

**`STATEMENT OF WORK  
FOR  
GLOBAL POSITIONING SYSTEMS (GPS) / GLOBAL INFORMATION SYSTEMS  
(GIS) LOCATION PROJECT**

**1. BACKGROUND**

The Department of Veterans Affairs (VA) National Cemetery Administration (NCA) provides burial space for Veterans and their eligible family members and maintains national cemeteries as national shrines to honor the memory of those interred or memorialized there.

**2. APPLICABLE DOCUMENTS**

In the performance of the tasks associated with this Statement of Work (SOW), the Contractor shall comply with the following:

- 2.1 US ARMY CORP OF ENGINEERS EM 1110-1-1005 TOPOGRAPHIC SURVEYING
- 2.2 US ARMY CORP OF ENGINEERS EM 1110-1-1002 SURVEY MARKER
- 2.3 US ARMY CORP OF ENGINEERS EM 1110-1-2909 GEOSPATIAL DATA SYSTEM
- 2.4 A/E/C CAD STANDARD RELEASE 5.0, NCS VERSION 5, ETC.
- 2.5 NATIONAL STANDARD FOR SPATIAL DATA ACCURACY (NSSDA)
- 2.6 FEDERAL GEOGRAPHIC DATA COMMITTEE (FGDC), SPATIAL DATA STANDARDS FOR FACILITIES AND INFRASTRUCTURE (SDSFIE), AND OTHER GIS DATA STANDARDS PROVIDED BY THE GOVERNMENT.

**3. SCOPE OF WORK**

For each cemetery included in the task order the contractor shall be responsible for:

- 3.1 Performing GPS land surveying to locate headstones, flat marker, niche cover, and cemetery infrastructure hard points to determine latitude/longitude/elevation
- 3.2 Photographing each headstone, flat marker, niche cover, and infrastructure hard point
- 3.3 Documenting feature attributes as an Environment Systems Research Institute (ESRI) ArcGIS shapefile (.shp) and Geodatabase file (.gdb) and creating ESRI map documents
- 3.4 Producing ESRI Geodatabases with interment attributes from National Cemetery database with photos of headstones and niches linked to the feature
- 3.5 Producing Microsoft Access 2010 and Excel 2010 interment databases of headstones, markers, and niches with linked photos of headstones
- 3.6 Cross referencing all field headstone and flat marker inscription data collected under this contract against the existing VA provided Burial Operations Support System (BOSS) database to determine and flag all discrepancies

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- between the two databases
- 3.7 Providing a plan and report progress weekly
- 3.8 Providing a letter certifying the accuracy of the survey upon completion of each cemetery
- 3.9 Converting AutoCAD cemetery gravesite map drawings into ArcGIS Geodatabase format

#### 4. PERFORMANCE DETAILS

The period of performance will be one 12-month base year and three 12-month option years from the date of award.

National cemeteries are open to the public daily from dawn to dusk, 365 days a year. The Contractor shall coordinate the services to be performed for the project with the Cemetery Director and COR before the start of work. The Contractor shall coordinate daily work with the daily activities of the cemetery and the COR. The hours of operation for the COR and Cemetery Director are 8:00 am to 4:30 pm local time, Monday through Friday, with the exception of federal holidays and closings as identified below:

There are ten (10) Federal holidays set by law (USC Title 5 Section 6103) that VA follows:

Under current definitions, four are set by date:

New Year's Day	January 1
Independence Day	July 4
Veterans Day	November 11
Christmas Day	December 25

If any of the above falls on a Saturday, then Friday shall be observed as a holiday. Similarly, if one falls on a Sunday, then Monday shall be observed as a holiday.

The other six are set by a day of the week and month:

Martin Luther King's Birthday	Third Monday in January
Washington's Birthday	Third Monday in February
Memorial Day	Last Monday in May
Labor Day	First Monday in September
Columbus Day	Second Monday in October
Thanksgiving	Fourth Thursday in November

#### 5. TYPE OF CONTRACT:

The contract shall be a Firm Fixed-Price (FFP) Indefinite Delivery/Indefinite Quantity contract with a base year and three 12 month option periods.

**6. PLACE OF PERFORMANCE:**

Tasks under this SOW shall be performed at national cemeteries located throughout the United States, including Alaska, Puerto Rico and Hawaii. The contractor shall be required to perform the tasks outlined below at multiple geographically separate sites concurrently to meet the timelines specified in the deliverables table. The specification below describes the minimum six (6) cemetery locations required for the initial task with additional locations to be identified in each task order. The work encompasses approximately 86 national cemeteries spread geographically across the United States. The field collection of GPS data points ranges from a minimum of 1 to a maximum of 300,000 data points per cemetery. The additional cemetery locations are provided as an attachment.

1. Long Island National Cemetery, Farmingdale, NY
2. Los Angeles National Cemetery, Los Angeles, CA
3. Golden Gate National Cemetery, San Bruno, CA
4. Fort Rosecrans National Cemetery, San Diego, CA
5. Riverside National Cemetery, Riverside, CA
6. Little Rock National Cemetery, Little Rock, AR

**7. TRAVEL**

The Government anticipates travel to perform the tasks associated with this contract. Travel related expenses will be determined utilizing the current Federal Travel Regulations. The travel costs will be reflected within each task order. Travel costs are reimbursable costs only. The contractor may not add overhead and profit.

**8. ORDERING PROCEDURES**

One or more task orders (TOs) may be issued during the performance period of this contract. The Contractor agrees to accept and perform orders issued by the Contracting Officer within the scope of this agreement. It is understood and agreed that the Government has no obligation to issue any orders except the minimum order. In the event of any inconsistency between any TO and the contract, the contract shall control. The work to be performed under this purchase order for services will be issued and funded through individual task orders (TOs). The Strategic Acquisition Center (SAC) in Fredericksburg is the only contracting activity authorized to issue orders.

**9. SPECIFIC TASKS AND DELIVERABLES**

The contractor shall provide proof of registration and licensing of its surveyors, architects and or engineers performing GPS land survey, collecting data and digitally photographing headstones, markers, niche covers and cemetery hard points. The contractor shall assemble data collected in files and reports; plan each cemetery project, report progress and certify the accuracy of data. The contractor shall convert existing gravesite layout drawings provided by the Government to geographic format.

Specific Additional Information for Long Island National Cemetery (LINC) – Before beginning work, the contractor shall obtain AutoCAD drawings of each of LINC's Gravesite Layout Sections from the Government. Each of these AutoCAD drawings will contain only the cemetery burial sections and will not identify cemetery site features (Roads, Structures, Utilities, Walls, Gates, Flagpoles, etc.). The contractor must verify that all aspects of the Gravesite Layout Section AutoCAD drawings are in agreement with all other sources of information (BOSS records and the Contractor's GPS site work, etc.) and that the gravesite numbering and gravesite locations are all accounted for and correct on the AutoCAD drawings. As the Contractor completes verification of the Cemetery sections, the contractor shall submit the finished sections, as they become available in increments of 5 Cemetery sections per submission, to government, until all sections are completed. The submission shall consist of corrected electronic AutoCAD drawings and a separate narrative form describing each modification made to the drawings that were supplied by government. After each submission is reviewed and accepted by the Government, the contractor shall take the information he has generated and utilize it as described in Section 10 through 13 of this document.

**10. SITE SURVEY:**

The contractor shall perform GPS land surveying to locate headstones, flat marker, niche cover, and cemetery infrastructure hard points to determine latitude/longitude/elevation. The Government will provide burial register reports, handout maps and AutoCAD burial section drawings as available. The Government will not provide imagery or other GIS vector data sources. The contractor shall conform to the following technical survey requirements:

**10.1 Data Requirement:**

The Contractor shall acquire and provide accurate survey grade (centimeter accuracy) GPS horizontal and vertical spatial location and feature attribute data of existing headstones, flat markers, and grid section monument markers at each burial section of the National Cemetery.

**10.2 Accuracy:**

Traditional surveying work (i.e. Total station) shall be in third order accuracy. Survey accuracy using GPS surveying methodology (i.e. Real Time Kinematic (RTK)) will be less than one (1) inch in both horizontal and vertical accuracy.

**10.3 Horizontal Control:**

GPS surveys shall be in the local state plane coordinate system, North American Datum of 1983 (NAD83) projection in US survey feet, and ensuring that this grid reference is adequately tied in to a nationwide geodetic reference system.

**10.4 Vertical Control:**

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When using GPS surveying, North American Vertical Datum of 1988 (NAVD 88) shall be used.

- 10.5 Survey Points for Headstones, Flat Markers, and Niche Covers:  
The Contractor shall record survey points located in front center of each headstone or flat marker at the base, or front center bottom edge of niche covers. Grid section monuments shall be located on top center. Cemetery infrastructure hard points shall be located on field determined points to be determined by the Contracting Officer's Representative (COR).
- 10.6 Other:  
No property boundary information is intended to be collected as part of the inventory. Off-site photogrammetric, remote sensing or satellite image digitization is not acceptable.
- 10.7 Permanent Survey Markers and Monuments:  
The Contractor must provide proof of License/Registration of the Professional Surveyor to the COR prior to start of work. The Contractor shall install permanent survey monuments in accordance with reference provided at paragraph 2. Survey monuments shall be easily located for future surveying work. The Contractor shall ensure that this grid reference is adequately tied into a nationwide geodetic reference system. The Contractor shall install permanent survey control monuments in a stable surface that is not subject to effects of geologic and soil activity in the region. Monuments must be highly visible away from vegetation, floodplain, or man-made structures that are subject to movements, etc. The Contractor shall install standard brass or bronze survey disks with a 3.5 inch diameter. The Contractor shall submit a map of permanent survey markers installed with the applicable coordinates along with temporary benchmarks (i.e. PK nails, etc.) required by this contract.
- 10.8 Data Collection:  
The Contractor shall collect data for gravesite markers and cemetery hard points as defined below. Data collected must have the following attributes preferably using data collectors connected to total stations and/or real time Global Navigation Satellite System (GNSS) GPS rovers. The Contractor shall take survey points at center front of all headstones. The Contractor shall utilize the appropriate local coordinate system (State Plane Coordinate System in NAD 1983 US Feet and NAVD 88) for all GPS survey work.
  - 10.8.1 Survey Data To Be Collected For Headstones, Flat Markers, Niche Covers, and Grid Section Monuments:
    - 10.8.1.1 Feature Type (i.e. upright headstone, flat marker, niche cover, section monument)
    - 10.8.1.2 X, Y, Z coordinate data for each feature

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- 10.8.1.3 Cemetery Name
  - 10.8.1.4 Burial Section Number or Columbarium Wall/Court
  - 10.8.1.5 Gravesite Number \*
  - 10.8.1.6 Row Number (if used by the cemetery) \*
  - 10.8.1.7 First Name (Veteran) \*
  - 10.8.1.8 Middle Name (Veteran) \*
  - 10.8.1.9 Last Name (Veteran) \*
  - 10.8.1.10 Name Suffix (Jr., III, etc.) (Veteran)\*
  - 10.8.1.11 First Name (Spouse/Dependent) \*
  - 10.8.1.12 Middle Name (Spouse/Dependent) \*
  - 10.8.1.13 Last Name (Spouse/Dependent) \*
  - 10.8.1.14 Name Suffix (Jr., III, etc.) (Spouse/Dependent) \*
- \*Inscription data to be taken directly from front and back sides of headstones, and from the front sides of flat markers or niche covers

### 10.8.2 Feature Attributes to Be Collected For Cemetery Infrastructure Hard Points:

- 10.8.2.1 Cemetery Name
- 10.8.2.2 Permanent feature description (i.e. main flagpole, corner of Admin Bldg corner, corner of front entrance pillar, corner of spillway, etc.)
- 10.8.2.3 GPS coordinate X, Y, Z data for each feature
- 10.8.2.4 Location Description

### 10.9 Digital Photographs:

The Contractor shall digitally photograph the front and back of each headstone, the front of each niche cover and the top of each flat marker. The contractor shall also digitally photograph each infrastructure hard point. All photographs will be in .jpeg digital format with maximum file size of 0.5 MB per picture and a 5 megapixel resolution. The Contractor shall compress and crop pictures as necessary to minimize file size without sacrificing image quality. Use of surveying data collector with onboard camera is preferred. Photograph must be taken so that the entire headstone or marker fills the entire frame of the photograph. Provide shading or lighting on the headstone as appropriate for the daylight conditions to ensure that the engraved text is clearly legible and not "washed out" due to too much brightness, or "dim" due to too little natural lighting. The Contractor is responsible for lighting and/or shading headstones, and/or manipulating digital photographs using third-party software to insure all inscriptions on the headstones and markers are legible.

#### 10.9.1 Upright headstones:

The Contractor shall photograph each upright headstone with a clear, unobstructed view of the front and back of each headstone. All inscription information must be clearly legible in the photograph.

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### 10.9.2 Flat markers:

The Contractor shall photograph each flat marker with clear, unobstructed view of the top of each marker with all inscription information clearly legible in the photograph.

### 10.9.3 Columbarium niche covers:

The Contractor shall photograph each Columbarium niche cover with a clear, unobstructed view of each face of the marker with all inscription information clearly legible in the photograph.

### 10.9.4 Grid monument markers:

The Contractor shall photograph with clear, unobstructed view of top of each grid monument with all inscription information clearly legible in the photograph.

### 10.9.5 Cemetery infrastructure hard points:

The Contractor shall photograph each cemetery infrastructure hard point with a clear, unobstructed view showing the concise location.

### 10.9.6 Other:

No property boundary information is intended to be collected as part of the inventory. Off-site photogrammetric, remote sensing or satellite image digitization is not acceptable.

### 10.10 Deliverables:

The following are the required contractor deliverables for all site surveys:

10.10.1 Proof of License/Registration of the Professional Surveyor

10.10.2 Permanent Survey Markers Installed

10.10.3 Map of Survey Markers Installed

10.10.4 Digital Photographs of headstones, markers and niche covers and cemetery hard points

## 11. PREPARATION OF MAPS, DATA AND REPORTS

The contractor shall compile all field collected data into Shapefile and Geodatabase files, creating an ArcGIS Map Document, electronic inventories in Excel and Access, and discrepancy reports resulting from comparison of field collected data to Government provided BOSS data. The contractor shall produce ESRI Geodatabases with interment attributes from the National Cemetery database with photographs of headstones and markers and niches linked to the feature. Photographs of headstones shall be integrated within the Geodatabase that is viewable in ArcGIS 10 Desktop software. The Contractor shall assign a Primary Key in the Geodatabase, shapefile, and Microsoft Access database. The Primary Key should be a composite of VA National Cemetery station number,

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section number, and grave number. The contractor shall document feature attributes as an ESRI ArcGIS shapefile (.shp), Geodatabase file (.gdb) and create ESRI map documents.

### 11.1 Shapefile and Geodatabase:

The Contractor shall transform the survey data that is using North American Geodetic Datum (NAD83, NAVD88) to a Geographic Information System (GIS) shapefile data (.shp) and geodatabase (.gdb) format using World Geodetic System of 1984 (WGS 84) with complementary vertical datum (i.e. EGM 2008, etc.). The WGS 84 coordinates should display in real-world latitude and longitude w/ decimal degrees. Units shall be displayed in feet when using ArcGIS 10 Desktop software. Shapefile and Geodatabase file shall comply with Federal Geographic Data Committee, Spatial Data Standards for Facilities and Infrastructure (SDSFIE), Arlington National Cemetery, and other Government GIS data models/standards. The Government reserves the right to provide data standards as necessary though-out the contract period.

### 11.2 ArcGIS Map Document:

The Contractor will deliver the appropriate ArcGIS map documents (.mxd) per cemetery. Contractor shall create separate GIS layer that outlines each individual gravesites or niche as a polygon shape feature (e.g., 5X10, 3X8, 4X4) that is in reference to the surveyed headstone, marker, or niche point data. Veteran interment information from the BOSS database will be linked via relational database using assigned Primary Keys. Layers in the provided AutoCAD drawings will be converted to appropriate GIS features in Government provided data standard. Government should be able to click on a GIS feature (e.g., headstone point) and identify attributed information along with photograph of each headstone in ArcGIS environment. Within the Geodatabase, GIS layers shall be organized into datasets such as Gravesite Operation, Basemap, Utilities, etc. The gravesites numbers will be labeled appropriately within the map document for legibility. Map documents will also be broken down by each gravesite section.

### 11.3 Electronic Inventory Requirements:

The Contractor shall provide Microsoft Access 2010 database and a report form in Microsoft Excel 2010 of interment databases of headstones, markers, and niches and cemetery hard points with linked photographs. Each headstone, flat marker, and section monuments will be a record in Excel and Access database with pictures displaying within that record in a form. The electronic inventory shall include fields for all feature attributes collected. The Government reserves the right to change data schemas and attributes requirement as necessary, submit draft format for approval. Minimum attribute data includes:



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- 11.3.1 The Primary Key (a unique number that is a composite of Cemetery Station number, section number, and grave number). The BOSS database Interment ID provides the grave number.
- 11.3.2 Burial Section Number
- 11.3.3 Row Number (if used by the cemetery)
- 11.3.4 Gravesite or Niche Number
- 11.3.5 Marker type
- 11.3.6 Latitude
- 11.3.7 Longitude
- 11.3.8 Elevation
- 11.3.9 First Name (Veteran)
- 11.3.10 Last Name (Veteran)
- 11.3.11 Name suffix (Jr., III, etc.) (Veteran)
- 11.3.12 First Name (Spouse/Dependent)
- 11.3.13 Last Name (Spouse/Dependent)
- 11.3.14 Name suffix (Jr., III, etc.) (Spouse/Dependent)
- 11.3.15 Feature and location description for hard points
- 11.3.16 Digital photographs of front and back of headstone or top of flat marker/niche cover clearly depicting all inscribed data
- 11.3.17 Burial type (i.e. casket, in ground cremain, columbarium niche, memorial, etc.) – Will remain Null
- 11.3.18 Burial size (i.e. 3X8, 3X3, 5X10, etc.) – Will remain Null
- 11.4 Field Inscription & BOSS Data Cross Referencing:

The Contractor shall cross reference field collected data against the Government provided BOSS interment record database to identify any discrepancies. The Government will provide the Contractor an electronic file containing BOSS database records. The Contractor shall provide summary discrepancy findings in an electronic report format. The reports shall identify discrepancies such as, but not limited to, first name differences, last name differences, middle name or suffix differences, records in BOSS not found in field, headstones/markers in field not found in BOSS, etc. Refer to Appendix A for required cross checking categories and formatting of the required discrepancies reports.
- 11.5 Deliverables:

The following are the required contractor deliverables for Preparation of maps, data and reports:

  - 10.5.1 Geographic Information System (GIS) shapefile
  - 10.5.2 Up-to-date Geographic gravesite layout map in AutoCAD Format
  - 10.5.3 Geodatabase (.gdb) format
  - 10.5.4 ArcGIS map documents (.mxd) per cemetery
  - 10.5.5 Gravesite Data Collection Files in MS Excel and MS Access

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10.5.6 GPS horizontal and vertical spatial location and feature attribute data

10.5.7 BOSS Discrepancy Reports – Appendix A

### 12. PROJECT MANAGEMENT

The contractor shall provide project management being responsible meeting the requirements of the SOW, for managing and overseeing the activities of all personnel to ensure performance requirements are met. Also the providing and adhering to the following:

#### 12.1 Key Personnel

The Contractor shall be responsible for managing and overseeing the activities of all contractor personnel, as well as, subcontractor efforts used in performance of this contract. Contractor management responsibilities shall include all activities necessary to ensure the accomplishment of all tasks and deliverable requirements contained in this SOW. Contractor personnel shall have the level of experience necessary to accomplish the requirements of this SOW. A list of the key personnel, position title, and responsibility shall be identified. Any changes to Key personnel must be identified to the Government. Replacement personnel must be identified to the Government once selected and ready to perform. The contractor shall determine if the personnel change will cause a degrade and/or stoppage of work and will notify the Government within 1 day of determination.

#### 12.2 Quality Assurance Plan:

The Contractor Quality Assurance Plan shall include all activities necessary to ensure the accomplishment of all tasks and deliverable requirements contained in this SOW. The Plan shall also encompass, but not limited to, performance standards, schedule, verification/certification and accuracy, partners/joint venture, and discrepancy determination and resolution in performance, schedule, status, certifications, and reporting. Also, the plan shall contain an explanation of the management approach and an organizational chart showing the inter-relationship of management and team components and shall discuss specific quality control processes and procedures proposed for this contract. If supplemental resources are needed, identify how the resources will be obtained through partnering or teaming. Specify the percentage of work on each project performed by each partner, if the project is a joint venture.

#### 12.3 Schedule

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The Contractor shall deliver a Microsoft Project file of the Gantt chart that lays out the Contractor's approach, timeline and tools to be used in execution of each cemetery to be surveyed. The chart shall display the schedule (with start and finish calendar dates), milestones, risks and resource support. The contractor shall provide a revised Gantt chart incorporating any revisions.

### 12.4 Status Reporting

The Contractor shall provide Weekly Progress Reports (see attached sample report format at Attachment B): The contractor shall address the following: Work Accomplished, Work Planned, Percentage Complete (based on Headstones surveyed), Issues Encountered/Concerns.

### 12.5 Certification Letter:

The contractor shall provide a certification letter from the Licensed/Registered Surveyor that accomplished the work certifying that all of the data contained within the final reports is 100% accurate. Certification letter must be stamped with the Licensed/Registered Surveyor's professional embossed seal.

Note: All survey work required in this contract shall be performed by and/or completed under the management and supervision of a Licensed/Registered Professional Land Surveyor who oversees the survey team. The surveyor is not required to be present for all on-site work.

### 12.6 Deliverables:

The following are the required contractor deliverables for project management:

- 12.6.1 Key Personnel List
- 12.6.2 Revised Key Personnel List
- 12.6.3 Quality Assurance Plan
- 12.6.4 Schedule including Microsoft Project file of the Gantt Chart
- 12.6.5 Revised schedule including Microsoft Project file of the Gantt Chart
- 12.6.6 Weekly Progress Reports
- 12.6.7 Certification Letter

## 13. **CONVERSION OF AUTOCAD DRAWINGS:**

The Contractor shall convert existing gravesite layout drawings provided by the Government to geographic format using: remote sensing, geo-referencing, GPS reference surveys, or other geospatially accurate methods. In addition to geographic conversion of existing AutoCAD drawings, the Contractor is responsible for updating CAD drawings to reflect current as-built conditions in the field. The Contractor shall verify field conditions and reconcile inconsistencies in

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the drawings. The Contractor shall ensure the drawings are geographically accurate in compliance with National Standard for Spatial Data Accuracy (NSSDA). The final deliverable will be 1) updated gravesite layout map in AutoCAD Map 3D 2015 format with WGS 84 US Feet and 2) AutoCAD to GIS converted data in ArcGIS Geodatabase format in WGS 84 assigned coordinate system displayed in feet in compliance with Federal data standards. The Contractor must meet the following requirements:

- 13.1 Government provided AutoCAD non-polygon/non-numbered cemetery basemap gravesite drawings are to be converted into geospatially oriented ESRI ArcGIS geodatabase (.gdb) cemetery basemap gravesite drawings with polygon gravesites with the correct gravesite numbers labeled and embedded into each polygon gravesite or niche. The Government will provide GIS data standards and layer crosswalk for CAD to GIS conversion.
- 13.2 All polygon numbered gravesites are to be correctly geospatially oriented to real world x/y accurate coordinates representing the actual real world geospatial location of the cemetery gravesites or niches.
- 13.3 All gravesite polygons are to be linked to the VA provided gravesite BOSS record data so that when user selects (clicks on) the polygon gravesite, the associated BOSS grave record data is displayed.
- 13.4 Headstones, markers, and niche covers are to be visually displayed as GPS points on new ArcGIS burial section drawing so that when user selects (clicks on) the GPS point, the field collected headstone/marker inscription data will be displayed along with the associated photographs for that item.
- 13.5 Final ArcGIS drawings showing burial sections with geospatially oriented embedded polygon gravesites, cross referenced BOSS data, embedded GPS headstone/marker points, and cross referenced field inscription data and photographs shall be provided in electronic CD/DVD format.
- 13.6 Deliverables:  
The following are the required contractor deliverables for conversion of AutoCAD drawings:
  - 13.6.1 CD/DVD of Updated Gravesite Layout Drawing in Geographic Format

**14. SCHEDULE FOR DELIVERABLES**

Days used in the table below refer to calendar days unless otherwise stated. Deliverables with due dates falling on a weekend or holiday shall be submitted the following government work day after the weekend or holiday. All items will be delivered to the NCA Chief, Cemetery Development & Improvement Service, 575 N. Pennsylvania Street, Suite 495, Indianapolis, IN 46204. Acceptable formats are provided in the paragraph below.

**14.1 Table**

TASK	SUB-TASK	DELIVERABLE DESCRIPTION	QUANTITY	DUE DATE
10		SITE SURVEY		
	10.10.1	Proof of License/Registration of the Professional Surveyor	1 per surveyor	Due within 10 business days following award
	10.10.2	Permanent Survey Markers Installed	1 Lot	Due within six months after Notice To Proceed is issued
	10.10.3	Map of Survey Markers Installed	1 per cemetery	Due within six months after Notice To Proceed is issued
TASK	SUB-TASK	DELIVERABLE DESCRIPTION	QUANTITY/ UNIT OF ISSUE	DUE DATE
	10.10.4	Photographs of headstones, (front and back), markers and niche covers	1 Lot	Due within six months after Notice To Proceed is issued
11		PREPARATION OF MAPS, DATA AND REPORTS		
	11.5.1	GIS shapefile data	1 Lot	Due within six months after Notice To Proceed is issued

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	11.5.2	Up-to-date Gravesite Layout map in AutoCAD format	1 per cemetery	Due within six months after Notice To Proceed is issued
	11.5.3	Geodatabase format	1 per cemetery	Due within six months after Notice To Proceed is issued
	11.5.4	ArcGIS map documents	1 per cemetery	Due within six months after Notice To Proceed is issued
	11.5.5	Gravesite Data Collection Files in MS Excel and MS Access	1 per cemetery	Due within six months after Notice To Proceed is issued
	11.5.6	GPS horizontal and vertical spatial location and feature attribute data	1 per cemetery	Due within six months after Notice To Proceed is issued
	11.5.7	BOSS Discrepancy Reports	1 each	Due within six months after Notice To Proceed is issued
TASK	SUB-TASK	DELIVERABLE DESCRIPTION	QUANTITY	DUE DATE
12		<b>PROJECT MANAGEMENT</b>		
	12.6.1	Key Personnel list	1 per cemetery	Included in proposal and /or Task Order Due within 10 business days following award  (provide copy to each COR per cemetery)

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	12.6.2	Revised Key Personnel list	1 per cemetery	Due within 5 business days following change (provide copy to each COR per cemetery)
	12.6.3	Quality Assurance Plan	1 per contract	Included in proposal (provide copy to each COR per cemetery)
	12.6.4	Gantt chart	1 per cemetery	Included in proposal and Task Order. Due within 10 business days following Task Order award
	12.6.5	Revised Gantt chart	1 per cemetery	Due within 2 business days following any revision
	12.6.6	Weekly Progress Reports	1 per cemetery	Due by COB Friday of each week
	12.6.7	Certification Letter	1 per cemetery	Due within six months after Notice To Proceed is issued
TASK	SUB-TASK	DELIVERABLE DESCRIPTION	QUANTITY	DUE DATE
13		CONVERSION OF AUTOCAD DRAWINGS		
	13.6.1	CD/DVD of Updated Gravesite Layout Map in Geographic Format	1 CD/DVD per cemetery	Due six months after Notice to Proceed or within 45 additional calendar days beyond the original six months duration period.

**15. METHOD AND DISTRIBUTION OF DELIVERABLES**

The Contractor shall deliver documentation in electronic format, unless otherwise directed in Section B of the solicitation/contract. Acceptable electronic media include: MS Word 2010, MS Excel 2010, MS PowerPoint 2010, MS Project 2010, MS Access 2010, MS Visio 2010, AutoCAD 2015, and Adobe Postscript Data Format (PDF). Newer versions of these document types may be requested to ensure compatibility with current software versions in use in VA.

15.1 Electronic data in CD/DVD media:

- 15.1 AutoCAD Map 3D 2015 drawing (.dwg) files reflecting current as-built conditions in WGS 84 US Feet coordinate system assigned.
- 15.2 ESRI Map Documents (.mxd) and Geodatabases with linked photographs.
- 15.3 Basemap GIS layers in Shapefile and Geodatabase with attributes in WGS 84 Coordinate System displaying latitude and longitude information.
- 15.4 Headstone and Marker/Niche Cover Shapefiles and Geodatabases w/attributes in WGS 84 Latitude and Longitude coordinate system. Photographs for each headstone, marker, or niche cover shall be linked to a record in the final GIS data deliverable.
- 15.5 Metadata of surveying techniques and data collection methods in Federal Geographic Data Committee (FGDC) metadata format
- 15.6 Raw survey data in industry standard (i.e. ASCII, RINEX, etc.)
- 15.7 Microsoft Access 2010 database with photographs of graves in the report
- 15.8 Microsoft Excel 2010 report with photographs of graves hyperlinked
- 15.9 Discrepancies reports per Appendix A.
- 15.10 Microsoft Project Gantt Chart of project schedule in MS Project 2010

Unless otherwise stated, deliverables are due to the COR identified in each task order in the timeframe stated in the deliverable table. Provide all deliverables via electronic transmission in final format to the COR in accordance with the table of deliverables.

If for any reason the scheduled time for a deliverable cannot be met, the Contractor is required to provide explanation (include the original deliverable due date) in writing to the CO, including a firm commitment as to when the work shall be completed. This notice to the CO shall cite the reasons for the delay, and the impact on the overall project. The CO will then review the facts and issue a response in accordance with applicable regulations.

In the establishment and development of the deliverables, the Contractor shall reference and adhere to the policies contained in VA Directive 6102, Internet/Intranet Services. The VA Handbook 6102 is located at:  
[http://www1.va.gov/vapubs/viewPublication.asp?Pub\\_ID=410&FTYPE=2](http://www1.va.gov/vapubs/viewPublication.asp?Pub_ID=410&FTYPE=2)



**16. CONTRACT ADMINISTRATION**

COR and Cemetery Director will be identified on each task order. The COR will provide Quality Assurance oversight to ensure contract work is being performed accurately and on schedule.

The COR will provide onsite support in relation to known field anomalies with respect to unreadable headstones, unique headstones, etc. The Cemetery Director will provide any available burial section mapping information to contractor prior to start of field inventory. The Contractor shall perform all on-site activities with respect and dignity for cemetery visitors and funeral operations. Work may need to be temporarily suspended or shifted to other areas due to occasional active burial operations.

**17. SPECIAL REQUIREMENT**

Every action by contractor personnel at a national cemetery must be performed with the special care, reverence, dignity, and respect that acknowledge the cemetery as the final resting place that commemorates the service and sacrifice that service members, veterans and their families made for our nation. Critically important is the awareness required of the contractor employees of the remains buried in the grounds where the work is performed. The utmost care must be given to these remains and the headstones and flat grave markers that mark those gravesites and memorialize the service of individuals.

Contractors cannot walk, stand, lean, sit or jump on headstones or markers. Nor can they drive over them.

Any doubts as to proper procedures shall be brought to the attention of the COR, director/assistant director, or CO for guidance or resolution. The contractor is required to discuss the guidance with this contractor employees and have each employee sign a statement of compliance and deliver the signed statement to the COR before work may begin.

**18. GOVERNMENT FURNISHED PROPERTY**

The Government will provide electronic copies of burial register reports, handout maps and AutoCAD burial section drawings as available. The Government will not provide imagery or other GIS vector data sources.

ATTACHMENT A- DISCREPANCY REPORTS & FORMAT

Provide separate comparison tables for the following categories;

- FIELD LOCATED HEADSTONES NOT FOUND IN BOSS DATABASE AND BOSS DATABASE RECORDS NOT FOUND IN FIELD

-The following table is a comparison between the headstone inscription (left side) vs the NCA provided BOSS gravesite data (right side)

- NAME COMPARISON WITH MULTIPLE DISCREPANCIES

The following table is a comparison between the Veterans and/or Spouse/Dependent headstone inscription (left side) vs the NCA provided BOSS gravesite data (right side)

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### - FIRST NAME COMPARISON DISCREPANCIES

The following table is a comparison between the Veterans and/or Spouse/Dependent first name inscription (left side) vs the NCA provided BOSS gravesite data (right side)

### - MIDDLE NAME COMPARISON DISCREPANCIES

The following table is a comparison between the Veterans and/or Spouse/Dependent middle name inscription (left side) vs the NCA provided BOSS gravesite data (right side)

### - LAST NAME COMPARISON DISCREPANCIES

The following table is a comparison between the Veterans and/or Spouse/Dependent last name inscription (left side) vs the NCA provided BOSS gravesite data (right side)

### - NAME SUFFIX COMPARISON DISCREPANCIES

The following table is a comparison between the Veterans and/or Spouse/Dependent name suffix inscription (left side) vs the NCA provided BOSS gravesite data (right side)

(SEE TYPICAL DISCREPANCY COMPARISON TABLE FORMAT BELOW)

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1 HEADSTONE INSCRIPTION NCA GRAVESITE DATA

2 Last Name First Name Middle Name Suffix Section Site Last Name First Name Middle Name Suffix

3 ALLEN L D JR 166 1299 ALLEN L D JR

4 ATWOOD DOUGLAS WORTH 171 650 ATWOOD WORTH DOUGLAS

5 B WENDELL 170 664 MITCHELL WENDELL B

6 BAGGETT LOU ELLA 78 697 BAGGETT LOU ELLA

7 BELL WINDELL D 12 719 BELL WINDEL D

8 BERRY L RANDY JR 29 386 BERRY LYLIAN RANDY JR

9 BARRON JOE 67 92 BARRON NATHAN J

10 BARTON H KENT 71A 141 BARTON HUGHIE K

11 BAUMGARDNER WILLIE L 160 97 BAUMGARDNER CARL EDWARD

12 BLAKEY O J 29 847 BLAKEY O J

13 BRECKMAN EMIL K JR 170 725 BRECKMAN EMIL KEMP

14 BRANNEN C A JR 41E 931 BRANNEN CARL ANDREW JR

15 BRIGHAM A J 67 1601 BRIGHAM A J

16 BROCKINGTON P M 29 851 BROCKINGTON P M

17 BUCHANAN JO ANN 61B 804 BUCHANAN JO ANN

18 BUCHANAN M H JOE 62 733 BUCHANAN MURDOCH H

19 CAMPBELL H P 142 983 CAMPBELL H P

20 CARSON JO ANN 68 559 CARSON JOANN

21 CHAMBLEE L E 72 361 CHAMBLEE L E

22 CLEM C LORRAINE 61 822 CLEM CECILE L

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HEADSTONE INSCRIPTION						NCA GRAVESITE DATA			
Last Name	First Name	Middle Name	Suffix	Section	Site	Last Name	First Name	Middle Name	Suffix
BELL	DORETTA				12 134	DAVIS	DORETTA		
CHITTY	RONNIE	W			14 123	CHITTY	RONNIE	W	
DAMBOISE	JEAN	A			22 118	D'AMBOISE	JEAN	A	
DRAPER	LIZZIE				110 1440	SILLEMONT	LIZZIE		
DUNN	JONELL				29 241	GHISM-DUNN	JONELL		
EDINGTON	HELEN	M			95 90	PIERCE-EDINGTON	HELEN	M	
EVANS ADAN	FRANK	R			13 299	EVANS	FRANK	R	
FIRENG	MILDRED	L			19 357	SMITH	MILDRED	L	
GHSTON	BURDIA	MAE			77 151	GHSTON	BURDIA	MAE	
GOTTSCACK	MARY	C			66 36	GOTTSCACK	MARY	C	
GRAVES	TYINIECIA	T			20 166	MAYFIELD-GRAVES	TYINIECIA	T	
GUILLORY	BEVERLY	D			9 43	GUILLORY	BEVERLY	D	
HAYES	WANDA	N			8 114	CASEY	WANDA	N	
HENDERSON	EMMA	B			29 705	SHELBY	EMMA	B	
JACKSON	CLEO	H			14 560	MORRIS	CLEO	H	
JAMES	NETTIE				28 371	BROOKS	NETTIE		
JAMES	TAHLIE				17 173	COLLINS	TAHLIE		
JOINER	MELODY				15 184	JOHNSON-JOINER	MELODY		
KEMP	ROSIE	L			81 770	WOODALL	ROSIE	L	
KERSHAW	VICKI	A			14 56	LARSON-KERSHAW	VICKI	A	
LONG	WILMA	M			3 198	REEVES	WILMA	M	

### ATTACHMENT B

(SAMPLE FORMAT)

### WEEKLY PROGRESS REPORT

Date Submitted:

Current Cemetery:

CEMETERY	TOTAL GRAVESITES	HEADSTONES PHOTOGRAPHED		HEADSTONES SURVEYED	
		Photographed	% Complete	Surveyed	% Complete
Chattanooga National Cemetery	46,042				
Nashville National	34,936				

# GPS / GIS Location Project

Cemetery					
Fayetteville National Cemetery (Historic Sections)	6,465				
Total	87,443				

## COMMENTS: