Attachment 3

OHARNG Specifications for Facility Management Electronic Data Deliverables

ATTACHMENT 3

INFORMATION PAPER

AGOH-DIMR
10 Mar 2014

SUBJECT: OHARNG Specifications for Facility Management Electronic Data Deliverables

1. **Purpose: Define formats for electronic files being delivered as part of facility construction, rehabilitation, or maintenance projects or special studies in support of base, facility, or property management**
2. **Effective Date: Immediately**
3. **References:**
   - **a.** Executive Order 12906, Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure - 11 Apr 1994
   - **b.** Federal Geographic Data Committee (FGDC), Content Standard for Digital Geospatial Metadata (CSDGM), version 2, FGDC-STD-001-1998
   - **c.** Federal Geographic Data Committee (FGDC), Geospatial Positioning Accuracy Standards Part 4: Standards for Architecture, Engineering, Construction (A/E/C) and Facility Management FGDC-STD-007.4-2002
   - **d.** DAIM-ZA, Data Standards for Geographic Information Systems (GIS) and Computer Aided Drafting and Design (CADD) and Related Technologies - 20 Apr 2005
   - **e.** Maintenance of National Geospatial Data Repository (NGDR) of Army National Guard (ARNG) Installations – 10 Feb 2003
   - **f.** Technical Report CADD-03, Contract Language Guidelines for Acquiring Geospatial Data (CADD, GIS, CAFM) System Deliverables From Architect-Engineer Consulting Firms – July 2003
4. **Point of Contact for this Information Paper is AGOH-FM, Dr. Joe Tack at (614) 336-7089, joseph.tack@us.army.mil**

COL Michael Ore, AGOH-DIMR

Attachment:
Specifications for Facility Management Electronic Deliverables

Distribution:

Ohio Army National Guard

Information Paper

Specifications for Facility Management Electronic Deliverables

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Section 1 Purpose and Objectives

This information paper specifies the format for electronic files being delivered as part of facility construction, rehabilitation, or maintenance projects or special studies in support of base, facility, environmental or property management. These paragraphs do not specify content or what electronic files should contain. The content represented, or specific data being collected should be specified separately in the scope of work. It is recommended that this document be made an attachment to all AE contracts.

Section 2 Data Specifications

2.1 Documents

Any maps, drawings, figures, sketches, databases, spreadsheets, or text files prepared shall be provided in both hard and digital formats. The hard copy deliverables and their distribution will be addressed in the scope of work.

2.2 Enterprise Software

Ohio Army National Guard uses standard enterprise software applications to create, edit, and manage electronic data. All electronic data deliverables created shall be delivered in a format compatible with the following applications:

Application	Software
Document Publishing	Adobe Acrobat 11.0
Office Productivity	Microsoft Office 2007
GIS	ESRI ArcView 10.2
CADD	AutoCAD 2013
BIM	AutoDesk Revit 2013

2.3 Text and Spreadsheets

Text and spreadsheet documents, both draft and final versions, shall be provided in a Microsoft Word 2007 format and Adobe Portable Document Format (PDF) to facilitate government review and retention. Spreadsheet files shall be provided in Microsoft Excel 2007 format.

2.4 Relational Databases

Relational databases shall be provided in MS Access 2007 format, unless otherwise specified, as approved by the government. Prior to database development, the contractor shall provide the government with technical approach documents for approval, which describe the contractor's technical approach to designing and developing the database. The technical approach document should detail table names and structures, relationships, and primary and foreign key fields in a graphical database map. Information regarding valid attribute values and formats shall be included as well.

2.5 Geographic Information Systems (GIS) Data Deliverable Standards

Geographic Information Systems data deliverables shall be specified in the scope or statement of work for projects that are generally not engineering design related such as real-estate, environmental studies, spatial analysis, or facility management.

2.5.1 Format

Digital geographic maps and the related data sets shall be delivered in either of the following formats: Personal Geodatabase format for ArcGIS 10.1 or ArcGIS Shapefile (.shp) format. PDF map versions shall also be developed to illustrate the data generated and analyses performed by the contractor.

2.5.2 Structure

GIS data shall be developed in a structure consistent with the "Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) Version 2.6. Prior to developing GIS data, the contractor shall prepare a technical approach document detailing the required feature datasets, relationships, attribution, and reference values.

Electronic copies of the SDSFIE can be obtained from the www.sdsfie.org website.

2.5.3 Minimum Content

GIS data should comply with minimum content standards established in the OHARNG GIS Quality Assurance Plans (QAPs). QAPs for each data layer are to be reviewed and incorporated into the data structure technical approach document.

2.5.4 Projection

All GIS data shall use the horizontal datum of NAD 83(86) UTM Zone 17N metric projection and the NAVD 88 metric vertical datum

2.6 Computer Aided Drafting and Design (CADD) Data Deliverable Standards

CADD data deliverables should be specified in the scope or statement of work for engineering related projects such as building design, site work, and construction layout.

2.6.1 Format

Digital CADD drawings and maps shall be delivered in AutoCAD compatible DWG files and as PDF files. Drawing sheets may be combined into a single PDF file for ease of retention and organization. The contractor shall ensure that all digital files and data (e.g. model files, reference files, and cell libraries) can be accessed directly by AutoCAD without translation, preprocessing, or post processing of the digital data files.

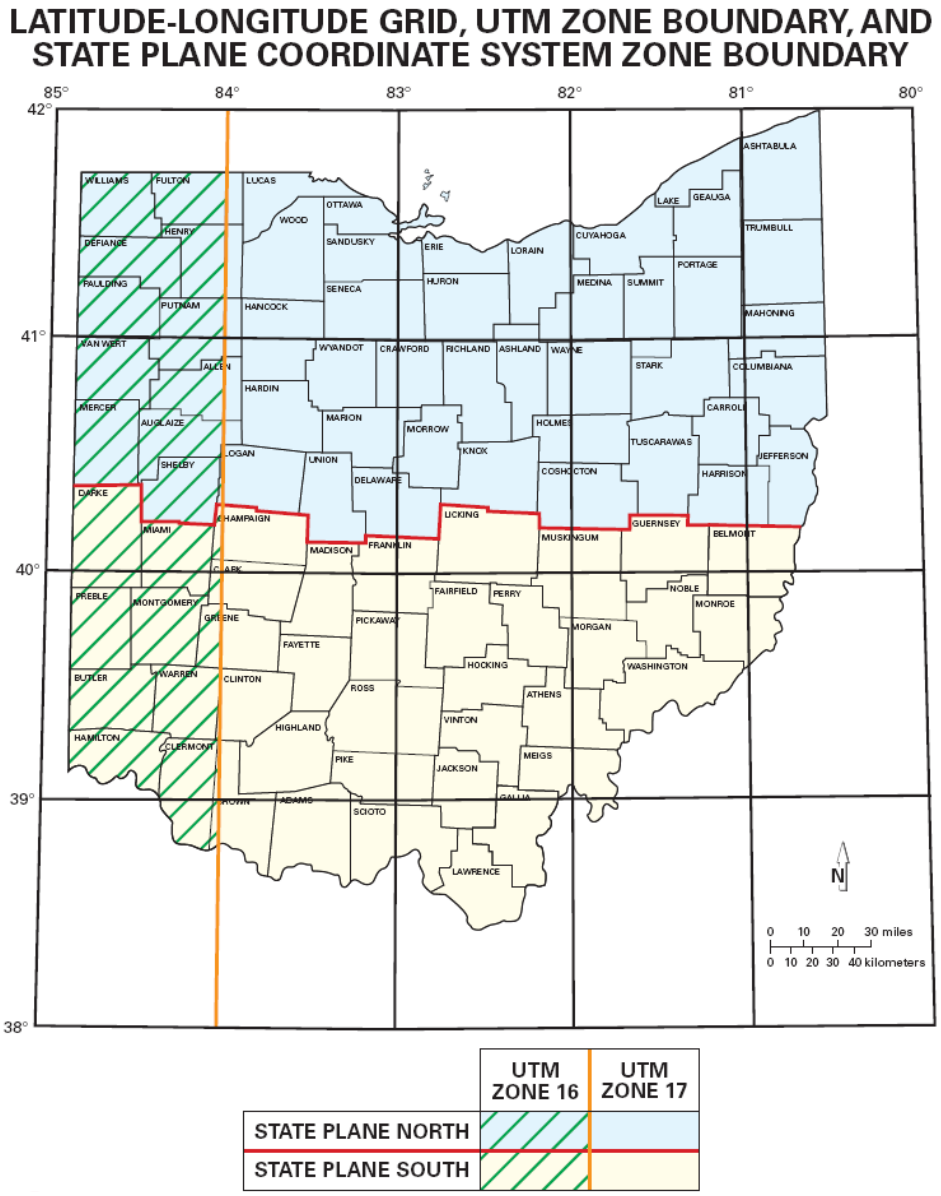
2.6.2 Structure

Data developed in a CADD format shall comply with the CAD BIM Technology Center A/E/C CAD Standard release 5.0. The A/E/C CAD Standard includes presentation graphics, level/layer assignments, electronic file naming, and standard symbology. Standard drawing size shall be ANSI E-Size, inch-pound working units, and the A/E/C CAD Standard file, sheet, model, and layer naming conventions shall be used.

The data standard can be downloaded from the Technology Center at their https://cadbim.usace.army.mil/CAD website.

2.6.3 Projection

All site CADD data shall use the Ohio State Plane Coordinate System NAD83(86) projection for horizontal coordinates and NAVD 88 for vertical coordinates in U.S. Survey Feet. The appropriate state plane system will be based on the county the facility is in. The state plane system to be used by county is shown in figure below.



2.7 Building Information Modeling (BIM)

BIM data deliverables should be specified in the scope or statement of work for engineering related projects such as building design, site work, and construction layout. The BIM Models shall be supplemented with CADD content as necessary to produce a complete set of construction drawings.

2.7.1 Format

Digital BIM Models shall be delivered in Revit compatible formats. USACE BIM Center has templates to develop consistent models. Model templates can be downloaded from: https://cadbim.usace.army.mil/Default.aspx. The submittals shall be fully operable, compatible, and editable within the native BIM tools.

2.7.2 Output

Drawings derived from the model shall be compliant with the above mentioned CADD standards.

2.8 Metadata

All geospatial data regardless of format shall have FGDC compliant metadata as detailed in FGDC-STD-001-1998. The metadata shall have all FGDC required metadata fields populated in detail. At a minimum, information regarding the name and description of the data, the source of the data, related data quality information such as accuracy and time period of content, the coordinate system and projection, description of the equipment or instruments used in data collection, the type of the data coverage (point, line, polygon, etc), the field names of all attribute data and a description of each field name, the definition of all codes used in the data fields, the ranges of numeric fields and the meaning of these numeric ranges, the creation date of the data, and the name and contact information of the creator.

The FGDC standards are downloadable from http://www.fgdc.gov.

2.9 Accuracy

Map or Drawing Scales and desired mapping accuracy shall be stated in the scope or statement of work and be in conformance of FGDC-STD-007.4-2002. Table A-3 of the FGDC standard states typical map scales for types of drawings and maps. Accuracy shall be stated in the metadata as specified in FGDC-STD-007.3-1998 using compiled to meet or tested accuracy statements for horizontal and if necessary vertical coordinates.

The FGDC standards are downloadable from http://www.fgdc.gov.

2.10 Deviations

The contractor shall submit a written request for approval of any deviations from the standards discussed in this information paper. No deviations from the government's standards will be permitted unless prior written approval of such deviation has been received from the government.

2.11 Data Transfer

All electronic data submittals shall be delivered on DVD or CD with read-only disk format. Each disk shall contain an ASCII text file labeled README.txt. This file will contain a description of the disks content (file names, data dictionary, file contents, etc.) and other information required by the government. The text file will clearly illustrate cross-referenced files used in CADD. The CD deliverables shall be permanently labeled and include at a minimum:

- The Contract Number (and Delivery Order Number if applicable)
- Review percentage
- Date
- Contractor contact information
- The name and version of software used for preparing the files
- The sequence of the digital media and the total number of digital media

2.12 Data Review

Digital data shall be included for review of the draft and final contract submittals. The reviews shall be performed on government computer systems with standard software. Data shall be analyzed for subject content, system compatibility, and standards adherence. Prior to approval of the final submittal, the contractor shall incorporate review comments to data and text.

For GIS and database deliverables, the government shall review the data structure and may make recommendations on changes necessary to the structure prior to acceptance of data for subject content, system compatibility, and standards adherence. Prior to approval and acceptance of the final submittal, the contractor shall incorporate review comments to data and text. The contractor will incorporate the necessary changes to data until the data meets the appropriate standards of acceptability.

Section 3 Ownership

The government, for itself and such others as it deems appropriate, will have unlimited rights to all information and materials developed and furnished to the government and documentation thereof, reports, and listings, and all other items pertaining to the work and services pursuant to this agreement including any copyright. Unlimited rights are rights to use, duplicate, or disclose text, data, drawings, and information, in whole or in part in any manner and for any purpose whatsoever without compensation to, or approval from, the contractor. The government will at all reasonable times have the right to inspect the work and will have access to and the right to make copies of the above-mentioned items. All text, electronic digital files,

data, and other products generated shall become the property of the government. By reference, the following DFAR clauses are included in this information paper as a part of the requirements herein:

- DFAR 252.245-7000, "Government-Furnished Mapping, Charting, and Geodesy Property."
- DFAR 252.227-7013, "Rights in Technical Data – Noncommercial Items."
- DFAR 252.227-7014, "Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation."
- DFAR 252.227-7017, "Identification and Assertion of Use, Release, or Disclosure Restrictions."
- DFAR 252.227-7020, "Rights in Special Works."
- DFAR 252.227-7025, "Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends."
- DFAR 252.227-7028, "Technical Data or Computer Software Previously Delivered to the Government"
- DFAR 252.227-7037, "Validation of Restrictive Markings on Technical Data."