances.

3.13 *data element*—a logically primitive item of data.

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[2] Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.
[3] Available from Spatial Data Transfer Standard, Washington Department of Commerce NIST, 11 W. 42nd St., 13th Floor, New York, NY 10036. (Supportive Terminology)
[4] Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

3.14 *data set*—a file or files that contain related geometric and attribute information; a collection of related data.

3.15 *depth*—perpendicular distance of an interior point from the surface of an object.

3.16 *developable surface*—a surface that can be flattened to form a plane without compressing or stretching any part of it. Examples include cones and cylinders.

3.17 *digital image*—a two-dimensional array of regularly spaced picture elements (pixels) constituting a picture.

3.18 *digital volume*—a three-dimensional array of regularly spaced volume elements (voxels) constituting a volume.

3.19 *domain*—in the definition of the elements in this specification, the domain identifies valid values for a data element.

3.20 *elevation*—conforming to Federal Information Processing Standard 70-1, the term "altitude" is used in this specification, rather than the common term elevation.

3.21 *entity instance*—a spatial phenomenon of a defined type that is embedded in one or more phenomena of different type, or that has at least one key attribute value different from the corresponding attribute values of surrounding phenomena (for example, the 10th Street Bridge).

3.22 *entity point*—a point used for identifying the location of point features (or areal features collapsed to a point), such as towers, buoys, buildings, places, etc.

3.23 *entity type*—the definition and description of a set into which similar entity instances are classified (for example, bridge).

3.24 *explicit position*—method of identifying positions directly by pairs (for horizontal positions) or triplets (for horizontal and vertical positions) of numbers.

3.25 *G-polygon*—an area consisting of an interior area, one outer G-ring and zero or more nonintersecting, non-nested inner G-rings. No ring, inner or outer, shall be collinear with or intersect any other ring of the same G-polygon.

3.26 *G-ring*—a ring created from strings or arcs, or both.

3.27 *geoid*—a mathematical representation of the surface of the earth accounting for local geodetic and gravity measurements.

3.28 *geospatial data*—information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the earth. This information may be derived from, among other things, remote sensing, mapping, and surveying technologies.

3.29 *graph*—a set of topologically interrelated zero-dimensional (node), one-dimensional (link or chain), and sometimes two-dimensional (GT-polygon) objects that conform to a set of defined constraint rules. Numerous rule sets can be used to distinguish different types of graphs. Three such types, planar graph, network, and two-dimensional manifold, are used in this specification. All three share the following rules: each link or chain is bounded by an ordered pair of nodes, not necessarily distinct; a node may bound one or more links or chains; and links or chains may only intersect at nodes. Planar graphs and networks are two specialized types of graphs, and a two-dimensional manifold is an even more specific type of planar graph.

3.30 *grid*—(1) a set of grid cells forming a regular, or nearly regular, tessellation of a surface; (2) a set of points arrayed in a pattern that forms a regular, or nearly regular, tesselation of a surface. The tessellation is regular if formed by repeating the pattern of a regular polygon, such as a square, equilateral triangle, or regular hexagon. The tessellation is nearly regular if formed by repeating the pattern of an" almost" regular polygon such as a rectangle, non-square parallelogram, or non-equilateral triangle.

3.31 *grid cell*—a two-dimensional object that represents the smallest non-divisible element of a grid.

3.32 *GT-polygon*—an area that is an atomic two-dimensional component of one and only one two-dimensional manifold. The boundary of a GT-polygon may be defined by GT-rings created from its bounding chains. A GT-polygon may also be associated with its chains (either the bounding set, or the complete set) by direct reference to these chains. The complete set of chains associated with a GT-polygon may also be found by examining the polygon references on the chains.

3.33 *GT-ring*—a ring created from complete or area chains, or both.

3.34 *horizontal*—tangent to the geoid or parallel to a plane that is tangent to the geoid.

3.35 *implicit position*—method of identifying positions by a place in an array of values.

3.36 *interior area*—an area not including its boundary.

3.37 *label point*—a reference point used for displaying map and chart text (for example, feature names) to assist in feature identification.

3.38 *layer*—an integrated, areally distributed, set of spatial data usually representing entity instances within one theme, or having one common attribute or attribute value in an association of spatial objects. In the context of raster data, a layer is specifically a two-dimensional array of scaler values associated with all or part of a grid or image.

3.39 *line segment*—a direct line between two points.

3.40 *link*—a topological connection between two nodes. A link may be directed by ordering its nodes.

3.41 *media*—the physical devices used to record, store, or transmit data, or combination thereof.

3.42 *metadata*—data about the content, quality, condition, and other characteristics of data.

3.43 *network*—a graph without two-dimensional objects. If projected onto a two-dimensional surface, a network can have either more than one node at a point or intersecting links or chains, or both, without corresponding nodes.

3.44 *network chain*—a chain that explicitly references start and end nodes and not left and right polygons. It is a component of a network.

3.45 *node*—a zero-dimensional object that is a topological junction of two or more links or chains, or an end point of a link or chain.

3.46 *object*—a digital representation of all or part of an entity instance.

3.47 *ordinate*—the coordinate of a point in a plane cartesian coordinate system obtained by measuring parallel to the *y*-axis ("the ′*y*′ value").

3.48 *phenomenon*—a fact, occurrence, or circumstance. Route 10, George Washington National Forest, and Chesterfield County are all phenomena.

3.49 *pixel*—two-dimensional picture element that is the smallest non-divisible element of a digital image.

3.50 *planar graph*—the node and link or chain objects of the graph occur or can be represented as though they occur upon a planar surface. Not more than one node may exist at any given point on the surface. Links or chains may only intersect at nodes.

3.51 *point*—a zero-dimensional object that specifies geometric location. One coordinate pair or triplet specifies the location. Area point, entity point, and label point are special implementations of the general case.

3.52 *primitive*—the quality of not being subdivided; atomic.

3.53 *processing step*—a discrete unit of processing that affects either the data or metadata in a data set.

3.53.1 *Discussion*—Different GISs may discretize processes differently, and so the definition of processing step depends somewhat on the particular GIS. Processing steps shall include all steps followed to automate the data set, such as digitizing or scanning. Processing steps shall also include data-set reviews. A data set review typically will not alter the basic data, but the review with its results should be documented in the metadata.

3.54 *quality*—an essential or distinguishing characteristic necessary for cartographic data to be fit for use.

3.55 *raster*—one or more overlapping layers for the same grid or digital image.

3.56 *raster object*—one or more images or grids, or both, each grid or image representing a layer, such that corresponding grid cells or pixels, or both, between layers are congruent and registered.

3.57 *resolution*—the minimum difference between two independently measured or computed values which can be distinguished by the measurement or analytical method being considered or used.

3.58 *ring*—sequence of nonintersecting chains or strings or arcs, or both, with closure. A ring represents a closed boundary but not the interior area inside the closed boundary.

3.59 *schema*—the definition of table columns, relations, data, Domain, and other elements of a data base, often illustrated using an entity-relationship diagram.

3.60 *SDTS*—the Spatial Data Transfer Standard (see 2.2).

3.61 *spatial data*—see geospatial data.

3.62 *stratum*—one of a series of layers, levels, or gradations in an ordered system. For this specification, the term is used in the sense of (1) a region of sea, atmosphere, or geology that is distinguished by natural or arbitrary limits; (2) a socioeconomic level of society comprised of persons of the same or similar status, especially with regard to education or culture; or (3) a layer of vegetation, usually of the same or similar height.

3.63 *string*—a connected non-branching sequence of line segments specified as the ordered sequence of points between those line segments.

3.63.1 *Discussion*—A string may intersect itself or other strings.

3.64 *two-dimensional manifold*—a planar graph and its associated two-dimensional objects. Each chain bounds two and only two, not necessarily distinct, GT-polygons. The GT-polygons are mutually exclusive and completely exhaust the surface.

3.65 *type*—in the definition of the elements in the metadata standard, a compound element has the type "compound" to provide a unique way to identify compound elements. For a data element, the type identifies the kind of value that can be assigned to the data element. The choices are "integer" for integer numbers, "real" for real numbers, "text" for ASCII characters, "date" for day of the year, and "time" for time of the day.

3.66 *universe polygon*—defines the part of the universe that is outside the perimeter of the area covered by other GT-polygons ("covered area") and completes the two-dimensional manifold. This polygon completes the adjacency relationships of the perimeter links. The boundary of the universe polygon is represented by one or more inner rings and no outer ring. Attribution of the universe polygon may not exist, or may be substantially different from the attribution of the covered area.

3.67 *vector*—composed of directed lines.

3.68 *vertical*—at right angles to the horizontal; includes altitude and depth.

3.69 *VPF*—the vector product format (see 2.3).

3.70 *void polygon*—defines a part of the two-dimensional manifold that is bounded by other GT-polygons, but otherwise has the same characteristics as the universe polygon. The geometry and topology of a void polygon are those of a GT-polygon. Attribution of a void polygon may not exist, or may be substantially different from the attribution of the covered area.

3.71 *voxel*—a three-dimensional element that is the smallest non-divisible element of a digital volume.

3.72 *Definitions*—These definitions are provided to clarify terms used in this specification. Definitions are from SDTS, FIPS 173.

4. Data Element Description

4.1 A data element is a logically primitive item of data. The entry for a data element includes the name of the data element, the definition of the data element, a description of the values that can be assigned to the data element. The form for the definition of the data elements is:

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Data element name—definition.
Type:
Domain:
Tag Name:
Tag Value:
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4.2 The information about the values for the data elements include a description of the type of the value and a description of the domain of the valid values. The type of the data element describes the kind of value to be provided. The choices are "integer" for integer numbers," real" for real numbers, "text" for ASCII characters," date" for day of the year, and "time" for time of the day.

4.3 The domain describes valid values that can be assigned to the data element. The domain may specify a list of valid

values, references to lists of valid values, or restrictions on the range of values that can be assigned to a data element.

4.4 The domain also may note that the domain is free from restrictions, and any values that can be represented by the "type" of the data element can be assigned. These unrestricted, domains are represented by the use of the word "free" followed by the type of the data element (that is, free text, free date, free real, free time, free integer). Some domains can be partly, but not completely, specified. For example, there are several widely used data transfer formats, but there may be many more that are less well known. To allow a producer to describe its data in these circumstances, the convention of providing a list of values followed by the designation of a "free" domain is used. In these cases, assignments of values shall be made from the provided domain when possible. When not possible, providers may create and assign their own value. A created value shall not redefine a value provided by this specification.

4.5 The descriptor "Tag Name" contains a character string tag for the specified data element whose maximum length is ten characters. This descriptor may be used by implementors to internally name data elements within a database or software system where long text of the data element name would not be feasible. For reporting and display purposes, the full data element name is the preferred form of presentation. Tag name will also be used by metadata management software to declare the format tags in both Standard Graphics Markup Language (SGML) and Hyper Text Markup Language (HTML). Metadata may be exchanged between software systems using ASCII text files in which all metadata elements are encoded using the markup tags using the following example:

<TAGNAME> metadata entry value text </TAGNAME>

4.6 The descriptor "Tag Value" contains a unique integer tag value to be used to describe and manipulate these data elements within the Information Retrieval Service Protocol (see ANSI/ISO Z39.50).

5. Data Format

5.1 *Introduction*—This specification does not require specific internal formats for data elements but does specify the data types required for data exchange. Internal data formats are a design issue for GIS developers. A compliant GIS must provide access to the required metadata for interactive query and update, where appropriate, for use in data processing procedures, and for transfer by means of the Spatial Data Transfer Standard (SDTS) and by means of a spatial metadata transfer file, formatted using Standard Graphics Markup Language (SGML) using the provided tag names as text markers.

5.2 This specification specifies only that data elements are one of numeric, date, code, or text for ease in data transfer between software systems. In addition, data elements may be described as coordinates or coordinate pairs, in which case, a pair of numeric elements is indicated.

5.2.1 Numeric elements shall be made available for data exchange as a character representation, conforming to ISO 6093 with the provision that FULL STOP (that is, period) shall be used for the decimal mark. A compliant GIS would store numeric elements internally using numeric or character format, but the data must be made available for standard numeric processing, preserving the precision of the data values. Numeric elements may be further characterized as real or integer.

5.2.2 Date elements shall be expressed for access and transfer in the format YYYYMMDD, where Y is year, M is month, and D is day (see ANSI X3.30) ((adopted as Federal Information Processing Standard 4-1). Time elements are to be represented using hours, minutes, seconds, and decimal fractions of a second (to the precision desired) without separators convention, with the general form of HHMMSSSS (see ANSI X3.43). Information with a differential factor is to be represented using the general form HHMMSSSSshhmm, where HHMMSSSS is the local time using 24-h timekeeping (expressed to the precision desired)," s" is the plus or minus sign for the time differential factor, and hhmm is the time differential factor (see ANSI X3.51).

5.2.3 Text elements are used for nonnumeric elements such as names, descriptions, keywords, and commentary. This specification does not require specific lengths for text elements. Ideally, unlimited-length strings should be supported by a compliant GIS. In practice, however, a compliant GIS could implement these elements with fixed sizes providing enough space for reasonable use of the elements.

5.2.4 Code elements are used for referencing a limited set of valid attribute values. Codes may be expanded into full text for display. Code values (domain) are described in Section 11 of this specification. Additions to these attributes, domains may be made as required by the user community and this specification will be amended by the ASTM mapping and GIS section to include them.

5.2.5 Values for latitude and longitude shall be expressed as decimal fractions of degrees. Whole degrees of latitude shall be represented by a two-digit decimal number ranging from 0 through 90. Whole degrees of longitude shall be represented by a three-digit decimal number ranging from 0 through 180. When a decimal fraction of a degree is specified, it shall be separated from the whole number of degrees by a decimal point. Decimal fractions of a degree may be expressed to the precision desired. Latitudes north of the equator shall be specified by a plus sign (+) or by the absence of a minus sign (−) preceding the two digits designating degrees. Latitudes south of the Equator shall be designated by a minus sign (−) preceding the two digits designating degrees. Coordinate elements are used to store positional information with respect to the earth's surface.

5.2.6 For purposes of data transfer, this specification requires that a compliant GIS be able to automatically transfer full or subsets of metadata in conformance with the SDTS and using SGML formatting.

6. Integration of Metadata and Data Set

6.1 The metadata for a data set shall be treated by a compliant GIS as an integral part of the data. Operations performed on a data set by GIS software shall not render the data set's metadata invalid and shall update the metadata where possible. Metadata shall be retained when a data set is copied, imported, or exported. Software should also support the extraction and transmission of metadata from a spatial data set, independent from the data set, for purposes of data indexing and information exchange.

7. Metadata Contents

7.1 This section describes the individual metadata elements to be included in this specification. Major headings (7.1, 7.3, etc.) denote major groupings of elements that are conceptually associated at a high level. Dependencies and optionality of data elements are described in Section 8.

7.2 *Identification Information*—Basic information about the data set. Type: compound, Tag Name: IDINFO, Tag Value: 3100.

7.2.1 *Citation*—Information to be used to reference the data set. Type: compound, Tag Name: CITATION, Tag Value: 3101.

7.2.2 *Description*—A characterization of the data set, including its intended use and limitations. Type: compound, Tag Name: DESCR, Tag Value: 3102.

7.2.2.1 *Abstract*—A brief narrative summary of the data set. Type: text, Domain: free text, Tag Name: ABSTRACT, Tag Value: 62 (bib1).

7.2.2.2 *Purpose*—A summary of the intentions with which the data set was developed. Type: text, Domain: free text, Tag Name: PURPOSE, Tag Value: 3104.

7.2.2.3 *Supplemental Information*—Other descriptive information about the data set. Type: text, Domain: free text, Tag Name: SUPPLINF, Tag Value: 3105.

7.2.3 *Time Period of Content*—Time period(s) for which the data set corresponds to the ground. Type: compound, Tag Name: TIMEPDCTNT, Tag Value: 3103.

7.2.3.1 *Currentness Reference*—The basis on which the time period of content information is determined. Type: text, Domain:"ground condition" "publication date" free text, Tag Name: CURRENT, Tag Value: 3106.

7.2.4 *Status*—The state of and maintenance information for the data set. Type: compound, Tag Name: STATUS, Tag Value: 3107.

7.2.4.1 *Progress*—The state of the data set. Type: text, Domain: "Complete" "In work" "Planned," Tag Name: PROGRESS, Tag Value: 3108.

7.2.4.2 *Maintenance and Update Frequency*—The frequency with which changes and additions are made to the data set after the initial data set. Type: text, Domain: "Unknown" "As needed" "Irregular" "None planned" "Continually"" Daily" "Weekly" "Monthly" "Annually," Tag Name: UP-DATE, Tag Value: 3109.

7.2.5 *Spatial, Domain*—The geographic areal, domain of the data set. Type: compound, Tag Name: SPDOM, Tag Value: 3110.

7.2.5.1 *Bounding Coordinates*—The limits of coverage of a data set expressed by latitude and longitude values in the order western-most, eastern-most, northern-most, and southern-most. For data sets that include a complete band of latitude around the earth, the West Bounding Coordinate shall be assigned the value − 180.0, and the East Bounding Coordinate shall be assigned the value 180.0 Type: compound, Tag Name: BOUNDING, Tag Value: 3111.

7.2.5.2 *West Bounding Coordinate*—Western-most coordinate of the limit of coverage expressed in longitude. Type: real, Domain: − 180.0 |La West Bounding Coordinate < 180.0, Tag Name: WBNDGCOORD, Tag Value: 3112.

7.2.5.3 *East Bounding Coordinate*—Eastern-most coordinate of the limit of coverage expressed in longitude. Type: real, Domain: − 180.0 |La East Bounding Coordinate |La 180.0, Tag Name: EBNDGCOORD, Tag Value: 3113.

7.2.5.4 *North Bounding Coordinate*—Northern-most coordinate of the limit of coverage expressed in latitude. Type: real, Domain: − 90.0 |La North Bounding Coordinate |La 90.0; North Bounding Coordinate |Ls South Bounding Coordinate, Tag Name: NBNDGCOORD, Tag Value: 3114.

7.2.5.5 *South Bounding Coordinate*—Southern-most coordinate of the limit of coverage expressed in latitude. Type: real, Domain: − 90.0 |La South Bounding Coordinate |La 90.0; South Bounding Coordinate |La North Bounding Coordinate, Tag Name: SBNDGCOORD, Tag Value: 3115.

7.2.5.6 *Data Set G-Polygon*—Coordinates defining the outline of an area covered by a data set. Type: compound, Tag Name: DSGPOLY, Tag Value: 3116.

7.2.5.7 *Data Set G-Polygon Outer G-Ring*—The closed nonintersecting boundary of an interior area. Type: compound, Tag Name: DSGPOLYO, Tag Value: 3117.

7.2.5.8 *G-Ring Latitude*—The latitude of a point of the G-ring. Type: real, Domain: − 90.0 |La G-Ring Latitude |La 90.0, Tag Name: GRINGLAT, Tag Value: 3118.

7.2.5.9 *G-Ring Longitude*—The longitude of a point of the G-ring. Type: real, Domain: − 180.0 |La G-Ring Latitude < 180.0, Tag Name: GRINGLON, Tag Value: 3119.

7.2.5.10 *Data Set G-Polygon Exclusion G-Ring*—The closed nonintersecting boundary of a void area (or "hole") in an interior area. Type: compound, Tag Name: DSGPOLYX, Tag Value: 3120.

7.2.6 *Keywords*—Words or phrases summarizing an aspect of the data set. Type: compound, Tag Name: KEYWORDS, Tag Value: 3121.

7.2.6.1 *Theme*—Subjects covered by the data set (for a list of some commonly used thesauri, see Part IV: Subject/index term sources in Network Development and MARC Standards Office, 1988, USMARC code list for relators, sources, and description conventions: Washington, Library of Congress). Type: compound, Tag Name: THEME, Tag Value: 3122.

7.2.6.2 *Theme Keyword Thesaurus*—Reference to a formally registered thesaurus or a similar authoritative source of theme keywords. Type: text, Domain: "None" free text, Tag Name: THMKWTHSRS, Tag Value: 3123.

7.2.6.3 *Theme Keyword*—Common-use word or phrase used to describe the subject of the data set. Type: text, Domain: free text, Tag Name: THEMEKEY, Tag Value: 3124.

7.2.6.4 *Place*—Geographic locations characterized by the data set. Type: compound, Tag Name: GEOGPLACE, Tag Value: 58 (bibl).

7.2.6.5 *Place Keyword Thesaurus*—Reference to a formally registered thesaurus or a similar authoritative source of place keywords. Type: text, Domain: "None" "Geographic Names Information System" free text, Tag Name: PLCKWTHSRS, Tag Value: 3126.

7.2.6.6 *Place Keyword*—The geographic name of a location covered by a data set. Type: text, Domain: free text, Tag Name: PLCKEYWORD, Tag Value: 3127.

7.2.6.7 *Stratum*—Layered, vertical locations characterized by the data set. Type: compound, Tag Name: STRATUM, Tag Value: 3128.

7.2.6.8 *Stratum Keyword Thesaurus*—Reference to a formally registered thesaurus or a similar authoritative source of stratum keywords. Type: text, Domain: "None" free text, Tag Name: STRATKT, Tag Value: 3129.

7.2.6.9 *Stratum Keyword*—The name of a vertical location used to describe the locations covered by a data set. Type: text, Domain: free text, Tag Name: STRATKEY, Tag Value: 3130.

7.2.6.10 *Temporal*—Time period(s) characterized by the data set. Type: compound, Tag Name: TEMPORAL, Tag Value: 3131.

7.2.6.11 *Temporal Keyword Thesaurus*—Reference to a formally registered thesaurus or a similar authoritative source of temporal keywords. Type: text, Domain: "None" free text, Tag Name: TEMPKEYT, Tag Value: 3132.

7.2.6.12 *Temporal Keyword*—The name of a time period covered by a data set. Type: text, Domain: free text, Tag Name: TMPKEYWORD, Tag Value: 3133.

7.2.7 *Access Constraints*—Restrictions and legal prerequisites for accessing the data set. These include any access constraints applied to ensure the protection of privacy or intellectual property, and any special restrictions or limitations on obtaining the data set. Type: text, Domain: "None" free text, Tag Name: ACCESSCONS, Tag Value: 3134.

7.2.8 *Use Constraints*—Restrictions and legal prerequisites for using the data set after access is granted. These include any access constraints applied to ensure the protection of privacy or intellectual property and any special restrictions or limitations on obtaining the data set. Type: text, Domain: "None" free text, Tag Name: USECONSTR, Tag Value: 3135.

7.2.9 *Point of Contact*—Contact information for an individual or organization that is knowledgeable about the data set. Type: compound, Tag Name: PTCONTAC, Tag Value: 3136.

7.2.10 *Browse Graphic*—A graphic that provides an illustration of the data set. The graphic should include a legend for interpreting the graphic. Type: compound, Tag Name: BROWSE, Tag Value: 3137.

7.2.10.1 *Browse Graphic File Name*—Name of a related graphic file that provides an illustration of the data set. Type: text, Domain: free text, Tag Name: BROWSEN, Tag Value: 3138.

7.2.10.2 *Browse Graphic File Description*—A text description of the illustration. Type: text, Domain: free text, Tag Name: BROWSED, Tag Value: 3139.

7.2.10.3 *Browse Graphic File Type*—Graphic file type of a related graphic file. Type: text, Domain:, Domain values in the following table; free text, Tag Name: BROWSET, Tag Value: 3140, Domain:"CGM" Computer Graphics Metafile "EPS" Encapsulated Postscript format" GIF" Graphic Interchange Format "JPEG" Joint Photographic Experts Group format "PBM" Portable Bit Map format PS" Postscript format "TIFF," Tagged Image File Format "XWD" X-Windows Dump.

7.2.11 *Data Set Credit*—Recognition of those who contributed to the data set. Type: text, Domain: free text, Tag Name: DATACRED, Tag Value: 3141.

7.2.12 *Security Information*—Handling restrictions imposed on the data set because of national security, privacy, or other concerns. Type: compound, Tag Name: SEINFO, Tag Value: 3142.

7.2.12.1 *Security Classification System*—Name of the classification system Type: text, Domain: free text, Tag Name: SECSYS, Tag Value: 3143.

7.2.12.2 *Security Classification*—Name of the handling restrictions on the data set. Type: text, Domain: "Top secret" "secret" "confidential" "restricted"" unclassified" "sensitive" free text, tag name: secclas, tag value: 3144.

7.2.12.3 *Security Handling Description*—Additional information about the restrictions on handling the data set. Type: text, Domain: free text, Tag Name: SECHANDL, Tag Value: 3145.

7.2.13 *Native Data Set Environment*—A description of the data set in the producer's processing environment, including items such as the name of the software (including version), the computer operating system, file name (including host-, path-, and file names), and the data set size. Type: text, Domain: free text, Tag Name: NATIVE, Tag Value: 3146.

7.2.14 *Cross Reference*—Information about other, related data sets that are likely to be of interest. Type: compound, Tag Name: CROSSREF, Tag Value: 3147.

7.3 *Data Quality Information*—A general assessment of the quality of the data set. (Recommendations on information to be reported and tests to be performed are found in "Spatial Data Quality," that is Chapter 3 of Part 1 in Department of Commerce, 1992, Spatial Data Transfer Standard (SDTS) (Federal Information Processing Standard 173). Type: compound, Tag Name: DATAQUAL, Tag Value: 3200.

7.3.1 *Attribute Accuracy*—An assessment of the accuracy of the identification of entities and assignment of attribute values in the data set. Type: compound, Tag Name: ATTRACC, Tag Value: 3201.

7.3.1.1 *Attribute Accuracy Report*—An explanation of the accuracy of the identification of the entities and assignments of values in the data set and a description of the tests used. Type: text, Domain: free text, Tag Name: ATTRACCR, Tag Value: 3202.

7.3.1.2 *Quantitative Attribute Accuracy Assessment*—A value assigned to summarize the accuracy of the identification of the entities and assignments of values in the data set and the identification of the test that yielded the value. Type: compound, Tag Name: QATTRACC, Tag Value: 3203.

7.3.1.3 *Attribute Accuracy Value*—An estimate of the accuracy of the identification of the entities and assignments of attribute values in the data set. Type: text, Domain: "Unknown" free text, Tag Name: ATTRACCV, Tag Value: 3204.

7.3.1.4 *Attribute Accuracy Explanation*—The identification of the test that yielded the Attribute Accuracy Value. Type: text, Domain: free text, Tag Name: ATTRACCE, Tag Value: 3205.

7.3.2 *Logical Consistency Report*—An explanation of the fidelity of the relationships in the data set and the tests used. Type: text, Domain: free text, Tag Name: LOGIC, Tag Value: 3206.

7.3.3 *Completeness Report*—Information about omissions, selection criteria, generalization, definitions used, and other

rules used to derive the data set. Type: text, Domain: free text, Tag Name: COMPLETE, Tag Value: 3207.

7.3.4 *Positional Accuracy*—An assessment of the accuracy of the positions of spatial objects. Type: compound, Tag Name: POACCC, Tag Value: 3208.

7.3.4.1 *Horizontal Positional Accuracy*—An estimate of accuracy of the horizontal positions of the spatial objects. Type: compound, Tag Name: HORIZPA, Tag Value: 3209.

7.3.4.2 *Horizontal Positional Accuracy Report*—An explanation of the accuracy of the horizontal coordinate measurements and a description of the tests used. Type: text, Domain: free text, Tag Name: HORIZPAR, Tag Value: 3210.

7.3.4.3 *Quantitative Horizontal Positional Accuracy Assessment*—Numeric value assigned to summarize the accuracy of the horizontal coordinate measurements and the identification of the test that yielded the value. Type: compound, Tag Name: QHORIZPA, Tag Value: 3211.

7.3.4.4 *Horizontal Positional Accuracy Value*—An estimate of the accuracy of the horizontal coordinate measurements in the data set expressed in (ground) meters. Type: real, Domain: free real, Tag Name: HORIZPAV, Tag Value: 3212.

7.3.4.5 *Horizontal Positional Accuracy Explanation*—The identification of the test that yielded the Horizontal Positional Accuracy Value. Type: text, Domain: free text, Tag Name: HORIZPAE, Tag Value: 3213.

7.3.4.6 *Vertical Positional Accuracy*—An estimate of accuracy of the vertical positions in the data set. Type: compound, Tag Name: VERTACC, Tag Value: 3214.

7.3.4.7 *Vertical Positional Accuracy Report*—An explanation of the accuracy of the vertical coordinate measurements and a description of the tests used. Type: text, Domain: free text, Tag Name: VERTACCR, Tag Value: 3215.

7.3.4.8 *Quantitative Vertical Positional Accuracy Assessment*—Numeric value assigned to summarize the accuracy of vertical coordinate measurements and the identification of the test that yielded the value. Type: compound, Tag Name: QVERTPA, Tag Value: 3216.

7.3.4.9 *Vertical Positional Accuracy Value*—An estimate of the accuracy of the vertical coordinate measurement in the data set expressed in (ground) meters. Type: real, Domain: free real, Tag Name: VERTACCV, Tag Value: 3217.

7.3.4.10 *Vertical Positional Accuracy Explanation*—The identification of the test that yielded the Vertical Positional Accuracy Value. Type: text, Domain: free text, Tag Name: VERTACCE, Tag Value: 3218.

7.3.5 *Lineage*—Information about the events, parameters, and source data which constructed the data set, and information about the responsible parties. Type: compound, Tag Name: LINEAGE, Tag Value: 3219.

7.3.5.1 *Source Information*—List of sources and a short discussion of the information contributed by each. Type: compound, Tag Name: SRCINFO, Tag Value: 3220.

7.3.5.2 *Source Citation*—Reference for a source data set. Type: compound, Tag Name: SRCCIT, Tag Value: 3221.

7.3.5.3 *Source Scale Denominator*—The denominator of the representative fraction on a map (for example, on a 1:24,000-scale map, the Source Scale Denominator is 24000).

Type: integer, Domain: Source Scale Denominator > 1, Tag Name: SRCSCALE, Tag Value: 1024 (bibl).

7.3.5.4 *Type of Source Media*—The medium of the source data set. Type: text, Domain: "paper" "stable-base material" "microfiche" "microfilm" "audiocassette"" chart" "filmstrip" "transparency" "videocassette"" videodisc" "videotape" "physical model"" computer program" "disk" "cartridge tape"" magnetic tape" "online" "CD-ROM" "electronic bulletin board" "electronic mail system" free text, Tag Name: TYPESRC, Tag Value: 1031 (bibl).

7.3.5.5 *Source Time Period of Content*—Time period(s) for which the source data set corresponds to the ground. Type: compound, Tag Name: SRCTIME, Tag Value: 3223.

7.3.5.6 *Source Currentness Reference*—The basis on which the source time period of content information of the source data set is determined. Type: text, Domain: "ground condition"" publication date" free text, Tag Name: SRCCURR, Tag Value: 3224.

7.3.5.7 *Source Citation Abbreviation*—Short-form alias for the source citation. Type: text, Domain: free text, Tag Name: SRCCITCA, Tag Value: 3225.

7.3.5.8 *Source Contribution*—Brief statement identifying the information contributed by the source to the data set. Type: text, Domain: free text, Tag Name: SRCCONTR, Tag Value: 3226.

7.3.5.9 *Process Step*—Information about a single event. Type: compound, Tag Name: PROCSTEP, Tag Value: 3227.

7.3.5.10 *Process Description*—An explanation of the event and related parameters or tolerances. Type: text, Domain: free text, Tag Name: PROCDESC, Tag Value: 3228.

7.3.5.11 *Source Used Citation Abbreviation*—The source citation abbreviation of a data set used in the processing step. Type: text, Domain: Source Citation Abbreviations from the Source Information entries for the data set., Tag Name: SRCUSED, Tag Value: 3229.

7.3.5.12 *Process Date*—The date when the event was completed. Type: date, Domain: "Unknown" "Not complete" free date, Tag Name: PROCDATE, Tag Value: 3230.

7.3.5.13 *Process Time*—The time when the event was completed. Type: time, Domain: free time, Tag Name: PROCTIME, Tag Value: 3231.

7.3.5.14 *Source Produced Citation Abbreviation*—The source citation abbreviation of an intermediate data set that (1) is significant in the opinion of the data producer, (2) is generated in the processing step, and (3) is used in later processing steps. Type: text, Domain: Source Citation Abbreviations from the Source Information entries for the data set, Tag Name: SRCPROD, Tag Value: 3232.

7.3.5.15 *Process Contact*—The party responsible for the processing step information. Type: compound, Tag Name: PROCCONT, Tag Value: 3233.

7.3.6 *Cloud Cover*—Area of a data set obstructed by clouds, expressed as a percentage of the spatial extent. Type: integer, Domain: 0 |La Cloud Cover |La 100 "Unknown," Tag Name: CLOUD, Tag Value: 3234.

7.4 *Spatial Data Organization Information*—The mechanism used to represent spatial information in the data set. Type: compound, Tag Name: SPDOINFO, Tag Value: 3300.

7.4.1 *Indirect Spatial Reference*—Name of types of geographic features, addressing schemes, or other means through which locations are referenced in the data set. Type: text, Domain: free text, Tag Name: INDSPREF, Tag Value: 3301.

7.4.2 *Direct Spatial Reference Method*—The system of objects used to represent space in the data set. Type: text, Domain: "Point" "Vector" "Raster," Tag Name: DIRECT, Tag Value: 3302.

7.4.3 *Point and Vector Object Information*—The types and numbers of vector or non-gridded point spatial objects in the data set. Type: compound, Tag Name: PTVCTCNT, Tag Value: 3314.

7.4.3.1 *SDTS Terms Description*—Point and vector object information using the terminology and concepts from "Spatial Data Concepts," that is Chapter 2 of Part 1 in Department of Commerce, 1992, Spatial Data Transfer Standard (SDTS) (Federal Information Processing Standard 173). (Note that this reference to the SDTS is used ONLY to provide a set of terminology for the point and vector objects.) Type: compound, Tag Name: SDTSTERM, Tag Value: 3303.

7.4.3.2 *SDTS Point and Vector Object Type*—Name of point and vector spatial objects used to locate zero-, one-, and two-dimensional spatial locations in the data set. Type: text, Domain: (The domain is from "spatial data concepts," that is Chapter 2 of Part 1 in Department of Commerce, 1992, Spatial Data Transfer Standard (SDTS) (Federal Information Processing Standard 173): "Point" "Entity point" "Label point" "Area point" "Node, planar graph" "Node, network" "String" "Link" "Complete chain" "Area chain" "Network chain, planar graph" "Network chain, nonplanar graph" "Circular arc, three point center" "Elliptical arc" "Uniform B-spline" "Piecewise Bezier" "Ring with mixed composition" "Ring composed of strings" "Ring composed of chains" "Ring composed of arcs" "G-polygon" "GT-polygon composed of rings" "GT-polygon composed of chains" "Universe polygon composed of rings" "Universe polygon composed of chains" "Void polygon composed of rings" "Void polygon composed of chains," Tag Name: SDTSTYPE, Tag Value: 3304.

7.4.3.3 *Point and Vector Object Count*—The total number of the point or vector object type occurring in the data set. Type: integer, Domain: Point and Vector Object Count > 0, Tag Name: PTVCTCNT, Tag Value: 3305.

7.4.3.4 *VPF Terms Description*—Point and vector object information using the terminology and concepts from MIL-STD-600006. (Note that this reference to the VPF is used ONLY to provide a set of terminology for the point and vector objects.) Type: compound, Tag Name: VPFTERM, Tag Value: 3306.

7.4.3.5 *VPF Topology Level*—The completeness of the topology carried by the data set. The levels of completeness are defined in MIL-STD-600006. Type: integer, Domain: 0 |La VPF Topology Level |La 3, Tag Name: VPFLEVEL, Tag Value: 3307.

7.4.3.6 *VPF Point and Vector Object Type*—Name of point and vector spatial objects used to locate zero-, one-, and two-dimensional spatial locations in the data set. Type: text,

Domain: (The Domain is from MIL-STD-600006). "Node" "Edge" "Face" "Text," Tag Name: VPFTYPE, Tag Value: 3308.

7.4.4 *Raster Object Information*—The types and numbers of raster spatial objects in the data set. Type: compound, Tag Name: RASTINFO, Tag Value: 3309.

7.4.4.1 *Raster Object Type*—Raster spatial objects used to locate zero-, two-, or three-dimensional locations in the data set. Type: text, Domain: (With the exception of "voxel", the domain is from "spatial data concepts," that is Chapter 2 of Part 1 in Department of Commerce, 1992 Spatial Data Transfer Standard (SDTS) (Federal Information Processing Standard 173). "Point" "Pixel" "Grid Cell" "Voxel," Tag Name: RASTINFO, Tag Value: 3310.

7.4.4.2 *Row Count*—The maximum number of raster objects along the ordinate (*y*) axis. For use with rectangular raster objects. Type: Integer, Domain: Row Count > 0, Tag Name: ROWCOUNT, Tag Value: 3311.

7.4.4.3 *Column Count*—The maximum number of raster objects along the abscissa (*x*) axis. For use with rectangular raster objects. Type: Integer, Domain: Column Count > 0, Tag Name: COLUMNS, Tag Value: 3312.

7.4.4.4 *Vertical Count*—The maximum number of raster objects along the vertical (*z*) axis. For use with rectangular volumetric raster objects (voxels). Type: Integer, Domain: Depth Count > 0, Tag Name: VERTCNT, Tag Value: 3313.

7.5 *Spatial Reference Information*—The description of the reference frame for, and the means to encode, coordinates in the data set. Type: compound, Tag Name: SPREF, Tag Value: 3400.

7.5.1 *Horizontal Coordinate System Definition*—The reference frame or system from which linear or angular quantities are measured and assigned to the position that a point occupies. Type: compound, Tag Name: HORIZSYS, Tag Value: 3401.

7.5.1.1 *Geographic*—The quantities of latitude and longitude which define the position of a point on the Earth's surface with respect to a reference spheroid. Type: compound, Tag Name: GEOGRAPH, Tag Value: 3402.

7.5.1.2 *Latitude Resolution*—The minimum difference between two adjacent latitude values expressed in Geographic Coordinate Units of measure. Type: real, Domain: Latitude Resolution > 0.0, Tag Name: LATRES, Tag Value: 3403.

7.5.1.3 *Longitude Resolution*—The minimum difference between two adjacent longitude values expressed in Geographic Coordinate Units of measure. Type: real, Domain: Longitude Resolution> 0.0, Tag Name: LONGRES, Tag Value: 3404.

7.5.1.4 *Geographic Coordinate Units*—Units of measure used for the latitude and longitude values. Type: text, Domain:" Decimal degrees" "Decimal minutes" "Decimal seconds" "Degrees and decimal minutes" "Degrees, minutes, and decimal seconds" "Radians" "Grads," Tag Name: GEOGUNIT, Tag Value: 3405.

7.5.1.5 *Planar*—The quantities of distances, or distances and angles, which define the position of a point on a reference plane to which the surface of the earth has been projected. Type: compound, Tag Name: PLANAR, Tag Value: 3406.

7.5.1.6 *Map Projection*—The systematic representation of all or part of the surface of the earth on a plane or developable surface. Type: compound, Tag Name: MAPPROJ, Tag Value: 3407.

7.5.1.7 *Map Projection Name*—Name of the map projection. Type: text, Tag Name: MAPPRO, Tag Value: 3408, Domain: "Albers Conical Equal Area" "Azimuthal Equidistant" "Equidistant Conic" "Equirectangular" "General Vertical Near-sided Projection" "Gnomomic" "Lambert Azimuthal Equal Area"" Lambert Conformal Conic" "Mercator" "Modified Stereographic for Alaska" "Miller Cylindrical" "Oblique Mercator" "Orthographic" "Polar Stereographic"" Polyconic" "Robinson" "Sinusoidal" "Space Oblique Mercator" "Stereographic" "Transverse Mercator"" van der Grinten" "other projection."

7.5.1.8 *Map Projection Parameters*—Parameters required for a specific map projection, each having a unique mathematical relationship between the earth and the plane or developable surface. Type: compound, Tag Name: MAPPRJPARM, Tag Value: 3409.

7.5.1.9 *Standard Parallel*—Line of constant latitude at which the surface of the Earth and the plane or developable surface intersect. Type: real, Domain: − 90.0 |La Standard Parallel |La 90.0, Tag Name: STDPARLL, Tag Value: 3410.

7.5.1.10 *Longitude of Central Meridian*—The line of longitude at the center of a map projection generally used as the basis for constructing the projection. Type: real, Domain: − 180.0 |La Longitude of Central Meridian < 180.0, Tag Name: LONGCM, Tag Value: 3411.

7.5.1.11 *Latitude of Projection Origin*—Latitude chosen as the origin of rectangular coordinates for a map projection. Type: real, Domain: − 90.0 |La Latitude of Projection Origin |La 90.0, Tag Name: LATPRJO, Tag Value: 3412.

7.5.1.12 *False Easting*—The value added to all "x" values in the rectangular coordinates for a map projection. This value frequently is assigned to eliminate negative numbers. Expressed in the unit of measure identified in Planar Coordinate Units. Type: real, Domain: free real, Tag Name: FEAST, Tag Value: 3413.

7.5.1.13 *False Northing*—The value added to all "y" values in the rectangular coordinates for a map projection. This value frequently is assigned to eliminate negative numbers. Expressed in the unit of measure identified in Planar Coordinate Units. Type: real, Domain: free real, Tag Name: FNORTH, Tag Value: 3414.

7.5.1.14 *Scale Factor at Equator*—A multiplier for reducing a distance obtained from a map by computation or scaling to the actual distance along the equator. Type: real, Domain: Scale Factor at Equator> 0.0, Tag Name: SFEQUAT, Tag Value: 3415.

7.5.1.15 *Height of Perspective Point Above Surface*—Height of viewpoint above the Earth, expressed in metres. Type: real, Domain: Height of Perspective Point Above Surface > 0.0, Tag Name: HEIGHTPT, Tag Value: 3416.

7.5.1.16 *Longitude of Projection Center*—Longitude of the point of projection for azimuthal projections. Type: real, Domain: − 180.0 |La Longitude of Projection Center < 180.0, Tag Name: LONGPC, Tag Value: 3417.

7.5.1.17 *Latitude of Projection Center*—Latitude of the point of projection for azimuthal projections. Type: real, Domain: − 90.0 |La Latitude of Projection Center |La 90.0, Tag Name: LATPRJC, Tag Value: 3418.

7.5.1.18 *Scale Factor at Center Line*—A multiplier for reducing a distance obtained from a map by computation or scaling to the actual distance along the center line. Type: real, Domain: Scale Factor at Center Line > 0.0, Tag Name: SFCTRLIN, Tag Value: 3419.

7.5.1.19 *Oblique Line Azimuth*—Method used to describe the line along which an oblique mercator map projection is centered using the map projection origin and an azimuth. Type: compound, Tag Name: OBQLAZIM, Tag Value: 3420.

7.5.1.20 *Azimuthal Angle*—Angle measured clockwise from north, and expressed in degrees. Type: real, Domain: 0.0 |La Azimuthal Angle < 360.0, Tag Name: AZIMANGL, Tag Value: 3421.

7.5.1.21 *Azimuth Measure Point Longitude*—Longitude of the map projection origin. Type: real, Domain: − 180.0 |La Azimuth Measure Point Longitude < 180.0, Tag Name: AZIMPTL, Tag Value: 3422.

7.5.1.22 *Oblique Line Point*—Method used to describe the line along which an oblique mercator map projection is centered using two points near the limits of the mapped region that define the center line. Type: compound, Tag Name: OBQLPT, Tag Value: 3423.

7.5.1.23 *Oblique Line Latitude*—Latitude of a point defining the oblique line. Type: real, Domain: − 90.0 |La Oblique Line Latitude |La 90.0, Tag Name: OBQLLAT, Tag Value: 3424.

7.5.1.24 *Oblique Line Longitude*—Longitude of a point defining the oblique line. Type: real, Domain: − 180.0 |La Oblique Line Longitude < 180.0, Tag Name: OBQLLONG, Tag Value: 3425.

7.5.1.25 *Straight Vertical Longitude from Pole*—Longitude to be oriented straight up from the North or South Pole. Type: real, Domain: − 180.0 |La Straight Vertical Longitude from Pole < 180.0, Tag Name: SVLONG, Tag Value: 3426.

7.5.1.26 *Scale Factor at Projection Origin*—A multiplier for reducing a distance obtained from a map by computation or scaling to the actual distance at the projection origin. Type: real, Domain: Scale Factor at Projection Origin > 0.0, Tag Name: SFPRJORG, Tag Value: 3427.

7.5.1.27 *Landsat Number*—Number of the Landsat satellite. (Note: This data element exists solely to provide a parameter needed to define the space oblique mercator projection. It is not used to identify data originating from a remote sensing vehicle.) Type: Integer, Domain: 0 < Landsat Number < 5, Tag Name: LANDSAT, Tag Value: 3428.

7.5.1.28 *Path Number*—Number of the orbit of the Landsat satellite. (Note: This data element exists solely to provide a parameter needed to define the space oblique mercator projection. It is not used to identify data originating from a remote sensing vehicle.) Type: integer, Domain: 0 < Path Number < 251 for Landsats 1, 2, or 3 0 < Path Number < 233 for Landsats 4 or 5, Tag Name: PATHNUM, Tag Value: 3429.

7.5.1.29 *Scale Factor at Central Meridian*—A multiplier for reducing a distance obtained from a map by computation or

scaling to the actual distance along the central meridian. Type: real, Domain: Scale Factor at Central Meridian > 0.0, Tag Name: SFCTRMER, Tag Value: 3430.

7.5.1.30 *Other Projection's Definition*—A complete description of a projection, not defined elsewhere in this specification, that was used for the data set. The information provided shall include the name of the projection, the names of the parameters and values used for the data set, and the citation of the specification for the algorithms that describe the mathematical relationship between the Earth and the plane or developable surface for the projection. Type: text, Domain: free text, Tag Name: OTHERPRJ, Tag Value: 3431.

7.5.1.31 *Grid Coordinate System*—A plane-rectangular coordinate system usually based on, and mathematically adjusted to, a map projection so that geographic positions can be readily transformed to and from plane coordinates. Type: compound, Tag Name: GRIDSYS, Tag Value: 3432.

7.5.1.32 *Grid Coordinate System Name*—Name of the grid coordinate system. Type: text, Domain: "Universal Transverse Mercator" "Universal Polar Stereographic" "State Plane Coordinate System 1927" "State Plane Coordinate System 1983"" ARC Coordinate System" "other grid system," Tag Name: GRIDSYSN, Tag Value: 3433.

7.5.1.33 *Universal Transverse Mercator (UTM)*—A grid system based on the transverse mercator projection, applied between latitudes 84° north and 80° south on the earth's surface. Type: compound, Tag Name: UTM, Tag Value: 3434.

7.5.1.34 *UTM Zone Number*—Identifier for the UTM zone. Type: integer, Domain: 1 |La UTM Zone Number |La 60 for the northern hemisphere; − 60 |La UTM Zone Number |La − 1 for the southern hemisphere, Tag Name: UTMZONE, Tag Value: 3435.

7.5.1.35 *Universal Polar Stereographic (UPS)*—A grid system based on the polar stereographic projection, applied to the Earth's polar regions north of 84 degrees north and south of 80 degrees south. Type: compound, Tag Name: UPS, Tag Value: 3436.

7.5.1.36 *UPS Zone Identifier*—Identifier for the UPS zone. Type: text, Domain: "A" "B" "Y"" Z," Tag Name: UPSZONE, Tag Value: 3437.

7.5.1.37 *State Plane Coordinate System (SPSC)*—A plane-rectangular coordinate system established for each state in the United States by the National Geodetic Survey. Type: compound, Tag Name: SPCS, Tag Value: 3438.

7.5.1.38 *SPCS Zone Identifier*—Identifier for the SPCS zone. Type: text, Domain: Four-digit numeric codes for the State Plane Coordinate Systems based on the North American Datum of 1927 are found in Department of Commerce, 1986, Representation of geographic point locations for information interchange (Federal Information Processing Standard 70-1): Washington: Department of Commerce, National Institute of Standards and Technology. Codes for the State Plane Coordinate Systems based on the North American Datum of 1983 are found in Department of Commerce, 1989 (January), State Plane Coordinate System of 1983 (National Oceanic and Atmospheric Administration Manual NOS NGS 5): Silver Spring, Maryland, National Oceanic and Atmospheric Administration, National Ocean Service, Coast and Geodetic Survey, Tag Name: SPCSZONE, Tag Value: 3439.

7.5.1.39 *ARC Coordinate System*—The Equal Arc-second Coordinate System, a plane-rectangular coordinate system established in MIL-A-89007. Type: compound, Tag Name: ARCSYS, Tag Value: 3440.

7.5.1.40 *ARC System Zone Identifier*—Identifier for the ARC Coordinate System Zone. Type: integer, Domain: 1 |La ARC System Zone Identifier |La 18, Tag Name: ARCZONE, Tag Value: 3441.

7.5.1.41 *Other Grid System's Definition*—A complete description of a grid system, not defined elsewhere in this specification that was used for the data set. The information provided shall include the name of the grid system, the names of the parameters and values used for the data set, and the citation of the specification for the algorithms that describe the mathematical relationship between the earth and the coordinates of the grid system. Type: text, Domain: free text, Tag Name: OTHERGRD, Tag Value: 3442.

7.5.1.42 *Local Planar*—Any right-handed planar coordinate system of which the *z*-axis coincides with a plumb line through the origin that locally is aligned with the surface of the Earth. Type: compound, Tag Name: LOCALP, Tag Value: 3443.

7.5.1.43 *Local Planar Description*—A description of the local planar system. Type: text, Domain: free text, Tag Name: LOCALPD, Tag Value: 3444.

7.5.1.44 *Local Planar Georeference Information*—A description of the information provided to register the local planar system to the earth (for example, control points, satellite ephemeral data, inertial navigation data). Type: text, Domain: free text, Tag Name: LOCALPGI, Tag Value: 3445.

7.5.1.45 *Planar Coordinate Information*—Information about the coordinate system developed on the planar surface. Type: compound, Tag Name: PLANCI, Tag Value: 3446.

7.5.1.46 *Planar Coordinate Encoding Method*—The means used to represent horizontal positions. Type: text, Domain:" coordinate pair" "distance and bearing" "row and column," Tag Name: PLANCE, Tag Value: 3447.

7.5.1.47 *Coordinate Representation*—The method of encoding the position of a point by measuring its distance from perpendicular reference axes (the "coordinate pair" and "row and column" methods). Type: compound, Tag Name: COORDREP, Tag Value: 3448.

7.5.1.48 *Abscissa Resolution*—The (nominal) minimum distance between the "*x*" or column values of two adjacent points, expressed in Planar Distance Units of measure. Type: real, Domain: Abscissa Resolution > 0.0, Tag Name: ABSRES, Tag Value: 3449.

7.5.1.49 *Ordinate Resolution*—The (nominal) minimum distance between the "*y*" or row values of two adjacent points, expressed in planar distance units of measure. Type: real, Domain: Ordinate Resolution > 0.0, Tag Name: ORDRES, Tag Value: 3450.

7.5.1.50 *Distance and Bearing Representation*—A method of encoding the position of a point by measuring its distance and direction (azimuth angle) from another point. Type: compound, Tag Name: DISTBREP, Tag Value: 3451.