

**Marine Corps Base  
Quantico  
IGI&S Data Management Plan  
Version 1.1 Aug. 2009**



*Prepared by the MCB Quantico IGI&S Office*

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## 1.0 Purpose

The GEOFidelis Data Management Guide has been developed to facilitate accomplishing the policy and goals set forth in Marine Corps Order 11000.25, Installation Geospatial Information and Services. Marine Corps Order 11000.25 provides policy, guidance and standards for acquiring, utilizing and implementing Marine Corps Installation Geospatial Information and Services (IGI&S), also referred to as GEOFidelis, in support of Marine Corps installation management. This guide is in compliance with Executive Order 12906, “Coordinating Geographic Data Acquisition and Access”, and with the National Spatial Data Infrastructure and Office of Management and Budget's (OMB) Circular A-16, “Coordination of Geographic Information and Related Spatial Data Activities.”

The GEOFidelis Data Management Guide will provide technical guidance and procedures to meet Marine Corps Order 11000.25 directives and the guidance set forth in the Commandant of the Marine Corps (CMC) document titled, *Guidance Regarding Implementing Geospatial Information Systems (GIS), Computer Aided Design And Drawing (CADD) And Related Technologies For Installation Management* (15 April, 2003). The referenced document dictates, “Each Marine Corps installation will have a geospatial information system (GIS) that provides precise and reliable information at the installation and enterprise level.” IGI&S is a necessity in a variety of applications that support the Marine Corps Installation 2020 vision, such as land management, facility planning, environmental compliance, base operations, military training, and other management processes. The GEOFidelis goal is to ensure that United States Marine Corps (USMC) installation geospatial data is complete, accurate, current, and made available as a USMC-wide resource.

## 2.0 Roles and Responsibilities

Marine Corps Order 11000.25 has established detailed roles and responsibilities covering all levels of IGI&S management. This document details the roles and responsibilities defined to provide a series of checks and balances for USMC IGI&S geospatial data management policy, compliance, and overall quality assurance.

### 2.1 HQMC GEOFidelis Program Manager

The *GEOFidelis* GIO, as appointed by Headquarters Marine Corps, Installations and Logistics Department, Facilities and Services Division (HQMC IL/LF) with leadership and oversight responsibilities for *GEOFidelis*, will oversee the *GEOFidelis* Program; implement policy and guidance required by Marine Corps Order 11000.25. The *GEOFidelis* GIO will provide the leadership, functional advocacy, central direction and oversight for implementing and utilizing IGI&S to support Marine Corps installation management. The *GEOFidelis* GIO will establish goals, policies, guidance and standards for *GEOFidelis* including, but not limited to, data management, data accuracy, data security, data sharing and metadata.

The *GEOFidelis* GIO responsibilities include:

- Serve as functional liaison and geospatial representative to DoD and other government agencies
- Participate in geospatial policy and standards development ensuring *GEOFidelis* goals and strategies are in compliance with DoD and Federal geospatial policy
- Coordinate geospatial policy acceptance and incorporation for *GEOFidelis*
- Coordinate with HQMC Departments to ensure business process integration and elimination of redundant data holdings
- Select, approve, and sponsor accreditation of software and applications that will benefit *GEOFidelis* data management and quality assurance

### 2.2 GEOFI -East Center

The *GEOFidelis* Regional GIO, as appointed by Regional Commanders with installation management responsibilities, will oversee the regional command's IGI&S efforts responding to directives defined by the *GEOFidelis* GIO. The Regional GIO will provide expertise to the regional commander, and ensure the implementation, at the region and installation level of all *GEOFidelis* standards, policies and procedures. The Regional GIO will develop a regional data management plan to ensure proper data acquisition, sustainment, and quality assurance of all geospatial data assets maintained by USMC installations that comprise their region. The Regional GIO shall implement the policy and guidelines for IGI&S capability across their respective areas of responsibility

according to guidelines established by the *GEOFidelis* GIO.

The *GEOFidelis* Regional GIO responsibilities include:

- Review and approve Data Management Plans for each installation in their region
- Establish quality control and quality assurance plan guidelines for integration at each installation within their region
- Gather requirements from their region's IGI&S Managers; Submit recommendations to the *GEOFidelis* GIO
- Develop quantitative procedures and reports to ensure geospatial data quality control and quality assurance at the installations
- Coordinate training to address limitations and meet the requirements of installations within their region
- Integrate approved software and applications
- Manage geospatial data requests as directed by the *GEOFidelis* GIO or when specific to their region

### **2.3 Installation Sponsor**

The Installation Sponsor as appointed by the Installation Command will oversee the Installation's Command's IGI&S efforts responding to directives defined by the *GEOFidelis* GIO. The Installation Sponsor will also act as the liaison to the Command and the GIO for all *GEOFidelis* Installation Program adherence; and the local command support representative for funding when required.

### **2.4 IGI&S Manager**

The Installation GIS Manager, as appointed by the Installation Command, will oversee their installation's IGI&S effort. The IGI&S Manager will provide stewardship of the installation's facility, infrastructure, and environmental geospatial data. The IGI&S Manager shall coordinate with their Regional GIO to develop an installation data management plan to ensure proper data acquisition, sustainment and quality assurance of all geospatial data assets is maintained.

The IGI&S Manager responsibilities include:

- Chair the Installation GIS Working Group
- Coordinate IGI&S data responsibilities
- Coordinate the implementation of standards and policies
- Overall responsibility for maintaining, protecting, stewarding, and sharing their geospatial data and functional information assets
- Create and maintain installation's geospatial data management plan
- Create and maintain installation's geospatial quality assurance plans
- Improve management and quality assurance of GIS data
- Ensure that all *GEOFidelis* required metadata elements are accurate and complete for the installation's GIS data
- Participate in Regional GIS Working Group

## **2.5 Data Subject Matter Expert (SME)**

Each IGI&S Manager will identify and coordinate with each SME that possesses a stake in the Installation's GIS data. Subject Matter Experts are responsible for a particular function or resource on an Installation. In the development of GIS data, an SME is a person who is knowledgeable about the domain or field being represented. The SME may not be knowledgeable of GIS or the technology used to represent geospatial data. For example, a Wetland Biologist understands the wetlands delineation process and the compliance requirements for its management, but may not have the experience to create the data layer in GIS. The SME coordinates with the IGI&S Manager and GIS Specialists on what data needs to be captured what accuracy level is needed to support management decisions. The SME may interact directly with the data, possibly through a simplified interface, or may assist in developing, documenting, and validating the data for use by others. SME involvement in geospatial data matters will create an organizational partnership to ensure data integrity.

The data SME is responsible for assuring that data is properly attributed and collected to meet their needs and the requirements of the business process. The SME will review sources for data collection and conversion to assure the most current data is captured.

The Data SME responsibilities include:

- • Ensure geospatial data meets business area requirements
- • Identify datasets to be collected to support business processes
- • Ensure geospatial data meets SME professional practices and standards
- • Coordinate contract and acquisition efforts with the IGI&S Manager
- • Review project deliverables to ensure that the geospatial data are returned in a useable and compliant form
- • Review all relevant metadata, especially the abstract and attribution

## **2.6 Data Editor**

IGI&S data editors work closely with each SME or data steward. In some cases, the SME may edit and maintain their own data layers. In other cases, an SME may delegate editing responsibilities but will oversee and approve data content that was edited on their behalf. Each editor of geospatial data will ensure compliance with *GEOFidelis* geospatial data policy and procedures as defined in this guide.

The Data Editor responsibilities include:

- Document all required elements in the metadata
- Ensure that the most accurate data source, as provided by the SME, is used in editing, collection, and creation of geospatial layers
- Minimize error when registering source material
- Apply *GEOFidelis* quality assurance and quality control procedures

## 2.7 Data Consumer

The Data Consumer will include all users of the GEOFidelis Portal, contractors, local and remote municipalities and all other requesters with an official requirement. To include all Marine Corps personnel, civilian as well as military with proper gov't access. The Data Consumer will act as the last line for Quality Assurance for data provided. Any discrepancies noted by the Data Consumer should be reported through the GEOFI Portal using the appropriate posted procedures.

## 3.0 GEOFidelis Data Standards & Metadata

GEOFidelis policy and practices related to geospatial data standards, collection, and maintenance, detailed herein, ensure compliance with government and industry standards; maximize interoperability in support of USMC business process integration and aid in eliminating poor spatial data practices.

Spatial data has an inherent risk of error and uncertainty. MCB Quantico personnel need to understand the factors that place limitations on the positional accuracy of their spatial data in order to appropriately use the data. Effective spatial data management, to minimize the effects of error and uncertainty, requires several factors be implemented including:

### Professional Culture

Foster the development of a culture within GEOFidelis operations that encourages competence, conscientiousness, and the ownership of spatial data, while taking action to limit the human factors that affect the quality of spatial data.

### Procedures

Develop, monitor and enhance appropriate procedures to ensure that data is captured, managed and utilized appropriately and that work is performed consistently.

### Quality

Implement appropriate quality assurance procedures to monitor and check that work is performed to the desired standard and that spatial data captured or manipulated is of a suitable quality.

### Documentation

Implement the appropriate level of Metadata to document and describe each individual spatial entity.

## 3.1 Geospatial Data Standards

The GEOFidelis Data Model is the standard for all MCB Quantico geospatial data. The GEOFidelis Data Model is maintained by the GEOFidelis GIO and is compliant with DoD policy and standards. Based on the Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) geospatial data standard, the GEOFidelis Data Model was developed to maintain a common USMC IGI&S data standard that provides all USMC installations with a common interpretation of a core set of data layers and



attributes. MCB Quantico has implemented the *GEOFidelis* Data Model to enhance interoperability and enterprise integration. The MCB Quantico IGI&S Manager will keep the installation apprised of proposed changes and potential impacts from future model modifications or additions.

### **3.1.1 GEOFidelis Common Installation Picture (CIP)**

The *GEOFidelis* Common Installation Picture (CIP) is a defined dataset of geospatial layers and imagery that create the core USMC installation base map. These datasets are the most common layers utilized in all aspects of IGI&S mapping and by all functional areas. The *GEOFidelis* CIP provides the baseline upon which other data layers can be integrated to support the functional areas, missions, and processes. The CIP data is the minimal required geospatial data for each installation and will provide the geospatial foundation for USMC installations and support the regional Common Operational Picture (COP), therefore the CIP data has a higher priority when collecting or maintaining these data sets. The datasets that comprise the CIP are a subset of the *GEOFidelis* Data Model and are published in version 1.0 of the *GEOFidelis* Data Model document or subsequent releases.

### **3.1.2 Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE)**

The standard for all geospatial data in the *GEOFidelis* Program is the US Army Corps of Engineers (USACE) Data Standards for Facilities, Infrastructure, and Environment (SDSFIE). The SDSFIE is the basis upon which the *GEOFidelis* Data Model was created. *GEOFidelis* operations will reference the SDSFIE to meet functional area requirements and the *GEOFidelis* GIO will ensure common requirements are captured in the *GEOFidelis* Data Model. When additional data layers are required that are not included in the *GEOFidelis* Data Model, those additional layers are required to be SDSFIE compliant. The IGI&S Manager will represent the installation's interests in all Regional discussion regarding the SDSFIE organizational structure that determines the strategic direction and implementation of the SDSFIE standards.

### **3.1.3 Accuracy Standards**

MCB Quantico will meet the spatial data accuracy outline in MCO 11000.25 and the *GEOFidelis* Data Management Guide. The IGI&S Manager will maintain a copy of these documents and distribute as needed.

### **3.1.4 Geospatial Data Collection**

MCB Quantico geospatial data is obtained through a variety of methods. Examples of data collection include, but are not limited to, CADD, Global Positioning Systems (GPS), conversion of source data (hardcopy or digital), spatial adjustment, digitizing, scanning, coordinate geometry (COGO), digital orthophotography and satellite imagery, and Light Detection and Ranging (LIDAR). Whether data is collected by staff, acquired by the *GEOFidelis* GIO for IGI&S, contracted through GIS specific projects, or obtained through functional area projects, all geospatial data created or maintained for *GEOFidelis* must meet the requirements of this plan.

#### **3.1.4.1 MCB Quantico Geospatial Statement of Work Specifications**

Geospatial data is used to support many planning and infrastructure projects at MCB

Quantico. The IGI&S Manager will assure that any contract, concerning MCB Quantico and its outlying fields and ranges, which potentially include the use, development, or improvement of geospatial data, will have that data delivered to the IGI&S office (Facilities Systems Services Office) for inclusion into MCB Quantico's GIS. Additionally, the *GEOFidelis* GIO and the East Coast *GEOFidelis* Regional GIO will utilize these specifications for any USMC-wide or Regional contracting effort. Appendix C includes text that will be used in any applicable Statement of Work. The IGI&S Manager will coordinate with the SME and the Contracting Office to assure the text is incorporated into the contracting process and to alert the Facilities Systems Services Office of any contracts and Statements of Work that may have a geospatial component.

### **3.2. Metadata**

Metadata is a vital component of geospatial data management. Metadata provides information about an MCB Quantico data and data catalogue. From a data management perspective, metadata maintains the *GEOFidelis* investment in spatial data. Metadata benefits MCB Quantico in the following ways:

- Provides an inventory of data assets.
- Determine and maintain the value of data.
- Determine the reliability and currency of data.
- Supports decision making and cost savings.
- Documents licensing issues.
- Documents data accuracy.
- Improves acquisition by providing clearer understanding of when or if data needs to be updated.

Implementing spatial metadata standards and procedures is required. MCB Quantico will maintain metadata for all geospatial (vector and raster) data and sustain these records as geospatial data is updated as outline in MCO 11000.25 and the *GEOFidelis* Data Management Guide. The IGI&S Manager will implement the standards presented in the *GEOFidelis* Data Management Guide and ensure that metadata is current and accurate for their installation's geospatial data.

## **4.0 Geospatial Data Life Cycle Management**

*GEOFidelis* will ensure that geospatial data is acquired, maintained, and managed consistently across the USMC installations and that the data is thoroughly checked in accordance with quality control and assurance procedures and standards.

### **4.1 IGI&S Data Maintenance Plan**

This document is the MCB Quantico IGI&S Data Management Plan which details procedures for data acquisition, maintenance, review, and archiving. Data maintenance procedures will leverage the roles and responsibilities as defined by MCO 11000.25, the *GEOFidelis* Data Management Guide, and this plan.

#### **4.1.1 Geospatial Data Acquisition**

The IGI&S Manager will create a Plan of Action and Milestones (POAM) for data collection and maintenance. The POAM will prioritize the data sets based on the following criteria:

- GEO*Fidelis* CIP Data Sets.
- GEO*Fidelis* Data Model Design Description Data Sets.
- Mission Data Sets.

All geospatial data must have an assigned SME before it is available through the MCB Quantico IGI&S program. If the SME “position” becomes vacant, the immediate supervisor will assume temporary responsibility for the data sets until the position is filled. The IGI&S Manager can transfer the SME responsibilities for a data set to another organization if there is another employee that is more qualified than the currently assigned employee.

#### **4.1.2 Geospatial Data Maintenance**

The data SME is responsible for assuring that data is properly attributed and collected to meet their needs and the requirements of the business process. The SME will review sources for data collection and conversion to assure the most current data is captured. However, all data consumers help maintain the data quality by identifying data errors to the IGI&S Manager. The MCB Quantico Quality Assurance Plan and Quality Control Guide, Reference (u), details the process used to maintain or add new data to the MCB Quantico GIS.

The majority of IGI&S data is updated “as needed” due to construction projects or new operational requirements. However, there are several data sets that are updated based on a regulatory or contractual requirement. MCB Quantico IGI&S metadata and Appendix F documents the preferred maintenance schedule.

The Facilities Systems Services Office weekly posts routine data changes to the DEFAULT ArcSDE geodatabase. Routine data maintenance is seamless to the data consumer and does not disrupt using the information.

Data maintenance or incorporation of a new data set that requires a change to the basic geodatabase design or schema is scheduled on Wednesdays from 1500-1700. The East Coast GEO*Fidelis* Regional Center will notify all data consumers when a schema change is required and prevent access until the schema change is completed.

#### **4.1.3 Geospatial Data Review**

The IGI&S Manager shall coordinate annually with all SMEs to ensure proper data acquisition, sustainment, and quality assurance of all geospatial data assets is maintained and complete. The SME agrees that the data is accurate and complete by signing the SME Review Statement. An example format is provided in Appendix G. If the SME determines that the data is inaccurate or incomplete, it will be added to the POAM or internal maintenance schedule.

Upon completion of the annual geospatial data review process the IGI&S Manager will update and publish the metadata.

#### **4.1.4 Geospatial Data Archival**

GEO*Fidelis* geospatial data management procedures mandate an annual archival of MCB Quantico's data holdings which is the annual authoritative data archive for the installation. The annual archival will occur within 2 weeks of September 30<sup>th</sup> and will be coordinated by the East Coast GEO*Fidelis* Regional Center and MCB Quantico.

Storage and delivery of vector archives will meet the following criteria:

- The East Coast GEO*Fidelis* Regional Center will have the previous years archive available through the regional system.
- The East Coast GEO*Fidelis* Regional Center will store each annual archive.
- MCB Quantico and the GEO*Fidelis* Program Office will receive the archive on a predetermined media format.

Storage and delivery of imagery archives will meet the following criteria:

- The East Coast GEO*Fidelis* Regional Center will store each installation imagery archive.
- Imagery for MCB Quantico will be documented and catalogued at the East Coast GEO*Fidelis* Regional Center.
- Archived catalogues, for MCB Quantico, will be available through the East Coast GEO*Fidelis* Regional Center system.
- MCB Quantico and the GEO*Fidelis* Program Office will receive the archive on a predetermined media format as required.

Geospatial data may also require special archival in support of USMC projects. This requirement will be determined by the SME. The archival will be coordinated between the SME, IGI&S Manager, and the East Coast GEO*Fidelis* Regional Center. Specifications of the archival will be determined by the SME.

#### **4.1.5 Data Deletion**

If a data resource must be deleted, references to it also need to be deleted from the Data Catalog and review interdependencies such as, but not limited to, customized tools, project files, and web services. At this time, MCB Quantico's policy is not to delete any data resource. However, inactive data may be archived.

#### **4.1.6 Quarterly Status Report**

The Facilities Systems Services Office will complete a Quarterly Status Report (GIS Data Inventory) that documents changes to the feature classes. The GIS Data Inventory - Quarterly Report will be available to the East Coast GEO*Fidelis* Regional GIO and data consumers through the Quantico section of the GEO*Fidelis* East SharePoint Portal.

## **5.0 Quality Assurance Program**

MCB Quantico has developed a mature Quality Assurance Program as defined by MCO 11000.25 and the GEO*Fidelis* Data Management Guide. All geospatial data is managed

and processed using the MCB Quantico Quality Assurance Plan and Quality Control Guide.

## **5.1 Quality Assurance and Quality Control**

When used in GIS analysis, a data set's quality significantly affects confidence in the results. Unknown data quality leads to tentative decisions, increased liability, and loss of productivity. Decisions based on data of known quality are made with greater confidence and are more easily explained and/or defended.

There are many factors that affect the quality of geospatial data. These factors range from computational to organizational and each could have a negative affect on the accuracy and usability of geospatial data. The implementation of a Quality Assurance (QA) Plan with supporting Quality Control (QC) will allow an installation to integrate procedures into day to day operations and improve its ability to provide users the most complete and accurate data possible.

Definitions from Environmental System Research Institute (ESRI):

- **Quality assurance (QA):** An all-encompassing management approach combining technical aspects of quality, qualitative methods, and human resources in a system designed to meet the customer's expectations
- **Quality control (QC):** An individual task or set of tasks performed at a given level of the production process that is measured and aimed at ensuring integrity of a product, output, or action

## **5.2 Quality Assurance Plan**

MCB Quantico's Quality Assurance Plan is Reference (u). The Quality Assurance Plan and Quality Control Guide encompass both internal (installation data collection) and external (contracted data collection) data deliveries and uses the approved QA/QC acceptance workflow.

### **5.2.1 Test Development**

Quality Assurance Plan and Quality Control Guide uses several tests of geospatial data quality. The tests allow for a measurable and attainable set of acceptance criteria. The tests are a part of day to day operations for the continuous quality control process. Tests are communicated to contractors to assure acceptable deliveries. Figure 1 outlines the minimum quality tests.

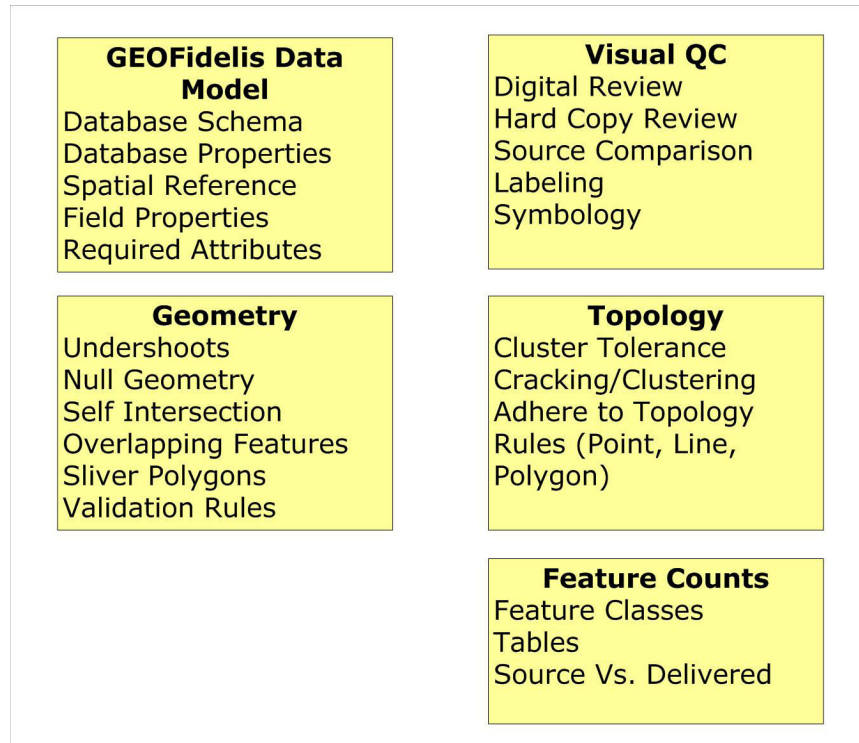


Figure 1 - Quality Control Test Areas

### 5.2.2 Data Quality Objectives (DQOs)

Data Quality Objectives (DQOs) are set by the data consumer and should be appropriate for the intended use. For example, a map to be used to locate a building for a passenger delivery will have different DQOs than one that is to be used to construct an addition to a building. The former will require the features be accurately labeled and up-to-date, while the later will require the data to be located very accurately.

### 5.2.2 Data Quality Indicators

A Data Quality Indicator (DQI) is a metric that is used to track and measure the DQOs. This is feature level metadata that identifies the level of accuracy used to create the feature. The MCB Quantico's GIS program uses the META\_ID field to identify the DQI. The DQI values are shown in Table 1.

Table 1. General Data Quality Indicator Used in META\_ID Field

Code	Accuracy Description	Reliability
APHD	Air Photo, Heads-Up Digitized: Photogrammetric Registration	Medium
APPG	Air Photo, Photogrammetry: Photogrammetric Registration	High
DCUN	Digital Conversion of Third-Party Data, Method	Low

	Unknown	
DGPS	Global Positioning System – Corrected	High
DOHD	Digital Orthophotography, Heads-Up Digitized	Medium
DOVC	Digital Orthophotography, Vectorized	High
GPS	Global Positioning System – Uncorrected	Medium
HD	Hand Drawn (No Reference Data)	Poor
HDAB	Hand Drawn, As-Built	Medium
MX	Source Mixed, Object Not Placed By Traditional Methods	Poor
PADG	Paper Map, Digitized	Low
PHHD	Photograph, Heads-Up Digitized: 3-Point Registration	Low
SAHD	Satellite Image, Heads-Up Digitized	Medium
SAVC	Satellite Image, Vectorized	Medium
SCHD	Scanned Map/Photograph, Heads-Up Digitized: 3-Point Registration	Medium
SCVC	Scanned Map/Photograph, Vectorized: 3-Point Registration	Medium
SVY	General Survey – Ground	Medium
SVY1	Primary Order Survey	High
SVY2	Secondary Order Survey	Medium

Format in META\_ID = XXXXYY, where XXXX = code and YY = year data was collected.

## 6.0 Data Sharing/Data Distribution

*GEOFidelis* recognizes the advantages of data sharing with Federal, State, and Local agencies. Contracted projects can also benefit from existing *GEOFidelis* geospatial data and the USMC can realize significant cost savings when existing geospatial data is utilized and enhanced through project work. *GEOFidelis* also depends on data from other DoD services to assist in managing its installations.

For *GEOFidelis* to benefit from effective data exchange, the appropriate safeguarding of the USMC installation and environment geospatial information must be ensured. This entails managing access to specific information and applying need-to-know criteria to determine access for specific organizations and personnel. The exchange and dissemination of information must not conflict with existing policies. Information will be permitted to flow to selected Government agencies and contractors who possess a demonstrated/validated need-to-know and appropriate documentation.

## 6.1 Data Call Coordination

GEOFidelis receives geospatial data requests from other DoD, Federal, State and Local government agencies. All data requests are fulfilled based on the requestor, purpose, and scope of the request. When GEOFidelis data requests are fulfilled, the request will be logged by the Regional GIO.

GEOFidelis will determine the level of the data request by utilizing the communication lines between the GEOFidelis GIO, GEOFidelis Regional GIOs, and the IGI&S Managers. Figure 2 details the procedures of a data call response.

### GEOFidelis Data Call Response

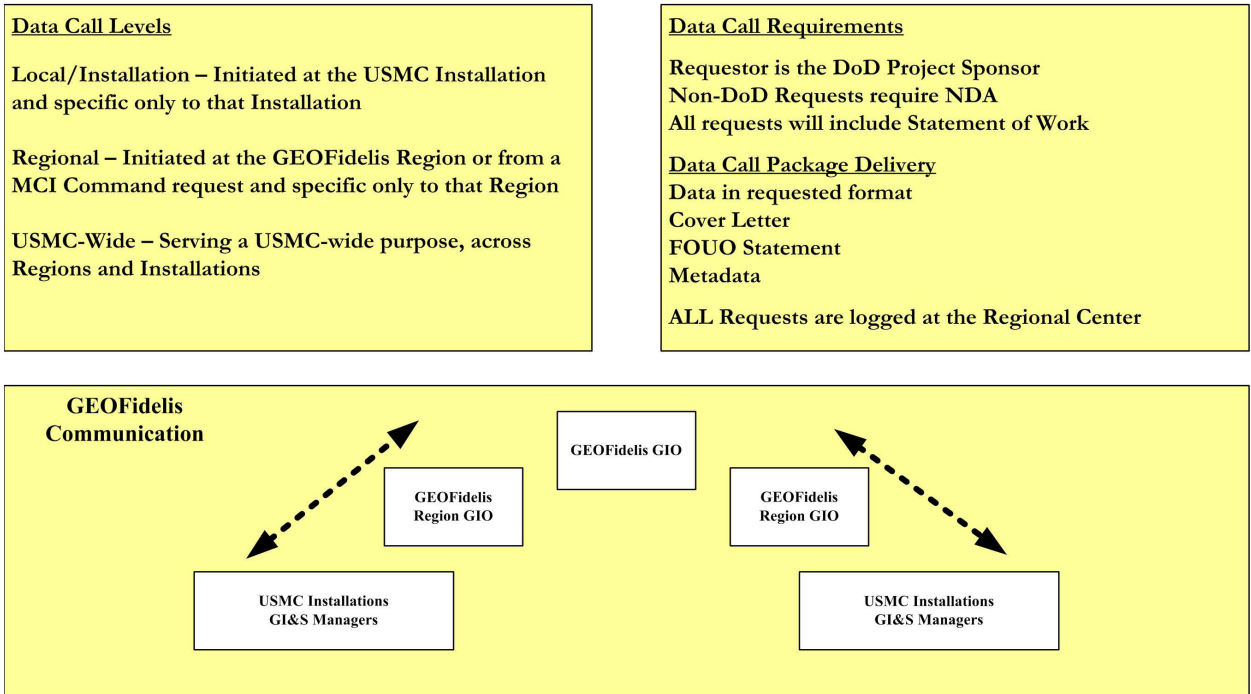


Figure 2 - Geospatial Data Call Procedures

MCB Quantico will meet the geospatial data sharing and distribution guidance outline in MCO 11000.25 and the GEOFidelis Data Management Guide.

### 6.2.1 USMC-Wide Data Requests

The GEOFidelis GIO will coordinate all USMC-wide GEOFidelis data requests. A USMC-wide IGI&S data request consists of multiple installations from multiple regions or determined at the discretion of the GEOFidelis GIO.



Figure 4 - GEOFidelis USMC-wide Data Call

### 6.2.2 Regional Data Requests

GEOFidelis Regional data requests are specific to a particular region. These data requests can be initiated by the MCI Command or pertain to the USMC installations that comprise a GEOFidelis Region.

### 6.2.3 MCB Quantico Data Requests

MCB Quantico data requests are specific to its geospatial data repository. These data requests can be initiated by the Command, installation staff, or pertain only to MCB Quantico. Communication between the IGI&S Manager and the East Coast GEOFidelis Regional GIO is imperative to determine the level and appropriate action for the data request. Figure 3 shows the work flow to complete a local data request.

Organizations shall forward data requests to the Facilities Systems Services Office to ensure appropriate documentation and procedures are followed.

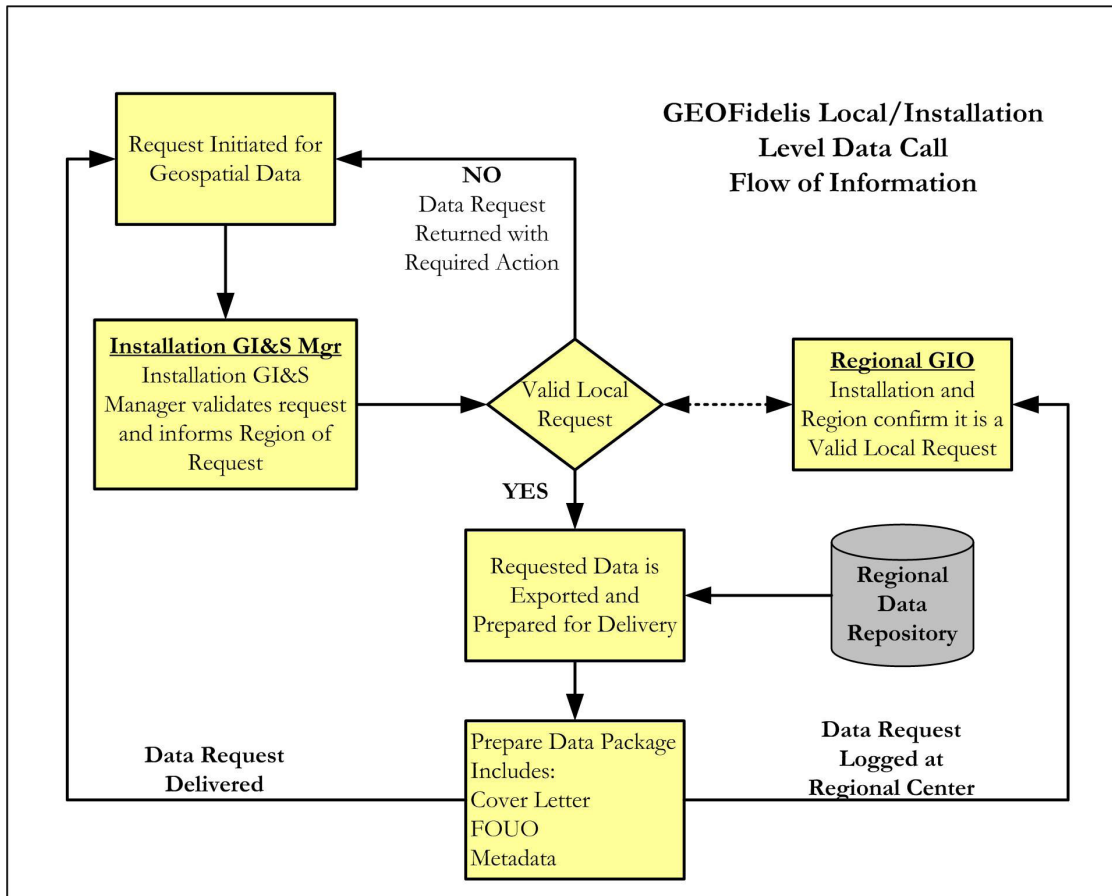


Figure 3 – MCB Quantico Data Call

### **6.3 Data Liability**

GEO*Fidelis* data is shared with other agencies or utilized on USMC projects. To protect the end user and the USMC, any contract or data-sharing instance will include a data disclaimer. Additionally, the MCB Quantico IGI&S Manager will maintain quality metadata to best represent the history of the data to describe its source and compilation method. The combination of the data disclaimer and accurate metadata will provide the data recipient with a concise history of the data.

### **6.4 Access to the Quantico's IGI&S Program**

MCB Quantico has **one** GIS that provides precise and reliable information at the installation and enterprise level. It is based on a common infrastructure foundation that supports interoperability across the Marine Corps, enabling users to effectively manage their resources and accomplish the Marine Corps mission. In addition, it supports and contributes to the network of GIS data external to the Marine Corps installations to provide Commanders situation awareness required to respond to contingencies and coordinate consequence management responses.

The Quantico geospatial data support the geographic components of multiple decision support systems. This integration incorporates and empowers users, each “owning” their own data, thereby owning responsibility for the accuracy and currency of that data.

#### **6.4.1 Central Management of GIS User Accounts**

All MCB Quantico GIS user accounts are overseen by the IGI&S Manager. Individuals requesting access should provide their name, organization, workstation name, Navy-Marine Corps Internet (NMCI) asset tag, and IP address to the IGI&S Manager. The IGI&S Manager will determine the appropriate software license and geodatabase security access.

### **6.5 MCB Quantico Mapping Guidelines**

All MCB Quantico map products will contain the required map elements (title, scale bar, etc.). A list of these map elements is included in Appendix H. All GIS users are required to comply with these guidelines on **all** map products. Data Consumers should forward map formatting and production issues and questions to the Facilities Systems Services Office.

### **6.6 Commercial Imagery Distribution**

GEO*Fidelis* coordinates with NGA and the Army TEC office on the acquisition of commercial satellite imagery. Through this relationship there is an added responsibility of controlling imagery distribution. There will be numerous requests for imagery and it is the responsibility of MCB Quantico to make sure that requests are being handled

properly and not distributed to any person or persons that do not fall under the licensing agreement. MCB Quantico must adhere to the license requirements that are placed on commercial satellite imagery. The license agreements stipulate which organizations can use the imagery and to whom the USMC can distribute.

BRAC 2005 IVT Imagery and Title 50 IVT imagery may be released to the following DoD/Title 50 organizations\*:

- Military Departments (United States Air Force (USAF), United States Navy (USN), United States Marine Corps (USMC), United States Army (USA))
- Defense Agencies (including, but not limited to DTRA, JPO, DLA, etc.)
- Allies/coalition partners when working on a joint operation
- Intelligence community, including:
  - Central Intelligence Agency (CIA)
  - National Security Agency (NSA)
  - Defense Intelligence Agency (DIA)
  - National Reconnaissance Office (NRO)
  - Intel elements at United States Coast Guard (USCG), Department of Homeland Security (DHS), Federal Bureau of Investigation (FBI), Dept of Treasury, and Dept of Energy
  - Bureau of Intelligence and Research at the Dept of State

IVT imagery **may not** be released to the following:

- Other elements within DHS, USCG, etc. that do not fall within the Intelligence Element of those organizations
- Any Federal government organizations not mentioned in the previous list
- State and local governments
- Non-governmental organizations (NGOs)
- Commercial, or private entities
  - Contractors working on government contracts may utilize IVT imagery but must delete or destroy upon completion of the contract of task order, as per standard terms reuse of government-furnished information

As a note NGA's ClearView contract distribution rights **do not** apply to IVT imagery.

#### NGA ClearView General Specifications

- U.S. Government including, all branches, departments, agencies, and offices
- Temporary Licensed Users
- USG may provide the imagery to the following organizations when the organization is working with the USG on a joint project
  - State Governments
  - Local Governments
  - Foreign Governments and inter-governmental organizations
  - NGO's and other non-profit organizations
- "Joint project" means cooperation between USG and others
- Coalition force operations
  - Exercises
  - Co-production

- Relief efforts
  - US homeland security
- “Joint project” do not include activities that serve a non-federal Government purpose
  - City, county or state planning
  - Property tax assessment
  - Transportation infrastructure management
  - General purpose mapping, etc.
- The imagery provided for a joint project may only be used for purposes of the joint project. Normally commercial data:
  - May not be retained by other than USG
  - Must be returned to the USG after completion of the joint project; the right to use the data and all copies are restricted to USG
- Always consult the licensing agreement or contact NGA if there are any questions

#### NGA Next View General Specifications

- U.S. Government including, all branches, departments, agencies, and offices
- Other Licensed Users (The U.S. Government may provide imagery to these users):
  - State Governments
  - Local Governments
  - Foreign Governments and inter-governmental organizations
  - NGO's and other non-profit organizations
- Always consult the licensing agreement or contact NGA if there are any questions

## Appendix A – References

- a) Marine Corps Order P11000.25, Installation Geospatial Information and Services, March 26, 2007.
- b) USMC, *GEOFidelis* Data Model Design Description, Version 1.0, dated January 31, 2007.
- c) Department of the Army, Army Corps of Engineers, Geospatial Data and Systems (EM 1110-1-2909), September 15, 2005.
- d) Department of the Army, Army Corps of Engineers, Engineering and Design Photogrammetric Mapping (EM 1110-1-1000), July 31, 2002.
- e) Department of Defense Directive 8320.2, Data Sharing in a Net-Centric Department of Defense, December 2, 2004.
- f) Department of Defense Directive 8320.2-G, Guidance for Implementing Net-Centric Data Sharing, April 12, 2006.
- g) Executive Order 12906, Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure (NSDI), April 11, 1994.
- h) National Spatial Data Infrastructure and Office of Management and Budget's (OMB) Circular A-16, "Coordination of Geographic Information and Related Spatial Data Activities." (Reorder).
- i) Guidance Regarding Implementing Geospatial Information Systems (GIS), Computer Aided Design And Drawing (CADD) And Related Technologies For Installation Management (15 April, 2003).
- j) Federal Geographic Data Committee (FGDC) Standard 001-1998, Content Standards for Digital Geospatial Metadata (CSDGM) Version 2.
- k) FGDC Standard 007.1-1998, Geospatial Positioning Accuracy Standards, Part 1: Reporting Methodology.
- l) FGDC Standard 007.2-1998, Geospatial Positioning Accuracy Standards, Part 2: Geodetic Control Networks.
- m) FGDC Standard 007.3-1998, Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy.
- n) FGDC Standard 007.4-2002, Geospatial Positioning Accuracy Standards, Part 4: Standards for Architecture, Engineering, and Construction (A/E/C) and Facility Management.
- o) Department of Defense, Installation Visualization Tool - Quality Assurance Plan Version 1.1, December 31, 2003.

- p) Department of Defense, Defense Installation Spatial Data Infrastructure, DISDI Metadata Profile (Draft Version 0.1), January 26, 2007.
- q) Photogrammetric Engineering and Remote Sensing, Journal of the American Society for Photogrammetry and Remote Sensing, Volume 67, Number 11, “Laser Altimetry: From Science to Commercial LiDAR Mapping” Martin Flood.

## Appendix B – Definitions

Functional Dataset Lead	An agency, department, activity or organization that has lead responsibility for coordinating the collection, coverage and stewardship, including maintenance and update, of a specific spatial data theme.
GEO <i>Fidelis</i> Geospatial Information Officer (GIO)	Responsible for oversight of the GEO <i>Fidelis</i> program and the development and implementation of the policy and guidance required by Marine Corps Order 11000.25. Provides leadership and coordination in meeting the geospatial information requirements of USMC IGI&S.
Geospatial Information	Data that identifies the geographic location and characteristics of natural or constructed features and boundaries on the Earth and includes: (a) statistical data and information derived from, remote sensing, mapping, and surveying technologies, among others; and (b) mapping, charting, and geodetic data, and related products.
Geospatial Information System (GIS)	A computerized tool used to input, edit, store, retrieve, manage, analyze, and present geographic or geospatial information. GIS may refer to hardware, software, data or any combination of the three.
GEO <i>Fidelis</i>	The common pseudonym given to the Marine Corps IGI&S program.

Marine Corps  
Installation  
Geospatial  
Information and  
Services (IGI&S)

The data, people, hardware, software, procedures and policies required to perform installation management GIS support functions such as installation management, mission support, critical infrastructure protection, force protection, homeland security, and training. Geospatial information provides the basic framework for installation visualization. It includes information produced by multiple sources and adheres to common interoperable data standards. It may be presented in the form of: printed maps, charts and publications; digital simulations and modeling databases; photographic and remotely sensed images; or digitized maps and charts or attributed centerline data. Geospatial services include tools that enable users to access and manipulate data, and also include instruction, training, laboratory support, and guidance for the use of geospatial data.

Linear Error

Vertical spatial accuracy is defined by linear error. Linear error is based on sample standard deviation of the difference between the data set elevation and the elevation determined by an independent check survey of higher accuracy for the same point.

Accuracy reported at the 95% confidence level means that 95% of positional accuracies will be equal to or smaller than the reported accuracy value. The reported accuracy value is the cumulative result of all uncertainties, including those introduced by geodetic control coordinates, compilation, and final extraction of ground coordinate values in the spatial data.

Circular Error	<p>Horizontal spatial accuracy is defined by circular error. Circular error is based on the sample standard deviation of the difference between the data set coordinate value and the coordinate value determined by an independent check survey of higher accuracy for the same point.</p> <p>Accuracy reported at the 95% confidence level means that 95% of positional accuracies will be equal to or smaller than the reported accuracy value. The reported accuracy value is the cumulative result of all uncertainties, including those introduced by geodetic control coordinates, compilation, and final extraction of ground coordinate values in the spatial data.</p>
LiDAR Intensity Image	<p>Intensity image information provides a panchromatic image of the return surface. Intensity values vary depending from which type of surface the LiDAR reflection is obtained and this translates into a series of tonal differences. The intensity value is a measure of the return signal strength. It measures the peak amplitude of return pulses as they are reflected back from the target to the detector of the LIDAR system. Intensity values are relative rather than absolute and vary with altitude, atmospheric conditions, directional reflectance properties, and the reflectivity of the target. In its balanced image format the data serves mainly as a backdrop providing some reference to the current ground surface vegetative state at the time of LiDAR acquisition.</p>
LiDAR First Return DEM	<p>Digital Elevation Model representing elevation of canopies, building elevations, and other unobstructed surfaces.</p>
LiDAR Last Return DEM	<p>Additional sensor that penetrates beyond the obstructions encountered on first return readings. Used to determine Bare Earth DEM.</p>



LiDAR Bare Earth DEM	Generated using a manual process or algorithms that removes obstructions to create a bare earth terrain model.
Digital Elevation Model (DEM)/ Digital Terrain Model (DTM)	DEM/DTM are data files that contain the elevation of the terrain over a specified area, usually at a fixed grid interval over the surface of the earth. The intervals between each of the grid points will always be referenced to some geographical coordinate system.
Orthorectified	A process of correcting imagery to remove distortion caused by camera optics, camera tilt, and differences in elevation.
Pan Sharpened	Image sharpening where the spatial information from a "high-resolution" image is merged with the radiometric information from a "low-resolution" image. Pansharpening algorithms improve the spatial resolution of the multispectral image while simultaneously retaining its spectral information.
Panchromatic	An image collected in the broad visual wavelength range but rendered in black and white. The term has historically referred to a black and white photograph of a color scene.

Ground Resolution	A measure of the smallest linear separation between two objects that can be resolved by an imagery sensor. For example, the smallest detectable feature that a 1-meter sensor can detect is 1-meter in diameter in photographs and 1-meter square in digital imagery. However, spatial (or image) resolution has no direct correlation to positional accuracy. It is a common misconception that that the higher the pixel resolution, the more accurate the image will be. In fact, accuracy is related to ground control and the scale of the image, yet not the scale of the image alone. Other image characteristics that do relate directly to spatial resolution are scale; types of features that can be extracted from the image (typically larger than the image resolution itself); file size; and geographic extent of single scene/frame.
Root Mean Square (RMS) Error	Square root of the average of the squared differences between data set coordinate values and check survey coordinate values for identical points.

## Appendix C – GEOFidelis Standard Statement of Work Specifications

### Instructions for the Project Manager:

***The following paragraphs represent the FORMAT and documentation required for electronic files being delivered as part of a contracted effort. These paragraphs do not specify CONTENT or what the electronic files should contain. The content represented or specific data being collected should be specified separately in the Tasks section of the scope/statement of work (SOW). For example, the scope of work would contain a directive paragraph that tasks the Contractor with the actual work to be performed. This paragraph would include items such as:***

- ***What features are actually being collected,***
- ***What attributes are required,***
- ***Whether the deliverables should be provided in GIS or CADD format, or a combination thereof,***
- ***What form of data collection should be used; i.e. mapping grade or survey grade Global Positioning System (GPS),***
- ***When data is expected to be delivered during the course of the project, etc.***

***In all projects, the Project Manager should include the following paragraphs in the Deliverables section of your contract SOW -OR- as an Attachment and referenced in the SOW; i.e., “Data shall be provided in accordance with the attachment”. All paragraphs are relevant unless designated in italics and with an –OR- statement, in which case the Project Manager would choose between the two options presented, or in some cases include both options when both GIS and CADD data deliverables are required for your project.***

***This cover sheet should not be included in the SOW. Questions about the use of these specifications or requests for assistance in developing SOWs that include data deliverables should be addressed to the MCB Quantico IGI&S Manager. The MCB Quantico IGI&S Office (Facilities Systems Services Office) reviews SOWs that include geospatial data deliverables to: ensure clarity of scope relative to the data, minimize impact on existing applications as data changes may occur, and reduce duplication of data collection efforts at Marine Corps installations.***

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(cut and paste only the paragraphs on the following pages into your Scope/Statement of Work)

## **#. SPECIFICATIONS FOR DIGITAL DATA.**

- A. **Overview.** These specifications for digital data are prepared by the East Coast Regional GEO*Fidelis* Center (ECRGC). They are validated twice a year and updated as new technologies and software versions are implemented. The standards and guidance referenced in these specifications conform to the “Marine Corps Guidance for GIS, CADD, and Related Technologies” document dated 15 April 2003. Point of contact regarding the use of these specifications is Mr. Mike Lee, East Coast GEO*Fidelis* Regional GIO, Business and Logistics Support Department, (910) 451-9008/451-5876.

Point of contact regarding MCB Quantico’s GIS requirements is Mr. Jack Trophia, IGI&S Manager, Facilities Systems Services Office, (703) 784-5371.

Any maps, drawings, figures, sketches, geospatial data, spreadsheets, or text files prepared for this contract shall be provided in both hard copy and digital form. The hard copy deliverables are defined in another section of this SOW.

- B. **Text, Spreadsheet, and Database Files:** The Marine Corps standard computing software is Microsoft Office 2003. Final Reports and other text documents shall be provided in Microsoft Word 2003 format **AND** Adobe Portable Document Format (PDF). Spreadsheet files shall be provided in Microsoft Excel 2003 format. Databases shall be provided in Microsoft Access format, unless specified otherwise, as approved by the Government. **Prior to database development, the contractor shall provide the Government with a Technical Approach Document** for approval, which describes the contractor's technical approach to designing and developing the database. All text, spreadsheet, and database files shall be

delivered on a compact disk read-only memory (CD-ROM) or external hard drive with USB port connectivity.

C. **Maps, Drawings, and Sketches (Digital Geospatial Data):**

**1. Geospatial Data Software Format:** Geographic data **must** be provided in a form that does **not** require translation, preprocessing, or post processing before being loaded to the MCB Quantico's regionally hosted geodatabase. The Contractor shall validate any deviation from this specification in writing with the Government (Installation Geospatial Information & Services (IGI&S) Manager via the Project Manager). Digital geographic maps and the related data sets shall be delivered in the following software format:

*a. GIS: Personal geodatabase format (Access database file) using ArcGIS 9.2. The personal geodatabase must be importable to a multi-user geodatabase using ArcSDE 9.2. The delivered data layer(s) shall be provided with x,y domain precision of 1000.*

*-AND / OR-*

*b. CADD: The Government may approve the use of AutoCAD when it is determined that the format will not compromise the spatial accuracy or structure of the delivered data and that the data will easily integrate with the enterprise GIS system. All CADD data shall be provided in AutoCAD 2006 and shall be in the same projection and use the same coordinate system, datum, and units as stated below in the paragraph titled Geospatial Data Projection. Drawing files shall be full files, uncompressed, unzipped, and georeferenced.*

(NOTE: ARC/INFO, ArcGIS, and ArcSDE are geographic information system software produced by Environmental Systems Research Institute (ESRI) of Redlands, California. AutoCAD is software produced by Autodesk, Inc. These software are used by the Marine Corps GEOFidelis Program)

**2. Geospatial Data Structure:**

**a. GIS Data Sets** – *When developing/delivering geospatial data, the Contractor shall develop the initial structure consistent with the most current version of the GEOFidelis Data Model. The GEOFidelis Data Model shall be followed for geospatial database table structure, nomenclature, and attributes. The Contractor shall consult with the Government (IGI&S Manager) concerning modifications or additions to the GEOFidelis Data Model. The Government may approve modifications to the Model if it is determined that the Model does not adequately address subject datasets. Copies of the GEOFidelis Data Model may be obtained by contacting the GEOFidelis Program via email at [geoFidelis@usmc.mil](mailto:geoFidelis@usmc.mil) or via phone at Phone 1-703-695-6158*

**b.** *When delivering updates to existing feature classes, the Contractor shall obtain a copy of the subject data in a personal geodatabase to use as a template for all subsequent data collection processes. As the Marine Corps has modified the SDSFIE structure for many feature classes to accommodate operational*

*needs, the SDSFIE structure may not reflect the actual structure used in the geodatabase. If further modifications to structure are required as a result of this Scope, the Contractor will consult with the Government (IGI&S Manager) for direction and final approval.*

**-AND / OR-**

**c. CADD Drawings/Data** – *The Contractor shall develop all CADD data in conformance with the latest version of the following standards and policies:*

- U. S. National CADD Standards (NCS)*
- CADD/GIS Technology Center’s AEC CADD Standards (<https://tsc.wes.army.mil>)*
- NAVFACINST 4250.1, Electronic Bid Solicitation*

### **3. Geospatial Data Projection:**

Geographic data (regardless of format) shall be provided in survey feet and **projected** into the NAD 1983 UTM Zone 18 meters. The maps and data shall use the GRS 1980 spheroid and the North American Datum 1983/World Geodetic System 1984. This projection requirement applies to all CADD drawings such as as-designed and as-built project plans, as well as GIS data layer deliverables. Each data set shall have a projection file if appropriate based on format. Map or drawing **scales** will be determined by the Project Manager, if applicable. Mapping **accuracy** for the agreed scales will conform to the American Society for Photogrammetry and Remote Sensing (ASPRS) "Accuracy Standards for Large-Scale Maps", "Interim Accuracy Standards for Large-Scale Maps", and "Geospatial Positioning Accuracy Standards". Copies of these standards can be obtained on the Internet at <http://www.asprs.org>, and/or at <http://www.fgdc.gov>, or by contacting:

American Society for Photogrammetry and Remote Sensing  
5410 Grosvenor Lane, Suite 210  
Bethesda, MD 20814-2160

### **4. Geospatial Data Collection:**

*a. Mapping grade Global Positioning System (GPS) data collection (sub-foot, sub-meter, and sub-5 meter) shall be performed when specified in the statement of work and shall be completed in accordance with North Carolina General Statute Chapter 89C (Engineering and Land Surveying) located at [http://www.legislature.state.nc.us/EnactedLegislation/Statutes/HTML/ByChapter/Chapter\\_89C.html](http://www.legislature.state.nc.us/EnactedLegislation/Statutes/HTML/ByChapter/Chapter_89C.html). Default horizontal accuracy for mapping grade GPS data collection efforts shall meet a sub-meter threshold unless otherwise specified to be survey grade, sub-foot or sub-5 meter in the statement of work. The North Carolina Geodetic Survey (NCGS) maintains a network of GPS base stations. Due to the fact the NCGS is continually adding new bases stations, users are advised to contact NCGS or view a currently listing on the "GPS Base Stations in North Carolina" web page at <http://www.ncgs.state.nc.us/basestation.html>. Only base stations located in Eastern North Carolina shall be used for mapping grade GPS data collection. Spatial accuracy requirements are as follows:*

*- Sub foot: 95 % of all points are within  $\pm$  12 inches*

*-OR-*

*- Sub meter: 95% of points are within  $\pm$  1 Meter*

*-OR\_*

*- Sub 5 meter: 95% of points are within  $\pm$  5 Meter*

***-AND / OR-***

*b. Survey grade GPS data collection shall be performed when specified in the statement of work. As survey processes are highly regulated by federal, state, and/or local technical and licensing requirements, they are in general beyond the scope of this document. However, survey grade GPS data collection shall at a minimum use the Geoid2003 CONUS epoch (or a more current epoch if available at the time of this project) and spatial accuracy requirements for survey grade are 95 % of GPS points are within  $\pm$  1 centimeter. Every effort shall be made to capture feature locations without using offsets unless obstructions are present. Any offsets used shall be annotated in the "user flag" field.*

**NOTE:** None of the GPS collection information is to be included in the table structure of the delivery, unless it is specifically part of the SDSFIE or established installation feature format.

**NOTE:** MCB Quantico uses an abbreviation list to document all feature level metadata in the SDSFIE meta\_id field. See the IGI&S Manager for a current list.

## 5. Media for Geospatial Data Deliverables:

Geographic data shall be delivered on a separate compact disk read-only memory (CD-ROM) –or other digital media such as external hard drives or flash drives if approved by the government. This media shall **contain only the value-added data sets** as designated in the Task sections of the statement of work. Do not include the Contractor’s working files or MCB Quantico data sets that may have been used by the Contractor to develop the deliverables. “READ ME” files may be included on the geographic data media if such files provide explanation of the delivered data sets. However, these “READ ME” files should not be delivered in lieu of standard metadata.

## 6. Geographic Data Documentation (Metadata):

For each digital file delivered containing geographic information (regardless of format), **the Contractor shall provide documentation** consistent with the Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata (CSDGM). Both ‘Mandatory’ and ‘Mandatory as Applicable’ fields shall be completed for each geographic data set. The documentation shall include, but not be limited to, the following:

- The name, description, abstract, and purpose of the data set/data layer
- The source of the data and any related data quality information such as accuracy and time period of content
- Descriptions of the receiver and other equipment used during collection and processing, base stations used for differential corrections, software used for performing differential corrections, estimated horizontal and vertical accuracies obtained, and conversion routines used to translate the data into final geographic data delivery format.
- Type of data layer (point, line, polygon, etc.),
- Field names of all attribute data and a description of each field name
- Definition of all codes used in the data fields
- Ranges of numeric fields and the meaning of these numeric ranges
- The creation date of the map layer and the name of the person who created it
- A point of contact shall be provided to answer technical questions.

Metadata generation tools included in the ArcGIS suite of software (or equivalent technology) shall be used in the production of the required metadata in XML format. Regardless of the tools used for metadata creation, the Contractor must insure that the metadata is delivered in XML format and can be easily imported to the MCB Quantico’s enterprise geodatabase. Copies of the FGDC metadata standard can be obtained on the Internet at <http://www.fgdc.gov> or by contacting:

FGDC Secretariat  
c/o U.S. Geological Survey  
590 National Center  
Reston, Virginia 22092

(703) 648-5514

**NOTE: The metadata should be formatted from MCB Quantico's database perspective, not the Contractor project perspective. Therefore such items as Point of Contact should be the MCB Quantico POC currently associated with the data and NOT the Contractor's Project Manager. The Contractor shall use language and format consistent with existing installation metadata.**

**7. Geographic Data Review:**

The digital geographic maps, related data, and text documents shall be included for review in the draft and final contract submittals. The data will be analyzed for discrepancies in subject content, correct format in accordance with these specifications, and compatibility with the existing GIS system. The Contractor shall incorporate review comments to data and text prior to approval of the final submittal. For each review of digital geospatial data deliverables, the Contractor shall provide a technical consultant to meet on-site at the installation with the IGI&S Manager and functional area subject matter experts to visually review the data deliverables on a Windows 2000 compatible system unless otherwise approved by the government.

The Government will perform, at a minimum, the following initial quality control (QC) checks within the IGI&S Manager. Data is expected to be 100% error free. Data with more than a 1% error rate will be returned to the Contractor for correction. The IGI&S office will provide a Problem and Resolution Report identifying all discrepancies found during the QC process. Once the initial errors have been resolved the IGI&S office will load the data into the Installation repository and the data stewards or subject matter experts have 30 days to notify the IGI&S office of any errors specific to the data set. The IGI&S will again forward a Problem and Resolution Report identifying errors found during the data stewards or subject matter experts QC process. This process will continue until all errors have been resolved. Final delivery of the data will be accepted when all parties agree that there is less than a 1% error rate in the data.

**Attribution Checklist:**

- GEO *Fidelis* Data Model Design Description compliant
- SDSFIE compliant
- Unique primary identifiers (primary keys)
- Valid domain values are used
- No "nulls" in mandatory fields
- Valid unit of measure values

**Geospatial Checklist:**



- Confirm spatial data is in the specified contract projection
- No slivers
- No badly formed geometry (SHAPE.AREA and SHAPE.LEN do not equal "0")
- No overlapping geometry
- No duplicate geometry
- Used predetermined reference data to verify locations and shapes

**Metadata Checklist:**

- FGDC compliant
- Local POC is the assigned Subject Matter Expert
- Most recent publication date
- Key words and places
- *GEOFidelis* or SDSFIE table and attribute definitions (*GEOFidelis* definitions supersede SDSFIE definitions)
- Document data development process

**Data Stewards or Subject Matter Experts Checklist**

- Defined by the user

**C. Ownership:**

All digital files, final hard-copy products, source data acquired for this project, and related materials, including that furnished by the Government, shall become the property of the installation and will not be issued, distributed, or published by the Contractor.

**D. Contact Information:**

For project inquiries, please contact the Project Manager. For specific geospatial questions, upon the approval of the Project Manager, you may contact:

Jack Trophia, IGI&S Manager  
Facilities Division, Public Works IGI&S Office  
2004 Barnett Ave., PO 1855  
Quantico MCB  
Quantico, VA 22134-0855  
(703) 784-5371  
jack.trophia@usmc.mil

## **Appendix D – MCB Quantico Geospatial Data Disclaimer**

### **MCB Quantico Geospatial Data Disclaimer**

Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data.

MCB Quantico shall not be held accountable for redistributed data as the process of redistribution impacts data currency, completeness, accuracy, and quality control of data development initiatives. We can only be accountable for data distributed and tracked through our established business process. As such, all data requests will be forwarded to the MCB Quantico IGI&S Manager for distribution to ensure the most current, reliable, complete data sets available (taking into account all projects in progress at the Installation that may produce more current data of benefit to the Requestor). MCB Quantico will provide what is considered current data at the time of the request, but modification of the data may continue as required.

## APPENDIX E – MCB Quantico Data Request Form

Please include requesters Name

Rank, Unit, address,

Phone number

Email

Justification for Request and what the data will be used for.

The data and enclosures are provided For Official Use Only (FOUO). FOUO Distribution Restriction Statement: "Distribution authorized to the U.S. Government and their contractors only; contains technical or operational information. FOUO data will not be duplicated nor will there be secondary distribution of the original data. Upon termination of use, all data shall be removed from computer systems." Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. At the completion of your project, it is requested that the information received from this office be removed from your system.

If you have any questions concerning the data provided, please contact Mr Jack Trophia, Geospatial Information & Services Manager, Facilities Division, Public Works Planning & GIS office (703)-784-5371 or email [jack.trophia@usmc.mil](mailto:jack.trophia@usmc.mil).

Sincerely,

**I agree to and understand the above FOUO Distribution Restriction Statement.**

---

**Signature**

**Date**

Requested Data

## **Appendix F – MCB Quantico Data Refresh Schedule**

## **Appendix – G MCB Quantico Example SME Review Annual Statement**

### **Appendix H – MCB Quantico Mapping Guidelines**

The following are the minimum requirements for MCB Quantico maps. As every requirement is slightly different, these guidelines should be adjusted As Needed to suit specific project requirements.

#### **Map Title**

MCB Quantico Maps will always include a title that best explains the contents of each map produced.

#### **Scale Statement**

MCB Quantico Maps will include a representative fraction (RF) and a scale bar.

Maps should never be made at odd scales such as 1:52,374. Use only whole number scales (i.e. 1:100,000) when adding map frames. Depending on the project, maps should be made at standard sizes (1:25,000, 1:50,000, 1:100,000, and 1:250,000).

Maps should always have scale bar that is created in standard units to allow users to perform measurements on the map.

#### **North Arrow**

Each MCB Quantico map will include a north arrow.

#### **Legend**

Each MCB Quantico map will include a legend representing all symbols displayed on the map.

## Map Classification/Intended Use Statement

In the rare case that a MCB Quantico map product is classified, the maps classification should appear twice, in the upper left below the scale statement and in the lower right corner below all map elements. The classification statements should be aligned with the appropriate left and right most elements in the map composition.

- If the product is CONFIDENTIAL, use the solid blue color.
- If the product is SECRET, use the solid red color.
- Maps containing Limited Distribution data produced by NGA must include the 'Limited Distribution' tag (i.e. UNCLASSIFIED//LIMITED DISTRIBUTION). Separate the classification and distribution markings with "//". Maps containing Limited Distribution data must also include the full disclaimer paragraph shown below. Tagging a product "LIMITED DISTRIBUTION is not sufficient according to NGA policy. Refer to the Release and Disclosure Guidance found on NGA's Office of International & Policy website for more information. (<http://policy.nga.smil.mil/index.cfm>)
- Use a small point size such as 6 pts or smaller for the disclaimer. LIMITED DISTRIBUTION: Distribution authorized to DoD, IAW 10 USC § 130 & § 455. Release authorized to US DoD contractors IAW 48 CFR § 252.245-7000. Refer other requests to GEO *Fidelis* Regional Center, ATTN: Geospatial Information Officer. Destroy as "FOR OFFICIAL USE ONLY." Removal of this caveat is prohibited.
- Classification and distribution markings should be in all caps.

All other MCB Quantico map products should include notes on the map for “For Official Use Only (FOUO)” and “This Map is for Reference Use Only”

## Map Disclaimer

All MCB Quantico map products will include the following disclaimer:

*Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data.*

## Contact Information

All MCB Quantico map products will include, at a minimum, the following information:

- Organization (installation, region, etc.)
- Author
- Department
- Phone Number

- Date Created\Revised

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