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An Initial Design for an Extended Vector Product Format Prototype for Modeling and Simulation

KEVIN SHAW

Mapping, Charting, and Geodesy Branch
Marine Geosciences Division

H. VINCENT MILLER

Mississippi State University
Stennis Space Center, MS

BARBARA RAY
ROBERT BROOME
TODD LOVITT

Planning Systems Incorporated
Slidell, LA

MAHDI ABDELGUERFI
EDGAR COOPER
CHRIS WYNNE

University of New Orleans
New Orleans, LA

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Kevin Shaw, H. Vincent Miller[†], Barbara Ray[††], Robert Broome[††], Todd Lovitt[††], Mahdi Abdelguerfi*, Edgar Cooper*, and Chris Wynne*,

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[†]Mississippi State University, Stennis Space Center, MS; [††]Planning Systems Incorporated, 115 Christian Lane, Slidell, LA; *University of New Orleans, New Orleans, LA

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Having been tasked with making the Defense Mapping Agency's (DMA) georelational Vector Product Format (VPF) more receptive to the needs of the modeling and simulation community, the Digital Mapping, Charting, and Geodesy Analysis Program (DMAP) has designed a prototype Modeling and Simulation Extended Vector Product (MSEVP). Based on DMAP's Extended Vector Product Format, MSEVP's features and attributes are extensively defined and are intended to satisfy documented deficiencies of VPF. Rationale and data sources are also discussed. This prototype is currently under review by DMA to determine if it should be further developed.

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EXECUTIVE SUMMARY

The Digital Mapping, Charting, and Geodesy Analysis Program has designed a prototype following its previously defined Extended Vector Product Format (EVPF). Using the relational database format, this prototype, named Modeling and Simulation Extended Vector Product (MSEVP) since its users will primarily be from the modeling and simulation (M&S) community, has gone through many phases of evolution in terms of its feature and attribute content. Eleven coverages have been defined, giving the prototype a comprehensive advantage over ordinary vector products. MSEVP also borrows feature attribution explicitly defined by other formats, allowing for a more comprehensive M&S product. Since EVPF allows for enhanced three-dimensional capabilities (enhanced in the sense of access time and storage), MSEVP also benefits in that respect. An area of interest, Killeen, TX, has been used for this initial prototype as Defense Mapping Agency (DMA) data are abundant in that area. Pending DMA approval of EVPF and MSEVP, the MSEVP prototype should better satisfy DMA's vector product deficiencies documented by the M&S community.

AN INITIAL DESIGN FOR AN EXTENDED VECTOR PRODUCT FORMAT PROTOTYPE FOR MODELING AND SIMULATION

1.0 INTRODUCTION

In today's modeling and simulation (M&S) community, the georelational database format Vector Product Format (VPF) and its products have been documented as not meeting Army, Navy, and Marine Corps requirements [1,2]. The profile [3] defined by the Digital Mapping, Charting, and Geodesy Analysis Program (DMAP) was the first attempt at addressing these deficiencies. In this profile, a format was proposed, the Extended Vector Product Format (EVPF), as well as a prototype product in this format. Also, anticipated difficulties were discussed for designing such a format and prototype, and feature content for the prototype was explicitly stated. What follows in this report is the finalization of the initial design of the EVPF M&S prototype, Modeling and Simulation Extended Vector Product (MSEVP).

Although EVPF remains within the confines of VPF's static relational database structure, MSEVP employs the extensions of VPF which will make it more desirable to the M&S community, based on the previously mentioned requirements surveys. First and foremost is the addition of a more efficient method of storing information relating to the three-dimensional (3-D) representation of object surfaces. Described in [4], the improved triangle-based method of storing Triangulated Irregular Networks (TIN), one of the primary techniques for representing digital elevation, has been shown to be an improvement over VPF's winged-edge topology both in storage and time comparisons. While MSEVP uses the TIN tables to represent terrain only, the concept and table format can be extended to represent other 3-D objects as well, provided that the describing information is available.

Other advantages MSEVP will offer are in the form of previous products. Aeronautical information from the Flight Information Publications and Digital Aeronautical Flight Information File will be made available in MSEVP. This information will be represented in the Transportation coverage.

As is the practice for many Defense Mapping Agency (DMA) prototypes, an area of interest is selected for the first prototype. For the MSEVP, a region over Killeen, TX, has been selected. VPF data exist in this area in the form of Vector Smart Map (VMap) and Digital Topographic Data (DTOP), and this data can be easily imported into EVPF to form a basis for the MSEVP. Moreover, elevation data exist in the form of Digital Terrain Elevation Data (DTED) Level 1, which will be sufficient for demonstrating the EVPF TIN structures and capabilities.

2.0 THEMATIC LAYERS

For the most part, the coverages of the EVPF profile [3] have remained unchanged. Two coverages have been modified and deserve special discussion. A guiding factor for the decision of consolidating coverages was to keep the number of coverages, and hence topological disconnectedness, to a minimum.

The Beach coverage, initially included because of the importance of the coastal zone to military operations, has now been incorporated into a separate layer describing the surface of the Earth in general. This new coverage, Basic Earth Coverage, includes not only beach but data relating to all Earth coverage, including bottom types of hydrological features. The rationale for the change is based on the need by many M&S programs to know detailed information about all soil characteristics. Including all of such information in a single coverage allows for the information to be logically grouped and attributed.

The Aeronautical Information coverage has been moved into the Transportation coverage for the simple reason of having all transportation features in a single coverage, allowing for complete topological connection within the transportation network of an area of interest.

The initial MSEVP will therefore have eleven coverages: Basic Earth Surface, Data Quality, Demarcation, Elevation, Hydrography, Industry, Physical Geography, Population, Transportation, Utilities, and Vegetation.

3.0 FEATURE AND ATTRIBUTE CONTENT

The complete list and description of features and attributes for the eleven coverages of MSEVP are presented by coverage in Apps. B through L. For ease of reader evaluation, most attribute values and definitions are repeated at each occurrence. Any new Feature and Attribute Coding Catalog (FACC) Codes [5] are italicized, as well as presented separately in App. M. Appendix N provides an update on the future direction of some of these FACC coded features, based on responses received at time of publication.

Simple feature classes are indicated by subheadings to the coverages. These logical groupings allow for the definition of common attributes and attribute values.

4.0 RESOLUTION

Since EVPF and its prototype MSEVP are essentially unscaled, no reference to geometric primitives (face, edge, node) is made within the appendices. That is, for every feature, all primitives that are conceivably possible shall be made available. The exception is for features which are inherently zero-, one-, or two-dimensional, such as a depth sounding, which would naturally be a point feature.

In defining the initial prototype, data will be used from a variety of scaled sources, including VMap Level 2, Killeen, TX (1:50k), and DTOP/Interim Terrain Data (ITD) (1:50k).

5.0 STANDARD SIMULATOR DATABASE INTERCHANGE FORMAT ATTRIBUTION

As part of the requirements analyses, DMAP and others determined that many attributes have not been made available in the FACC, but have been defined extensively in Standard Simulator Database Interchange Format. Some of these physical attributes include absorptivity, directivity, and diffuse reflectance.

In an effort to satisfy those users accustomed to these attributes, some of which were specifically requested in requirements surveys, MSEVP in EVPF will make these attributes and their numerical formats available. These will be coded appropriately in FACC codes.

6.0 AREA OF INTEREST

The area selected for the prototype will be a 5′ × 5′ section: –97° 30′ to –97° 35′ longitude and 31° 5′ to 31° 10′ latitude (Fig. 1). The location is Killeen, TX. Although this section is not a

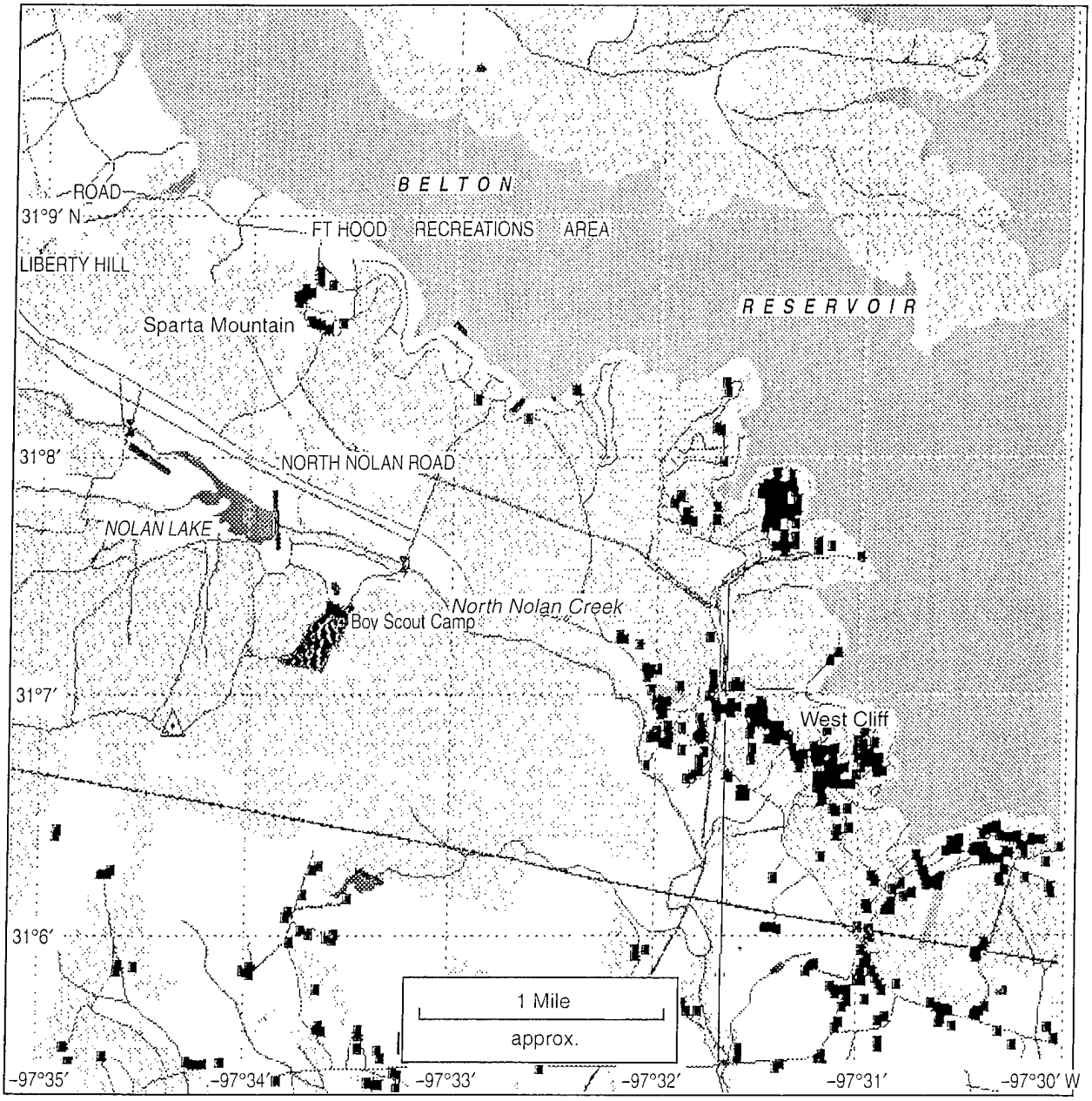

Fig. 1 — Area of interest for MSEVP prototype

complete tile, the information within the corresponding tile of VMap Level 2 will be clipped to this size. Both VMap Level 2 and DTOP offer a selection of features from this geographic area which can be easily imported into EVPF.

DTED Level 1 is also available for this area. The area has sufficiently varying values to produce a respectable TIN for demonstration purposes.

Killeen has a "workable" selection of transportation, population, and vegetation features. Probably the only limitation to this area is hydrography. The inland waterway (Belton Reservoir) will be changed to reflect some of MSEVP features of open water and the land will be extended (i.e., some of the coastal water will be "erased") to form coastal zone for surf, tide information, etc. The geometry (primitive tables) will still be useful. In other words, the area will no longer be Killeen, but a hypothetical city (text names will be changed). VPFView can also be used to determine latitude/longitude coordinates for new simulated features.

7.0 SOFTWARE CONSIDERATIONS

DMAP VPF software tools (VPFTool) are in the process of being finalized. With these tools, MSEVP will be constructed from data existing in current VPF products VMap Level 2 and DTOP/ITD. In addition, VPFView will be used to choose locations of DMAP's simulated features. These new features will demonstrate MSEVP's effectiveness as a relational vector product for the M&S community.

8.0 CONCLUSIONS

Based on the EVPF developed by DMAP, the MSEVP initial design presented in this report represents a significant enhancement of georelational VPF products, an enhancement specifically tailored for the M&S community. Past requirements surveys and recent input from potential users indicate that MSEVP should better satisfy documented deficiencies of the current suite of VPF products.

9.0 RECOMMENDATIONS

Based on a myriad of input, DMAP has developed an EVPF prototype design, MSEVP, specifically intended for the M&S community. The appendices of this report display comprehensive features and attributes heretofore unavailable in a single VPF product. DMAP recommends that this design be used to create an "evolving" prototype, evolving in the sense that DMA supports continued effort in studying how this prototype can be used and improved for M&S. This prototype is under construction, using the sources (software, databases) made available by DMAP. In addition, DMAP further intends to investigate how an object-oriented paradigm, as opposed to the current relational one, can be used to enhance MSEVP capabilities.

10.0 ACKNOWLEDGMENTS

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[4] Shaw, K., M. Abdelguerfi, E. Cooper, C. Wynne, H. Miller, B. Ray, R. Broome, and T. Fetterer, "An Initial Design of Extended Vector Product Format for Modeling and Simulation," NRL/FR/7441--96-9651, Naval Research Laboratory, Stennis Space Center, MS, Aug 1996.

[5] Defense Mapping Agency, "The Digital Geographic Information Exchange Standard (DIGEST) Part 4: Feature and Attribute Coding Catalog (FACC)," Edition 1.2, Jan 1994.

Appendix A. Acronym List

DAFIF	Digital Aeronautical Flight Information File
DMA	Defense Mapping Agency
DMAP	Digital Mapping, Charting, and Geodesy Analysis Program
DMSO	Defense Modeling and Simulation Office
DTED	Digital Terrain Elevation Data
DTOP	Digital Topographic Data
EVPF	Extended Vector Product Format
FACC	Feature and Attribute Coding Catalog
FLIP	Flight Information Publication
ITD	Interim Terrain Data
M&S	Modeling and Simulation
MSEVP	Modeling and Simulation Extended Vector Product
SIF	Standard Simulator Data Base Interchange Format
SSDB	Standard Simulator Data Base
TIN	Triangulated Irregular Network
TMPO	Terrain Modeling Program Office
VMap	Vector Smart Map
VPF	Vector Product Format
VPFTool	VPF software tools
VPFView	VPF viewing software

Appendix B. Basic Earth Surface Coverage

Surface Feature Class

ID

F-CODE/DESCRIPTION

BS010 Soil

BS020 Rock Formation

SA020 Disturbed Soil

An area that has been so disturbed by human activity that no single soil type can be accurately identified. These areas may include built-up areas, strip mines, landfills, railroad yards, etc.

DA005 Asphalt Lake

A natural pool of liquid asphalt.

DA006 Alkali Flats

A sterile plain containing an excess of alkali usually occurring in the bottom of an under drained basin in an arid or semi-arid region. The ground may be soft and have low shearing and bearing strength, and a high organic content.

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

CCC Color Code Category

Color of the feature.

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua

CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 — *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 — *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (Radar response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY — *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

GRS *Gray Scale value*

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity.

(May be helpful for IR and NVG simulations; TBD)

GRS 0-255

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (radar).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

MCS Material Composition Secondary

Secondary material composition of the feature.

MCS	0	Unknown
MCS	4	Ash
MCS	8	Boulders
MCS	12	Chalk
MCS	14	Cinders
MCS	15	Cirripedia
MCS	16	Clay
MCS	18	Cobble
MCS	24	Coral
MCS	25	Coral Head
MCS	28	Diatoms
MCS	36	Foraminifera
MCS	37	Funus
MCS	41	Globigerina
MCS	45	Grass /Thatch
MCS	46	Gravel
MCS	48	Ground
MCS	52	Lava
MCS	58	Madrepores
MCS	59	Manganese
MCS	61	Marl
MCS	63	Mattes
MCS	65	Mud
MCS	66	Mussels
MCS	69	Ooze
MCS	70	Oysters
MCS	73	Pebbles
MCS	75	Polyzoa
MCS	78	Pteropods
MCS	79	Pumice
MCS	80	Quartz
MCS	81	Radiolaria
MCS	84	Rock /Rocky
MCS	88	Sand
MCS	90	Schist
MCS	92	Scoria
MCS	93	Sea Tangle
MCS	94	Seaweed
MCS	96	Shells
MCS	98	Shingle
MCS	99	Silt
MCS	105	Spicules
MCS	106	Sponge
MCS	108	Stone
MCS	111	Tufa

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN

OIT 3 NOSUN

PSC Principal Surface Characteristics

Principal characteristic(s) of the surface.

PSC	0	Unknown
PSC	1	Broken
PSC	2	Coarse
PSC	3	Decayed
PSC	4	Fine, minute particles
PSC	5	Gritty
PSC	6	Hard
PSC	7	Rotten
PSC	8	Soft
PSC	9	Sticky
PSC	10	Stiff
PSC	11	Streaky
PSC	12	Tenacious
PSC	13	Uneven
PSC	14	Bare/cleared
PSC	15	Karst
PSC	16	Membrane
PSC	17	Calcareous
PSC	18	Flinty
PSC	19	Glacial
PSC	20	Ground
PSC	21	Large
PSC	22	Rocky
PSC	23	Small
PSC	24	Speckled
PSC	25	Varied
PSC	26	Volcanic
PSC	27	Medium
PSC	28	Springs in Seabed
PSC	29	Mobile Bottom
PSC	99	Medium
PSC	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SDC Soil Depth Category

General depth of soil or surface material.

SDC 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel

SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated

SMS 999 Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SRD Surface Roughness Description
Describes the condition of the surface materials that may be used for mobility prediction, construction material, and landing sites.

SRD	0	Unknown
SRD	1	No surface roughness effect
SRD	2	Area of high landslide potential
SRD	3	Uncohesive surface material/flat
SRD	4	Rough
SRD	5	Angular
SRD	6	Rounded
SRD	11	Surface of numerous cobbles and boulders
SRD	12	Areas of stony terrain
SRD	13	Stony soil with surface rock
SRD	14	Stony soil with scattered boulders
SRD	15	Stony soil with numerous boulders
SRD	16	Numerous boulders
SRD	17	Numerous rock outcrops and/or stony soil
SRD	18	Area of scattered boulders
SRD	19	Talus slope
SRD	20	Boulder Fields
SRD	31	Highly fractured rock surface
SRD	32	Weathered lava flows
SRD	33	Unweathered lava flows
SRD	34	Stony soil with numerous rock outcrops
SRD	35	Irregular surface with deep fractures of foliation
SRD	36	Rugged terrain with numerous rock outcrops
SRD	37	Rugged bedrock surface
SRD	38	Sand dunes
SRD	39	Sand dunes / low
SRD	40	Sand dunes/ high
SRD	41	Active sand dunes
SRD	42	Stabilized sand dunes
SRD	43	Highly distorted area, sharp rocky ridges
SRD	51	Stony soil cut by numerous gullies
SRD	52	Moderately dissected terrain
SRD	53	Moderately dissected terrain with scattered rock outcrops
SRD	54	Dissected floodplain
SRD	55	Highly dissected terrain
SRD	56	Area with deep erosional gullies
SRD	57	Steep, rugged, dissected terrain with narrow gullies
SRD	58	Karst/areas of numerous sinkholes and solution valleys
SRD	59	Karst/area of numerous sinkholes
SRD	60	Karst/hummocky terrain covered with large conical hills
SRD	61	Karst/hummocky terrain covered with low, broad-based mounds
SRD	62	Arroyo/wadi/wash

SRD	63	Playa/dry lake
SRD	64	Area of numerous meander scars and/or oxbow lakes
SRD	65	Solifluction lobes and frost scars
SRD	66	Hummocky ground, areas of frost heaving
SRD	67	Area of frost polygons
SRD	68	Area containing sabkhas
SRD	69	Area of numerous small lakes and ponds
SRD	70	Area of numerous crevasses
SRD	81	Area of numerous terraces
SRD	82	Quarries
SRD	83	Strip mines
SRD	84	Quarry/gravel pit
SRD	85	Quarry/sand pit
SRD	86	Mine tailings/waste piles
SRD	87	Salt evaporators
SRD	88	Area of numerous dikes
SRD	89	Area of numerous diked fields
SRD	90	Area of numerous fences
SRD	91	Area of numerous stone walls
SRD	92	Area of numerous man-made canals/drains/ditches
SRD	93	Area of numerous terraced fields
SRD	94	Parallel earthen mounds (row crops)
SRD	95	Area of numerous hedgerows

SRT *Surface Type*

This is a composite attribute (MCC, STP and SMC from the Digest)
Soils described by the Unified Soil Classification System (USCS) or primary material composition.

SRT	0	Unknown
SRT	1	GW Well graded gravels or gravel-sand mixtures
SRT	2	GP Poorly graded gravels or gravel-sand mixtures
SRT	3	GM Silty gravels, gravel-sand-silt mixtures
SRT	4	GC Clayey gravels, gravel-sand-clay mixture
SRT	5	SW Well graded sand or gravelly sands
SRT	6	SP Poorly graded sands or gravelly sands
SRT	7	SM Silty sands, sand-silt mixture.
SRT	8	SC Clayey sands, sand-clay mixtures
SRT	9	ML Inorganic silts and very fine sands
SRT	10	CL Inorganic clays of low to medium plasticity
SRT	11	OL Organic silts and organic silty clays
SRT	12	CH Inorganic clays of high plasticity, fat clays
SRT	13	MH Inorganic silts, micaceous or diatomaceous
SRT	14	OH Organic clays of medium to high plasticity
SRT	15	PT Peat and other highly organic soils
SRT	17	ML-CL Soil type having both ML and CL characteristics
SRT	18	Evaporites
SRT	19	Alkali
SRT	20	Asphalt
SRT	21	Ash
SRT	22	Basalt
SRT	23	Bedrock
SRT	24	Boulders
SRT	25	Calcareous
SRT	26	Chalk

SRT	27	Cinders
SRT	28	Cirripedia
SRT	29	Clay
SRT	30	Coal
SRT	31	Cobble
SRT	32	Coke
SRT	33	Composition
SRT	34	Conglomerate
SRT	35	Copper
SRT	36	Coral
SRT	37	Coral Head
SRT	38	Diamonds
SRT	39	Diatoms
SRT	40	Dolomite
SRT	41	Flynch
SRT	42	Foraminifera
SRT	43	Fucus
SRT	44	Glass
SRT	45	Globigerina
SRT	46	Gold
SRT	47	Granite
SRT	48	INTENTIONALLY LEFT BLANK
SRT	49	Gravel
SRT	50	Green Rocks
SRT	51	Ground (Shells)
SRT	52	Iron
SRT	53	Lava
SRT	55	Lead
SRT	56	Loess
SRT	57	Lumber
SRT	58	Macadam
SRT	59	Madrepores
SRT	60	Manganese
SRT	61	Marble
SRT	62	Marl
SRT	63	Mattes
SRT	64	Mud
SRT	65	Oil
SRT	66	Oil Blister
SRT	67	Ooze
SRT	70	Pebbles
SRT	71	Pumice
SRT	72	Quartz
SRT	73	Radiolaria
SRT	74	Radioactive Material
SRT	75	Reinforced Concrete
SRT	76	Rock/Rocky
SRT	77	Rubber
SRT	78	Rubble
SRT	79	Salt
SRT	80	Sand
SRT	81	Sandstone
SRT	82	Schist
SRT	83	Spoils/Tailings

SRT	84	Scoria
SRT	85	Sewage
SRT	86	Shells
SRT	87	Shingle
SRT	88	Silt
SRT	89	Silver
SRT	90	Slag
SRT	91	Sludge
SRT	92	Snow/Ice
SRT	93	Steel
SRT	94	Stone
SRT	95	Travertin
SRT	96	Tufa
SRT	97	Uranium
SRT	98	Volcanic
SRT	99	Volcanic Ash
SRT	100	Zinc
SRT	101	Distorted surface
SRT	102	Sand and gravel
SRT	103	Rip-Rap
SRT	104	Kelp
SRT	105	Sandwaves
SRT	500	Not Evaluated
SRT	999	Other

SS1 *Sensors Supported*

SS2

SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T

SS1(SS2,SS3) F

STG Soil Trafficability Group

Soils described by the Unified Soil Classification System categorized by their wet weather trafficability characteristics.

STG	0	Unknown
STG	1	A
STG	2	B
STG	3	C
STG	4	D
STG	5	E
STG	6	X

SWC Wetness Index (Soil Wetness Condition)

General moisture content or condition of a soil or surface material.

SWC	0	Unknown
SWC	1	Dry
SWC	2	Moist
SWC	3	Wet
SWC	4	Frozen/Permafrost
SWC	999	Other

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order

USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand

USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

Underwater Bottom Feature Class

ID

F-CODE/DESCRIPTION

UB010 Bottom
UB020 Shelf

ARA — Area Coverage

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

BCT — Bottom Configuration Type

The type of configuration of underwater bottom topography.

BCT	1	Double Break in Slope
BCT	2	Break in Slope
BCT	3	Depression, Flat Bottom
BCT	4	Depression, Steep Sided
BCT	5	Depression, V-Shaped
BCT	6	Depression, Sediment Filled
BCT	7	Elevation, Flat Topped
BCT	8	Elevation, Peaked
BCT	9	Elevation, Rounded
BCT	10	Slumped Blocks
BCT	11	Scarp, Probably Faulted
BCT	12	Slump Debris
BCT	13	Step
BCT	14	Terrace

BMC — Bottom Material Category

Predominant material composition of the bottom of a body of water.

BMC	0	Unknown
BMC	1	Clay and Silt
BMC	2	Silty Sands
BMC	3	Sand and Gravel
BMC	4	Gravel and Cobble
BMC	5	Rocks and Boulders
BMC	6	Bedrock
BMC	7	Paved
BMC	8	Peat
BMC	9	Sand over mud
BMC	10	Mixed qualities
BMC	11	Coral
BMC	12	Slash
BMC	13	Seamount
BMC	14	Sand

BRA — Bottom Return Classification

Tabulates bottom return attributes.

BRA	1	Classified
BRA	2	Detected
BRA	3	Identified

BRI — Bottom Return Identity Classification

Tabulates bottom return identity.

BRI	1	Unknown
BRI	2	Neutral

BRO Bottom Return Obstacle Classification

Tabulates bottom return obstacles.

BRO	1	Classified
BRO	2	Detected
BRO	3	Identified

BRW Bottom Return Wreck Classification

Tabulates bottom return wreck.

BRW	1	Classified
BRW	2	Detected
BRW	3	Identified

BTC Bottom Thickness Category(Index or category)

General depth of soil or surface material.

BTC 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

CCC Color Code Category

Color of the feature.

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown

CIC	1	Dark
CIC	2	Light
CIC	999	Other

CSM Secondary Material Characteristics

Characteristics of secondary material composition of feature.

CSM	0	Unknown
CSM	1	Broken
CSM	2	Coarse
CSM	3	Decayed
CSM	4	Fine, Minute Particles
CSM	5	Gritty
CSM	6	Hard
CSM	7	Rotten
CSM	8	Soft
CSM	9	Sticky
CSM	10	Stiff
CSM	11	Streaky
CSM	12	Tenacious
CSM	13	Uneven
CSM	17	Calcareous
CSM	18	Flinty
CSM	19	Glacial
CSM	20	Ground
CSM	21	Large
CSM	22	Rocky
CSM	23	Small
CSM	24	Speckled
CSM	25	Varied
CSM	26	Volcanic
CSM	27	Medium

GRS *Gray Scale value*

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity.
(May be helpful for IR and NVG simulations; TBD)

GRS 0-255

MCS Material Composition Secondary

Secondary material composition of the feature.

MCS	0	Unknown
MCS	4	Ash
MCS	8	Boulders
MCS	12	Chalk
MCS	14	Cinders
MCS	15	Cirripedia
MCS	16	Clay
MCS	18	Cobble
MCS	24	Coral
MCS	25	Coral Head
MCS	28	Diatoms
MCS	36	Foraminifera
MCS	37	Funus
MCS	41	Globigerina

MCS	45	Grass /Thatch
MCS	46	Gravel
MCS	48	Ground
MCS	52	Lava
MCS	58	Madrepores
MCS	59	Manganese
MCS	61	Marl
MCS	63	Mattes
MCS	65	Mud
MCS	66	Mussels
MCS	69	Ooze
MCS	70	Oysters
MCS	73	Pebbles
MCS	75	Polyzoa
MCS	78	Pteropods
MCS	79	Pumice
MCS	80	Quartz
MCS	81	Radiolaria
MCS	84	Rock /Rocky
MCS	88	Sand
MCS	90	Schist
MCS	92	Scoria
MCS	93	Sea Tangle
MCS	94	Seaweed
MCS	96	Shells
MCS	98	Shingle
MCS	99	Silt
MCS	105	Spicules
MCS	106	Sponge
MCS	108	Stone
MCS	111	Tufa

MCU Underlying material composition of feature.

MCU	0	Unknown
MCU	4	Ash
MCU	8	Boulders
MCU	12	Chalk
MCU	14	Cinders
MCU	15	Cirripedia
MCU	16	Clay
MCU	18	Cobble
MCU	24	Coral
MCU	25	Coral Head
MCU	28	Diatoms
MCU	36	Foraminifera
MCU	37	Fucus
MCU	41	Globigerina
MCU	45	Grass /Thatch
MCU	46	Gravel
MCU	48	Ground
MCU	52	Lava
MCU	58	Madrepores
MCU	59	Manganese
MCU	61	Marl

MCU	63	Mattes
MCU	65	Mud
MCU	66	Mussels
MCU	69	Ooze
MCU	70	Oysters
MCU	73	Pebbles
MCU	75	Polyzoa
MCU	78	Pteropods
MCU	79	Pumice
MCU	80	Quartz
MCU	81	Radiolaria
MCU	84	Rock /Rocky
MCU	88	Sand
MCU	90	Schist
MCU	92	Scoria
MCU	93	Sea Tangle
MCU	94	Seaweed
MCU	96	Shells
MCU	98	Shingle
MCU	99	Silt
MCU	105	Spicules
MCU	106	Sponge
MCU	108	Stone
MCU	111	Tufa

NBO *Nombos*

Density catagory for bottom clutter which may give mine-like responses on minehunting sonars.

NBO	0	None
NBO	1	Low clutter density
NBO	2	Medium clutter density
NBO	3	High clutter density

PSC Principal characteristic(s) of the *bottom*.

PSC	0	Unknown
PSC	1	Broken
PSC	2	Coarse
PSC	3	Decayed
PSC	4	Fine, minute particles
PSC	5	Gritty
PSC	6	Hard
PSC	7	Rotten
PSC	8	Soft
PSC	9	Sticky
PSC	10	Stiff
PSC	11	Streaky
PSC	12	Tenacious
PSC	13	Uneven
PSC	14	Bare/cleared
PSC	15	Karst
PSC	16	Membrane
PSC	17	Calcareous
PSC	18	Flinty
PSC	19	Glacial

PSC	20	Ground
PSC	21	Large
PSC	22	Rocky
PSC	23	Small
PSC	24	Speckled
PSC	25	Varied
PSC	26	Volcanic
PSC	27	Medium
PSC	28	Springs in Seabed
PSC	29	Mobile Bottom
PSC	99	Medium
PSC	999	Other

PWC *Percent Water Content*
Water content of the bottom.

RSS *Ratio Sound Speed*
Ratio of sediment sound speed to water sound speed.

SGS *Sand Grain Size*
Mean grain size

SLC *Sediment Layer Conductivity*

SRH *Sand Ridge Height(ft.)*

SSD *Sediment Surface Density*

SSG *Sound Speed Gradient*
Sediment sound speed gradient (at water-sediment interface)

SSS *Sediment Shear Strength*

TXT Text Attribute
Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

UMC Characteristics of underlying material composition of feature.

UMC	0	Unknown
UMC	2	Coarse
UMC	3	Decayed
UMC	4	Fine, Minute Particles
UMC	5	Gritty
UMC	6	Hard
UMC	7	Rotten
UMC	8	Soft
UMC	9	Sticky
UMC	10	Stiff
UMC	11	Streaky
UMC	12	Tenacious
UMC	13	Uneven
UMC	17	Calcareous

UMC	18	Flinty
UMC	19	Glacial
UMC	20	Ground
UMC	21	Large
UMC	22	Rocky
UMC	23	Small
UMC	24	Speckled
UMC	25	Varied
UMC	26	Volcanic
UMC	27	Medium

Beach Feature Class

ID

F-CODE/DESCRIPTION
BA050 Beach

ABS *Absorptivity*
Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AFA Facilities available at or in the near vicinity.

AFA	0	Unknown
AFA	1	Visitors Berth
AFA	2	Visitors Mooring
AFA	3	Sailmaker
AFA	4	Chandler
AFA	5	Provisions
AFA	6	Physician/Doctor
AFA	7	Pharmacy/Chemist
AFA	8	Drinking Water
AFA	9	Fuel Station
AFA	10	Electricity
AFA	11	Bottle Gas/LPG
AFA	12	Showers
AFA	13	Laundrette
AFA	14	Toilets
AFA	15	Post Box
AFA	16	Public Telephone
AFA	17	Refuse Bin
AFA	18	Water Police
AFA	19	Helipad
AFA	20	Ticket Sales
AFA	21	No Ticket Sales
AFA	22	Yatch Club
AFA	23	Boat Hoist
AFA	24	Boat Yard
AFA	25	Public Inn
AFA	26	Restaurant
AFA	999	Other

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

BIT Beach Indicator Type

BIT	0	Unknown
BIT	1	Nearshore
BIT	2	Foreshore - That part of the shore or beach which lies between the low water mark andthe coastline/shoreline. The same condition may exist in non-contiguous off-shore
BIT	3	Backshore

CCC Color Code Category

Color of the feature.

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate

EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

GSC Ground Slope Category

Range indicating the slope of ground within delineated area of feature usually manually derived, reported in percent.

GSC	1	0->45 Culturally or Naturally Dissected Land
GSC	2	≤ 30
GSC	3	>3 and ≤10
GSC	4	>10 and ≤20
GSC	5	>20 and ≤30
GSC	6	>30 and ≤45
GSC	7	>45
GSC	8	>10 and ≤15
GSC	9	>15 and ≤20
GSC	10	>45 and ≤60
GSC	11	>60
GSC	12	>60 and ≤85
GSC	13	>85

HFC Hydrological Form Category

Form or configuration of the *associated* hydrological feature.

HFC	0	Unknown
HFC	1	Channelized Stream
HFC	2	Disappearing
HFC	7	Non-Tidal
HFC	8	Normal Channel
HFC	10	Tidal /Tidal Fluctuating
HFC	14	Braided
HFC	16	Dissipating
HFC	19	Gorge
HFC	21	Wadi/Wash
HFC	30	Disappearing in sinkhole
HFC	31	Disappearing in other than sinkhole
HFC	32	Oxbow
HFC	33	Split stream
HFC	999	Other

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

MAC	Maritime Area Category		
	MAC	0	Unknown
	MAC	1	Customs Area
	MAC	2	Dredged Channel/ Dredged Area
	MAC	3	Harbor Area
	MAC	4	Mine Danger Area
	MAC	5	Prohibited Shipping Area/Entry Prohibited
	MAC	6	Reclamation Area
	MAC	7	Restricted Area
	MAC	9	Works in progress area
	MAC	10	Wire Drag Area/Swept Area
	MAC	11	Anchorage (general)
	MAC	12	Anchoring Berths
	MAC	13	Explosive anchorage
	MAC	14	Large Vessel/Deep Water/Deep Draft anchorage.
	MAC	15	Anchoring Prohibited
	MAC	16	Quarantine anchorage
	MAC	17	Reserved Anchorage
	MAC	18	Small Vessel Anchorage/Marina
	MAC	19	Tanker Anchorage
	MAC	20	Submarine Cable Area
	MAC	21	Pipeline Area
	MAC	22	Fishing Prohibited
	MAC	23	Cable and Pipeline Area
	MAC	24	Turning Area / Swinging Circle
	MAC	25	Spoil Area / Spoil Ground
	MAC	26	Unsurveyed Area
	MAC	27	Submarine Exercise Area
	MAC	28	Mine Laying Practice Area
	MAC	29	Firing Danger Area
	MAC	30	Dumping Ground for Hazardous Materials
	MAC	31	Incineration Area
	MAC	32	Oil field
	MAC	33	Gas Field
	MAC	34	Historic Wreck
	MAC	35	Explosive Dumping Ground
	MAC	36	Former Mine Danger Area
	MAC	37	Safety Zone
	MAC	38	Chemical field
	MAC	39	Separation Zone
	MAC	40	Roundabout Zone (TSS)
	MAC	41	Inshore Traffic Zone (TSS)
	MAC	42	Precautionary Area
	MAC	43	Areas to be avoided
	MAC	44	Degaussing Range
	MAC	45	Outfall area
	MAC	46	Intake area
	MAC	47	Fish Haven/Protected Area
	MAC	48	Pilot Boarding Area
	MAC	49	Cargo Transshippment Area
	MAC	50	Red Rocks
	MAC	51	Laterite
	MAC	52	Evaporites
	MAC	53	Seaplane

MAC	54	Time Limited
MAC	55	Fairway
MAC	56	Fish Trap Area
MAC	57	Marine farm
MAC	58	Dredging area
MAC	61	Sewer Area
MAC	79	Free Port Area
MAC	80	Fish Sanctuary
MAC	81	Degaussing Range
MAC	82	Development Area
MAC	83	Diving prohibited zone
MAC	84	Danger of stranding area
MAC	85	Navigational aid safety zone
MAC	86	Historic wreck restricted area
MAC	87	Seal sanctuary
MAC	88	Game preserve
MAC	89	Bird sanctuary
MAC	90	Nature preserve
MAC	91	Practice area in general
MAC	92	Torpedo practice area
MAC	93	Anchorage for up to 24 hours
MAC	94	Small craft mooring area
MAC	95	Seaplane anchorage
MAC	96	Unrestricted anchorage
MAC	97	Crossing (TSS)
MAC	98	Offshore Production Area
MAC	99	Dock Area
MAC	999	Other

NAM — Name

Any Identifier or code.

NAM	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Text String		Lexical			80

OIT — *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL — *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER — *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SDO — Sand Dune Orientation

Characteristic alignment of the dune as caused by the prevailing winds.

SDO 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

SGC Gradient/Slope

Percentage of slope. (i.e. The change in height divided by the horizontal distance over which the change takes place, times one hundred ((h2-h1)/d) 100.)

SGC 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

SHO Shoreline Category

Tabulates the topography and material types likely to be found on a shoreline.

SHO	1	Hillocks
SHO	2	Flat
SHO	3	Sandy
SHO	4	Stony or shingly shore
SHO	5	Artificial

SLT Shoreline Type Category

The physical characteristic of the shoreline area.

SLT	0	Unknown
SLT	6	Mangrove/Nipa
SLT	8	March, Swamp
SLT	10	Rocky
SLT	11	Rubble
SLT	13	Sandy
SLT	14	Stony, Shingly
SLT	15	Other

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics

SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material

SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SPR Slope Polygon Range

Range indicating the slope of ground within delineated area of feature, reported in percent.

SPR	0	≤3
SPR	1	>3 and ≤10
SPR	2	> 10 and ≤ 15
SPR	3	> 15 and ≤ 20
SPR	4	> 20 and ≤ 30
SPR	5	> 30 and ≤ 45
SPR	6	> 45 and ≤ 60
SPR	7	> 60 and ≤ 85
SPR	8	> 85

SRD Surface Roughness Description

Describes the condition of the surface materials that may be used for mobility prediction, construction material, and landing sites.

SRD	0	Unknown
SRD	1	No surface roughness effect
SRD	2	Area of high landslide potential
SRD	3	Uncohesive surface material/flat
SRD	4	Rough
SRD	5	Angular
SRD	6	Rounded
SRD	11	Surface of numerous cobbles and boulders
SRD	12	Areas of stony terrain
SRD	13	Stony soil with surface rock
SRD	14	Stony soil with scattered boulders
SRD	15	Stony soil with numerous boulders
SRD	16	Numerous boulders
SRD	17	Numerous rock outcrops and/or stony soil
SRD	18	Area of scattered boulders
SRD	19	Talus slope
SRD	20	Boulder Fields
SRD	31	Highly fractured rock surface
SRD	32	Weathered lava flows
SRD	33	Unweathered lava flows
SRD	34	Stony soil with numerous rock outcrops
SRD	35	Irregular surface with deep fractures of foliation
SRD	36	Rugged terrain with numerous rock outcrops
SRD	37	Rugged bedrock surface
SRD	38	Sand dunes
SRD	39	Sand dunes / low
SRD	40	Sand dunes/ high
SRD	41	Active sand dunes
SRD	42	Stabilized sand dunes
SRD	43	Highly distorted area, sharp rocky ridges
SRD	51	Stony soil cut by numerous gullies
SRD	52	Moderately dissected terrain
SRD	53	Moderately dissected terrain with scattered rock outcrops
SRD	54	Dissected floodplain
SRD	55	Highly dissected terrain
SRD	56	Area with deep erosional gullies
SRD	57	Steep, rugged, dissected terrain with narrow gullies
SRD	58	Karst/areas of numerous sinkholes and solution valleys
SRD	59	Karst/area of numerous sinkholes
SRD	60	Karst/hummocky terrain covered with large conical hills
SRD	61	Karst/hummocky terrain covered with low, broad-based mounds
SRD	62	Arroyo/wadi/wash
SRD	63	Playa/dry lake
SRD	64	Area of numerous meander scars and/or oxbow lakes
SRD	65	Solifluction lobes and frost scars
SRD	66	Hummocky ground, areas of frost heaving
SRD	67	Area of frost polygons
SRD	68	Area containing sabkhas
SRD	69	Area of numerous small lakes and ponds
SRD	70	Area of numerous crevasses

SRD	81	Area of numerous terraces
SRD	82	Quarries
SRD	83	Strip mines
SRD	84	Quarry/gravel pit
SRD	85	Quarry/sand pit
SRD	86	Mine tailings/waste piles
SRD	87	Salt evaporators
SRD	88	Area of numerous dikes
SRD	89	Area of numerous diked fields
SRD	90	Area of numerous fences
SRD	91	Area of numerous stone walls
SRD	92	Area of numerous man-made canals/drains/ditches
SRD	93	Area of numerous terraced fields
SRD	94	Parallel earthen mounds (row crops)
SRD	95	Area of numerous hedgerows

SS1 *Sensors Supported*

SS2

SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRA Traversability (*indicates traversability by foot*)

TRA	0	Unknown
TRA	1	Traversable
TRA	2	Non-Traversable
TRA	4	Polygon
TRA	5	Pond
TRA	999	Other

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	1	VALUE INTENTIONALLY LEFT BLANK
USE	2	VALUE INTENTIONALLY LEFT BLANK
USE	3	VALUE INTENTIONALLY LEFT BLANK
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	9	VALUE INTENTIONALLY LEFT BLANK
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone

USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational

USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

VDC Vertical Datum Category

The reference line (0 elevation) from which heights and depths are measured.

VDC	0	Unknown
VDC	1	VALUE INTENTIONALLY LEFT BLANK
VDC	2	High Water
VDC	3	Higher High Water
VDC	4	Indian Spring Low Water
VDC	5	Low Water
VDC	6	Lower Low Water
VDC	7	Mean High Water
VDC	8	Mean High Water Neaps
VDC	9	Mean High Water Springs
VDC	10	Mean Higher High Water
VDC	11	Mean Low Water
VDC	12	Mean Low Water Neaps
VDC	13	Mean Low Water Springs
VDC	14	Mean Lower Low Water
VDC	15	Mean Sea Level
VDC	16	Mean Tide Level
VDC	17	Neap Tide
VDC	18	Spring Tide
VDC	19	Mean Lower Low Water Springs
VDC	20	Lowest Astronomical Tide
VDC	21	Chart Datum (Unspecified)
VDC	22	Highest Astronomical Tide
VDC	24	Mean Higher Water
VDC	26	Highest Normal High Water

VDC	28	Highest High Water
VDC	30	Indian Spring High Water
VDC	90	Lowest low water
VDC	91	Lowest low water springs
VDC	92	Approximate mean low water springs
VDC	93	Low water springs
VDC	94	Approximate lowest astronomical tide
VDC	95	Nearly lowest low water
VDC	96	Approximate mean low water
VDC	97	Approximate mean lower low water
VDC	98	Approximate mean sea level
VDC	99	High water springs
VDC	999	Other

WD4 Wet Gap Width

The wet gap width at low tide (in meters).

WD4 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

WLE Water Level Effect

Encodes the possible effects of the surrounding water.

WLE	0	Unknown
WLE	1	Partly submerged at high water
WLE	2	Always dry
WLE	3	Always under water/submerged
WLE	4	Covers and uncovers
WLE	5	Awash
WLE	6	Drying

Permanent Ice Feature Class

ID

F-CODE/DESCRIPTION

BJ040 Ice Cliff
BJ060 Ice Peak/Nunatak
BJ020 Moraine
BJ030 Glacier
BJ065 Ice Shelf
BJ070 Pack Ice
BJ080 Polar ice
BJ100 Snow Field/Ice Field
BJ110 Tundra
SA040 Permanent Snowfield - An area permanently covered by snow or ice that covers a land mass, such as glaciers and snowfields

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ARA Area Coverage

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown

CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable

EXS 999 Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

GRS *Gray Scale value*

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity.

(May be helpful for IR and NVG simulations; TBD)

GRS 0-255

ICC Ice Category Classification

Tabulates the kind of ice.

ICC	0	Undefined
ICC	1	Fast ice
ICC	2	Sea ice
ICC	3	Growler area
ICC	4	Pancake ice
ICC	5	Glacier (see BJ030)
ICC	6	Ice Peak (see BJ060)
ICC	7	Pack ice (see BJ070)
ICC	8	Polar ice (see BJ080)
ICC	9	Debris-covered
ICC	999	Other

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
Text String	Lexical			80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF

OIT 2 SUN

OIT 3 NOSUN

PRC Periodic Restriction Category

Restriction due to climate or other limitations.

PRC 1 Perennially Open, Not Subject to Ice

PRC 2 Subject to Ice

PRC 3 Permanent Ice

PRC 4 Seasonal limit - Jan.

PRC 5 Seasonal limit - Feb.

PRC 6 Seasonal limit - Mar.

PRC 7 Seasonal limit - Apr.

PRC	8	Seasonal limit - May
PRC	9	Seasonal limit - Jun.
PRC	10	Seasonal limit - Jul.
PRC	11	Seasonal limit - Aug.
PRC	12	Seasonal limit - Sep.
PRC	13	Seasonal limit - Oct.
PRC	14	Seasonal limit - Nov.
PRC	15	Seasonal limit - Dec.
PRC	16	Closed
PRC	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SIC Snow/Ice Category

Indicates the composition of the feature.

SIC	1	Snow
SIC	2	Ice

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders

SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone

SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

THI Thickness Index

Predominant thickness within delineation of feature, determined in meters at the greatest concentration along a cross section of the feature (First Range).

THI	0	Unknown
THI	1	≤ 0.8 M
THI	2	> 0.8 M and ≤1.6 M
THI	3	> 1.6 M and ≤2.4 M
THI	4	> 2.4 M
THI	5	NA

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Basic Earth Surface Void Collection Area Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area

VCA Void Collection Attribute

Reason data is not collected.

VCA	0	Unknown
VCA	1	Data Not Requested By User
VCA	2	Area Too Rough to Collect
VCA	3	No Available Imagery
VCA	4	Different Height Threshold Within Data Block

VCA	5	Low Data Collection Criteria
VCA	6	No Available Map Source
VCA	7	No Suitable Imagery
VCA	8	Data Not Required
VCA	999	Other

Appendix C. Data Quality Coverage

Data Quality Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area
An area lacking suitable source coverage, or where data is not required.

VCA	Void Collection Attribute		
	VCA	0	Unknown
	VCA	1	Data Not Requested By User
	VCA	2	Area Too Rough to Collect
	VCA	3	No Available Imagery
	VCA	4	Different Height Threshold Within Data Block
	VCA	5	Low Data Collection Criteria
	VCA	6	No Available Map Source
	VCA	7	No Suitable Imagery
	VCA	8	Data Not Required
	VCA	999	Other
VCT	Void Collection Type		
	VCT	0	Unknown
	VCT	1	Relief
	VCT	2	Other

Appendix D. Demarcation Coverage

Political Boundary Line Feature Class

ID

F-CODE/DESCRIPTION

FA000	Administrative Boundary
FA020	Armistice Line
FA030	Cease-Fire Line
FA040	Claim Line
FA050	Mandate Line/Convention Line
FA060	Defacto Boundary
FA110	International Date Line

ACC — Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

BST — Boundary Status Type

BST	0	Unknown
BST	1	Definite
BST	2	Indefinite
BST	3	In Dispute
BST	4	No Defined Boundary

NAM — Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

NM3 — Name 3 (name of political entity on one side of boundary)

Name of the political entity on one side (relative to NM3) of a boundary line.

NM3 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		80

NM4 — Name 4 (name of political entity on other side of boundary)

Name of the political entity on the other side of the boundary line.

NM4 0

Units	Format	Range	Increment	Max Char
	Text String	Lexical		80

TXT — Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute

USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring

USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

Political Boundary Area Feature Class

ID

F-CODE/Description

FA001	Administrative Area
FA070	Demilitarized Zone
FA165	Training Area
FA170	Zone of Occupation
FA___	Sensitivity Area
FC___	Conflict Areas

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

INT Intensity level

INT	1	High Intensity
INT	2	Low Intensity

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

NM3 Name 3 (name of political entity on one side of boundary)

Name of the political entity on one side (relative to NM3) of a boundary line.

NM3 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		80

NM4 Name 4 (name of political entity on other side of boundary)

Name of the political entity on the other side of the boundary line.

NM4 0

Units	Format	Range	Increment	Max Char
	Text String	Lexical		80

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph

USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels

USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

Topographic Zone Area Feature Class

ID

F-Code/Description

FA005	Access Zone
FA041	Contact Zone
FA090	Geophysical Prospecting Grid

CSM Secondary Material Characteristics.
Characteristics of secondary material composition of feature.

CSM	0	Unknown
CSM	1	Broken
CSM	2	Coarse
CSM	3	Decayed
CSM	4	Fine, Minute Particles
CSM	5	Gritty
CSM	6	Hard
CSM	7	Rotten
CSM	8	Soft
CSM	9	Sticky
CSM	10	Stiff
CSM	11	Streaky
CSM	12	Tenacious
CSM	13	Uneven
CSM	17	Calcareous

CSM	18	Flinty
CSM	19	Glacial
CSM	20	Ground
CSM	21	Large
CSM	22	Rocky
CSM	23	Small
CSM	24	Speckled
CSM	25	Varied
CSM	26	Volcanic
CSM	27	Medium

DMB Density Measure (Brush/Undergrowth)

Actual percent (%) of ground covered by undergrowth.

DMB 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

DMT Density Measure (% of Tree/Canopy Cover)

Canopy cover measured by percent within area of feature during the summer season.

DMT 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating

EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

LC1 Load Class 1

Military load classification (weight bearing capacity) Type 1.

LC1	0	Weight bearing capacity for one-way traffic of wheeled vehicles (from STANAG 2253).

LC2 Load Class Type 2

Military load classification (weight bearing capacity) Type 2.

LC2	0	Weight bearing capacity for two-way traffic of wheeled vehicles (from STANAG 2253).

LC3 Load Class Type 3

Military load classification (weight bearing capacity) Type 3.

LC3	0	Weight bearing capacity for one-way traffic of tracked vehicles (from STANAG 2253).

LC4 Load Class Type 4

Military load classification (weight bearing capacity) Type 4.

LC4	0	Weight bearing capacity for one-way traffic of tracked vehicles (from STANAG 2253).

LEN Length/Diameter of point feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

MAS Maintenance Status

Indicates whether the feature is maintained.

MAS	1	Maintained
MAS	2	Not Maintained

MCC Material Composition Category

Characteristics of primary material composition of feature.

MCC	0	Unknown
MCC	1	Aircraft
MCC	2	Aluminum
MCC	3	Ammunition
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock

MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	31	Electric
MCC	32	Eroded Lands
MCC	33	Explosives
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	38	Gas
MCC	39	Gasoline
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes

MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar
MCC	110	Travertin
MCC	111	Tufa
MCC	112	Uranium
MCC	113	Vegetation Products
MCC	114	Volcanic
MCC	115	Volcanic Ash
MCC	116	Water
MCC	117	Wood
MCC	118	Zinc

	MCC	119	Evaporites
	MCC	999	Other

MCS Material Composition Secondary
Secondary material composition of feature.

MCS	0	Unknown
MCS	4	Ash
MCS	8	Boulders
MCS	12	Chalk
MCS	14	Cinders
MCS	15	Cirripedia
MCS	16	Clay
MCS	18	Cobble
MCS	24	Coral
MCS	25	Coral Head
MCS	28	Diatoms
MCS	36	Foraminifera
MCS	37	Funus
MCS	41	Globigerina
MCS	45	Grass /Thatch
MCS	46	Gravel
MCS	48	Ground
MCS	52	Lava
MCS	58	Madrepores
MCS	59	Manganese
MCS	61	Marl
MCS	63	Mattes
MCS	65	Mud
MCS	66	Mussels
MCS	69	Ooze
MCS	70	Oysters
MCS	73	Pebbles
MCS	75	Polyzoa
MCS	78	Pteropods
MCS	79	Pumice
MCS	80	Quartz
MCS	81	Radiolaria
MCS	84	Rock /Rocky
MCS	88	Sand
MCS	90	Schist
MCS	92	Scoria
MCS	93	Sea Tangle
MCS	94	Seaweed
MCS	96	Shells
MCS	98	Shingle
MCS	99	Silt
MCS	105	Spicules
MCS	106	Sponge
MCS	108	Stone
MCS	111	Tufa

MCU Material Composition Underlying
Underlying material composition of feature.

MCU	0	Unknown

MCU	4	Ash
MCU	8	Boulders
MCU	12	Chalk
MCU	14	Cinders
MCU	15	Cirripedia
MCU	16	Clay
MCU	18	Cobble
MCU	24	Coral
MCU	25	Coral Head
MCU	28	Diatoms
MCU	36	Foraminifera
MCU	37	Fucus
MCU	41	Globigerina
MCU	45	Grass /Thatch
MCU	46	Gravel
MCU	48	Ground
MCU	52	Lava
MCU	58	Madrepores
MCU	59	Manganese
MCU	61	Marl
MCU	63	Mattes
MCU	65	Mud
MCU	66	Mussels
MCU	69	Ooze
MCU	70	Oysters
MCU	73	Pebbles
MCU	75	Polyzoa
MCU	78	Pteropods
MCU	79	Pumice
MCU	80	Quartz
MCU	81	Radiolaria
MCU	84	Rock /Rocky
MCU	88	Sand
MCU	90	Schist
MCU	92	Scoria
MCU	93	Sea Tangle
MCU	94	Seaweed
MCU	96	Shells
MCU	98	Shingle
MCU	99	Silt
MCU	105	Spicules
MCU	106	Sponge
MCU	108	Stone
MCU	111	Tufa

PSC Principal Surface Characteristics

Principal characteristic(s) of the surface.

PSC	0	Unknown
PSC	1	Broken
PSC	2	Coarse
PSC	3	Decayed
PSC	4	Fine, minute particles
PSC	5	Gritty
PSC	6	Hard

	PSC	7	Rotten
	PSC	8	Soft
	PSC	9	Sticky
	PSC	10	Stiff
	PSC	11	Streaky
	PSC	12	Tenacious
	PSC	13	Uneven
	PSC	14	Bare/cleared
	PSC	15	Karst
	PSC	16	Membrane
	PSC	17	Calcareous
	PSC	18	Flinty
	PSC	19	Glacial
	PSC	20	Ground
	PSC	21	Large
	PSC	22	Rocky
	PSC	23	Small
	PSC	24	Speckled
	PSC	25	Varied
	PSC	26	Volcanic
	PSC	27	Medium
	PSC	28	Springs in Seabed
	PSC	29	Mobile Bottom
	PSC	99	Medium
	PSC	999	Other

TRA Traversability

TRA	0	Unknown
TRA	1	Traversable
TRA	2	Non-Traversable
TRA	4	Polygon
TRA	5	Pond
TRA	999	Other

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

UMC Underlying Material Characteristics

Characteristics of underlying material composition of feature.

UMC	0	Unknown
UMC	2	Coarse
UMC	3	Decayed
UMC	4	Fine, Minute Particles
UMC	5	Gritty
UMC	6	Hard
UMC	7	Rotten
UMC	8	Soft
UMC	9	Sticky
UMC	10	Stiff
UMC	11	Streaky
UMC	12	Tenacious

UMC	13	Uneven
UMC	17	Calcareous
UMC	18	Flinty
UMC	19	Glacial
UMC	20	Ground
UMC	21	Large
UMC	22	Rocky
UMC	23	Small
UMC	24	Speckled
UMC	25	Varied
UMC	26	Volcanic
UMC	27	Medium

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power

USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point

USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

Maritime Boundary Area Feature Class

ID

F-Code/Description

FC031	Maritime Area
FC036	Restricted Area
FC177	Swept Area

AFA Available Facilities

AFA	0	Unknown
AFA	1	Visitors Berth
AFA	2	Visitors Mooring
AFA	3	Sailmaker
AFA	4	Chandler
AFA	5	Provisions
AFA	6	Physician/Doctor
AFA	7	Pharmacy/Chemist
AFA	8	Drinking Water
AFA	9	Fuel Station
AFA	10	Electricity

AFA	11	Bottle Gas/LPG
AFA	12	Showers
AFA	13	Laundrette
AFA	14	Toilets
AFA	15	Post Box
AFA	16	Public Telephone
AFA	17	Refuse Bin
AFA	18	Water Police
AFA	19	Helipad
AFA	20	Ticket Sales
AFA	21	No Ticket Sales
AFA	22	Yatch Club
AFA	23	Boat Hoist
AFA	24	Boat Yard
AFA	25	Public Inn
AFA	26	Restaurant
AFA	999	Other

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

COD Certainty of Delineation

Indicates knowledge of the feature's limits or information.

COD	0	Unknown
COD	1	Limits and Information Known
COD	2	Limits and Information Unknown

DAN Description of Aids to Navigation

Textual description of aids to navigation marking a feature, e.g. Marked by buoys.

DAN 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

CDV Calendar Date Value

The calendar date as specified by ISO 8601.

CDV 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	ASCII Text		8 Digits

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused

EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

HDP — Hydrographic Depth

The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IAS — IMO Approval Status

Status of International Maritime Organization approval.

IAS	1	Approved
IAS	2	Not Approved

MAC — Maritime Area Category

Area in which certain activities or factors of significance to navigation or operations apply.

MAC	0	Unknown
MAC	1	Customs Area
MAC	2	Dredged Channel/ Dredged Area
MAC	3	Harbor Area

MAC	4	Mine Danger Area
MAC	5	Prohibited Shipping Area/Entry Prohibited
MAC	6	Reclamation Area
MAC	7	Restricted Area
MAC	9	Works in progress area
MAC	10	Wire Drag Area/Swept Area
MAC	11	Anchorage (general)
MAC	12	Anchoring Berths
MAC	13	Explosive anchorage
MAC	14	Large Vessel/Deep Water/Deep Draft anchorage.
MAC	15	Anchoring Prohibited
MAC	16	Quarantine anchorage
MAC	17	Reserved Anchorage
MAC	18	Small Vessel Anchorage/Marina
MAC	19	Tanker Anchorage
MAC	20	Submarine Cable Area
MAC	21	Pipeline Area
MAC	22	Fishing Prohibited
MAC	23	Cable and Pipeline Area
MAC	24	Turning Area / Swinging Circle
MAC	25	Spoil Area / Spoil Ground
MAC	26	Unsurveyed Area
MAC	27	Submarine Exercise Area
MAC	28	Mine Laying Practice Area
MAC	29	Firing Danger Area
MAC	30	Dumping Ground for Hazardous Materials
MAC	31	Incineration Area
MAC	32	Oil field
MAC	33	Gas Field
MAC	34	Historic Wreck
MAC	35	Explosive Dumping Ground
MAC	36	Former Mine Danger Area
MAC	37	Safety Zone
MAC	38	Chemical field
MAC	39	Separation Zone
MAC	40	Roundabout Zone (TSS)
MAC	41	Inshore Traffic Zone (TSS)
MAC	42	Precautionary Area
MAC	43	Areas to be avoided
MAC	44	Degaussing Range
MAC	45	Outfall area
MAC	46	Intake area
MAC	47	Fish Haven/Protected Area
MAC	48	Pilot Boarding Area
MAC	49	Cargo Transshippment Area
MAC	50	Red Rocks
MAC	51	Laterite
MAC	52	Evaporites
MAC	53	Seaplane
MAC	54	Time Limited
MAC	55	Fairway
MAC	56	Fish Trap Area
MAC	57	Marine farm
MAC	58	Dredging area

MAC	61	Sewer Area
MAC	79	Free Port Area
MAC	80	Fish Sanctuary
MAC	81	Degaussing Range
MAC	82	Development Area
MAC	83	Diving prohibited zone
MAC	84	Danger of stranding area
MAC	85	Navigational aid safety zone
MAC	86	Historic wreck restricted area
MAC	87	Seal sanctuary
MAC	88	Game preserve
MAC	89	Bird sanctuary
MAC	90	Nature preserve
MAC	91	Practice area in general
MAC	92	Torpedo practice area
MAC	93	Anchorage for up to 24 hours
MAC	94	Small craft mooring area
MAC	95	Seaplane anchorage
MAC	96	Unrestricted anchorage
MAC	97	Crossing (TSS)
MAC	98	Offshore Production Area
MAC	99	Dock Area
MAC	999	Other

MAS Maintenance Status

Indicates whether the feature is maintained.

MAS	1	Maintained
MAS	2	Not Maintained

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

PRO Product Category

Principal material involved or product resulting from activity at site.

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil
PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge

PRO	116	Water
PRO	128	Refuse
PRO	130	None
PRO	132	Not Applicable
PRO	133	Telecommunications
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

TSP Traffic Scheme Part (*component of the traffic routing system*)

TSP	1	Arrow
TSP	2	Outer Boundary
TSP	3	Separation Zone Area
TSP	4	Separation Zone Line
TSP	5	Separation Zone Point
TSP	6	Inbound Area
TSP	7	Outbound Area

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate

USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
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USE	80	Precision Instrument Approach
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USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand

USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

WPC Work in Progress Category

WPC	1	Land Reclamation
WPC	2	Construction of Structures

Maritime Reference Line Feature Class

ID

F-Code/Description

FC100 Measured Distance Line

A course whose length has been accurately measured and is used in conjunction with ranges ashore. It is used by vessels to calibrate logs, engine revolution counters, etc., and determine speed

FC130 Radar Reference Line

FC021 Maritime Limit Boundary

BRG Bearing of Object

The bearing of an object from an observer (on any point along the line) towards the object or feature, expressed in degrees and tenths (e.g. 3.0 DEG).

BRG 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Floating Point	0.0-359.9	0.1 DEG	

BRR Bearing and Reciprocal Category

True course of a vessel in 0.1 degree increments, when proceeding along a track or route, followed by its reciprocal bearing (ie. 053.1-233.1).

BRR 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	ASCII Text		5

COD Certainty of Delineation

Indicates knowledge of the feature's limits or information.

COD 0 Unknown

COD 1 Limits and Information Known

COD 2 Limits and Information Unknown

DRP Description of Reference Point

Description of the feature(s) which form a Leading Line or Clearing Line.

DRP 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		

EXS Existence Category

The state or condition of the feature.

EXS 0 Unknown

EXS 1 Definite

EXS 2 Doubtful

EXS 3 Reported

EXS 5 Under Construction

EXS 6 Abandoned/Disused

EXS 7 Destroyed

EXS 10 Proposed

EXS 11 Temporary

EXS 12 Alternate

EXS 18 Permanent

EXS 25 Not Maintained

EXS 26 Maintained

EXS 27 Closed/Locked

EXS 28 Operational

EXS 30 Not Isolated

EXS 31 Isolated

EXS 33 Ruined

EXS 35 Other

EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

LAF Line Associated Features

The type and/or number of features associated with a leading or clearing line.

LAF	1	One Object (Other Than a Directional Light)
LAF	2	Directional Light
LAF	3	Two or More Lights
LAF	4	Two or More Beacons
LAF	5	Two or More Objects (Other Than Two Lights or Beacons)
LAF	6	Measured Distance Markers
LAF	7	Directional Radiobeacon
LAF	8	Moiré Effect Light

LOR Length of Range

Length of range, in nautical miles, established by aids to navigation on the shore.

LOR 0 Actual Value

Units	Format	Range	Increment	Max Char
Nautical Miles	Short Integer	0±32,767	1 NM	

MAC Maritime Area Category

Area in which certain activities or factors of significance to navigation or operations apply.

MAC	0	Unknown
MAC	1	Customs Area
MAC	2	Dredged Channel/ Dredged Area
MAC	3	Harbor Area
MAC	4	Mine Danger Area
MAC	5	Prohibited Shipping Area/Entry Prohibited
MAC	6	Reclamation Area
MAC	7	Restricted Area
MAC	9	Works in progress area
MAC	10	Wire Drag Area/Swept Area

MAC	11	Anchorage (general)
MAC	12	Anchoring Berths
MAC	13	Explosive anchorage
MAC	14	Large Vessel/Deep Water/Deep Draft anchorage.
MAC	15	Anchoring Prohibited
MAC	16	Quarantine anchorage
MAC	17	Reserved Anchorage
MAC	18	Small Vessel Anchorage/Marina
MAC	19	Tanker Anchorage
MAC	20	Submarine Cable Area
MAC	21	Pipeline Area
MAC	22	Fishing Prohibited
MAC	23	Cable and Pipeline Area
MAC	24	Turning Area / Swinging Circle
MAC	25	Spoil Area / Spoil Ground
MAC	26	Unsurveyed Area
MAC	27	Submarine Exercise Area
MAC	28	Mine Laying Practice Area
MAC	29	Firing Danger Area
MAC	30	Dumping Ground for Hazardous Materials
MAC	31	Incineration Area
MAC	32	Oil field
MAC	33	Gas Field
MAC	34	Historic Wreck
MAC	35	Explosive Dumping Ground
MAC	36	Former Mine Danger Area
MAC	37	Safety Zone
MAC	38	Chemical field
MAC	39	Separation Zone
MAC	40	Roundabout Zone (TSS)
MAC	41	Inshore Traffic Zone (TSS)
MAC	42	Precautionary Area
MAC	43	Areas to be avoided
MAC	44	Degaussing Range
MAC	45	Outfall area
MAC	46	Intake area
MAC	47	Fish Haven/Protected Area
MAC	48	Pilot Boarding Area
MAC	49	Cargo Transshippment Area
MAC	50	Red Rocks
MAC	51	Laterite
MAC	52	Evaporites
MAC	53	Seaplane
MAC	54	Time Limited
MAC	55	Fairway
MAC	56	Fish Trap Area
MAC	57	Marine farm
MAC	58	Dredging area
MAC	61	Sewer Area
MAC	79	Free Port Area
MAC	80	Fish Sanctuary
MAC	81	Degaussing Range
MAC	82	Development Area
MAC	83	Diving prohibited zone

MAC	84	Danger of stranding area
MAC	85	Navigational aid safety zone
MAC	86	Historic wreck restricted area
MAC	87	Seal sanctuary
MAC	88	Game preserve
MAC	89	Bird sanctuary
MAC	90	Nature preserve
MAC	91	Practice area in general
MAC	92	Torpedo practice area
MAC	93	Anchorage for up to 24 hours
MAC	94	Small craft mooring area
MAC	95	Seaplane anchorage
MAC	96	Unrestricted anchorage
MAC	97	Crossing (TSS)
MAC	98	Offshore Production Area
MAC	99	Dock Area
MAC	999	Other

MBL Maritime Boundary Limit

A line where on either side certain activities or factors of significance to navigation or operations apply.

MBL	0	Unknown
MBL	1	Colregs Demarcation Line
MBL	2	Customs Boundary
MBL	3	Fishing Zone Boundary
MBL	4	Harbor Limit
MBL	5	Separation Line (TSS)
MBL	6	Territorial Waters -Limit of Sovereignty
MBL	7	Territorial Waters Baseline
MBL	8	Maritime Limit (General)
MBL	9	International Boundary (at sea)
MBL	10	Continental Shelf Boundary
MBL	11	Limit of Exclusive Economic Zone
MBL	12	Limit of Contiguous Zone
MBL	13	Clearing Line
MBL	14	Danger Line
MBL	15	Armistice Boundary
MBL	98	Traffic Services Limit
MBL	999	Other

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OPS Operational Status

Indicates whether or not the feature is in operation.

OPS	1	Operational
OPS	2	Non-Operational

PRO Product Category

Principal material involved or product resulting from activity at site.

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil
PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge
PRO	116	Water
PRO	128	Refuse
PRO	130	None
PRO	132	Not Applicable
PRO	133	Telecommunications
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

UNI Units Category

Units associated strictly with the measured distance lines (FC100) for nautical data. [Reference DIGEST Part 3 for Units associated with DIGEST header data.]

UNI	1	Meters
UNI	11	Nautical Miles
UNI	22	Feet
UNI	23	Kilometers
UNI	24	Yards

Maritime Route Line Feature Class

ID

F-Code/Description

FC165	Route (Maritime)
FC170	Safety Fairway
FC168	Canal Route

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

BRR Bearing and Reciprocal Category

True course of a vessel in 0.1 degree increments, when proceeding along a track or route, followed by its reciprocal bearing (ie. 053.1-233.1).

BRR 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	ASCII Text		5

BRS Bearing From Seaward

True course of a vessel when proceeding from seaward along a track or course.

BRS 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Floating Point	0-360	0.1 DEG	

DAN Description of Aids to Navigation

Textual description of aids to navigation marking a feature, e.g. Marked by buoys.

DAN 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

DOF Direction of Flow

Bearing of movement or direction of the flow.

DOF 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

DRP Description of Reference Point

Description of the feature(s) which form a Leading Line or Clearing Line.

DRP 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary

EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

HDI — Hydrographic Depth/Height Information

HDI	9	Depth Known by Other Than Wire Drag
HDI	10	Depth Known by Wire Drag
HDI	12	Depth Unknown
HDI	13	Uncovering Height Known
HDI	14	Uncovering Height Unknown
HDI	15	Not Applicable

HDP — Hydrographic Depth

The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

MAC — Maritime Area Category

Area in which certain activities or factors of significance to navigation or operations apply.

MAC	0	Unknown
MAC	1	Customs Area
MAC	2	Dredged Channel/ Dredged Area
MAC	3	Harbor Area

MAC	4	Mine Danger Area
MAC	5	Prohibited Shipping Area/Entry Prohibited
MAC	6	Reclamation Area
MAC	7	Restricted Area
MAC	9	Works in progress area
MAC	10	Wire Drag Area/Swept Area
MAC	11	Anchorage (general)
MAC	12	Anchoring Berths
MAC	13	Explosive anchorage
MAC	14	Large Vessel/Deep Water/Deep Draft anchorage.
MAC	15	Anchoring Prohibited
MAC	16	Quarantine anchorage
MAC	17	Reserved Anchorage
MAC	18	Small Vessel Anchorage/Marina
MAC	19	Tanker Anchorage
MAC	20	Submarine Cable Area
MAC	21	Pipeline Area
MAC	22	Fishing Prohibited
MAC	23	Cable and Pipeline Area
MAC	24	Turning Area / Swinging Circle
MAC	25	Spoil Area / Spoil Ground
MAC	26	Unsurveyed Area
MAC	27	Submarine Exercise Area
MAC	28	Mine Laying Practice Area
MAC	29	Firing Danger Area
MAC	30	Dumping Ground for Hazardous Materials
MAC	31	Incineration Area
MAC	32	Oil field
MAC	33	Gas Field
MAC	34	Historic Wreck
MAC	35	Explosive Dumping Ground
MAC	36	Former Mine Danger Area
MAC	37	Safety Zone
MAC	38	Chemical field
MAC	39	Separation Zone
MAC	40	Roundabout Zone (TSS)
MAC	41	Inshore Traffic Zone (TSS)
MAC	42	Precautionary Area
MAC	43	Areas to be avoided
MAC	44	Degaussing Range
MAC	45	Outfall area
MAC	46	Intake area
MAC	47	Fish Haven/Protected Area
MAC	48	Pilot Boarding Area
MAC	49	Cargo Transshippment Area
MAC	50	Red Rocks
MAC	51	Laterite
MAC	52	Evaporites
MAC	53	Seaplane
MAC	54	Time Limited
MAC	55	Fairway
MAC	56	Fish Trap Area
MAC	57	Marine farm
MAC	58	Dredging area

MAC	61	Sewer Area
MAC	79	Free Port Area
MAC	80	Fish Sanctuary
MAC	81	Degaussing Range
MAC	82	Development Area
MAC	83	Diving prohibited zone
MAC	84	Danger of stranding area
MAC	85	Navigational aid safety zone
MAC	86	Historic wreck restricted area
MAC	87	Seal sanctuary
MAC	88	Game preserve
MAC	89	Bird sanctuary
MAC	90	Nature preserve
MAC	91	Practice area in general
MAC	92	Torpedo practice area
MAC	93	Anchorage for up to 24 hours
MAC	94	Small craft mooring area
MAC	95	Seaplane anchorage
MAC	96	Unrestricted anchorage
MAC	97	Crossing (TSS)
MAC	98	Offshore Production Area
MAC	99	Dock Area
MAC	999	Other

NAM — Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OPT — Operations Times

OPT	0	Unknown
OPT	1	Daytime (Sunrise/Sunset)
OPT	2	Nighttime
OPT	3	Continuous
OPT	4	Summertime (April-October)
OPT	5	Wintertime (November-March)
OPT	999	Other

ORC — Operating Range Category

The range of the NAVAID beyond which the capture of the signal is not completely assured.

ORC 0 Actual Value

PBV — Pilot Boarding Vehicle

PBV	1	By Boat
PBV	2	By Helicopter

RTT — Route Intended Use

RTT	0	Unknown
RTT	1	Recommended Track
RTT	2	Recommended track for other than deep draft vessels
RTT	3	Recommended track for deep draft vessels
RTT	4	Deep Water Route

RTT	5	Transit Route
RTT	6	Radar Guided Track
RTT	7	Measured Distance Line
RTT	8	Safety Fairway/Channel
RTT	9	Traffic Lane (TSS)
RTT	10	Roundabout Lane (TSS)
RTT	11	Two-way Route
RTT	12	Recommended Track (TSS)
RTT	13	Recommended direction of traffic flow
RTT	14	Primary Route
RTT	15	Secondary Route
RTT	97	Centerline
RTT	98	Deep Water Route - Centerline
RTT	99	Deep Water Route - Part
RTT	999	Other

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

Demarcation Void Collection Area Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area

VCA Void Collection Attribute

Reason data is not collected.

VCA	0	Unknown
VCA	1	Data Not Requested By User
VCA	2	Area Too Rough to Collect
VCA	3	No Available Imagery
VCA	4	Different Height Threshold Within Data Block
VCA	5	Low Data Collection Criteria
VCA	6	No Available Map Source
VCA	7	No Suitable Imagery
VCA	8	Data Not Required
VCA	999	Other

Appendix E. Elevation Coverage

Elevation Line Feature Class

ID

F-CODE/DESCRIPTION

CA010 Contour Line (Land)
A line connecting points having the same vertical datum value.

CA020 Ridge Line
A line representation of a ridge top.

CA025 Valley Bottom Line
A line representation of the lowest part of a valley.

CA026 Breakline
Line representing the demarcation of a sudden and significant change in the gradient of the terrain relief.

CA027 Berm

HQC Hypsography Portrayal Category

HQC	0	Unknown
HQC	1	Index
HQC	2	Intermediate
HQC	3	Supplementary (1/2)
HQC	4	Form Lines
HQC	5	Depression Index
HQC	6	Depression Intermediate
HQC	7	Approximate Index
HQC	8	Mound Index
HQC	9	Mound Intermediate
HQC	12	Intermediate Approximate
HQC	13	Supplementary Approximate
HQC	14	Supplementary (1/4)
HQC	15	Depression approximate
HQC	16	Auxiliary
HQC	18	Intermediate Depression Approximate
HQC	19	Carrying Contour (coincident contours)
HQC	20	Supplemental Carrying Contour
HQC	20	Carrying contour
HQC	22	Supplemental Depression
HQC	23	Supplemental Depression Approximate
HQC	98	Transition or erroneous
HQC	99	Connector

MCC Material Composition Category

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement

MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze

	MCC	70	Oysters
	MCC	71	Paper
	MCC	72	Part Metal
	MCC	73	Pebbles
	MCC	74	Plastic
	MCC	75	Polyzoa
	MCC	76	Porphyry
	MCC	77	Prestressed Concrete
	MCC	78	Pteropods
	MCC	79	Pumice
	MCC	80	Quartz
	MCC	81	Radiolaria
	MCC	82	Radioactive Material
	MCC	83	Reinforced Concrete
	MCC	84	Rock/Rocky
	MCC	85	Rubber
	MCC	86	Rubble
	MCC	87	Salt
	MCC	88	Sand
	MCC	89	Sandstone
	MCC	90	Schist
	MCC	91	Spoils/Tailings
	MCC	92	Scoria
	MCC	93	Sea Tangle
	MCC	94	Seaweed
	MCC	95	Sewage
	MCC	96	Shells
	MCC	98	Shingle
	MCC	99	Silt
	MCC	100	Silver
	MCC	101	Slag
	MCC	102	Sludge
	MCC	103	Snow/Ice
	MCC	104	Soil
	MCC	105	Spicules
	MCC	106	Sponge
	MCC	107	Steel
	MCC	108	Stone
	MCC	109	Sugar
	MCC	110	Travertin
	MCC	111	Tufa
	MCC	112	Uranium
	MCC	113	Vegetation Products
	MCC	114	Volcanic
	MCC	115	Volcanic Ash
	MCC	116	Water
	MCC	117	Wood
	MCC	118	Zinc
	MCC	119	Evaporites
	MCC	999	Other
USE	Usage		
	USE	0	Unknown
	USE	4	National

USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit

USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable

USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

ZV1 Lowest Z-value

ZV2 Highest Z-value

ZV3 Airfield/Aerodrome Elevation

Elevation Point Feature Class

ID

F-CODE/DESCRIPTION

CA030 Spot Elevation
A designated location with an elevation value relative to a vertical datum.

CA035 Inland Water Elevation
A location with a generalized elevation value relative to a vertical datum associated with an inland, usually confined, water body.

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

MCC Material Composition Category

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia

MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles

	MCC	74	Plastic
	MCC	75	Polyzoa
	MCC	76	Porphyry
	MCC	77	Prestressed Concrete
	MCC	78	Pteropods
	MCC	79	Pumice
	MCC	80	Quartz
	MCC	81	Radiolaria
	MCC	82	Radioactive Material
	MCC	83	Reinforced Concrete
	MCC	84	Rock/Rocky
	MCC	85	Rubber
	MCC	86	Rubble
	MCC	87	Salt
	MCC	88	Sand
	MCC	89	Sandstone
	MCC	90	Schist
	MCC	91	Spoils/Tailings
	MCC	92	Scoria
	MCC	93	Sea Tangle
	MCC	94	Seaweed
	MCC	95	Sewage
	MCC	96	Shells
	MCC	98	Shingle
	MCC	99	Silt
	MCC	100	Silver
	MCC	101	Slag
	MCC	102	Sludge
	MCC	103	Snow/Ice
	MCC	104	Soil
	MCC	105	Spicules
	MCC	106	Sponge
	MCC	107	Steel
	MCC	108	Stone
	MCC	109	Sugar
	MCC	110	Travertin
	MCC	111	Tufa
	MCC	112	Uranium
	MCC	113	Vegetation Products
	MCC	114	Volcanic
	MCC	115	Volcanic Ash
	MCC	116	Water
	MCC	117	Wood
	MCC	118	Zinc
	MCC	119	Evaporites
	MCC	999	Other
SPE	Spot Elevation Category		
	SPE	0	Unknown
	SPE	1	Top of trees
	SPE	2	Out of position
	SPE	3	Summit

Terrain Feature Class

ID

F-CODE/DESCRIPTION

CA050 Surface

PYT Polygon Type
PYT 1 Triangulated Irregular Network (triangle)

ZV2 Highest Z-Value

Miscellaneous Elevation Feature Class

ID

F-CODE/DESCRIPTION

SA050 Slope Polygon
An area enclosing a group of slope values falling within a set range.

GSC Ground Slope Category

GSC	1	0->45 Culturally or Naturally Dissected Land
GSC	2	≤ 30
GSC	3	>3 and < 10
GSC	4	>10 and ≤ 20
GSC	5	>20 and ≤ 30
GSC	6	>30 and ≤ 45
GSC	7	>45
GSC	8	>10 and ≤ 15
GSC	9	>15 and ≤ 20
GSC	10	>45 and ≤ 60
GSC	11	>60
GSC	12	>60 and ≤ 85
GSC	13	>85

Data Quality Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area
An area lacking suitable source coverage, or where data is not required.

VCA Void Collection Attribute

VCA	0	Unknown
VCA	1	Data Not Requested By User

	VCA	2	Area Too Rough to Collect
	VCA	3	No Available Imagery
	VCA	4	Different Height Threshold Within Data Block
	VCA	5	Low Data Collection Criteria
	VCA	6	No Available Map Source
	VCA	7	No Suitable Imagery
	VCA	8	Data Not Required
	VCA	999	Other
VCT	Void Collection Type		
	VCT	0	Unknown
	VCT	1	Relief
	VCT	2	Other

Appendix F. Hydrography Coverage

Spring/Summer/Winter/Fall Water Characteristics Feature Class (*4 feature classes*)

ID

F-CODE/DESCRIPTION

BA000 Water Surface
BA001 Water Column Profile

CRS — Current Rate (Speed)
Current speed in knots.
CRS 0 Actual Value

Units	Format Range	Increment	Max Char
Knots	Floating Point	0.1 KNOT	

DEP — *Depth of Reading*
The depth of the reading below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.
HDP 0 Actual Value

Units	*Format Range*	*Increment*	*Max Char*
Meters	*Floating Point*	*0.1 M*	

HDP — Hydrographic Depth
The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.
HDP 0 Actual Value

Units	Format Range	Increment	Max Char
Meters	Floating Point	0.1 M	

SAL — *Salinity at DEP*
Salinity in parts per thousand.
SAL 0 Actual Value

Units	*Format Range*	*Increment*	*Max Char*
Parts/thousand	*Floating Point*		

SOV — *Sound Speed at DEP*
Sound speed in meters per second.
SOV 0 Actual Value

Units	*Format Range*	*Increment*	*Max Char*
meters/sec	*Floating Point*		

ST1 — *Surface Temperature (month 1)*
Surface Temperature in first month of season.

ST1 0 *Actual Value*

Units	*Format Range*	*Increment*	*Max Char*
deg C	*Floating Point*		

ST2 *Surface Temperature (month 2)*
Surface Temperature in second month of season.
ST2 0 *Actual Value*

Units	*Format Range*	*Increment*	*Max Char*
deg C	*Floating Point*		

ST3 *Surface Temperature (month 3)*
Surface Temperature in third month of season.
ST3 0 *Actual Value*

Units	*Format Range*	*Increment*	*Max Char*
deg C	*Floating Point*		

TEM *Temperature at DEP*
Temperature at specified depth DEP.
TEM 0 *Actual Value*

Units	*Format Range*	*Increment*	*Max Char*
deg C	*Floating Point*		

General Hydrography (except inland) Feature Class

ID

F-CODE/DESCRIPTION

BA040 Water (Except Inland)
An area of water which normally has tidal fluctuations

ARA Area Coverage Attribute
The absolute area within the delineation of the feature.
ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATN Aids to Navigation
ATN 0 Unknown
ATN 1 Marked
ATN 2 Unmarked
ATN 3 Lit
ATN 4 Unlit
ATN 999 Other

CUR Current Type Category
CUR 0 Unknown

CUR	1	Ebb
CUR	2	Flood
CUR	3	General Flow
CUR	4	River Flow
CUR	5	Ocean Flow
CUR	999	Other

CRS — Current Rate (Speed)

Current speed in knots.

CRS	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

DAN — Description of Aids to Navigation

Textual description of aids to navigation marking a feature, e.g. Marked by buoys.

DAN	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

DOF — Direction of Flow

Bearing of movement or direction of the flow.

DOF	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

DR1 — Depth Range Value 1 (minimum depth)

Minimum value of a depth range.

DR1	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short	Integer	0±32,767	1 M

DR2 — Depth Range Value 2 (maximum depth)

Maximum value of a depth range.

DR2	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short	Integer	0±32,767	1 M

DW1 — Depth of Water 1 (predominant depth - first range)

DW1	0	Unknown
DW1	1	≤ 0.8 M
DW1	2	> 0.8 M and ≤ 1.6 M
DW1	3	> 1.6 M and ≤ 2.4 M
DW1	4	> 2.4 M
DW1	5	NA

DW2 — Depth of Water 2 (predominant depth - second range)

DW2	0	Unknown

DW2	1	≤ 1.6 M
DW2	2	> 1.6 M and ≤ 2.4 M
DW2	3	> 2.4 M
DW2	4	NA

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

Coastal Hydrography Feature Class

ID

F-CODE/DESCRIPTION

BA010 Coastline/Shoreline
The line where a land mass is in contact with a body of water

BA020 Foreshore
That part of the shore or beach which lies between the low water mark and the coastline/shoreline. The same condition may exist in non-contiguous off-shore areas.

BA030 Island
A land mass smaller than a continent and surrounded by water.

BA051 Dike Crown
The dike is an artificial embankment to contain or hold back water. The dike crown is the topline of the dike.

AFA Available Facilities

Facilities available at or in the near vicinity.

AFA 0 Unknown
AFA 1 Visitors Berth
AFA 2 Visitors Mooring
AFA 3 Sailmaker
AFA 4 Chandler
AFA 5 Provisions
AFA 6 Physician/Doctor
AFA 7 Pharmacy/Chemist
AFA 8 Drinking Water
AFA 9 Fuel Station
AFA 10 Electricity
AFA 11 Bottle Gas/LPG
AFA 12 Showers

AFA	13	Laundrette
AFA	14	Toilets
AFA	15	Post Box
AFA	16	Public Telephone
AFA	17	Refuse Bin
AFA	18	Water Police
AFA	19	Helipad
AFA	20	Ticket Sales
AFA	21	No Ticket Sales
AFA	22	Yatch Club
AFA	23	Boat Hoist
AFA	24	Boat Yard
AFA	25	Public Inn
AFA	26	Restaurant
AFA	999	Other

ARA — Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA	0	Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ACC — Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

C80 — Rate of Current

Rate of current flow at high water.

C80	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C81 — Rate of Current 1

Rate of current flow 1 hour after high water.

C81	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C82 — Rate of Current 2

Rate of current flow 2 hours after high water.

C82	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C83 Rate of Current 3

Rate of current flow 3 hours after high water.

C83 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C84 Rate of Current 4

Rate of current flow 4 hours after high water.

C84 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C85 Rate of Current 5

Rate of current flow 5 hours after high water.

C85 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C86 Rate of Current 6

Rate of current flow 6 hours after high water.

C86 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C87 Rate of Current 7

Rate of current flow 7 hours after high water.

C87 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C88 Rate of Current 8

Rate of current flow 8 hours after high water.

C88 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C89 Rate of Current 9

Rate of current flow 9 hours after high water.

C89 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C90 Rate of Current 10

Rate of current flow 10 hours after high water.

C90 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C91 Rate of Current 11
Rate of current flow 11 hours after high water.
C91 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CFD Cultural Feature Density
The measure of the concentration of buildings and other cultural features within the delineation of this feature.
CFD 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

COD Certainty of Delineation
COD 0 Unknown
COD 1 Limits and Information Known
COD 2 Limits and Information Unknown

CRN Current Rate Minimum
Minimum speed of current.
CRN 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CRS Current Rate (Speed)
Current speed in knots.
CRS 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CRX Current Rate Maximum
Maximum speed of current.
CRX 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CUR Current Type Category
CUR 0 Unknown
CUR 1 Ebb
CUR 2 Flood
CUR 3 General Flow
CUR 4 River Flow
CUR 5 Ocean Flow
CUR 999 Other

D80 Direction of Current

Direction of current flow at high water.

D80 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D81 Direction of Current 1

Direction of current flow 1 hour after high water.

D81 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D82 Direction of Current 2

Direction of current flow 2 hours after high water.

D82 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D83 Direction of Current 3

Direction of current flow 3 hours after high water.

D83 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D84 Direction of Current 4

Direction of current flow 4 hours after high water.

D84 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D85 Direction of Current 5

Direction of current flow 5 hours after high water.

D85 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D86 Direction of Current 6

Direction of current flow 6 hours after high water.

D86 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D87 Direction of Current 7

Direction of current flow 7 hours after high water.

D87 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D88 Direction of Current 8

Direction of current flow 8 hours after high water.

D88 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D89 Direction of Current 9

Direction of current flow 9 hours after high water.

D89 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D90 Direction of Current 10

Direction of current flow 10 hours after high water.

D90 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D91 Direction of Current 11

Direction of current flow 11 hours after high water.

D91 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural

EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

MAC Maritime Area Category

MAC	0	Unknown
MAC	1	Customs Area
MAC	2	Dredged Channel/ Dredged Area
MAC	3	Harbor Area
MAC	4	Mine Danger Area
MAC	5	Prohibited Shipping Area/Entry Prohibited
MAC	6	Reclamation Area
MAC	7	Restricted Area
MAC	9	Works in progress area
MAC	10	Wire Drag Area/Swept Area
MAC	11	Anchorage (general)
MAC	12	Anchoring Berths
MAC	13	Explosive anchorage
MAC	14	Large Vessel/Deep Water/Deep Draft anchorage
MAC	15	Anchoring Prohibited
MAC	16	Quarantine anchorage
MAC	17	Reserved Anchorage
MAC	18	Small Vessel Anchorage/Marina
MAC	19	Tanker Anchorage
MAC	20	Submarine Cable Area
MAC	21	Pipeline Area
MAC	22	Fishing Prohibited
MAC	23	Cable and Pipeline Area
MAC	24	Turning Area / Swinging Circle
MAC	25	Spoil Area / Spoil Ground

MAC	26	Unsurveyed Area
MAC	27	Submarine Exercise Area
MAC	28	Mine Laying Practice Area
MAC	29	Firing Danger Area
MAC	30	Dumping Ground for Hazardous Materials
MAC	31	Incineration Area
MAC	32	Oil field
MAC	33	Gas Field
MAC	34	Historic Wreck
MAC	35	Explosive Dumping Ground
MAC	36	Former Mine Danger Area
MAC	37	Safety Zone
MAC	38	Chemical field
MAC	39	Separation Zone
MAC	40	Roundabout Zone (TSS)
MAC	41	Inshore Traffic Zone (TSS)
MAC	42	Precautionary Area
MAC	43	Areas to be avoided
MAC	44	Degaussing Range
MAC	45	Outfall area
MAC	46	Intake area
MAC	47	Fish Haven/Protected Area
MAC	48	Pilot Boarding Area
MAC	49	Cargo Transshippment Area
MAC	50	Red Rocks
MAC	51	Laterite
MAC	52	Evaporites
MAC	53	Seaplane
MAC	54	Time Limited
MAC	55	Fairway
MAC	56	Fish Trap Area
MAC	57	Marine farm
MAC	58	Dredging area
MAC	61	Sewer Area
MAC	79	Free Port Area
MAC	80	Fish Sanctuary
MAC	81	Degaussing Range
MAC	82	Development Area
MAC	83	Diving prohibited zone
MAC	84	Danger of stranding area
MAC	85	Navigational aid safety zone
MAC	86	Historic wreck restricted area
MAC	87	Seal sanctuary
MAC	88	Game preserve
MAC	89	Bird sanctuary
MAC	90	Nature preserve
MAC	91	Practice area in general
MAC	92	Torpedo practice area
MAC	93	Anchorage for up to 24 hours
MAC	94	Small craft mooring area
MAC	95	Seaplane anchorage
MAC	96	Unrestricted anchorage
MAC	97	Crossing (TSS)
MAC	98	Offshore Production Area

MAC	99	Dock Area
MAC	999	Other

MED Median Category

MED	0	Unknown
MED	1	With Median
MED	2	Without Median
MED	998	Not Applicable
MED	999	Other

NAM Name

Any Identifier or code.

NAM	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

PRO Product Category

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil
PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge
PRO	116	Water
PRO	128	Refuse
PRO	130	None
PRO	132	Not Applicable
PRO	133	Telecommunications
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

RDT Road Type

RDT	0	Unknown
RDT	1	Street
RDT	2	Rapid transit
RDT	3	Laneway
RDT	4	Service Lane
RDT	998	Not applicable
RDT	999	Other

RST Road/Runway Surface Type

	RST	0	Unknown
	RST	1	Hard /Paved
	RST	2	Loose /Unpaved
	RST	3	Loose /Light
	RST	4	Corduroy
	RST	5	Grass/Sod (Soft)
	RST	6	Natural
	RST	7	Permanent
	RST	8	Temporary
	RST	998	Not Applicable
	RST	999	Other

RTC Road Type Category

	RTC	0	Unknown
	RTC	1	NATO Category X
	RTC	2	NATO Category Y
	RTC	3	NATO Category Z

SEA Sea Area Category

	SEA	0	Undefined
	SEA	1	Sea area in general
	SEA	2	Gat
	SEA	3	Bank
	SEA	4	Deep
	SEA	5	Bay
	SEA	6	Beach
	SEA	7	Basin
	SEA	8	Watt

SHO Shoreline Category

	SHO	1	Hillocks
	SHO	2	Flat
	SHO	3	Sandy
	SHO	4	Stony or shingly shore
	SHO	5	Artificial

SLT Shoreline Type

	SLT	0	Unknown
	SLT	6	Mangrove/Nipa
	SLT	8	Marsh, Swamp
	SLT	10	Rocky
	SLT	11	Rubble
	SLT	14	Stony, Shingly
	SLT	15	Other

SMC Surface Material Category

	SMC	120	Sand and Gravel
	SMC	121	Rip-rap
	SMC	198	Kelp
	SMC	199	Sandwaves

SRD Surface Roughness Description

	SRD	0	Unknown
	SRD	1	No surface roughness effect

SRD	2	Area of high landslide potential
SRD	3	Uncohesive surface material/flat
SRD	4	Rough
SRD	5	Angular
SRD	6	Rounded
SRD	11	Surface of numerous cobbles and boulders
SRD	12	Areas of stony terrain
SRD	13	Stony soil with surface rock
SRD	14	Stony soil with scattered boulders
SRD	15	Stony soil with numerous boulders
SRD	16	Numerous boulders
SRD	17	Numerous rock outcrops and/or stony soil
SRD	18	Area of scattered boulders
SRD	19	Talus slope
SRD	20	Boulder Fields
SRD	31	Highly fractured rock surface
SRD	32	Weathered lava flows
SRD	33	Unweathered lava flows
SRD	34	Stony soil with numerous rock outcrops
SRD	35	Irregular surface with deep fractures of foliation
SRD	36	Rugged terrain with numerous rock outcrops
SRD	37	Rugged bedrock surface
SRD	38	Sand dunes
SRD	39	Sand dunes / low
SRD	40	Sand dunes/ high
SRD	41	Active sand dunes
SRD	42	Stabilized sand dunes
SRD	43	Highly distorted area, sharp rocky ridges
SRD	51	Stony soil cut by numerous gullies
SRD	52	Moderately dissected terrain
SRD	53	Moderately dissected terrain with scattered rock outcrops
SRD	54	Dissected floodplain
SRD	55	Highly dissected terrain
SRD	56	Area with deep erosional gullies
SRD	57	Steep, rugged, dissected terrain with narrow gullies
SRD	58	Karst/areas of numerous sinkholes and solution valleys
SRD	59	Karst/area of numerous sinkholes
SRD	60	Karst/hummocky terrain covered with large conical hills
SRD	61	Karst/hummocky terrain covered with low, broad-based mounds
SRD	62	Arroyo/wadi/wash
SRD	63	Playa/dry lake
SRD	64	Area of numerous meander scars and/or oxbow lakes
SRD	65	Solifluction lobes and frost scars
SRD	66	Hummocky ground, areas of frost heaving
SRD	67	Area of frost polygons
SRD	68	Area containing sabkhas
SRD	69	Area of numerous small lakes and ponds
SRD	70	Area of numerous crevasses
SRD	81	Area of numerous terraces
SRD	82	Quarries
SRD	83	Strip mines
SRD	84	Quarry/gravel pit
SRD	85	Quarry/sand pit

	SRD	86	Mine tailings/waste piles
	SRD	87	Salt evaporators
	SRD	88	Area of numerous dikes
	SRD	89	Area of numerous diked fields
	SRD	90	Area of numerous fences
	SRD	91	Area of numerous stone walls
	SRD	92	Area of numerous man-made canals/drains/ditches
	SRD	93	Area of numerous terraced fields
	SRD	94	Parallel earthen mounds (row crops)
	SRD	95	Area of numerous hedgerows
TID	Tidal/Non-Tidal Category		
	TID	1	Non-Tidal
	TID	2	Tidal / Tidal fluctuating
TRA	Traversability		
	TRA	0	Unknown
	TRA	1	Traversability
	TRA	2	Non-Traversable
	TRA	999	Other
TUC	Transportation Use Category		
	TUC	0	Unknown
	TUC	1	Both Road and Railroad
	TUC	2	Highway
	TUC	3	Railroad
	TUC	4	Road
	TUC	6	Street
	TUC	7	Through Routes
	TUC	8	Air Traffic Control
	TUC	12	Marine
	TUC	13	Air
	TUC	14	Bus
	TUC	17	Pedestrian
	TUC	18	Pipeline
	TUC	19	Animal
	TUC	20	Aircraft
	TUC	21	Ship
	TUC	22	Automotive
	TUC	23	Boat
	TUC	24	Bulk Motor Boat/Barge
	TUC	25	VALUE INTENTIONALLY LEFT BLANK
	TUC	26	Passenger
	TUC	27	Chair lift
	TUC	28	Ski tow
	TUC	29	Sleigh tow
	TUC	30	Cart tow
	TUC	31	Motor Cycle
	TUC	32	Bicycle
	TUC	33	Minerals
	TUC	34	Waterway
	TUC	35	No Transport Use
	TUC	36	Slip Road/Access Road
	TUC	37	Portage

TUC	38	Canal
TUC	39	Caravan Route
TUC	40	Subway
TUC	999	Other

VDC Vertical Datum Category

The reference line (0 elevation) from which heights and depths are measured.

VDC	0	Unknown
VDC	1	VALUE INTENTIONALLY LEFT BLANK
VDC	2	High Water
VDC	3	Higher High Water
VDC	4	Indian Spring Low Water
VDC	5	Low Water
VDC	6	Lower Low Water
VDC	7	Mean High Water
VDC	8	Mean High Water Neaps
VDC	9	Mean High Water Springs
VDC	10	Mean Higher High Water
VDC	11	Mean Low Water
VDC	12	Mean Low Water Neaps
VDC	13	Mean Low Water Springs
VDC	14	Mean Lower Low Water
VDC	15	Mean Sea Level
VDC	16	Mean Tide Level
VDC	17	Neap Tide
VDC	18	Spring Tide
VDC	19	Mean Lower Low Water Springs
VDC	20	Lowest Astronomical Tide
VDC	21	Chart Datum (Unspecified)
VDC	22	Highest Astronomical Tide
VDC	24	Mean Higher Water
VDC	26	Highest Normal High Water
VDC	28	Highest High Water
VDC	30	Indian Spring High Water
VDC	90	Lowest low water
VDC	91	Lowest low water springs
VDC	92	Approximate mean low water springs
VDC	93	Low water springs
VDC	94	Approximate lowest astronomical tide
VDC	95	Nearly lowest low water
VDC	96	Approximate mean low water
VDC	97	Approximate mean lower low water
VDC	98	Approximate mean sea level
VDC	99	High water springs
VDC	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

Ports and Harbors Feature Class

ID

F-CODE/DESCRIPTION

BB005 Harbor
A natural or artificial improved body of water providing protection for vessels and anchorage and docking facilities.

BB010 Anchorage
An area of water where vessels anchor or may anchor

BB012 Anchor Berth
A designated area of water where a single vessel, sea plane, oil rig, etc. is anchored or may anchor

BB020 Berth
The place where a ship lies when secured to a pier, wharf, dolphin, or dock. It may be a designated place away from the coast line.

BB022 Basin
An enclosure containing water for a dock for ships.

BB042 Mole
A loading and discharge place for vessels. It is usually a substantial masonry structure, and often serves as a breakwater on its outer side while offering facilities for ships in its inner side.

BB090 Dry-dock
A structure, providing support for a vessel, which has a means of removing water so that the bottom of the vessel can be exposed.

BB115 Gridiron
A flat frame, usually of parallel timber baulks, erected on the foreshore so that a vessel may dry out on it for painting or repair at low water.

BB190 Pier/Wharf/Quay
A structure primarily used as berthing places for vessels.

BB199 Floating Dock
A dock which normally consists of a bottom pontoon, on which a ship can be lifted out of the water and two side walls to give stability to the bottom pontoon.

BB200 Pump Out Facility
A place on land where ships can pump out waste liquids.

BB201 Small Craft Facility
An installation with a certain function or service generally of interest for small craft or pleasure boats.

BB220 Ramp (Maritime)
A partially submerged hard surfaced area of a shoreline for launching and retrieving vessels or vehicles.

BB240 Slipway/Patent Slip
A prepared slope for launching and recovering vessels.

BB250 Watering Place
A place where vessels can replenish their water supply.

BI005 Boat Lift
A mechanical device for lifting vessels between two levels other than a lock.

AFA Available Facilities

Facilities available at or in the near vicinity.

AFA	0	Unknown
AFA	1	Visitors Berth
AFA	2	Visitors Mooring
AFA	3	Sailmaker
AFA	4	Chandler
AFA	5	Provisions
AFA	6	Physician/Doctor
AFA	7	Pharmacy/Chemist
AFA	8	Drinking Water
AFA	9	Fuel Station
AFA	10	Electricity
AFA	11	Bottle Gas/LPG
AFA	12	Showers
AFA	13	Laundrette
AFA	14	Toilets
AFA	15	Post Box
AFA	16	Public Telephone
AFA	17	Refuse Bin
AFA	18	Water Police
AFA	19	Helipad
AFA	20	Ticket Sales
AFA	21	No Ticket Sales
AFA	22	Yatch Club
AFA	23	Boat Hoist
AFA	24	Boat Yard
AFA	25	Public Inn
AFA	26	Restaurant
AFA	999	Other

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

BER Berth Identifier

The designated number or letter used to identify this feature.

BER	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

BMC Bottom Materials Composition

BMC	0	Unknown
BMC	1	Clay and Silt
BMC	2	Silty Sands
BMC	3	Sand and Gravel
BMC	4	Gravel and Cobble
BMC	5	Rocks and Boulders
BMC	6	Bedrock
BMC	7	Paved
BMC	8	Peat
BMC	9	Sand over mud
BMC	10	Mixed qualities
BMC	11	Coral
BMC	12	Slash
BMC	13	Seamount
BMC	14	Sand

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COD Certainty of Delineation

COD	0	Unknown
COD	1	Limits and Information Known
COD	2	Limits and Information Unknown

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate

EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FHC Harbor Facility Classification

FHC	0	Undefined
FHC	1	Ro-Ro terminal (Roll on, Roll off)
FHC	2	Timber yard
FHC	3	Ferry Terminal
FHC	4	Fishing harbor
FHC	5	Yacht harbor/marina
FHC	6	Naval base
FHC	7	Tanker terminal
FHC	8	Passenger terminal
FHC	9	Shipyard
FHC	10	Container terminal

FTR Feature Rate

A quantified rate associated with a featue (e.g. Cars crossing a Bridge—AQ040). Units will be qualified using a structured text approach (e.g. 100(cars)[crossing bridge per hour] where the type of unit is in parentheses ( ) and a unit qualifier is in brackets [ ].)

FTR	0	Actual value

Units	Format	Range	Increment	Max Char
Structured Text	ASCII Text			80

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

ICC Ice Classification

ICC	0	Undefined
ICC	1	Fast ice
ICC	2	Sea ice
ICC	3	Growler area
ICC	4	Pancake ice
ICC	5	Glacier (see BJ030)
ICC	6	Ice Peak (see BJ060)
ICC	7	Pack ice (see BJ070)
ICC	8	Polar ice (see BJ080)
ICC	9	Debris-covered
ICC	999	Other

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ³ 20 Meters but < 30 Meters
LOC	7	Covered > = 30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom

	LOC	24	Suspended or elevated above sea bottom
	LOC	25	Suspended/Elevation above Ground or Water Surface
	LOC	28	Masts and Funnel Showing
	LOC	30	Non-Floating
	LOC	31	Elevated
	LOC	32	Depressed
	LOC	33	Not submerged
	LOC	34	Inland
	LOC	35	Overhead
	LOC	36	Height Above Bottom
	LOC	37	Exact Position Known
	LOC	38	Exact Position Unknown
	LOC	39	Depth Unknown
	LOC	998	Not applicable
	LOC	999	Other

MAC Maritime Area Category

MAC	0	Unknown
MAC	1	Customs Area
MAC	2	Dredged Channel/ Dredged Area
MAC	3	Harbor Area
MAC	4	Mine Danger Area
MAC	5	Prohibited Shipping Area/Entry Prohibited
MAC	6	Reclamation Area
MAC	7	Restricted Area
MAC	9	Works in progress area
MAC	10	Wire Drag Area/Swept Area
MAC	11	Anchorage (general)
MAC	12	Anchoring Berths
MAC	13	Explosive anchorage
MAC	14	Large Vessel/Deep Water/Deep Draft anchorage.
MAC	15	Anchoring Prohibited
MAC	16	Quarantine anchorage
MAC	17	Reserved Anchorage
MAC	18	Small Vessel Anchorage/Marina
MAC	19	Tanker Anchorage
MAC	20	Submarine Cable Area
MAC	21	Pipeline Area
MAC	22	Fishing Prohibited
MAC	23	Cable and Pipeline Area
MAC	24	Turning Area / Swinging Circle
MAC	25	Spoil Area / Spoil Ground
MAC	26	Unsurveyed Area
MAC	27	Submarine Exercise Area
MAC	28	Mine Laying Practice Area
MAC	29	Firing Danger Area
MAC	30	Dumping Ground for Hazardous Materials
MAC	31	Incineration Area
MAC	32	Oil field
MAC	33	Gas Field
MAC	34	Historic Wreck
MAC	35	Explosive Dumping Ground
MAC	36	Former Mine Danger Area
MAC	37	Safety Zone

MAC	38	Chemical field
MAC	39	Separation Zone
MAC	40	Roundabout Zone (TSS)
MAC	41	Inshore Traffic Zone (TSS)
MAC	42	Precautionary Area
MAC	43	Areas to be avoided
MAC	44	Degaussing Range
MAC	45	Outfall area
MAC	46	Intake area
MAC	47	Fish Haven/Protected Area
MAC	48	Pilot Boarding Area
MAC	49	Cargo Transshippment Area
MAC	50	Red Rocks
MAC	51	Laterite
MAC	52	Evaporites
MAC	53	Seaplane
MAC	54	Time Limited
MAC	55	Fairway
MAC	56	Fish Trap Area
MAC	57	Marine farm
MAC	58	Dredging area
MAC	61	Sewer Area
MAC	79	Free Port Area
MAC	80	Fish Sanctuary
MAC	81	Degaussing Range
MAC	82	Development Area
MAC	83	Diving prohibited zone
MAC	84	Danger of stranding area
MAC	85	Navigational aid safety zone
MAC	86	Historic wreck restricted area
MAC	87	Seal sanctuary
MAC	88	Game preserve
MAC	89	Bird sanctuary
MAC	90	Nature preserve
MAC	91	Practice area in general
MAC	92	Torpedo practice area
MAC	93	Anchorage for up to 24 hours
MAC	94	Small craft mooring area
MAC	95	Seaplane anchorage
MAC	96	Unrestricted anchorage
MAC	97	Crossing (TSS)
MAC	98	Offshore Production Area
MAC	99	Dock Area
MAC	999	Other

MCC Material Composition Category

MCC	21	Concrete
MCC	62	Masonry (Brick/Stone)
MCC	77	Prestressed Concrete
MCC	999	Other

NAM Name

Any Identifier or code.

NAM	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

OPC Offshore Platform Classification

OPC	0	Undefined
OPC	1	Oil derrick / rig
OPC	2	Production platform
OPC	3	Observation / research platform
OPC	4	Articulated loading platform (ALP)
OPC	5	Single anchor leg mooring (SALM)
OPC	6	Mooring tower
OPC	7	Artificial island

PDR Pedestrian Rate

Number of pedestrians per time unit (this attribute utilizes the structured text approach), e.g. 10(persons)[per hour].

PDR	0	Actual Value

Units	Format	Range	Increment	Max Char
Structured Text	ASCII Text			80

PRC Periodic Restriction Category

PRC	1	Perennially Open, Not Subject to Ice
PRC	2	Subject to Ice
PRC	3	Permanent Ice
PRC	4	Seasonal limit - Jan.
PRC	5	Seasonal limit - Feb.
PRC	6	Seasonal limit - Mar.
PRC	7	Seasonal limit - Apr.
PRC	8	Seasonal limit - May
PRC	9	Seasonal limit - Jun.
PRC	10	Seasonal limit - Jul.
PRC	11	Seasonal limit - Aug.
PRC	12	Seasonal limit - Sep.
PRC	13	Seasonal limit - Oct.
PRC	14	Seasonal limit - Nov.
PRC	15	Seasonal limit - Dec.
PRC	16	Closed
PRC	999	Other

SGO Slope Gradient Orientatiion

The angular distance measured from true north (0 degrees) clockwise to the direction of maximum uphill slope of a feature.

SGO	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

SMC Surface Material Category

SMC	120	Sand and Gravel
SMC	121	Rip-rap
SMC	198	Kelp
SMC	199	Sandwaves

TIM Time Attribute

The time, expressed in hours of duration, for which an activity is permitted.

TIM 0 Actual Value

Units	Format	Range	Increment	Max Char
Hours	Short Integer	0 - 24	1 H	

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	1	VALUE INTENTIONALLY LEFT BLANK
USE	2	VALUE INTENTIONALLY LEFT BLANK
USE	3	VALUE INTENTIONALLY LEFT BLANK
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	9	VALUE INTENTIONALLY LEFT BLANK
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural

USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional

USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

VEC Vehicle Capacity

Number of vehicles that a feature can accommodate.

VEC	0	Actual Value

Units	Format	Range	Increment	Max Char
Vehicles	Short Integer	0±32,767	1 VEHICLE	

VRR Vertical Reference Category

Relative location referenced to sounding datum, unless otherwise indicated.

VRR	0	Unknown
VRR	1	Above Surface/Does not cover (At High Water)
VRR	2	Awash at Sounding Datum
VRR	4	Below Surface/Submerged
VRR	8	Covers and Uncovers
VRR	9	Not Applicable

WAS *Waste Liquids*

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For

a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-Value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

Miscellaneous Mooring Structures and Interests Feature Class

ID

F-CODE/DESCRIPTION

BB019 Anchor
An anchor is a heavy forging usually comprising a shank with a large shackle or ring at one end and two arms with palms at the other. Shaped as to grip the sea bottom, and by means of a cable or rope, it holds a vessel, boat, or any other floating structure in place.

BB030 Bollard
A post on a wharf used for fastening mooring lines.

BB040 Breakwater/Groyne
A structure which protects a harbor or beach from forces of the sea.

BB050 Calling-In Point
A specified point some distance from the harbor at which a vessel's navigator notifies the harbor authority of the ship's position.

BB079 Mooring/Warping Facility
A structure used for mooring/warping a ship or as protection for harbor constructions

BB080 Dolphin
A post or group of post used for mooring, warping a ship or as an aid to navigation.

BB081 Shoreline Construction
A fixed (not afloat) artificial structure attached to the land. Shoreline constructions are normally used for berthing and protection.

BB100 Fish Stakes
Poles or stakes placed in shallow water to catch fish.

BB105 Fishing Harbor
A harbor which is primarily used by fishing vessels.

BB110 Fish Traps/Fish Weirs
A fence or enclosure set in water to catch fish.

BB111 Tunny (Tuna) Nets Area
An area where nets used for catching tuna may be found

BB140 Jetty
A man-made barrier built out into, or in the water primarily to restrain or direct currents and waves.

BB150 Landing Place

A place on shore where landing from the sea is possible.

BB151 Landing Stairs
Steps at the shoreline as the connection between land and water on different levels

BB160 Mooring Ring
A metal ring attached to a structure and used to secure a vessel.

BB170 Offshore Loading Facility
A facility located offshore for loading and unloading cargo.

BB180 Oyster Bed/Mussel Bed
A place in shallow water where oysters and mussels breed and may be cultivated.

BB230 Seawall
A structure built to protect the shore from erosion.

SU003 Port Facility
A building or section of building that is established to serve a particular purpose for water vehicles.

AOO Angle of Orientation
The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

ATN 0 Unknown
ATN 1 Marked
ATN 2 Unmarked
ATN 3 Lit
ATN 4 Unlit
ATN 999 Other

BFC Building Function Category
Type or purpose of the building.

BFC 0 Unknown
BFC 1 Fabrication Structures
BFC 2 Government Building
BFC 3 Capitol Building
BFC 4 Castle
BFC 5 Government Administration Building
BFC 6 Hospital
BFC 7 House of Worship
BFC 8 Military Administration /Operations Building
BFC 9 Museum
BFC 10 Observatory
BFC 11 Palace
BFC 12 Police Station
BFC 13 Prison
BFC 14 Ranger Station
BFC 15 School
BFC 16 House
BFC 17 Multi Unit Dwelling

BFC	18	Cemetery Building
BFC	19	Farm Building
BFC	20	Greenhouse
BFC	21	Garage
BFC	22	Watermill /Gristmill
BFC	23	Wind Tunnel
BFC	24	Warehouse
BFC	25	Roundhouse
BFC	26	Railroad Storage /Repair Facility
BFC	27	Depot Terminal
BFC	28	Administration Building
BFC	29	Aircraft Maintenance Shop
BFC	30	Hangar
BFC	31	Customs House
BFC	33	Health Office
BFC	34	Firing Range
BFC	35	Post Office
BFC	36	Barracks/Dormitory
BFC	37	Fire Station
BFC	38	Jail
BFC	39	Guardhouse
BFC	40	Telephone Switching Station
BFC	50	Church
BFC	51	Market
BFC	52	Town Hall
BFC	53	Bank
BFC	54	Service/Refueling Station
BFC	55	Yacht Club/Sailing Club
BFC	56	Public Inn
BFC	57	Restaurant
BFC	58	Observation
BFC	59	Research and Development Lab/Research Facility
BFC	60	University/College
BFC	61	Courthouse
BFC	62	Legation
BFC	63	Mission
BFC	64	Chancery
BFC	65	Ambassadorial Residence
BFC	66	Embassy
BFC	67	Consulate
BFC	68	Guard House
BFC	69	Guard Shack/Guard Room
BFC	70	Kennel
BFC	71	Oil Mill (Vegetable)
BFC	72	Aerator
BFC	73	Carpentry
BFC	74	Saw-mill
BFC	75	Kiln/Oven
BFC	76	Signal Box/Railway Signalman's House
BFC	77	Harbor Masters Office
BFC	78	Marine Police
BFC	79	Rescue
BFC	80	Port Control
BFC	81	Maritime Station

BFC	82	Lighthouse
BFC	83	Power Generation
BFC	84	Filtration Plant
BFC	85	News Paper Plant
BFC	86	Telephone Exchange (Main)
BFC	87	Auditorium
BFC	88	Opera House
BFC	89	Processing/Treatment
BFC	90	Pumphouse
BFC	91	Mobile Home
BFC	92	Weather Station
BFC	93	Dependents Housing/Bivouac Area
BFC	94	Railroad Station
BFC	95	Hotel
BFC	96	Diplomatic Building
BFC	97	Trading Post
BFC	98	Shed
BFC	99	Battery
BFC	100	Medical Center
BFC	101	Municipal Hall
BFC	102	Oil/Gas Facilities Building
BFC	103	Outbuilding
BFC	104	Paper/Pulp Mill
BFC	105	Reformatory
BFC	106	Sanitorium
BFC	107	Satellite Tracking Station
BFC	108	Seminary
BFC	109	Senior Citizen's Home
BFC	110	Shipyard
BFC	111	Sportsplex
BFC	112	Steel Mill
BFC	113	Weigh Scale (Highway)
BFC	114	Non-Christian Place of Worship
BFC	115	Hostel
BFC	116	Factory
BFC	117	Motel
BFC	118	Community Center
BFC	119	City Hall
BFC	120	Automobile Plant
BFC	121	Armory
BFC	122	Shopping Center
BFC	123	Correctional Institute
BFC	124	Repair Facility
BFC	125	Barn/Machinery Shed
BFC	126	Astronomical Station
BFC	127	Theater
BFC	128	Library
BFC	723	Combined Fire and Police Station
BFC	999	Other

CCC Color Code Category

CCC	0	Unknown
CCC	1	Black
CCC	2	Blue

CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	8	VALUE INTENTIONALLY LEFT BLANK
CCC	9	Orange
CCC	10	VALUE INTENTIONALLY LEFT BLANK
CCC	11	VALUE INTENTIONALLY LEFT BLANK
CCC	12	Red
CCC	13	VALUE INTENTIONALLY LEFT BLANK
CCC	14	Violet
CCC	15	White
CCC	16	VALUE INTENTIONALLY LEFT BLANK
CCC	17	VALUE INTENTIONALLY LEFT BLANK
CCC	18	VALUE INTENTIONALLY LEFT BLANK
CCC	19	Yellow
CCC	20	Red & White (RW)
CCC	21	Red & Green (RG)
CCC	22	Red & Black (RB)
CCC	23	Red-Green-Red (RGR)
CCC	24	Green & White (GW)
CCC	25	Green & Red (GR)
CCC	26	Green & Black (GB)
CCC	27	Green-Red-Green (GRG)
CCC	28	Green-Yellow-Black (GYB)
CCC	29	Yellow & Black (YB)
CCC	30	Yellow-Black-Yellow (YBY)
CCC	31	Yellow & Red (YR)
CCC	32	Yellow & Green (YG)
CCC	33	Yellow-Red-White (YRW)
CCC	34	Black & Yellow (BY)
CCC	35	Black-Yellow-Black (BYB)
CCC	36	Black-Red-Black (BRB)
CCC	37	Black & White (BW)
CCC	38	Black & Red (BR)
CCC	39	Black & Green (BG)
CCC	40	White & Red (WR)
CCC	41	White & Orange (W Or)
CCC	42	White & Green (WG)
CCC	43	White & Black (WB)
CCC	44	White & Yellow (WY)
CCC	45	White-Red-Green (WRG)
CCC	46	White-Green-White (WGW)
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	50	Nautical Purple
CCC	999	Other

CHA Light Characteristic Category

The sequence, grouping, and distinctive character of light.

CHA	0	Unknown
CHA	1	Alternating
CHA	2	Composite Group Flashing

CHA	3	Composite Group Occulting
CHA	4	Ultra Quick
CHA	5	Fixed
CHA	6	Fixed and Flashing
CHA	7	Fixed and Group Flashing
CHA	8	Flashing
CHA	9	Group Flashing
CHA	10	Group Occulting
CHA	11	Interrupted Quick Flashing
CHA	12	Interrupted Ultra Quick
CHA	13	Interrupted Very Quick
CHA	14	Isophase
CHA	15	Long-Flashing
CHA	16	Morse Code
CHA	17	Occulting
CHA	19	VALUE INTENTIONALLY LEFT BLANK
CHA	20	VALUE INTENTIONALLY LEFT BLANK
CHA	21	Lighted
CHA	22	VALUE INTENTIONALLY LEFT BLANK
CHA	23	Unlighted
CHA	24	VALUE INTENTIONALLY LEFT BLANK
CHA	25	VALUE INTENTIONALLY LEFT BLANK
CHA	26	VALUE INTENTIONALLY LEFT BLANK
CHA	27	VALUE INTENTIONALLY LEFT BLANK
CHA	28	Group Quick Flashing
CHA	29	Group Very Quick
CHA	30	Very Quick
CHA	31	Quick
CHA	32	VALUE INTENTIONALLY LEFT BLANK
CHA	33	Intensified
CHA	34	VALUE INTENTIONALLY LEFT BLANK
CHA	35	VALUE INTENTIONALLY LEFT BLANK
CHA	36	Directional
CHA	37	VALUE INTENTIONALLY LEFT BLANK
CHA	38	VALUE INTENTIONALLY LEFT BLANK
CHA	39	VALUE INTENTIONALLY LEFT BLANK
CHA	40	VALUE INTENTIONALLY LEFT BLANK
CHA	41	VALUE INTENTIONALLY LEFT BLANK
CHA	42	VALUE INTENTIONALLY LEFT BLANK
CHA	43	Directional Moiré
CHA	44	Quick flashing
CHA	45	very quick flashing
CHA	46	Flash / long flash
CHA	47	Occulting / flash
CHA	48	Fixed / long flash
CHA	49	Occulting alternating
CHA	50	Long flash alternating
CHA	51	Flash alternating
CHA	52	Group alternating
CHA	53	2 fixed (vertical)
CHA	54	2 fixed (horizontal)
CHA	55	3 fixed (vertical)
CHA	56	3 fixed (horizontal)
CHA	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)

EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

DF1 Direction of Traffic - 1

Direction of traffic, first occurrence.

DF1 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

DF2 Direction of Traffic - 2

Direction of traffic, second occurrence.

DF2 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

DF3 Direction of Traffic - 3

Direction of traffic, third occurrence.

DF3 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

DF4 Direction of Traffic - 4

Direction of traffic, fourth occurrence.

DF4 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

FTR Feature Rate

A quantified rate associated with a featue (e.g. Cars crossing a Bridge—AQ040). Units will be qualified using a structured text approach (e.g. 100(cars)[crossing bridge per hour] where the type of unit is in parentheses ( ) and a unit qualifier is in brackets [ ].)

FTR 0 Actual value

Units	Format	Range	Increment	Max Char
Structured Text	ASCII Text			80

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥ 30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

MAS Maintainence Status

Indicates whether the feature is maintained.

MAS	1	Maintained
MAS	2	Not Maintained

MCC Material Composition Category

MCC	21	Concrete
MCC	77	Prestressed Concrete
MCC	107	Steel
MCC	117	Wood
MCC	*118*	*Creosoted Timber*
MCC	999	Other

MWF Mooring/Warping Facility Classification

MWF	1	Undefined
MWF	2	Dolphin
MWF	3	Deviation dolphin
MWF	4	Bollard

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

NSP *Number of Steps*

PDR Pedestrian Rate

Number of pedestrians per time unit (this attribute utilizes the structured text approach), e.g. 10(persons)[per hour].

PDR 0 Actual Value

Units	Format	Range	Increment	Max Char
Structured Text	ASCII Text			80

PRO Product Category

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil
PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge
PRO	116	Water
PRO	128	Refuse
PRO	130	None
PRO	132	Not Applicable

PRO	133	Telecommunications
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

SGC Gradient/Slope

Percentage of slope. (i.e. The change in height divided by the horizontal distance over which the change takes place, times one hundred ((h2-h1)/d)*100.)

SGC	0	Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

SSC Structure Shape Category

Geometric form, appearance, or configuration of the feature.

SSC	0	Unknown
SSC	1	Barrel, Ton
SSC	2	Blimp
SSC	3	Boat Hull (Float)
SSC	4	Bullet
SSC	5	VALUE INTENTIONALLY LEFT BLANK
SSC	6	Conical /Peaked/NUN
SSC	7	Cylindrical (Upright)/CAN
SSC	9	VALUE INTENTIONALLY LEFT BLANK
SSC	10	Pillar, Spindle
SSC	11	VALUE INTENTIONALLY LEFT BLANK
SSC	12	Pyramid
SSC	13	VALUE INTENTIONALLY LEFT BLANK
SSC	14	VALUE INTENTIONALLY LEFT BLANK
SSC	15	Solid/filled
SSC	16	Spar
SSC	17	Spherical (Hemispherical)
SSC	18	Truss
SSC	19	With Radome
SSC	20	VALUE INTENTIONALLY LEFT BLANK
SSC	21	Artificial Mountain
SSC	22	Crescent
SSC	23	Ferris Wheel
SSC	24	Enclosed
SSC	25	Roller coaster
SSC	26	Lateral
SSC	27	Mounds
SSC	28	Ripple
SSC	29	Star
SSC	30	Transverse
SSC	31	VALUE INTENTIONALLY LEFT BLANK
SSC	33	VALUE INTENTIONALLY LEFT BLANK
SSC	34	VALUE INTENTIONALLY LEFT BLANK
SSC	35	VALUE INTENTIONALLY LEFT BLANK
SSC	36	Windmotor
SSC	38	VALUE INTENTIONALLY LEFT BLANK
SSC	40	VALUE INTENTIONALLY LEFT BLANK
SSC	46	Open

SSC	52	'A' Frame
SSC	53	'H' Frame
SSC	54	'I' Frame
SSC	56	'Y' Frame
SSC	57	VALUE INTENTIONALLY LEFT BLANK
SSC	58	VALUE INTENTIONALLY LEFT BLANK
SSC	59	Telescoping Gasholder (Gasometer)
SSC	60	Mast
SSC	61	Tripod
SSC	62	VALUE INTENTIONALLY LEFT BLANK
SSC	63	VALUE INTENTIONALLY LEFT BLANK
SSC	65	Cylindrical with flat top
SSC	66	Cylindrical with domed top
SSC	71	Cylindrical/Peaked
SSC	73	Superbuoy
SSC	74	'T' Frame
SSC	75	Tetrahedron
SSC	76	Funnel
SSC	77	Arch
SSC	78	Multi-Arch
SSC	79	Round
SSC	80	Rectangular
SSC	81	Dragons Teeth
SSC	82	I-Beam
SSC	83	Square
SSC	84	Irregular
SSC	85	Diamond Shaped Buoy
SSC	86	Oval
SSC	87	Dome
SSC	107	Tower
SSC	108	Scanner
SSC	109	Obelisk
SSC	999	Other

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	1	VALUE INTENTIONALLY LEFT BLANK
USE	2	VALUE INTENTIONALLY LEFT BLANK
USE	3	VALUE INTENTIONALLY LEFT BLANK
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	9	VALUE INTENTIONALLY LEFT BLANK
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard

USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points

USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

VEC Vehicle Capacity

Number of vehicles that a feature can accommodate.

VEC	0	Actual Value

Units	Format	Range	Increment	Max Char
Vehicles	Short Integer	0±32,767	1 VEHICLE	

VRR Vertical Reference Category

Relative location referenced to sounding datum, unless otherwise indicated.

VRR	0	Unknown
VRR	1	Above Surface/Does not cover (At High Water)
VRR	2	Awash at Sounding Datum
VRR	4	Below Surface/Submerged
VRR	8	Covers and Uncovers
VRR	9	Not Applicable

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

WLE Water Level Effect

Encodes the possible effects of the surrounding water.

WLE	0	Unknown
WLE	1	Partly submerged at high water
WLE	2	Always dry
WLE	3	Always under water/submerged
WLE	4	Covers and uncovers
WLE	5	Awash
WLE	6	Drying

ZV2 Highest Z-Value

Elevation above a given datum to the highest portion of the feature.

ZV2	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

NAVAIDs Feature Class

ID

F-CODE/DESCRIPTION

BC010	Beacon
BC020	Buoy
BC030	Leading Light(s)
	Two or more lights forming a leading line of a course to be followed.)
BC035	Lights in Line

Lights marking area limits, cable alignment, alignments for anchoring, etc., not marking direction or course

BC040 Light
A specially constructed device which displays a luminous or lighted aid to navigation.

BC050 Lighthouse
A distinctive structure exhibiting lights designed to serve as an aid to navigation.

BC055 Marker
A colored, usually white, mark on a cliff, rock, wall, etc. which is a consipicuous landmark for marine navigation.

BC060 Light Sector
A sector defined by bearings from seaward within which a light shows a specified character or color, or is obscured.

BC070 Light Vessel/Lightship
A distinctively marked manned vessel anchored or moored at a defined point to serve as an aid to navigation.

BC080 Perches/Stakes
Small markers used to identify channels or to mark dangers such as rocks, shoals, etc.

BC101 Fog Signal
A warning signal transmitted by a vessel, or aid to navigation, during periods of low visibility. Also, the device producing such a signal.

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation
The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

BR2 Broadcast Frequency 2

The frequency on which a station broadcasts (second occurrence).

BR2 0 Actual Value

Units	Format	Range	Increment	Max Char
Hertz	Long Integer		1 HZ	

BRF Broadcast Frequency

Broadcast frequency of a communications device.

BRF 0 Actual Value

Units	Format	Range	Increment	Max Char
Hertz	Long Integer		1 HZ	

BTC Beacon/Buoy Type Indicator

BTC	0	Unknown
BTC	1	Cardinal
BTC	2	Float
BTC	3	Isolated Danger
BTC	4	Large Navigational Buoy (LANBY)
BTC	5	Lateral
BTC	6	Light Float
BTC	7	Mooring
BTC	8	Mooring with Telegraph
BTC	9	Mooring with Telephone
BTC	10	Ocean Data Acquisition System (ODAS)
BTC	11	Outer, Landfall
BTC	12	Port (From Seaward or According to Dir. of Buoyage)
BTC	13	Preferred Channel to Port
BTC	14	Preferred Channel to Starboard
BTC	15	Special Purpose
BTC	16	Starboard (From Seaward per Dir. of Buoyage)
BTC	17	Tanker
BTC	18	Safe Water
BTC	19	Anchorage
BTC	20	Fairway
BTC	21	Mid-Channel
BTC	22	Bifurcation
BTC	23	Junction
BTC	24	Wreck
BTC	25	Obstruction
BTC	26	Telegraph Cable
BTC	27	Warping
BTC	28	Quarantine
BTC	29	Practice Area
BTC	30	Explosive Anchorage
BTC	31	Aeronautical Anchorage
BTC	32	Compass Adjustment
BTC	33	Fish Trap
BTC	34	Spoil Ground
BTC	35	Articulated Lights
BTC	36	Floating Beacon
BTC	37	Dan
BTC	38	Floodlit/Illuminated
BTC	39	Trot

BTC	81	Diving
BTC	82	Information
BTC	83	DND Buoy (Canadian Department of National Defence)
BTC	85	Caution
BTC	86	Private
BTC	87	Swim
BTC	88	Control
BTC	89	Keep-Out
BTC	90	Daybeacon
BTC	91	Lateral preferred channel to port mark
BTC	92	Lateral preferred channel to starboard mark
BTC	93	Lateral starboard-hand mark
BTC	94	Lateral port-hand mark
BTC	95	Cardinal West Mark
BTC	96	Cardinal South Mark
BTC	97	Cardinal East Mark
BTC	98	Cardinal North Mark
BTC	99	Installation
BTC	999	Other

CCC Color Code Category

CCC	0	Unknown
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	8	VALUE INTENTIONALLY LEFT BLANK
CCC	9	Orange
CCC	10	VALUE INTENTIONALLY LEFT BLANK
CCC	11	VALUE INTENTIONALLY LEFT BLANK
CCC	12	Red
CCC	13	VALUE INTENTIONALLY LEFT BLANK
CCC	14	Violet
CCC	15	White
CCC	16	VALUE INTENTIONALLY LEFT BLANK
CCC	17	VALUE INTENTIONALLY LEFT BLANK
CCC	18	VALUE INTENTIONALLY LEFT BLANK
CCC	19	Yellow
CCC	20	Red & White (RW)
CCC	21	Red & Green (RG)
CCC	22	Red & Black (RB)
CCC	23	Red-Green-Red (RGR)
CCC	24	Green & White (GW)
CCC	25	Green & Red (GR)
CCC	26	Green & Black (GB)
CCC	27	Green-Red-Green (GRG)
CCC	28	Green-Yellow-Black (GYB)
CCC	29	Yellow & Black (YB)
CCC	30	Yellow-Black-Yellow (YBY)
CCC	31	Yellow & Red (YR)
CCC	32	Yellow & Green (YG)
CCC	33	Yellow-Red-White (YRW)

	CCC	34	Black & Yellow (BY)
	CCC	35	Black-Yellow-Black (BYB)
	CCC	36	Black-Red-Black (BRB)
	CCC	37	Black & White (BW)
	CCC	38	Black & Red (BR)
	CCC	39	Black & Green (BG)
	CCC	40	White & Red (WR)
	CCC	41	White & Orange (W Or)
	CCC	42	White & Green (WG)
	CCC	43	White & Black (WB)
	CCC	44	White & Yellow (WY)
	CCC	45	White-Red-Green (WRG)
	CCC	46	White-Green-White (WGW)
	CCC	47	Magenta
	CCC	48	Amber
	CCC	49	Buff
	CCC	50	Nautical Purple
	CCC	999	Other
CHA	Light Characteristic Category		
	CHA	0	Unknown
	CHA	1	Alternating
	CHA	2	Composite Group Flashing
	CHA	3	Composite Group Occulting
	CHA	4	Ultra Quick
	CHA	5	Fixed
	CHA	6	Fixed and Flashing
	CHA	7	Fixed and Group Flashing
	CHA	8	Flashing
	CHA	9	Group Flashing
	CHA	10	Group Occulting
	CHA	11	Interrupted Quick Flashing
	CHA	12	Interrupted Ultra Quick
	CHA	13	Interrupted Very Quick
	CHA	14	Isophase
	CHA	15	Long-Flashing
	CHA	16	Morse Code
	CHA	17	Occulting
	CHA	19	VALUE INTENTIONALLY LEFT BLANK
	CHA	20	VALUE INTENTIONALLY LEFT BLANK
	CHA	21	Lighted
	CHA	22	VALUE INTENTIONALLY LEFT BLANK
	CHA	23	Unlighted
	CHA	24	VALUE INTENTIONALLY LEFT BLANK
	CHA	25	VALUE INTENTIONALLY LEFT BLANK
	CHA	26	VALUE INTENTIONALLY LEFT BLANK
	CHA	27	VALUE INTENTIONALLY LEFT BLANK
	CHA	28	Group Quick Flashing
	CHA	29	Group Very Quick
	CHA	30	Very Quick
	CHA	31	Quick
	CHA	32	VALUE INTENTIONALLY LEFT BLANK
	CHA	33	Intensified
	CHA	34	VALUE INTENTIONALLY LEFT BLANK

CHA	35	VALUE INTENTIONALLY LEFT BLANK
CHA	36	Directional
CHA	37	VALUE INTENTIONALLY LEFT BLANK
CHA	38	VALUE INTENTIONALLY LEFT BLANK
CHA	39	VALUE INTENTIONALLY LEFT BLANK
CHA	40	VALUE INTENTIONALLY LEFT BLANK
CHA	41	VALUE INTENTIONALLY LEFT BLANK
CHA	42	VALUE INTENTIONALLY LEFT BLANK
CHA	43	Directional Moiré
CHA	44	Quick flashing
CHA	45	very quick flashing
CHA	46	Flash / long flash
CHA	47	Occulting / flash
CHA	48	Fixed / long flash
CHA	49	Occulting alternating
CHA	50	Long flash alternating
CHA	51	Flash alternating
CHA	52	Group alternating
CHA	53	2 fixed (vertical)
CHA	54	2 fixed (horizontal)
CHA	55	3 fixed (vertical)
CHA	56	3 fixed (horizontal)
CHA	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COL Character of Light

Any identifier composed of the class, number and color(s) of flashes or occultations, of a light or lights at one geographic position [e.g. Q(6)+L F1, VQ G, L F1 (3+2)WR].

COL	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

DAG *Type of Danger Category*

DMF Density Measure (Feature Count)
Indicates the number of features of this type within an area.
DMF 0 Actual Value

Units	Format	Range	Increment	Max Char
Features	Short Integer	0±32,767	1 FEATURE	

EOL Elevation of Light
The elevation of a light.
EOL 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

EXS Existence Category
The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable

EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

HGT — Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

HLT — Hydrographic Light Type

The type of light used for marine navigation.

HLT	0	Unknown
HLT	1	Sectored Light
HLT	2	Other
HLT	3	Moiré Effect Light
HLT	4	Strip Light
HLT	5	Occasional

IAC — IALA Aid Category

Conformity of a navigational aid to the IALA system of navigational aids.

IAC	0	Unknown
IAC	1	Non-IALA Aid
IAC	2	IALA Aid

IBC — Installation Buoy Classification

IBC	0	Undefined
IBC	1	Catenary anchor leg mooring (CALM)
IBC	2	Single buoy mooring (SBM)

LCN — Light Characteristic Number

Number of flashes/occultations in a group flashing/occulting light character.

LCN	0	Actual Value

Units	Format	Range	Increment	Max Char
Occults	Short Integer	0±32,767	1 OCCULT	

LEN — Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LFA — Light Function Aeronautical

LFA	0	Unknown
LFA	1	Airport Terminal Lights

LFA	2	Apron Flood
LFA	3	Boundary Lights
LFA	4	Runway Centerline Lighting
LFA	5	Runway End Identification Lighting(REIL)
LFA	6	Runway Lights /Runway Edge Lights
LFA	7	Sequenced Strobe
LFA	8	Taxiway Lighting
LFA	9	Visual Approach Slope Indicator (VASI)
LFA	10	Rotating Beacon
LFA	11	Obstruction Lighting
LFA	12	Threshold Light(s)
LFA	13	Touchdown Zone Lighting
LFA	14	Other Airport Lighting
LFA	15	ALSF-1 (Approach Lighting System. with seq. flashing)
LFA	16	ALSF-II
LFA	17	(SSALF)
LFA	18	(SSALR)
LFA	19	(MALSF)
LFA	20	(MALSR)
LFA	21	Landing Direction Indicator (LDIN)
LFA	22	RAIL (Runway Alignment Indicator Lights)
LFA	23	ODALS (Omni Directional Approach Landing System).
LFA	24	Other Approach Lighting
LFA	25	Precision Approach Path Indicator (PAPI)
LFA	26	Strobe
LFA	27	Runway Flood
LFA	28	Variable Intensity Runway Lights
LFA	29	Portable Runway Lights
LFA	30	Flares
LFA	31	Wind Indicator Lights
LFA	32	Visual Approach Slope Indicator (3 bar)
LFA	33	Optical Landing System
LFA	51	Aeronautical
LFA	52	Auxiliary
LFA	53	Beacon
LFA	54	VALUE INTENTIONALLY LEFT BLANK
LFA	55	Fishing
LFA	56	Fog Detector
LFA	57	Harbor
LFA	58	Horizontal
LFA	59	Obstruction
LFA	60	Occasional
LFA	61	Private
LFA	62	Range
LFA	63	Seasonal
LFA	64	Tidal
LFA	65	Vertical
LFA	66	Articulated
LFA	67	Primary
LFA	68	Secondary
LFA	69	Major
LFA	70	Minor
LFA	71	Visual Approach Slope Indicator (2 bar)
LFA	72	Identification Beacon

LFA 999 Other

LSA Light Sector Angle
Angular limits of light visibility. Limits of sectors and arcs of visibility are arranged clockwise and shall be given from seaward toward the light.
LSA 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

LVN Light Range, Nominal
The luminous range when the meteorological range is 10 sea miles.
LVN 0 Actual Value

Units	Format	Range	Increment	Max Char
Nautical Miles	Short Integer	0±32,767	1 NM	

MCA Morse Code
The ASCII (ISO 646) letter that is being emitted by either the Navigation System Types (NST), Sound Signal (SST), Light characteristics (CHA), or electronic beacon type.
MCA 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	ASCII Text			80

MCC Material Composition Category
MCC 0 Unknown
MCC 4 Ash
MCC 5 Asphalt
MCC 6 Basalt
MCC 7 Bedrock
MCC 8 Boulders
MCC 9 Brick
MCC 10 Calcareous
MCC 11 Cement
MCC 12 Chalk
MCC 13 Chemical
MCC 14 Cinders
MCC 15 Cirripedia
MCC 16 Clay
MCC 17 Coal
MCC 18 Cobble
MCC 19 Coke
MCC 20 Composition
MCC 21 Concrete
MCC 22 Conglomerate
MCC 23 Copper
MCC 24 Coral
MCC 25 Coral Head
MCC 26 Desalinated Water
MCC 27 Diamonds
MCC 28 Diatoms
MCC 29 Dolomite

MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt

MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar
MCC	110	Travertin
MCC	111	Tufa
MCC	112	Uranium
MCC	113	Vegetation Products
MCC	114	Volcanic
MCC	115	Volcanic Ash
MCC	116	Water
MCC	117	Wood
MCC	118	Zinc
MCC	119	Evaporites
MCC	999	Other

MLR Multiple Light Ranges

A set of two numbers for light ranges of visibility (at a light) expressed in nautical miles; the numbers are separated by a slash (/) if only two visibilities exist, or by a dash (-) separating the greatest and least visibilities if three or more exist.

MLR 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String Characters	ASCII Text			256

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

NS2 Navigation Systems Type (2)

Type of equipment or system used in electronic navigation (secondary system).

NS2	0	Unknown
NS2	1	Circular Radio Beacon
NS2	2	CONSOL
NS2	3	DECCA
NS2	4	Radio Direction Finding
NS2	5	Directional Radio Beacon
NS2	6	Distance Finding
NS2	7	Long Range Air Navigation System (LORAN)
NS2	8	OMEGA
NS2	9	Other
NS2	10	Radar Responder Beacon (RACON)
NS2	11	Radar
NS2	12	Radio
NS2	13	Radio Telephone
NS2	14	VALUE INTENTIONALLY LEFT BLANK
NS2	15	TV
NS2	16	Microwave
NS2	17	Non-Directional Radio Beacon (NDB)
NS2	18	NDB/Distance Measuring Equipment (NDB/DME)
NS2	19	Radio Range (RNG)
NS2	20	VHF Omni Directional Radio Range (VOR)
NS2	21	VHF Omni Directional (VOR /DME)
NS2	22	VHF Omni Directional (VORTAC)
NS2	23	Tactical Air Navigation Equipment (TACAN)
NS2	24	Instrument Landing System (ILS)
NS2	25	Instrument Landing System/Distance Measuring Equipment (ILS/DME)
NS2	26	Localizer (LOC)
NS2	27	Localizer/Distance Measuring Equipment (LOC/DME)
NS2	28	Simplified Directional Facility (SDF)
NS2	29	Landing Distance Available (LDA)
NS2	30	Microwave Landing System (MLS)
NS2	31	Fan Marker
NS2	32	Bone Marker
NS2	33	Radio Telegraph
NS2	34	Ground Controlled Approach (GCA)
NS2	35	Radar Antenna
NS2	37	Precision Approach Radar (PAR)
NS2	38	Aeronautical Radio
NS2	39	VALUE INTENTIONALLY LEFT BLANK
NS2	40	Radio Beacon
NS2	41	Rotating Loop Radio Beacon
NS2	42	Visual Flight Rules (VFR) Test Signal Maker
NS2	43	VALUE INTENTIONALLY LEFT BLANK
NS2	44	Console Radio Beacon
NS2	45	Radar Station
NS2	46	Aeronautical Radio Range
NS2	47	Hifix
NS2	48	Hyperfix
NS2	49	Tricolor Panel
NS2	50	Radio station
NS2	51	Radiobeacon, Type Unknown
NS2	52	None
NS2	53	QTG Station (R)

	NS2	54	Ramark (Ramark)
	NS2	55	Radar reflector
	NS2	56	LO (Locator)
	NS2	57	LLZ (Localizer)
	NS2	58	DME (Distance Measuring Equipment)
	NS2	999	Other

NST Navigation Systems Types

Type of equipment or system used in electronic navigation (primary system).

NST	0	Unknown
NST	1	Circular Radio Beacon
NST	2	CONSOL
NST	3	DECCA
NST	4	Radio Direction Finding
NST	5	Directional Radio Beacon
NST	6	Distance Finding
NST	7	Long Range Air Navigation System (LORAN)
NST	8	OMEGA
NST	9	Other
NST	10	Radar Responder Beacon (RACON)
NST	11	Radar
NST	12	Radio
NST	13	Radio Telephone
NST	14	VALUE INTENTIONALLY LEFT BLANK
NST	15	TV
NST	16	Microwave
NST	17	Non-Directional Radio Beacon (NDB)
NST	18	NDB/Distance Measuring Equipment (NDB/DME)
NST	19	Radio Range (RNG)
NST	20	VHF Omni Directional Radio Range (VOR)
NST	21	VHF Omni Directional (VOR /DME)
NST	22	VHF Omni Directional (VORTAC)
NST	23	Tactical Air Navigation Equipment (TACAN)
NST	24	Instrument Landing System (ILS)
NST	25	Instrument Landing System/Distance Measuring Equipment (ILS/DME)
NST	26	Localizer (LOC)
NST	27	Localizer/Distance Measuring Equipment (LOC/DME)
NST	28	Simplified Directional Facility (SDF)
NST	29	Landing Distance Available (LDA)
NST	30	Microwave Landing System (MLS)
NST	31	Fan Marker
NST	32	Bone Marker
NST	33	Radio Telegraph
NST	34	Ground Controlled Approach (GCA)
NST	35	Radar Antenna
NST	37	Precision Approach Radar (PAR)
NST	38	Aeronautical Radio
NST	39	VALUE INTENTIONALLY LEFT BLANK
NST	40	Radio Beacon
NST	41	Rotating Loop Radio Beacon
NST	42	Visual Flight Rules (VFR) Test Signal Maker
NST	43	VALUE INTENTIONALLY LEFT BLANK
NST	44	Consol Radio Beacon

NST	45	Radar Station
NST	46	Aeronautical Radio Range
NST	47	Hifix
NST	48	Hyperfix
NST	49	Tricolor Panel
NST	50	Radio station
NST	51	Radiobeacon, Type Unknown
NST	52	None
NST	53	QTG Station (R)
NST	54	Ramark (Ramark)
NST	55	Radar reflector
NST	56	LO (Locator)
NST	57	LLZ (Localizer)
NST	58	DME (Distance Measuring Equipment)
NST	999	Other

OR2 Navigation System Secondary

The secondary range of the NAVAID beyond which the capture of the signal is not completely assured.

OR2 0 Actual Value

Units	Format	Range	Increment	Max Char
Nautical Miles	Short Integer	0±32,767	1 NM	

ORC Operating Range Category

The range of the NAVAID beyond which the capture of the signal is not completely assured.

ORC 0 Actual Value

Units	Format	Range	Increment	Max Char
Nautical Miles	Short Integer	0±32,767	1 NM	

PAT Buoy Pattern Category

PAT	0	Unknown
PAT	1	Checkered
PAT	2	Diagonal Bands
PAT	3	Single Color
PAT	4	Horizontal Bands
PAT	5	VALUE INTENTIONALLY LEFT BLANK
PAT	6	Vertical Stripes
PAT	98	Squared
PAT	99	Horizontal bands from top to bottom
PAT	999	Other

PER Period of Light

The time occupied by an entire cycle of intervals of light and eclipse.

PER 0 Actual Value

Units	Format	Range	Increment	Max Char
Seconds	Floating Point			

REF Radar Reflector Attribute

Indicates whether or not a radar reflector is attached to, or connected with, a feature.

REF	1	Radar Reflector Present
REF	2	Radar Reflector Absent

RFQ — Radar Transponder Beacon Frequency

Specifies the specific frequency of a radar transponder beacon.

RFQ	0	Actual Value

Units	Format	Range	Increment	Max Char
Kilohertz	Short Integer	0±32,767	1 KHZ	

RTB — Radar Transponder Beacon Classification

Tabulates types of radar transponder beacon.

RTB	0	Undefined
RTB	1	Ramark, radar beacon transmitting continuously
RTB	2	Racon, radar transponder beacon with Morse identification

SMC — Surface Material Characteristics

Surface material composition excluding internal structural material.

SMC	0	Unknown
SMC	1	Aircraft
SMC	2	Aluminum
SMC	3	Ammunition
SMC	4	Ash
SMC	5	Asphalt
SMC	6	Basalt
SMC	7	Bedrock
SMC	8	Boulders
SMC	9	Brick
SMC	10	Calcareous
SMC	11	Cement
SMC	12	Chalk
SMC	13	Chemical
SMC	14	Cinders
SMC	15	Cirripedia
SMC	16	Clay
SMC	17	Coal
SMC	18	Cobble
SMC	19	Coke
SMC	20	Compositio n
SMC	21	Concrete
SMC	22	Conglomerate
SMC	23	Copper
SMC	24	Coral
SMC	25	Coral Head
SMC	26	Desalinated Water
SMC	27	Diamonds
SMC	28	Diatoms
SMC	29	Dolomite
SMC	30	Earthen
SMC	31	Electric
SMC	32	Eroded Lands
SMC	33	Explosives
SMC	34	Flynch
SMC	35	Food

SMC	36	Foraminifera
SMC	37	Fucus
SMC	38	Gas
SMC	39	Gasoline
SMC	40	Glass
SMC	41	Globigerina
SMC	42	Gold
SMC	43	Granite
SMC	44	VALUE INTENTIONALLY LEFT BLANK
SMC	45	Grass/Thatch
SMC	46	Gravel
SMC	47	Green Rocks
SMC	48	Ground
SMC	49	Ground (Shells)
SMC	50	Heat
SMC	51	Iron
SMC	52	Lava
SMC	53	VALUE INTENTIONALLY LEFT BLANK
SMC	54	Lead
SMC	55	Loess
SMC	56	Lumber
SMC	57	Macadam
SMC	58	Madrepores
SMC	59	Manganese
SMC	60	Marble
SMC	61	Marl
SMC	62	Masonry (Brick/Stone)
SMC	63	Mattes
SMC	64	Metal
SMC	65	Mud
SMC	66	Mussels
SMC	67	Oil
SMC	68	Oil Blister
SMC	69	Ooze
SMC	70	Oysters
SMC	71	Paper
SMC	72	Part Metal
SMC	73	Pebbles
SMC	74	Plastic
SMC	75	Polyzoa
SMC	76	Porphyry
SMC	77	Prestressed Concrete
SMC	78	Pteropods
SMC	79	Pumice
SMC	80	Quartz
SMC	81	Radiolaria
SMC	82	Radioactive Material
SMC	83	Reinforced Concrete
SMC	84	Rock/Rocky
SMC	85	Rubber
SMC	86	Rubble
SMC	87	Salt
SMC	88	Sand
SMC	89	Sandstone

SMC	90	Schist
SMC	91	Spoils/Tailings
SMC	92	Scoria
SMC	93	Sea Tangle
SMC	94	Seaweed
SMC	95	Sewage
SMC	96	Shells
SMC	97	VALUE INTENTIONALLY LEFT BLANK
SMC	98	Shingle
SMC	99	Silt
SMC	100	Silver
SMC	101	Slag
SMC	102	Sludge
SMC	103	Snow/Ice
SMC	104	Soil
SMC	105	Spicules
SMC	106	Sponge
SMC	107	Steel
SMC	108	Stone
SMC	109	Sugar
SMC	110	Travertin
SMC	111	Tufa
SMC	112	Uranium
SMC	113	Vegetation Products
SMC	114	Volcanic
SMC	115	Volcanic Ash
SMC	116	Water
SMC	117	Wood
SMC	118	Zinc
SMC	119	Distorted surface
SMC	120	Sand and gravel
SMC	121	Rip-Rap
SMC	198	Kelp
SMC	199	Sandwaves
SMC	999	Other

SSC Structure Shape Category

Geometric form, appearance, or configuration of the feature.

SSC	0	Unknown
SSC	1	Barrel, Ton
SSC	2	Blimp
SSC	3	Boat Hull (Float)
SSC	4	Bullet
SSC	5	VALUE INTENTIONALLY LEFT BLANK
SSC	6	Conical /Peaked/NUN
SSC	7	Cylindrical (Upright)/CAN
SSC	9	VALUE INTENTIONALLY LEFT BLANK
SSC	10	Pillar, Spindle
SSC	11	VALUE INTENTIONALLY LEFT BLANK
SSC	12	Pyramid
SSC	13	VALUE INTENTIONALLY LEFT BLANK
SSC	14	VALUE INTENTIONALLY LEFT BLANK
SSC	15	Solid/filled
SSC	16	Spar

SSC	17	Spherical (Hemispherical)
SSC	18	Truss
SSC	19	With Radome
SSC	20	VALUE INTENTIONALLY LEFT BLANK
SSC	21	Artificial Mountain
SSC	22	Crescent
SSC	23	Ferris Wheel
SSC	24	Enclosed
SSC	25	Roller coaster
SSC	26	Lateral
SSC	27	Mounds
SSC	28	Ripple
SSC	29	Star
SSC	30	Transverse
SSC	31	VALUE INTENTIONALLY LEFT BLANK
SSC	33	VALUE INTENTIONALLY LEFT BLANK
SSC	34	VALUE INTENTIONALLY LEFT BLANK
SSC	35	VALUE INTENTIONALLY LEFT BLANK
SSC	36	Windmotor
SSC	38	VALUE INTENTIONALLY LEFT BLANK
SSC	40	VALUE INTENTIONALLY LEFT BLANK
SSC	46	Open
SSC	52	'A' Frame
SSC	53	'H' Frame
SSC	54	'I' Frame
SSC	56	'Y' Frame
SSC	57	VALUE INTENTIONALLY LEFT BLANK
SSC	58	VALUE INTENTIONALLY LEFT BLANK
SSC	59	Telescoping Gasholder (Gasometer)
SSC	60	Mast
SSC	61	Tripod
SSC	62	VALUE INTENTIONALLY LEFT BLANK
SSC	63	VALUE INTENTIONALLY LEFT BLANK
SSC	65	Cylindrical with flat top
SSC	66	Cylindrical with domed top
SSC	71	Cylindrical/Peaked
SSC	73	Superbuoy
SSC	74	'T' Frame
SSC	75	Tetrahedron
SSC	76	Funnel
SSC	77	Arch
SSC	78	Multi-Arch
SSC	79	Round
SSC	80	Rectangular
SSC	81	Dragons Teeth
SSC	82	I-Beam
SSC	83	Square
SSC	84	Irregular
SSC	85	Diamond Shaped Buoy
SSC	86	Oval
SSC	87	Dome
SSC	107	Tower
SSC	108	Scanner
SSC	109	Obelisk

	SSC	999	Other

SOH Severity of Hazard

SOH	0	Unknown
SOH	1	Dangerous
SOH	2	Non-Dangerous
SOH	3	Obstruction
SOH	99	Non-Dangerous to surface navigation, but avoid anchoring/trawling
SOH	999	Other

SST Sound Signal Type

SST	0	Unknown
SST	1	Bell
SST	2	Diaphone
SST	3	Explosive Fog Signal
SST	4	Gong
SST	5	Gun
SST	6	Horn
SST	7	Nautophone
SST	8	Radio Fog Signal
SST	9	Siren
SST	10	Submarine Fog Bell
SST	11	Submarine Oscillator
SST	12	Submarine Sound Signal (Connected to Shore)
SST	13	Submarine Sound Signal (Not Connected to Shore)
SST	14	Whistle
SST	15	Reed
SST	16	None
SST	98	Tyfon
SST	999	Other

SHP Shape of Beacon

SHP	0	Undefined
SHP	1	Stake / pole
SHP	2	Withy
SHP	3	Beacon tower
SHP	4	Lattice beacon

TMC Top Mark Characteristic

TMC	0	Unknown
TMC	1	East Mark (2 cones - base together)
TMC	2	Isolated Danger (2 balls)
TMC	3	North Mark (2 cones - pointing up)
TMC	4	Port Hand (can or cylinder)
TMC	5	Safe Water (1 ball)
TMC	6	Special (X)
TMC	7	Starboard Hand (1 cone - pointing up)
TMC	8	South Mark (2 cones - pointing down)
TMC	9	West Mark (2 cones - points together)
TMC	10	Nun
TMC	11	VALUE INTENTIONALLY LEFT BLANK
TMC	12	Ball
TMC	13	Can

TMC	14	St. Andrew's Cross
TMC	15	Ball over Cone
TMC	16	Cone over Ball
TMC	17	Broom point up
TMC	18	Perch
TMC	19	Diamond
TMC	20	Broom point down
TMC	21	Cone (Point Upwards)
TMC	22	Cone (Point Downwards)
TMC	23	Upright Cross
TMC	24	Optical ReflectorWW
TMC	25	Can (Open)
TMC	26	Can (Filled)
TMC	27	Ball (Open)
TMC	28	Ball (Filled)
TMC	29	Can Over Ball (Open)
TMC	30	Cross Over Ball (Filled)
TMC	31	Diamond Over Ball (Filled)
TMC	32	Double Cone, Points Apart (Open)
TMC	33	None
TMC	999	Other

TXT Text Attribute

Narrative or other description.

TXT	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-Value

Elevation above a given datum to the highest portion of the feature.

ZV2	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

NAVAID Regions Feature Class

ID

F-CODE/DESCRIPTION

BC031 Navigation Line

A line generated by the straight line connection between two navigational aids, and which extends towards the area of navigational interest.

BC032 Radar Line
Mid-channel lines corresponding to the lines in harbor radar displays.

BC033 Radar Range
Indicates the coverage of a sea area by a radar surveillance station. Inside this area a vessel may request shore based radar assistance, particularly in poor visibility.

BC100 Leading Line
A track which passes through one or more, usually two, clearly defined objects, along which a vessel can safely travel.

ARA Area Coverage Attribute
The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

BRG Bearing of Object
The bearing of an object from an observer (on any point along the line) towards the object or feature, expressed in degrees and tenths (e.g. 3.0 DEG).

BRG 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Floating Point	0.0-359.9	0.1 DEG	

DRP Description of Reference Point
Description of the feature(s) which form a Leading Line or Clearing Line.

DRP 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

LAF Line Associated Features

LAF 1 One Object (Other Than a Directional Light)
LAF 2 Directional Light
LAF 3 Two or More Lights
LAF 4 Two or More Beacons
LAF 5 Two or More Objects (Other than two Lights or Beacons)
LAF 6 Measured Distance Markers
LAF 7 Directional Radiobeacon
LAF 8 Moire' Effect Light

LNC Line Characteristic

LNC 0 Unknown
LNC 1 Rhumb or Loxodrome Line
LNC 2 Geodesic or Great Circle Line

Natural Dangers/Hazards Feature Class

ID

F-CODE/DESCRIPTION

BD010 Breakers
Waves which break over off-lying shoals or near the shore.

BD030 Discolored Water
An area of sea water having a color distinctly different from the surrouding water.

BD040 Eddies
Circular movements of water running contrary to the main current.

BD060 Kelp/Seaweed
A large Seaweed.

BD080 Overfalls/Tide Rips
Short, breaking waves occurring when a current passes over a shoal or other submarine obstruction or meets a contrary current or wind. Tide rips occur when one or more of the currents are tidal.

BD119 Ledge
A narrow, flat surface or shelf, especially one that projects, as from a wall of rock.

BD120 Reef
A rocky or coral elevation at or near enough to the surface of the sea to be a danger to surface navigation

BD121 Pingo
A cone or dome shaped mound or hill of peat or soil, usually with a core of ice. It is found in tundra regions and is produced by the pressure of water or ice accumulating underground and pushing upward

BD130 Rock
An isolated rocky formation or a single large stone above or below the water surface.

BD140 Snags/Stumps
A stem or a trunk of a tree below the surface of water.

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation
The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATN Aids to Navigation

ATN 0 Unknown
ATN 1 Marked
ATN 2 Unmarked
ATN 3 Lit
ATN 4 Unlit
ATN 999 Other

C80 Rate of Current

Rate of current flow at high water.

C80 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C81 Rate of Current 1

Rate of current flow 1 hour after high water.

C81 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C82 Rate of Current 2

Rate of current flow 2 hours after high water.

C82 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C83 Rate of Current 3

Rate of current flow 3 hours after high water.

C83 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C84 Rate of Current 4

Rate of current flow 4 hours after high water.

C84 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C85 Rate of Current 5

Rate of current flow 5 hours after high water.

C85 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C86 Rate of Current 6

Rate of current flow 6 hours after high water.

C86 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C87 Rate of Current 7

Rate of current flow 7 hours after high water.

C87 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C88 Rate of Current 8

Rate of current flow 8 hours after high water.

C88 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C89 Rate of Current 9

Rate of current flow 9 hours after high water.

C89 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C90 Rate of Current 10

Rate of current flow 10 hours after high water.

C90 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

C91 Rate of Current 11

Rate of current flow 11 hours after high water.

C91 0 Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CCC Color Code Category

CCC 0 Unknown
CCC 1 Black
CCC 2 Blue
CCC 3 Brown

CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	8	VALUE INTENTIONALLY LEFT BLANK
CCC	9	Orange
CCC	10	VALUE INTENTIONALLY LEFT BLANK
CCC	11	VALUE INTENTIONALLY LEFT BLANK
CCC	12	Red
CCC	13	VALUE INTENTIONALLY LEFT BLANK
CCC	14	Violet
CCC	15	White
CCC	16	VALUE INTENTIONALLY LEFT BLANK
CCC	17	VALUE INTENTIONALLY LEFT BLANK
CCC	18	VALUE INTENTIONALLY LEFT BLANK
CCC	19	Yellow
CCC	20	Red & White (RW)
CCC	21	Red & Green (RG)
CCC	22	Red & Black (RB)
CCC	23	Red-Green-Red (RGR)
CCC	24	Green & White (GW)
CCC	25	Green & Red (GR)
CCC	26	Green & Black (GB)
CCC	27	Green-Red-Green (GRG)
CCC	28	Green-Yellow-Black (GYB)
CCC	29	Yellow & Black (YB)
CCC	30	Yellow-Black-Yellow (YBY)
CCC	31	Yellow & Red (YR)
CCC	32	Yellow & Green (YG)
CCC	33	Yellow-Red-White (YRW)
CCC	34	Black & Yellow (BY)
CCC	35	Black-Yellow-Black (BYB)
CCC	36	Black-Red-Black (BRB)
CCC	37	Black & White (BW)
CCC	38	Black & Red (BR)
CCC	39	Black & Green (BG)
CCC	40	White & Red (WR)
CCC	41	White & Orange (W Or)
CCC	42	White & Green (WG)
CCC	43	White & Black (WB)
CCC	44	White & Yellow (WY)
CCC	45	White-Red-Green (WRG)
CCC	46	White-Green-White (WGW)
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	50	Nautical Purple
CCC	999	Other

CIC Color Intensity Category
Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COD Certainty of Delineation

COD	0	Unknown
COD	1	Limits and Information Known
COD	2	Limits and Information Unknown

CRN Current Rate Minimum

Minimum speed of current.

CRN	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CRS Current Rate (Speed)

Current speed in knots.

CRS	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CRX Current Rate Maximum

Maximum speed of current.

CRX	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

D80 Direction of Current

Direction of current flow at high water.

D80	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D81 Direction of Current 1

Direction of current flow 1 hour after high water.

D81	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D82 Direction of Current 2

Direction of current flow 2 hours after high water.

D82 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D83 Direction of Current 3

Direction of current flow 3 hours after high water.

D83 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D84 Direction of Current 4

Direction of current flow 4 hours after high water.

D84 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D85 Direction of Current 5

Direction of current flow 5 hours after high water.

D85 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D86 Direction of Current 6

Direction of current flow 6 hours after high water.

D86 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D87 Direction of Current 7

Direction of current flow 7 hours after high water.

D87 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D88 Direction of Current 8

Direction of current flow 8 hours after high water.

D88 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D89 Direction of Current 9

Direction of current flow 9 hours after high water.
D89 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D90 Direction of Current 10
Direction of current flow 10 hours after high water.
D90 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

D91 Direction of Current 11
Direction of current flow 11 hours after high water.
D91 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

DAN Description of Aids to Navigation
Textual description of aids to navigation marking a feature, e.g. Marked by buoys.
DAN 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

DAT Date

EXS Existence Category
The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made

EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

HDH Hydrographic Drying Height

HDI Hydrographic Depth/Height Information

HDP Hydrographic Depth

The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)

	LOC	4	Below Surface /Submerged/Underground
	LOC	5	Covered < 20 Meters
	LOC	6	Covered ≥ 20 Meters but < 30 Meters
	LOC	7	Covered ≥ 30 Meters
	LOC	8	On Ground Surface
	LOC	9	Depth Known
	LOC	10	Depth Known (Cleared by Drag Wire)
	LOC	11	Depth Unknown But Safe to Depth Shown
	LOC	12	VALUE INTENTIONALLY LEFT BLANK
	LOC	13	Hull Showing
	LOC	14	Masts Showing
	LOC	15	On Water Surface/Floating
	LOC	16	Partially Submerged
	LOC	17	Sunken/on sea bottom
	LOC	19	Above Surface/Does not Cover (Height Unknown)
	LOC	20	Funnel Showing
	LOC	21	Superstructure showing
	LOC	22	Off Shore
	LOC	23	Below sea bottom
	LOC	24	Suspended or elevated above sea bottom
	LOC	25	Suspended/Elevation above Ground or Water Surface
	LOC	28	Masts and Funnel Showing
	LOC	30	Non-Floating
	LOC	31	Elevated
	LOC	32	Depressed
	LOC	33	Not submerged
	LOC	34	Inland
	LOC	35	Overhead
	LOC	36	Height Above Bottom
	LOC	37	Exact Position Known
	LOC	38	Exact Position Unknown
	LOC	39	Depth Unknown
	LOC	998	Not applicable
	LOC	999	Other
MCC	Material Composition Category		
	MCC	0	Unknown
	MCC	4	Ash
	MCC	5	Asphalt
	MCC	6	Basalt
	MCC	7	Bedrock
	MCC	8	Boulders
	MCC	9	Brick
	MCC	10	Calcareous
	MCC	11	Cement
	MCC	12	Chalk
	MCC	13	Chemical
	MCC	14	Cinders
	MCC	15	Cirripedia
	MCC	16	Clay
	MCC	17	Coal
	MCC	18	Cobble
	MCC	19	Coke

MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete

	MCC	78	Pteropods
	MCC	79	Pumice
	MCC	80	Quartz
	MCC	81	Radiolaria
	MCC	82	Radioactive Material
	MCC	83	Reinforced Concrete
	MCC	84	Rock/Rocky
	MCC	85	Rubber
	MCC	86	Rubble
	MCC	87	Salt
	MCC	88	Sand
	MCC	89	Sandstone
	MCC	90	Schist
	MCC	91	Spoils/Tailings
	MCC	92	Scoria
	MCC	93	Sea Tangle
	MCC	94	Seaweed
	MCC	95	Sewage
	MCC	96	Shells
	MCC	98	Shingle
	MCC	99	Silt
	MCC	100	Silver
	MCC	101	Slag
	MCC	102	Sludge
	MCC	103	Snow/Ice
	MCC	104	Soil
	MCC	105	Spicules
	MCC	106	Sponge
	MCC	107	Steel
	MCC	108	Stone
	MCC	109	Sugar
	MCC	110	Travertin
	MCC	111	Tufa
	MCC	112	Uranium
	MCC	113	Vegetation Products
	MCC	114	Volcanic
	MCC	115	Volcanic Ash
	MCC	116	Water
	MCC	117	Wood
	MCC	118	Zinc
	MCC	119	Evaporites
	MCC	999	Other

NAM Name

Any Identifier or code.

NAM	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

SD1 Stem Diameter Size Range (1)

SD1	0	Unknown
SD1	1	> 0 and ≤ 2.00

SD1	2	> 2.00 and ≤ 4.00
SD1	3	> 4.00 and ≤ 6.00
SD1	4	> 6.00 and ≤ 8.00
SD1	5	> 8.00 and ≤ 10.00
SD1	6	> 10.00 and ≤ 12.00
SD1	7	> 12.00 and ≤ 15.00
SD1	8	> 15.00 and ≤ 20.00
SD1	9	> 20.00 and ≤ 25.00
SD1	10	> 25.00 and ≤ 50.00
SD1	11	> 50.00 and ≤ 100.00
SD1	12	> 100.00
SD1	13	NA

SD2 Stem Diameter Size Range (2)

SD2	0	Unknown
SD2	1	> 0 and ≤ 10.00
SD2	2	> 10.00 and ≤ 25.00
SD2	3	> 25.00 and ≤ 50.00
SD2	4	> 50.00 and ≤ 100.00
SD2	5	> 100.00
SD2	6	NA

SOH Severity of Hazard

SOH	0	Unknown
SOH	1	Dangerous
SOH	2	Non-Dangerous
SOH	3	Obstruction
SOH	99	Non-Dangerous to surface navigation, but avoid anchoring/trawling
SOH	999	Other

TXT Text Attribute

Narrative or other description.

TXT	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

VAL Value

VRR Vertical Reference Category

Relative location referenced to sounding datum, unless otherwise indicated.

VRR	0	Unknown
VRR	1	Above Surface/Does not cover (At High Water)
VRR	2	Awash at Sounding Datum
VRR	4	Below Surface/Submerged
VRR	8	Covers and Uncovers
VRR	9	Not Applicable

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For

a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-Value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

VAL Value

Manmade Dangers/Hazards Feature Class

ID

F-CODE/DESCRIPTION

BD001 Mine
An explosive device used in naval warfare located on or below the sea

BD002 Mine-Like Objects

BD020 Crib
A framework structure submerged or above water used to support pipelines, sewer lines, or outfalls.

BD071 Log Boom/Booming Ground
A line of connected floating, timbers as across a river or enclosing a water area to keep logs ready for the sawmill from floating away; also, the enclosed area.

BD072 Pontoon
A broad, flat-bottomed floating structure without sheer, rectangular in shape, resembling a barge.

BD073 Oil Barrier
A construction to dam oil flow on water.

BD074 Chain/Wire
A physical connection between two independent objects, e.g. between: anchor and mooring buoy; anchor and offshore platform; hulk and bollard on land.

BD079 Fishing Facility
A tool in shallow water for fishing purposes which can be an obstruction to ships in general.

BD100 Pile/Piling/Post
A long heavy timber or section of steel, concrete, etc., forced into the earth to serve as a support, as for a pier.

BD110 Platform
A flat surface raised above the sea, as a working stage for conducting offshore operations.

BD111 Offshore Platform Site (cleared)
A structure placed in the sea and used for production loading and discharge or observation/research facilities.

BD112 Production Installation
An installation for the exploitation of natural resources

BD180 Wreck
The ruined remains of a vessel.

BD181 Hulk
An unrigged hull condemned as unfit for the risks of the sea and used as a floating depot in a harbor or roadstead.

BD182 Spoil/Disposal Area

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AFA Available Facilities
Facilities available at or in the near vicinity.

AFA	0	Unknown
AFA	1	Visitors Berth
AFA	2	Visitors Mooring
AFA	3	Sailmaker
AFA	4	Chandler
AFA	5	Provisions
AFA	6	Physician/Doctor
AFA	7	Pharmacy/Chemist
AFA	8	Drinking Water
AFA	9	Fuel Station
AFA	10	Electricity
AFA	11	Bottle Gas/LPG
AFA	12	Showers
AFA	13	Laundrette
AFA	14	Toilets
AFA	15	Post Box
AFA	16	Public Telephone
AFA	17	Refuse Bin
AFA	18	Water Police
AFA	19	Helipad
AFA	20	Ticket Sales
AFA	21	No Ticket Sales
AFA	22	Yatch Club
AFA	23	Boat Hoist
AFA	24	Boat Yard
AFA	25	Public Inn
AFA	26	Restaurant
AFA	999	Other

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CAP Capacity

CHA Light Characteristic Category

The sequence, grouping, and distinctive character of light.

CHA	0	Unknown
CHA	1	Alternating
CHA	2	Composite Group Flashing
CHA	3	Composite Group Occulting
CHA	4	Ultra Quick
CHA	5	Fixed
CHA	6	Fixed and Flashing
CHA	7	Fixed and Group Flashing
CHA	8	Flashing
CHA	9	Group Flashing
CHA	10	Group Occulting
CHA	11	Interrupted Quick Flashing
CHA	12	Interrupted Ultra Quick
CHA	13	Interrupted Very Quick
CHA	14	Isophase
CHA	15	Long-Flashing
CHA	16	Morse Code
CHA	17	Occulting
CHA	19	VALUE INTENTIONALLY LEFT BLANK
CHA	20	VALUE INTENTIONALLY LEFT BLANK
CHA	21	Lighted
CHA	22	VALUE INTENTIONALLY LEFT BLANK
CHA	23	Unlighted
CHA	24	VALUE INTENTIONALLY LEFT BLANK
CHA	25	VALUE INTENTIONALLY LEFT BLANK
CHA	26	VALUE INTENTIONALLY LEFT BLANK
CHA	27	VALUE INTENTIONALLY LEFT BLANK
CHA	28	Group Quick Flashing
CHA	29	Group Very Quick
CHA	30	Very Quick
CHA	31	Quick
CHA	32	VALUE INTENTIONALLY LEFT BLANK
CHA	33	Intensified
CHA	34	VALUE INTENTIONALLY LEFT BLANK

CHA	35	VALUE INTENTIONALLY LEFT BLANK
CHA	36	Directional
CHA	37	VALUE INTENTIONALLY LEFT BLANK
CHA	38	VALUE INTENTIONALLY LEFT BLANK
CHA	39	VALUE INTENTIONALLY LEFT BLANK
CHA	40	VALUE INTENTIONALLY LEFT BLANK
CHA	41	VALUE INTENTIONALLY LEFT BLANK
CHA	42	VALUE INTENTIONALLY LEFT BLANK
CHA	43	Directional Moiré
CHA	44	Quick flashing
CHA	45	very quick flashing
CHA	46	Flash / long flash
CHA	47	Occulting / flash
CHA	48	Fixed / long flash
CHA	49	Occulting alternating
CHA	50	Long flash alternating
CHA	51	Flash alternating
CHA	52	Group alternating
CHA	53	2 fixed (vertical)
CHA	54	2 fixed (horizontal)
CHA	55	3 fixed (vertical)
CHA	56	3 fixed (horizontal)
CHA	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COD Certainty of Delineation

COD	0	Unknown
COD	1	Limits and Information Known
COD	2	Limits and Information Unknown

DAN Description of Aids to Navigation

Textual description of aids to navigation marking a feature, e.g. Marked by buoys.

DAN 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

DAT Date

DMF Density Measure (Feature Count)
Indicates the number of features of this type within an area.
DMF 0 Actual Value

Units	Format	Range	Increment	Max Char
Features	Short Integer	0±32,767	1 FEATURE	

EXS Existence Category
The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

HDI Hydrographic Depth/Height Information

HDP Hydrographic Depth

The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥ 30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing

LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

MCC Material Composition Category

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel

MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag

	MCC	102	Sludge
	MCC	103	Snow/Ice
	MCC	104	Soil
	MCC	105	Spicules
	MCC	106	Sponge
	MCC	107	Steel
	MCC	108	Stone
	MCC	109	Sugar
	MCC	110	Travertin
	MCC	111	Tufa
	MCC	112	Uranium
	MCC	113	Vegetation Products
	MCC	114	Volcanic
	MCC	115	Volcanic Ash
	MCC	116	Water
	MCC	117	Wood
	MCC	118	Zinc
	MCC	119	Evaporites
	MCC	999	Other

MIA Mine Actuation Independent Influence Acoustic Classification

MIA	1	Low freq.
MIA	2	Audio freq.
MIA	3	High freq.
MIA	4	Multiple freq.

MIC Mine Actuation Independent Contact Classification

MIC	1	Plain
MIC	2	Snagline
MIC	3	Antenna

MID Mine Identity Classification

MID	1	Unknown
MID	2	Friend
MID	3	Hostile
MID	4	Neutral

MII Mine Actuation Independent Influence Classification

MII	1	Pressure
MII	2	Combined
MII	3	Classif. of mine actuation independent influence magnetic (MIM)
MII	4	Classif. of mine actuation independent influence acoustic (MIA)

MIM Mine Actuation Independent Influence Magnetic Classification

MIM	1	Sensitive
MIM	2	Mid-sensitive
MIM	3	Course

MIO Mine Actuation Independent Other Classification

MIO	1	Electric fields
MIO	2	Laser sensors
MIO	3	Seismic

	MIO	4	Cosmic ray
	MIO	5	Infra red
	MIO	6	Redistribution
	MIO	7	Velocity field
	MIO	8	other

MMT Mine Special Information Special Mine Types Classification

MMT	1	Anti-sweeper
MMT	2	Anti-hunter
MMT	3	Anti-hovercraft
MMT	4	Drill
MMT	5	Explosive filled
MMT	6	Exercise filled
MMT	7	Exercise
MMT	8	Practice
MMT	9	Disposal charge

MNA Mine Actuation Classification

MNA	1	Classif. of mine actuation controlled (MNC)
MNA	2	Classif. of mine actuation independent (MNI)
MNA	3	Mine actuation no information

MNC Mine Actuation Controlled Classification

MNC	1	Mine actuation controlled cable
MNC	2	Classif. of mine actuation controlled cableless (MNL)

MNI Mine Actuation Independent Classification

MNI	1	Classif. of mine actuation independent contact (MIC)
MNI	2	Classif. of mine actuation independent influence (MII)
MNI	3	Classif. of mine actuation independent other (MIO)

MNL Mine Actuation Controlled Cableless Classification

MNL	1	Frequency Communications. Link
MNL	2	Explicit Communications Link
MNL	3	Alternating Current Communications Link

MPC Mine Position Classification

MPC	1	Classif. of mine position ground (MPG)
MPC	2	Classif. of mine position moored (MPM)
MPC	3	Classif. of mine position other (MPO)
MPC	4	Mine position no information.

MPG Mine Position Ground Classification

MPG	1	≤ 500 kg/charge
MPG	2	> 500 kg/charge

MPM Mine Position Moored Classification

MPM	1	Deep moored
MPM	2	Short tethered

MPO Mine Position Other Classification

MPO	1	Drifting
MPO	2	Oscillating

	MPO	3	Creeping
	MPO	4	Mobile
	MPO	5	Homing
	MPO	6	Rising
	MPO	7	Bouquet
	MPO	8	Active
MSC	Mine Status Classification		
	MSC	1	Afloat
	MSC	2	Sunk
	MSC	3	Disposed
	MSC	4	Fouled
	MSC	5	Exploded
	MSC	6	Countermined
	MSC	7	Neutralized
	MSC	8	Rendered safe
	MSC	9	Recovered
	MSC	10	Removed
MSD	Mine Special Information Special Devices Classification		
	MSD	1	Arming delay
	MSD	2	Ship count
	MSD	3	Intermittent arming
	MSD	4	Delayed rising
	MSD	5	Obstructors
	MSD	6	Sterilizers
	MSD	7	Flooders
	MSD	8	Anti-watching
	MSD	9	Classif. -mine special info special devices anti-sweep wire (MSW)
	MSD	10	Classif. -mine special info special devices anti-recovery (MSR)
	MSD	11	Classif. -mine special info special devices anti-hunting (MSH)
MSH	Mine Special Information Special Devices Anti-Hunting Classification		
	MSH	1	Anechoic coating
	MSH	2	Automatic mine burial
	MSH	3	Irregular shaping
	MSH	4	Acoustic impedance
	MSH	5	Acoustic transparency
	MSH	6	Non-metallic case
	MSH	7	Sonar decoys
	MSH	8	Other
MSI	Mine Special Information Classification		
	MSI	1	Classif. of mine special info usefulness (MSU)
	MSI	2	Classif. of mine special info special mine types (MMT)
	MSI	3	Classif. of mine special info special devices (MSD)
MSR	Mine Special Information Special Devices Anti-Recovery Classification		
	MSR	1	Switch
	MSR	2	Mooring level switch
	MSR	3	Stripping equipment

MSR 4 Other

MSU Mine Special Information Usefulness Types

MSU	1	General purpose ground
MSU	2	Deep water
MSU	3	Medium depth anti-submarine
MSU	4	Continental shelf
MSU	5	Maritime anti-invasion
MSU	6	Anti-surface effect vehicle

MSW Mine Special Information Special Devices Anti-Sweep Wire Classification

MSW	1	Chain moorings
MSW	2	Sprocket
MSW	3	Grapnel
MSW	4	Cutters
MSW	5	Sensitive tubing
MSW	6	Other

MTN Mine Track Number

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

NST Navigation System Types

OBC Oil Barrier Classification

OBC	0	Undefined
OBC	1	Oil retention (high pressure pipe)
OBC	2	Floating oil barrier

PHT Predominant Height

PRO Product Category

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil
PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge

	PRO	116	Water
	PRO	128	Refuse
	PRO	130	None
	PRO	132	Not Applicable
	PRO	133	Telecommunications
	PRO	997	Not Applicable
	PRO	998	Multiple
	PRO	999	Other

SMC Surface Material Category

SOH Severity of Hazard

SOH	0	Unknown
SOH	1	Dangerous
SOH	2	Non-Dangerous
SOH	3	Obstruction
SOH	99	Non-Dangerous to surface navigation, but avoid anchoring/trawling
SOH	999	Other

SSC Structure Shape Category

Geometric form, appearance, or configuration of the feature.

SSC	0	Unknown
SSC	1	Barrel, Ton
SSC	2	Blimp
SSC	3	Boat Hull (Float)
SSC	4	Bullet
SSC	5	VALUE INTENTIONALLY LEFT BLANK
SSC	6	Conical /Peaked/NUN
SSC	7	Cylindrical (Upright)/CAN
SSC	9	VALUE INTENTIONALLY LEFT BLANK
SSC	10	Pillar, Spindle
SSC	11	VALUE INTENTIONALLY LEFT BLANK
SSC	12	Pyramid
SSC	13	VALUE INTENTIONALLY LEFT BLANK
SSC	14	VALUE INTENTIONALLY LEFT BLANK
SSC	15	Solid/filled
SSC	16	Spar
SSC	17	Spherical (Hemispherical)
SSC	18	Truss
SSC	19	With Radome
SSC	20	VALUE INTENTIONALLY LEFT BLANK
SSC	21	Artificial Mountain
SSC	22	Crescent
SSC	23	Ferris Wheel
SSC	24	Enclosed
SSC	25	Roller coaster
SSC	26	Lateral
SSC	27	Mounds
SSC	28	Ripple
SSC	29	Star
SSC	30	Transverse
SSC	31	VALUE INTENTIONALLY LEFT BLANK
SSC	33	VALUE INTENTIONALLY LEFT BLANK

SSC	34	VALUE INTENTIONALLY LEFT BLANK
SSC	35	VALUE INTENTIONALLY LEFT BLANK
SSC	36	Windmotor
SSC	38	VALUE INTENTIONALLY LEFT BLANK
SSC	40	VALUE INTENTIONALLY LEFT BLANK
SSC	46	Open
SSC	52	'A' Frame
SSC	53	'H' Frame
SSC	54	'I' Frame
SSC	56	'Y' Frame
SSC	57	VALUE INTENTIONALLY LEFT BLANK
SSC	58	VALUE INTENTIONALLY LEFT BLANK
SSC	59	Telescoping Gasholder (Gasometer)
SSC	60	Mast
SSC	61	Tripod
SSC	62	VALUE INTENTIONALLY LEFT BLANK
SSC	63	VALUE INTENTIONALLY LEFT BLANK
SSC	65	Cylindrical with flat top
SSC	66	Cylindrical with domed top
SSC	71	Cylindrical/Peaked
SSC	73	Superbuoy
SSC	74	'T' Frame
SSC	75	Tetrahedron
SSC	76	Funnel
SSC	77	Arch
SSC	78	Multi-Arch
SSC	79	Round
SSC	80	Rectangular
SSC	81	Dragons Teeth
SSC	82	I-Beam
SSC	83	Square
SSC	84	Irregular
SSC	85	Diamond Shaped Buoy
SSC	86	Oval
SSC	87	Dome
SSC	107	Tower
SSC	108	Scanner
SSC	109	Obelisk
SSC	999	Other

SST Sound Signal Type

TXT Text Attribute
Narrative or other description.
TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

VAL Value

VRR Vertical Reference Category
Relative location referenced to sounding datum, unless otherwise indicated.
VRR 0 Unknown

VRR	1	Above Surface/Does not cover (At High Water)
VRR	2	Awash at Sounding Datum
VRR	4	Below Surface/Submerged
VRR	8	Covers and Uncovers
VRR	9	Not Applicable

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

WRK Wreck Classification

WRK	0	Undefined
WRK	1	Non-dangerous wreck
WRK	2	Dangerous wreck
WRK	3	Remains of wreck / foul area
WRK	4	Wreck showing mast / masts
WRK	5	Wreck showing any portion of hull or superstructure

ZV2 Highest Z-Value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

Miscellaneous Dangers/Hazards Feature Class

ID

F-CODE/DESCRIPTION

BD000 Underwater-Danger/Hazard

BD005 Miscellaneous Underwater Feature

BD050 Foul Ground

A region of comparatively shallow water strewn with rocks, boulders, coral, wreckage, or other obstructions, making it unsuitable for anchoring, grounding, or ground fishing.

BD070 Obstruction (Nautical)

A danger to navigation, the exact nature of which is not specified, or has not been determined.

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful

ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

BMC Bottom Material Composition

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DAN Description of Aids to Navigation

Textual description of aids to navigation marking a feature, e.g. Marked by buoys.

DAN 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

DAG *Type of Danger Category*

DAT Date

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

HDI Hydrographic Depth/Height Information

HDP Hydrographic Depth

The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

SFC Sea Floor Feature Category

SOH Severity of Hazard

SOH 0 Unknown
SOH 1 Dangerous
SOH 2 Non-Dangerous
SOH 3 Obstruction
SOH 99 Non-Dangerous to surface navigation, but avoid anchoring/trawling
SOH 999 Other

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

VAL Value

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-Value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

Depth Regions Feature Class

ID

F-CODE/DESCRIPTION

BE010 Depth Curve
A navigational safety line indicating that no sounding of a lesser depth exists seaward of the line, but greater depths may occur on the shallow side of the line.

BE015 Depth Contour
A line connecting points of equal depth at and below the hydrographic datum

BE019 Depth Area
Water area containing soundings within a defined range of values permanently at or below sounding datum.

BE021 Drying Line, Low Water Line-LWL
Delineates an area that covers and uncovers depending on the elevation of the surface above chart datum.

BE022 Sand Line
Delineates an area of sand that covers and uncovers depending on the elevation of the surface above chart datum.

BE023 Mud Line
Delineates an area of mud that covers and uncovers depending on the elevation of the surface above chart datum.

BE030 Track Swath
Area of horizontal depth coverage recorded by SONAR array systems.

BE040 Track Line
The path of travel with respect tot the earth as drawn on the chart and including the sounding information collected along the line.

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

ARA Area Coverage Attribute
The absolute area within the delineation of the feature.

ARA	0	Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

CRV Depth Curve or Contour Value

CFH Depth Curve or Contour Value High (maximum value of depth curve polygon)

CFL Depth Curve or Contour Value Low (minimum value of depth curve polygon)

HDP Hydrographic Depth
The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format Range	Increment	Max Char
Meters	Floating Point	0.1 M	

UNI Units Category

VAL Value

VDC Vertical Datum Category

VDC	0	Unknown
VDC	1	VALUE INTENTIONALLY LEFT BLANK
VDC	2	High Water
VDC	3	Higher High Water
VDC	4	Indian Spring Low Water
VDC	5	Low Water
VDC	6	Lower Low Water
VDC	7	Mean High Water
VDC	8	Mean High Water Neaps
VDC	9	Mean High Water Springs
VDC	10	Mean Higher High Water
VDC	11	Mean Low Water
VDC	12	Mean Low Water Neaps
VDC	13	Mean Low Water Springs
VDC	14	Mean Lower Low Water
VDC	15	Mean Sea Level
VDC	16	Mean Tide Level
VDC	17	Neap Tide
VDC	18	Spring Tide
VDC	19	Mean Lower Low Water Springs
VDC	20	Lowest Astronomical Tide
VDC	21	Chart Datum (Unspecified)
VDC	22	Highest Astronomical Tide
VDC	24	Mean Higher Water
VDC	26	Highest Normal High Water
VDC	28	Highest High Water
VDC	30	Indian Spring High Water
VDC	90	Lowest low water
VDC	91	Lowest low water springs
VDC	92	Approximate mean low water springs
VDC	93	Low water springs
VDC	94	Approximate lowest astronomical tide
VDC	95	Nearly lowest low water
VDC	96	Approximate mean low water
VDC	97	Approximate mean lower low water
VDC	98	Approximate mean sea level
VDC	99	High water springs
VDC	999	Other

Depth Sounding Feature Class

ID

F-CODE/DESCRIPTION

BE020 Sounding
A measured water depth or spot depth which has been reduced to chart datum.

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

DAT Date

EXS Existence Category
The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation

EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

HDH Hydrographic Drying Height

HDP Hydrographic Depth
The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

SND Sounding Category

SVC Sounding Velocity

VAL Value

Tides Feature Class

ID

F-CODE/DESCRIPTION

BG020 Tide Gauge
An instrument for measuring the height of the tide.
BG030 Tide Data Point
Place for whcih tabulated tidal stream data are given.
BG050 Surf

BAN Breaker Angle

BAP Breaker Period

DBH Dominant Breaker Height

DBT Dominant Breaker Type

LIT Littoral Current

MBH *Maximum Breaker Height*

MCC Material Composition Category

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam

MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar
MCC	110	Travertin
MCC	111	Tufa
MCC	112	Uranium

MCC	113	Vegetation Products
MCC	114	Volcanic
MCC	115	Volcanic Ash
MCC	116	Water
MCC	117	Wood
MCC	118	Zinc
MCC	119	Evaporites
MCC	999	Other

NSL *Number of Surf Lines*

SBH *Significant Breaker Height*

WD7 *Surf Zone Width*

WIR *Wind Direction*

WIS *Wind Speed*

Currents Feature Class

BG010 Current Flow
The flow direction of a current.

BG011 Tideway
A natural watercourse in intertidal areas where water flows during the ebb and flow.

BG012 Water Turbulence
The disturbance of water caused by the interaction of any combination of waves, currents, eddies, tidal streams, wind, shoal patches and obstructions.

BG040 Current Diagram
A graph or chartlet showing the average speed of the flood and ebb currents at different periods of the current cycle.

CRN Current Rate Minimum
Minimum speed of current.

CRN	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CRS Current Rate (Speed)
Current speed in knots.

CRS	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CRX Current Rate Maximum
Maximum speed of current.

CRX	0	Actual Value

Units	Format	Range	Increment	Max Char
Knots	Floating Point		0.1 KNOT	

CUR Current Type Category

CUR	0	Unknown
CUR	1	Ebb
CUR	2	Flood
CUR	3	General Flow
CUR	4	River Flow
CUR	5	Ocean Flow
CUR	999	Other

DOF Direction of Flow

Bearing of movement or direction of the flow.

DOF	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-359	1 DEG	

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched

EXS 59 Not Usable
EXS 60 Indefinite (Shoreline)
EXS 61 Definite Shoreline
EXS 62 Partially Destroyed
EXS 65 Inactive
EXS 998 Not Applicable
EXS 999 Other

HS1 Current Information (1)

HS2 Current Information (2)

NAM Name
Any Identifier or code.
NAM 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

Inland Water Feature Class

ID

F-CODE/DESCRIPTION

BH000 Inland Water
Any known inland waterway body, such as lake/pond, reservoir, river/stream, etc., requiring separation into individual features due to status/type grouping that is curently indeterminable.

BH010 Aqueduct
A pipe or artificial channel designed to transport water from a remote source, usually by gravity.

BH020 Canal
A man-made or improved natural waterway used for transportation.

BH030 Ditch
A channel constructed for the purpose of irrigation or drainage.

BH050 Fish Hatchery/Fish Farm/Marine Farm
An enclosure of water used for the breeding and/or rearing of fish.

BH060 Flume
An open, inclined channel which carries water for use in such operations as mining or logging.

BH075 Fountain
An artificial spring with water

BH080 Lake/Pond
A body of water surrounded by land.

BH095 Marsh/Swamp
A saturated area, at times covered with water, supporting vegetation which may include trees.

BH100 Moat
A trench usually filled with water, that surrounds a body of land.

BH110 Penstock
A pipeline or channel generally used by hydroelectric plants or water mills to transport water by gravity or under pressure.

BH115 Underground Water/Phreatic Water
Water situated underground but reachable by wells.

BH120 Rapids
A place in a stream or river where the current is swift and the surface is usually broken by boulders and rocks.

BH130 Reservoir
A man-made enclosure or area formed for the storage of water.

BH140 River/Stream
A natural flowing watercourse.

BH150 Salt Pan
A flat area of natural surface salt deposits

BH155 Salt Evaporator
Shallow pools, normally man-made, used for the natural evaporation of water for the collection of salt.

BH165 Spillway
A passage for surplus water to run over or around a dam.

BH170 Spring/Water-Hole
A natural outflow of water from below the ground surface.

BH180 Waterfall
A vertical or nearly vertical descent of water.

BH190 Lagoon/Reef Pool
Open body of water separated from the sea by sand bank or coral reef.

SA060 Covered Drainage
A natural watercourse or man-made waterway that is covered preventing its observation or further classification.

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation
The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute
The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATC Aqueduct Type Category

ATC	0	Unknown
ATC	1	Qanat/Kanat/Karez Shaft
ATC	2	Other
ATC	3	Underground Aqueduct

ATN Aids to Navigation

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

BGL Bank Gradient Left

Slope of the left bank (facing downstream) above water level.

BGL 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short integer	±90	1 %	

BGR Bank Gradient Right

Slope of the right bank (facing downstream) above water level.

BGL 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short integer	±90	1 %	

BHL Bank Height Left

Height of the left bank above the water level (facing downstream) to the average water level.

BHL 0 Actual Value

Units	Format	Range	Increment	Max Char
Decimeter	Short integer	0±32,767	1 DM	

BHR Bank Height Right

Height of the right bank above the water level (facing downstream) to the average water level.

BHL 0 Actual Value

Units	Format	Range	Increment	Max Char
Decimeter	Short integer	0±32,767	1 DM	

BUD Brush/Undergrowth Density Code

Density of brush or undergrowth.

BUD	0	Unknown
BUD	1	Open (≤5%)
BUD	2	Sparse (>5%≤15%)
BUD	3	Medium (>15%≤50%)
BUD	4	Dense (>50%)
BUD	5	Not Applicable

BVL Bank Vegetation Left

Density of vegetation found on the downstream left bank.

BVL	0	Unknown
BVL	1	Open (≤5%)
BVL	2	Sparse (>5%≤15%)
BVL	3	Medium (>15%≤50%)
BVL	4	Dense (>50%)

BVR Bank Vegetation Right

Density of vegetation found on the downstream right bank.

BVR	0	Unknown
BVR	1	Open (≤5%)
BVR	2	Sparse (>5%≤15%)
BVR	3	Medium (>15%≤50%)
BVR	4	Dense (>50%)

CDA Covered Drain Attribute

CDA	1	Uncovered
CDA	2	Covered
CDA	3	Not Applicable

CDL Covered Drain Length

Length of covered drainage way.

CDL 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DEP Depth Below Surface Level

Distance measured from the highest point at surface level to the lowest point of the feature below the surface. Recorded values are positive numbers.

DEP 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

DMT Density Measure (% of Tree Cover)

Canopy cover measured by percent within area of feature during the summer season.

DMT 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

HDP Hydrographic Depth

The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point	0.1 M		

HFC Hydrological Form Category

Form or configuration of the hydrological feature.

HFC	0	Unknown
HFC	1	Channelized Stream
HFC	2	Disappearing
HFC	7	Non-Tidal
HFC	8	Normal Channel
HFC	10	Tidal /Tidal Fluctuating
HFC	14	Braided
HFC	16	Dissipating
HFC	19	Gorge
HFC	21	Wadi/Wash
HFC	30	Disappearing in sinkhole
HFC	31	Disappearing in other than sinkhole
HFC	32	Oxbow
HFC	33	Split stream
HFC	999	Other

HYC Hydrological Category

Identifies the annual water content of the feature.

HYC	0	Unknown
HYC	2	Not Applicable
HYC	3	Dry
HYC	6	Non-Perennial /Intermittent /Fluctuating
HYC	8	Perennial /Permanent
HYC	999	Other

LAB Feature Label

Label applied to the feature.

LAB 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥ 30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

MCC Material Composition Category

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk

MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters

MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar
MCC	110	Travertin
MCC	111	Tufa
MCC	112	Uranium
MCC	113	Vegetation Products
MCC	114	Volcanic
MCC	115	Volcanic Ash
MCC	116	Water
MCC	117	Wood
MCC	118	Zinc
MCC	119	Evaporites
MCC	999	Other

NAM Name

Any Identifier or code.

NAM	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

OHC Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

OWO Over Water Obstruction

Indicates the presence of an obstruction over an area of navigable water.

OWO 1 Feature crosses navigable water

OWO 2 Feature does not cross navigable water

PHT Predominant Height

Height of 51% or more of the feature. If not obtainable, then the average height of the feature will be used.

PHT 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

PRC Periodic Restriction Category

PRC 1 Perennially Open, Not Subject to Ice
PRC 2 Subject to Ice
PRC 3 Permanent Ice
PRC 4 Seasonal limit - Jan.
PRC 5 Seasonal limit - Feb.
PRC 6 Seasonal limit - Mar.
PRC 7 Seasonal limit - Apr.
PRC 8 Seasonal limit - May
PRC 9 Seasonal limit - Jun.
PRC 10 Seasonal limit - Jul.
PRC 11 Seasonal limit - Aug.
PRC 12 Seasonal limit - Sep.
PRC 13 Seasonal limit - Oct.
PRC 14 Seasonal limit - Nov.
PRC 15 Seasonal limit - Dec.
PRC 16 Closed
PRC 999 Other

RPA Required Port Access

An indicator that a water feature is used for access to a required port, or that the feature is in a water body used for access to a required port.

RPA 1 Access Required
RPA 2 Access Not Required

SCC Spring/Well Characteristic Category

Type of available water.

SCC 0 Unknown
SCC 1 Alkaline
SCC 2 Not Applicable

SCC	3	VALUE INTENTIONALLY LEFT BLANK
SCC	4	Mineral
SCC	5	VALUE INTENTIONALLY LEFT BLANK
SCC	6	VALUE INTENTIONALLY LEFT BLANK
SCC	9	Freshwater /Potable
SCC	10	Salt
SCC	11	Fresh
SCC	999	Other

SDS Stem Diameter Size

The average diameter of trees in a stand, measured at a height of 1.4 m above the ground.

SDS	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 Meter	

SLT Shoreline Type

SLT	0	Unknown
SLT	6	Mangrove/Nipa
SLT	8	Marsh, Swamp
SLT	10	Rocky
SLT	11	Rubble
SLT	14	Stony, Shingly
SLT	15	Other

TID Tidal/Non-Tidal Category

TID	1	Non-Tidal
TID	2	Tidal / Tidal fluctuating

TSC Tree Spacing Category

Average distance between adjacent tree centerlines within area of feature.

TSC	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

TXT Text Attribute

Narrative or other description.

TXT	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	1	VALUE INTENTIONALLY LEFT BLANK
USE	2	VALUE INTENTIONALLY LEFT BLANK
USE	3	VALUE INTENTIONALLY LEFT BLANK
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal

USE	8	Military
USE	9	VALUE INTENTIONALLY LEFT BLANK
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder

USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond

	USE	994	Dugout
	USE	995	Drinking Water
	USE	996	Triangulation
	USE	997	Cable Sign/Pipeline Indicator
	USE	998	Sea-Plane landing area
	USE	999	Other

VEG Vegetation Characteristics

Type of plant or plantings.

VEG	0	Unknown
VEG	1	Dry Crops
VEG	2	VALUE INTENTIONALLY LEFT BLANK
VEG	3	VALUE INTENTIONALLY LEFT BLANK
VEG	4	Rice Paddies
VEG	5	Agriculture with scattered forests or rows of tree
VEG	6	Cranberry
VEG	7	Peat
VEG	8	Pasture, meadow, steppe
VEG	9	Grassland with scattered trees
VEG	10	Tropical Grass
VEG	11	Casuarina
VEG	12	Coniferous
VEG	16	Nipa Palm
VEG	17	Palm
VEG	18	Filao
VEG	19	Mangrove
VEG	20	Grove
VEG	22	Wheat
VEG	23	Corn
VEG	24	Deciduous
VEG	25	Evergreen
VEG	26	Cork-Oak
VEG	27	Fir
VEG	28	Beech
VEG	29	Eucalyptus
VEG	30	Oak
VEG	31	Pine
VEG	32	Walnut
VEG	33	Maple
VEG	34	Poplar
VEG	35	Olive
VEG	36	Chestnut
VEG	37	Larch
VEG	38	Cypress
VEG	39	Peach
VEG	40	Apple
VEG	41	Carob
VEG	42	Almond
VEG	43	Citrus
VEG	44	Elm
VEG	45	Ilex
VEG	46	Birch
VEG	47	Ash
VEG	48	Hazel

VEG	49	VALUE INTENTIONALLY LEFT BLANK
VEG	49	Mixed Deciduous
VEG	50	Mixed Trees
VEG	51	Herb/Shrub
VEG	52	Forest Clearing
VEG	53	Brushland open to medium density
VEG	54	Brushland medium to dense density
VEG	55	With trees
VEG	56	Without trees
VEG	999	Other

VRC Vegetation Roughness Category

An indexed value indicating the roughness of vegetation.

VRC	1	0.00 100% reduction
VRC	2	0.05
VRC	3	0.10
VRC	4	0.15
VRC	5	0.20
VRC	6	0.25
VRC	7	0.30
VRC	8	0.35
VRC	9	0.40
VRC	10	0.45
VRC	11	0.50 50% reduction.
VRC	12	0.55
VRC	13	0.60
VRC	14	0.65
VRC	15	0.70
VRC	16	0.75
VRC	17	0.80
VRC	18	0.85
VRC	19	0.90
VRC	20	0.95
VRC	21	1.00 0% reduction.
VRC	22	Not evaluated area where development has precluded evaluation of soil.
VRC	23	NA

VRR Vertical Reference Category

Relative location referenced to sounding datum, unless otherwise indicated.

VRR	0	Unknown
VRR	1	Above Surface/Does not cover (At High Water)
VRR	2	Awash at Sounding Datum
VRR	4	Below Surface/Submerged
VRR	8	Covers and Uncovers
VRR	9	Not Applicable

WD3 Military Gap Width

The minimum horizontal bridging distance between banks (in decimeters).

WD3	0	Actual Value

Units	Format	Range	Increment	Max Char
Decimeters	Short Integer	0±32,767	1 DM	

WDA Water Depth Average

The average water depth (in meters).

WDA 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

WVA Water Velocity Average

Average water velocity, estimated in meters/second within delineation of feature exclusive of high water due to runoff or low water due to drought.

WVA 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters/Sec.	Short Integer	0±32,767	1 M/S	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-Value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

Inland Routes, Shorelines, and Related Land Feature Class

ID

F-CODE/DESCRIPTION

BH040 Filtration Beds/Aeration Beds
An area containing layers of material used to filter or aerate water.

BH070 Ford
A shallow place in a body of water used as a crossing.

BH090 Land Subject to Inundation
An area periodically covered by flood water, excluding tidal waters.

BH091 Flooded Area
Land subject to controlled inundation.

BH135 Rice Field
An area periodically covered with water and used for growing rice.

BH141 River Bank
The limit line between the water area of a river and the area of land.

BH145 River Stream Vanishing Point
Point at which a river or stream passes into the ground.

BH200 Miscellaneous Surface Drainage Feature

Surface drainage feature which is of a minor nature and which is not included in other feature codings in this specification.

BH210 Inland Shoreline
The land-water boundary for all inland hydrographic features having shorelines, Lake/Pond or Island, except for left and right banks of River/Stream and Canal.

BH501 River Navigation Route
The route in a river suitable for the largest allowed vessels.

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation
The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute
The absolute area within the delineation of the feature.

ARA	0	Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

COC Conspicuous Category
A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FCO Feature Configuration

FCO	0	Unknown
FCO	1	Dispersed
FCO	2	Multiple
FCO	3	Single
FCO	4	Inclined
FCO	5	Divided same widths
FCO	6	Divided different widths
FCO	7	Non-divided
FCO	8	Poorly defined
FCO	9	Well-defined
FCO	11	Double

FCO	12	Justaxposition
FCO	999	Other

FTC Farming Type Category

Type of field pattern

FTC	0	Unknown
FTC	1	Slash & Burn-Shifting cultivation
FTC	2	Permanent field
FTC	3	Terraced
FTC	4	Ditch Irrigation
FTC	5	Grazing
FTC	6	Regular (planting pattern)
FTC	7	Linear (planting pattern)
FTC	8	Shifting Cultivation/Crop Rotation
FTC	9	Not Applicable
FTC	98	Type of field Pattern
FTC	999	Other

HFC Hydrological Form Category

Form or configuration of the hydrological feature.

HFC	0	Unknown
HFC	1	Channelized Stream
HFC	2	Disappearing
HFC	7	Non-Tidal
HFC	8	Normal Channel
HFC	10	Tidal /Tidal Fluctuating
HFC	14	Braided
HFC	16	Dissipating
HFC	19	Gorge
HFC	21	Wadi/Wash
HFC	30	Disappearing in sinkhole
HFC	31	Disappearing in other than sinkhole
HFC	32	Oxbow
HFC	33	Split stream
HFC	999	Other

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT	0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

HOC Hydrographic Origin Category

Origin of the feature.

HOC	1	Controlled
HOC	4	Man-made
HOC	5	Natural

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

	LEN	0	Actual Value			
	Units		Format	Range	Increment	Max Char
	Meters		Short Integer	0±32,767	1 M	

MCC Material Composition Category

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead

MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar

	MCC	110	Travertin
	MCC	111	Tufa
	MCC	112	Uranium
	MCC	113	Vegetation Products
	MCC	114	Volcanic
	MCC	115	Volcanic Ash
	MCC	116	Water
	MCC	117	Wood
	MCC	118	Zinc
	MCC	119	Evaporites
	MCC	999	Other

NAM — Name

Any Identifier or code.

NAM	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

OHC — Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

RST — Roadway/Runway Surface Type

The physical surface composition of a road.

RST	0	Unknown
RST	1	Hard /Paved
RST	2	Loose /Unpaved
RST	3	Loose /Light
RST	4	Corduroy
RST	5	Grass/Sod (Soft)
RST	6	Natural
RST	7	Permanent
RST	8	Temporary
RST	998	Not Applicable
RST	999	Other

SLT — Shoreline Type

SLT	0	Unknown
SLT	6	Mangrove/Nipa
SLT	8	Marsh, Swamp
SLT	10	Rocky
SLT	11	Rubble
SLT	14	Stony, Shingly
SLT	15	Other

VEG — Vegetation Characteristics

Type of plant or plantings.

VEG	0	Unknown
VEG	1	Dry Crops

VEG	2	VALUE INTENTIONALLY LEFT BLANK
VEG	3	VALUE INTENTIONALLY LEFT BLANK
VEG	4	Rice Paddies
VEG	5	Agriculture with scattered forests or rows of tree
VEG	6	Cranberry
VEG	7	Peat
VEG	8	Pasture, meadow, steppe
VEG	9	Grassland with scattered trees
VEG	10	Tropical Grass
VEG	11	Casuarina
VEG	12	Coniferous
VEG	16	Nipa Palm
VEG	17	Palm
VEG	18	Filao
VEG	19	Mangrove
VEG	20	Grove
VEG	22	Wheat
VEG	23	Corn
VEG	24	Deciduous
VEG	25	Evergreen
VEG	26	Cork-Oak
VEG	27	Fir
VEG	28	Beech
VEG	29	Eucalyptus
VEG	30	Oak
VEG	31	Pine
VEG	32	Walnut
VEG	33	Maple
VEG	34	Poplar
VEG	35	Olive
VEG	36	Chestnut
VEG	37	Larch
VEG	38	Cypress
VEG	39	Peach
VEG	40	Apple
VEG	41	Carob
VEG	42	Almond
VEG	43	Citrus
VEG	44	Elm
VEG	45	Ilex
VEG	46	Birch
VEG	47	Ash
VEG	48	Hazel
VEG	49	VALUE INTENTIONALLY LEFT BLANK
VEG	49	Mixed Deciduous
VEG	50	Mixed Trees
VEG	51	Herb/Shrub
VEG	52	Forest Clearing
VEG	53	Brushland open to medium density
VEG	54	Brushland medium to dense density
VEG	55	With trees
VEG	56	Without trees
VEG	999	Other

VRC Vegetation Roughness Category

An indexed value indicating the roughness of vegetation.

VRC	1	0.00	100% reduction
VRC	2	0.05	
VRC	3	0.10	
VRC	4	0.15	
VRC	5	0.20	
VRC	6	0.25	
VRC	7	0.30	
VRC	8	0.35	
VRC	9	0.40	
VRC	10	0.45	
VRC	11	0.50	50% reduction.
VRC	12	0.55	
VRC	13	0.60	
VRC	14	0.65	
VRC	15	0.70	
VRC	16	0.75	
VRC	17	0.80	
VRC	18	0.85	
VRC	19	0.90	
VRC	20	0.95	
VRC	21	1.00	0% reduction.
VRC	22	Not evaluated area where development has precluded evaluation of soil.	
VRC	23	NA	

WD1 Minimum Traveled Way Width

Minimum width of the traveled way, excluding hard pavements and shoulders (in decimeters).

WD1 0 Actual Value

Units	Format	Range	Increment	Max Char
Decimeters	Short Integer		0±32,767	1 DM

WD5 Width Top

The width at the top of a feature (in meters).

WD5 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

Water Flow Regulation Feature Class

ID

F-CODE/DESCRIPTION

BI020 Dam/Weir
A permanent barrier across a watercourse used to impound water or to control its flow.

BI030 Lock
An enclosure with a pair or series of gates used for raising or lowering vessels as they pass from one water level to another.

BI039 Sluice
An open, inclined conduit fitted with a gate for regulating water flow and may be employed in mine ore washing operations.

BI040 Sluice gate
Gate used to regulate water flow.

BI041 Gate (Nautical)
A structure that may be swung, drawn, or lowered to block an entrance or passageway.

BI042 Caisson
The gate at the end of a drydock which excludes the water after pumping out the dock. Pumping engines are often located in the caisson.

BI043 Flood Barrage
An artificial obstruction placed in a water course to increase depth or to divert it.

BI070 Gauging Station
A device which monitors stream flow.

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation
The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ARR Angle of Radar Reflector
If DIR = 3 then ARR is the angular distance measured from true north (0 deg) clockwise to the reflective side of the feature.

ARR	0	Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	8	VALUE INTENTIONALLY LEFT BLANK
CCC	9	Orange
CCC	10	VALUE INTENTIONALLY LEFT BLANK
CCC	11	VALUE INTENTIONALLY LEFT BLANK
CCC	12	Red
CCC	13	VALUE INTENTIONALLY LEFT BLANK
CCC	14	Violet
CCC	15	White
CCC	16	VALUE INTENTIONALLY LEFT BLANK
CCC	17	VALUE INTENTIONALLY LEFT BLANK
CCC	18	VALUE INTENTIONALLY LEFT BLANK
CCC	19	Yellow
CCC	20	Red & White (RW)
CCC	21	Red & Green (RG)
CCC	22	Red & Black (RB)
CCC	23	Red-Green-Red (RGR)
CCC	24	Green & White (GW)
CCC	25	Green & Red (GR)
CCC	26	Green & Black (GB)
CCC	27	Green-Red-Green (GRG)
CCC	28	Green-Yellow-Black (GYB)
CCC	29	Yellow & Black (YB)
CCC	30	Yellow-Black-Yellow (YBY)
CCC	31	Yellow & Red (YR)
CCC	32	Yellow & Green (YG)
CCC	33	Yellow-Red-White (YRW)
CCC	34	Black & Yellow (BY)
CCC	35	Black-Yellow-Black (BYB)
CCC	36	Black-Red-Black (BRB)
CCC	37	Black & White (BW)
CCC	38	Black & Red (BR)
CCC	39	Black & Green (BG)
CCC	40	White & Red (WR)
CCC	41	White & Orange (W Or)

CCC	42	White & Green (WG)
CCC	43	White & Black (WB)
CCC	44	White & Yellow (WY)
CCC	45	White-Red-Green (WRG)
CCC	46	White-Green-White (WGW)
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	50	Nautical Purple
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DIR Directivity

The side or sides of a feature which produces the greatest reflectivity potential.

DIR	0	Unknown
DIR	1	Uni
DIR	2	Bi
DIR	3	Omni
DIR	999	Other

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed

EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

GNC Gate (Nautical) Classification

GNC	0	Undefined
GNC	1	Gate in general
GNC	4	Lock gate

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

HGU Height 2/Depth 2

Height above water level on upstream side.

HGU 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ³ 20 Meters but < 30 Meters
LOC	7	Covered > = 30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

MCC Material Composition Category

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt

MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal

MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar
MCC	110	Travertin
MCC	111	Tufa
MCC	112	Uranium
MCC	113	Vegetation Products
MCC	114	Volcanic
MCC	115	Volcanic Ash
MCC	116	Water
MCC	117	Wood
MCC	118	Zinc
MCC	119	Evaporites

MCC 999 Other

NAM Name
Any Identifier or code.
NAM 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			80

TUC Transportation Use Category

TUC	0	Unknown
TUC	1	Both Road and Railroad
TUC	2	Highway
TUC	3	Railroad
TUC	4	Road
TUC	6	Street
TUC	7	Through Routes
TUC	8	Air Traffic Control
TUC	12	Marine
TUC	13	Air
TUC	14	Bus
TUC	17	Pedestrian
TUC	18	Pipeline
TUC	19	Animal
TUC	20	Aircraft
TUC	21	Ship
TUC	22	Automotive
TUC	23	Boat
TUC	24	Bulk Motor Boat/Barge
TUC	25	VALUE INTENTIONALLY LEFT BLANK
TUC	26	Passenger
TUC	27	Chair lift
TUC	28	Ski tow
TUC	29	Sleigh tow
TUC	30	Cart tow
TUC	31	Motor Cycle
TUC	32	Bicycle
TUC	33	Minerals
TUC	34	Waterway
TUC	35	No Transport Use
TUC	36	Slip Road/Access Road
TUC	37	Portage
TUC	38	Canal
TUC	39	Caravan Route
TUC	40	Subway
TUC	999	Other

TXT Text Attribute
Narrative or other description.
TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	1	VALUE INTENTIONALLY LEFT BLANK
USE	2	VALUE INTENTIONALLY LEFT BLANK
USE	3	VALUE INTENTIONALLY LEFT BLANK
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	9	VALUE INTENTIONALLY LEFT BLANK
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute

USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container

USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WD5 Width Top

The width at the top of a feature (in meters).

WD5 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-Value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

Water Containment Feature Class

ID

F-CODE/DESCRIPTION

BI010 Cistern
Man-made container used for collection or storage of rain water.

BI050 Water Intake Tower
Tower-like structure associated with a dam or water source and used for the intake of water.

BI060 Fish Ladder

Series of ascending pools constructed to enable fish to swim upstream around or over a dam.

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	8	VALUE INTENTIONALLY LEFT BLANK
CCC	9	Orange
CCC	10	VALUE INTENTIONALLY LEFT BLANK
CCC	11	VALUE INTENTIONALLY LEFT BLANK
CCC	12	Red
CCC	13	VALUE INTENTIONALLY LEFT BLANK
CCC	14	Violet
CCC	15	White
CCC	16	VALUE INTENTIONALLY LEFT BLANK
CCC	17	VALUE INTENTIONALLY LEFT BLANK
CCC	18	VALUE INTENTIONALLY LEFT BLANK
CCC	19	Yellow
CCC	20	Red & White (RW)
CCC	21	Red & Green (RG)
CCC	22	Red & Black (RB)
CCC	23	Red-Green-Red (RGR)
CCC	24	Green & White (GW)
CCC	25	Green & Red (GR)
CCC	26	Green & Black (GB)
CCC	27	Green-Red-Green (GRG)
CCC	28	Green-Yellow-Black (GYB)
CCC	29	Yellow & Black (YB)
CCC	30	Yellow-Black-Yellow (YBY)
CCC	31	Yellow & Red (YR)
CCC	32	Yellow & Green (YG)
CCC	33	Yellow-Red-White (YRW)

CCC	34	Black & Yellow (BY)
CCC	35	Black-Yellow-Black (BYB)
CCC	36	Black-Red-Black (BRB)
CCC	37	Black & White (BW)
CCC	38	Black & Red (BR)
CCC	39	Black & Green (BG)
CCC	40	White & Red (WR)
CCC	41	White & Orange (W Or)
CCC	42	White & Green (WG)
CCC	43	White & Black (WB)
CCC	44	White & Yellow (WY)
CCC	45	White-Red-Green (WRG)
CCC	46	White-Green-White (WGW)
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	50	Nautical Purple
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DIR — Directivity

The side or sides of a feature which produces the greatest reflectivity potential.

DIR	0	Unknown
DIR	1	Uni
DIR	2	Bi
DIR	3	Omni
DIR	999	Other

EXS — Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

LEN Length

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

MCC Material Composition Category

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber

MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar
MCC	110	Travertin
MCC	111	Tufa

MCC	112	Uranium
MCC	113	Vegetation Products
MCC	114	Volcanic
MCC	115	Volcanic Ash
MCC	116	Water
MCC	117	Wood
MCC	118	Zinc
MCC	119	Evaporites
MCC	999	Other

TXT Text Attribute

Narrative or other description.

TXT	0	Actual Value

Units	Format	Range	Increment	Max Char
Text String	Lexical			256

WD5 Width Top

The width at the top of a feature (in meters).

WD5	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN. For a bridge, the width is the measurement perpendicular to the axis between the abutments.

WID	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-Value

Elevation above a given datum to the highest portion of the feature.

ZV2	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

Data Quality Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area

VCA Void Collection Attribute

VCA	0	Unknown
VCA	1	Data Not Requested By User
VCA	2	Area Too Rough to Collect

	VCA	3	No Available Imagery
	VCA	4	Different Height Threshold Within Data Block
	VCA	5	Low Data Collection Criteria
	VCA	6	No Available Map Source
	VCA	7	No Suitable Imagery
	VCA	8	Data Not Required
	VCA	999	Other

VCT Void Collection Type

VCT	0	Unknown
VCT	1	Relief
VCT	2	Other

Appendix G. Industry Coverage

Extraction Feature Class

ID

F-Code/Description

AA010 Mine
AA012 Quarry
AA013 Pit
AA052 Oil/Gas Field
AA050 Well

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused

EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

HYC Hydrological Category

Identifies the annual water content of the feature.

HYC	0	Unknown
HYC	2	Not Applicable
HYC	3	Dry
HYC	6	Non-Perennial /Intermittent /Fluctuating
HYC	8	Perennial /Permanent
HYC	999	Other

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters

LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

MIN Mining Category

Unique mining characteristic.

MIN	0	Unknown
MIN	1	Borrow
MIN	2	Horizontal Shaft
MIN	3	Open Pit
MIN	4	Placer
MIN	5	Prospect
MIN	6	Strip
MIN	7	Vertical Shaft
MIN	8	Peat Cuttings
MIN	9	Below Surface Mine
MIN	998	Not Applicable
MIN	999	Other

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

PRO Product Category

Principal material involved or product resulting from activity at site.

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil
PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge
PRO	116	Water
PRO	128	Refuse
PRO	130	None
PRO	132	Not Applicable
PRO	133	Telecommunications
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SCC Spring/Well Characteristic Category

Type of available water.

SCC	0	Unknown
SCC	1	Alkaline
SCC	2	Not Applicable
SCC	3	VALUE INTENTIONALLY LEFT BLANK
SCC	4	Mineral
SCC	5	VALUE INTENTIONALLY LEFT BLANK
SCC	6	VALUE INTENTIONALLY LEFT BLANK
SCC	9	Freshwater /Potable
SCC	10	Salt
SCC	11	Fresh

SCC 999 Other

SER *Self Emitter*
Indicates that an object has self heating characteristics
SER T
SER F

SMS *Surface Material Subtype*
Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus

SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc

SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

SWT Well/Spring Type

Identifies the type of spring or water-hole.

SWT	0	Unknown
SWT	1	Geyser
SWT	2	Hot Spring
SWT	3	Fumarole
SWT	4	Artesian
SWT	5	Water Hole
SWT	6	Walled-In Spring
SWT	999	Other

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI

TTP 4 SMFD

TXT Text Attribute
Narrative or other description.
TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WFT Well Feature Type
Type of well.

WFT	0	Unknown
WFT	1	Waterhole
WFT	2	Walled-in Spring
WFT	3	Artesian Well
WFT	4	Fountain
WFT	5	Dug or Drilled Well

WID Width
A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.
WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value
Elevation above a given datum to the highest portion of the feature.
ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Associated Extraction Feature Class
ID

F-Code/Description

AA011 Quarry/Mine Shear Wall
AA040 Rig/Superstructure
AA051 Wellhead
The top of a well, as in oil, gas, or water well, that caps the well structure and which may be located on land or partially submerged offshore which nautical vessels can use for lashings.

ABS *Absorptivity*
Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate

CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DEP — Depth Below Surface Level

Distance measured from the highest point at surface level to the lowest point of the feature below the surface. Recorded values are positive numbers.

DEP 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational

EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

HYC Hydrological Category

Identifies the annual water content of the feature.

HYC	0	Unknown
HYC	2	Not Applicable
HYC	3	Dry
HYC	6	Non-Perennial /Intermittent /Fluctuating
HYC	8	Perennial /Permanent
HYC	999	Other

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing

LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS 0 Unknown

SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess

SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T

SPC F

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*
The degree to which a surface is transparent.
Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*
Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

WID Width
A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.
WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value
Elevation above a given datum to the highest portion of the feature.
ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Disposal Feature Class

ID

F-Code/Description

AB000	Disposal Site/Waste Pile
AB010	Wrecking Yard/Scrap Yard

AB020 Burner
AB021 Diffuser

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple

CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable

EXS 60 Indefinite (Shoreline)
EXS 61 Definite Shoreline
EXS 62 Partially Destroyed
EXS 65 Inactive
EXS 998 Not Applicable
EXS 999 Other

FOT *Feature Onset*
Indicator for changing radar backscatter coefficients.
FOT T
FOT F

HGT Height Above Surface Level
Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.
HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LEN Length/Diameter of Point Feature
A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.
LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*
Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.
LLE T
LLE F

LLL *Long Lineal*
Reference to a point feature which could potentially look like a long linear feature by radar.
Applies to point features
LLL T
LLL F

LN1 *Layer Number*
A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*
A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

PRO Product Category

Principal material involved or product resulting from activity at site.

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil
PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge
PRO	116	Water
PRO	128	Refuse
PRO	130	None
PRO	132	Not Applicable
PRO	133	Telecommunications
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel

SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated

SMS 999 Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*
The degree to which a surface is transparent.

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*
Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).
TTP 1 RGB
TTP 2 GRAY
TTP 3 MULTI
TTP 4 SMFD

TXT Text Attribute
Narrative or other description.
TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WID Width
A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.
WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Processing Industry Feature Class

ID

F-Code/Description

AC000 Processing Plant/Treatment Plant
AC010 Blast Furnace
AC020 Catalytic Cracker
AC030 Settling Basin/Sludge Pond
AC040 Oil/Gas Facilities
AC050 Works

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN 0 Unknown
ATN 1 Marked
ATN 2 Unmarked
ATN 3 Lit
ATN 4 Unlit
ATN 999 Other

CCC Color Code Category

CCC 0 Unknown/Not applicable
CCC 1 Black
CCC 2 Blue
CCC 3 Brown
CCC 4 Gray
CCC 5 Green
CCC 7 Chocolate
CCC 9 Orange
CCC 12 Red
CCC 14 Violet
CCC 15 White
CCC 19 Yellow
CCC 47 Magenta
CCC 48 Amber

CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About

EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

PRO Product Category

Principal material involved or product resulting from activity at site.

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil

PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge
PRO	116	Water
PRO	128	Refuse
PRO	130	None
PRO	132	Not Applicable
PRO	133	Telecommunications
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

Surface Material Subtype

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia

SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage

SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T

SPC F

SS1 *Sensors Supported*

SS2

SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T

SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Associated Industrial Structure Feature Class

ID

F-Code/Description

AF010	Chimney/Smokestack
AF020	Conveyor
AF030	Cooling Tower
AF060	Engine Test Cell
AF070	Flare Pipe

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DMS Density Measure (Structure Count)

Density of structures within a square kilometer (1000m x 1000m).

DMS 0 Actual Value

Units	Format	Range	Increment	Max Char
Structures	Short Integer	0±32,767	1 STRUCTURE	

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni

DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive

EXS 998 Not Applicable
EXS 999 Other

FOT *Feature Onset*
Indicator for changing radar backscatter coefficients.
FOT T
FOT F

HGT Height Above Surface Level
Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.
HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC *Internal Material Category*
Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature
A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.
LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*
Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.
LLE T
LLE F

LLL *Long Lineal*
Reference to a point feature which could potentially look like a long linear feature by radar.
Applies to point features
LLL T
LLL F

LN1 *Layer Number*
A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*
A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash

SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble

SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T

SPC F

SS1 *Sensors Supported*

SS2

SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T

SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order

USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand

USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Industrial Equipment Feature Class

ID

F-Code/Description

AF040 Crane

AF041 Sheerlegs (Shear Legs)
Comprises two or three spars standing on end and lashed together, aloft. They serve as a derrick or tripod to lift heavy weights, step or lower masts , stacks, etc.
AF050 Dredge/Powershovel/Dragline
AF080 Hopper

ABS *Absorptivity*
Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AOO Angle of Orientation
The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation
Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink

CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown

DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)

EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be

rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali

SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky

SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TUC Transportation Use Category

Identifies the primary user, function, or authority of the transportation system.

TUC	0	Unknown
TUC	1	Both Road and Railroad
TUC	2	Highway
TUC	3	Railroad
TUC	4	Road
TUC	6	Street
TUC	7	Through Routes
TUC	8	Air Traffic Control
TUC	12	Marine
TUC	13	Air
TUC	14	Bus
TUC	17	Pedestrian
TUC	18	Pipeline
TUC	19	Animal
TUC	20	Aircraft
TUC	21	Ship
TUC	22	Automotive
TUC	23	Boat
TUC	24	Bulk Motor Boat/Barge
TUC	25	VALUE INTENTIONALLY LEFT BLANK
TUC	26	Passenger
TUC	27	Chair lift
TUC	28	Ski tow
TUC	29	Sleigh tow
TUC	30	Cart tow
TUC	31	Motor Cycle
TUC	36	Slip Road/Access Road
TUC	37	Portage
TUC	38	Canal
TUC	39	Caravan Route
TUC	40	Subway
TUC	999	Other

TXT Text Attribute

Narrative or other description.

TXT	0	Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute

USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring

USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Agriculture Feature Class

ID

F-Code/Description

AJ010	Circular Irrigation System
AJ020	Siphon
AJ030	Feed Lot/Stockyard/Holding Pen
AJ050	Windmill
AJ051	Windmotor

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

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CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be

rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

PRO Product Category

Principal material involved or product resulting from activity at site.

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil
PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge
PRO	116	Water
PRO	128	Refuse
PRO	130	None
PRO	132	Not Applicable
PRO	133	Telecommunications
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava

SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

SSC Structure Shape Category
Geometric form, appearance, or configuration of the feature.

SSC	0	Unknown
SSC	1	Barrel, Ton
SSC	2	Blimp
SSC	3	Boat Hull (Float)
SSC	4	Bullet
SSC	5	VALUE INTENTIONALLY LEFT BLANK
SSC	6	Conical /Peaked/NUN
SSC	7	Cylindrical (Upright)/CAN
SSC	9	VALUE INTENTIONALLY LEFT BLANK
SSC	10	Pillar, Spindle
SSC	11	VALUE INTENTIONALLY LEFT BLANK
SSC	12	Pyramid
SSC	13	VALUE INTENTIONALLY LEFT BLANK
SSC	14	VALUE INTENTIONALLY LEFT BLANK
SSC	15	Solid/filled
SSC	16	Spar
SSC	17	Spherical (Hemispherical)
SSC	18	Truss
SSC	19	With Radome
SSC	20	VALUE INTENTIONALLY LEFT BLANK
SSC	21	Artificial Mountain
SSC	22	Crescent
SSC	23	Ferris Wheel
SSC	24	Enclosed
SSC	25	Roller coaster
SSC	26	Lateral
SSC	27	Mounds
SSC	28	Ripple
SSC	29	Star
SSC	30	Transverse
SSC	31	VALUE INTENTIONALLY LEFT BLANK
SSC	33	VALUE INTENTIONALLY LEFT BLANK
SSC	34	VALUE INTENTIONALLY LEFT BLANK
SSC	35	VALUE INTENTIONALLY LEFT BLANK
SSC	36	Windmotor
SSC	38	VALUE INTENTIONALLY LEFT BLANK
SSC	40	VALUE INTENTIONALLY LEFT BLANK
SSC	46	Open
SSC	52	'A' Frame
SSC	53	'H' Frame
SSC	54	'I' Frame
SSC	56	'Y' Frame

SSC	57	VALUE INTENTIONALLY LEFT BLANK
SSC	58	VALUE INTENTIONALLY LEFT BLANK
SSC	59	Telescoping Gasholder (Gasometer)
SSC	60	Mast
SSC	61	Tripod
SSC	62	VALUE INTENTIONALLY LEFT BLANK
SSC	63	VALUE INTENTIONALLY LEFT BLANK
SSC	65	Cylindrical with flat top
SSC	66	Cylindrical with domed top
SSC	71	Cylindrical/Peaked
SSC	73	Superbuoy
SSC	74	'T' Frame
SSC	75	Tetrahedron
SSC	76	Funnel
SSC	77	Arch
SSC	78	Multi-Arch
SSC	79	Round
SSC	80	Rectangular
SSC	81	Dragons Teeth
SSC	82	I-Beam
SSC	83	Square
SSC	84	Irregular
SSC	85	Diamond Shaped Buoy
SSC	86	Oval
SSC	87	Dome
SSC	107	Tower
SSC	108	Scanner
SSC	109	Obelisk
SSC	999	Other

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT	0	Actual Value			
Units		Format	Range	Increment	Max Char
		Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation

USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District

USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Industry Void Collection Area Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area

VCA Void Collection Attribute

Reason data is not collected.

VCA	0	Unknown
VCA	1	Data Not Requested By User
VCA	2	Area Too Rough to Collect
VCA	3	No Available Imagery
VCA	4	Different Height Threshold Within Data Block
VCA	5	Low Data Collection Criteria
VCA	6	No Available Map Source
VCA	7	No Suitable Imagery
VCA	8	Data Not Required
VCA	999	Other

Appendix H. Physical Geography Coverage

Above Surface Landforms Feature Class

ID

F-CODE/DESCRIPTION

DB010 Bluff/Cliff/Escarpment
DB030 Hill - A small, isolated elevation, smaller than a mountain.
DB090 Embankment/Fill
DB501 Topline of cliff - Topline of a steep slope.
DB170 Sand Dune/Sand Hills
DB100 Esker
DB180 Volcano
DB190 Volcanic Dike

ABS *Absorptivity*
Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AOO Angle of Orientation
The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute
The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATN Aids to Navigation
Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN 0 Unknown
ATN 1 Marked
ATN 2 Unmarked
ATN 3 Lit
ATN 4 Unlit
ATN 999 Other

CCC Color Code Category

CCC 0 Unknown/Not applicable
CCC 1 Black
CCC 2 Blue
CCC 3 Brown
CCC 4 Gray
CCC 5 Green
CCC 7 Chocolate

CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CET — Identifies the number of sides that are used as a cut or an embankment.

CET	0	Unknown
CET	1	One Side
CET	2	Both Sides
CET	999	Other

CIC — Color Intensity Category
Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category
A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

CDV — Date
The calendar date as specified by ISO 8601.

CDV	0	Actual Value

Units	Format	Range	Increment	Max Chars

Text String	ASCII Text	8 Digits

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	30	Not Isolated

EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	998	Not Applicable
EXS	999	Other

FEO Feature Element Orientation

The angular distance measured from true north (0 deg) clockwise to the predominant linear pattern of the elements within a feature.

FEO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-359	1 DEG	

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

FSC Feature Shape Category

Geometric form, appearance, or configuration of the feature.

FSC	0	Unknown
FSC	6	Conical /Peaked/NUN
FSC	7	Cylindrical (Upright)/CAN
FSC	12	Pyramid
FSC	15	Solid/filled
FSC	16	Spar
FSC	17	Spherical (Hemispherical)
FSC	18	Truss
FSC	19	With Radome
FSC	21	Artificial Mountain
FSC	22	Crescent
FSC	26	Lateral
FSC	27	Mounds
FSC	28	Ripple
FSC	29	Star
FSC	30	Transverse
FSC	46	Open
FSC	65	Cylindrical with flat top

FSC	66	Cylindrical with domed top
FSC	71	Cylindrical/Peaked
FSC	75	Tetrahedron
FSC	76	Funnel
FSC	77	Arch
FSC	78	Multi-Arch
FSC	79	Round
FSC	80	Rectangular
FSC	81	Dragons Teeth
FSC	82	I-Beam
FSC	83	Square
FSC	84	Irregular
FSC	86	Oval
FSC	87	Dome
FSC	107	Tower
FSC	109	Obelisk
FSC	999	Other

HGT — Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC — *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN — Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE — *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL — *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

LLL T
LLL F

LN1 — *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF
OIT 2 SUN
OIT 3 NOSUN

PFH Predominant Feature Height

Predominant height within delineation of feature.

PFH 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS 0 Unknown

SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess

SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T

SPC F

SS1
SS2
SS3

Sensors Supported

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR

Texture Map Reflectance
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL

Translucency
The degree to which a surface is transparent.

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV

Transmissivity
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP

Texture Type
Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT

Text Attribute
Narrative or other description.
TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE

Usage
Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard

USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand

USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

VAL Value

Generic numeric (integer) value.

VAL 0 Actual Value

Units	Format	Range	Increment	Max Chars

Numeric	Short Integer	±32,767	Unity

ZV2 Highest Z-value
Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Surface Landforms Feature Class

ID

F-CODE/DESCRIPTION
DB115 Geothermal Feature
DB160 Rock Strata/Rock Formation
DB176 Slope Category - An area enclosing a group of slope values falling within a set range.
DB210 US Potential Landslide Area
DB211 Landslide - The mass of earth or rock which has slipped down from a mountain or cliff.
DB230 Fan - A gently sloping fan shaped feature usually found near the lower termination of a canyon.
BH150 Salt Pan - A flat area of natural surface salt deposits.

ABS *Absorptivity*
Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category
Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation
The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray

CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown

DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural

EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T
FOT F

HYC Hydrological Category

Identifies the annual water content of the feature.

HYC	0	Unknown
HYC	2	Not Applicable
HYC	3	Dry
HYC	6	Non-Perennial /Intermittent /Fluctuating
HYC	8	Perennial /Permanent
HYC	999	Other

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom

LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

RKF Rock Strata Formation

The structure of a rock formation.

RKF	0	Unknown
RKF	1	Columnar
RKF	2	Needle
RKF	3	Pinnacle
RKF	4	VALUE INTENTIONALLY LEFT BLANK
RKF	5	VALUE INTENTIONALLY LEFT BLANK
RKF	999	Other

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS 0 Unknown

SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess

SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T

SPC F

SRD Surface Roughness Description

Describes the condition of the surface materials that may be used for mobility prediction, construction material, and landing sites.

SRD	0	Unknown
SRD	1	No surface roughness effect
SRD	2	Area of high landslide potential
SRD	3	Uncohesive surface material/flat
SRD	4	Rough
SRD	5	Angular
SRD	6	Rounded
SRD	11	Surface of numerous cobbles and boulders
SRD	12	Areas of stony terrain
SRD	13	Stony soil with surface rock
SRD	14	Stony soil with scattered boulders
SRD	15	Stony soil with numerous boulders
SRD	16	Numerous boulders
SRD	17	Numerous rock outcrops and/or stony soil
SRD	18	Area of scattered boulders
SRD	19	Talus slope
SRD	20	Boulder Fields
SRD	31	Highly fractured rock surface
SRD	32	Weathered lava flows
SRD	33	Unweathered lava flows
SRD	34	Stony soil with numerous rock outcrops
SRD	35	Irregular surface with deep fractures of foliation
SRD	36	Rugged terrain with numerous rock outcrops
SRD	37	Rugged bedrock surface
SRD	38	Sand dunes
SRD	39	Sand dunes / low
SRD	40	Sand dunes/ high
SRD	41	Active sand dunes
SRD	42	Stabilized sand dunes
SRD	43	Highly distorted area, sharp rocky ridges
SRD	51	Stony soil cut by numerous gullies
SRD	52	Moderately dissected terrain
SRD	53	Moderately dissected terrain with scattered rock outcrops
SRD	54	Dissected floodplain
SRD	55	Highly dissected terrain
SRD	56	Area with deep erosional gullies
SRD	57	Steep, rugged, dissected terrain with narrow gullies
SRD	58	Karst/areas of numerous sinkholes and solution valleys
SRD	59	Karst/area of numerous sinkholes
SRD	60	Karst/hummocky terrain covered with large conical hills
SRD	61	Karst/hummocky terrain covered with low, broad-based mounds
SRD	62	Arroyo/wadi/wash
SRD	63	Playa/dry lake
SRD	64	Area of numerous meander scars and/or oxbow lakes
SRD	65	Solifluction lobes and frost scars
SRD	66	Hummocky ground, areas of frost heaving
SRD	67	Area of frost polygons
SRD	68	Area containing sabkhas

SRD	69	Area of numerous small lakes and ponds
SRD	70	Area of numerous crevasses
SRD	81	Area of numerous terraces
SRD	82	Quarries
SRD	83	Strip mines
SRD	84	Quarry/gravel pit
SRD	85	Quarry/sand pit
SRD	86	Mine tailings/waste piles
SRD	87	Salt evaporators
SRD	88	Area of numerous dikes
SRD	89	Area of numerous diked fields
SRD	90	Area of numerous fences
SRD	91	Area of numerous stone walls
SRD	92	Area of numerous man-made canals/drains/ditches
SRD	93	Area of numerous terraced fields
SRD	94	Parallel earthen mounds (row crops)
SRD	95	Area of numerous hedgerows

SRT *Surface Type*

This is a composite attribute (MCC, STP and SMC from the Digest) Soils described by the Unified Soil Classification System (USCS) or primary material composition.

SRT	0	Unknown
SRT	1	GW Well graded gravels or gravel-sand mixtures
SRT	2	GP Poorly graded gravels or gravel-sand mixtures
SRT	3	GM Silty gravels, gravel-sand-silt mixtures
SRT	4	GC Clayey gravels, gravel-sand-clay mixture
SRT	5	SW Well graded sand or gravelly sands
SRT	6	SP Poorly graded sands or gravelly sands
SRT	7	SM Silty sands, sand-silt mixture.
SRT	8	SC Clayey sands, sand-clay mixtures
SRT	9	ML Inorganic silts and very fine sands
SRT	10	CL Inorganic clays of low to medium plasticity
SRT	11	OL Organic silts and organic silty clays
SRT	12	CH Inorganic clays of high plasticity, fat clays
SRT	13	MH Inorganic silts, micaceous or diatomaceous
SRT	14	OH Organic clays of medium to high plasticity
SRT	15	PT Peat and other highly organic soils
SRT	17	ML-CL Soil type having both ML and CL characteristics
SRT	18	Evaporites
SRT	19	Alkali
SRT	20	Asphalt
SRT	21	Ash
SRT	22	Basalt
SRT	23	Bedrock
SRT	24	Boulders
SRT	25	Calcareous
SRT	26	Chalk
SRT	27	Cinders
SRT	28	Cirripedia
SRT	29	Clay
SRT	30	Coal
SRT	31	Cobble
SRT	32	Coke

SRT	33	Composition
SRT	34	Conglomerate
SRT	35	Copper
SRT	36	Coral
SRT	37	Coral Head
SRT	38	Diamonds
SRT	39	Diatoms
SRT	40	Dolomite
SRT	41	Flynch
SRT	42	Foraminifera
SRT	43	Fucus
SRT	44	Glass
SRT	45	Globigerina
SRT	46	Gold
SRT	47	Granite
SRT	48	INTENTIONALLY LEFT BLANK
SRT	49	Gravel
SRT	50	Green Rocks
SRT	51	Ground (Shells)
SRT	52	Iron
SRT	53	Lava
SRT	55	Lead
SRT	56	Loess
SRT	57	Lumber
SRT	58	Macadam
SRT	59	Madrepores
SRT	60	Manganese
SRT	61	Marble
SRT	62	Marl
SRT	63	Mattes
SRT	64	Mud
SRT	65	Oil
SRT	66	Oil Blister
SRT	67	Ooze
SRT	70	Pebbles
SRT	71	Pumice
SRT	72	Quartz
SRT	73	Radiolaria
SRT	74	Radioactive Material
SRT	75	Reinforced Concrete
SRT	76	Rock/Rocky
SRT	77	Rubber
SRT	78	Rubble
SRT	79	Salt
SRT	80	Sand
SRT	81	Sandstone
SRT	82	Schist
SRT	83	Spoils/Tailings
SRT	84	Scoria
SRT	85	Sewage
SRT	86	Shells
SRT	87	Shingle
SRT	88	Silt
SRT	89	Silver

SRT	90	Slag
SRT	91	Sludge
SRT	92	Snow/Ice
SRT	93	Steel
SRT	94	Stone
SRT	95	Travertin
SRT	96	Tufa
SRT	97	Uranium
SRT	98	Volcanic
SRT	99	Volcanic Ash
SRT	100	Zinc
SRT	101	Distorted surface
SRT	102	Sand and gravel
SRT	103	Rip-Rap
SRT	104	Kelp
SRT	105	Sandwaves
SRT	500	Not Evaluated
SRT	999	Other

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

SWT Well/Spring Type
Identifies the type of spring or water-hole.

SWT	0	Unknown
SWT	1	Geyser
SWT	2	Hot Spring
SWT	3	Fumarole
SWT	4	Artesian
SWT	5	Water Hole
SWT	6	Walled-In Spring
SWT	999	Other

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*
The degree to which a surface is transparent.
Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

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Use (identifies the primary user, function, or controlling authority).

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USE	8	Military
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USE	12	Apartment
USE	13	Open
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine

USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak

USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WD3 Military Gap Width

The minimum horizontal bridging distance between banks (in decimeters).

WD3 0 Actual Value

Units	Format	Range	Increment	Max Chars
Decimeters	Short Integer	0±32,767	1 DM	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

Below Surface Landforms Feature Class

ID

F-CODE/DESCRIPTION

DB030 Cave
DB110 Fault
DB060 Crevice/Crevasse
DB070 Cut
DB080 Depession - A low area surrounded by higher ground.
DB200 Gully/Gorge
BH160 Sebkha - A natural depression in arid or semi-arid regions whose bed is covered with salt encrusted clayey soil.
DB500 Bottomline of cliff - Bottomline of a steep slope.

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

BGL Bank Gradient Left

Slope of the left bank (facing downstream) above water level.

BGL 0 Actual Value

Units	Format	Range	Increment	Max Chars
Percent	Short integer	±90	1 %	

BGR Bank Gradient Right

Slope of the right bank (facing downstream) above water level.

BGR 0 Actual Value

Units	Format	Range	Increment	Max Chars
Percent	Short integer	±901	%	

BHL Bank Height Left

Height of the left bank above the water level (facing downstream) to the average water level.

BHL 0 Actual Value

Units	Format	Range	Increment	Max Chars
Decimeter	Short integer	0±32,767	1 DM	

BHR Bank Height Right

Height of the right bank above the water level (facing downstream) to the average water level.

BHL 0 Actual Value

Units	Format	Range	Increment	Max Chars
Decimeter	Short integer	0±32,767	1 DM	

BVL Bank Vegetation Left

Density of vegetation found on the downstream left bank.

BVL 0 Unknown
BVL 1 Open (≤5%)
BVL 2 Sparse (>5% and ≤15%)
BVL 3 Medium (>15% and ≤50%)
BVL 4 Dense (>50%)

BVR Bank Vegetation Right

Density of vegetation found on the downstream right bank.

BVL 0 Unknown
BVL 1 Open (≤5%)
BVL 2 Sparse (>5% and ≤15%)

	BVL	3	Medium (>15% and ≤ 50%)
	BVL	4	Dense (>50%)

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous

COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported

EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HYC Hydrological Category

Identifies the annual water content of the feature.

HYC	0	Unknown
HYC	2	Not Applicable
HYC	3	Dry
HYC	6	Non-Perennial /Intermittent /Fluctuating
HYC	8	Perennial /Permanent
HYC	999	Other

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)

LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

NAM — Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT — *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL — *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

RKF — Rock Strata Formation

The structure of a rock formation.

RKF	0	Unknown
RKF	1	Columnar
RKF	2	Needle
RKF	3	Pinnacle
RKF	4	VALUE INTENTIONALLY LEFT BLANK
RKF	5	VALUE INTENTIONALLY LEFT BLANK
RKF	999	Other

SER — *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks

SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SRD Surface Roughness Description

Describes the condition of the surface materials that may be used for mobility prediction, construction material, and landing sites.

SRD	0	Unknown
SRD	1	No surface roughness effect
SRD	2	Area of high landslide potential
SRD	3	Uncohesive surface material/flat
SRD	4	Rough
SRD	5	Angular
SRD	6	Rounded
SRD	11	Surface of numerous cobbles and boulders
SRD	12	Areas of stony terrain
SRD	13	Stony soil with surface rock
SRD	14	Stony soil with scattered boulders
SRD	15	Stony soil with numerous boulders
SRD	16	Numerous boulders
SRD	17	Numerous rock outcrops and/or stony soil
SRD	18	Area of scattered boulders
SRD	19	Talus slope
SRD	20	Boulder Fields
SRD	31	Highly fractured rock surface
SRD	32	Weathered lava flows
SRD	33	Unweathered lava flows
SRD	34	Stony soil with numerous rock outcrops
SRD	35	Irregular surface with deep fractures of foliation
SRD	36	Rugged terrain with numerous rock outcrops
SRD	37	Rugged bedrock surface
SRD	38	Sand dunes
SRD	39	Sand dunes / low
SRD	40	Sand dunes/ high
SRD	41	Active sand dunes
SRD	42	Stabilized sand dunes
SRD	43	Highly distorted area, sharp rocky ridges
SRD	51	Stony soil cut by numerous gullies
SRD	52	Moderately dissected terrain
SRD	53	Moderately dissected terrain with scattered rock outcrops
SRD	54	Dissected floodplain
SRD	55	Highly dissected terrain
SRD	56	Area with deep erosional gullies
SRD	57	Steep, rugged, dissected terrain with narrow gullies
SRD	58	Karst/areas of numerous sinkholes and solution valleys
SRD	59	Karst/area of numerous sinkholes
SRD	60	Karst/hummocky terrain covered with large conical hills
SRD	61	Karst/hummocky terrain covered with low, broad-based mounds
SRD	62	Arroyo/wadi/wash
SRD	63	Playa/dry lake
SRD	64	Area of numerous meander scars and/or oxbow lakes

SRD	65	Solifluction lobes and frost scars
SRD	66	Hummocky ground, areas of frost heaving
SRD	67	Area of frost polygons
SRD	68	Area containing sabkhas
SRD	69	Area of numerous small lakes and ponds
SRD	70	Area of numerous crevasses
SRD	81	Area of numerous terraces
SRD	82	Quarries
SRD	83	Strip mines
SRD	84	Quarry/gravel pit
SRD	85	Quarry/sand pit
SRD	86	Mine tailings/waste piles
SRD	87	Salt evaporators
SRD	88	Area of numerous dikes
SRD	89	Area of numerous diked fields
SRD	90	Area of numerous fences
SRD	91	Area of numerous stone walls
SRD	92	Area of numerous man-made canals/drains/ditches
SRD	93	Area of numerous terraced fields
SRD	94	Parallel earthen mounds (row crops)
SRD	95	Area of numerous hedgerows

SRT *Surface Type*

This is a composite attribute (MCC, STP and SMC from the Digest) Soils described by the Unified Soil Classification System (USCS) or primary material composition.

SRT	0	Unknown
SRT	1	GW Well graded gravels or gravel-sand mixtures
SRT	2	GP Poorly graded gravels or gravel-sand mixtures
SRT	3	GM Silty gravels, gravel-sand-silt mixtures
SRT	4	GC Clayey gravels, gravel-sand-clay mixture
SRT	5	SW Well graded sand or gravelly sands
SRT	6	SP Poorly graded sands or gravelly sands
SRT	7	SM Silty sands, sand-silt mixture.
SRT	8	SC Clayey sands, sand-clay mixtures
SRT	9	ML Inorganic silts and very fine sands
SRT	10	CL Inorganic clays of low to medium plasticity
SRT	11	OL Organic silts and organic silty clays
SRT	12	CH Inorganic clays of high plasticity, fat clays
SRT	13	MH Inorganic silts, micaceous or diatomaceous
SRT	14	OH Organic clays of medium to high plasticity
SRT	15	PT Peat and other highly organic soils
SRT	17	ML-CL Soil type having both ML and CL characteristics
SRT	18	Evaporites
SRT	19	Alkali
SRT	20	Asphalt
SRT	21	Ash
SRT	22	Basalt
SRT	23	Bedrock
SRT	24	Boulders
SRT	25	Calcareous
SRT	26	Chalk
SRT	27	Cinders
SRT	28	Cirripedia

SRT	29	Clay
SRT	30	Coal
SRT	31	Cobble
SRT	32	Coke
SRT	33	Composition
SRT	34	Conglomerate
SRT	35	Copper
SRT	36	Coral
SRT	37	Coral Head
SRT	38	Diamonds
SRT	39	Diatoms
SRT	40	Dolomite
SRT	41	Flynch
SRT	42	Foraminifera
SRT	43	Fucus
SRT	44	Glass
SRT	45	Globigerina
SRT	46	Gold
SRT	47	Granite
SRT	48	INTENTIONALLY LEFT BLANK
SRT	49	Gravel
SRT	50	Green Rocks
SRT	51	Ground (Shells)
SRT	52	Iron
SRT	53	Lava
SRT	55	Lead
SRT	56	Loess
SRT	57	Lumber
SRT	58	Macadam
SRT	59	Madrepores
SRT	60	Manganese
SRT	61	Marble
SRT	62	Marl
SRT	63	Mattes
SRT	64	Mud
SRT	65	Oil
SRT	66	Oil Blister
SRT	67	Ooze
SRT	70	Pebbles
SRT	71	Pumice
SRT	72	Quartz
SRT	73	Radiolaria
SRT	74	Radioactive Material
SRT	75	Reinforced Concrete
SRT	76	Rock/Rocky
SRT	77	Rubber
SRT	78	Rubble
SRT	79	Salt
SRT	80	Sand
SRT	81	Sandstone
SRT	82	Schist
SRT	83	Spoils/Tailings
SRT	84	Scoria
SRT	85	Sewage

SRT	86	Shells
SRT	87	Shingle
SRT	88	Silt
SRT	89	Silver
SRT	90	Slag
SRT	91	Sludge
SRT	92	Snow/Ice
SRT	93	Steel
SRT	94	Stone
SRT	95	Travertin
SRT	96	Tufa
SRT	97	Uranium
SRT	98	Volcanic
SRT	99	Volcanic Ash
SRT	100	Zinc
SRT	101	Distorted surface
SRT	102	Sand and gravel
SRT	103	Rip-Rap
SRT	104	Kelp
SRT	105	Sandwaves
SRT	500	Not Evaluated
SRT	999	Other

SS1 *Sensors Supported*

SS2

SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

SWT Well/Spring Type

Identifies the type of spring or water-hole.

SWT	0	Unknown
SWT	1	Geyser
SWT	2	Hot Spring
SWT	3	Fumarole
SWT	4	Artesian
SWT	5	Water Hole
SWT	6	Walled-In Spring
SWT	999	Other

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural

USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional

USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WD3 Military Gap Width

The minimum horizontal bridging distance between banks (in decimeters).

WD3 0 Actual Value

Units	Format	Range	Increment	Max Chars
Decimeters	Short Integer	0±32,767	1 DM	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

Physical Geography Void Collection Area Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area

VCA Void Collection Attribute

Reason data is not collected.

VCA	0	Unknown
VCA	1	Data Not Requested By User
VCA	2	Area Too Rough to Collect
VCA	3	No Available Imagery
VCA	4	Different Height Threshold Within Data Block
VCA	5	Low Data Collection Criteria
VCA	6	No Available Map Source
VCA	7	No Suitable Imagery
VCA	8	Data Not Required
VCA	999	Other

Appendix I. Population Coverage

Military Feature Class

ID

F-CODE/DESCRIPTION

AH010 Bastion/Rampart/Fortification
AH050 Fortification
SU001 Military Base - A center of operations for a military organization.
AH070 Checkpoint - An official place to register, declare or check goods and people.
AH020 Trench
AH060 Underground Bunker - An underground facility used by the military either for location of command/control centers or for troop encampment.
AL120 Missile Site
FA015 Firing Range/Gunnery Range
AT020 Early Warning Radar Site
AT045 Radar Transmitter

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed

EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FCO Feature Configuration

Configuration of feature.

FCO	0	Unknown
FCO	1	Dispersed
FCO	2	Multiple
FCO	3	Single
FCO	4	Inclined
FCO	5	Divided same widths
FCO	6	Divided different widths
FCO	7	Non-divided
FCO	8	Poorly defined
FCO	9	Well-defined
FCO	11	Double
FCO	12	Justaxposition
FCO	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

FRT Firing Range Type

FRT	0	Unknown
FRT	1	Rifle/Small Arms
FRT	2	Tank
FRT	3	Artillery
FRT	4	Grenade
FRT	5	Demolition Area
FRT	6	Impact Area
FRT	999	Other

HGT — Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC — *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN — Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE — *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL — *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 — *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 — *Layer Number (IR)*

A relative priority number indicating the sequence in which ov[illegible]pping culture features, overlapping model objects, or overlapping textu[illegible]s should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF
OIT 2 SUN
OIT 3 NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS 0 Unknown
SMS 1 GW Well graded gravels or gravel-sand mixtures
SMS 2 GP Poorly graded gravels or gravel-sand mixtures
SMS 3 GM Silty gravels, gravel-sand-silt mixtures
SMS 4 GC Clayey gravels, gravel-sand-clay mixture
SMS 5 SW Well graded sand or gravelly sands
SMS 6 SP Poorly graded sands or gravelly sands
SMS 7 SM Silty sands, sand-silt mixture.
SMS 8 SC Clayey sands, sand-clay mixtures
SMS 9 ML Inorganic silts and very fine sands
SMS 10 CL Inorganic clays of low to medium plasticity
SMS 11 OL Organic silts and organic silty clays
SMS 12 CH Inorganic clays of high plasticity, fat clays
SMS 13 MH Inorganic silts, micaceous or diatomaceous
SMS 14 OH Organic clays of medium to high plasticity

SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz

SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T

SPC F

SS1 *Sensors Supported*

SS2

SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T

SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian

USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron

USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Residential/Populated Place Feature Class

ID

F-CODE/DESCRIPTION

AI020 US Mobile Home/Mobile Home Park
AI030 Camp - A place where tents or buildings serve as temporary residences for members of an organization.
AL040 Cliff Dwelling - A dwelling built in the recesses of cliffs.
AL100 Hut
AL101 Cabin - A building in a remote or wilderness area.
AL105 Settlement
AL135 Native Settlement
AL250 Underground Dwelling - Underground living quarters.

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN 0 Unknown
ATN 1 Marked
ATN 2 Unmarked
ATN 3 Lit
ATN 4 Unlit
ATN 999 Other

CCC Color Code Category

CCC 0 Unknown/Not applicable
CCC 1 Black
CCC 2 Blue
CCC 3 Brown
CCC 4 Gray
CCC 5 Green
CCC 7 Chocolate
CCC 9 Orange

CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DMR — Density Measure (% of Roof Cover)

Roof cover measured by percent within area of feature.

DMR 0 Actual Value

Units	Format	Range	Increment	Max Chars
Percent	Short Integer	0-100	1 %	

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary

EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FCO Feature Configuration

Configuration of feature.

FCO	0	Unknown
FCO	1	Dispersed
FCO	2	Multiple
FCO	3	Single
FCO	4	Inclined
FCO	5	Divided same widths
FCO	6	Divided different widths
FCO	7	Non-divided
FCO	8	Poorly defined
FCO	9	Well-defined
FCO	11	Double
FCO	12	Justaxposition
FCO	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT — Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC — *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN — Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE — *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL — *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 — *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 — *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 — *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

NAS Native Settlement Type

The distribution of native dwellings within the delineated area of the feature.

NAS 0 Unknown
NAS 1 Centralized Habitation
NAS 2 Continuous Habitation

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF
OIT 2 SUN
OIT 3 NOSUN

PPT Populated Place Type

The type of populated place.

PPT 0 Unknown
PPT 1 Native Settlement
PPT 2 Shanty town
PPT 3 Tent Dwellings
PPT 99 Inland Village
PPT 999 Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS 0 Unknown
SMS 1 GW Well graded gravels or gravel-sand mixtures
SMS 2 GP Poorly graded gravels or gravel-sand mixtures
SMS 3 GM Silty gravels, gravel-sand-silt mixtures
SMS 4 GC Clayey gravels, gravel-sand-clay mixture
SMS 5 SW Well graded sand or gravelly sands
SMS 6 SP Poorly graded sands or gravelly sands

SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl

SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T

SPC F

SS1 *Sensors Supported*

SS2

SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T

SS1(SS2,SS3) F

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*
The degree to which a surface is transparent.
Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*
Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute
Narrative or other description.
TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WID Width
A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.
WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value
Elevation above a given datum to the highest portion of the feature.
ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Recreational Feature Class

ID

F-CODE/DESCRIPTION
AK020 Amusement Park Attraction
AK030 Amusement Park
AK040 US Athletic Field

AK050 Tennis Court(s) - An area or site used for the sport of tennis.
AK060 Campground/Campsite - A location for camping.
AK061 Picnic Site - A parcel of land that has picnic tables for public use.
AK070 US Drive In Theater - A place where motion pictures are shown while viewers remain in their vehicles
AK080 US Drive In Theater Screen
AK090 Fairgrounds
AK091 Exhibition Grounds - An area where permanent facilities exist to hold outdoor exhibitions.
AK100 Golf Course
AK101 Golf Driving Range - A parcel or tract of land used for practicing golf shots.
AK110 Grandstand
AK120 Park
AK121 Lookout - An area, generally an elevated place, with facilities for observing the scenery.
AK130 US Race Track
AK150 Ski Jump
AK155 Ski Track - A course prepared for skiing.
AK160 US Stadium/Amphitheater
AK170 Swimming Pool
AK180 Zoo/Safari Park
AL005 Animal Sanctuary - A natural area set aside for the preservation and protection of wildlife.
AL201 Historic Site/Point of Interest - Site or area declared to be of national or provincial historical significance or interest, maintained for the public.

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea

COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF
OIT 2 SUN
OIT 3 NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS 0 Unknown
SMS 1 GW Well graded gravels or gravel-sand mixtures
SMS 2 GP Poorly graded gravels or gravel-sand mixtures
SMS 3 GM Silty gravels, gravel-sand-silt mixtures
SMS 4 GC Clayey gravels, gravel-sand-clay mixture
SMS 5 SW Well graded sand or gravelly sands
SMS 6 SP Poorly graded sands or gravelly sands
SMS 7 SM Silty sands, sand-silt mixture.
SMS 8 SC Clayey sands, sand-clay mixtures
SMS 9 ML Inorganic silts and very fine sands
SMS 10 CL Inorganic clays of low to medium plasticity
SMS 11 OL Organic silts and organic silty clays
SMS 12 CH Inorganic clays of high plasticity, fat clays
SMS 13 MH Inorganic silts, micaceous or diatomaceous
SMS 14 OH Organic clays of medium to high plasticity
SMS 15 PT Peat and other highly organic soils
SMS 17 ML-CL Soil type having both ML and CL characteristics
SMS 18 Evaporites
SMS 19 Alkali
SMS 20 Asphalt
SMS 21 Ash
SMS 22 Basalt
SMS 23 Bedrock
SMS 24 Boulders
SMS 25 Calcareous
SMS 26 Chalk
SMS 27 Cinders
SMS 28 Cirripedia

SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage

SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T

SPC F

SS1 *Sensors Supported*

SS2

SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T

SS1(SS2,SS3) F

SSC Structure Shape Category

Geometric form, appearance, or configuration of the feature.

SSC	0	Unknown
SSC	1	Barrel, Ton
SSC	2	Blimp
SSC	3	Boat Hull (Float)
SSC	4	Bullet
SSC	5	VALUE INTENTIONALLY LEFT BLANK
SSC	6	Conical /Peaked/NUN
SSC	7	Cylindrical (Upright)/CAN
SSC	9	VALUE INTENTIONALLY LEFT BLANK
SSC	10	Pillar, Spindle
SSC	11	VALUE INTENTIONALLY LEFT BLANK
SSC	12	Pyramid
SSC	13	VALUE INTENTIONALLY LEFT BLANK
SSC	14	VALUE INTENTIONALLY LEFT BLANK
SSC	15	Solid/filled
SSC	16	Spar
SSC	17	Spherical (Hemispherical)

SSC	18	Truss
SSC	19	With Radome
SSC	20	VALUE INTENTIONALLY LEFT BLANK
SSC	21	Artificial Mountain
SSC	22	Crescent
SSC	23	Ferris Wheel
SSC	24	Enclosed
SSC	25	Roller coaster
SSC	26	Lateral
SSC	27	Mounds
SSC	28	Ripple
SSC	29	Star
SSC	30	Transverse
SSC	31	VALUE INTENTIONALLY LEFT BLANK
SSC	33	VALUE INTENTIONALLY LEFT BLANK
SSC	34	VALUE INTENTIONALLY LEFT BLANK
SSC	35	VALUE INTENTIONALLY LEFT BLANK
SSC	36	Windmotor
SSC	38	VALUE INTENTIONALLY LEFT BLANK
SSC	40	VALUE INTENTIONALLY LEFT BLANK
SSC	46	Open
SSC	52	'A' Frame
SSC	53	'H' Frame
SSC	54	'I' Frame
SSC	56	'Y' Frame
SSC	57	VALUE INTENTIONALLY LEFT BLANK
SSC	58	VALUE INTENTIONALLY LEFT BLANK
SSC	59	Telescoping Gasholder (Gasometer)
SSC	60	Mast
SSC	61	Tripod
SSC	62	VALUE INTENTIONALLY LEFT BLANK
SSC	63	VALUE INTENTIONALLY LEFT BLANK
SSC	65	Cylindrical with flat top
SSC	66	Cylindrical with domed top
SSC	71	Cylindrical/Peaked
SSC	73	Superbuoy
SSC	74	'T' Frame
SSC	75	Tetrahedron
SSC	76	Funnel
SSC	77	Arch
SSC	78	Multi-Arch
SSC	79	Round
SSC	80	Rectangular
SSC	81	Dragons Teeth
SSC	82	I-Beam
SSC	83	Square
SSC	84	Irregular
SSC	85	Diamond Shaped Buoy
SSC	86	Oval
SSC	87	Dome
SSC	107	Tower
SSC	108	Scanner
SSC	109	Obelisk
SSC	999	Other

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International

USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron

USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Ruins/Monument Feature Class

ID

F-CODE/DESCRIPTION

AL012 Archeological Site - A site or location where remains of ancient civilizations or human activity have been discovered.
AL030 US Cemetery
AL130 US Monument
AL200 Ruins
AL090 US Grave Marker - A marker indicating an individual grave site.
AL025 Cairn
AL116 Calvary Cross - A structure, mounted on a pedestal, composed of an upright member with a shorter horizontal member centered at approximately two thirds of the height of the upright member.

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

CPA — Control Point Attribute

Type of control point.

CPA	0	Unknown
CPA	1	Bench Mark
CPA	2	Horizontal
CPA	3	Horizontal with Bench Mark
CPA	4	Astronomic position
CPA	5	Vertical

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 — *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 — *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY — *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI — *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

MCC Surface Material Category (or Material Composition Category)

Characteristics of primary material composition of feature.

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement

MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze

MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar
MCC	110	Travertin
MCC	111	Tufa
MCC	112	Uranium
MCC	113	Vegetation Products
MCC	114	Volcanic
MCC	115	Volcanic Ash
MCC	116	Water
MCC	117	Wood
MCC	118	Zinc
MCC	119	Evaporites
MCC	999	Other

NAM Name

Any Identifier or code.

NAM	0	Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay

SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells

SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

VRR Vertical Reference Category

Relative location referenced to sounding datum, unless otherwise indicated.

VRR	0	Unknown
VRR	1	Above Surface/Does not cover (At High Water)
VRR	2	Awash at Sounding Datum
VRR	4	Below Surface/Submerged
VRR	8	Covers and Uncovers
VRR	9	Not Applicable

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Building Feature Class

ID

F-CODE/DESCRIPTION

AL015 Building

AL170 Plaza/City Square - An open area which serves as a public square in a city or town.

AL045 Complex Outline - An outline delimiting an area in which two or more like features have the same function.

AL018 Building Superstructure Addition

AL019 Shed

AL020 Built-Up Area

AL210 Snow Shed/Rock Shed

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

BFC Building Function Category

Type or purpose of the building.

BFC	0	Unknown
BFC	1	Fabrication Structures
BFC	2	Government Building
BFC	3	Capitol Building
BFC	4	Castle
BFC	5	Government Administration Building
BFC	6	Hospital
BFC	7	House of Worship
BFC	8	Military Administration /Operations Building
BFC	9	Museum
BFC	10	Observatory
BFC	11	Palace
BFC	12	Police Station
BFC	13	Prison
BFC	14	Ranger Station
BFC	15	School

BFC	16	House
BFC	17	Multi Unit Dwelling
BFC	18	Cemetery Building
BFC	19	Farm Building
BFC	20	Greenhouse
BFC	21	Garage
BFC	22	Watermill /Gristmill
BFC	23	Wind Tunnel
BFC	24	Warehouse
BFC	25	Roundhouse
BFC	26	Railroad Storage /Repair Facility
BFC	27	Depot Terminal
BFC	28	Administration Building
BFC	29	Aircraft Maintenance Shop
BFC	30	Hangar
BFC	31	Customs House
BFC	33	Health Office
BFC	34	Firing Range
BFC	35	Post Office
BFC	36	Barracks/Dormitory
BFC	37	Fire Station
BFC	38	Jail
BFC	39	Guardhouse
BFC	40	Telephone Switching Station
BFC	50	Church
BFC	51	Market
BFC	52	Town Hall
BFC	53	Bank
BFC	54	Service/Refueling Station
BFC	55	Yacht Club/Sailing Club
BFC	56	Public Inn
BFC	57	Restaurant
BFC	58	Observation
BFC	59	Research and Development Lab/Research Facility
BFC	60	University/College
BFC	61	Courthouse
BFC	62	Legation
BFC	63	Mission
BFC	64	Chancery
BFC	65	Ambassadorial Residence
BFC	66	Embassy
BFC	67	Consulate
BFC	68	Guard House
BFC	69	Guard Shack/Guard Room
BFC	70	Kennel
BFC	71	Oil Mill (Vegetable)
BFC	72	Aerator
BFC	73	Carpentry
BFC	74	Saw-mill
BFC	75	Kiln/Oven
BFC	76	Signal Box/Railway Signalman's House
BFC	77	Harbor Masters Office
BFC	78	Marine Police
BFC	79	Rescue

BFC	80	Port Control
BFC	81	Maritime Station
BFC	82	Lighthouse
BFC	83	Power Generation
BFC	84	Filtration Plant
BFC	85	News Paper Plant
BFC	86	Telephone Exchange (Main)
BFC	87	Auditorium
BFC	88	Opera House
BFC	89	Processing/Treatment
BFC	90	Pumphouse
BFC	91	Mobile Home
BFC	92	Weather Station
BFC	93	Dependents Housing/Bivouac Area
BFC	94	Railroad Station
BFC	95	Hotel
BFC	96	Diplomatic Building
BFC	97	Trading Post
BFC	98	Shed
BFC	99	Battery
BFC	100	Medical Center
BFC	101	Municipal Hall
BFC	102	Oil/Gas Facilities Building
BFC	103	Outbuilding
BFC	104	Paper/Pulp Mill
BFC	105	Reformatory
BFC	106	Sanitorium
BFC	107	Satellite Tracking Station
BFC	108	Seminary
BFC	109	Senior Citizen's Home
BFC	110	Shipyard
BFC	111	Sportsplex
BFC	112	Steel Mill
BFC	113	Weigh Scale (Highway)
BFC	114	Non-Christian Place of Worship
BFC	115	Hostel
BFC	116	Factory
BFC	117	Motel
BFC	118	Community Center
BFC	119	City Hall
BFC	120	Automobile Plant
BFC	121	Armory
BFC	122	Shopping Center
BFC	123	Correctional Institute
BFC	124	Repair Facility
BFC	125	Barn/Machinery Shed
BFC	126	Astronomical Station
BFC	127	Theater
BFC	128	Library
BFC	723	Combined Fire and Police Station
BFC	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable

CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COL — Character of Light

Any identifier composed of the class, number and color(s) of flashes or occultations, of a light or lights at one geographic position [e.g. Q(6)+L F1, VQ G, L F1 (3+2)WR].

COL 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DMR Density Measure (% of Roof Cover)

Roof cover measured by percent within area of feature.

DMR 0 Actual Value

Units	Format	Range	Increment	Max Chars
Percent	Short Integer	0-100	1 %	

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT	T
FOT	F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

HWT House of Worship Type

Type of house of worship used.

HWT	0	Unknown
HWT	2	Cathedral
HWT	3	Chapel
HWT	4	Church
HWT	5	Marabout
HWT	6	Minaret
HWT	7	Monastery, Convent
HWT	9	Mosque
HWT	11	Pagoda
HWT	14	Shrine
HWT	15	Tabernacle
HWT	16	Temple
HWT	20	Synagouge
HWT	21	Stupa
HWT	22	Not Applicable
HWT	23	Any

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

PHT Predominant Height

Height of 51% or more of the feature. If not obtainable, then the average height of the feature will be used.

PHT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

PPL Populated Place Category

The number of people within a feature (e.g. administrative and built-up areas).

PPL 0 Actual Value

Units	Format	Range	Increment	Max Chars
Persons	Short Integer	0±32,767	1 PERSON	

PPT Populated Place Type

The type of populated place.

PPT	0	Unknown
PPT	1	Native Settlement
PPT	2	Shanty town
PPT	3	Tent Dwellings
PPT	99	Inland Village
PPT	999	Other

REL Religious Denomination

Name of religious order at site.

REL	0	Unknown
REL	1	Buddhist
REL	2	Moslem
REL	3	Roman Catholic
REL	4	Christian (undefined)
REL	5	Judaism
REL	6	Greek Orthodox
REL	7	Protestant
REL	8	Shinto
REL	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk

SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings

SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T

SPC F

SS1 *Sensors Supported*

SS2

SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T

SS1(SS2,SS3) F

SSR Structure Shape of Roof

Roof shape.

SSR	0	Unknown
SSR	6	Conical /Peaked/NUN
SSR	38	Curved /Round (Quonset)
SSR	40	Dome
SSR	41	Flat
SSR	42	Gable (pitched)
SSR	43	VALUE INTENTIONALLY LEFT BLANK
SSR	44	VALUE INTENTIONALLY LEFT BLANK
SSR	45	VALUE INTENTIONALLY LEFT BLANK
SSR	46	VALUE INTENTIONALLY LEFT BLANK
SSR	47	Sawtooth
SSR	48	VALUE INTENTIONALLY LEFT BLANK
SSR	49	VALUE INTENTIONALLY LEFT BLANK
SSR	50	With Monitor

	SSR	51	With Steeple
	SSR	55	Flat with Monitor
	SSR	58	VALUE INTENTIONALLY LEFT BLANK
	SSR	64	Gable with Monitor
	SSR	65	VALUE INTENTIONALLY LEFT BLANK
	SSR	66	VALUE INTENTIONALLY LEFT BLANK
	SSR	71	VALUE INTENTIONALLY LEFT BLANK
	SSR	72	VALUE INTENTIONALLY LEFT BLANK
	SSR	77	With Cupola
	SSR	78	With Turret
	SSR	79	With Tower
	SSR	80	With Minaret
	SSR	999	Other

STA Station Type Category (Maritime)

Equipment or activity at site.

STA	0	Unknown
STA	1	Coast Guard
STA	2	Fireboat
STA	3	Marine Police
STA	4	Ice Signal
STA	5	Lifeboat/Rescue
STA	6	Port Control
STA	7	VALUE INTENTIONALLY LEFT BLANK
STA	8	VALUE INTENTIONALLY LEFT BLANK
STA	9	VALUE INTENTIONALLY LEFT BLANK
STA	10	VALUE INTENTIONALLY LEFT BLANK
STA	11	Pilot
STA	12	VALUE INTENTIONALLY LEFT BLANK
STA	13	Signal
STA	14	Signal Mast
STA	15	Storm Signal
STA	16	Stream Signal
STA	17	Tide Signal
STA	18	Time Ball
STA	19	Time Signal
STA	20	Unmanned Oceanographic
STA	21	Weather signal
STA	22	Fog Signal
STA	23	VALUE INTENTIONALLY LEFT BLANK
STA	25	Semaphore
STA	26	STA
STA	27	Tidal Current Signal
STA	28	Traffic Signal
STA	29	Bridge Signal
STA	30	Lock Signal
STA	31	VALUE INTENTIONALLY LEFT BLANK
STA	32	International Port Signals
STA	33	Firing Practice Signal Station
STA	34	Signal Station, Traffic
STA	35	Warning
STA	999	Other

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International

USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron

USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

USP The predominant geometric configuration of streets found within the delineated area of the feature.

USP	0	Unknown
USP	2	Rectangular/Grid-Regular
USP	3	Rectangular/Grid-Irregular
USP	4	Curvilinear (cluster)
USP	6	Concentric / Radial-Regular
USP	7	Concentric / Radial-Irregular
USP	9	Mixed Curvilinear (cluster) and Rectangular (grid)

USP	10	Mixed Concentric / Radial and Rectangular/ (grid)
USP	11	Mixed Curvilinear (cluster) and Concentric / Radial
USP	12	Other
USP	13	Linear Strip

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Miscellaneous Cultural Object Feature Class

ID

F-CODE/DESCRIPTION

AL050 US Display Sign
AL060 Dragon Teeth
AL073 Flagstaff/Flagpole
AL080 Gantry
AL110 US Light Standard/Light Support
AL141 Telescope - An apparatus used for observing distant objects or phenomena.
AL155 Overhead Obstruction Location
An undelineated obstruction location such as underpasses, overhead pipelines, building overhangs, and other covered traveled ways.
AL195 Ramp - An inclined plane usually man-made for moving between two levels.
AL220 US Steeple
AL240 Tower (Non- Communication)
AL241 Tower (General) - A relatively tall structure of undefined purpose.
AT100 Electrified Railroad Pylon

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed

ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

BFC Building Function Category

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark

CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COL Character of Light

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi

DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	.52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline

EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T
FOT F

GUG Guyed or Unguyed Category

Presence of support wires.

GUG	0	Unknown
GUG	1	Guyed
GUG	2	Unguyed
GUG	999	Other

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing

LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

NAM — Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OHC — Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point	0.1 M		

OIT — *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

OOC — Overhead Obstruction Category

Type of overhead obstruction.

OOC	0	Unknown
OOC	1	Viaduct, frame construction
OOC	2	Viaduct, arc construction
OOC	3	Roof
OOC	4	Powerline of railway
OOC	5	High-tension powerline
OOC	6	Bridge superstructure

PHT — Predominant Height

RFL — *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SHC Safe Horizontal Clearance

Minimum safe horizontal distance between adjacent bridge support structures on either side of a navigable channel passing under the bridge.

SHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate

SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge

SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

SSC Structure Shape Category

Geometric form, appearance, or configuration of the feature.

SSC	0	Unknown
SSC	1	Barrel, Ton
SSC	2	Blimp
SSC	3	Boat Hull (Float)
SSC	4	Bullet
SSC	5	VALUE INTENTIONALLY LEFT BLANK
SSC	6	Conical /Peaked/NUN
SSC	7	Cylindrical (Upright)/CAN
SSC	9	VALUE INTENTIONALLY LEFT BLANK
SSC	10	Pillar, Spindle
SSC	11	VALUE INTENTIONALLY LEFT BLANK
SSC	12	Pyramid
SSC	13	VALUE INTENTIONALLY LEFT BLANK
SSC	14	VALUE INTENTIONALLY LEFT BLANK
SSC	15	Solid/filled
SSC	16	Spar
SSC	17	Spherical (Hemispherical)
SSC	18	Truss
SSC	19	With Radome
SSC	20	VALUE INTENTIONALLY LEFT BLANK
SSC	21	Artificial Mountain
SSC	22	Crescent
SSC	23	Ferris Wheel

SSC	24	Enclosed
SSC	25	Roller coaster
SSC	26	Lateral
SSC	27	Mounds
SSC	28	Ripple
SSC	29	Star
SSC	30	Transverse
SSC	31	VALUE INTENTIONALLY LEFT BLANK
SSC	33	VALUE INTENTIONALLY LEFT BLANK
SSC	34	VALUE INTENTIONALLY LEFT BLANK
SSC	35	VALUE INTENTIONALLY LEFT BLANK
SSC	36	Windmotor
SSC	38	VALUE INTENTIONALLY LEFT BLANK
SSC	40	VALUE INTENTIONALLY LEFT BLANK
SSC	46	Open
SSC	52	'A' Frame
SSC	53	'H' Frame
SSC	54	'I' Frame
SSC	56	'Y' Frame
SSC	57	VALUE INTENTIONALLY LEFT BLANK
SSC	58	VALUE INTENTIONALLY LEFT BLANK
SSC	59	Telescoping Gasholder (Gasometer)
SSC	60	Mast
SSC	61	Tripod
SSC	62	VALUE INTENTIONALLY LEFT BLANK
SSC	63	VALUE INTENTIONALLY LEFT BLANK
SSC	65	Cylindrical with flat top
SSC	66	Cylindrical with domed top
SSC	71	Cylindrical/Peaked
SSC	73	Superbuoy
SSC	74	'T' Frame
SSC	75	Tetrahedron
SSC	76	Funnel
SSC	77	Arch
SSC	78	Multi-Arch
SSC	79	Round
SSC	80	Rectangular
SSC	81	Dragons Teeth
SSC	82	I-Beam
SSC	83	Square
SSC	84	Irregular
SSC	85	Diamond Shaped Buoy
SSC	86	Oval
SSC	87	Dome
SSC	107	Tower
SSC	108	Scanner
SSC	109	Obelisk
SSC	999	Other

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTC Tower Type Category

Appearance or configuration of the feature.

TTC	0	Unknown
TTC	1	Bridge
TTC	2	Observation/Lookout
TTC	3	Other
TTC	4	Undefined
TTC	5	Light tower
TTC	6	Water tower
TTC	7	Radio tower
TTC	8	Cooling tower
TTC	9	Radar tower
TTC	10	Lookout tower
TTC	11	Television tower
TTC	12	Fire
TTC	13	Mooring Tower, articulated loading platform , single anchor leg
TTC	14	Powerline
TTC	15	Loran
TTC	16	Control
TTC	17	Micro Wave

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TUC Transportation Use Category

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach

USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill

USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Population Void Collection Area Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area

VCA Void Collection Attribute

Reason data is not collected.

VCA	0	Unknown
VCA	1	Data Not Requested By User
VCA	2	Area Too Rough to Collect
VCA	3	No Available Imagery
VCA	4	Different Height Threshold Within Data Block
VCA	5	Low Data Collection Criteria
VCA	6	No Available Map Source
VCA	7	No Suitable Imagery
VCA	8	Data Not Required
VCA	999	Other

Appendix J. Transportation Coverage

Railroad Feature Class

ID

F-CODE/DESCRIPTION

AN010 US Railroad
AN050 US Railroad Siding/Railroad Spur
AN075 US Railroad Turntable
AN060 Railroad Yard/Marshalling Yard

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink

CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

CTL Cumulative Track Length

Total cumulative length of track contained within confines of the feature, exclusive of the branch or main trunk lines running into and/or out of the feature.

CTL 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	4	VALUE INTENTIONALLY LEFT BLANK
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	8	Dismantled
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	13	VALUE INTENTIONALLY LEFT BLANK
EXS	16	VALUE INTENTIONALLY LEFT BLANK
EXS	17	VALUE INTENTIONALLY LEFT BLANK
EXS	18	Permanent
EXS	19	VALUE INTENTIONALLY LEFT BLANK
EXS	20	Corresponds to Recommended Track
EXS	21	Does Not Correspond to Recommended Track
EXS	22	One-Way
EXS	23	Two-way
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	29	VALUE INTENTIONALLY LEFT BLANK
EXS	30	VALUE INTENTIONALLY LEFT BLANK
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	34	VALUE INTENTIONALLY LEFT BLANK
EXS	35	Other
EXS	42	Continuous operation
EXS	43	Intermittent operation
EXS	44	Approximate/About
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	61	Not Isolated
EXS	62	Partially Destroyed
EXS	65	Inactive

EXS	998	Not Applicable
EXS	999	Other

FCO — Feature Configuration

Configuration of feature.

FCO	0	Unknown
FCO	1	Dispersed
FCO	2	Multiple
FCO	3	Single
FCO	4	Inclined
FCO	5	Divided same widths
FCO	6	Divided different widths
FCO	7	Non-divided
FCO	8	Poorly defined
FCO	9	Well-defined
FCO	11	Double
FCO	12	Justaxposition
FCO	999	Other

FOT — *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T
FOT F

GAW — Gauge Width

The width of a single pair of rails, measured along the shortest distance from inside rail to inside rail.

GAW 0 Actual Width

Units	Format	Range	Increment	Max Chars
Centimeter	Short Integer	0±32,767	1 CM	

IMC — *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN — Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE — *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL — *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom

LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

LOG — Length of Gradient

The length of a segment having a gradient ³ 7 percent for a Road (AP030) or £ 3 percent for a Railroad Track (AN010).

LOG 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LTN — Track/Lane Number

The number of track(s) or lanes of the feature, including both directions.

LTN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Lanes/tracks	Short Integer	0±32,767	1 LANE/TRACK	

NAM — Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OIT — *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL — *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

RGC — Railroad Gauge Category

The type of gauge used.

RGC	1	Broad
RGC	2	Narrow
RGC	3	Normal (Standard)
RGC	4	Any

RRA Railroad Power Source

Source of electrical power for railroad.

RRA	0	Unknown
RRA	1	Electrified Track
RRA	3	Overhead Electrified
RRA	4	Non-electrified
RRA	999	Other

RRC Railroad Categories

The type of railroad system used to support various transportation uses.

RRC	0	Unknown
RRC	2	Car-Line
RRC	3	Monorail
RRC	6	Subway
RRC	8	Logging
RRC	10	Miniature
RRC	11	Rapid Transit Route- Rail
RRC	13	Marine Railroad
RRC	14	Tramway
RRC	15	Inclined Railway
RRC	16	Main Line
RRC	17	Branch Line
RRC	21	Railroad in Road
RRC	998	Not Applicable
RRC	999	Other

RSA Rail Siding/Spur Attribute

Type of connecting track.

RSA	1	Spur
RSA	2	Siding
RSA	3	Passing

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SGC Gradient/Slope

Percentage of slope. (i.e. The change in height divided by the horizontal distance over which the change takes place, times one hundred ((h2-h1)/d) 100.)

SGC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Percent	Short Integer	0-100	1 %	

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture

SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese

SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SS1 *Sensors Supported*
SS2

SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*
The degree to which a surface is transparent.
Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*
Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute
Narrative or other description.
TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

UBC Underbridge Clearance Category
Clearance below bridge, measured from the lowest surface level to the base of the lower of either a cross beam or the lowest bridge deck.
UBC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

USE Usage
Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment

USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar

USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area

USE 999 Other

VRR Vertical Reference Category

Relative location referenced to sounding datum, unless otherwise indicated.

VRR	0	Unknown
VRR	1	Above Surface/Does not cover (At High Water)
VRR	2	Awash at Sounding Datum
VRR	4	Below Surface/Submerged
VRR	8	Covers and Uncovers
VRR	9	Not Applicable

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

Road Feature Class

ID

F-CODE/DESCRIPTION

AP010 Cart Track
AP020 US Interchange
AP030 Road
AP050 US Trail
AP060 Drove
AQ030 US Boardwalk

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni

DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	4	VALUE INTENTIONALLY LEFT BLANK
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	8	Dismantled
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	13	VALUE INTENTIONALLY LEFT BLANK
EXS	16	VALUE INTENTIONALLY LEFT BLANK
EXS	17	VALUE INTENTIONALLY LEFT BLANK
EXS	18	Permanent
EXS	19	VALUE INTENTIONALLY LEFT BLANK
EXS	20	Corresponds to Recommended Track
EXS	21	Does Not Correspond to Recommended Track
EXS	22	One-Way
EXS	23	Two-way
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	29	VALUE INTENTIONALLY LEFT BLANK
EXS	30	VALUE INTENTIONALLY LEFT BLANK
EXS	30	Not Isolated

EXS	31	Isolated
EXS	33	Ruined
EXS	34	VALUE INTENTIONALLY LEFT BLANK
EXS	35	Other
EXS	42	Continuous operation
EXS	43	Intermittent operation
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	61	Not Isolated
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FCO — Feature Configuration

Configuration of feature.

FCO	0	Unknown
FCO	1	Dispersed
FCO	2	Multiple
FCO	3	Single
FCO	4	Inclined
FCO	5	Divided same widths
FCO	6	Divided different widths
FCO	7	Non-divided
FCO	8	Poorly defined
FCO	9	Well-defined
FCO	11	Double
FCO	12	Justaxposition
FCO	999	Other

FOT — *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

IMC — *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LAB — Feature Label

Label applied to the feature.

LAB	0	Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80 Characters

LC1 Load Class Type 1

Military load classification (weight bearing capacity) Type 1.

LC1 0 Weight bearing capacity for one-way traffic of wheeled vehicles (from STANAG 2253).

LC2 Load Class Type 2

Military load classification (weight bearing capacity) Type 2.

LC2 0 Weight bearing capacity for two-way traffic of wheeled vehicles (from STANAG 2253).

LC3 Load Class Type 3

Military load classification (weight bearing capacity) Type 3.

LC3 0 Weight bearing capacity for one-way traffic of tracked vehicles (from STANAG 2253).

LC4 Load Class Type 4

Military load classification (weight bearing capacity) Type 4.

LC4 0 Weight bearing capacity for two-way traffic of tracked vehicles (from STANAG 2253).

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be

rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable

LOC 999 Other

LOG Length of Gradient

The length of a segment having a gradient ³ 7 percent for a Road (AP030) or £ 3 percent for a Railroad Track (AN010).

LOG 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LTN Track/Lane Number

The number of track(s) or lanes of the feature, including both directions.

LTN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Lanes/tracks	Short Integer	0±32,767	1 LANE/TRACK	

MED Median Category

Presence of a divider between multiple lanes/rails.

MED 1 With Median
MED 2 Without Median
MED 998 Not Applicable
MED 999 Other

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF
OIT 2 SUN
OIT 3 NOSUN

NA3 Classification. Name

Fundamentally a grammalogue, index number, order or classification number for a feature.

NA3 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OHC Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

RIT Road Interchange Type

The unique interchange design.

RIT	0	Unknown
RIT	1	Cloverleaf
RIT	2	Diamond
RIT	3	Fork
RIT	4	Rotary /Traffic Circle/Roundabout
RIT	5	Staggered Ramps
RIT	6	Standard Ramps
RIT	7	Symmetrical Ramps
RIT	8	Trumpet
RIT	9	Turban
RIT	10	Wye
RIT	999	Other

RST Road/Runway Surface Type

The physical surface composition of a road.

RST	0	Unknown
RST	1	Hard /Paved
RST	2	Loose /Unpaved
RST	3	Loose /Light
RST	4	Corduroy
RST	5	Grass/Sod (Soft)
RST	6	Natural
RST	7	Permanent
RST	8	Temporary
RST	998	Not Applicable
RST	999	Other

RTC Road Type Category

NATO road type classification (see STANAG 3675).

RTC	0	Unknown
RTC	1	NATO Category X
RTC	2	NATO Category Y
RTC	3	NATO Category Z

RTN Route Number

Official route number (I-95, M-2, A-1, etc.) assigned to the feature.

RTN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Text String	ASCII Text			24

RTT Route Intended Use

Intended use of the route.

RTT 0 Unknown

RTT	1	Recommended Track
RTT	5	Transit Route
RTT	6	Radar Guided Track
RTT	7	Measured Distance Line
RTT	9	Traffic Lane (TSS)
RTT	10	Roundabout Lane (TSS)
RTT	11	Two-way Route
RTT	12	Recommended Track (TSS)
RTT	13	Recommended direction of traffic flow
RTT	14	Primary Route
RTT	15	Secondary Route
RTT	16	Limited Access Route (e.g. Motorway/Autobahn/Interstate)
RTT	96	Recommended Traffic Lane Part
RTT	97	Centerline
RTT	999	Other

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SGC Gradient/Slope

Percentage of slope. (i.e. The change in height divided by the horizontal distance over which the change takes place, times one hundred ((h2-h1)/d) 100.)

SGC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Percent	Short Integer	0-100	1 %	

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash

SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble

SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T

SPC F

SS1 *Sensors Supported*

SS2

SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T

SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRA Traversablity

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TUC Transportation Use Category

Identifies the primary user, function, or authority of the transportation system.

TUC	0	Unknown
TUC	1	Both Road and Railroad
TUC	2	Highway
TUC	3	Railroad
TUC	4	Road
TUC	6	Street
TUC	7	Through Routes
TUC	8	Air Traffic Control
TUC	12	Marine
TUC	13	Air
TUC	14	Bus
TUC	17	Pedestrian
TUC	18	Pipeline
TUC	19	Animal
TUC	20	Aircraft
TUC	21	Ship
TUC	22	Automotive
TUC	23	Boat
TUC	24	Bulk Motor Boat/Barge
TUC	25	VALUE INTENTIONALLY LEFT BLANK
TUC	26	Passenger
TUC	27	Chair lift
TUC	28	Ski tow
TUC	29	Sleigh tow
TUC	30	Cart tow
TUC	31	Motor Cycle
TUC	36	Slip Road/Access Road
TUC	37	Portage
TUC	38	Canal
TUC	39	Caravan Route
TUC	40	Subway
TUC	999	Other

TXT Text Attribute

Narrative or other description.

TXT	0	Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute

USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring

USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WD1 Minimum Traveled Way Width

Minimum width of the traveled way, excluding hard pavements and shoulders (in decimeters).

WD1 0 Actual Value

Units	Format	Range	Increment	Max Chars
Decimeters	Short Integer	0±32,767	1 DM	

WD2 Total Usable Width

Total usable width including pavements and hard shoulders (in decimeters).

WD2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Decimeters	Short Integer	0±32,767	1 DM	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

WTC Weather Type Category

Weather conditions under which a feature is usable.

WTC	0	Unknown
WTC	1	All Weather
WTC	2	Fair /Dry Weather
WTC	3	Winter Only
WTC	4	All Weather (Limited Traffic Due to Weather)
WTC	998	Not Applicable
WTC	999	Other

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Obstacles to Transportation Feature Class

ID

F-CODE/DESCRIPTION

AP040 Gate
AP041 Barrier
AL070 Fence
AL260 Wall
AQ118 Sharp Curve(s)
AQ120 Steep Grade

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua

CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 — *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni

DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existance Category

EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	4	VALUE INTENTIONALLY LEFT BLANK
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	8	Dismantled
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	13	VALUE INTENTIONALLY LEFT BLANK
EXS	16	VALUE INTENTIONALLY LEFT BLANK
EXS	17	VALUE INTENTIONALLY LEFT BLANK
EXS	18	Permanent
EXS	19	VALUE INTENTIONALLY LEFT BLANK
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	29	VALUE INTENTIONALLY LEFT BLANK
EXS	30	VALUE INTENTIONALLY LEFT BLANK
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	34	VALUE INTENTIONALLY LEFT BLANK
EXS	35	Other
EXS	36	Commissioned and Operational
EXS	37	Commissioned and on Test

EXS	38	Commissioned and out of service
EXS	39	Not commissioned and operational
EXS	40	Not commissioned and on test
EXS	41	Not commissioned and out of service
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	61	Not Isolated
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T
FOT F

FTI Fence Type Indicator

Type of fence.

FTI	0	Unknown
FTI	1	Metal
FTI	2	Wood
FTI	3	Stone
FTI	4	Rock
FTI	5	Barbed Wire
FTI	6	Chain link
FTI	999	Other

GTP Gate type

The classification of the type of barrier or gate.

GNC	0	Undefined
GNC	1	Gate in general
GNC	2	Tidal gate (flood barrage)
GNC	3	Caisson
GNC	4	Lock gate
GTC	5	Tollgate
GTC	99	Other

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC 0 Unknown

LOC 1 Above Surface/Does not Cover (Height Known)

LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*
Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK

SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves

SMS 500 Not Evaluated
SMS 999 Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*
The degree to which a surface is transparent.
Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*
Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).
TTP 1 RGB
TTP 2 GRAY
TTP 3 MULTI
TTP 4 SMFD

TXT Text Attribute
Narrative or other description.
TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage
Use (identifies the primary user, function, or controlling authority).
USE 0 Unknown
USE 4 National
USE 5 State
USE 6 Private
USE 7 Tribal
USE 8 Military

USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix

USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water

USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

WTI Type of wall structure category.

WTI	0	Unknown
WTI	1	Standing
WTI	2	Retaining
WTI	3	Other

Subterranean Transportation Feature Class

ID

F-CODE/DESCRIPTION

SU002 Subway
AQ130 Tunnel
AQ065 Culvert

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta

CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

DEP — Depth Below Surface Level

Distance measured from the highest point at surface level to the lowest point of the feature below the surface. Recorded values are positive numbers.

DEP 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 — *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T
FOT F

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

MVC Maximum Vertical clearance

The greatest distance between the traveled way and any obstruction vertically above it.

MVC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meter	Floating Point		0.1 M	

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF
OIT 2 SUN
OIT 3 NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*
Indicates that an object has self heating characteristics
SER T
SER F

SMS *Surface Material Subtype*
Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera

SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash

SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*
The degree to which a surface is transparent.
Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*
Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TUC Transportation Use Category
Identifies the primary user, function, or authority of the transportation system.

TUC	0	Unknown
TUC	1	Both Road and Railroad
TUC	2	Highway
TUC	3	Railroad
TUC	4	Road
TUC	6	Street

TUC	7	Through Routes
TUC	8	Air Traffic Control
TUC	12	Marine
TUC	13	Air
TUC	14	Bus
TUC	17	Pedestrian
TUC	18	Pipeline
TUC	19	Animal
TUC	20	Aircraft
TUC	21	Ship
TUC	22	Automotive
TUC	23	Boat
TUC	24	Bulk Motor Boat/Barge
TUC	25	VALUE INTENTIONALLY LEFT BLANK
TUC	26	Passenger
TUC	27	Chair lift
TUC	28	Ski tow
TUC	29	Sleigh tow
TUC	30	Cart tow
TUC	31	Motor Cycle
TUC	36	Slip Road/Access Road
TUC	37	Portage
TUC	38	Canal
TUC	39	Caravan Route
TUC	40	Subway
TUC	999	Other

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

Aerial Transportation Feature Class

ID

F-CODE/DESCRIPTION

AQ010 US Aerial Cableway Lines/Ski Lift Lines

AQ020 Aerial Cableway Pylon/Ski Pylon

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink

CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 — *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 — *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown

DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	4	VALUE INTENTIONALLY LEFT BLANK
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	8	Dismantled
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	13	VALUE INTENTIONALLY LEFT BLANK
EXS	16	VALUE INTENTIONALLY LEFT BLANK
EXS	17	VALUE INTENTIONALLY LEFT BLANK
EXS	18	Permanent
EXS	19	VALUE INTENTIONALLY LEFT BLANK
EXS	20	Corresponds to Recommended Track
EXS	21	Does Not Correspond to Recommended Track
EXS	22	One-Way
EXS	23	Two-way
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	29	VALUE INTENTIONALLY LEFT BLANK
EXS	30	VALUE INTENTIONALLY LEFT BLANK
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	34	VALUE INTENTIONALLY LEFT BLANK
EXS	35	Other
EXS	36	Commissioned and Operational
EXS	37	Commissioned and on Test
EXS	38	Commissioned and out of service
EXS	39	Not commissioned and operational

EXS	40	Not commissioned and on test
EXS	41	Not commissioned and out of service
EXS	42	Continuous operation
EXS	43	Intermittent operation
EXS	44	Approximate/About
EXS	46	Man-made
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	61	Not Isolated
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

OHC Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF
OIT 2 SUN
OIT 3 NOSUN

OWO Over Water Obstruction

Indicates the presence of an obstruction over an area of navigable water.

OWO 1 Feature crosses navigable water
OWO 2 Feature does not cross navigable water

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks

SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel

USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point

USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator

USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Bridge Feature Class

ID

F-CODE/DESCRIPTION

AQ040 Bridge/Overpass/Viaduct
AQ064 Causeway
AQ070 Ferry Crossing
AQ045 Bridge Span
AQ050 Bridge Superstructure
AQ055 Bridge Tower/Bridge Pylon
AQ056 Bridge Pier

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

BCC Bypass Condition Category

The ease or ability to circumvent a destroyed section of bridge, tunnel or pass within a 2 kilometer distance on each side of the feature. Bypass condition will not consider other bridges in bypass determination.

BCC	0	Unknown
BCC	1	Easy (Obstacle can be crossed within 2 KM of feature, no work)
BCC	2	Difficult (Obstacle can be crossed within 2 KM of feature, work required).
BCC	3	Impossible (Obstacle cannot be bypassed within 2 KM of feature)

BDC Bridge Design Category

Structural design characteristics of the bridge or bridge segment.

BDC	0	Unknown
BDC	1	Arch
BDC	2	Cantilever
BDC	3	Deck
BDC	4	Slab
BDC	5	Floating Bridge
BDC	6	Girder
BDC	7	Stringer (Beam)
BDC	8	Truss
BDC	9	Suspension
BDC	11	Other
BDC	12	Transporter (Ferry Bridge)

BOT Bridge Opening Type

The type of structure or mechanism by which a portion of a bridge is moved to allow passage of a vessel.

BOT	0	Unknown
BOT	4	Draw/Bascule
BOT	10	Swing
BOT	11	Lift
BOT	12	Retractable
BOT	13	Not Applicable

BRN Bridge Reference Number

A unique number relating information to bridge and bridge spans.

BRN	0	Actual Value

BSC Bridge/Bridge Superstructure Category

Structural design characteristics.

BSC	0	Unknown

BSC	1	Arch (assume open spandrel)
BSC	2	Cantilever
BSC	3	Deck
BSC	4	Drawbridge
BSC	5	Floating Bridge/Pontoon
BSC	6	Girder
BSC	7	Tower Suspension
BSC	8	Truss
BSC	9	Suspension
BSC	10	Swing
BSC	11	Lift
BSC	12	Transporter
BSC	13	Bascule
BSC	14	Unspecified Fixed
BSC	15	Slab
BSC	16	Stringer (beam)
BSC	17	Arch Suspension
BSC	18	Retractable
BSC	19	Suspension, bow string
BSC	20	Suspension, cable stayed
BSC	21	Moveable Surface
BSC	22	Covered
BSC	23	Opening
BSC	24	Footbridge
BSC	25	Fixed
BSC	26	Arch (closed spandrel)
BSC	27	Cable Stayed
BSC	999	Other

BSM Bridge Span Mobility

Identifies bridge spans that move in some manner allowing passage underneath the span.

BSM	0	Unknown
BSM	1	Moveable Span
BSM	2	Fixed Span

BSN Bridge Serial Number

Unique number associated with a bridge which is used to identify the bridge in other national or intelligence databases.

BSN	0	Actual Value

BSP Bridge Span Category

Identifies type of moveable span (used for AQ045 when BSM=1).

BSP	0	Unknown
BSP	1	Truss
BSP	2	Truss, moveable or swing
BSP	3	Plate girder
BSP	4	Plate girder moveable as vertical lift
BSP	5	Plate girder moveable as draw bridge
BSP	6	Plate girder moveable as bascule
BSP	7	Stringer, beam
BSP	8	Stringer, moveable as vertical lift
BSP	9	Stringer, moveable as draw bridge
BSP	10	Slab

BSP	11	Arc, closed span
BSP	12	Arc, open span
BSP	13	Floating bridge, pontoon bridge
BSP	14	Culvert
BSP	15	Frame structure
BSP	16	Vault structure
BSP	17	Unspecified fixed
BSP	18	Retractable
BSP	999	Other

CAP Capacity

The capacity of a feature. Units will be qualified using a structured text approach, e.g. 100(cars)[per hour] where the unit is in parentheses ( ) and a unit qualifier is in brackets [ ].

CAP 0 Actual Value

Units	Format	Range	Increment	Max Chars
Structured Text	ASCII Text			80

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DAT Date

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	4	VALUE INTENTIONALLY LEFT BLANK
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	8	Dismantled
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	13	VALUE INTENTIONALLY LEFT BLANK
EXS	16	VALUE INTENTIONALLY LEFT BLANK
EXS	17	VALUE INTENTIONALLY LEFT BLANK
EXS	18	Permanent
EXS	19	VALUE INTENTIONALLY LEFT BLANK
EXS	20	Corresponds to Recommended Track
EXS	21	Does Not Correspond to Recommended Track
EXS	22	One-Way
EXS	23	Two-way
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	29	VALUE INTENTIONALLY LEFT BLANK
EXS	30	VALUE INTENTIONALLY LEFT BLANK
EXS	30	Not Isolated
EXS	31	Isolated
EXS	32	Navigable
EXS	33	Ruined
EXS	34	VALUE INTENTIONALLY LEFT BLANK
EXS	35	Other
EXS	36	Commissioned and Operational
EXS	37	Commissioned and on Test
EXS	38	Commissioned and out of service
EXS	39	Not commissioned and operational
EXS	40	Not commissioned and on test
EXS	41	Not commissioned and out of service
EXS	42	Continuous operation

EXS	43	Intermittent operation
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	61	Not Isolated
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FCL — Ferry Crossing Length

Length of crossing between shore points.

FCL 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

FCO — Feature Configuration

Configuration of feature.

FCO	0	Unknown
FCO	1	Dispersed
FCO	2	Multiple
FCO	3	Single
FCO	4	Inclined
FCO	5	Divided same widths
FCO	6	Divided different widths
FCO	7	Non-divided
FCO	8	Poorly defined
FCO	9	Well-defined
FCO	11	Double
FCO	12	Justaxposition
FCO	999	Other

FER — Ferry Type

Indicates whether or not ferry travels along cables.

FER	0	Unknown
FER	1	With cables/chains
FER	2	Without cables/chains
FER	999	Other

FOT — *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HDP Hydrographic Depth

The depth of the feature below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IDN Identification Number

A unique number relating specific interior map/chart features to border information.

IDN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Numeric	Short Integer	0±32,767	1 Unit	

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LC1 Load Class Type 1

Military load classification (weight bearing capacity) Type 1.

LC1 0 Weight bearing capacity for one-way traffic of wheeled vehicles (from STANAG 2253).

LC2 Load Class Type 2

Military load classification (weight bearing capacity) Type 2.

LC2 0 Weight bearing capacity for two-way traffic of wheeled vehicles (from STANAG 2253).

LC3 Load Class Type 3

Military load classification (weight bearing capacity) Type 3.

LC3 0 Weight bearing capacity for one-way traffic of tracked vehicles (from STANAG 2253).

LC4 Load Class Type 4

Military load classification (weight bearing capacity) Type 4.

LC4 0 Weight bearing capacity for two-way traffic of tracked vehicles (from STANAG 2253).

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

MBI Military Bridge Information

A free text field used to indicate if the bridge is subject to preplanned military interdiction.

MBI 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		256 Char

MCC Surface Material Category (or Material Composition Category)

Characteristics of primary material composition of feature.

MCC 0 Unknown
MCC 4 Ash
MCC 5 Asphalt
MCC 6 Basalt
MCC 7 Bedrock

MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper
MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud

MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria
MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar
MCC	110	Travertin
MCC	111	Tufa
MCC	112	Uranium
MCC	113	Vegetation Products
MCC	114	Volcanic
MCC	115	Volcanic Ash
MCC	116	Water
MCC	117	Wood
MCC	118	Zinc
MCC	119	Evaporites
MCC	999	Other

MCS Material Composition Secondary

Secondary material composition of the feature.

MCS	0	Unknown
MCS	4	Ash
MCS	8	Boulders
MCS	12	Chalk
MCS	14	Cinders
MCS	15	Cirripedia
MCS	16	Clay
MCS	18	Cobble
MCS	24	Coral
MCS	25	Coral Head
MCS	28	Diatoms
MCS	36	Foraminifera
MCS	37	Funus
MCS	41	Globigerina
MCS	45	Grass /Thatch
MCS	46	Gravel
MCS	48	Ground
MCS	52	Lava
MCS	58	Madrepores
MCS	59	Manganese
MCS	61	Marl
MCS	63	Mattes
MCS	65	Mud
MCS	66	Mussels
MCS	69	Ooze
MCS	70	Oysters
MCS	73	Pebbles
MCS	75	Polyzoa
MCS	78	Pteropods
MCS	79	Pumice
MCS	80	Quartz
MCS	81	Radiolaria
MCS	84	Rock /Rocky
MCS	88	Sand
MCS	90	Schist
MCS	92	Scoria
MCS	93	Sea Tangle
MCS	94	Seaweed
MCS	96	Shells
MCS	98	Shingle
MCS	99	Silt
MCS	105	Spicules
MCS	106	Sponge
MCS	108	Stone
MCS	111	Tufa

MVC Maximum Vertical clearance

The greatest distance between the traveled way and any obstruction vertically above it.

MVC	0	Actual Value

Units	Format	Range	Increment	Max Chars
Meter	Floating Point		0.1 M	

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

NOS Number of spans

Number of spans in a bridge or aqueduct.

NOS 0 Actual Value

Units	Format	Range	Increment	Max Chars
Spans	Short Integer	0±32,767	1 SPAN	

OHB Overall Height of Bridge

Vertical distance measured from the lowest point at ground or water level to the highest portion of bridge (including superstructure).

OHB 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

OHC Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

OWO Over Water Obstruction

Indicates the presence of an obstruction over an area of navigable water.

OWO	1	Feature crosses navigable water
OWO	2	Feature does not cross navigable water

RBC Reliability of Bridge

Reliability of bridge characteristics and military load classification based upon data source.

RBC	0	Unknown
RBC	1	Known
RBC	2	Estimated

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

RST Road/Runway Surface Type

The physical surface composition of a road.

RST	0	Unknown
RST	1	Hard /Paved
RST	2	Loose /Unpaved
RST	3	Loose /Light
RST	4	Corduroy
RST	5	Grass/Sod (Soft)
RST	6	Natural
RST	7	Permanent
RST	8	Temporary
RST	998	Not Applicable
RST	999	Other

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SHC Safe Horizontal Clearance

Minimum safe horizontal distance between adjacent bridge support structures on either side of a navigable channel passing under the bridge.

SHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders

SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone

SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TUC Transportation Use Category

Identifies the primary user, function, or authority of the transportation system.

TUC	0	Unknown
TUC	1	Both Road and Railroad
TUC	2	Highway
TUC	3	Railroad
TUC	4	Road
TUC	6	Street
TUC	7	Through Routes
TUC	8	Air Traffic Control
TUC	12	Marine
TUC	13	Air
TUC	14	Bus
TUC	17	Pedestrian
TUC	18	Pipeline
TUC	19	Animal
TUC	20	Aircraft
TUC	21	Ship
TUC	22	Automotive
TUC	23	Boat
TUC	24	Bulk Motor Boat/Barge
TUC	25	VALUE INTENTIONALLY LEFT BLANK
TUC	26	Passenger
TUC	27	Chair lift
TUC	28	Ski tow
TUC	29	Sleigh tow
TUC	30	Cart tow
TUC	31	Motor Cycle
TUC	36	Slip Road/Access Road
TUC	37	Portage
TUC	38	Canal
TUC	39	Caravan Route
TUC	40	Subway
TUC	999	Other

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

UBC Underbridge Clearance Category

Clearance below bridge, measured from the lowest surface level to the base of the lower of either a cross beam or the lowest bridge deck.

UBC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary

USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway

USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

UNI Units Category

Units associated strictly with the measured distance lines (FC100) for nautical data. [Reference DIGEST Part 3 for Units associated with DIGEST header data.]

UNI	1	Meters
UNI	11	Nautical Miles
UNI	22	Feet
UNI	23	Kilometers
UNI	24	Yards

UT1 UTM Grid Northing

Full 7 digits of the UTM grid coordinate Northing value. (UTS, along with the last five digits of both UT1 and UT2 can designate a feature's coordinates on the earth's surface.)

UT1 0 Actual Value

Units	Format	Range	Increment	Max Chars
Text String	ASCII Text			8 Characters

UT2 UTM Grid Easting

Full 6 digits of the UTM grid coordinate Easting value. (UTS along with the last five digits of both UT1 and UT2 can designate a feature's coordinates on the earth's surface.)

UT2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Text String	ASCII Text			

UZ1 UTM Grid Zone (1)

Two-character grid zone identifier.

UZ1 0 Actual Value

Units	Format	Range	Increment	Max Chars
Text String	ASCII Text			

UZ2 UTM Grid Zone (2)

Two-character grid zone identifier.

UZ2	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Text String		ASCII Text			

WD1 Minimum Traveled Way Width

Minimum width of the traveled way, excluding hard pavements and shoulders (in decimeters).

WD1	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Decimeters		Short Integer	0±32,767	1 DM	

WD2 Total Usable Width

Total usable width including pavements and hard shoulders (in decimeters).

WD2	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Decimeters		Short Integer	0±32,767	1 DM	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID	0	Actual Value			
Units	Format		Range	Increment	Max Chars
Meters	Short Integer		0±32,767	1 M	

For a bridge, the width is the measurement perpendicular to the axis between the abutments.

YLN Length of Greater Percision

A measurement of the longer of two linear axes capable of being expressed in decimal meter units.

YLN	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Decimeter		Floating Point	0.0+32,767.9	0.1 DM	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2	0	Actual Value			
Units	Format		Range	Increment	Max Chars
Meters	Short Integer		-400 to 30,000	1 M	

Associated Transportation Feature Class

ID

F-CODE/DESCRIPTION

AQ058 Constriction/Expansion
AQ062 Crossing
DB150 Mountain Pass
AQ150 Flight of Steps
AL060 Dragon Teeth
AL210 Snow Shed/Rock Shed
AL___ Route/Distance Marker

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

CCA Constriction/Expansion Category

The type of a constriction or expansion.

CCA	0	Unknown
CCA	1	Gateway
CCA	2	A narrow pass between rocks
CCA	3	Road siding on narrow roads
CCA	4	A passage through a building
CCA	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green

CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 — *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 — *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY — *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	4	VALUE INTENTIONALLY LEFT BLANK
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	11	Temporary
EXS	12	Alternate
EXS	13	VALUE INTENTIONALLY LEFT BLANK
EXS	16	VALUE INTENTIONALLY LEFT BLANK
EXS	17	VALUE INTENTIONALLY LEFT BLANK
EXS	18	Permanent
EXS	19	VALUE INTENTIONALLY LEFT BLANK
EXS	20	Corresponds to Recommended Track
EXS	21	Does Not Correspond to Recommended Track
EXS	22	One-Way
EXS	23	Two-way
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	29	VALUE INTENTIONALLY LEFT BLANK
EXS	30	VALUE INTENTIONALLY LEFT BLANK
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	34	VALUE INTENTIONALLY LEFT BLANK
EXS	35	Other
EXS	43	Intermittent operation
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	61	Not Isolated
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LAB Feature Label

Label applied to the feature.

LAB 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80 Characters

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

NAM Name

Any Identifier or code.

NAM	0	Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OHC — Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

OIT — *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF
OIT 2 SUN
OIT 3 NOSUN

PRC — Periodic Restriction Category

Restriction due to climate or other limitations.

PRC 1 Perennially Open, Not Subject to Ice
PRC 2 Subject to Ice
PRC 3 Permanent Ice
PRC 4 Seasonal limit - Jan.
PRC 5 Seasonal limit - Feb.
PRC 6 Seasonal limit - Mar.
PRC 7 Seasonal limit - Apr.
PRC 8 Seasonal limit - May
PRC 9 Seasonal limit - Jun.
PRC 10 Seasonal limit - Jul.
PRC 11 Seasonal limit - Aug.
PRC 12 Seasonal limit - Sep.
PRC 13 Seasonal limit - Oct.
PRC 14 Seasonal limit - Nov.
PRC 15 Seasonal limit - Dec.
PRC 16 Closed
PRC 999 Other

RFL — *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER — *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SMS — *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS 0 Unknown
SMS 1 GW Well graded gravels or gravel-sand mixtures

SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber

SMS 58 Macadam
SMS 59 Madrepores
SMS 60 Manganese
SMS 61 Marble
SMS 62 Marl
SMS 63 Mattes
SMS 64 Mud
SMS 65 Oil
SMS 66 Oil Blister
SMS 67 Ooze
SMS 70 Pebbles
SMS 71 Pumice
SMS 72 Quartz
SMS 73 Radiolaria
SMS 74 Radioactive Material
SMS 75 Reinforced Concrete
SMS 76 Rock/Rocky
SMS 77 Rubber
SMS 78 Rubble
SMS 79 Salt
SMS 80 Sand
SMS 81 Sandstone
SMS 82 Schist
SMS 83 Spoils/Tailings
SMS 84 Scoria
SMS 85 Sewage
SMS 86 Shells
SMS 87 Shingle
SMS 88 Silt
SMS 89 Silver
SMS 90 Slag
SMS 91 Sludge
SMS 92 Snow/Ice
SMS 93 Steel
SMS 94 Stone
SMS 95 Travertin
SMS 96 Tufa
SMS 97 Uranium
SMS 98 Volcanic
SMS 99 Volcanic Ash
SMS 100 Zinc
SMS 101 Distorted surface
SMS 102 Sand and gravel
SMS 103 Rip-Rap
SMS 104 Kelp
SMS 105 Sandwaves
SMS 500 Not Evaluated
SMS 999 Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*
The degree to which a surface is transparent.
Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*
Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TUC Transportation Use Category
Identifies the primary user, function, or authority of the transportation system.

TUC	0	Unknown
TUC	1	Both Road and Railroad
TUC	2	Highway
TUC	3	Railroad
TUC	4	Road
TUC	6	Street
TUC	7	Through Routes
TUC	8	Air Traffic Control
TUC	12	Marine
TUC	13	Air
TUC	14	Bus
TUC	17	Pedestrian
TUC	18	Pipeline
TUC	19	Animal
TUC	20	Aircraft
TUC	21	Ship
TUC	22	Automotive
TUC	23	Boat
TUC	24	Bulk Motor Boat/Barge
TUC	25	VALUE INTENTIONALLY LEFT BLANK

TUC	26	Passenger
TUC	27	Chair lift
TUC	28	Ski tow
TUC	29	Sleigh tow
TUC	30	Cart tow
TUC	31	Motor Cycle
TUC	36	Slip Road/Access Road
TUC	37	Portage
TUC	38	Canal
TUC	39	Caravan Route
TUC	40	Subway
TUC	999	Other

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WD1 Minimum Traveled Way Width

Minimum width of the traveled way, excluding hard pavements and shoulders (in decimeters).

WD1 0 Actual Value

Units	Format	Range	Increment	Max Chars
Decimeters	Short Integer	0±32,767	1 DM	

WD2 Total Usable Width

Total usable width including pavements and hard shoulders (in decimeters).

WD2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Decimeters	Short Integer	0±32,767	1 DM	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Transportation Site Feature Class

ID

F-CODE/DESCRIPTION

AQ080 Ferry Site
AQ090 Entrance/Exit
AQ100 Landmark Post/Distance Post

AQ110 Mooring Mast
AQ021 Mast
AQ111 Prepared Raft or Float Bridge Site
AQ125 Station (Miscellaneous)
AQ135 US Vehicle Stopping Area/Rest Area
AQ140 US Vehicle Storage/Parking Area
Fueling Areas

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AFA Facilities available at or in the near vicinity.

AFA	0	Unknown
AFA	1	Visitors Berth
AFA	2	Visitors Mooring
AFA	3	Sailmaker
AFA	4	Chandler
AFA	5	Provisions
AFA	6	Physician/Doctor
AFA	7	Pharmacy/Chemist
AFA	8	Drinking Water
AFA	9	Fuel Station
AFA	10	Electricity
AFA	11	Bottle Gas/LPG
AFA	12	Showers
AFA	13	Laundrette
AFA	14	Toilets
AFA	15	Post Box
AFA	16	Public Telephone
AFA	17	Refuse Bin
AFA	18	Water Police
AFA	19	Helipad
AFA	20	Ticket Sales
AFA	21	No Ticket Sales
AFA	22	Yatch Club
AFA	23	Boat Hoist
AFA	24	Boat Yard
AFA	25	Public Inn
AFA	26	Restaurant
AFA	999	Other

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Degrees		Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	4	VALUE INTENTIONALLY LEFT BLANK
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	8	Dismantled
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	13	VALUE INTENTIONALLY LEFT BLANK
EXS	16	VALUE INTENTIONALLY LEFT BLANK
EXS	17	VALUE INTENTIONALLY LEFT BLANK
EXS	18	Permanent
EXS	19	VALUE INTENTIONALLY LEFT BLANK
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	29	VALUE INTENTIONALLY LEFT BLANK
EXS	30	VALUE INTENTIONALLY LEFT BLANK
EXS	30	Not Isolated
EXS	31	Isolated
EXS	32	Navigable
EXS	33	Ruined
EXS	34	VALUE INTENTIONALLY LEFT BLANK
EXS	35	Other
EXS	36	Commissioned and Operational
EXS	37	Commissioned and on Test
EXS	38	Commissioned and out of service
EXS	39	Not commissioned and operational
EXS	40	Not commissioned and on test
EXS	41	Not commissioned and out of service
EXS	42	Continuous operation
EXS	43	Intermittent operation
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made

EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Not Isolated
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T
FOT F

GUG Guyed or Unguyed Category

Presence of support wires.

GUG	0	Unknown
GUG	1	Guyed
GUG	2	Unguyed
GUG	999	Other

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

MCC Surface Material Category (or Material Composition Category)

Characteristics of primary material composition of feature.

MCC	0	Unknown
MCC	4	Ash
MCC	5	Asphalt
MCC	6	Basalt
MCC	7	Bedrock
MCC	8	Boulders
MCC	9	Brick
MCC	10	Calcareous
MCC	11	Cement
MCC	12	Chalk
MCC	13	Chemical
MCC	14	Cinders
MCC	15	Cirripedia
MCC	16	Clay
MCC	17	Coal
MCC	18	Cobble
MCC	19	Coke
MCC	20	Composition
MCC	21	Concrete
MCC	22	Conglomerate
MCC	23	Copper

MCC	24	Coral
MCC	25	Coral Head
MCC	26	Desalinated Water
MCC	27	Diamonds
MCC	28	Diatoms
MCC	29	Dolomite
MCC	30	Earthen
MCC	32	Eroded Lands
MCC	34	Flynch
MCC	35	Food
MCC	36	Foraminifera
MCC	37	Fucus
MCC	40	Glass
MCC	41	Globigerina
MCC	42	Gold
MCC	43	Granite
MCC	44	VALUE INTENTIONALLY LEFT BLANK
MCC	45	Grass/Thatch
MCC	46	Gravel
MCC	47	Green Rocks
MCC	48	Ground
MCC	49	Ground (Shells)
MCC	50	Heat
MCC	51	Iron
MCC	52	Lava
MCC	53	VALUE INTENTIONALLY LEFT BLANK
MCC	54	Lead
MCC	55	Loess
MCC	56	Lumber
MCC	57	Macadam
MCC	58	Madrepores
MCC	59	Manganese
MCC	60	Marble
MCC	61	Marl
MCC	62	Masonry (Brick/Stone)
MCC	63	Mattes
MCC	64	Metal
MCC	65	Mud
MCC	66	Mussels
MCC	67	Oil
MCC	68	Oil Blister
MCC	69	Ooze
MCC	70	Oysters
MCC	71	Paper
MCC	72	Part Metal
MCC	73	Pebbles
MCC	74	Plastic
MCC	75	Polyzoa
MCC	76	Porphyry
MCC	77	Prestressed Concrete
MCC	78	Pteropods
MCC	79	Pumice
MCC	80	Quartz
MCC	81	Radiolaria

MCC	82	Radioactive Material
MCC	83	Reinforced Concrete
MCC	84	Rock/Rocky
MCC	85	Rubber
MCC	86	Rubble
MCC	87	Salt
MCC	88	Sand
MCC	89	Sandstone
MCC	90	Schist
MCC	91	Spoils/Tailings
MCC	92	Scoria
MCC	93	Sea Tangle
MCC	94	Seaweed
MCC	95	Sewage
MCC	96	Shells
MCC	98	Shingle
MCC	99	Silt
MCC	100	Silver
MCC	101	Slag
MCC	102	Sludge
MCC	103	Snow/Ice
MCC	104	Soil
MCC	105	Spicules
MCC	106	Sponge
MCC	107	Steel
MCC	108	Stone
MCC	109	Sugar
MCC	110	Travertin
MCC	111	Tufa
MCC	112	Uranium
MCC	113	Vegetation Products
MCC	114	Volcanic
MCC	115	Volcanic Ash
MCC	116	Water
MCC	117	Wood
MCC	118	Zinc
MCC	119	Evaporites
MCC	999	Other

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OHC Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMC Surface Material Category

Surface material composition excluding internal structural material.

SMC	0	Unknown
SMC	1	Aircraft
SMC	2	Aluminum
SMC	3	Ammunition
SMC	4	Ash
SMC	5	Asphalt
SMC	6	Basalt
SMC	7	Bedrock
SMC	8	Boulders
SMC	9	Brick
SMC	10	Calcareous
SMC	11	Cement
SMC	12	Chalk
SMC	13	Chemical
SMC	14	Cinders
SMC	15	Cirripedia
SMC	16	Clay
SMC	17	Coal
SMC	18	Cobble
SMC	19	Coke
SMC	20	Compositio n
SMC	21	Concrete
SMC	22	Conglomerate
SMC	23	Copper
SMC	24	Coral
SMC	25	Coral Head
SMC	26	Desalinated Water
SMC	27	Diamonds
SMC	28	Diatoms
SMC	29	Dolomite
SMC	30	Earthen
SMC	31	Electric
SMC	32	Eroded Lands

SMC	33	Explosives
SMC	34	Flynch
SMC	35	Food
SMC	36	Foraminifera
SMC	37	Fucus
SMC	38	Gas
SMC	39	Gasoline
SMC	40	Glass
SMC	41	Globigerina
SMC	42	Gold
SMC	43	Granite
SMC	44	VALUE INTENTIONALLY LEFT BLANK
SMC	45	Grass/Thatch
SMC	46	Gravel
SMC	47	Green Rocks
SMC	48	Ground
SMC	49	Ground (Shells)
SMC	50	Heat
SMC	51	Iron
SMC	52	Lava
SMC	53	VALUE INTENTIONALLY LEFT BLANK
SMC	54	Lead
SMC	55	Loess
SMC	56	Lumber
SMC	57	Macadam
SMC	58	Madrepores
SMC	59	Manganese
SMC	60	Marble
SMC	61	Marl
SMC	62	Masonry (Brick/Stone)
SMC	63	Mattes
SMC	64	Metal
SMC	65	Mud
SMC	66	Mussels
SMC	67	Oil
SMC	68	Oil Blister
SMC	69	Ooze
SMC	70	Oysters
SMC	71	Paper
SMC	72	Part Metal
SMC	73	Pebbles
SMC	74	Plastic
SMC	75	Polyzoa
SMC	76	Porphyry
SMC	77	Prestressed Concrete
SMC	78	Pteropods
SMC	79	Pumice
SMC	80	Quartz
SMC	81	Radiolaria
SMC	82	Radioactive Material
SMC	83	Reinforced Concrete
SMC	84	Rock/Rocky
SMC	85	Rubber
SMC	86	Rubble

SMC	87	Salt
SMC	88	Sand
SMC	89	Sandstone
SMC	90	Schist
SMC	91	Spoils/Tailings
SMC	92	Scoria
SMC	93	Sea Tangle
SMC	94	Seaweed
SMC	95	Sewage
SMC	96	Shells
SMC	97	VALUE INTENTIONALLY LEFT BLANK
SMC	98	Shingle
SMC	99	Silt
SMC	100	Silver
SMC	101	Slag
SMC	102	Sludge
SMC	103	Snow/Ice
SMC	104	Soil
SMC	105	Spicules
SMC	106	Sponge
SMC	107	Steel
SMC	108	Stone
SMC	109	Sugar
SMC	110	Travertin
SMC	111	Tufa
SMC	112	Uranium
SMC	113	Vegetation Products
SMC	114	Volcanic
SMC	115	Volcanic Ash
SMC	116	Water
SMC	117	Wood
SMC	118	Zinc
SMC	119	Distorted surface
SMC	120	Sand and gravel
SMC	121	Rip-Rap
SMC	198	Kelp
SMC	199	Sandwaves
SMC	999	Other

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity

SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister

SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TUC Transportation Use Category

Identifies the primary user, function, or authority of the transportation system.

TUC	0	Unknown
TUC	1	Both Road and Railroad
TUC	2	Highway
TUC	3	Railroad
TUC	4	Road
TUC	6	Street
TUC	7	Through Routes
TUC	8	Air Traffic Control
TUC	12	Marine
TUC	13	Air
TUC	14	Bus
TUC	17	Pedestrian
TUC	18	Pipeline
TUC	19	Animal
TUC	20	Aircraft
TUC	21	Ship
TUC	22	Automotive
TUC	23	Boat
TUC	24	Bulk Motor Boat/Barge
TUC	25	VALUE INTENTIONALLY LEFT BLANK
TUC	26	Passenger
TUC	27	Chair lift
TUC	28	Ski tow
TUC	29	Sleigh tow
TUC	30	Cart tow
TUC	31	Motor Cycle
TUC	36	Slip Road/Access Road
TUC	37	Portage
TUC	38	Canal

TUC	39	Caravan Route
TUC	40	Subway
TUC	999	Other

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee

USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation

USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
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USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WD5 Width Top

The width at the top of a feature (in meters).

WD5 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Aerodrome Feature Class

ID

F-CODE/DESCRIPTION

AQ060 Control Tower
GB025 Blast Barrier
GB040 Launch Pad
GB050 Revetment (Airfield)
GB057 Shoulder
GB080 Wind Indicator
GB160 Decontamination Pad

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green

CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COD — Certainty of Delineation

Indicates knowledge of the feature's limits or information.

COD	0	Unknown
COD	1	Limits and Information Known
COD	2	Limits and Information Unknown

COL — Character of Light

Any identifier composed of the class, number and color(s) of flashes or occultations, of a light or lights at one geographic position [e.g. Q(6)+L F1, VQ G, L F1 (3+2)WR].

COL 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	4	VALUE INTENTIONALLY LEFT BLANK
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	8	Dismantled
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	13	VALUE INTENTIONALLY LEFT BLANK

EXS	16	VALUE INTENTIONALLY LEFT BLANK
EXS	17	VALUE INTENTIONALLY LEFT BLANK
EXS	18	Permanent
EXS	19	VALUE INTENTIONALLY LEFT BLANK
EXS	20	Corresponds to Recommended Track
EXS	21	Does Not Correspond to Recommended Track
EXS	22	One-Way
EXS	23	Two-way
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	29	VALUE INTENTIONALLY LEFT BLANK
EXS	30	VALUE INTENTIONALLY LEFT BLANK
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	34	VALUE INTENTIONALLY LEFT BLANK
EXS	35	Other
EXS	36	Commissioned and Operational
EXS	37	Commissioned and on Test
EXS	38	Commissioned and out of service
EXS	39	Not commissioned and operational
EXS	40	Not commissioned and on test
EXS	41	Not commissioned and out of service
EXS	42	Continuous operation
EXS	43	Intermittent operation
EXS	44	Approximate/About
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	61	Not Isolated
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FCO Feature Configuration

Configuration of feature.

FCO	0	Unknown
FCO	1	Dispersed
FCO	2	Multiple
FCO	3	Single
FCO	4	Inclined
FCO	5	Divided same widths
FCO	6	Divided different widths
FCO	7	Non-divided
FCO	8	Poorly defined
FCO	9	Well-defined

FCO 11 Double
FCO 12 Justaxposition
FCO 999 Other

FOT *Feature Onset*
Indicator for changing radar backscatter coefficients.
FOT T
FOT F

HGT Height Above Surface Level
Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.
HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

IKO ICAO Designator
International Civil Aviation Organization location identifier as designated in ICAO document 7910.
IKO 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	ASCII Text		256

LEN Length/Diameter of Point Feature
A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.
LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*
Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.
LLE T
LLE F

LLL *Long Lineal*
Reference to a point feature which could potentially look like a long linear feature by radar.
Applies to point features
LLL T
LLL F

LN1 *Layer Number*
A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*
A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be

rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

OHC Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

RST Road/Runway Surface Type

The physical surface composition of a road.

RST	0	Unknown
RST	1	Hard /Paved
RST	2	Loose /Unpaved
RST	3	Loose /Light
RST	4	Corduroy
RST	5	Grass/Sod (Soft)
RST	6	Natural
RST	7	Permanent
RST	8	Temporary
RST	998	Not Applicable
RST	999	Other

SMC Surface Material Category

Surface material composition excluding internal structural material.

SMC	0	Unknown
SMC	1	Aircraft
SMC	2	Aluminum
SMC	3	Ammunition
SMC	4	Ash
SMC	5	Asphalt
SMC	6	Basalt
SMC	7	Bedrock
SMC	8	Boulders
SMC	9	Brick
SMC	10	Calcareous
SMC	11	Cement

SMC	12	Chalk
SMC	13	Chemical
SMC	14	Cinders
SMC	15	Cirripedia
SMC	16	Clay
SMC	17	Coal
SMC	18	Cobble
SMC	19	Coke
SMC	20	Compositio n
SMC	21	Concrete
SMC	22	Conglomerate
SMC	23	Copper
SMC	24	Coral
SMC	25	Coral Head
SMC	26	Desalinated Water
SMC	27	Diamonds
SMC	28	Diatoms
SMC	29	Dolomite
SMC	30	Earthen
SMC	31	Electric
SMC	32	Eroded Lands
SMC	33	Explosives
SMC	34	Flynch
SMC	35	Food
SMC	36	Foraminifera
SMC	37	Fucus
SMC	38	Gas
SMC	39	Gasoline
SMC	40	Glass
SMC	41	Globigerina
SMC	42	Gold
SMC	43	Granite
SMC	44	VALUE INTENTIONALLY LEFT BLANK
SMC	45	Grass/Thatch
SMC	46	Gravel
SMC	47	Green Rocks
SMC	48	Ground
SMC	49	Ground (Shells)
SMC	50	Heat
SMC	51	Iron
SMC	52	Lava
SMC	53	VALUE INTENTIONALLY LEFT BLANK
SMC	54	Lead
SMC	55	Loess
SMC	56	Lumber
SMC	57	Macadam
SMC	58	Madrepores
SMC	59	Manganese
SMC	60	Marble
SMC	61	Marl
SMC	62	Masonry (Brick/Stone)
SMC	63	Mattes
SMC	64	Metal
SMC	65	Mud

SMC	66	Mussels
SMC	67	Oil
SMC	68	Oil Blister
SMC	69	Ooze
SMC	70	Oysters
SMC	71	Paper
SMC	72	Part Metal
SMC	73	Pebbles
SMC	74	Plastic
SMC	75	Polyzoa
SMC	76	Porphyry
SMC	77	Prestressed Concrete
SMC	78	Pteropods
SMC	79	Pumice
SMC	80	Quartz
SMC	81	Radiolaria
SMC	82	Radioactive Material
SMC	83	Reinforced Concrete
SMC	84	Rock/Rocky
SMC	85	Rubber
SMC	86	Rubble
SMC	87	Salt
SMC	88	Sand
SMC	89	Sandstone
SMC	90	Schist
SMC	91	Spoils/Tailings
SMC	92	Scoria
SMC	93	Sea Tangle
SMC	94	Seaweed
SMC	95	Sewage
SMC	96	Shells
SMC	97	VALUE INTENTIONALLY LEFT BLANK
SMC	98	Shingle
SMC	99	Silt
SMC	100	Silver
SMC	101	Slag
SMC	102	Sludge
SMC	103	Snow/Ice
SMC	104	Soil
SMC	105	Spicules
SMC	106	Sponge
SMC	107	Steel
SMC	108	Stone
SMC	109	Sugar
SMC	110	Travertin
SMC	111	Tufa
SMC	112	Uranium
SMC	113	Vegetation Products
SMC	114	Volcanic
SMC	115	Volcanic Ash
SMC	116	Water
SMC	117	Wood
SMC	118	Zinc
SMC	119	Distorted surface

	SMC	120	Sand and gravel
	SMC	121	Rip-Rap
	SMC	198	Kelp
	SMC	199	Sandwaves
	SMC	999	Other

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
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USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
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USE	57	Marine
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USE	73	Terminus/Terminal
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USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
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USE	120	Recreational
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USE	124	Irrigation
USE	125	Retaining
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USE	132	Container
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USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WD1 Minimum Traveled Way Width

Minimum width of the traveled way, excluding hard pavements and shoulders (in decimeters).

WD1	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Decimeters		Short Integer	0±32,767	1 DM	

WD2 Total Usable Width

Total usable width including pavements and hard shoulders (in decimeters).

WD2	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Decimeters		Short Integer	0±32,767	1 DM	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID	0	Actual Value		
Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Meters		Short Integer	-400 to 30,000	1 M	

Ports (Aeronautical) Feature Class

ID

F-CODE/DESCRIPTION

GB005 Airport/Airfield
GB006 Airfield

GB007 Airport Area
GB065 Seaplane Base
GB070 Seaplane Landing/Seaplane Take-Off Area
GB030 Helicopter Landing Pad
GB035 Heliport

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

ACC	0	Unknown
ACC	1	Accurate
ACC	12	<= 0.001 sec
ACC	13	0.001 - 0.1 sec
ACC	14	0.1 - 1.0 sec
ACC	15	1.0 - 10.0 sec
ACC	16	10.0 - 60.0 sec

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

APT Airfield Type

Unique airfield type.

APT	0	Unknown
APT	1	Major Airfield
APT	2	Minor Airfield
APT	3	Light/General Aviation Aircraft Operating Only
APT	4	Seaplane Base
APT	5	Glider Site
APT	6	Microlight/Ultralight Site
APT	7	Hang Glider Site
APT	8	Winch Launched Hang Glider Site
APT	9	Heliport
APT	10	Helicopter Site
APT	11	Heliport at Hospitals
APT	12	Emergency
APT	13	Parascending/Parasailing Site
APT	14	Airport/Airfield
APT	999	Other

ATI Automated Terminal Information Services

ATI	0	Unknown
ATI	1	Available
ATI	2	Not Available

ATS Automated Terminal Information Service (ATIS)

ATS	0	Unknown

	ATS	1	Continuous
	ATS	2	Less Than Continuous

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COU Country Code

CPB Specific Capabilities

CPB	0	Unknown
CPB	1	Radar Capable
CPB	2	VHF 121.5 monitored
CPB	3	UHF 243.0 monitored
CPB	4	Both 121.5 & 243.0

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

CSP *Country/State/Province Code*

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

	Units	Format	Range	Increment	Max Char
		Real	0.0 .. 1.93428E+25		

EXS	Existence Category		
	EXS	1	Definite
	EXS	2	Doubtful
	EXS	3	Reported
	EXS	4	VALUE INTENTIONALLY LEFT BLANK
	EXS	5	Under Construction
	EXS	6	Abandoned/Disused
	EXS	7	Destroyed
	EXS	8	Dismantled
	EXS	10	Proposed
	EXS	11	Temporary
	EXS	12	Alternate
	EXS	13	VALUE INTENTIONALLY LEFT BLANK
	EXS	16	VALUE INTENTIONALLY LEFT BLANK
	EXS	17	VALUE INTENTIONALLY LEFT BLANK
	EXS	18	Permanent
	EXS	19	VALUE INTENTIONALLY LEFT BLANK
	EXS	20	Corresponds to Recommended Track
	EXS	21	Does Not Correspond to Recommended Track
	EXS	22	One-Way
	EXS	23	Two-way
	EXS	25	Not Maintained
	EXS	26	Maintained
	EXS	27	Closed/Locked
	EXS	28	Operational
	EXS	29	VALUE INTENTIONALLY LEFT BLANK
	EXS	30	VALUE INTENTIONALLY LEFT BLANK
	EXS	30	Not Isolated
	EXS	31	Isolated
	EXS	33	Ruined
	EXS	34	VALUE INTENTIONALLY LEFT BLANK
	EXS	35	Other
	EXS	36	Commissioned and Operational
	EXS	37	Commissioned and on Test
	EXS	38	Commissioned and out of service
	EXS	39	Not commissioned and operational
	EXS	40	Not commissioned and on test
	EXS	41	Not commissioned and out of service
	EXS	42	Continuous operation
	EXS	43	Intermittent operation
	EXS	44	Approximate/About
	EXS	47	Swept
	EXS	48	Controlled
	EXS	49	Non-Controlled
	EXS	53	Incomplete
	EXS	54	Antique/Ancient
	EXS	55	Unexamined/Unsurveyed
	EXS	56	Unattended/Unwatched
	EXS	59	Not Usable
	EXS	61	Not Isolated
	EXS	62	Partially Destroyed

EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FCO Feature Configuration

Configuration of feature.

FCO	0	Unknown
FCO	1	Dispersed
FCO	2	Multiple
FCO	3	Single
FCO	4	Inclined
FCO	5	Divided same widths
FCO	6	Divided different widths
FCO	7	Non-divided
FCO	8	Poorly defined
FCO	9	Well-defined
FCO	11	Double
FCO	12	Justaxposition
FCO	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T
FOT F

FQM Frequency of ATIS (Megahertz)

IAP Instrument Approach Procedure

IAP	0	Unknown
IAP	1	DoD Approved IAP and/or Radar Minimum
IAP	2	No DoD Approved IAP

IKO ICAO Code

LEN Length of Longest Runway (Feet)

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LFA Light Function Aeronautical

Type of lighting provided or type of lighting system used.

LFA	0	Unknown
LFA	1	Airport Terminal Lights
LFA	2	Apron Flood
LFA	3	Boundary Lights
LFA	4	Runway Centerline Lighting
LFA	5	Runway End Identification Lighting(REIL)
LFA	6	Runway Lights /Runway Edge Lights
LFA	7	Sequenced Strobe
LFA	8	Taxiway Lighting
LFA	9	Visual Approach Slope Indicator (VASI)

LFA	10	Rotating Beacon
LFA	11	Obstruction Lighting
LFA	12	Threshold Light(s)
LFA	13	Touchdown Zone Lighting
LFA	14	Other Airport Lighting
LFA	15	ALSF-1 (Approach Lighting System. with seq. flashing)
LFA	16	ALSF-II
LFA	17	(SSALF)
LFA	18	(SSALR)
LFA	19	(MALSF)
LFA	20	(MALSR)
LFA	21	Landing Direction Indicator (LDIN)
LFA	22	RAIL (Runway Alignment Indicator Lights)
LFA	23	ODALS (Omni Directional Approach Landing System).
LFA	24	Other Approach Lighting
LFA	25	Precision Approach Path Indicator (PAPI)
LFA	26	Strobe
LFA	27	Runway Flood
LFA	28	Variable Intensity Runway Lights
LFA	29	Portable Runway Lights
LFA	30	Flares
LFA	31	Wind Indicator Lights
LFA	32	Visual Approach Slope Indicator (3 bar)
LFA	33	Optical Landing System
LFA	51	Aeronautical
LFA	52	Auxiliary
LFA	53	Beacon
LFA	54	VALUE INTENTIONALLY LEFT BLANK
LFA	55	Fishing
LFA	56	Fog Detector
LFA	57	Harbor
LFA	58	Horizontal
LFA	59	Obstruction
LFA	60	Occasional
LFA	61	Private
LFA	62	Range
LFA	63	Seasonal
LFA	64	Tidal
LFA	65	Vertical
LFA	66	Articulated
LFA	67	Primary
LFA	68	Secondary
LFA	69	Major
LFA	70	Minor
LFA	71	Visual Approach Slope Indicator (2 bar)
LFA	72	Identification Beacon
LFA	90	Prior Request Needed forLights
LFA	91	Pilot Controlled Lights
LFA	999	Other

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

MAG Magnetic Variation

Horizontal angle between true north and magnetic north measured East (positive value) or West (negative value) according to whether magnetic north lies east or west of true north.

MAG 0 Actual Value

Units	Format	Range	Increment	Max Char
Degrees	Floating Point	±180		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

PHT Predominant Height

Height of 51% or more of the feature. If not obtainable, then the average height of the feature will be used.

PHT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

RLT Runway Lighting

RLT	0	Unknown
RLT	1	Prior Request Needed
RLT	2	Pilot Controlled

RST Runway Surface Type

RST	0	Unknown
RST	1	Hard/Paved
RST	2	Loose/Unpaved (*Helicopter Landing Pad*)
RST	3	Loose/Light (*Helicopter Landing Pad*)
RST	5	Grass/Sod (Soft) (*Helicopter Landing Pad*)
RST	6	Natural (*Helicopter Landing Pad*)
RST	7	Permanent (*Helicopter Landing Pad*)
RST	8	Temporary (*Helicopter Landing Pad*)
RST	999	Other

SMC Surface Material Category (*Helicopter Landing Pad*)

SMC	0	Unknown
SMC	5	Asphalt
SMC	30	Earthen
SMC	46	Gravel
SMC	57	Macadam
SMC	107	Steel
SMC	122	Pierced Steel Planking
SMC	123	Graded or Rolled Earth, Grass on Graded Earth
SMC	124	Grass on Earth - not Graded or Rolled
SMC	125	Membrane, Plastic or Other Coated Fiber

SQN Sequence Number (*Helicopter Landing Pad*)

TYP Type (*of Heliport*)

TYP	0	Unknown
TYP	1	Active Military Heliport with same facilities as a Class A airport.
TYP	2	Active Civil Heliport with the same minimal facilities as a Class A airport.
TYP	3	Active Military Heliport with less than the minimal facilities of a Class A airport.
TYP	4	Active Civil Heliport with less than the minimal facilities of a Class A airport.

UID Unique ID

USE Usage Code

USE	0	Unknown
USE	8	Military
USE	22	Joint
USE	49	Civil
USE	50	Inactive/Limited

WID Width of Runway (Feet) (*Helicopter Landing Pad*)
A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Feet	Short Integer	0±32,767	1 M	

ZV3 Airfield Elevation (Feet)
The highest point of an airport's usable runways measured in meters from mean sea level.

ZV3 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

Airspace Feature Class

ID

F-CODE/DESCRIPTION

GA005 Airspace
GA015 Special Use Airspace
GA020 Airspace Boundary Segment
GA025 Special Use Airspace Segment

AIA Airspace Identification Attribute

ATL Air Traffic Service Level

ATL	0	Unknown
ATL	1	High and Low
ATL	2	High (Above FL195)
ATL	3	Low (Below FL195)

AUA Airspace Use Area Type

AUA	-32767	NULL (*Airspace*)
AUA	0	Unknown
AUA	1	Advisory Area (ADA)
AUA	2	Air Defense Identification Zone (ADIZ)
AUA	3	Air Route Traffic Control Center (ARTCC)
AUA	4	Alert Area
AUA	5	Area Control Center (ACC)
AUA	6	Buffer Zone (BZ)
AUA	7	Canadian Air Defense Identification Zone (CADIZ)
AUA	8	Control Area (CTA)
AUA	9	Control Zone (CTLZ)
AUA	10	Danger Area
AUA	11	Dew East Military Identification Zone(DEMIZ)
AUA	12	Distant Early Warning Identification Zone (DEWIZ)
AUA	13	Flight Information Region (FIR)
AUA	14	French Peripheral Identification Zone (LIP)
AUA	15	Military Aerodrome Traffic Zone (MAIZ)
AUA	16	Military Common Area Control (MCAC)
AUA	17	Military Climb Corridor (MCC)
AUA	18	Military Flying Area (Canada, MFA)
AUA	19	Mid-Canada Identification Zone (MIDIZ)
AUA	20	Military Operations Area (MOA)
AUA	21	Military Terminal Control Area (MTCA)
AUA	22	Military Upper Control Area (MUCA)

AUA	23	Oceanic Control Area (non-FAA) (OCA)
AUA	24	Operating Area (OPAREA)
AUA	25	Prohibited Area
AUA	26	Positive Control Area (PCA)
AUA	27	Positive Control Zone (PCZ)
AUA	28	Radar Area
AUA	29	Restricted Area
AUA	30	Security Identification Zone (SIZ)
AUA	31	Special Air Traffic Rules Area
AUA	32	Special Rules Zone
AUA	33	Transition Area (For Chart Use Only - TA)
AUA	34	Terminal Control Area (TCA)
AUA	35	Continental Control Area (CCA)
AUA	37	Terminal Radar Service Area (TRSA)
AUA	38	Upper Advisory Area (UDA)
AUA	39	Upper Control Area (UTA)
AUA	40	Upper Flight Information Region (UIR)
AUA	41	Warning Area
AUA	42	Zone of Interior (ZI)
AUA	43	VALUE INTENTIONALLY LEFT BLANK
AUA	44	Korea Limited Identification Zone(KLIZ)
AUA	45	Uncontrolled Airspace
AUA	46	Controlled Airspace
AUA	47	Airport Traffic Area (ATA)
AUA	48	Airport Radar Service Area (ARSA)
AUA	49	Controlled Firing Area
AUA	50	Parachute Jump Area
AUA	51	Airport Advisory Area
AUA	52	Designated Mountainous Area
AUA	54	Non-Free Flying Area
AUA	55	Control Zone - No Fixed Wing Special VFR Permitted
AUA	56	Altimeter Change Boundary
AUA	57	Defense Area
AUA	58	Aerodrome Control Zone
AUA	59	Class C Control Zone
AUA	60	Sparsely Settled Area
AUA	62	ICAO
AUA	63	Upper Airspace Centers Operational Air Traffic
AUA	64	Controlled Visual Flight Rules (CVFR)
AUA	65	Bird Hazard Areas
AUA	66	Temporary Reserved Airspace (TRA)
AUA	67	Air Route Traffic Control Center Sector or Discrete
AUA	68	Sub-Flight Information Region (SUB FIR)
AUA	69	Radar Area Sector Boundary
AUA	70	Oceanic Control Area (FAA) (CTA)
AUA	74	Refueling/Track Area
AUA	75	Berlin Control Zone
AUA	76	Helicopter Protection Area
AUA	77	Traffic Information Zone
AUA	78	Low Flying Area
AUA	999	Other

AUB Airspace Use Boundary Type

AUB	-32767	NULL (*Special Use Airspace*)

AUB	0	Unknown
AUB	1	Flight Information Region (FIR)
AUB	3	CTLZ Control Zone
AUB	4	MATZ Control Zone
AUB	5	SRZ Control Zone
AUB	7	Advisory Area (ADA)
AUB	8	Terminal Control Area (TCA)/Military TCA (MTCA)
AUB	13	Area Control Center (ACC)
AUB	14	Radar Area
AUB	19	Upper Information Region (UIR)
AUB	23	Control Area (CTA), UTA, or SRA Control Area
AUB	29	Oceanic Control Area (non-FAA) (OCA)
AUB	30	Oceanic Control Area (FAA) (OCA)
AUB	32	Air Defense Identification Zone (ADIZ)
AUB	33	Buffer Zone
AUB	58	Air Route Traffic Control Center (ARTCC)

AUL Airspace Use Limitations

AUL	0	Unknown
AUL	1	Danger Area
AUL	2	Prohibited Area
AUL	3	Restricted Area
AUL	4	Prohibited VFR
AUL	5	Alert Area
AUL	6	Warning Area
AUL	7	Defense Area
AUL	8	Controlled Firing Area
AUL	9	Temporary Reserved Airspace (TRA)
AUL	10	Parachute Drop Zone
AUL	11	Hazard to Aircraft
AUL	12	Gas Venting Station
AUL	13	Town to be Avoided
AUL	14	Nature Reserves, Parks, Conservation Areas
AUL	15	Helicopter Protection
AUL	16	Air Exercise Area
AUL	17	Area of Intense Air Activity
AUL	18	Bird Sanctuary
AUL	19	Bird Hazard Area
AUL	20	Industrial Hazards/Object needing protection
AUL	21	Health Resorts/Medical Establishments
AUL	22	Low Flying Avoidance Area
AUL	23	Mink Farm
AUL	24	Low Flying Tactical Training Avoidances
AUL	25	Low Flying Dedicated User Area
AUL	26	Area of Intensive Microlight/Ultralight Flying
AUL	27	Provost Marshal
AUL	28	Military Operating Area (MOA)
AUL	29	High Intensity Radio Transmission Area (HIRTA)
AUL	30	Military Flying Area (MFA)
AUL	31	Operating Area (OPAREA)
AUL	32	Non-free Flying Area
AUL	33	Sparsely Settled Area
AUL	34	Caution Area
AUL	999	Other

AUS Airspace/Facility Operating Times

Status of Air Space and any restrictions that are applicable.

AUS 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

AUT Name of Controlling Authority

AV1 Lowest Airspace Height

Height (AGL - above ground level) above surface level to the lowest portion of the feature (used only for Air Information).

AV1 0 Actual Value

Units	Format	Range	Increment	Max Char
Feet	Short Integer	0±32,767	1 FT	

AV2 Highest Airspace Height

Height (AGL - above ground level) above surface level to the highest portion of the feature (used only for Air Information).

AV2 0 Actual Value

Units	Format	Range	Increment	Max Char
Feet	Short Integer	0±32,767	1 FT	

AZ1 Minimum Safe Altitude Sector (*the minimum safe altitude, in feet, above MSL which provides a 1000 foot obstacle clearance within the airspace*)

AZ1 Low Effective Altitude (Feet) (*measurement, in feet, to specify the lowest vertical limits*)

AZ2 Upper Effective Altitude (Feet)

Measurement to specify highest vertical limits.

AZ2 0 Actual Value

Units	Format	Range	Increment	Max Char
Feet	Short Integer	0±32,767	1 FT	

BRF Primary UHF Frequency

Broadcast frequency of a communications device.

BRF 0 Actual Value

Units	Format	Range	Increment	Max Char
Hertz	Long Integer		1 HZ	

BR2 Communication Frequency Second Occurrence - Kilohertz

The frequency on which a station broadcasts (second occurrence).

BR2 0 Actual Value

Units	Format	Range	Increment	Max Char
Hertz	Long Integer		1 HZ	

COU Country Code

CSP *Country/State/Province Code*

ICL ICAO Airspace Classification

ICL 0 Unknown

ICL 1 Class A

ICL	2	Class B
ICL	3	Class C
ICL	4	Class D
ICL	5	Class E
ICL	6	Class F
ICL	7	Class G

IKO ICAO Code

MAA Maximum Authorized Altitude

The highest altitude in an airway or route at which adequate reception of navigation aid signals is assured.

MAA 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	ASCII Text		256

MCA Morse Code for NAVAID Identifier

The ASCII (ISO 646) letter that is being emitted by either the Navigation System Types (NST), Sound Signal (SST), Light characteristics (CHA), or electronic beacon type.

MCA 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	ASCII Text		80

NAM Communications Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

NST Navigation System Types

NST	0	Unknown
NST	17	NDB
NST	18	NDB/DME
NST	19	Radio Range
NST	20	VOR
NST	21	VOR/DME
NST	22	VORTAC
NST	23	TACAN
NST	24	ILS
NST	25	ILS/DME
NST	26	LOCALIZER
NST	27	LOC/DME
NST	30	Microwave Landing System (MLS)
NST	31	Fan Marker
NST	32	Bone Marker
NST	34	GCA
NST	37	PAR
NST	58	DME (excluding ILS/DME)
NST	999	Other

OPT Operations Times

OPT	0	Unknown
OPT	1	Daytime (Sunrise/Sunset)

	OPT	2	Nighttime
	OPT	3	Continuous
	OPT	4	Summertime (April-October)
	OPT	5	Wintertime (November-March)
	OPT	999	Other

PRD Procedure

PCD	0	Unknown
PCD	1	STAR
PCD	2	SID
PCD	3	IAP

UID Unique ID

Routes Feature Class

ID

F-CODE/DESCRIPTION

GA010	ATS Route Segment/Leg
GA045	Route (Air)

AAT Assigned ATC (*text*)

ACC Accuracy

ACC	0	Unknown
ACC	1	Accurate
ACC	12	<= 0.001 sec
ACC	13	0.001 - 0.1 sec
ACC	14	0.1 - 1.0 sec
ACC	15	1.0 - 10.0 sec
ACC	16	10.0 - 60.0 sec

AD1 Altitude Description

AD1	0	Unknown
AD1	1	At or Above a11 (*or r11 in absense of a11*)
AD1	2	At or Below a11 (*or r11 in absense of a11*)
AD1	3	Between a11 and a12 (*or r11 and r12 in absense of a11 and a12*)
AD1	4	At a11 (*or r11 in absense of a11*)
AD1	5	As Assigned

AD2 Altitude Description

AD2	0	Unknown
AD1	1	At or Above r21
AD1	2	At or Below r21
AD1	3	Between r21 and r22
AD1	4	At r21
AD1	5	As Assigned

AD3 Altitude Description

AD1	0	Unknown
AD1	1	At or Above r31
AD1	2	At or Below r31

AD1	3	Between r31 and r32
AD1	4	At r31
AD1	5	As Assigned

AL1 Altitude #1 (*lowest altitude used with ALD*)

AL2 Altitude #2 (*highest altitude used with ALD*)

ALD Altitude Description

ALD	0	Unknown
ALD	1	At or Above al1
ALD	2	At or Below al1
ALD	3	As assigned
ALD	4	At al1
ALD	5	Between al1 and al2
ALD	6	Recommended Altitude
ALD	7	At or Above al2
ALD	8	Glide Slope Alt @ FAF
ALD	9	Glide Slope Intercept Altitude

ALN Air Route Segments Lengths

Length, in nautical miles, of individual air route segments.

ALN 0 Actual Value

Units	Format	Range	Increment	Max Char
NM	Short Integer	0+32,767	1 NM	

ALZ Altitude Type

ALZ	0	Unknown
ALZ	1	Surface
ALZ	2	Above Ground Level
ALZ	3	Mean Sea Level
ALZ	4	Flight Level

APN APN 69/134/135 Setting

APX APX 78 Encode/Decode

ATL ATS Route Level

ATS	0	Unknown
ATS	1	High & Low Level
ATS	2	High level Route
ATS	3	Low level Route
ATS	4	Night Low Flying
ATS	999	Other

AWD Air Route Sements Width

Width of individual air route segments.

AWD 0 Actual Value

Units	Format	Range	Increment	Max Char
NM	Short Integer	0+32,767	1 NM	

BDY Boundary Code

BID Bi-directional

BID	0	Unknown
BID	1	Bi-Directional
BID	2	Uni-Directional

BR2 Communication Frequency Second Occurrence - Kilohertz
The frequency on which a station broadcasts (second occurrence).

BR2 0 Actual Value

Units	Format	Range	Increment	Max Char
Hertz	Long Integer		1 HZ	

BRF Primary UHF Frequency
Broadcast frequency of a communications device.

BRF 0 Actual Value

Units	Format	Range	Increment	Max Char
Hertz	Long Integer		1 HZ	

CH1 Receiver TACAN Channel
CH2 Tanker TACAN Channel
CHL Channel Number of TACAN
CNE Enroute Communication Name
CSP *Country/State/Province Code*
DF1 Direction of Flow at Point of Entry (*degrees*)
DIS Distance to Waypoint
EFT Effective Times (From-To)
ESA Emergency Safe Altitude
FQ1 Frequency of Localizer (Megahertz)
FQ2 Frequency of Other NAVAID (Megahertz) (*besides localizer*)
FQ3 Enroute Communications Frequency - Kilohertz
FQ4 Enroute Communications Frequency - Kilohertz
GSA Glide Slope Angle
IKO ICAO Code
MAI Minimum Altitude - Feet
MAG Magnetic Variation
MC1 Call Letters of Localizer
MC2 Call Letters of Other NAVAID
MGC Magnetic Course (tenths of degrees)
MGI Inbound Magnetic Course
MGO Outbound Magnetic Course
NA1 Name of other NAVAID
NAM Name of Route
Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

NAP *Name of ILS Procedure*
NST Other NAVAID Type

NST	0	Unknown
NST	17	NDB
NST	18	NDB/DME
NST	19	Radio Range
NST	20	VOR

	NST	21	VOR/DME
	NST	22	VORTAC
	NST	23	TACAN
	NST	24	ILS
	NST	25	ILS/DME
	NST	26	LOCALIZER
	NST	27	LOC/DME
	NST	30	Microwave Landing System (MLS)
	NST	31	Fan Marker
	NST	32	Bone Marker
	NST	34	GCA
	NST	37	PAR
	NST	58	DME (excluding ILS/DME)
	NST	999	Other
ORA	Originating Activity (*text*)		
PCD	Procedure		
	PCD	0	Unknown
	PCD	1	STAR
	PCD	2	SID
	PCD	3	IAP
R11	Refueling Altitude 1 (lowest) (*for first leg*)		
R21	Refueling Altitude 1 (lowest) (*for second leg*)		
R31	Refueling Altitude 1 (lowest) (*for third leg*)		
R12	Refueling Altitude 2 (highest) (*for first leg*)		
R22	Refueling Altitude 2 (highest) (*for second leg*)		
R32	Refueling Altitude 2 (highest) (*for third leg*)		
RID	Runway Identifier		
	"UNK"		Unknown
	"19" to "36"		First 2 characters
	Blank		3rd Char = Single Runway
	"C"		3rd Char = Center
	"L"		3rd Char = Left
	"R"		3rd Char = Right
	"S"		3rd Char = Short Take Off and Landing (STOL)
RMK	Remarks		
RTN	Route Navigation		
	RTN	0	Unknown
	RTN	1	UHF/VHF
	RTN	2	LF/MF
SCA	Scheduling Activity (*text*)		
SCD	Scheduling Unit (*text*)		
SQN	Sequence Number		
STS	Status		
	STS	0	Unknown
	STS	1	ATS Route Open
	STS	2	ATS Route Closed
	STS	3	ATS Route Restricted
	STS	4	ATS Route Seasonal
	STS	5	ATS Route Alternate
TDC	Track Description Code		
	TDC	0	Unknown
	TDC	1	Constant DME Arc to a Fix
	TDC	2	Course to an Altitude (Position unspecified)
	TDC	3	Course to a DME Distance

	TDC	4	Course to a Next Leg Followed by a Course-Oriented Leg (Intercept Point Undefined)
	TDC	5	Course to a Fix
	TDC	6	Course to a Radial Termination (Intercept Point Undefined)
	TDC	7	Computed Track Direct to a Fix
	TDC	8	Direct Intercept Radial
	TDC	9	Course From a Fix to an Altitude
	TDC	10	Course From a Fix to a Distance
	TDC	11	Course From a Fix to a DME Distance
	TDC	12	Course From a Fix to a Manual Termination
	TDC	13	Initial Fix
	TDC	14	Procedure Turn Followed by a Course to a Fix (CF)
	TDC	15	Tear Drop Procedure Turn
	TDC	16	Track Between Two Fixes (Great Circle)
	TDC	17	Heading to an Altitude (Position Unspecified)
	TDC	18	Heading to a DME Distance
	TDC	19	Heading to a Next Leg (Intercept Point Undefined)
	TDC	20	Heading to a Manual Termination
	TDC	21	Heading to a Radial Termination (Intercept Point Undefined)
TRD	Transition Identifier		
TRT	Type of Route		
	TRT	0	Unknown
	TRT	1	Jet
	TRT	2	Oceanic
	TRT	3	ATS
	TRT	999	Other-see remarks
TY2	Type of Segment for STAR, SID, or IAP		
	TY2	0	Unknown
	TY2	1	SID Runway Transition
	TY2	2	SID or SID Common Route
	TY2	3	SID Enroute Transition
	TY2	4	RNAV SID Runway Transition
	TY2	5	RNAV SID or RNAV SID Common Route
	TY2	6	STAR Enroute Transition
	TY2	7	STAR or STAR Common Route
	TY2	8	STAR Runway Transition
	TY2	9	RNAV STAR Enroute Transition
	TY2	10	RNAV STAR or RNAV STAR Common Route
	TY2	11	RNAV STAR Runway Transition
	TY2	12	Profile Descent Enroute Transition
	TY2	13	Profile Descent or Profile Descent Common Route
	TY2	14	Profile Descent Runway Transition
	TY2	15	Approach Transition
	TY2	16	ILS Back Course
	TY2	17	VOR DME/VORTAC
	TY2	18	VOR Circling Approach
	TY2	19	NDB Circling Approach
	TY2	20	GPS
	TY2	21	ILS
	TY2	22	ILS Localizer Only - Circling
	TY2	23	ILS Backcourse - Circling
	TY2	24	ILS Localizer Only - No Glide Slope
	TY2	25	Microwave Landing Systems (MLS)
	TY2	26	NDB

TY2	27	PAR
TY2	28	NDB/DME
TY2	29	RNAV
TY2	30	VOR (Based on VOR,DME or VORTAC)
TY2	31	TACAN
TY2	32	VOR (no DME)
TY2	33	ADF (Automatic Direction Finding)
TY2	34	LDA (Localizer Type Direction Aid)
TY2	35	SDF (Simplified Direction Finding)

UID Unique ID

ZV2 Highest Z-value
Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Air Obstructions Feature Class

ID

F-CODE/DESCRIPTION

GB220	Air Obstruction
GB221	Miscellaneous Air Obstruction
GB222	Maximum Elevation Figure

ATN Aids to Navigation
Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

DMF Density Measure (feature count)

HGT Height Above Surface Level
Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

UID Unique ID

ZV2 Highest Z-value
Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

World Area Coverage Feature Class

ID

F-CODE/DESCRIPTION

IE010 Map Sheet Frame

NAM WAC Code Name (*text*)
Any Identifier or code.

NAM	0	Actual Value		
Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

Airport Facilities and Diagrams Feature Class

ID

F-CODE/DESCRIPTION

GA300 Communication Sector

IKO ICAO Code
UID Unique ID
CMT Communication Type

CMT	0	Unknown
CMT	1	ACC - Area Control Center
CMT	2	ACP - Airlift Command Post
CMT	3	APP - Approach Control
CMT	4	ARR - Arrival Control
CMT	5	ATIS - Automatic Terminal Information Center
CMT	6	AWOS - Automatic Weather ObservingStation
CMT	7	CLD - Clearance Delivery
CMT	8	DEP - Departure Control
CMT	9	DIR - Director (Radar/Approach Control)
CMT	10	EMR - Emergency
CMT	11	FSS - Flight Service Station
CMT	12	GCA - Ground Control Approach
CMT	13	GND - Ground Control
CMT	14	GTE - Gate Control
CMT	15	HEL - Helicopter Frequency
CMT	16	INFO - Information
CMT	17	MULT - Multicom
CMT	18	ODP - Parameters (French Radio)
CMT	19	OPS - Operations
CMT	20	RDO - Radio
CMT	21	RDR - Radar Only Frequency
CMT	22	RFSS - Remote Flight Service Station
CMT	23	RMP - Ramp Control
CMT	24	ARSA - Airport Radar Service Center
CMT	25	TCA - Terminal Control Area
CMT	26	TRSA - Terminal Radar Service
CMT	27	TWR - Tower
CMT	28	UNIC - UNICOM or CTAF/UNICOM

CMT	29	CTAF - Common Traffic AdvisoryFrequency
CMT	30	A/G Air/Ground
CMT	31	A/D - Approach/Departure Control
CMT	32	CNTR - Center
CMT	33	GCCD - Ground Control/ClearanceDelivery
CMT	34	POST - Command Post
CMT	35	PTD - Pilot to Dispatcher
CMT	36	PMSV - Pilot to Metro Service
CMT	37	AAS - Airport Advisory Service
CMT	38	ARTC - Air Route Traffic Control
CMT	39	PFLT - Preflight
CMT	40	SFA - Single Frequency Approach
CMT	41	MISC - Miscellaneous

NAM Name

Any Identifier or code.

NAM	0	Actual Value		
Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

FQ1	Frequency - Kilohertz
FQ2	Frequency - Kilohertz
FQ3	Frequency - Kilohertz
FQ4	Frequency - Kilohertz
FQ5	Frequency - Kilohertz
AUS	Specific Operating Hours
RMK	Remarks (*text*)

Lighting Feature Class

ID

F-CODE/DESCRIPTION

GB010	Airport Lighting
GB060	Runway Radar Reflector

IKO ICAO Code

LFA Light Function Aeronautical

LFA	0	Unknown
LFA	4	Runway Center Line Lighting
LFA	5	Runway End Identification (REIL)
LFA	7	Sequenced Strobe
LFA	10	Rotating Beacon
LFA	12	Threshold Lights
LFA	15	ALSF-I
LFA	16	ALSF-II
LFA	17	SSALF
LFA	18	SSALR
LFA	19	MALSF
LFA	20	MALSR
LFA	33	OLS (Optical Landing System)
LFA	53	Beacon

RIH Runway Identifier

"UNK"	Unknown
"19" to "36"	First 2 characters
Blank	3rd Char = Single Runway
"C"	3rd Char = Center
"L"	3rd Char = Left
"R"	3rd Char = Right
"S"	3rd Char = Short Take Off and Landing (STOL)

UID Unique ID

Non-Runway Parking Facilities Feature Class

ID

F-CODE/DESCRIPTION

GB015	Apron/Hardstand
GB045	Overrun/Stopway
GB075	Taxiway

EXS Existence Category

EXS	0	Unknown
EXS	5	Under Construction
EXS	27	Closed
EXS	28	Operational

IKO ICAO Code

RST Runway Surface Type

RST	0	Unknown
RST	1	Hard/Paved
RST	3	Loose/Light
RST	5	Grass/Sod (Soft)

SMC Surface Material Category

SMC	0	Unknown
SMC	5	Asphalt
SMC	21	Concrete
SMC	107	Steel
SMC	999	Other

UID Unique ID

Runways and Related Features Feature Class

ID

F-CODE/DESCRIPTION

GB020	Arresting Gear
GB055	Runway
GB090	Displacement Threshold (*the designated beginning of the portion of the runway usable for landing. This may be the end of the runway itself and the feature typically exists at each end of the runway.*)
GB170	INS Alignment Pad (*a designated area where the automated navigation instruments of aircraft are reset before taking-off*)

AGC	Arresting Gear Category		
	AGC	0	Unknown
	AGC	1	Net
	AGC	2	Cable
	AGC	3	Uni-directional (in direction of high end)
	AGC	4	Uni-directional (in direction of low end)
	AGC	5	Bi-directional
	AGC	6	Jet Barrier
	AGC	999	Other
AST	Arresting System Type		
	AST	0	Unknown
	AST	1	AAE 44B-2C
	AST	2	AAE 34B-1A
	AST	3	AAE 34B-1B
	AST	4	AAE 34B-1C
	AST	5	AAE 44B-2C/A30
	AST	6	AAE 340-A3
	AST	7	AAE 44B-2D
	AST	8	AAE 44B-3H
	AST	9	ARZ F40 NET (S-500)
	AST	10	ARZ F30 NET-SINGLE
	AST	11	ARZ F30 NET-TWIN
	AST	12	BAK-6
	AST	13	BAK-9
	AST	14	BVAK-12
	AST	15	BAK-13
	AST	16	BAK-14
	AST	17	BLISS 500S
	AST	18	BEFAB 6:3
	AST	19	BEFAB 21:2
	AST	20	BEFAB 56:2
	AST	21	BEFAB 12:3
	AST	22	BEFAB 60:2
	AST	23	CHAG
	AST	24	E5
	AST	25	E5-1
	AST	26	E5-2
	AST	27	E5-3
	AST	28	E6
	AST	29	E14-1
	AST	30	E15
	AST	31	E15-1
	AST	32	E16
	AST	33	E27
	AST	34	E27-1
	AST	35	E28
	AST	36	JET STOP
	AST	37	MA1
	AST	38	MA-1A
	AST	39	MA-1A MODIFIED
	AST	40	M2
	AST	41	M21
	AST	42	PUAG MK-21

	AST	43	RHAG MK-1
	AST	44	RAF TYPE A
	AST	45	RAF MK-5
	AST	46	RAF MK-6
	AST	47	RAF MK-12
	AST	48	RAF MK-12A
	AST	49	RAF TYPE B
	AST	50	BEFAB/NET
	AST	51	BEFAB 6:3/NET
	AST	52	BEFAB 21:3/NET
	AST	53	SPRAG MK-1
	AST	54	BEFAB 12:3/NET
	AST	55	BEFAB 21:2
	AST	56	61QS 11
	AST	57	UNKNOWN TYPE CABLE
	AST	58	UNKNOWN TYPE NET

DEH Displacement Threshold Elevation - High End

DEL Displacement Threshold Elevation - Low End

DTH Displacement Threshold - High End

DTL Displacement Threshold - Low End

ELH Elevation - High End

ELL Elevation - Low End

EXS Existence Category

EXS	0	Unknown
EXS	5	Under Construction
EXS	27	Closed
EXS	28	Operational

IKO ICAO Code

LEN Length (total Length of Runway)

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

MHH Magnetic Heading - High End

MHL Magnetic Heading - Low End

IKO ICAO Code

PC1 Type of Pavement

PC1	0	Unknown
PC1	1	Rigid
PC1	2	Flexible

PC2 Pavement Sub-grade Category

PC2	0	Unknown
PC2	1	High
PC2	2	Medium
PC2	3	Low
PC2	4	Ultra Low

PC3 Maximum Tire Pressure

PC3	0	Unknown
PC3	1	High, No Limit
PC3	2	Medium (<=217 psi)
PC3	3	Low (<=145 psi)
PC3	4	Very Low (<=73 psi)

PC4 Pavement Evaluation Method

PC4	0	Unknown
PC4	1	Technical Evaluation
PC4	2	Experience by Using Aircraft

RIH Runway Identifier - High End

"UNK"	Unknown
"19" to "36"	First 2 characters
Blank	3rd Char = Single Runway
"C"	3rd Char = Center
"L"	3rd Char = Left
"R"	3rd Char = Right
"S"	3rd Char = Short Take Off and Landing (STOL)

RIL Runway Identifier - Low End

"UNK"	Unknown
"01" to "18"	First 2 characters
Blank	3rd Char = Single Runway
"C"	3rd Char = Center
"L"	3rd Char = Left
"R"	3rd Char = Right
"S"	3rd Char = Short Take Off and Landing (STOL)

RST Runway Surface Type

RST	0	Unknown
RST	1	Hard/Paved
RST	3	Loose/Light
RST	5	Grass/Sod (Soft)

SLH Percent Slope - High End

SLL Persent Slope - Low End

SMC Surface Material Category

SMC	0	Unknown
SMC	5	Asphalt
SMC	9	Brick
SMC	20	Composition
SMC	21	Concrete
SMC	22	Conglomerate
SMC	107	Steel
SMC	999	Other

TZH Touchdown Zone Elevation

TZL Touchdown Zone Elevation - Low End

UID Unique ID

WID Width of Runway (excluding shoulders)

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

Terminal Procedures Feature Class

ID

F-CODE/DESCRIPTION

GA030 Off Route Radial/Bearing
GA031 Lead Radial
GA032 Range Range Feature (*two magnetic bearings from two NAVAIDs which cross to generate a route fix*)

BA1	Bearing from NAVAID #1
BA2	Bearing from NAVAID #2
BRG	Bearing (*decimal degrees) (for single*)
DIS	Distance (*nautical miles) (for single*)
IKO	ICAO Code
MCA	Morse Code
NI1	NAVAID #1 Identifier (*4 character code*)
NI2	NAVAID #2 Identifier (*4 character code*)
NSI	NAVAID Identifier (*4 character code*) (*for single*)
UID	Unique ID

Navigational Aids Feature Class

ID

F-CODE/DESCRIPTION

GA035 NAVAIDS (Aeronautical)

ACC	Accuracy		
	ACC	0	Unknown
	ACC	1	Accurate
	ACC	12	<= 0.001 sec
	ACC	13	0.001 - 0.1 sec
	ACC	14	0.1 - 1.0 sec
	ACC	15	1.0 - 10.0 sec
	ACC	16	10.0 - 60.0 sec
CHL	Channel Number		
COU	Country Code		
EXS	Existence Category		
	EXS	0	Unknown
	EXS	36	Commissioned and Operational
	EXS	37	Commissioned & On Test
	EXS	38	Commissioned and Out of Service
	EXS	39	Not Commissioned and Operational
	EXS	40	Not Commissioned and On Test
	EXS	41	Not Commissioned and Out of Service
	EXS	42	Continuous Operation
FPA	Frequency Protection - Altitude		
FPD	Frequency Protection - Distance		
FQK	Frequency (Kilohertz)		
FQM	Frequency (Megahertz)		
IKO	ICAO Code		
MAG	Magnetic Variation		

MCA Morse Code

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

NST Navigation System Type

NST 0 Unknown
NST 17 NDB
NST 18 NDB/DME
NST 20 VOR
NST 21 VOR/DME
NST 22 VORTAC
NST 23 TACAN
NST 58 DME (excluding ILS/DME)

PWR NAVAID Power

RAN Range of Effectiveness

RCC Radio Class Code

RCC 0 Unknown
RCC 1 Non-directional radio beacon (homing), power 50 to less than 2000 watts
RCC 2 Normal anticipated interference-free service, 40NM up to 18,000 feet
RCC 3 Normal anticipated interference-free service, 25NM up to 12,000 feet
RCC 4 Non-directional radio beacon (homing), power less than 50 watts
RCC 5 Non-directional radio beacon (homing), power 2,000 watts or more
RCC 6 Normal anticipated interference-free service below 18,000 feet -40NM; 14,500-17,999 feet - 100NM (contiguous 48 states only); 18,000 feet to FL 450 - 130NM; above FL 450 - 100NM

CSP *Country/State/Province Code*

SVA Slaved Variation

UID Unique ID

USE Usage Code

USE 0 Unknown
USE 73 Terminus/Terminal
USE 74 Low Altitude Enroute
USE 75 High Altitude Enroute
USE 76 Low & High Alt Enroute
USE 85 Initial Approach Fix
USE 86 Final Approach Fix
USE 91 NAVAID Changeover

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

ILS Approach Support Feature Class

ID

F-CODE/DESCRIPTION
GA036 ILS Fix or Marker

COM Componenet of ILS Procedure

COM	0	Unknown
COM	1	Final Approach Fix
COM	2	Inner Marker (IM)
COM	3	Middle Marker (MM)
COM	4	Outer Marker (OM)
COM	5	Back Course Marker
COM	6	Visual Descent Point
COM	7	Missed Approach Point
COM	8	End of Runway
COM	10	Localizer
COM	11	DME

IKO ICAO Code

NAM Name of ILS Procedure
Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

RID Runway Identification

"UNK"	Unknown
"19" to "36"	First 2 characters
Blank	3rd Char = Single Runway
"C"	3rd Char = Center
"L"	3rd Char = Left
"R"	3rd Char = Right
"S"	3rd Char = Short Take Off and Landing (STOL)

RMK Remarks
UID Unique ID

Waypoints Feature Class

ID

F-CODE/DESCRIPTION
GA055 Waypoint/Reporting-Calling In Point

AL1 Altitude #1 (*lowest altitude used with ALD*)
AL2 Altitude #2 (*highest altitude used with ALD*)
ALD Altitude Description

ALD	0	Unknown
ALD	1	At or Above all
ALD	2	At or Below all
ALD	3	As assigned
ALD	4	At all

	ALD	5	Between al1 and al2
	ALD	6	Recommended Altitude
	ALD	7	At or Above al2
	ALD	8	Glide Slope Alt @ FAF
	ALD	9	Glide Slope Intercept Altitude

COU Country Code

DF1 Direction of Traffic (1st Occurrence)

HLD Holding Pattern

HLD	0	Unknown
HLD	1	Automatically at the Fix After One Full Circuit
HLD	2	Automatically at the Fix After Reaching an Altitude
HLD	3	Manually

IKO ICAO Code

MAG Magnetic Variation

MRA Minimum Reception Altitude (hundreds of feet)

MXA Minimum Crossing Altitude (hundreds of feet)

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

NXP Next Point

PTN Point Number

RMK Remarks

CSP *Country/State/Province Code*

SQN Sequence Number

TRN Turn Direciton (*direction of turn for a holding pattern*)

TRN	0	Unknown
TRN	1	Left
TRN	2	Right

TY1 Type of Waypoint

TY1	0	Unknown
TY1	1	Runway End Coordinate
TY1	3	MAP
TY1	4	FAF
TY1	5	IAF
TY1	6	Holding Fix
TY1	7	Inner Marker
TY1	8	Middle Marker
TY1	9	Outer Marker

UID Unique ID

USE Usage Code

USE	0	Unknown
USE	73	Terminus/Terminal
USE	74	Low Altitude Enroute
USE	75	High Altitude Enroute
USE	76	Low & High Alt Enroute
USE	91	NAVAID Changeover
USE	146	Exit/End

	USE	147	Entry/Starting
	USE	150	Alternate Entry
	USE	151	Alternate Exit
	USE	152	Alternate Entry/Exit
	USE	153	Turning

WPT Waypoint Description Code

WPT	0	Unknown
WPT	17	Compulsory
WPT	18	Non-compulsory

Approach Support Feature Class

ID

F-CODE/DESCRIPTION
GA100 Terminal Approach Minima

APP	Approach Type (*text*)
CAH	Category A HAT/HAA/HAL
CBH	Category B HAT/HAA/HAL
CCH	Category C HAT/HAA/HAL
CDH	Category D HAT/HAA/HAL
CEH	Category E HAT/HAA/HAL
CAW	Category A Weather
CBW	Category B Weather
CCW	Category C Weather
CDW	Category D Weather
CEW	Category E Weather
CVA	Category A Runway Visibility
CVB	Category B Runway Visibility
CVC	Category C Runway Visibility
CVD	Category D Runway Visibility
CVE	Category E Runway Visibility
DHA	Category A Descent Height
DHB	Category B Descent Height
DHC	Category C Descent Height
DHD	Category D Descent Height
DHE	Category E Descent Height

IKO ICAO Code

NAM Name of Procedure
Any Identifier or code.

NAM	0	Actual Value		
Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

RMK Remarks

UID Unique ID

Transportation Void Collection Area Feature Class

ID

F-CODE/DESCRIPTION
ZD020 Void Collection Area

VCA Void Collection Attribute
Reason data is not collected.

VCA	0	Unknown
VCA	1	Data Not Requested By User
VCA	2	Area Too Rough to Collect
VCA	3	No Available Imagery
VCA	4	Different Height Threshold Within Data Block
VCA	5	Low Data Collection Criteria
VCA	6	No Available Map Source
VCA	7	No Suitable Imagery
VCA	8	Data Not Required
VCA	999	Other

Appendix K. Utility Coverage

Power Generation Feature Class

ID

F-CODE/DESCRIPTION

AD010 US Power Plant
AD020 Solar Panels
AD030 Substation/Transformer Yard
AD040 Nuclear Reactor

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White

CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About

EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

GRS *Gray Scale value*

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity. (May be helpful for IR and NVG simulations; TBD)

GRS 0-255

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM 0 Actual Value

Units	Format	Range	Increment	Max Chars
Text String	Lexical			80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT 1 SELF
OIT 2 SUN
OIT 3 NOSUN

PPC Power Plant Category

Energy source used to generate power.

PPC 0 Unknown
PPC 1 Hydro-electric
PPC 2 Nuclear
PPC 3 Solar
PPC 4 Thermal

PPC	5	Wind
PPC	6	Tidal
PPC	7	Internal Combustion
PPC	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper

SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice

SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Communications/Transmission Feature Class

ID

F-CODE/DESCRIPTION

AT005 Cable
AT010 US Disk/Dish
AT020 Early Warning Radar Site
AT030 Power Transmission Line
AT040 US Power Transmission Pylon/Line
AT041 Telpher
AT045 Radar Transmitter
AT050 Communication Building
AT060 Telephone Line/Telegraph Line
AT070 Telephone-Telegraph Pylon/Pole
AT080 Communication Tower
AT081 Remote Communication Tower

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO	0	Actual Value			
Units		Format	Range	Increment	Max Chars
Degrees		Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked
ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

BFC Building Function Category

Type or purpose of the building.

BFC	0	Unknown
BFC	1	Fabrication Structures
BFC	2	Government Building
BFC	3	Capitol Building
BFC	4	Castle
BFC	5	Government Administration Building
BFC	6	Hospital
BFC	7	House of Worship
BFC	8	Military Administration /Operations Building
BFC	9	Museum
BFC	10	Observatory
BFC	11	Palace
BFC	12	Police Station
BFC	13	Prison
BFC	14	Ranger Station
BFC	15	School
BFC	16	House
BFC	17	Multi Unit Dwelling
BFC	18	Cemetery Building
BFC	19	Farm Building
BFC	20	Greenhouse
BFC	21	Garage
BFC	22	Watermill /Gristmill
BFC	23	Wind Tunnel
BFC	24	Warehouse
BFC	25	Roundhouse
BFC	26	Railroad Storage /Repair Facility
BFC	27	Depot Terminal
BFC	28	Administration Building
BFC	29	Aircraft Maintenance Shop
BFC	30	Hangar
BFC	31	Customs House
BFC	33	Health Office
BFC	34	Firing Range
BFC	35	Post Office

BFC	36	Barracks/Dormitory
BFC	37	Fire Station
BFC	38	Jail
BFC	39	Guardhouse
BFC	40	Telephone Switching Station
BFC	50	Church
BFC	51	Market
BFC	52	Town Hall
BFC	53	Bank
BFC	54	Service/Refueling Station
BFC	55	Yacht Club/Sailing Club
BFC	56	Public Inn
BFC	57	Restaurant
BFC	58	Observation
BFC	59	Research and Development Lab/Research Facility
BFC	60	University/College
BFC	61	Courthouse
BFC	62	Legation
BFC	63	Mission
BFC	64	Chancery
BFC	65	Ambassadorial Residence
BFC	66	Embassy
BFC	67	Consulate
BFC	68	Guard House
BFC	69	Guard Shack/Guard Room
BFC	70	Kennel
BFC	71	Oil Mill (Vegetable)
BFC	72	Aerator
BFC	73	Carpentry
BFC	74	Saw-mill
BFC	75	Kiln/Oven
BFC	76	Signal Box/Railway Signalman's House
BFC	77	Harbor Masters Office
BFC	78	Marine Police
BFC	79	Rescue
BFC	80	Port Control
BFC	81	Maritime Station
BFC	82	Lighthouse
BFC	83	Power Generation
BFC	84	Filtration Plant
BFC	85	News Paper Plant
BFC	86	Telephone Exchange (Main)
BFC	87	Auditorium
BFC	88	Opera House
BFC	89	Processing/Treatment
BFC	90	Pumphouse
BFC	91	Mobile Home
BFC	92	Weather Station
BFC	93	Dependents Housing/Bivouac Area
BFC	94	Railroad Station
BFC	95	Hotel
BFC	96	Diplomatic Building
BFC	97	Trading Post
BFC	98	Shed

BFC	99	Battery
BFC	100	Medical Center
BFC	101	Municipal Hall
BFC	102	Oil/Gas Facilities Building
BFC	103	Outbuilding
BFC	104	Paper/Pulp Mill
BFC	105	Reformatory
BFC	106	Sanitorium
BFC	107	Satellite Tracking Station
BFC	108	Seminary
BFC	109	Senior Citizen's Home
BFC	110	Shipyard
BFC	111	Sportsplex
BFC	112	Steel Mill
BFC	113	Weigh Scale (Highway)
BFC	114	Non-Christian Place of Worship
BFC	115	Hostel
BFC	116	Factory
BFC	117	Motel
BFC	118	Community Center
BFC	119	City Hall
BFC	120	Automobile Plant
BFC	121	Armory
BFC	122	Shopping Center
BFC	123	Correctional Institute
BFC	124	Repair Facility
BFC	125	Barn/Machinery Shed
BFC	126	Astronomical Station
BFC	127	Theater
BFC	128	Library
BFC	723	Combined Fire and Police Station
BFC	999	Other

BRF Primary UHF Frequency

Broadcast frequency of a communications device.

BRF	0	Actual Value

Units	Format	Range	Increment	Max Char
Hertz	Long Integer		1 HZ	

CAB Cable Classification

Tabulates the kind of transmission.

CAB	1	Undefined
CAB	2	Power Line
CAB	3	Telephone
CAB	4	Telegraph

CAP Capacity

The capacity of a feature. Units will be qualified using a structured text approach, e.g. 100(cars)[per hour] where the unit is in parentheses ( ) and a unit qualifier is in brackets [ ].

CAP	0	Actual Value

Units	Format	Range	Increment	Max Chars
Structured Text	ASCII Text	80		

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COL — Character of Light

Any identifier composed of the class, number and color(s) of flashes or occultations, of a light or lights at one geographic position [e.g. Q(6)+L F1, VQ G, L F1 (3+2)WR].

COL 0 Actual Value

Units	Format	Range	Increment	Max Chars
	Text String	Lexical		80

CRC — Shape attributed to the crossing of two or more lines of communication.

CRC 0 Unknown
CRC 1 Junction
CRC 2 Intersection
CRC 3 Star shaped branching (more than 4 roads)
CRC 999 Other

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1 0 Unknown
DY1 1 Uni
DY1 2 Bi
DY1 3 Omni
DY1 999 Other

DY2 — *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2 0 Unknown
DY2 1 Uni
DY2 2 Bi
DY2 3 Omni
DY2 999 Other

DY3 — *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3 0 Unknown
DY3 1 Uni
DY3 2 Bi
DY3 3 Omni
DY3 999 Other

EMY — *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

GUG Guyed or Unguyed Category

Presence of support wires.

GUG	0	Unknown
GUG	1	Guyed
GUG	2	Unguyed
GUG	999	Other

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

GRS *Gray Scale value*

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity.

(May be helpful for IR and NVG simulations; TBD)

GRS 0-255

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.

LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known

LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

NAM Name

Any Identifier or code.

NAM	0	Actual Value		
Units		Format Range	Increment	Max Chars
Text String		Lexical		80

NST Navigation System Types

NST	0	Unknown
NST	17	NDB
NST	18	NDB/DME
NST	19	Radio Range
NST	20	VOR
NST	21	VOR/DME
NST	22	VORTAC
NST	23	TACAN
NST	24	ILS
NST	25	ILS/DME
NST	26	LOCALIZER
NST	27	LOC/DME
NST	30	Microwave Landing System (MLS)
NST	31	Fan Marker
NST	32	Bone Marker
NST	34	GCA
NST	37	PAR
NST	58	DME (excluding ILS/DME)
NST	999	Other

OHC Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC	0	Actual Value		
Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

OWO Over Water Obstruction

Indicates the presence of an obstruction over an area of navigable water.

OWO	1	Feature crosses navigable water
OWO	2	Feature does not cross navigable water

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera

SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash

SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

SSC Structure Shape Category

Geometric form, appearance, or configuration of the feature.

SSC	0	Unknown
SSC	1	Barrel, Ton
SSC	2	Blimp
SSC	3	Boat Hull (Float)
SSC	4	Bullet
SSC	5	VALUE INTENTIONALLY LEFT BLANK
SSC	6	Conical /Peaked/NUN
SSC	7	Cylindrical (Upright)/CAN
SSC	9	VALUE INTENTIONALLY LEFT BLANK
SSC	10	Pillar, Spindle
SSC	11	VALUE INTENTIONALLY LEFT BLANK
SSC	12	Pyramid
SSC	13	VALUE INTENTIONALLY LEFT BLANK
SSC	14	VALUE INTENTIONALLY LEFT BLANK
SSC	15	Solid/filled
SSC	16	Spar
SSC	17	Spherical (Hemispherical)
SSC	18	Truss
SSC	19	With Radome
SSC	20	VALUE INTENTIONALLY LEFT BLANK
SSC	21	Artificial Mountain
SSC	22	Crescent
SSC	23	Ferris Wheel
SSC	24	Enclosed
SSC	25	Roller coaster
SSC	26	Lateral
SSC	27	Mounds
SSC	28	Ripple
SSC	29	Star
SSC	30	Transverse
SSC	31	VALUE INTENTIONALLY LEFT BLANK

SSC	33	VALUE INTENTIONALLY LEFT BLANK
SSC	34	VALUE INTENTIONALLY LEFT BLANK
SSC	35	VALUE INTENTIONALLY LEFT BLANK
SSC	36	Windmotor
SSC	38	VALUE INTENTIONALLY LEFT BLANK
SSC	40	VALUE INTENTIONALLY LEFT BLANK
SSC	46	Open
SSC	52	'A' Frame
SSC	53	'H' Frame
SSC	54	'I' Frame
SSC	56	'Y' Frame
SSC	57	VALUE INTENTIONALLY LEFT BLANK
SSC	58	VALUE INTENTIONALLY LEFT BLANK
SSC	59	Telescoping Gasholder (Gasometer)
SSC	60	Mast
SSC	61	Tripod
SSC	62	VALUE INTENTIONALLY LEFT BLANK
SSC	63	VALUE INTENTIONALLY LEFT BLANK
SSC	65	Cylindrical with flat top
SSC	66	Cylindrical with domed top
SSC	71	Cylindrical/Peaked
SSC	73	Superbuoy
SSC	74	'T' Frame
SSC	75	Tetrahedron
SSC	76	Funnel
SSC	77	Arch
SSC	78	Multi-Arch
SSC	79	Round
SSC	80	Rectangular
SSC	81	Dragons Teeth
SSC	82	I-Beam
SSC	83	Square
SSC	84	Irregular
SSC	85	Diamond Shaped Buoy
SSC	86	Oval
SSC	87	Dome
SSC	107	Tower
SSC	108	Scanner
SSC	109	Obelisk
SSC	999	Other

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TST Transmission Line Suspension

Types of suspension of power transmission lines between pylons.

TST	0	Unknown
TST	1	Normal Suspension
TST	2	Catenary (Over Mountains)
TST	3	Catenary (Over Water)

TXT Text Attribute

Narrative or other description.

TXT 0 Actual Value

Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

UNI Units Category

Units associated strictly with the measured distance lines (FC100) for nautical data. [Reference DIGEST Part 3 for Units associated with DIGEST header data.]

UNI	1	Meters
UNI	11	Nautical Miles
UNI	22	Feet
UNI	23	Kilometers
UNI	24	Yards

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard

USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points

USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

ZV3 Airfield Elevation (Feet)

The highest point of an airport's usable runways measured in meters from mean sea level.

ZV3 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	-400 to 30,000	1 M	

Pipeline Feature Class

ID

F-CODE/DESCRIPTION

AQ113 Pipeline/Pipe
AQ116 Pumping Station

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ACC Accuracy Category

Accuracy of geographic position.

ACC	0	Unknown
ACC	1	Accurate
ACC	2	Approximate
ACC	3	Doubtful
ACC	5	Disputed
ACC	6	Undisputed
ACC	7	Precise
ACC	8	Abrogated

AOO Angle of Orientation

The angular distance measured from true north (0 deg) clockwise to the major axis of the feature. If the feature is square, the axis 0 through 89 deg shall be recorded. If the feature is circular, 360 deg shall be recorded.

AOO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-360	1 DEG	

ATN Aids to Navigation

Indicates whether a feature is marked or unmarked by an aid to navigation.

ATN	0	Unknown
ATN	1	Marked
ATN	2	Unmarked

ATN	3	Lit
ATN	4	Unlit
ATN	999	Other

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous

COC	999	Other

DEP — Depth Below Surface Level

Distance measured from the highest point at surface level to the lowest point of the feature below the surface. Recorded values are positive numbers.

DEP	0	Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 — *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 — *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY — *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI — *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

GRS *Gray Scale value*

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity.
(May be helpful for IR and NVG simulations; TBD)
GRS 0-255

HSB Height Above Sea Bottom

Vertical distance from sea bottom to lowest portion of feature.
HSB 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Floating Point		0.1 M	

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.
LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.
LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.
Applies to point features
LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

NAM Name

Any Identifier or code.

NAM	0	Actual Value

Units	Format	Range	Increment	Max Chars
Text String	Lexical			80

OHC — Overhead Clearance Category

The least distance between the traveled way and any obstruction vertically above it. (Ref. STANAG 2253)

OHC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Floating Point		0.1 M	

OIT — *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

OWO — Over Water Obstruction

Indicates the presence of an obstruction over an area of navigable water.

OWO	1	Feature crosses navigable water
OWO	2	Feature does not cross navigable water

PLT — Pipeline Type

Identifies function of pipeline.

PLT	0	Undefined
PLT	1	Transport
PLT	2	Outfall
PLT	3	Intake
PLT	4	Sewer
PLT	5	Valve
PLT	6	Pipeline in general

PRO — Product Category

Principal material involved or product resulting from activity at site.

PRO	0	Unknown
PRO	5	Asphalt
PRO	13	Chemical
PRO	22	Conglomerate
PRO	26	Desalinated Water
PRO	30	Earthen
PRO	31	Electric
PRO	33	Explosives
PRO	35	Food
PRO	38	Gas
PRO	39	Gasoline
PRO	50	Heat
PRO	52	Lava
PRO	67	Oil
PRO	69	Ooze
PRO	82	Radioactive Material
PRO	102	Sludge
PRO	116	Water
PRO	128	Refuse

PRO	130	None
PRO	132	Not Applicable
PRO	133	Telecommunications
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition

SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag

SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TXT Text Attribute

Narrative or other description.

TXT	0	Actual Value		
Units	Format	Range	Increment	Max Char
	Text String	Lexical		256

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	17	Advertising Billboard
USE	18	Scoreboard
USE	19	Highway Sign
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	24	Unidentified Aircraft Landing Area
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	41	Industrial
USE	42	Commercial
USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	51	Telegraph
USE	52	Telephone
USE	53	Power
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike

USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	74	Low Altitude enroute
USE	75	High Altitude Enroute
USE	76	Low and High Altitude Enroute
USE	77	Short Take-off Landing Approach
USE	78	Visual Approach
USE	79	Non-Precision Instrument Approach
USE	80	Precision Instrument Approach
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	95	Alert Apron/Hardstand
USE	96	Operational Apron/Hardstand
USE	97	Hanger/Apron
USE	98	Base Flight Apron
USE	99	Engine Test Pad/Apron
USE	100	Transient Apron
USE	101	Depot Apron
USE	102	Stub Apron
USE	103	Dispersal Hardstand
USE	104	Pad Hardstand
USE	105	Refueling Hardstand
USE	106	Parking Hardstand
USE	107	Engine Run-up Hardstand
USE	108	Firing-In Hardstand
USE	109	Compass Rose Hardstand
USE	110	Maintenance Hardstand
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	119	Berthing of vessels
USE	120	Recreational
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	127	as a causeway
USE	128	Mixed Urban or built-up Land

USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	133	Single Point Mooring
USE	134	Utilities and Communication
USE	136	as a Fill
USE	139	Fill
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	992	Drag Strip
USE	993	Filtration Pond
USE	994	Dugout
USE	995	Drinking Water
USE	996	Triangulation
USE	997	Cable Sign/Pipeline Indicator
USE	998	Sea-Plane landing area
USE	999	Other

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Utility Void Collection Area Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area

VCA Void Collection Attribute

Reason data is not collected.

VCA	0	Unknown
VCA	1	Data Not Requested By User
VCA	2	Area Too Rough to Collect
VCA	3	No Available Imagery
VCA	4	Different Height Threshold Within Data Block
VCA	5	Low Data Collection Criteria
VCA	6	No Available Map Source
VCA	7	No Suitable Imagery
VCA	8	Data Not Required
VCA	999	Other

Appendix L. Vegetation Coverage

Cropland Feature Class

ID

F-CODE/DESCRIPTION

EA010 Cropland
EA020 Hedgerow
EA030 Nursery
EA031 Botanical Garden
EA040 Orchard/Plantation
EA050 Vineyards
EA055 Hops
BH135 Rice field

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

BUD Brush/Undergrowth Density Code

Density of brush or undergrowth.

BUD	0	Unknown
BUD	1	Open (≤5%)
BUD	2	Sparse (>5% and ≤15%)
BUD	3	Medium (>15% and ≤50%)
BUD	4	Dense (>50%)
BUD	5	Not Applicable

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Grey
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow

CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC — Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC — Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR — *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DMT — Density Measure (% of Tree/Canopy Cover)

Canopy cover measured by percent within area of feature during the summer season.

DMT 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

DY1 — *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational

EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FEO — Feature Element Orientation

The angular distance measured from true north (0 deg) clockwise to the predominant linear pattern of the elements within a feature.

FEO 0 Actual Value

Units	Format	Range	Increment	Max Chars
Degrees	Short Integer	0-359	1 DEG	

FOT — *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

FTC — Farming Type Category

Type of field pattern

FTC	0	Unknown
FTC	1	Slash & Burn-Shifting cultivation
FTC	2	Permanent field
FTC	3	Terraced
FTC	4	Ditch Irrigation
FTC	5	Grazing
FTC	6	Regular (planting pattern)
FTC	7	Linear (planting pattern)
FTC	8	Shifting Cultivation/Crop Rotation
FTC	9	Not Applicable
FTC	98	Type of field Pattern
FTC	999	Other

HGT — Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

GRS *Gray Scale value*

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity. (May be helpful for IR and NVG simulations; TBD)

GRS 0-255

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LOC Location Category

Status of feature relative to surrounding area or water.

LOC	0	Unknown
LOC	1	Above Surface/Does not Cover (Height Known)
LOC	2	Awash at Chart Datum
LOC	3	Dries/Covers (Height Unknown)
LOC	4	Below Surface /Submerged/Underground
LOC	5	Covered < 20 Meters
LOC	6	Covered ≥ 20 Meters but < 30 Meters
LOC	7	Covered ≥30 Meters
LOC	8	On Ground Surface
LOC	9	Depth Known
LOC	10	Depth Known (Cleared by Drag Wire)
LOC	11	Depth Unknown But Safe to Depth Shown
LOC	12	VALUE INTENTIONALLY LEFT BLANK
LOC	13	Hull Showing
LOC	14	Masts Showing
LOC	15	On Water Surface/Floating
LOC	16	Partially Submerged
LOC	17	Sunken/on sea bottom
LOC	19	Above Surface/Does not Cover (Height Unknown)
LOC	20	Funnel Showing
LOC	21	Superstructure showing
LOC	22	Off Shore
LOC	23	Below sea bottom
LOC	24	Suspended or elevated above sea bottom
LOC	25	Suspended/Elevation above Ground or Water Surface
LOC	28	Masts and Funnel Showing
LOC	30	Non-Floating
LOC	31	Elevated
LOC	32	Depressed
LOC	33	Not submerged
LOC	34	Inland
LOC	35	Overhead
LOC	36	Height Above Bottom
LOC	37	Exact Position Known
LOC	38	Exact Position Unknown
LOC	39	Depth Unknown
LOC	998	Not applicable
LOC	999	Other

NAM Name

Any Identifier or code.

NAM	0	Actual Value

Units	Format	Range	Increment	Max Chars
Text String	Lexical			80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

PHT Predominant Height

Height of 51% or more of the feature. If not obtainable, then the average height of the feature will be used.

PHT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

PRO Product Category

Principal material involved or product resulting from activity at site.

PRO	0	Unknown
PRO	35	Food
PRO	130	None
PRO	132	Not Applicable
PRO	997	Not Applicable
PRO	998	Multiple
PRO	999	Other

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SDS Stem Diameter Size

The average diameter of trees in a stand, measured at a height of 1.4 m above the ground.

SDS 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 Meter	

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity

SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz

SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T

SPC F

SS1 *Sensors Supported*

SS2

SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T

SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TSC Tree Spacing Category

Average distance between adjacent tree centerlines within area of feature.

TSC 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

USE Usage

Use (identifies the primary user, function, or controlling authority).

USE	0	Unknown
USE	4	National
USE	5	State
USE	6	Private
USE	7	Tribal
USE	8	Military
USE	10	Other
USE	11	Motel/Hotel
USE	12	Apartment
USE	13	Open
USE	14	VALUE INTENTIONALLY LEFT BLANK
USE	15	VALUE INTENTIONALLY LEFT BLANK
USE	16	City
USE	20	Closed
USE	21	Restricted
USE	22	Joint Military/Civilian
USE	23	International
USE	25	Federal
USE	26	Primary/1st Order
USE	30	Secondary/2nd Order
USE	31	Tertiary/3rd Order
USE	32	Insular
USE	33	Provincial
USE	37	Interstate
USE	42	Commercial

USE	43	Institutional
USE	44	Residential
USE	45	Agricultural
USE	48	Decoy
USE	49	Civilian/Public
USE	50	Limited
USE	57	Marine
USE	60	Avalanche
USE	61	Refugee
USE	62	Prisoner
USE	68	Animal sanctuary
USE	69	Levee/Dike
USE	70	Reserve/Reservation
USE	73	Terminus/Terminal
USE	81	Entry
USE	82	Exit
USE	83	Transaction
USE	84	Feeder
USE	85	Initial Approach Fix
USE	86	Final Approach Fix
USE	87	Visual Descent Point
USE	88	Missed Approach Point
USE	89	Radar
USE	90	Mileage Break Down
USE	91	NAVAID Changeover
USE	92	Altimeter Change
USE	93	Compulsory Reporting Points
USE	94	Non-Compulsory Reporting Points
USE	111	Quaternary/4th Order
USE	112	Quinary/5th Order
USE	113	Regional
USE	114	Communal
USE	117	Outfall
USE	118	Intake
USE	121	Aircraft Facility/airport reference point
USE	122	Firebreak
USE	123	Tourist
USE	124	Irrigation
USE	125	Retaining
USE	128	Mixed Urban or built-up Land
USE	129	Military District
USE	130	Transportation
USE	132	Container
USE	900	Butts
USE	901	School
USE	986	Military District
USE	991	Not Applicable
USE	995	Drinking Water
USE	996	Triangulation
USE	999	Other

VEG Vegetation Characteristics

Type of plant or plantings.

VEG	0	Unknown

VEG	1	Dry Crops
VEG	2	VALUE INTENTIONALLY LEFT BLANK
VEG	3	VALUE INTENTIONALLY LEFT BLANK
VEG	4	Rice Paddies
VEG	5	Agriculture with scattered forests or rows of tree
VEG	6	Cranberry
VEG	7	Peat
VEG	8	Pasture, meadow, steppe
VEG	9	Grassland with scattered trees
VEG	10	Tropical Grass
VEG	11	Casuarina
VEG	12	Coniferous
VEG	16	Nipa Palm
VEG	17	Palm
VEG	18	Filao
VEG	19	Mangrove
VEG	20	Grove
VEG	22	Wheat
VEG	23	Corn
VEG	24	Deciduous
VEG	25	Evergreen
VEG	26	Cork-Oak
VEG	27	Fir
VEG	28	Beech
VEG	29	Eucalyptus
VEG	30	Oak
VEG	31	Pine
VEG	32	Walnut
VEG	33	Maple
VEG	34	Poplar
VEG	35	Olive
VEG	36	Chestnut
VEG	37	Larch
VEG	38	Cypress
VEG	39	Peach
VEG	40	Apple
VEG	41	Carob
VEG	42	Almond
VEG	43	Citrus
VEG	44	Elm
VEG	45	Ilex
VEG	46	Birch
VEG	47	Ash
VEG	48	Hazel
VEG	49	VALUE INTENTIONALLY LEFT BLANK
VEG	49	Mixed Deciduous
VEG	50	Mixed Trees
VEG	51	Herb/Shrub
VEG	52	Forest Clearing
VEG	53	Brushland open to medium density
VEG	54	Brushland medium to dense density
VEG	55	With trees
VEG	56	Without trees
VEG	999	Other

VRC Vegetation Roughness Category

An indexed value indicating the roughness of vegetation.

VRC	1	0.00	100% reduction
VRC	2	0.05	
VRC	3	0.10	
VRC	4	0.15	
VRC	5	0.20	
VRC	6	0.25	
VRC	7	0.30	
VRC	8	0.35	
VRC	9	0.40	
VRC	10	0.45	
VRC	11	0.50	50% reduction.
VRC	12	0.55	
VRC	13	0.60	
VRC	14	0.65	
VRC	15	0.70	
VRC	16	0.75	
VRC	17	0.80	
VRC	18	0.85	
VRC	19	0.90	
VRC	20	0.95	
VRC	21	1.00	0% reduction.
VRC	22	Not evaluated area where development has precluded evaluation of soil.	
VRC	23	NA	

ZV2 Highest Z-value

Elevation above a given datum to the highest portion of the feature.

ZV2 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	-400 to 30,000	1 M	

Rangeland Feature Class

ID

F-CODE/DESCRIPTION

EB010 Grassland - Area composed of uncultured plants which have little or no woody tissue.

EB015 Grass/Scrub/Brush - Area composed of uncultured plants which may have some woody tissue

EB020 Scrub/Brush

EB030 Land Use/Land Cover (Vegetation) - Thematic classification of the predominant vegetation and landuse characteristics of the land surface covers.

EE000 Miscellaneous Vegetation

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary

EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T
FOT F

FTC Farming Type Category

Type of field pattern

FTC	0	Unknown
FTC	1	Slash & Burn-Shifting cultivation
FTC	2	Permanent field
FTC	3	Terraced
FTC	4	Ditch Irrigation
FTC	5	Grazing
FTC	6	Regular (planting pattern)
FTC	7	Linear (planting pattern)
FTC	8	Shifting Cultivation/Crop Rotation
FTC	9	Not Applicable
FTC	98	Type of field Pattern
FTC	999	Other

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SMS *Surface Material Subtype*
Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite

SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp

SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*

Flag indicating that the object has the quality of being mirror-like.

SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)

SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*

The degree to which a surface is transparent.

Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

VEG Vegetation Characteristics

Type of plant or plantings.

VEG	0	Unknown
VEG	1	Dry Crops
VEG	2	VALUE INTENTIONALLY LEFT BLANK
VEG	3	VALUE INTENTIONALLY LEFT BLANK
VEG	4	Rice Paddies
VEG	5	Agriculture with scattered forests or rows of tree
VEG	6	Cranberry
VEG	7	Peat
VEG	8	Pasture, meadow, steppe
VEG	9	Grassland with scattered trees
VEG	10	Tropical Grass

VEG	11	Casuarina
VEG	12	Coniferous
VEG	16	Nipa Palm
VEG	17	Palm
VEG	18	Filao
VEG	19	Mangrove
VEG	20	Grove
VEG	22	Wheat
VEG	23	Corn
VEG	24	Deciduous
VEG	25	Evergreen
VEG	26	Cork-Oak
VEG	27	Fir
VEG	28	Beech
VEG	29	Eucalyptus
VEG	30	Oak
VEG	31	Pine
VEG	32	Walnut
VEG	33	Maple
VEG	34	Poplar
VEG	35	Olive
VEG	36	Chestnut
VEG	37	Larch
VEG	38	Cypress
VEG	39	Peach
VEG	40	Apple
VEG	41	Carob
VEG	42	Almond
VEG	43	Citrus
VEG	44	Elm
VEG	45	Ilex
VEG	46	Birch
VEG	47	Ash
VEG	48	Hazel
VEG	49	VALUE INTENTIONALLY LEFT BLANK
VEG	49	Mixed Deciduous
VEG	50	Mixed Trees
VEG	51	Herb/Shrub
VEG	52	Forest Clearing
VEG	53	Brushland open to medium density
VEG	54	Brushland medium to dense density
VEG	55	With trees
VEG	56	Without trees
VEG	999	Other

VRC Vegetation Roughness Category

An indexed value indicating the roughness of vegetation.

VRC	1	0.00 100% reduction
VRC	2	0.05
VRC	3	0.10
VRC	4	0.15
VRC	5	0.20
VRC	6	0.25
VRC	7	0.30

VRC	8	0.35	
VRC	9	0.40	
VRC	10	0.45	
VRC	11	0.50	50% reduction.
VRC	12	0.55	
VRC	13	0.60	
VRC	14	0.65	
VRC	15	0.70	
VRC	16	0.75	
VRC	17	0.80	
VRC	18	0.85	
VRC	19	0.90	
VRC	20	0.95	
VRC	21	1.00	0% reduction.
VRC	22	Not evaluated area where development has precluded evaluation of soil.	
VRC	23	NA	

Woodland Feature Class

ID

F-CODE/DESCRIPTION

EC010 Bamboo/Cane - Woody, treelike grass.
EC015 Forest
EC020 Oasis
EC030 Trees
EC040 Firebreak/Cleared way

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

ARA Area Coverage Attribute

The absolute area within the delineation of the feature.

ARA 0 Actual Value

Units	Format	Range	Increment	Max Char
Sq. Meters	Short Integer	0±32,767	1 M^2	
Hectares	Short Integer	0±32,767	1 HA	

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray
CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow

CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

COD Certainty of Delineation

Indicates knowledge of the feature's limits or information.

COD	0	Unknown
COD	1	Limits and Information Known
COD	2	Limits and Information Unknown

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DMT Density Measure (% of Tree/Canopy Cover)

Canopy cover measured by percent within area of feature during the summer season.

DMT	0	Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused
EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary

EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

FTC Farming Type Category

Type of field pattern

FTC	0	Unknown
FTC	1	Slash & Burn-Shifting cultivation
FTC	2	Permanent field
FTC	3	Terraced
FTC	4	Ditch Irrigation
FTC	5	Grazing
FTC	6	Regular (planting pattern)
FTC	7	Linear (planting pattern)
FTC	8	Shifting Cultivation/Crop Rotation
FTC	9	Not Applicable
FTC	98	Type of field Pattern
FTC	999	Other

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

GRS *Gray Scale value*

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity.
(May be helpful for IR and NVG simulations; TBD)
GRS 0-255

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LEN Length/Diameter of Point Feature

A measurement of the longer of two linear axes in meters. For a square feature, measure either axis. For a round feature, measure the diameter. For a bridge, the length is the distance between the bridge abutments.
LEN 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.
LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.
Applies to point features
LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be

rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

NAM Name

Any Identifier or code.

NAM	0	Actual Value		
Units		Format Range	Increment	Max Chars
Text String		Lexical		80

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SBC Shelter Belt Condition

Indicates whether a linear stand of trees functions as a shelter belt, protecting roadways, railroads, cropland, construction, etc., from the effects of adverse weather.

SBC	1	Functions as a shelter belt
SBC	2	Does not function as a shelter belt

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T

SER F

SMS *Surface Material Subtype*

Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous

SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite
SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice

SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp
SMS	105	Sandwaves
SMS	500	Not Evaluated
SMS	999	Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

STR Summer Tree Cover Density Code
Coded value indicating percent of summer canopy closure within delineated area of feature.
STR 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

TMR *Texture Map Reflectance*

Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRE Tree Category

Type of tree coverage.

TRE	0	Unknown
TRE	1	Deciduous
TRE	2	Evergreen
TRE	3	Mixed

TRL *Translucency*

The degree to which a surface is transparent.

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

TSC Tree Spacing Category

Average distance between adjacent tree centerlines within area of feature.

TSC 0 Actual Value

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0±32,767	1 M	

VEG Vegetation Characteristics

Type of plant or plantings.

VEG	0	Unknown
VEG	1	Dry Crops
VEG	2	VALUE INTENTIONALLY LEFT BLANK
VEG	3	VALUE INTENTIONALLY LEFT BLANK
VEG	4	Rice Paddies
VEG	5	Agriculture with scattered forests or rows of tree
VEG	6	Cranberry
VEG	7	Peat
VEG	8	Pasture, meadow, steppe
VEG	9	Grassland with scattered trees
VEG	10	Tropical Grass
VEG	11	Casuarina

VEG	12	Coniferous
VEG	16	Nipa Palm
VEG	17	Palm
VEG	18	Filao
VEG	19	Mangrove
VEG	20	Grove
VEG	22	Wheat
VEG	23	Corn
VEG	24	Deciduous
VEG	25	Evergreen
VEG	26	Cork-Oak
VEG	27	Fir
VEG	28	Beech
VEG	29	Eucalyptus
VEG	30	Oak
VEG	31	Pine
VEG	32	Walnut
VEG	33	Maple
VEG	34	Poplar
VEG	35	Olive
VEG	36	Chestnut
VEG	37	Larch
VEG	38	Cypress
VEG	39	Peach
VEG	40	Apple
VEG	41	Carob
VEG	42	Almond
VEG	43	Citrus
VEG	44	Elm
VEG	45	Ilex
VEG	46	Birch
VEG	47	Ash
VEG	48	Hazel
VEG	49	VALUE INTENTIONALLY LEFT BLANK
VEG	49	Mixed Deciduous
VEG	50	Mixed Trees
VEG	51	Herb/Shrub
VEG	52	Forest Clearing
VEG	53	Brushland open to medium density
VEG	54	Brushland medium to dense density
VEG	55	With trees
VEG	56	Without trees
VEG	999	Other

VRC Vegetation Roughness Category

An indexed value indicating the roughness of vegetation.

VRC	1	0.00 100% reduction
VRC	2	0.05
VRC	3	0.10
VRC	4	0.15
VRC	5	0.20
VRC	6	0.25
VRC	7	0.30
VRC	8	0.35

VRC	9	0.40	
VRC	10	0.45	
VRC	11	0.50	50% reduction.
VRC	12	0.55	
VRC	13	0.60	
VRC	14	0.65	
VRC	15	0.70	
VRC	16	0.75	
VRC	17	0.80	
VRC	18	0.85	
VRC	19	0.90	
VRC	20	0.95	
VRC	21	1.00	0% reduction.
VRC	22	Not evaluated area where development has precluded evaluation of soil.	
VRC	23	NA	

WID Width

A measurement of the shorter of two linear axes. For a square feature, measure either axis. For a round feature, width shall be equal to LEN.

WID 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

WTR Winter Tree Cover Density Code

Coded value indicating percent of winter canopy closure within delineated area of feature.

WTR	1	≤ 25
WTR	2	> 25 and ≤ 50
WTR	3	> 50 and ≤ 75
WTR	4	> 75
WTR	5	NA

Swamp/Wetlands Area Feature Table

ID

F-CODE/DESCRIPTION

BH015 Bog
BH095 Marsh/Swamp
ED__ Wetlands

ABS *Absorptivity*

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

CCC Color Code Category

CCC	0	Unknown/Not applicable
CCC	1	Black
CCC	2	Blue
CCC	3	Brown
CCC	4	Gray

CCC	5	Green
CCC	7	Chocolate
CCC	9	Orange
CCC	12	Red
CCC	14	Violet
CCC	15	White
CCC	19	Yellow
CCC	47	Magenta
CCC	48	Amber
CCC	49	Buff
CCC	51	Bluegreen
CCC	52	Bright Blue
CCC	53	Aqua
CCC	55	Bright Green
CCC	58	Bright Yellow
CCC	61	Bright Red
CCC	63	Cyan
CCC	64	Purple
CCC	69	Pink
CCC	70	Lavender
CCC	999	Other

CIC Color Intensity Category

Identifies the intensity of color.

CIC	0	Unknown
CIC	1	Dark
CIC	2	Light
CIC	999	Other

COC Conspicuous Category

A conspicuous object is easily identifiable and plainly visible under varying conditions of light from harbors, approach channels, or offshore because of its size, shape, or height.

COC	0	Unknown
COC	1	Conspicuous from sea
COC	2	VALUE INTENTIONALLY LEFT BLANK
COC	3	Radar Conspicuous from sea
COC	4	Conspicuous from land
COC	5	Conspicuous from air
COC	6	Inconspicuous
COC	7	Generally Conspicuous
COC	8	Not visual conspicuous
COC	9	Visual conspicuous
COC	10	Not radar conspicuous
COC	999	Other

DMT Density Measure (% of Tree/Canopy Cover)

Canopy cover measured by percent within area of feature during the summer season.

DMT 0 Actual Value

Units	Format	Range	Increment	Max Char
Percent	Short Integer	0-100	1 %	

DFR *Diffuse Reflectance*

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 *Directivity*

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 *Directivity (IR)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 *Directivity (Radar)*

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY *Emissivity*

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI *Exitance*

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

EXS Existence Category

The state or condition of the feature.

EXS	0	Unknown
EXS	1	Definite
EXS	2	Doubtful
EXS	3	Reported
EXS	5	Under Construction
EXS	6	Abandoned/Disused

EXS	7	Destroyed
EXS	10	Proposed
EXS	11	Temporary
EXS	12	Alternate
EXS	18	Permanent
EXS	25	Not Maintained
EXS	26	Maintained
EXS	27	Closed/Locked
EXS	28	Operational
EXS	30	Not Isolated
EXS	31	Isolated
EXS	33	Ruined
EXS	35	Other
EXS	44	Approximate/About
EXS	45	Natural
EXS	46	Man-made
EXS	47	Swept
EXS	48	Controlled
EXS	49	Non-Controlled
EXS	50	Non-Tidal
EXS	51	Tidal/Tidal Fluctuation
EXS	52	Dissipating
EXS	53	Incomplete
EXS	54	Antique/Ancient
EXS	55	Unexamined/Unsurveyed
EXS	56	Unattended/Unwatched
EXS	59	Not Usable
EXS	60	Indefinite (Shoreline)
EXS	61	Definite Shoreline
EXS	62	Partially Destroyed
EXS	65	Inactive
EXS	998	Not Applicable
EXS	999	Other

FOT *Feature Onset*

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

HGT Height Above Surface Level

Distance measured from the lowest point of the base at ground or water level (downhill side/downstream side) to the tallest point of the feature.

HGT 0 Actual Value

Units	Format	Range	Increment	Max Chars
Meters	Short Integer	0±32,767	1 M	

GRS *Gray Scale value*

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity. (May be helpful for IR and NVG simulations; TBD)

GRS 0-255

IMC *Internal Material Category*

Category code for material internal to an object.

Units	Format	Range	Increment	Max Char
	Integer	1 .. 32767		

LLE *Low Level Effects*

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T
LLE F

LLL *Long Lineal*

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T
LLL F

LN1 *Layer Number*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 *Layer Number (IR)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 *Layer Number (Radar)*

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

OIT *Object Illumination Type*

Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)

Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL *Reflectance*

Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER *Self Emitter*

Indicates that an object has self heating characteristics

SER T
SER F

SMS *Surface Material Subtype*
Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

SMS	0	Unknown
SMS	1	GW Well graded gravels or gravel-sand mixtures
SMS	2	GP Poorly graded gravels or gravel-sand mixtures
SMS	3	GM Silty gravels, gravel-sand-silt mixtures
SMS	4	GC Clayey gravels, gravel-sand-clay mixture
SMS	5	SW Well graded sand or gravelly sands
SMS	6	SP Poorly graded sands or gravelly sands
SMS	7	SM Silty sands, sand-silt mixture.
SMS	8	SC Clayey sands, sand-clay mixtures
SMS	9	ML Inorganic silts and very fine sands
SMS	10	CL Inorganic clays of low to medium plasticity
SMS	11	OL Organic silts and organic silty clays
SMS	12	CH Inorganic clays of high plasticity, fat clays
SMS	13	MH Inorganic silts, micaceous or diatomaceous
SMS	14	OH Organic clays of medium to high plasticity
SMS	15	PT Peat and other highly organic soils
SMS	17	ML-CL Soil type having both ML and CL characteristics
SMS	18	Evaporites
SMS	19	Alkali
SMS	20	Asphalt
SMS	21	Ash
SMS	22	Basalt
SMS	23	Bedrock
SMS	24	Boulders
SMS	25	Calcareous
SMS	26	Chalk
SMS	27	Cinders
SMS	28	Cirripedia
SMS	29	Clay
SMS	30	Coal
SMS	31	Cobble
SMS	32	Coke
SMS	33	Composition
SMS	34	Conglomerate
SMS	35	Copper
SMS	36	Coral
SMS	37	Coral Head
SMS	38	Diamonds
SMS	39	Diatoms
SMS	40	Dolomite
SMS	41	Flynch
SMS	42	Foraminifera
SMS	43	Fucus
SMS	44	Glass
SMS	45	Globigerina
SMS	46	Gold
SMS	47	Granite

SMS	48	INTENTIONALLY LEFT BLANK
SMS	49	Gravel
SMS	50	Green Rocks
SMS	51	Ground (Shells)
SMS	52	Iron
SMS	53	Lava
SMS	55	Lead
SMS	56	Loess
SMS	57	Lumber
SMS	58	Macadam
SMS	59	Madrepores
SMS	60	Manganese
SMS	61	Marble
SMS	62	Marl
SMS	63	Mattes
SMS	64	Mud
SMS	65	Oil
SMS	66	Oil Blister
SMS	67	Ooze
SMS	70	Pebbles
SMS	71	Pumice
SMS	72	Quartz
SMS	73	Radiolaria
SMS	74	Radioactive Material
SMS	75	Reinforced Concrete
SMS	76	Rock/Rocky
SMS	77	Rubber
SMS	78	Rubble
SMS	79	Salt
SMS	80	Sand
SMS	81	Sandstone
SMS	82	Schist
SMS	83	Spoils/Tailings
SMS	84	Scoria
SMS	85	Sewage
SMS	86	Shells
SMS	87	Shingle
SMS	88	Silt
SMS	89	Silver
SMS	90	Slag
SMS	91	Sludge
SMS	92	Snow/Ice
SMS	93	Steel
SMS	94	Stone
SMS	95	Travertin
SMS	96	Tufa
SMS	97	Uranium
SMS	98	Volcanic
SMS	99	Volcanic Ash
SMS	100	Zinc
SMS	101	Distorted surface
SMS	102	Sand and gravel
SMS	103	Rip-Rap
SMS	104	Kelp

SMS 105 Sandwaves
SMS 500 Not Evaluated
SMS 999 Other

SPC *Specular*
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SS1 *Sensors Supported*
SS2
SS3 Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

TID Tidal/Non-Tidal Category
Identifies whether a feature is affected by tidal water.
TID 1 Non-Tidal
TID 2 Tidal/Tidal fluctuating

TMR *Texture Map Reflectance*
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL *Translucency*
The degree to which a surface is transparent.
Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV *Transmissivity*
Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP *Texture Type*
Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).
TTP 1 RGB
TTP 2 GRAY
TTP 3 MULTI
TTP 4 SMFD

VEG Vegetation Characteristics
Type of plant or plantings.
VEG 0 Unknown
VEG 1 Dry Crops
VEG 2 VALUE INTENTIONALLY LEFT BLANK
VEG 3 VALUE INTENTIONALLY LEFT BLANK
VEG 4 Rice Paddies

VEG	5	Agriculture with scattered forests or rows of tree
VEG	6	Cranberry
VEG	7	Peat
VEG	8	Pasture, meadow, steppe
VEG	9	Grassland with scattered trees
VEG	10	Tropical Grass
VEG	11	Casuarina
VEG	12	Coniferous
VEG	16	Nipa Palm
VEG	17	Palm
VEG	18	Filao
VEG	19	Mangrove
VEG	20	Grove
VEG	22	Wheat
VEG	23	Corn
VEG	24	Deciduous
VEG	25	Evergreen
VEG	26	Cork-Oak
VEG	27	Fir
VEG	28	Beech
VEG	29	Eucalyptus
VEG	30	Oak
VEG	31	Pine
VEG	32	Walnut
VEG	33	Maple
VEG	34	Poplar
VEG	35	Olive
VEG	36	Chestnut
VEG	37	Larch
VEG	38	Cypress
VEG	39	Peach
VEG	40	Apple
VEG	41	Carob
VEG	42	Almond
VEG	43	Citrus
VEG	44	Elm
VEG	45	Ilex
VEG	46	Birch
VEG	47	Ash
VEG	48	Hazel
VEG	49	VALUE INTENTIONALLY LEFT BLANK
VEG	49	Mixed Deciduous
VEG	50	Mixed Trees
VEG	51	Herb/Shrub
VEG	52	Forest Clearing
VEG	53	Brushland open to medium density
VEG	54	Brushland medium to dense density
VEG	55	With trees
VEG	56	Without trees
VEG	999	Other

VRC Vegetation Roughness Category

An indexed value indicating the roughness of vegetation.

VRC	1	0.00 100% reduction

VRC	2	0.05	
VRC	3	0.10	
VRC	4	0.15	
VRC	5	0.20	
VRC	6	0.25	
VRC	7	0.30	
VRC	8	0.35	
VRC	9	0.40	
VRC	10	0.45	
VRC	11	0.50	50% reduction.
VRC	12	0.55	
VRC	13	0.60	
VRC	14	0.65	
VRC	15	0.70	
VRC	16	0.75	
VRC	17	0.80	
VRC	18	0.85	
VRC	19	0.90	
VRC	20	0.95	
VRC	21	1.00	0% reduction.
VRC	22	Not evaluated area where development has precluded evaluation of soil.	
VRC	23	NA	

Vegetation Void Collection Area Feature Class

ID

F-CODE/DESCRIPTION

ZD020 Void Collection Area

VCA Void Collection Attribute

Reason data is not collected.

VCA	0	Unknown
VCA	1	Data Not Requested By User
VCA	2	Area Too Rough to Collect
VCA	3	No Available Imagery
VCA	4	Different Height Threshold Within Data Block
VCA	5	Low Data Collection Criteria
VCA	6	No Available Map Source
VCA	7	No Suitable Imagery
VCA	8	Data Not Required
VCA	999	Other

Appendix M. Specific Enhancements

BASIC EARTH SURFACE

Underwater Bottom Features attributes.

F-Codes

UB010 Bottom
UB020 Shelf

PWC — Percent Water Content
Water content of the bottom.

RSS — Ratio Sound Speed
Ratio of sediment sound speed to water sound speed.

SGS — Sand Grain Size
Mean grain size

SLC — Sediment Layer Conductivity

SRH — Sand Ridge Height(ft.)

SSD — Sediment Surface Density

SSG — Sound Speed Gradient
Sediment sound speed gradient (at water-sediment interface)

SSS — Sediment Shear Strength

Surface Feature composite attribute.

SRT — Surface Type
This is a composite attribute (MCC, STP and SMC from the Digest)
Soils described by the Unified Soil Classification System (USCS) or primary material composition.

SRT	0	Unknown
SRT	1	GW Well graded gravels or gravel-sand mixtures
SRT	2	GP Poorly graded gravels or gravel-sand mixtures
SRT	3	GM Silty gravels, gravel-sand-silt mixtures
SRT	4	GC Clayey gravels, gravel-sand-clay mixture
SRT	5	SW Well graded sand or gravelly sands
SRT	6	SP Poorly graded sands or gravelly sands
SRT	7	SM Silty sands, sand-silt mixture.
SRT	8	SC Clayey sands, sand-clay mixtures
SRT	9	ML Inorganic silts and very fine sands
SRT	10	CL Inorganic clays of low to medium plasticity
SRT	11	OL Organic silts and organic silty clays
SRT	12	CH Inorganic clays of high plasticity, fat clays
SRT	13	MH Inorganic silts, micaceous or diatomaceous
SRT	14	OH Organic clays of medium to high plasticity
SRT	15	PT Peat and other highly organic soils
SRT	17	ML-CL Soil type having both ML and CL characteristics
SRT	18	Evaporites

SRT	19	Alkali
SRT	20	Asphalt
SRT	21	Ash
SRT	22	Basalt
SRT	23	Bedrock
SRT	24	Boulders
SRT	25	Calcareous
SRT	26	Chalk
SRT	27	Cinders
SRT	28	Cirripedia
SRT	29	Clay
SRT	30	Coal
SRT	31	Cobble
SRT	32	Coke
SRT	33	Composition
SRT	34	Conglomerate
SRT	35	Copper
SRT	36	Coral
SRT	37	Coral Head
SRT	38	Diamonds
SRT	39	Diatoms
SRT	40	Dolomite
SRT	41	Flynch
SRT	42	Foraminifera
SRT	43	Fucus
SRT	44	Glass
SRT	45	Globigerina
SRT	46	Gold
SRT	47	Granite
SRT	48	INTENTIONALLY LEFT BLANK
SRT	49	Gravel
SRT	50	Green Rocks
SRT	51	Ground (Shells)
SRT	52	Iron
SRT	53	Lava
SRT	55	Lead
SRT	56	Loess
SRT	57	Lumber
SRT	58	Macadam
SRT	59	Madrepores
SRT	60	Manganese
SRT	61	Marble
SRT	62	Marl
SRT	63	Mattes
SRT	64	Mud
SRT	65	Oil
SRT	66	Oil Blister
SRT	67	Ooze
SRT	70	Pebbles
SRT	71	Pumice
SRT	72	Quartz
SRT	73	Radiolaria
SRT	74	Radioactive Material
SRT	75	Reinforced Concrete

SRT	76	Rock/Rocky
SRT	77	Rubber
SRT	78	Rubble
SRT	79	Salt
SRT	80	Sand
SRT	81	Sandstone
SRT	82	Schist
SRT	83	Spoils/Tailings
SRT	84	Scoria
SRT	85	Sewage
SRT	86	Shells
SRT	87	Shingle
SRT	88	Silt
SRT	89	Silver
SRT	90	Slag
SRT	91	Sludge
SRT	92	Snow/Ice
SRT	93	Steel
SRT	94	Stone
SRT	95	Travertin
SRT	96	Tufa
SRT	97	Uranium
SRT	98	Volcanic
SRT	99	Volcanic Ash
SRT	100	Zinc
SRT	101	Distorted surface
SRT	102	Sand and gravel
SRT	103	Rip-Rap
SRT	104	Kelp
SRT	105	Sandwaves
SRT	500	Not Evaluated
SRT	999	Other

TRANSPORTATION

Aeronautical Features attribute.

CSP Country/State/Province Code

HYDROGRAPHY

Attributes

F-Codes

BA000 Water Surface
BA001 Water Column Profile

DEP Depth of Reading
The depth of the reading below water, measured from the top or surface of the feature, referenced to a specified vertical datum. Recorded values are positive numbers.

HDP 0 Actual Value

Units	Format Range	Increment	Maximum Char
Meters	Floating Point	0.1 M	

SAL Salinity at DEP
Salinity in parts per thousand.
SAL 0 Actual Value

Units	Format Range	Increment	Maximum Char
Parts/thousand	Floating Point		

SOV Sound Speed at DEP
Sound speed in meters per second.
SOV 0 Actual Value

Units	Format Range	Increment	Maximum Char
meters/sec	Floating Point		

ST1 Surface Temperature (month 1)
Surface Temperature in first month of season.
ST1 0 Actual Value

Units	Format Range	Increment	Maximum Char
deg C	Floating Point		

ST2 Surface Temperature (month 2)
Surface Temperature in second month of season.
ST2 0 Actual Value

Units	Format Range	Increment	Maximum Char
deg C	Floating Point		

ST3 Surface Temperature (month 3)
Surface Temperature in third month of season.
ST3 0 Actual Value

Units	Format Range	Increment	Maximum Char
deg C	Floating Point		

TEM Temperature at DEP
Temperature at specified depth DEP.
TEM 0 Actual Value

Units	Format Range	Increment	Maximum Char
deg C	Floating Point		

ELEVATION

Attributes

F-Codes

CA027 Berm
CA050 Surface

PYT Polygon Type

PYT	1	Triangulated Irregular Network (triangle)

GENERAL

Visual, IR and Radar Attributes found throughout all coverages except Hydrography.

ABS Absorptivity

Ratio of radiant (thermal) energy to the energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DFR Diffuse Reflectance

Radar backscatter coefficient, expressed as a ratio

Units	Format	Range	Increment	Max Char
	Real(f7.6)	0.0 .. 1.0		

DY1 Directivity

Indicator of shape of the planar response curve of a feature or model to a sensor (visual response).

DY1	0	Unknown
DY1	1	Uni
DY1	2	Bi
DY1	3	Omni
DY1	999	Other

DY2 Directivity (IR)

Indicator of shape of the planar response curve of a feature or model to a sensor (infrared response).

DY2	0	Unknown
DY2	1	Uni
DY2	2	Bi
DY2	3	Omni
DY2	999	Other

DY3 Directivity (Radar)

Indicator of shape of the planar response curve of a feature or model to a sensor (Radar response).

DY3	0	Unknown
DY3	1	Uni
DY3	2	Bi
DY3	3	Omni
DY3	999	Other

EMY Emissivity

Ratio of the rate of IR radiation from a feature or model as a consequence of its temperature only, to the corresponding rate of emission from a blackbody at the same temperature.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

EXI Exitance

Rate of flow of infrared radiation from a feature per unit of surface area expressed in watts/cm^2.

Units	Format	Range	Increment	Max Char
	Real	0.0 .. 1.93428E+25		

FOT Feature Onset

Indicator for changing radar backscatter coefficients.

FOT T

FOT F

GRS Gray Scale value

A monochrome strip of shades ranging from white to black with intermediate shades of gray. Allows derivation of reflectance and emissivity.

(May be helpful for IR and NVG simulations; TBD)

GRS 0-255

LLE Low Level Effects

Indicates normalcy to a terrain plate and therefore is an indication of higher radar backscatter.

LLE T

LLE F

LLL Long Lineal

Reference to a point feature which could potentially look like a long linear feature by radar.

Applies to point features

LLL T

LLL F

LN1 Layer Number

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (visual).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN2 Layer Number (IR)

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be rendered for simulation. Higher values indicate a higher display priority (infrared).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

LN3 Layer Number (Radar)

A relative priority number indicating the sequence in which overlapping culture features, overlapping model objects, or overlapping textures should be

rendered for simulation. Higher values indicate a higher display priority (radar).

Units	Format	Range	Increment	Max Char
	Integer	0.. 2147483647		

OIT — Object Illumination Type
Identifier indicating how illumination of this object is to be computed (self-luminous, sun luminous, no sun illumination)
Applies to area features.

OIT	1	SELF
OIT	2	SUN
OIT	3	NOSUN

RFL — Reflectance
Ratio of radiant energy reflected by and object to the amount incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

SER — Self Emitter
Indicates that an object has self heating characteristics
SER T
SER F

SMS — Surface Material Subtype
Indicator to further refine the SRT, used to add temporal breakup characteristics. Specific occurances will be explained in TXT field.

Units	Format	Range	Increment	Max Char
Meters	Short Integer	0 .. 255		

SPC — Specular
Flag indicating that the object has the quality of being mirror-like.
SPC T
SPC F

SS1
SS2
SS3 — Sensors Supported

Three separate flags indicating support for different types of simulators (radar, visual, infrared, respectively)
SS1(SS2,SS3) T
SS1(SS2,SS3) F

TMR — Texture Map Reflectance
Reflectance value assigned to a texture map

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TRL — Translucency
The degree to which a surface is transparent.
Type - Real(6 sd) Range - 0.0 .. 100.0

Units	Format	Range	Increment	Max Char
	Real (f7.3)	0.0 .. 100.0		

TRV Transmissivity

Ratio of energy transmitted by an object to the amount of energy incident upon it.

Units	Format	Range	Increment	Max Char
	Real (f7.6)	0.0 .. 1.0		

TTP Texture Type

Type of data contained within a texture map (RGB, intensity, multi spectral, SMC_FDC).

TTP	1	RGB
TTP	2	GRAY
TTP	3	MULTI
TTP	4	SMFD

Appendix N. Attribute Adjustments

The following proposed changes to EVPF attributes have been suggested by experts in the field of Modeling and Simulation, data modeling, and/or Vector Product Format. These changes are being evaluated at publication time.

Absorptivity — change definition to "the ratio of the energy absorbed to the energy incident upon it."

Diffuse reflectance — change definition to "the ratio of the energy reflected from a material to the energy incident and applies to the visible, IR, and radar."

Exitance should not be included.

Include **temperature** and/or **water content** of the material for those features (TBD) whose key EO/IR parameters are derived from these attributes.

Determine if the following are needed attributes of underwater bottom feature class:

- Classifications set forth in Oceanic and Atmospheric Master Library (OAML) High Frequency Bottom Loss (HFBL) database for high frequency bottom loss: Bottom Loss Classifications Range 1-9

- Additional geoacoustic parameters set forth in OAML Low Frequency Bottom Loss (LFBL) database for low frequency bottom loss:

  - Thin-layer thickness
  - Thin-layer density
  - Sediment sound speed profile curvature parameters
  - Surface attenuation
  - Attenuation gradient (constant)
  - Attenuation frequency component (shallow water)
  - Basement reflection coefficient
  - Average background thickness (near surface)
  - Attenuation of layers
  - Density below layers
  - Reflectivity angle
  - Two-way travel time