

DATA ITEM DESCRIPTION

Title: Geospatial Data and Electronic Submittals

Number: HNC-006.01

Approval Date: 20150211

AMSC Number:

Limitation:

DTIC Applicable: No

GIDEP Applicable: No

Office of Primary Responsibility: CEHNC-EDC-D (GIS)

Applicable Forms: Attachment A – Sample GIS Requirements / Formatting, MMRP GIS Entity Set

Use/Relationship: The Geospatial Information and Electronic Submittals will be used to describe methods, equipment and accuracy for conducting location surveys and mapping of Military Munitions Response (MMR) projects, and the subsequent development of Geographical Information System (GIS) data to support the mapping and document (paper and electronic) production process as well as the final report electronic data submittal requirements. This Data Item Description contains instructions for: 1.) Geospatial Data Management Plan (DMP), 2.) Addressing geospatial data accuracy and mapping requirements, and 3.) FINAL electronic submittals for geospatial data, related mapping documents, and ALL other electronic project submittals to include plans, photos, qc logs, and reports for all Programs and Projects within Huntsville Center.

Requirements:

1. General. The contractor shall develop a Geospatial DMP, which must be approved and signed by the District/Center's Geospatial Coordinator as defined in EM 1110-1-2909. The Geospatial DMP will document the expected site-specific data needed to create a holistic geospatial dataset to include survey, mapping, imagery, CADD, BIM, GIS and any other forms of data that can be accessed by or imported into an enterprise GIS. Additional information is provided in EM 1110-1-2909. All geospatial data shall be provided in either metric or English units depending upon the needs of the individual project. Metric is the standard unit, unless otherwise specified by the specific Task Order. All geospatial data shall conform to the Spatial Data Standards for Facilities Infrastructure and Environment (SDSFIE). Samples of minimally acceptable data feature classes, domains, and attributes are available upon request from CEHNC-EDC-D (GIS), if required. The sample will be supplied in ESRI geodatabase format, version 10.2. Metadata shall be created for all feature classes within the geodatabase, and will be prepared in accordance with Federal Geographic Data Committee (FGDC) metadata standards.

1.1 Accuracy. Horizontal and vertical control of "Class I, Third Order" or better shall be established for the network of monuments. Horizontal control shall be based on either the English or metric system and referenced to the North American Datum of 1983 (NAD83) and the Universal Transverse Mercator (UTM) Grid System. Vertical control, if required, shall also be based on either the English or metric system and referenced to the North American Datum of 1988 (NAVD88). All surveying and mapping requirements shall meet the minimum standards set forth in **EM 1110-1-1004 - Geodetic and Control Surveying**. If aerial photographs or orthophotography are used to provide this survey, the aerial targets used for control points shall meet the same horizontal and vertical accuracy and requirements in **EM 1110-1-1000 - Engineering and Design - Photogrammetric Mapping**. All newly established control points and recovered monuments shall be of a permanent nature for recoverability during future phases of work within the same project. All control points shall be iron or steel pins, concrete monuments, or other permanent construction method. Installation of control points and monuments shall meet minimum standards set forth in EM1110-1-1002 - **Survey Markers and Monumentation**. A licensed Professional Land Surveyor in the State where the work is being performed shall certify all surveying requirements to include all control points, grid corners, transect points, and boundaries as required by the project. The

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Northing and Easting (Y, X) for all control points, grid corners, transect points, and any boundaries or closures shall be presented in a certified letter or drawing, along with an electronic submittal of the same to CEHNC upon completion of the field work.

1.2 Geographic Information Systems (GIS) Incorporation. Spatial data created for each delivery/task order are to be provided in ESRI geodatabase format. . Raster data (orthophotography, remote sensing imagery, etc.) are to be provided in Tagged Image File format (TIF) at the completion of the delivery/task order, as well as in either TIF format or MrSID-compliant format during the delivery/task order. The selection of one of these raster data formats will be defined in the task order SOW. Supporting tabular data shall be provided in ANSI SQL language format at the completion of the project, as well as in Microsoft Excel, Microsoft Access, or Oracle database format, dependent upon the storage and performance requirements of the project. The use of one of these proprietary database formats will be defined in the Task Order SOW. The Final Submittal in electronic format shall contain all task specific Map Documents (.mxd file) conveyed in the Task Specific Final Report. The supporting feature class information shall be conveyed in a single or multiple ESRI GeoDatabase(s) with appropriate Metadata for each feature class, so that all spatial data conveyed for a project is in a concise GeoReferenced data set.

1.2 Plotting. All of the control points (monuments, aerial targets, and property corners) recovered and/or established at the site shall be plotted at the appropriate coordinate points on reproducible electronic or hard copy media for production of planimetric or topographic maps at scales appropriate for the parcel size being described. Parcels less than 10 acres shall be plotted at 1:200. Parcels 10 – 100 acres shall be plotted at 1:600 (1"=50'). Parcels larger than 100 acres will be plotted at 1:2400 (1"=200'). Area maps shall be provided for parcels of 100 acres, and shall show sheet breakdown for subsequent sheets required for the set.

1.3 Mapping. The location, identification, coordinates, and elevations of all the control points recovered and/or established at the site shall be plotted on reproducible media for planimetric or topographic maps at the scale specified in the task order. Each control point shall be identified on the map by its name and number and the final adjusted coordinates and elevations (to the closest 0.001m and 0.01 ft.). Each map shall include a grid north, a true north, and a magnetic north arrow with the differences between them in degrees, minutes, and seconds shown. Grid lines or tic marks at systematic intervals with their grid values shall be shown on the edges of the map. Also, a legend showing the standard symbols used for the mapping and a map index showing the site in relationship to all other sites within the boundary lines of the project area shall be shown. The coordinates for the grid corners shall be shown to the closest one-foot (1.0 ft.), but may require greater accuracy to meet geophysical mapping and re-acquisition requirements. The locations of individual recovered MEC items shall be plotted and identified on the maps as needed.

2. Digital Design Data.

2.1 General Design File Requirements. An overall planimetric design file shall be created and shall be digitized into a Microstation ". dgn" file at an elevation of zero. If contours and spot elevations are required, all data shall be digitized into a second Microstation 3D design file with each element (contours and spot elevations) at their correct elevation, and topologically triangulated network (ttn) files shall be created to model the topographic surface. The ttn file shall be created using the elements of the topographic file, and all spot elevations, contours, and break lines necessary to create the ttn file shall be used. The ttn file shall be created so that it can be used in an Intergraph software product INROADS to recreate the contours at their exact locations. Referencing the planimetric and contour files from additional Microstation work files shall create cut sheet plots, and views into the project data.

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2.2 Each sheet shall be a standard metric A-1 size drawing, which is 841 mm by 594 mm (33.1 inches by 23.4 inches). Each sheet shall also have a standard border; revision block; title block; complete index sheet layout; bar scale; legend; grid lines or grid tic layout in feet or meters; a True North, a Magnetic North and a Grid North arrow, with their differences shown in degrees, minutes, and seconds; and shall be plotted at the horizontal scales required. The Contractor's name shall not dominate the title block and sheet border. The contractor shall not place a company logo on project documents. The standard A-1 sheet size title block and border define the text size, location, and format. Printed copies of the report may use this same layout, but produce in a sheet size of 11" x 17" inch for inclusion into the printed report.

2.3 All associated cell, reference, or attachment files shall be attached and provided with the digital data set along with all other supporting files or data. All production and work files shall be fully documented into a concise data manual. This manual shall include all specific information required for an outsider to be able to recreate all products and determine the location, names, structures, and association of the data such as layer description, weights, colors, symbology, referencing of files, etc. This manual shall be included as an ASCII file titled READ.ME that is included with all distributed digital data.

2.4 No digital data will be acceptable until proven compatible with the USAESCH Software Systems. All revisions required to obtain compatibility with the USAESCH Software Systems shall be done at the Contractor's own expense.

3. FINAL Electronic Submittals

3.1 All final delivery/task order document files (e.g., site specific reports, qc logs, photos, maps, etc.) generated throughout the delivery/task order shall be provided to USAESCH in Microsoft Office 2007 or higher software and also in Adobe Portable Document Format (PDF). Products shall be suitable for viewing, without modification, on the Internet. Freeware versions of Adobe Acrobat Reader and Internet Explorer, as appropriate, shall accompany the document files on DVD-ROM so that the user can use the DVD to either install the programs and documents on a machine, or use the DVD in a standalone mode to view the document files.

3.2 All FINAL spatial data generated by this contract and individual Task Orders shall be provided in ESRI's geodatabase format at the close of the project, as well as in the proprietary format used for the execution of the project (.dgn, .dxf, .kml, .shp, .gdb, etc.). Also, all individual ESRI map documents (.mxd) shall be provided with the accompanying spatial data. All data shall conform to the Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE), and as outlined in the specific task order. All in-progress and fielded GIS data, design drawings, survey data, relational databases, geophysical data, spreadsheets, text files and other related data may be required to be available on line to the Government by HTTP, HTTPS, or FTP download or by web based GIS services as specified for the project. All FINAL GIS data submittals will be supplied on Microsoft Windows 7 compatible DVD-ROM or ACE IT approved external hard drive. Each submittal shall be accompanied by a freeware viewer application appropriate for reviewing the GIS data (e.g ArcReader for ESRI format data files). At a minimum, the contractor will supply instructions for loading the data and viewer application. No other additional software shall be required, and no data modification shall be required for viewing the submittal. Other specific packages to be considered must be proposed to USAESCH for approval and for system and mission compatibility.

3.3 Final Electronic Submittal: All data, as referenced above, shall be submitted electronically on Microsoft Windows 7 compatible DVD-ROM or ACE IT approved external hard drive. All data items will be delivered, and the specific timeframe for delivery will be specified within each Task Order PWS. Each DVD or external hard drive required for a complete electronic submittal shall be labeled appropriately with Project Name, Project Number, effective date of submittal, Contractor Name, and

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appropriate disk number or sequential reference. At a minimum, one copy of the Final Electronic Submittal shall be made to the program/project manager of the delivery/task order, and a separate, single copy of the Final Electronic Submittal shall be made to CEHNC-EDC-D (GIS) for archival and loading into existing USAESCH GIS. The task order SOW may provide further directions on Final Electronic Submittal Requirements.

3.4 The Spatial Data Standard for Facilities, Infrastructure and Environment (SDSFIE) is now recognized as an enterprise standard across the entire Department of Defense business mission area. As such, it is being managed by the Defense Installations Spatial Data Infrastructure (DISDI) Group. The DISDI Group is a formal governance group reporting to the Department of Defense's Installations & Environment Investment Review Board. It is chaired by the DISDI Program Manager and made up of leaders from each of the Services' programs for Installation Geospatial Information and Services (IGI&S) as well as the U.S. Army Corps of Engineers. Although tailored to Department of Defense needs, our federal, state, and local stakeholders are welcome to use the standard and help us mature it in future releases.

3.4.1 The Feature Classes, Layers, and Attributes are extremely robust and therefore cannot be listed specifically in a table. All requirements, tools, and POCs for SDSFIE can be found at the following URL: <http://www.sdsfieonline.org/> Contractors should reference this site and its associated tools to facilitate the development and structure of GIS data to be submitted. The Feature Classes, Layers, and Attributes are too varied and complex to list in a single table for all phases of all projects awarded by the Corps of Engineers. Attachment A gives a sample of a MMRP SI SDSFIE Table as a guide. The SDSFIE website contains a downloadable, blank data model of all feature classes, which may be of value in the development of expanded SI, RI/FS, RA, TCRA, or other environmental assessments, ground water sampling, chemical analyses, or other varied sampling and clearance efforts.

4. Electronic reference URLs:

- a. **Spatial Data Standard for Facilities, Infrastructure & Environment** – <http://www.sdsfieonline.org/>
- b. **ESRI Software** – <http://www.esri.com>

5. End of DID HNC-006.01.

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Attachment A
GIS Requirements / Formatting
MMRP GIS Entity Set

| SDSFIE Feature Name | SI Outline | Type | Entity Set | Definition | Priority |
|--------------------------------|--------------------|---------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| acquisition_boundary_area | Section 2 | Polygon | cadastre | The outside boundary of all land obtained in fee acquisition. | 3 |
| approx_boundary_point | Field Generated | Point | boundary | point but an approximate location of something. | F1 |
| aquifer_area | Section 5 | Polygon | hydrography | An area of subsurface water bearing stratum, sand or gravel. | 1 |
| aquifer_recharge_area | Section 5 | Polygon | hydrography | An area that is a source of water for an aquifer. | 3 |
| building_env_concern_site | Section 2 | Point/Polygon | environmental_hazards | Site of building or structure which contains one or more buildings. | 2 |
| building_floor_area | Section 2 | Polygon | buildings | The space within the floor outline, the perimeter, or the building footprint. | 2 |
| chem_waste_pol_sediment_area | Section 6 | Polygon | environmental_hazards | Area where chemical waste residues are present in the sediment. | 5 |
| chem_waste_polluted_air_area | EPA Regulated Area | Polygon | environmental_hazards | Area where chemical waste residues are present in the air at concentrations considered to be detrimental to the environment. | 5 |
| chem_waste_polluted_gwt_area | Section 5 | Polygon | environmental_hazards | Area where chemical waste residues are present in the groundwater at concentrations considered to be detrimental to the environment. | 5 |
| chem_waste_polluted_soil_area | Section 3 | Polygon | environmental_hazards | Area where chemical waste residues are present in the soil at concentrations considered to be detrimental to the environment. | 5 |
| chem_waste_polluted_swt_area | Section 6 | Polygon | environmental_hazards | Area where chemical waste residues are present in the surface water at concentrations considered to be detrimental to the environment. | 5 |
| chemical_warfare_waste_area | Section 2 | Polygon | environmental_hazards | Area where chemical warfare waste residues are present or buried in the water, soil, or sediment. | 5 |
| cult_probable_sensitive_site | Section 2 | Polygon | cultural | A site suspected to contain archeological or historic resources that has not been verified by a detailed archeological study. | 1 |
| cultural_restricted_area | Section 2 | Polygon | cultural | An area that needs to be preserved due to the sensitive nature of the archeological or historic site. The area designated as is intended to prevent access or development that will disturb the site. | 1 |
| cultural_study_site | Section 2 | Point/Polygon | cultural | A site under study for archeological or historic resources. | 2 |
| cultural_survey_site | Section 2 | Point/Polygon | cultural | A site where detailed investigation has been conducted for cultural resources. This investigation could involve test pits, excavation areas, surface surveys, etc. | 2 |
| dod_formerly_used_defense_site | Section 2 | Point/Polygon | environmental_hazards | A site which was formerly owned or used by the Department of Defense which has been identified for assessment/ investigation/remediation under the Defense Environmental Restoration Program - Formerly Used Defense Sites (DERP-FUDS) which may or may not have an active environmental restoration study or project. | 4 |
| dudded_impact_buffer_area | Section 2 | Polygon | military_operations | An area around a non-dudded impact area where access is restricted for safety reasons. | 3 |
| dudded_impact_site | Section 2 | Point/Polygon | military_operations | A contaminated site that has been investigated and determined to contain, or potentially contain, some abandoned or unexploded ordnance materials. Investigated geomagnetic anomalies can suggest potential presence of UXO. An area where munitions impact but do not detonate - leaving a "dud" or unexploded ordnance. | 3 |
| ecology_habitat_site | Section 2 | Point/Polygon | ecology | Location that supports a particular ecological community or population set. | 1 |
| ecology_management_site | Section 2 | Point/Polygon | ecology | Ecology management areas including ecoregions. | 1 |
| ecology_species_site | Section 2 | Point/Polygon | ecology | Location at which a species has been or is being observed and counts or other population observations may have been made. | 1 |

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Attachment A
GIS Requirements / Formatting
MMRP GIS Entity Set

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|--------------------------------|-----------|---------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|
| env_field_sample_loc_point | Section 3 | Point | environmental_hazards | The physical location at which one or more environmental hazards field samples are collected. | F1 | |
| env_regulated_facility_site | Section 2 | Point/Polygon | environmental_hazards | A facility or other locational entity, (as designated by the Environmental Protection Agency) that is regulated or monitored because of environmental concerns. | 3 | |
| environmental_restoratr_n_site | Section 2 | Point/Polygon | environmental_hazards | A geographic area where an active environmental study or project is underway to remediate pollutants located in the soil, sediment, surface water, or groundwater. | 3 | |
| essential_fish_habitat_area | Section 2 | Polygon | ecology | Essential fish habitats (EFH) are those regulatory defined waters and substrate necessary for fish for spawning, breeding, feeding, or growth to maturity. | 1 | |
| fauna_special_species_site | Section 2 | Point/Polygon | fauna | A site or location where the specific species associated with the habitat require special attention according to law. These are normally threatened, sensitive, or endangered species habitats. | 1 | |
| fauna_species_site | Section 2 | Point/Polygon | fauna | A site or location where a specific species is observed. | 1 | |
| fauna_study_area | Section 2 | Polygon | fauna | A geographic area created for the study of fauna. | 1 | |
| fence_line | Section 2 | Line | improvement | The line, along which, a fence has been erected. | F1 | |
| firing_fan_area | Section 2 | Polygon | military_operations | Imaginary surface angled at a degree consistent with the type of weapon discharged, normally 38 degrees emanating from the firing point along the firing line. | X | |
| firing_lane_area | Section 2 | Polygon | military_operations | The designated hazard area parallel to either side of the firing line. | 3 | |
| firing_line | Section 2 | Line | military_operations | The designated hazard area that follows the projected trajectory of a munition. | 3 | |
| firing_site | Section 2 | Point/Polygon | military_operations | The designated point or area within a firing lane and firing fan where the weapon is discharged or fired - usually the point of convergence of firing fan. | 3 | |
| flood_contour_line | Section 6 | Line | hydrography | A line representing the limit or extent of probable flooding associated with the area. | 1 | |
| flood_zone_area | Section 6 | Polygon | hydrography | An area where statistically derived flood inundation may exist within a specific return period, i.e. 100 year or 500 year chance of flooding, for insurance and floodplain management purposes. | 1 | |
| flora_special_species_mgt_area | Section 2 | Polygon | flora | The area containing a threatened, endangered, or rare flora species. | 1 | |
| flora_special_species_site | Section 2 | Point/Polygon | flora | A site or location where there are threatened, endangered, invasive, or sensitive floral species. | 1 | |
| flora_species_management_area | Section 2 | Polygon | flora | A location where rare, threatened, endangered, etc. flora species are managed. | 1 | |
| flora_species_site | Section 2 | Point/Polygon | flora | The specific location where an individual flora species or an aggregate of flora species has been identified. | 1 | |
| flora_study_area | Section 2 | Polygon | flora | A geographic area created for the study of flora. | 1 | |
| future_projects_landuse_area | Section 2 | Polygon | future_projects | This feature describes man's categorization of the proposed use of land and water. | 1 | |
| future_projects_line | Section 2 | Line | future_projects | Site specific general linear features within a potential future construction project or activity. | 2 | |
| future_projects_site | Section 2 | Point/Polygon | future_projects | Site specific general area and point features within a potential future construction project or activity. | 2 | |
| gov_wildlife_management_area | Section 2 | Polygon | fauna | An area either owned by federal, state, or local governments or government agencies specifically identified for management or preservation of wildlife. | 1 | 6 |

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|-------------------------------|-----------|---------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|
| hab_of_part_concern_area | Section 2 | Polygon | ecology | Habitat areas of particular concern (HAPC) are subsets of essential fish habitats (EFH) areas that are identified to be especially important ecologically or particularly vulnerable to degradation requiring additional focus or conservation. | 1 | |
| hazardous_waste_disposal_area | Section 2 | Polygon | environmental_hazards | A location which has been used for the disposal of hazardous waste (e.g., pit, buried drums, etc.). | 2 | |
| historic_district_area | Section 2 | Polygon | cultural | A group of related buildings or streetscapes that demonstrate the historical development of an area. | 2 | |
| historic_feature_site | Section 2 | Point/Polygon | cultural | Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc. | 1 | |
| historic_impact_area | Section 2 | Polygon | military_operations | An impact area, dudged or non-dudged, no longer in use which may pose potential risk. | 3 | |
| installation_historical_area | Section 2 | Polygon | cadastre | An area of land and water which depicts a prior DoD installation boundary. | 1 | |
| land_use_area | Section 2 | Polygon | land_status | This feature describes man's categorization of the use of land and water. | 3 | |
| land_vegetation_area | Section 2 | Polygon | flora | A discrete area where land flora has been classified. | 1 | |
| landfill_cell_area | Section 2 | Polygon | environmental_hazards | Excavated or constructed receptacle used for the disposal of solid waste. | 3 | |
| mil_bomb_circle_target_area | Section 2 | Polygon | military_operations | A precision bomb circle used in training on military ranges or exercise areas. | 3 | |
| mil_special_use_airspace_site | Section 2 | Point/Polygon | military_operations | Special use airspace (SUA) is a three-dimensional region of airspace for activities which must be confined because of their nature. Limitations may be imposed upon aircraft operations that are not a part of the airspace activities. Special use airspace includes any associated underlying surface and subsurface training areas. The types of SUA are Alert Area, Controlled Firing Area, Military Operating Area (MOA), Prohibited Area, Restricted Area, and Warning Area. | X | |
| mil_surface_danger_zone_area | Section 2 | Polygon | military_operations | Areas where live or inert ordnance impact the earth after being dropped from aircraft, fired from ground-based artillery, or fired from shipboard guns. Part of the entire military live fire range area. | 3 | |
| military_range_area | Section 2 | Polygon | military_operations | (40 CFR 266.201) A designated land or water area set aside, managed and used to conduct research on, develop, test, and evaluate military munitions and explosives, other ordnance, or weapon systems, or to train military personnel in their use and handling. Ranges include firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, and buffer zones with restricted access and exclusionary areas. The definition of a military range does not include airspace used for training, testing, or research and development where military munitions have not been used. | 3 | |
| non_dudged_impact_area | Section 2 | Polygon | military_operations | A medium risk area where explosive munitions land after firing. | 3 | |
| non_dudged_impact_buffer_area | Section 2 | Polygon | military_operations | An area surrounding a non-dudged impact area where access is restricted for safety risk reasons. | 3 | |
| oe_anomaly_point | Section 3 | Point | environmental_hazards | Location where a suspected Ordnance and Explosives (OE) Waste related geophysical anomaly has been identified. Also stores information about subsequent reacquisition and excavation of the anomaly (DIG RESULTS). | 1 | |

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|--------------------------------|-------------------------|---------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|
| oe_grid_area | Section 3 | Polygon | environmental_hazards | A defined gridded area in which the presence of Ordnance and Explosives Waste (OE) contamination is being, or has been investigated. | 1 | |
| oe_hazard_concern_site | Section 3 | Point/Polygon | environmental_hazards | A site of known or suspected ordnance and explosive (OE) waste contamination. | 1 | |
| oe_hazard_invest_sector_area | Section 3 | Polygon | environmental_hazards | A homogeneous area within an oe_hazard_concern_area for which the same method of investigation can be applied. Usually subdivided into Investigation Grids. | 1 | |
| oe_hazard_invest_transect_line | Section 3 | Line | environmental_hazards | A ordnance and explosive (OE) waste geophysical investigation transect line, typically part of a grid investigation or a meandering path investigation. | 1 | |
| oe_hazards_rac_score_area | Section 2 | Polygon | environmental_hazards | A ordnance and explosive (OE) waste geophysical investigation area which has been evaluated and assigned a Risk Assessment Code (RAC) score. | 1 | |
| oe_item_point | Section 3 | Point | environmental_hazards | A ordnance and explosive (OE) location where actual OE items, including OE scrap, UXO, and CWM-related items, were recovered. | 1 | |
| ordnance_explosive_waste_area | Section 2 & 3 | Polygon | environmental_hazards | Area where ordnance and explosive waste residues are present or buried in the water, soil, or sediment. | 1 | |
| parcel_acquisition_area | Potentially Sec. 2 | Polygon | cadastre | Tract boundaries for all land obtained in parcel acquisitions. (fee and less-than-fee). | 3 | |
| parcel_area | Potentially Sec. 2 | Polygon | cadastre | A single cadastral unit, which is the spatial extent of the past, present, and future rights and interests in real property and the geographic framework to support the description of the spatial extent. | 3 | |
| photograph_location_point | Field Generated | Point | common | The location where the photograph is taken. The camera location. | F1 | |
| rad_waste_pol_sediment_area | Section 6 | Polygon | environmental_hazards | Area where radioactive waste residues are present in the sediment at concentrations considered to be detrimental to the environment. | 5 | |
| rad_waste_polluted_air_area | | Polygon | environmental_hazards | Area where radioactive waste residues are present in the air at concentrations considered to be detrimental to the environment. | 5 | |
| rad_waste_polluted_gwt_area | Section 5 | Polygon | environmental_hazards | Area where radioactive waste residues are present in the groundwater at concentrations considered to be detrimental to the environment. | 5 | |
| rad_waste_polluted_soil_area | Section 3 | Polygon | environmental_hazards | Area where radioactive waste residues are present in the soil at concentrations considered to be detrimental to the environment. | 5 | |
| rad_waste_polluted_swat_area | Section 6 | Polygon | environmental_hazards | Area where radioactive waste residues are present in the surface water at concentrations considered environmentally detrimental. | 5 | |
| rifle_mgmt_unit_site | Section 2 | Point/Polygon | environmental_hazards | A geographic area either currently or formerly used for rifle training activities which is managed and monitored for compliance with environmental laws and regulations. | 1 | |
| right_of_entry_area | Required for Field Work | Polygon | cadastre | An area where temporary access privileges have been negotiated. Normally associated with passage or entry required incident to a construction project. | 1 | |
| road_centerline | Section 2 | Line | transportation | The center of the roadway as measured from the edge of the paved surface. The segments of a road centerline will coincide with the road segments in order to have similar characteristics. | 1 | |
| soil_sample_point | Section 3 | Point | soil | Location of a soil sample taken to determine characteristics of soil. | F1 | |
| structure_existing_site | Section 2 | Point/Polygon | buildings | An existing structure that was created, by man, for occupation, storage, or to facilitate an activity. | 1 | |

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|------------------------|-----------------|---------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|
| superfund_site | Section 2 | Point/Polygon | environmental_hazards | Geographic area designated by the Environmental Protection Agency, where hazardous waste is either abandoned or uncontrolled, as mandated and defined by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). | 1 | |
| uxo_clearance_area | Section 2 and 3 | Polygon | military_operations | The area in which unexploded ordnance is disposed or removed. | 3 | |
| uxo_contamination_site | Section 2 | Point/Polygon | military_operations | The area in which unexploded ordnance is known or suspected to exit. | 1 | |
| water_intake_point | Section 6 | Point | utilities | The location where water is allowed into the water distribution system. | 3 | |
| water_management_area | Section 6 | Polygon | hydrography | Management area for environmentally sensitive water courses or bodies. | 1 | |
| water_well_point | Section 5 | Point | improvement | A shaft dug or drilled into the earth for the purpose of extracting water from subsurface aquifers, collecting groundwater environmental samples injecting water or other fluids into subsurface aquifers, or extracting contamination or other impurities from subsurface aquifers. | 1 | |
| well_field_site | Section 5 | Point/Polygon | improvement | An area containing natural resources wells for example oil or gas wells. | 3 | |
| wetland_area | Section 6 | Polygon | hydrography | Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. | 1 | |
| wilderness_area | Section 2 | Polygon | flora | Bounded land, virtually unsettled and uncultivated (natural); includes areas designated by an administrative group as wilderness, primitive, wild and scenic, or similar designations. Has use restrictions. | 1 | |